APPLICATION FOR: GPA-2024-0003, Z-S-2025-0003, SP-S-2025-0002, PD-S-2025-0003, AND TT-2025-0002

Addendum No. 1 to the EIR
For the Lost Canyons Specific Plan Project

Prepared for

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1.0 INTRODUCTION

1.1 BACKGROUND

The Whiteface Specific Plan was originally adopted by the City of Simi Valley in 1992. Between 1992 and 2010, the Whiteface Specific Plan was amended five times. On February 14, 2011, the Simi Valley City Council certified the Final Environmental Impact Report (e.g., the "2011 EIR") for Amendment No. 6 to the Whiteface Specific Plan, which was prepared to evaluate the Lost Canyons Project (the Approved Project). As a part of adopting the Approved Project, the City adopted general plan amendments and amended the Whiteface Specific Plan (GPA-77/SP-S-13 AMD #6/Z-S-634). The Applicant subsequently requested approval of Tentative Tract Map TTM 5734 and a Planned Development Permit (PD-S-1021), which was Amendment No. 7. Overall, as amended by Whiteface Specific Plan Amendment No. 7 and the Lost Canyons Project (the "Approved Project"), the Whiteface Specific Plan allows for a maximum of 364 dwelling units within the boundaries of the Whiteface Specific Plan.

In their certification and adoption of the 2011 EIR, the Simi Valley City Council determined that the 2011 EIR was complete and was prepared in compliance with the California Environmental Quality Act (CEQA) (Public Resources Code [PRC], Section 21000 et seq.).

The 2011 EIR determined that the Project would result in significant unavoidable impacts related to air quality and greenhouse gas emissions.

In 2025, NPLC Lost Canyons, LLC applied to amend the Whiteface Specific Plan and other project documents for an eighth time (Amendment No. 8) to allow for the transfer of 180 of the 364 approved dwelling units that are allowed within the Whiteface Specific Plan boundaries pursuant to the Approved Project. The 180 units would be transferred from the southern portions of Dry and Tapo Canyons as previously proposed with the Approved Project. Instead, the Proposed Project would create a development that would occur mostly within the limits of the former golf course that is located north of Lost Canyon Drive, along with other associated activities. This action is referred to herein as the "Proposed Project". Additional details on the Proposed Project are provided in the Project Description in Section 1.3.

1.2 REGULATORY GUIDANCE

State CEQA Guidelines Section 15162(a) provides that when an EIR has been certified for a project, no subsequent EIR shall be prepared for that project unless the Lead Agency determines, on the basis of substantial evidence in the light of the whole record, that one or more of the following circumstances exist:

A. When an EIR has been certified or a negative declaration adopted for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:

(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:

(a) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;

(b) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

(c) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

(d) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

State CEQA Guidelines Section 15163 provides that a Lead Agency can prepare a supplement to an EIR rather than a subsequent EIR if a subsequent EIR pursuant to Section 15162 is required and only minor additions or changes are needed to make the previous EIR adequate to address the changed situation.

State CEQA Guidelines Section 15164 provides that the Lead Agency may prepare an Addendum to a certified EIR if none of the conditions described in Section 15162 have occurred. A brief explanation of the decision not to prepare a subsequent EIR pursuant to Section 15162 must be included in the addendum, Lead Agency's findings on the project, or elsewhere in the record. The explanation must be supported by substantial evidence.

1.3 ENVIRONMENTAL REVIEW PROCESS

Pursuant to State CEQA Guidelines Section 15162(a), the City has reviewed the Project and associated Specific Plan Amendments, as well as the 2011 EIR to determine:

1. The extent to which the potential impacts from the Proposed Project and associated entitlements have been addressed by the previously certified EIR for Amendment 6 to the Whiteface Specific Plan;

2. Whether the Proposed Project and associated entitlements create any new significant or more severe environmental impacts;

3. Whether new circumstances or new information create new significant or more severe impacts or require new analysis, and

4. Whether any identified new significant or more severe impacts are adequately addressed by previously approved mitigation measures.

The City has determined that the Project would have similar or reduced environmental impacts from those described in the certified EIR. There are no new significant environmental impacts or previously identified significant impacts made more severe by changes in the Project, new circumstances, and/or new information. Therefore, the City has determined that a subsequent EIR is not required pursuant to State CEQA Guidelines Section 15162. Rather, the City has determined that an EIR addendum should be prepared as the appropriate CEQA document to address the Project in accordance with State CEQA Guidelines Section 15164.

State CEQA Guidelines Section 15164(c) provides that an EIR addendum need not be circulated for public review.

2.0 PROJECT DESCRIPTION AND SETTING

2.1 PROJECT LOCATION

The Project Site consists of approximately 1,770 acres of land in the City of Simi Valley within Ventura County, California. The Project Site is located within an area of the City that is covered by the Whiteface Specific Plan. The overall Whiteface Specific Plan covers a total of approximately 2,686 acres.

The Project Site is characterized by rolling to semi-steep hills with a predominant ridgeline running northwest to southeast and intermittent drainage courses, generally running north to south. Elevations in the Project Site range from approximately 1,225 feet near the southeast to approximately 1,500 feet near the northwest with slopes ranging on average from approximately 15% to 40%.

A closed golf course, once known as Shadow Canyon Golf Course, occupies much of the Project Site with greens, cart paths and a (dry) pond still visible. Structures and amenities, including a golf club parking lot, that were located near the southwest portion of the Project Site have been demolished.

2.2 EXISTING CONDITIONS

Existing uses on the Project Site include two graded 18-hole golf courses, a clubhouse, and associated facilities such as a cart barn, driving range, parking lot, and open space, which is permanently closed.

According to the Land Use Map contained in the Simi Valley General Plan, the parcels in the Project Site are designated as the following land uses: Open Space, Residential Estate, Residential Low, Residential Medium, and Recreation Commercial.

2.3 PROPOSED PROJECT

The Proposed Project consists of the transfer of 180 dwelling units permitted within the Whiteface Specific Plan boundaries from the southern portion of the specific plan area to the northern portion of the specific plan area. Specifically, the 180 units would be relocated from the southern areas within Dry Canyon and Tapo Canyon to areas north of Lost Canyons Drive.

Overall, the Proposed Project would result in a total of 364 residential lots, including 362 lots north of Lost Canyons Drive and two estate lots located south of Lost Canyons Drive, including one in Dry Canyon and one in Tapo Canyon , both of which would be accessible from existing easements. Instead of spreading the 364 units throughout a wider footprint in the Whiteface Specific Plan as was originally approved with the Approved Project, the Proposed Project would cluster 362 of the 364 units within the northern area of the Whiteface Specific Plan where the Shadow Canyon Golf Course previously operated.

Also, the Proposed Project would not include the development of a new golf course, a clubhouse, or a private park as was approved with the Approved Project. Instead, the Proposed Project proposes to provide recreational amenities including a private recreation building for residents of the development as well as public recreational trails through the southern portion of the Project Site and public recreational trails on the golf course trails that exist within portions of the northern portion of the Project Site.

The Proposed Project would retain the Residential Estate (RE) zoning designation on four areas in the Specific Plan boundaries that currently have this designation, and the Applicant proposes a maximum of sixteen residential estate lots that could be developed within these areas of the specific plan. Minimum lot sizes for RE lots are a minimum of 20 acres. The evaluation herein of biological resources and other resource topics does not account for any future development within these RE zoned areas given there are currently no plans for site-specific development in these areas. As such, the analyses herein assume that RE zoned areas are not disturbed or impacted by development. It should be noted that the CEQA documentation for the Whiteface Specific Plan as well as for the Approved Project evaluated the environmental effects of up to 1,211 residential units in the specific plan boundaries. The Proposed Project would result in 364 units in addition to the 847 units that were allowed to be built in Sand Canyon/Big Sky Ranch area of the specific plan boundaries, of which approximately 738 residential units have been built to date.

The Proposed Project would include the following approvals:

- A General Plan Amendment (GPA);
- A Zone Change;
- A Specific Plan Amendment (SPA);
- A Planned Development Permit (PDP) Modification; and
- A Tentative Map.
- A Streambed Alteration Agreement from the CDFW;
- A Water Quality Certification or Report of Waste Discharge Requirements from the Regional Water Quality Control Board; and
- A Biological Opinion from the USFWS.

3.0 ENVIRONMENTAL CHECKLIST

This EIR Addendum evaluates whether any of the conditions requiring preparation of a Subsequent Environmental Impact Report (EIR), pursuant to Section 15162 of the State CEQA Guidelines, are met, and whether there are new significant impacts resulting from the Project, as compared to the impacts previously approved and analyzed in the 2011 EIR. As previously identified in Section 1.0, Introduction, of this Addendum, between 1992 and 2010, the Whiteface Specific Plan was amended five times. On February 14, 2011, the Simi Valley City Council certified the Final EIR for Amendment 6 to the Whiteface Specific Plan, which was prepared for the Lost Canyons Project. The analysis contained within this EIR Addendum relies upon and incorporates by reference the said Final EIR (i.e., the 2011 EIR). This EIR Addendum uses Appendix G of the Environmental Checklist Form, pursuant to 15063(d)(3) of the State CEQA Guidelines, that compares the anticipated environmental effects of the Project with those addressed in the 2011 EIR.

For each topical issue, summaries of the environmental analysis conclusions from the 2011 EIR are provided along with mitigation measures, as applicable. Following the summary of the 2011 EIR, the analysis for the Project is presented.

This document is an Addendum to the adopted 2011 EIR and demonstrates that there are no changes to the previous information or analysis or changes in circumstances that would substantially increase significant environmental impacts or create any new significant impacts. This EIR Addendum demonstrates that no new information of substantial importance has been identified that shows the Project would have one or more significant effects not discussed in the 2011 EIR. Additionally, this EIR Addendum demonstrates that no new mitigation measures are required beyond the mitigation measures that were previously identified in the 2011 EIR as well as the measures and conditions that are contained in the Project's regulatory permits from CDFW, USWS, USACE, and the RWQCB.

3.1 AESTHETICS

3.1.1 2011 EIR

As described in the 2011 EIR, the Project Site's topography is defined by two prominent canyons—Dry Canyon and Tapo Canyon—and their associated ridgelines and drainage channels. Elevations range from approximately 1,200 feet above sea level in the southern portion of the site to over 2,200 feet in the northern portion. The higher elevations are visible from various locations throughout Simi Valley.

Scenic Vistas

The 2011 EIR disclosed that the Approved Project would alter views from certain off-site public vantage points. These locations currently enjoy relatively unobstructed views of natural open space, including hillsides, ridgelines, and canyons within the Project Site. With implementation of the Approved Project, partial views of residential development would replace portions of these natural vistas. Additionally, short-term visual impacts were identified, including views of grading and construction activities.

To minimize visual impacts, the Approved Project was designed to concentrate development in canyon bottoms and lower elevations, preserving higher elevations as open space. The 2011 EIR concluded that the Approved Project would not substantially alter off-site views of the Whiteface Escarpment or other visual features such as the ridgelines of Dry and Tapo Canyons and smaller ridgelines within their drainage areas. Compliance with the City's Hillside Performance Standards (HPS) was required to further reduce aesthetic impacts. The 2011 EIR determined that, with implementation of mitigation measures 4.1-1 through 4.1-6, the Approved Project would result in less than significant impacts to scenic vistas.

As required by mitigation measure 4.1-1, prior to issuance of a Zoning Clearance for grading, the applicant must submit a Landscape Plan, specifications, and a separate Maintenance Plan. These plans must align with the conditions of approval and the adopted Mitigation Monitoring and Reporting Program, incorporating recommendations from the biological resources mitigation program and Fire Hazard Reduction Program. The plans must be reviewed by the City Landscape Architect or consultant and approved by the Environmental Services Director.

As required by mitigation measure 4.1-2, before approval of any final tract maps, a detailed landscape plan for the applicable development phase must be reviewed and approved by the City's Environmental Services Department. The plan must be prepared and certified by a restoration ecologist or licensed landscape architect with expertise in native plant materials and habitat restoration.

As required by mitigation measure 4.1-3, to minimize grading impacts, all manufactured slopes must be landscaped with shallow-rooted, soil-binding plants within three months of grading completion. Topsoil should be reused, and slopes stabilized with non-toxic materials. Irrigation systems must be UV-resistant and designed for reclaimed water use. Initial revegetation must use a hydro-seed mix of fast-growing annual grasses and summer-flowering forbs.

As required by mitigation measure 4.1-4, all concrete structures in natural areas—such as drainage ditches, detention basins, rip-rap, crib walls, swales, or curbs—must be constructed using colored concrete to blend with the surrounding terrain.

As required by mitigation measure 4.1-5, the Specific Plan includes design guidelines for architectural styles, building materials, and colors that harmonize with the surrounding landscape. Exterior building and roofing materials must appear natural, and bright or contrasting colors are prohibited.

As required by mitigation measure 4.1-6, to minimize changes to the site's visual character, tree screens must be placed along the southern perimeter of the Specific Plan area to obscure views of structures above ridgelines. Trees must reflect the character of the area or its historic context and be of sufficient size at maturity to screen the proposed structures.

With implementation of mitigation measures 4.1-1 through 4.1-6, the 2011 EIR determined that the Approved Project would result in less than significant impacts related to scenic vistas.

Scenic Resources

The 2011 EIR found that the Approved Project would generally limit grading to low-lying areas within the on-site canyons, preserving higher elevations and steep slopes as undeveloped open space. This includes the Whiteface Escarpment portion of Big Mountain within the Project Site.

The EIR also identified the presence of 683 protected trees on the Project Site, in accordance with the City of Simi Valley Development Code. These included 208 coast live oaks and 14 valley oaks. Of these, 366 trees were identified for removal or direct impact due to the Approved Project, while 317 trees would remain unaffected. Thus, 46 percent of the inventoried trees would be preserved.

Although the removal of protected trees was considered a potentially significant impact, the EIR concluded that with implementation of mitigation measures 4.3-30 through 4.3-47—focused on replacement tree planting—and adherence to Development Code requirements, the impacts would be reduced to less than significant.

Visual Character

The 2011 EIR disclosed that the Approved Project would result in temporary impacts to visual character due to views of active construction from adjacent residential areas. Long-term changes to visual character were also identified, stemming from the introduction of residential development into a previously undeveloped landscape.

However, the EIR concluded that these impacts would be less than significant, due to several design features:

- Use of native vegetation along development edges.

- Preservation of higher-elevation open space, which remains visible from off-site.
- The Approved Project's low-density and estate-density residential uses were found to be visually compatible with surrounding neighborhoods.

Also, the Approved Project would be required to implement the Citywide and Residential Design Guidelines adopted by Simi Valley, which promote architectural excellence and community identity through:

- Site-sensitive design.
- Use of natural materials and subdued colors.
- Integration of landscaping to soften visual transitions.

Light and Glare

The 2011 EIR found that the Approved Project would introduce new lighting sources typical of urban development, including: vehicle headlights; streetlights; fixed outdoor lighting; and reflective building materials contributing to daytime glare. These impacts were determined to be less than significant with implementation of mitigation measures 4.1-7 and 4.1-8.

As required by mitigation measure 4.1-7, prior to issuance of a Zoning Clearance, the applicant must submit a lighting plan to the Departments of Environmental Services and Public Works. The plan must be prepared by a qualified lighting consultant and comply with City standards, including:

- Maximum 0.5 foot-candle for light spill at property lines.
- Maximum 1.0 foot-candle for glare from streetlamps.
- Use of shielded, full cut-off fixtures to minimize skyglow and light trespass.

As required by mitigation measure 4.1-8, upon installation, all street lighting fixtures must be tested by factory-trained technicians to ensure compliance with glare and spill thresholds. Testing must confirm that lighting does not exceed the specified foot-candle levels at adjacent property boundaries.

Mitigation Program

- 4.1-1. Prior to the issuance of a Zoning Clearance for grading, the applicant shall submit a Landscape Plan, together with specifications and a separate Maintenance Plan. The Landscape Plan shall encompass all areas required to be planted consistent with the conditions of approval and the adopted Mitigation Monitoring and Reporting Program and shall incorporate the recommendations of the biological resources mitigation program and Fire Hazard Reduction Program. The Landscape Plan shall be reviewed by the City of Simi Valley Landscape Architect and/or consultant and approved by the Environmental Services Director prior to Zoning Clearance for grading permit, or first Tract Map approval, whichever occurs first.

- 4.1-2. Prior to the approval of any final tract maps, a detailed landscape plan for the applicable development phase shall be reviewed and approved by the City of Simi Valley Environmental Services Department. The plan shall be prepared and certified by a restoration ecologist or licensed landscape architect with expertise in native plant materials and habitat restoration.
- 4.1-3. To minimize the effects of grading, all manufactured slopes shall be landscaped, planted with shallow rooted soil binding plants as soon as possible (within three months) after completion of grading. Graded slopes should reuse topsoil and be planted and stabilized with non-toxic stabilizers in compliance with City-approved landscape, irrigation, and maintenance requirements. The irrigation system shall be UV-resistant, on-grade "purple pipe," or equivalent based on the anticipation of the use of reclaimed water for the Project Site. The hydro-seed mix used in initial revegetation efforts shall consist of a mix of fast-growing annual grasses and summer flowering forbs.
- 4.1-4. All concrete structures, such as drainage ditches, detention basins, riprap, crib walls, swales, or curbs, located in natural areas shall be constructed with colored concrete to blend with the surrounding terrain.
- 4.1-5. The Specific Plan has design guidelines that establish architectural styles and elements shall detail exterior elevation designs, building materials, and colors for the proposed houses that fit in with the surrounding landscape; further described in detail in the Specific Plan Design Guidelines Section 4.0 Architecture. Exterior building and roofing materials shall be natural in appearance; bright or contrasting colors shall not be used.
- 4.1-6. To minimize the change in the visual character of the site, tree screens shall be placed along the southern perimeter of the Specific Plan area to limit views of the structures observable above ridgelines within the Specific Plan area. Trees shall be consistent with the character of the area or the historic character of the site. At maturity, the trees shall be of a sufficient size to screen the proposed structures. Initial plantings shall be no less than 15-gallon cans.
- 4.1-7. Prior to issuance of a Zoning Clearance, a lighting plan shall be submitted to the City of Simi Valley Department of Environmental Services and Department of Public Works. The plan shall be prepared by a lighting consultant and incorporate recommended guidelines (0.5 foot-candle [the minimum parking lot security level] as a threshold for spill and the minimum streetlamp glare level of 1.0 footcandle).
- 4.1-8. When installed, test and adjust all street lighting fixtures to ensure that light levels do not exceed 1.0 foot-candle of glare and 0.5 footcandle (or other lighting standards or guidelines) of spill at the property lines. Testing of street lighting fixtures shall be conducted by factory-trained and employed technicians only.

3.1.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
AESTHETICS – Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☑
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☑
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☑
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☑

Would the Project:

a) Have a substantial adverse effect on a scenic vista?

No Substantial Change from Previous Analysis. As with the Approved Project, the Proposed Project would alter views of the Project Site for some off-site public viewpoints that would have partial views of residential development within the Project Site with implementation of the Proposed Project instead of the relatively unobstructed views of natural open space that they have in pre-project conditions, with views of hillsides, ridgelines, and canyons that are located in the Project Site.

The 2011 EIR disclosed that the Approved Project would result in direct impacts to a total of 790.72 acres of land. The Proposed Project would impact a total of 305.22 acres of land, which is a reduction in impacts of 485.50 acres (Chambers Group, 2024a). Given the reduced footprint and extent of the Proposed Project, the Proposed Project would result in reduced permanent impacts related to scenic vistas than would the Approved Project.

Similar to the Approved Project, the Proposed Project would result in short-term visual impacts including impacts associated with views of grading and construction activity. Given the reduced footprint and extent of grading for the Proposed Project, the Proposed Project would result in reduced temporary impacts related to scenic vistas than would the Approved Project.

As was the case for the Approved Project, the Proposed Project has been designed to occur generally at the canyon bottoms and lower elevations in the Project Site to avoid visual impacts, which allows for the higher elevations in the Project Site to remain as open space.

As with the Approved Project, the Proposed Project would not substantially alter off-site views of the Whiteface Escarpment, which occurs in the Project Site, or other visual features in the Project Site such as the ridgelines of Dry and Tapo Canyons and the smaller ridgelines of the drainages within these canyons. The Proposed Project would be required to comply with City's Hillside Performance Standards (HPS), which would minimize aesthetic impacts.

As with the Approved Project, the Proposed Project would be required to implement mitigation measures 4.1-1 through 4.1-6 from the 2011 EIR.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Substantial Change from Previous Analysis. Similar to the Approved Project, the Proposed Project would generally limit grading activities to low-lying areas within the Project Site, leaving higher elevations and steep slopes as undeveloped open space. The Proposed Project would preserve the Whiteface Escarpment portion of Big Mountain that lies within the Project Site.

The 2011 EIR described that there were 683 protected trees inventoried in the Project Site, pursuant to the requirements contained in the City of Simi Valley's Development Code. The 2011 EIR disclosed that there would be 366 City-protected trees that would need to be directly impacted and/or removed in the Project Site as a result of the Approved Project. The Proposed Project would require the removal of 55 protected trees and the relocation of 61 protected trees.

The Proposed Project would be required to implement mitigation measures and adhere to Simi Valley Municipal Code requirements, which would reduce visual impacts related to tree removals. Specifically, the Applicant would be required to implement mitigation measures from the 2011 EIR, including mitigation measures 4.3-30 through 4.3-47, which provide specifications on replacement tree planting.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

No Substantial Change from Previous Analysis. Similar to the Approved Project, the Proposed Project would result in temporary impacts to visual character related to views of an active construction site for adjacent residential land uses.

Also, the Proposed Project would alter long-term visual character of the Project Site through the introduction of development, as would the Approved Project. As with the Approved Project, the Proposed Project would consist of the development of low-density and estate-density residential uses, which would be visually consistent with existing residential development near the Project Site.

The 2011 EIR disclosed that the Approved Project would result in direct impacts to a total of 790.72 acres of land. The Proposed Project would impact a total of 305.22 acres of land, which is a reduction in impacts of 485.50 acres (Chambers Group, 2024a). Given the reduced footprint and extent of the Proposed Project, the Proposed Project would result in reduced temporary and permanent impacts related to visual character than would the Approved Project.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

No Substantial Change from Previous Analysis. The Proposed Project would result in increased lighting through the use of vehicle headlights, street lights, fixed outdoor lights, and other light sources common to urban areas. Daytime sources of potential glare including sun reflecting off of glass and other building materials is also anticipated to result from the Proposed Project. The Proposed Project would be required to implement mitigation measures 4.1-7 and 4.1-8. Given the reduced development proposed when comparing the Approved Project to the Proposed Project, the Proposed Project would result in reduced impacts related to nighttime lighting and glare.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to aesthetics that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project. Mitigation measures from the 2011 EIR relating to aesthetics continue to apply; however, no new mitigation measures are proposed as a part of the Proposed Project that would result in any new impacts that were not previously evaluated in the 2011 EIR.

3.2 AIR QUALITY

3.2.1 2011 EIR

The 2011 EIR described that implementation of the Approved Project would generate both construction-related and operation-related pollutant emissions.

The 2011 EIR found that the Approved Project would generate construction-related emissions through the use of on-site stationary sources, heavy-duty construction vehicles, construction worker vehicles, and energy use. The 2011 EIR described that operation-related emissions would be generated by on-site and off-site stationary sources and by mobile sources. The 2011 EIR found that with the implementation of recommended construction control measures, short-term construction air quality impacts of the Approved Project would be considered less than significant.

The 2011 EIR found that single-family residential land uses, golf courses, and community-serving retail uses do not typically emit objectionable odors. Facilities such as wastewater treatment plants, sanitary landfills, petroleum refineries, and chemical manufacturing plants are the typical types of land uses that would emit objectionable odors. The 2011 EIR described that none of these types of facilities are located in the vicinity of the Project Site. Therefore, the 2011 EIR determined that the Approved Project would have less than significant impacts related to exposing people to objectionable odors.

The 2011 EIR found that the population growth attributed to the Approved Project is within Ventura Council of Government growth forecasts that form the basis for the land use and transportation control portions of the Air Quality Management Plan (AQMP). The 2011 EIR determined that because the Approved Project is within the AQMP growth forecasts for the City, the Approved Project would also be consistent with the AQMP, indicating that approval and implementation of the Approved Project would not jeopardize attainment of state and federal ambient air quality standards in Ventura County. The increase in emissions generated by the Approved Project would not exceed the City of Simi Valley's 13.7 tons-per-day threshold for ROC and NOX. Because the basin is classified as in serious nonattainment for the federal 8-hour O3 standards, a project that creates individually significant air quality impacts would also contribute to cumulatively significant air impacts. The 2011 EIR found that as the Approved Project is part of the greater Whiteface Specific Plan, and the environmental analysis for the Whiteface Specific Plan determined that the Whiteface Specific Plan would result in significant and unavoidable impacts to air quality, the Approved Project would be considered cumulatively significant.

The 2011 EIR found that the Approved Project would not cause any of the studied intersections to fall below accepted operational levels of service. The buildout traffic analysis conducted for the Approved Project was based on the City of Simi Valley General Plan buildout which includes estimated traffic growth associated with buildout of the Simi Valley General Plan Land Use Element and anticipated regional growth. The buildout traffic forecasts also incorporate the expected roadway network development within the vicinity of the Project Site, including any planned improvements that the City of Simi Valley will undertake on local roadways in the future. Hence, the project-specific CO discussion applies

equally to the cumulative condition. Of the 17 intersections evaluated in the traffic impact analysis for the Approved Project as a part of the 2011 EIR, none of the intersections would operate at or below LOS E or LOS F. Therefore, since all of the study intersections will perform at LOS D and above for existing traffic conditions plus Approved Project and existing traffic conditions plus buildout plus Approved Project, under VCAPCD guidelines none of the intersections qualified for a CO-hotspot screening analysis. The 2011 EIR found that the Approved Project would not result in an increase in CO levels equal to or greater than 20 ppm (parts per million) for the 1-hour state standard, or 9.0 ppm (parts per million) for the 8-hour state standard at the edge of the roadway or beyond. The 2011 EIR found that the Approved Project's impacts related to air quality emissions associated with vehicular congestion and LOS would be considered less than significant.

As discussed in the 2011 EIR, although mitigation measures would reduce operational emissions, long-term impacts associated with the Approved Project would contribute to air quality deterioration as the Whiteface Specific Plan as a whole would generate pollutant emissions in excess of ROC and NOx thresholds. Therefore, the 2011 EIR determined that the Approved Project's air quality impacts would be significant and unavoidable. Additionally, the 2011 EIR found that the Approved Project's contribution to cumulative GHG emissions would contribute to a cumulative impact on global climate change. While no agency had adopted numerical significance thresholds for GHG emissions at the time the 2011 EIR was prepared, several agencies had proposed draft thresholds at that time, which were less than the Approved Project's GHG emissions. As such, in the absence of definitive and final guidance adopted by the State, the 2011 EIR concluded that the Approved Project would have a significant cumulative impact on climate change.

Mitigation Program

- 4.2-1. During construction, the contractors shall implement the following control measures provided in the VCAPCD Air Quality Assessment Guidelines to minimize the generation of fugitive dust (PM10), ROC, and NOX:
    - The area disturbed by clearing, grading, earth-moving, or excavation operations shall be minimized to the extent practicable to prevent excessive amounts of dust.
    - Pre-grading/excavation activities shall include watering the areas to be graded or excavated before grading or excavation operations commences. Application of water (preferably reclaimed or nonpotable, if available) should penetrate sufficiently to minimize fugitive dust during grading activities.
    - Fugitive dust produced during grading excavation and construction activities shall be controlled by the following activities: (a) All trucks shall be required to cover their loads as required by California Vehicles Code Section 23114. (b) All graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved onsite roadways, shall be treated to prevent fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally safe soil stabilization material, and/or roll-compaction as appropriate. Watering shall be done as

often as necessary and reclaimed or non-potable water shall be used whenever possible.

- Graded and/or excavated inactive areas of the construction site shall be monitored at least weekly for dust stabilization. Soil stabilization methods, such as water and roll-compaction, and environmentally safe dust-control materials, shall be periodically applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area should be seeded and watered until grass growth is evident, or periodically treated with environmentally safe dust suppressants to prevent excessive fugitive dust.
- Signs limiting traffic to 15 miles per hour or less shall be posted on site.
- During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earth-moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on-site activities and operations from being a nuisance or hazard, either off site or on site. The site superintendent/supervisor shall use discretion in conjunction with the VCAPCD in determining when winds are excessive.
- Adjacent streets and roads shall be swept at least once per day, preferably at the end of the day if visible soil material is carried over to adjacent streets and roads.
- Personnel involved in grading operations, including contractors and subcontractors, should be advised to wear respiratory protection in accordance with California Division of Occupational Safety and Health regulations.

- 4.2-2. During construction, contractors shall comply with the following measures, as feasible, to reduce NOX and ROC from heavy equipment as recommended by the VCAPCD in its Ventura County Air Quality Assessment Guidelines:
  - Minimize equipment idling time.
  - Maintain equipment engines in good condition and in proper tune as per manufacturer's specifications.
  - Lengthen the construction period during smog season (May through October) to minimize the number of vehicles and equipment operating at the same time.
  - Use alternatively fueled construction equipment, such as compressed natural gas (CNG), liquefied natural gas (LNG), or electric, if feasible.
- 4.2-3. The project shall contribute to a Transportation Demand Management (TDM) fund to be used to develop regional programs to offset air pollutant emissions associated with buildout of the project. The total amount that would be contributed to an off-site TDM fund shall be based on a prorated amount. The prorated amount shall be calculated as a percentage of the total emissions by dividing the ROC and NOx emissions generated by this project, as shown in Table 4.2-12, by the ROC and NOX emissions generated by the Whiteface Specific Plan, as shown in Table 4.2-6. TDM

funds shall be calculated based upon the methodology described in the VCAPCD Air Quality Assessment Guidelines. The VCAPCD Air Quality Assessment Guidelines recommend that all development projects with significant air quality impacts fully mitigate excess emissions through funding measures for at least three years, after buildout. The project shall pay its fair share contribution of the cost to the TDM of the Whiteface Specific Plan for both ROC (9.02 percent of the Whiteface Plan) and NOx (6.79 percent of the Whiteface Specific Plan); Table 4.2-13 shows the percentage of the emissions that the project is estimated to emit relative to the Whiteface Specific Plan.

The estimated fee (in 2009 dollars) is calculated for a three year period to be $294,773 (based on $6.81 per pound per day ROC exceeded times 39.53 lbs/day (7.21 tpy) exceeded/day times 365 days operated per year times 3 years after buildout = $294,773 for ROC and $9.91 per pound per day NOx exceeded times 22.51 lbs/day (4.11 tpy) exceeded/day times 365 days operated per year times 3 years after buildout = $244,266). While the cost of the off-site TDM fund is calculated separately for ROC and NOx, the amount is based on only the higher of the two costs since funding will result in mitigation programs that reduce both pollutants.

Payment of fees shall be re-calculated, based on the VCAPCD Air Quality Assessment Guidelines and amounts in effect, at the time final tract maps are approved and occur prior to issuance of building permits.

- 4.2-4. Only natural gas fireplaces shall be installed into new residential units.
- 4.2-5. To the degree feasible, the project shall implement measures from the BuildItGreen GreenPoint Checklist included in the guidelines to an extent sufficient to score an overall Green Building rating for new residential structures. These guidelines include, but are not limited to, the following measures that could be selectively implemented by the Project Site development team in the construction of the 364 residential units, deletion of the existing golf course (Shadow Golf Course), and the privatization of the second existing golf course on premises (Sky Golf Course). Application of the GreenPoint Checklist, using the following guidelines, is designated to reduce environmental impacts in regard to GHG emissions:
    - Protect topsoil and minimize disruption of existing plants and trees.
    - Recycle construction waste (including Green Waste).
    - Use recycled-content aggregate (minimum 25 percent).
    - Replace Portland cement in concrete with recycled fly ash or slag.
    - Construct resource-efficient landscapes.
    - Minimize turf areas in landscape installed by the developer.
    - Plant shade trees.
    - Group plants by water needs (Hydrozoning).
    - Install high-efficiency irrigation systems.

- Use 50 percent salvaged or recycled-content materials for 50 percent of non-plant landscape areas.
- Use FSC-certified wood.
- Use solid wall systems (Includes SIPs, ICFs, and any non-stick frame assembly).
- Design energy heels on roof trusses (75 percent of attic insulation height at outside edge of exterior wall).
- Use recycled-content steel studs for 90 percent of interior wall framing.
- Thermal mass walls: 5/8-inch drywall on all interior walls or walls weighing more than 40 pounds/cubic feet.
- Use recycled-content (no virgin plastic) or FSC-certified decking.
- Install insulation with 75 percent recycled content.
- Inspect quality of insulation installation before applying drywall.
- Distribute domestic hot water efficiently.
- Install only high-efficiency toilets (dual-flush or 1.3 gallons per flush [gpf]).
- Design and install HVAC Systems to ACCA Manual J, D, and S recommendations.
- Install zoned, hydronic radiant heating with slab insulation.
- Install high efficiency air conditioning with environmentally responsible refrigerants.
- Design and install effective ductwork.
- Install high-efficiency HVAC filters (MERV 6+).
- Do not install fireplaces or install sealed gas fireplaces with efficiency ratings of not less than 60 percent using CSA standards.
- Install mechanical fresh air ventilation systems.
- Pre-plumb for solar water heating.
- Install solar water heating systems.
- Install wiring conduit for Future Photovoltaic installation and provide 200 feet of south-facing roofing.
- Install Photovoltaic (PV) panels.
- Use recycled-content paint.
- Use environmentally preferable materials for interior finish: (a) FSC-certified Wood (b) Reclaimed (c) Rapidly renewable (d) Recycled-content or (e) Finger-jointed.
- Use environmentally preferable flooring: (a) FSC-certified Wood, (b) Reclaimed, (c) Rapidly Renewable, (d) Recycled-Content, (e) Exposed Concrete.

3.2.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
AIR QUALITY – Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☑
b) 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.	☐	☐	☐	☑
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☑
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	☑

The responses in this section are based on an Air Quality Technical Memorandum that was prepared for the Proposed Project by Michael Baker International in February 2025.

Would the Project:

a) Conflict with or obstruct implementation of the applicable air quality plan?

No Substantial Change from Previous Analysis. The 2011 EIR demonstrated the Approved Project's consistency with the 2008 AQMP, which was the latest AQMP when the 2011 EIR was prepared. This was done by comparing actual population growth with the projected growth rates used in the 2008 AQMP. The 2011 EIR evaluated the Approved Project based on its location in the Simi Valley Growth Area. The 1995 AQMP forecasted a population of 131,207 for 2005. By June 30, 2009, the population was estimated at 123,751. The City of Simi Valley's Managed-Growth Plan projected a 2010 population of 131,205. The 2011 EIR concluded that the population was below both the VCAPCD and the City's projections when the 2011 EIR was prepared, and therefore the population would be consistent with the 2008 AQMP, indicating less than significant impacts related to this threshold. Additionally, the 2011 EIR concluded that the Approved Project conformed to the City of Simi Valley General Plan, ensuring consistency with the 2008 AQMP. The 2011 EIR also concluded that the Approved Project would implement several emission-reduction strategies from the 2008 AQMP. These strategies included extending public bicycle paths and multi-use trails to encourage biking and walking. Recreational uses would be designed to promote non-vehicular transportation like walking and golf cart usage. Multi-purpose trails for pedestrians, non-motorized bicycles, and electric carts would be provided, along with parking for bicycles and electric vehicles in common areas. Overall, the Approved Project would align with the 2008 AQMP emission-reduction strategies; as such, the 2011 EIR determined that the Approved Project would have a less than significant impact on air quality standards.

Population growth rates are indicators of future emissions from population-related categories. The VCAPCD's Ventura County Air Quality Assessment Guidelines (dated October 2003) recommend using the most recent AQMP population forecasts for consistency analyses. In order to reduce emissions, the VCAPCD adopted the 2022 AQMP which establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving State and Federal air quality standards. The AQMP is a regional and multi-agency effort including the VCAPCD, CARB, SCAG, and EPA. The 2022 AQMP was adopted by the VCAPCD on December 13, 2022, and incorporates the latest scientific and technical information and planning assumptions, including the growth assumptions from SCAG 2020-2045 RTP/SCS, and emission inventory methodologies for various source categories. According to VCAPCD's Ventura County Air Quality Assessment Guidelines, project consistency with the 2022 AQMP can be determined by comparing the actual population growth in the County with the projected growth rates used in the 2022 AQMP. The projected growth rate in population is used as an indicator of future emissions from population-related emission categories in the 2022 AQMP. These emission estimates are used, in part, to project the date by which the County will attain the federal ozone standard.

The Proposed Project would internally relocate 180 dwelling units from Dry Canyon and Tapo Canyon, south of Lost Canyons Drive, to the area of the Project Site that is located north of Lost Canyons Drive. This would reflect a zero-sum net change in the total number of dwelling units between the Proposed Project and the Approved Project and would be an equal transfer of units within the overall tentative tract map area. The overall total dwelling units would remain at 364 single-family dwelling units with the Proposed Project. Given that the number and type of residential units proposed would not change, the estimated population growth anticipated from the Proposed Project also would not change. Therefore, the project would not have the potential to result in population growth in exceedance of what was predicted for the County of Ventura, and the project would be consistent with the 2022 AQMP

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

b) 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?

No Substantial Change from Previous Analysis. The 2011 EIR quantified the construction and operational emissions of the Approved Project and compared them to the VCAPCD's regional significance thresholds. It stated that neither the City nor the VCAPCD identified construction as a cause of significant air quality impacts, provided that standard construction control measures were implemented during construction activities. The 2011 EIR concluded that emissions during construction of the Approved Project would not exceed VCAPCD's thresholds for VOC and NOx with the recommended construction control measures in place.

Long-term operational impacts from mobile and stationary sources associated with the implementation of the Approved Project were analyzed and calculated using the Urban Emission (URBEMIS) 2007 computer model as a part of the development of the 2011 EIR. The operational modeling conducted for the 2011 EIR assumed that all 364residential units would use natural gas appliances and that all 364 of the units would include natural gas fireplaces. The 2011 EIR concluded that operational emissions from the Approved Project would not exceed the applicable VCAPCD's thresholds for the City of Simi Valley. However, the prior environmental analysis of the entire Specific Plan determined that the Specific Plan as a whole would exceed the City's thresholds for VOC and NOx. Therefore, the air quality impacts of the Approved Project were considered significant as part of the overall Specific Plan project.

The 2011 EIR determined that the Approved Project would have reduced impacts related to this threshold with implementation of mitigation measures AQ-1 through AQ-4. However, long-term impacts associated with the Approved Project would continue to contribute to air quality deterioration, as the Specific Plan as a whole would generate pollutant emissions in excess of VOC and NOx thresholds. Therefore, impacts related to this threshold would remain significant and unavoidable.

Construction

Short-term air quality impacts are predicted to occur during demolition, grading, building construction, paving, and architectural coating operations associated with implementation of the Proposed Project. Temporary air emissions would result from the following activities:

- Particulate (fugitive dust) emissions from grading and building construction; and
- Exhaust emissions from the construction equipment, hauling trucks, and motor vehicles of the construction crew.

The 364 residential buildings that would be constructed as a part of the Proposed Project would occur in two phases. Phase 1 of the Proposed Project is anticipated to begin in 2026 and would include demolition, grading, building construction, and architectural coating activities. Phase 2 construction activities for the Proposed Project are anticipated to begin in 2027 and would include grading, building construction, and architectural coating activities. The Proposed Project would demolish approximately 31,300 square feet of buildings during demolition overall. Earthwork would be balanced on-site. Phase 1 and Phase 2 construction activities for the Proposed Project are assumed to overlap and total emissions during the overlapping construction activities were also calculated for the Proposed Project as a part of the Air Quality Technical Memo. The Air Quality Technical Memorandum includes estimated construction criteria pollutant emissions of VOC (ROG), NOx, CO, SO2, PM10, and PM2.5 for the Proposed Project.

The Proposed Project's proposed density transfer of 180 lots would occur internally within the Specific Plan area (i.e., the Project Site) and therefore, would not result in an addition or reduction of land uses compared to what was previously analyzed in the 2011 EIR.

Further, the 2011 EIR assumed construction would occur between the year 2011 and 2016. As a result of the passage of time, the Proposed Project would generate lower construction emissions than were previously calculated for the Approved Project in the 2011 EIR, due to improved emission standards, cleaner fuel, and more efficient engines of the construction equipment.

Furthermore, the quantity of grading (e.g., the overall cubic yardage of cut and fill) and the acreage of land to be graded with the Proposed Project would be less than for the Approved Project. As such, overall construction emissions would be reduced for the Proposed Project when compared to the Approved Project.

Fugitive Dust Emissions

Construction activities are a source of fugitive dust emissions that may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the vicinity of the Project Site. Fugitive dust emissions are associated with land clearing, ground excavation, cut-and-fill, and truck travel on unpaved roadways. Fugitive dust emissions coming from a construction site typically vary substantially from day to day, depending on the level of activity, specific operations, and weather conditions. Fugitive dust from grading and construction is expected to be short-term and would cease upon completion of construction activities.

Dust (larger than 10 microns) generated by such activities usually becomes more of a local nuisance than a serious health problem. Of particular health concern is the amount of PM10 generated as a part of fugitive dust emissions. PM10 poses a serious health hazard alone or in combination with other pollutants. PM2.5 is mostly produced by mechanical processes. These include automobile tire wear, industrial processes such as cutting and grinding, and re-suspension of particles from the ground or road surfaces by wind and human activities such as construction or agriculture. PM2.5 is mostly derived from combustion sources, such as automobiles, trucks, and other vehicle exhaust, as well as from stationary sources. These particles are either directly emitted or are formed in the atmosphere from the combustion of gases such as NOX and sulfur oxides (SOX) combining with ammonia. PM2.5 components from material in the earth's crust, such as dust, are also present, with the amount varying in different locations

The Proposed Project would implement required VCAPCD dust control techniques (i.e., daily watering), limitations on construction hours, and would adhere to VCAPCD Rule 55 (watering of inactive and active perimeters, truck hauling requirements, track out requirements, etc.), to reduce PM10 and PM2.5 emissions from the Project Site during construction. The VCAPCD has not established PM10 and PM2.5 thresholds of significance; however, the Proposed Project would comply with the applicable dust reduction strategies as per the VCAPCD Rule 55 to reduce PM10 and PM2.5 emissions from the Project Site during construction. Thus, consistent with the air quality impact analysis conclusions for the Approved Project that were included in the 2011 EIR, PM10 and PM2.5 emissions impacts associated with construction of the Proposed Project would be less than significant.

Construction Equipment and Worker Vehicle Exhaust

Exhaust emissions (e.g., NOx and CO) from construction activities include emissions associated with the transport of machinery and supplies to and from the project site, emissions produced on-site as the equipment is used, and emissions from trucks transporting materials to/from the site. Consistent with the air quality impact analysis conclusions for the Approved Project included in the 2011 EIR, air quality impacts from equipment and vehicle exhaust emissions for the Proposed Project would also be less than significant.

ROG Emissions

In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O3 precursors. As required, all architectural coatings for the Proposed Project's structures would comply with VCAPCD Rule 74.2. Rule 74.2, which provides specifications on painting practices as well as regulates the ROG content of paint to not exceed 50 grams per liter. Consistent with the impact findings in the 2011 EIR for the Approved Project, ROG emissions impacts for the Proposed Project would be less than significant.

Total Construction Emissions

As depicted in the Air Quality Technical Memorandum, the estimated total annual construction emissions of VOC (ROG), NOx, CO, SO2, PM10, and PM2.5 for the Proposed Project is anticipated to be less than what was previously evaluated in the 2011 EIR for the Approved Project.

Naturally Occurring Asbestos

Asbestos is a term used for several types of naturally occurring fibrous minerals that are human health hazards when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by state, federal, and international agencies and was identified as a toxic air contaminant by CARB in 1986. Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All of these activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed. According to the California Department of Conservation Division of Mines and Geology, A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report (August 2000), serpentinite and ultramafic rocks are not known to occur within the vicinity of the project site. Thus, the Proposed Project would have no impact related to naturally-occurring asbestos.

Operations

Long-term air quality impacts including mobile source emissions generated from project-related traffic (i.e., motor vehicle use by residents and guests), and emissions from area and energy sources were evaluated for the Proposed Project within the Air Quality Technical Memorandum. Overall, the Proposed Project's proposed density transfer of 180 lots would occur internally within the Specific Plan area (i.e., the Project Site). Therefore, the Proposed Project would not result in an addition or reduction of land uses compared to what was previously analyzed in the 2011 EIR.

Mobile Source

Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, ROG, NOX, SOX, PM10, and PM2.5 are all pollutants of regional concern (NOX and ROG react with sunlight to form O3 [photochemical smog], and wind currents readily transport SOX, PM10, and PM2.5). However, CO tends to be a localized pollutant, dispersing rapidly at the source.

Project-generated vehicle emissions have been estimated for the Proposed Project as a part of the Air Quality Technical Memorandum using CalEEMod. The Proposed Project would result in an increase in daily trips from the 2,840 net new daily trips that were anticipated for the Approved Project to a total of 3,483 trips per day that are anticipated to be generated by the Proposed Project.

Area Source Emissions

Area source emissions would result for the Proposed Project from consumer products and architectural coatings.

The Proposed Project would reduce its operational air quality emissions through the universal use of all electric landscaping equipment. However, this design feature has not been accounted in the modeling as a conservative analysis.

Energy Source Emissions

Energy source air quality emissions would be generated by electricity and natural gas (non-hearth) usage associated with the Proposed Project. The primary use of energy by the Proposed Project would be for space heating and cooling, water heating, ventilation, lighting, appliances, and electronics. The Proposed Project would install high efficiency lighting, appliances, and solar ready roofs. However, as a conservative analysis, these project design features were not accounted in the modeling conducted as a part of the Proposed Project's Air Quality Technical Memorandum.

Total Operational Emissions

Given that the Proposed Project reflects a zero-sum net change in the total number of dwelling units within the Project Site, the Proposed Project would not result in any new operational air quality impacts compared to what was evaluated in the 2011 EIR.

Conclusion

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

c) Expose sensitive receptors to substantial pollutant concentrations?

No Substantial Change from Previous Analysis. The 2011 EIR concluded that the Approved Project would result in a less than significant impact related to CO hotspots since the Approved Project would not generate traffic that would contribute to potential adverse traffic impacts that may result in the formation of CO hotspots. As a part of the development of the 2011 EIR, a Health Risk Assessment was prepared for the Approved Project to determine potential health risks associated with construction from the Approved Project, which concluded that the Approved Project would result in less than significant health impacts due to the short period of construction and due to the lack of toxic air contaminants sources within the Project Site during operation.

The 2011 EIR analyzed impacts for the Approved Project related to Valley Fever. The 2011 EIR concluded that construction activities for the Approved Project during rainy winters, springs, or after wind and dust storms can expose workers to Valley Fever spores present in the soil. This exposure can lead to potentially significant health impacts for construction workers and others in the vicinity of the Project Site. The 2011 EIR included Mitigation Measures 4.6-7 through 4.6-9, which required use of respirators and air-conditioned equipment cabs during clearing, grading, and excavation, treating construction roads with dust control agents, wetting unpaved roads twice daily to minimize dust, control of weed growth by mowing instead of discing to keep the ground undisturbed, with mulch covering used when possible. Therefore, with the implementation of these mitigation measures, impacts related to Valley Fever during construction of the Approved Project were determined would be less than significant.

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

The closest sensitive receptors to the Project Site are the residential parcels located approximately 150 feet west (approximately 150 feet from the impact limits for the Proposed Project) that is known as Glenmeadow neighborhood.

Localized Air Quality Health Impacts

Construction

The Proposed Project's construction activities would involve the operation of diesel-powered equipment, which would emit Diesel Particulate Matter (DPM). In 1998, the CARB identified diesel exhaust as a Toxic Air Contaminant (TAC). Cancer health risks associated with exposures to diesel exhaust typically are associated with chronic exposure, in which a 30-year exposure period often is assumed. The Proposed Project would be constructed over two phases for a period of approximately five years. The Proposed Project would comply with the VCAPCD Rule 57.1, which requires fuel burning equipment to not emit particulate matter emissions exceeding 0.12 pounds per million British thermal unit (BTU) of fuel input. Compliance with VCAPCD Rule 57.1 would reduce the amount of DPM emissions from the construction of the Proposed Project.

As previously discussed, the closest sensitive receptors are single-family residences located approximately 150 feet to the west of the Project Site. The Proposed Project would generate lower construction emissions than previously calculated for the Approved Project in the 2011 EIR, due to improved emission standards, cleaner fuel, and more efficient engines of the construction equipment. Therefore, the Proposed Project would not result in any additional localized air quality impact than those impacts that were previously disclosed in the 2011 EIR Furthermore, the 2011 EIR concluded that the cancer risk resulting from the Approved Project's construction activities would not exceed the VCAPCD significance threshold. As the Proposed Project would generate lower construction emissions than the Approved Project, construction of the Proposed Project is not anticipated to result in an elevated cancer risk to nearby sensitive receptors.

Operation

The Proposed Project would involve the transfer of 180 single-family residential dwelling units. Residential development would result in very limited operational activities with potential health risks, including landscaping maintenance operations when required. These activities would not result in the generation of excessive TAC emissions, or associated health risks during operation of the Proposed Project. Therefore, operation of the Proposed Project would not result in an elevated cancer risk to nearby sensitive receptors.

Carbon Monoxide Hotspots

Carbon Monoxide (CO) emissions are a function of vehicle idling time, meteorological conditions, and traffic flow. Under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthful levels (i.e., adversely affecting residents, school children, hospital patients, the elderly, etc.). The VCAPCD requires a quantified assessment of CO hotspots when a project would generate indirect emissions greater than the applicable ozone project significance thresholds (25 pounds per day of NOX and ROG), and may significantly impact roadway intersections that are currently operating at, or are expected to operate at, Levels of Service (LOS) E or F.

Because traffic congestion is highest at intersections where vehicles queue and are subject to reduced speeds, these CO hot spots are typically produced at intersections.

According to the Transportation Memorandum that was prepared for the Proposed Project, the local roadway (Lost Canyons Road) is classified as LOS A. Furthermore, none of the analyzed local roadways evaluated in the Transportation Memorandum would operate at LOS E or F under existing or future conditions, and the low volume of traffic (a maximum of 3,483 average daily trips) generated as a result of implementation of the Proposed Project would not significantly impact analyzed roadway intersections. Therefore, according to the VCAPCD guidelines, the Proposed Project does not require a quantified assessment of CO hotspots.

Valley Fever

As discussed above, the City and the Project Site are in an area designated as suspected endemic for Valley Fever by the CDC. Nearby sensitive receptors as well as construction workers could be exposed to Valley Fever from fugitive dust generated during construction of the Proposed Project. The VCAPCD has no recommended threshold for a significant Valley Fever impact. Further, the Proposed Project would be required to comply with 2011 EIR Mitigation Measures 4.6-7 through 4.6-9, which require the use of respirators and air-conditioned equipment cabs during clearing, grading, and excavation for the Proposed Project as well as the treating of construction roads with dust control agents, and the wetting of unpaved roads twice daily to minimize dust and control, and by mowing instead of discing to keep the ground undisturbed, and by using mulch covering when possible.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

No Substantial Change from Previous Analysis. The 2011 EIR proposed a master-planned community that would include private open spaces, multi-purpose public recreation trails, a private park, and up to 364 single-family detached homes. Since single-family homes, golf courses, and community-serving retail uses typically do not emit objectionable odors, and no odor-emitting facilities like wastewater treatment plants or refineries are nearby, the 2011 EIR determined that the Approved Project would not generate or experience significant objectionable odors.

Construction

Construction activities associated with the Proposed Project may generate detectable odors from heavy-duty equipment exhaust and architectural coatings. However, construction-related odors would be short-term in nature and cease upon completion of construction. In addition, the Proposed Project would be required to comply with the California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485, which minimizes the idling time of construction equipment either by requiring equipment to be shut off when not in use or by

limiting idling time to no more than five minutes. Compliance with these existing regulations would further reduce the detectable odors from heavy-duty equipment exhaust. The Proposed Project would also be required to comply with the VCAPCD Rule 74.2, which requires that the VOC contents of paints to not exceed 50 grams per liter. Further, any odor impacts to existing adjacent land uses would be short-term and negligible. As such, the Proposed Project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Operation

According to VCAPCD's Guidelines, land uses associated with odor complaints typically include wastewater treatment plants, landfills, composting, chemical plants, fiberglass operations, food processing facilities, dairies, rendering plants, refineries, and agricultural uses. The Proposed Project involves construction and operation of residential uses and does not include any uses identified by the VCAPCD as being associated with odors. As such, operation of the Proposed Project would not generate odors that would impact nearby receptors. As such, impacts would be less than significant in this regard.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to air quality that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project. Mitigation measures from the 2011 EIR relating to air quality continue to apply; however, no new mitigation measures are proposed as a part of the Proposed Project that would result in any new impacts that were not previously evaluated in the 2011 EIR.

3.3 BIOLOGICAL RESOURCES

3.3.1 2011 EIR

Special Status Plants

The 2011 EIR described that there were no special-status plants observed within the Approved Project's grading footprint; however, the 2011 EIR described that several special-status plant species had a moderate or high potential to occur. As such, the 2011 EIR specified that if special-status plants are present within the disturbance area, grading or development of the Approved Project would potentially be considered a significant impact prior to implementation of mitigation. Mitigation measure 4.3-1 was required for the Approved Project, required that a focused special-status plant survey be conducted within one year prior to the development of the Project Site for identifying potentially occurring special-status plants and during the typical blooming period of such plants prior to development or grading of the Project Site. If any special-status plant species are discovered on the Project Site during the focused surveys (or during any other on-site assessments), Mitigation measure 4.3-1 requires that a Native Plant Mitigation Plan (NPMP) be developed that identifies methods for preserving special-status plant species at a 1:1 ratio within suitable habitats that would be preserved on the Project Site, or options for propagating those species that would be impacted within suitable habitats located within the proposed open space areas, but outside of fuel management zones, within the Project Site.

Special Status Animals

The 2011 EIR described the Approved Project's impacts to Coast horned lizard, coastal western whiptail, western spadefoot toad, southwestern pond turtle, two-striped garter snake, Cooper's hawk, sharp-shinned hawk, white-tailed kite, Lawrence's goldfinch, Bell's sage sparrow, and Southern California rufous-crowned sparrow.

The 2011 EIR identified that the loss of active raptor nests as a result of the Approved Project's construction activities may be in conflict with Migratory Bird Treaty Act and Sections 3503 and 3513 of the California Fish and Game Code if not mitigated. As such, these actions were considered in the 2011 EIR to be a potentially significant impact prior to mitigation. With implementation of mitigation measure 4.3-4, which requires nesting bird surveys be conducted in certain situations and that nesting birds be avoided, impacts related to this species would be reduced to less than significant levels.

The 2011 EIR disclosed that the Approved Project would result in impacts to suitable habitat for southwestern pond turtle and that this species has potential to occur in the Project Site. Therefore, the 2011 EIR included mitigation measure 4.3-2, which requires that focused surveys for western spadefoot toad, two-striped garter snake, and western pond turtle be conducted in consultation with CDFW and that if any of these species are identified in the Project Site that sensitive species protection plans be prepared and approved by CDFW prior to beginning construction. With implementation of this measure, impacts would be reduced to a less than significant level for this species.

The 2011 EIR disclosed that the Approved Project would result in impacts to suitable habitat for coastal whiptail, which had been observed in the Project Site. Mitigation measure 4.3-5 was specified requiring preconstruction coastal whiptail surveys, which would reduce impacts related to this species.

The 2011 EIR disclosed that the Approved Project would result in impacts to suitable habitat for coast horned lizard, which had been observed in the Project Site. Mitigation measure 4.3-5 was specified requiring preconstruction coast horned lizard surveys, which would reduce impacts related to this species.

The 2011 EIR disclosed that the Approved Project would result in impacts to suitable habitat for western spadefoot toad, which had been observed in the Project Site. Therefore, the 2011 EIR included mitigation measure 4.3-2, which requires that focused surveys for western spadefoot toad, two-striped garter snake, and western pond turtle be conducted in consultation with CDFW and that if any of these species are identified in the Project Site that sensitive species protection plans be prepared and approved by CDFW prior to beginning construction. With implementation of this measure, impacts would be reduced to a less than significant level for this species.

The 2011 EIR disclosed that the Approved Project would result in impacts to suitable habitat for two-striped garter snake, which has potential to occur in the Project Site. Therefore, the 2011 EIR included mitigation measure 4.3-2, which requires that focused surveys for western spadefoot toad, two-striped garter snake, and western pond turtle be conducted in consultation with CDFW and that if any of these species are identified in the Project Site that sensitive species protection plans be prepared and approved by CDFW prior to beginning construction. With implementation of this measure, impacts would be reduced to a less than significant level for this species.

The 2011 EIR found that the Approved Project would not result in any anticipated impacts to southwestern willow flycatcher given the species has never been observed on the Project Site or in the vicinity and because the Project Site only had fragmented riparian corridors that could serve as suitable habitat for this species.

Related to least Bell's vireo, the 2011 EIR disclosed that the Project Site contained areas of suitable habitat for this species, including patches within Tapo Canyon Creek, and that least Bell's vireo had been observed at other locations in the vicinity of the Project Site. Although the 2011 EIR stated that the habitat in the Project Site was not ideal, the 2011 EIR disclosed that the Approved Project would result in potentially significant impacts prior to implementation of mitigation. Therefore, the 2011 EIR included mitigation measure 4.3-3, which requires that within one year prior to the grading or other proposed disturbances to Tapo Canyon Creek, the applicant shall retain a qualified biologist to conduct least Bell's vireo surveys, in accordance with USFWS protocols. Mitigation measure 4.3-3 requires that if construction activities occur within the nesting season of the least Bell's vireo, and if least Bell's vireo individuals or active nests are observed or detected during protocol surveys, construction activities in the area shall be halted/postponed, and the CDFW and USFWS shall be contacted and informed of the finding immediately. Mitigation measure 4.3-3 also includes minimum requirements for compensatory mitigation of least Bell's vireo habitat should it be impacted during construction.

Related to coastal California gnatcatcher, the 2011 EIR disclosed that marginal suitable habitat occurred on the Project Site; however, the 2011 EIR pointed out that the coastal California gnatcatcher had few documented occurrences in the Project Site vicinity. The 2011 EIR disclosed that the Approved Project would result in impacts to USFWS-designated critical habitat for the coastal California gnatcatcher given that the entire Project Site has this designation. Given the absence of coastal California gnatcatchers in the Project Site as well as due to the limited disturbance that would occur to this species' suitable habitat, the 2011 EIR determined that the Approved Project would have a less than significant impact related to gnatcatcher with implementation of mitigation. Mitigation measure 4.3-5 was specified requiring preconstruction surveys be conducted for coastal California gnatcatcher. Also, mitigation measure 4.3-5 includes procedures for the Applicant to follow if coastal California gnatcatcher are encountered.

The 2011 EIR described that the Approved Project would result in impacts to suitable nesting and foraging habitat for white-tailed kite, which has moderate to high potential to occur on the Project Site. With implementation of mitigation measure 4.3-4, which requires nesting bird surveys be conducted in certain situations and that nesting birds be avoided, impacts related to this species would be reduced to less than significant levels.

The 2011 EIR disclosed that the Project Site contained suitable habitat for burrowing owl and that this species had been previously recorded in the Project Site and nearby vicinity. Given the Approved Project's impacts to suitable habitat for burrowing owl, the 2011 EIR identified that this species would be significantly impacted prior to mitigation. Mitigation measure 4.3-5 was specified requiring preconstruction burrowing owl surveys. Mitigation measure 4.3-5 includes procedures for the Applicant to follow if burrowing owl are encountered.

The 2011 EIR described that the Approved Project would result in impacts to suitable habitat for northern harrier, which has been previously observed in the Project Site.

The 2011 EIR described that the Approved Project would result in impacts to suitable habitat for yellow warbler, which has been previously observed in the Project Site. With implementation of mitigation measure 4.3-4, which requires nesting bird surveys be conducted in certain situations and that nesting birds be avoided, impacts related to this species would be reduced to less than significant levels.

The 2011 EIR described that the Approved Project would result in impacts to suitable foraging habitat for grasshopper sparrow, which has been previously observed in the Project Site. With implementation of mitigation measure 4.3-4, which requires nesting bird surveys be conducted in certain situations and that nesting birds be avoided, impacts related to this species would be reduced to less than significant levels.

The 2011 EIR described that the Approved Project would result in impacts to suitable habitat for double-crested cormorant which has been previously observed in the Project Site. With implementation of mitigation measure 4.3-4, which requires nesting bird surveys be conducted in certain situations and that nesting birds be avoided, impacts related to this species would be reduced to less than significant levels.

The 2011 EIR described that the Approved Project would result in impacts to suitable habitat for sharp-shinned hawk and Cooper's hawk, which have been previously observed in the Project Site. With implementation of mitigation measure 4.3-4, which requires nesting bird surveys be conducted in certain situations and that nesting birds be avoided, impacts related to this species would be reduced to less than significant levels.

The 2011 EIR described that the Approved Project would result in impacts to suitable habitat for southern California rufous-crowned sparrow, which has been previously observed in the Project Site. With implementation of mitigation measure 4.3-4, which requires nesting bird surveys be conducted in certain situations and that nesting birds be avoided, impacts related to this species would be reduced to less than significant levels.

The 2011 EIR described that the Approved Project would result in impacts to suitable habitat for Bells' sage sparrow, which has been previously observed in the Project Site. With implementation of mitigation measure 4.3-4, which requires nesting bird surveys be conducted in certain situations and that nesting birds be avoided, impacts related to this species would be reduced to less than significant levels.

The 2011 EIR described that the Approved Project would result in impacts to suitable habitat for Lawrence's goldfinch. With implementation of mitigation measure 4.3-4, which requires nesting bird surveys be conducted in certain situations and that nesting birds be avoided, impacts related to this species would be reduced to less than significant levels.

The 2011 EIR disclosed that the Project Site contained suitable habitat for San Diego desert woodrat, and that this species had been previously recorded in the nearby vicinity of the Project Site. As such, the 2011 EIR found that the Approved Project would result in a significant impact to this species prior to mitigation. Mitigation measure 4.3-5 was specified requiring preconstruction San Diego desert woodrat surveys be conducted.

Common Wildlife Species

The 2011 EIR described that the Approved Project would result in impacts to common wildlife species through construction and grading activities that would directly and indirectly affect habitat for these species. The 2011 EIR determined that because of the common nature and low number of wildlife species that would be displaced or inadvertently lost as a result of construction activities, construction would not reduce regional populations to below self-sustaining levels or otherwise substantially affect these wildlife species populations. For these reasons, the 2011 EIR found the Approved Project would result in less than significant impacts related to common wildlife species.

Nesting Birds

The 2011 EIR identified that the Approved Project would result in impacts to nesting birds that could violate the Migratory Bird Treaty Act (MBTA). Therefore, the 2011 EIR specified mitigation measure 4.3-4, which requires that the Applicant retain a qualified biologist to conduct preconstruction nesting bird surveys prior to conducting vegetation removal activities. Also, the mitigation measure 4.3-4 specifies next-steps if active nests are found including nest avoidance procedures.

Increased Light and Glare

The 2011 EIR disclosed that nighttime lighting prior to implementation of the Approved Project that is associated with adjacent residential areas may already adversely affect the resident wildlife associated with the Project Site to some degree. Implementation of the Approved Project would increase the number of nighttime light sources and the overall amount of lighting. In addition, the 2011 EIR discussed that species that are normally in hiding during the night could become more vulnerable to nighttime predators, thus causing an artificial increase in predation and possible decline in the population levels of certain species. As such, these actions would be considered a potentially significant impact; therefore, measures were specified to mitigate these potential effects. Specifically, the 2011 EIR included mitigation measure 4.3-9, which requires that all lighting along the perimeter of natural areas of the Project Site be downcast luminaries that are shielded and oriented to prevent spillage and glare into the remaining natural open space areas of the Project Site.

Jurisdictional Waters

The 2011 EIR disclosed that the Approved Project would result in impacts to streams and other jurisdictional waters, which would require the issuance of permits from the CDFW, RWQCB, and USACE. The 2011 EIR identified that the Approved Project would result in impacts to approximately 6.37 acres of jurisdictional waters. As required by mitigation measure 4.3-18 through mitigation measure 4.3-27 from the 2011 EIR, the Applicant would obtain permits from CDFW, RWQCB, and USACE and would negotiate compensatory mitigation with the regulatory agencies prior to conducting work in jurisdictional waters.

Wildlife Movement

The 2011 EIR disclosed that the Approved Project would result in impacts to wildlife movement corridors that occur in the Project Site. The 2011 EIR discussed that the Approved Project would result in fragmentation of existing corridors, and that the Project would result in edge-effects that would reduce the value of wildlife corridors near the Project Site that are not directly impacted by the Approved Project. To minimize impacts related to wildlife movement, the 2011 EIR required implementation of mitigation measure 4.3-28, which requires that the Applicant design and construct wildlife crossings as a part of the Approved Project. Also, as required by mitigation measure 4.3-29, the Applicant is required to prepare and implement a Wildlife Habitat Management Plan that shall include provisions for biological monitoring.

Protected Trees

The City of Simi Valley, under the Development Code,62 protects all historic trees, any mature native oak trees that has a diameter of 5 inches or more, and all mature trees which are associated with a proposal for urban development that have a diameter of 9.5 inches or more as measures 4.5 feet above the root crown. The 2011 EIR described that there were 683 protected trees inventoried in the Project Site, pursuant to the requirements contained in the City of Simi Valley's Development Code, including 208 coast live oak trees and 14 valley oaks. The 2011 EIR disclosed that there would be 366 City-protected trees that would need

to be directly impacted and/or removed in the Project Site as a result of the Approved Project. The 2011 EIR found that the remaining 317 City-protected trees in the Project Site would not need to be impacted by the Approved Project. Thus, 46 percent of all trees inventoried for the 2011 EIR would be preserved by the Approved Project. The 2011 EIR found that impacts related to protected trees would be potentially significant; however, with the implementation of mitigation measures and adherence to Simi Valley Municipal Code requirements, that potential impacts related to tree removals would be less than significant. Specifically, the 2011 EIR required the Applicant to implement mitigation measures 4.3-30 through 4.3-47, which provide specification on replacement tree planting.

Habitat Conservation Plans

As described in the 2011 EIR, the Project Site is located within the City of Simi Valley, Ventura County. Neither the City, nor the County has established any habitat conservation plans or other approved local or state habitat conservation plans within the vicinity of the Project Site.

Sensitive Natural Communities

The 2011 EIR identified that the Approved Project would result in impacts to sensitive plant communities in the Project Site including Southern Riparian Scrub, Southern Willow Scrub, and Coast Live Oak Woodland. The 2011 EIR also disclosed that the Approved Project would result in impacts to coastal sage scrub, which the 2011 EIR stated: "the variations of coastal sage scrub that are located within the proposed development portions of the project site are not considered a sensitive plant community by CDFG; however, this community supports several special-status wildlife species and potentially some special-status plant species."

As required by mitigation measures 4.3-17 and 4.3-19 from the 2011 EIR, the Approved Project would mitigate for impacts to Southern Willow Scrub and Southern Riparian Scrub in accordance with permits issued by CDFW, RWQCB, and USACE

As required by mitigation measures 4.3-40, 4.3-42, 4.3-43, and 4.3-47 in the 2011 EIR, the Approved Projects' impacts to the Coast Live Oak Woodland vegetation community would be mitigated through the implementation of an Oak Woodland Regeneration Plan and through implementation of the City's Tree Ordinance.

Mitigation Program

- 4.3-1. A focused special-status plant survey, in accordance with appropriate CDFW protocols, shall occur within one year prior to the development of the site for identifying potentially occurring special-status plants and during the typical blooming period of such plants prior to development or grading of the Project Site. If any special-status plant species are discovered on the Project Site during the focused surveys (or during any other on-site assessments), a Native Plant Mitigation Plan (NPMP) shall be developed that identifies methods for preserving special-status plant species at a 1:1 ratio within suitable habitats that would be preserved on the Project Site, or options for propagating those species that would be impacted within suitable

habitats located within the proposed open space areas, but outside of fuel management zones, within the site. If no suitable on-site locations are available, the NPMP shall identify suitable off-site locations for planting (or transplanting) the impacted special-status plants at a 1:1 ratio in coordination with the CDFW, or appropriate in-lieu fees that may be applicable, as determined by the CDFW. The NPMP shall include location, methods and timing of where, how and when the planting of the special-status species will be implemented. The NPMP shall also identify performance standards by which to measure the success of the mitigation and shall include adaptive management procedures to ensure a preservation or replacement, or combination of the two, of a 1:1 ratio. The MMP shall be reviewed and approved by the City prior to the issuance of a grading permit.

- 4.3-2. To avoid potential impacts to the western spadefoot toad, two-striped garter snake and the western pond turtle, a qualified biologist with a CDFW Scientific Collection permit and Memorandum of Understanding shall consult with the CDFW on appropriate survey methods to conduct focused surveys for these species during suitable survey conditions. Focused surveys shall occur within one year prior to the development of the Project Site, but may commence sooner. If any of these species are determined to be present within or adjacent to the proposed development areas, the project applicant shall have a qualified biologist prepare a sensitive species protection plan (SSPP), which must be approved by the CDFW prior to the initiation of any ground disturbance or construction activities. The SSPP shall include a relocation protocol and shall identify suitable on-site locations within the preserved open space areas and implement a relocation program to relocate the species to, or within suitable off-site locations to be approved by the CDFW. The SSPP shall include provisions for monitoring the success of released animals.
- 4.3-3. Within one year prior to the grading or other proposed disturbances to Tapo Canyon Creek, the project applicant shall retain a qualified biologist(s) to conduct least Bell's vireo surveys, in accordance with USFWS protocols (USFWS 2001). If construction activities occur within the nesting season of the least Bell's vireo, and if least Bell's vireo individuals or active nests are observed or detected during protocol surveys, construction activities in the area shall be halted/postponed, and the CDFW and USFWS shall be contacted and informed of the finding immediately. If surveys result in observation of nesting individuals, construction activities within 500 feet of the nest shall not commence until the nest is vacated and juveniles have fledged and there is no evidence of a second attempt at nesting, as determined by a qualified biologist and confirmed by the CDFW and USFWS. In addition, if an active least Bell's vireo nest is observed, the applicant shall mitigate for the loss of nesting habitat by either recreating the impacted riparian habitat on the Project Site or securing through purchase and conservation (through direct placement of a conservation easement over lands, or purchase of lands in a program that has already entered a conservation easement) of suitable riparian habitat within known nesting or foraging areas for the species. Such habitat shall contain southern riparian scrub of a similar or better quality as that within which the active nest was found. The creation/purchase of lands for the acreage of nesting habitat determined to be impacted by the proposed project shall be carried out in coordination with the CDFW and USFWS and on a minimum ratio of 1:1 or as determined to be appropriate by the wildlife agencies.

- 4.3-4. To avoid impacts to nesting birds, the applicant shall retain a qualified biologist to conduct nest surveys within suitable nesting habitat within the Project Site prior to grading, construction, or site preparation activities. Specifically, within 30 days of initiation of ground disturbance activities associated with construction or grading, a qualified biologist shall conduct weekly surveys to determine if active nests of bird species protected by the MBTA and/or the California Fish and Game Code are present in the construction zone or within 300 feet (500 for raptors or special-status species) of the construction zone, or within suitable distances as determined by the CDFW. Because many birds known to occur in the project area (such as Cooper's hawk and several species of hummingbirds) may nest during the late winter, breeding bird surveys shall be carried out both during the typical nesting/breeding bird season (mid-March through September) and in January through early March. The surveys shall continue on a weekly basis, with the last survey being conducted no more than three days 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 three days will have elapsed between the last survey and the commencement of ground disturbance activities. Surveys shall include examination of trees, shrubs, and the ground within grassland for nesting birds, as several bird species known to the area are shrub or ground nesters.

  If active nests are found, clearing and construction activities within 300 feet of the nest (500 feet for raptors or special-status species), or within a suitable distance as determined by the CDFW, shall be postponed or halted until the nest is vacated and juveniles have fledged, as determined by the biologist, 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 barriers 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 City of Simi Valley Planning Division 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

- 4.3-5. The applicant shall retain a qualified biologist to conduct preconstruction surveys no more than 30 days prior to construction activities on the Project Site within the proposed development areas and 500 feet beyond the grading limits for the presence of those special-status wildlife species with the potential to occur in on-site habitats that will be directly impacted by project activities. The qualified biologist shall possess a CDFW Scientific Collection Permit and obtain a CDFW Authorization prior to the implementation of pre-construction surveys. Surveys shall include an examination of all areas where ground disturbance may occur. For burrowing owl, the surveys shall consist of three site visits and shall be conducted in areas dominated by field crops, disturbed habitat, and grasslands. If a burrowing owl is located, occupied burrows shall not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist approved by CDFW verifies through

non-invasive methods that either the birds have not begun egg-laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival. If a burrowing owl is detected but nesting is not occurring, construction work can proceed after any owls have been evacuated from the site using CDFW -approved burrow closure procedures and after alternative nest sites have been provided in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (10-17-95). Unless otherwise authorized by CDFW, a 500-foot buffer, within which no activity will be permissible, will be maintained between Project activities and nesting burrowing owls during the nesting season.

This protected area will remain in effect until August 31 or at CDFW's discretion and based upon monitoring evidence, until the young owls are foraging independently. Results of the surveys and relocation efforts shall be provided to CDFW in a mitigation status report.

If a coastal California gnatcatcher is observed, vegetation removal and clearing for the project shall occur between September 1 and February 15, outside the gnatcatcher breeding season. All clearing of vegetation shall take place in the presence of a biological monitor. Prior to and during the initial cleaning and grubbing of the coastal sage scrub, or other suitable gnatcatcher habitat, between February 15 and August 31, the biological monitor shall locate any individual gnatcatchers on site and direct operators to begin in an area away from the birds. In addition, the biological monitor shall walk ahead of clearing and grubbing equipment to flush birds towards areas of habitat that will be avoided. If nesting gnatcatchers are detected within 100 feet of proposed construction areas, gnatcatcher nest monitoring shall be initiated and use of heavy equipment within 100 feet of active nest shall be postponed until the nest(s) are determined to be inactive. If operation of grading equipment results in nest abandonment, the USFWS will be contacted immediately.

- 4.3-6. Silt fencing shall be properly installed (placed into a trench 6 inches deep and refilled and compacted) at the limits of grading to prevent animals from moving onto the site following the pre-construction surveys. During construction, the fence shall be monitored weekly by a qualified biologist and repairs shall be made immediately following weekly inspections. Silt fencing shall be removed immediately following ground disturbing activities (e.g., vegetation clearing and grading).
- 4.3-7. Pets and other domestic animals shall be prohibited from the remaining open space areas and in any revegetation areas on the Project Site unless restrained by leash and accompanied at all times by the owner or responsible party. Fencing of sufficient height and design or landscaping acceptable to the City shall be constructed between the edge of development and the natural areas to prevent domestic animals from entering open space habitat areas, including use of new technology such as electric fences. Human access into the open space areas shall only occur in designated areas such as trails or along the perimeter of the habitats. Prohibitions against human and domestic animal use in sensitive habitat areas shall be established by ordinance and/or CC&Rs. The CC&Rs shall also state that tree houses shall not be constructed within native oak or riparian habitat trees, or any other trees known to be used by raptors for nesting. Interpretative signs shall be constructed and placed in appropriate areas, as determined by a qualified biologist, that explain the sensitivity

of natural habitats and the need to minimize impacts on these adjacent areas. The project applicant shall be responsible for installation of interpretive signs and fencing.

- 4.3-8. Landscape plans within common areas of the project shall be reviewed by a qualified botanist, who shall recommend appropriate provisions to prevent invasive plant species from colonizing remaining natural areas. These provisions may include the following: (a) review and screening of proposed plant palette and planting plans to identify and avoid the use of invasive species; (b) weed removal during the initial planting of landscaped areas; and (c) the monitoring for and removal of weeds and other invasive plant species as part of ongoing landscape maintenance activities. The frequency and method of monitoring for invasive species shall be determined by a qualified botanist. In addition, residents shall be encouraged to plant noninvasive plant species within private yards. A list of plants to avoid shall be developed by a qualified botanist, to include at a minimum and distributed by the homeowners association or included in the CC&Rs.
- 4.3-9. All lighting along the perimeter of natural areas, particularly street lamps, shall be downcast luminaries and shall be shielded and oriented in a manner that will prevent spillage or glare into the remaining natural and open space areas. All security lighting within common areas will be controlled by motion detectors. Acceptable lighting parameters will be included in the Specific Plan Design Guidelines and will allow such features of uplighting of trees in areas not along the perimeter of the natural areas.
- 4.3-10. A City-approved biologist shall be retained by the applicant as a construction monitor to ensure that incidental construction impacts on remaining biological resources are avoided or minimized. Responsibilities of the construction monitor shall include the following:
    - Attend all pre-grading meetings to ensure that the timing and location of construction activities do not conflict with mitigation requirements.
    - Provide environmental training to educate all on-site personnel regarding all environmental permit condition with the contractor and other construction personnel describing the importance of restricting work to within the project boundaries and outside of the preserved areas. The monitor should also discuss staging/storage areas for construction equipment and materials. The biological monitor shall investigate all on-site storage areas to minimize impacts to biological resources.
    - Mark/flag the construction area in the field with the contractor in accordance with the final approved grading plan. Any construction activity areas immediately adjacent to special-status plant populations or other special-status resources may be flagged or temporarily fenced by the monitor, at his/her discretion.
    - Periodically visit the site during construction to coordinate and monitor compliance with the above provisions.

- 4.3-11. The construction contractor shall install temporary erosion control measures, if necessary, to reduce impacts to and protect on site drainages from excess sedimentation, siltation, and erosion. These measure shall consist of minimization of existing vegetation removal; the use of temporary soil covers, such as hydroseeding, mulch/binder and erosion control blankets to protect exposed soil from wind and rain; and/or the installation of silt fencing, berms, and dikes to protect storm drain inlets and drainages.
- 4.3-12. Vehicles carrying supplies, such as concrete, should not be allowed to empty, clean out, or otherwise place materials into natural areas, or that may drain into natural areas on or immediately adjacent to the site.
- 4.3-13. Any equipment or vehicles driven and/or operated within or adjacent to drainages shall be checked and maintained daily, to prevent leaks of materials that if introduced to water could be deleterious to aquatic life. No equipment maintenance shall be conducted within the drainage channels or within 50 feet of channels.
- 4.3-14. Construction personnel shall be prohibited from entry into areas outside the designated construction area, except for necessary construction related activities, such as surveying. All such construction activities in or adjacent to remaining open space areas shall be coordinated with the biologist.
- 4.3-15. Standard dust control measures of the Ventura County Air Pollution Control District shall be implemented to reduce impacts on nearby plants and wildlife. This includes a variety of options to reduce dust including replacing ground cover in disturbed areas as quickly as possible, watering active sites regularly, and suspending all excavating and grading operations during periods of high winds.
- 4.3-16. Upon completion of construction, the contractor shall be held responsible to restore any haul roads, access roads, or staging areas that are outside of approved grading limits. This restoration shall be done in consultation with the project biologist.
- 4.3-17. Mitigation for Southern Willow Scrub and Southern Riparian Scrub shall be provided in accordance with USACE and CDFW ~~CDFG~~ permit requirements and in conjunction with the City of Simi Valley and the Ventura County Watershed Protection District, since these plant communities are located along streambed channels regulated by these agencies. Mitigation shall consist of creation, restoration, enhancement, invasive species removal, in lieu fee payment or off-site property purchase, which are further described under the subsection below and mitigation measure 4.3-19.
- 4.3-18. The applicant shall obtain the appropriate permits from the regulatory agencies prior to the commencement of any project-related grading activities within jurisdictional drainages including wetland and non-wetland waters of the U.S. and within streambed as regulated by the California Department of Fish and Wildlife ~~Game~~. All subsequent activities shall follow the standards and special conditions set forth in the permits. In accordance with the agencies permits and agreements, the following minimum mitigation efforts shall be implemented to offset impacts to jurisdictional waters.

- 4.3-19. Mitigation for impacts to USACE, CDFW ~~CDFG~~, and RWQCB jurisdictional areas and to sensitive Southern Willow Scrub and Southern Riparian Scrub non-jurisdictional areas would be by any of the following singly or in combination:
    - Creation, restoration, and/or enhancement of sufficient acreage to mitigate for impacts to Corps jurisdictional waters and CDFW ~~CDFG~~ jurisdiction consisting of freshwater marsh (wetlands) southern willow woodland, southern willow scrub, southern riparian scrub, native grassland, and/or coast live oak woodland habitat on site; or
    - Removal of non-native plant species such as giant cane (*Arundo donax*), castor bean (*Ricinus communis*), and salt cedar (*Tamarix ramosissima*) within Tapo Canyon Creek, Gillibrand Canyon Creek (Tapo Canyon Tributary E) and Dry Canyon Creek on and/or off site to restore riparian function and value to portions of each drainage or elsewhere in the Arroyo Simi watershed; or
    - Purchase of an offsite parcel (or parcels of land within the Tapo Canyon Creek Watershed supporting sufficient USACE jurisdiction and CDFW ~~CDFG~~ jurisdiction and placing a conservation easement over the parcel (or parcels); and
    - For temporary impacts, restore sufficient acreage of USACE jurisdictional waters and CDFW ~~CDFG~~ jurisdiction resulting from temporary impacts to compensate for the impacts.
- 4.3-20 For any impacts or restoration/mitigation on site the activities shall by supervised by a qualified biologist approved by the Director of Environmental Services for the City of Simi Valley.
- 4.3-21. All impacted on-site stream channels and ponded areas shall be revegetated with native riparian vegetation, as approved by CDFW ~~CDFG~~ and the Director of Environmental Services, in accordance with the provisions agreed upon by the proponent, CDFW ~~CDFG~~ and the City.
- 4.3-22. Mitigation requirements shall be commenced prior or concurrent with the impacts, unless not feasible, and as agreed to by the agencies and the City.
- 4.3-23. Native planting shall occur along the banks of both sides of the channel within the existing project boundaries.
- 4.3-24. Monitoring shall be completed by a qualified biologist quarterly for a period of three years and annually for an additional two years.
- 4.3-25. Success criteria shall include creating wetland/riparian habitat equal to or greater in area and biological value than the jurisdictional resources impacted.
- 4.3-26. The loss of the tributary non-wetland waters of the U.S. and streambeds and the loss of associated riparian habitat shall be offset by the restoration of such habitat along the unlined portions of the major drainages. Plant species native to the area shall be used and restored areas will occur such that riparian functions and values will be enhanced.

- 4.3-27. The primary goal of channel maintenance is to provide adequate stormwater runoff and bank protection. Such activities must be of a design and frequency that is acceptable and approved by the USACE, CDFW ~~CDFG~~, RWQCB, and VCWPD.
- 4.3-28 The project applicant shall design wildlife overcrossings, undercrossings, and surface crossings to meet minimum standards for cross-section, length, location, fencing and vegetative plantings as shown in the habitat linkage studies prepared by Envicom Corporation. The applicant shall submit a Wildlife Corridor Exhibit for Corridors B, C, E, and F incorporating designs within the grading plan, in compliance with the mitigation measures within the studies to the City for review and approval of the Director of Environmental Services and the Director of Public Works. The applicant shall comply with the formulas and design parameters of the Envicom Reports and Undercrossing Structures of the study entitled A Consideration of Wildlife Movement in the Santa Susana Mountains. Designs in compliance with the described mitigation measures shall be submitted with the submission of the project improvement plans, grading plans, and permits for the project, and approved prior to the issuance of grading permits for the project.
- 4.3-29. The applicant shall prepare and submit a Wildlife Habitat Management Plan for review and approval by the Director of Environmental Services prior to the issuance of a Zone Clearance for the project, including therein provisions for biological monitoring to evaluate corridor functioning and appropriate funding to ensure the sustainability of the corridors, pursuant to the recommendations of pages 54 and 55 of the Envicom Wildlife Study. The Wildlife Habitat Management Plan may incorporate contemporary methodologies and practices that foster wildlife corridor objectives in maintaining open space connectivity.
- 4.3-30 Simi Valley Development Code Section 9-38.010(d)070(D) requires replacement of all mature trees, especially oak trees of the genus *Quercus* and species *agrifolia*, *berberidifolia*, and *lobata*; but also including historic trees and other protected mature trees, removed or otherwise impacted as a result of a development project. The value of the replacement trees shall be equal to the appraised value of the trees removed.
- 4.3-31. Prior to the issuance of a grading permit, the applicant shall obtain the services of a Certified Arborist, Horticulturalist, or Landscape Architect, who is approved by the Director of Environmental Services. The registered professional Arborist, Horticulturalist, or Landscape Architect shall be experienced in the removal and transplant of mature oak and walnut trees in order to prepare specific details regarding methodologies for excavation, planting, boxing, and/or specific relocation sites of mature trees.
- 4.3-32. Prior to the issuance of a grading permit, the registered professional Arborist, Horticulturalist, or Landscape Architect shall submit to the City, for approval by the Director of Environmental Services, a Mature Tree Protection, Relocation and Replacement Plan. Specific details regarding minimizing encroachments, tree protection, deadwood removal and pruning, watering and fertilization, diseases and pest, grading within driplines, and considerations regarding care of remaining mature trees shall be provided in the Mature Tree Protection, Relocation and

Replacement Plan. The following mitigation and monitoring measures shall be implemented in addition to and as part of the requirements set forth in the Simi Valley Development Code, and in the Mature Tree Protection, Relocation, and Replacement Plan.

- 4.3-33 Specific monitoring requirements and success criteria shall be developed by the Certified Arborist, Horticulturalist, or Landscape Architect, approved by the Director of Environmental Services, and included in the Mature Tree Protection, Relocation, and Replacement Plan. At a minimum, monitoring criteria shall require 80 percent survival of both saved and transplanted mature trees and 100 percent survival of supplemental plantings, at the conclusion of the monitoring period. Contingency actions shall include supplemental plantings until 100 percent survival is achieved.
- 4.3-34. The Certified Arborist, Horticulturalist or Landscape Architect shall determine watering and fertilization requirements. All container planted trees shall receive individual irrigation heads to initiate growth of container stock. Irrigation of a design acceptable by the registered professional Arborist, Horticulturalist or Landscape Architect, as approved by the City Landscape Architect, shall be established and maintained for a minimum of three years after supplemental planting is completed, or until such a time that the Certified Arborist, Horticulturalist or Landscape Architect has determined that it is no longer necessary for the survival of the tree. The Mature Tree Protection, Relocation, and Replacement Plan will further detail watering and fertilization requirements.
- 4.3-35. Prior to the issuance of a grading permit for the project, the applicant shall obtain a Tree Removal Permit as required by Simi Valley Development Code Section 9-38.060.
- 4.3-36 All preserved mature trees within the proposed grading limits shall be temporarily fenced with chain-link fencing located 5 feet outside of their driplines prior to commencement of grading activities. No equipment storage, debris drop, parking, etc., shall occur within the fenced area of the preserved oak trees during construction. Fencing shall remain during all phases of construction and shall not be moved or removed without knowledge of the Certified Arborist, Horticulturalist, or Landscape Architect and approved by the Director of Environmental Services.
- 4.3-37. Any brush clearance within 5 feet of the dripline of an oak tree shall be completed by handwork only. If this is not feasible, a Certified Arborist, Horticulturalist, or Landscape Architect shall be consulted and shall monitor the brush clearance, as well as any other activity that would occur under within 5 feet of the dripline of the tree.
- 4.3-38. All dead wood removal and/or pruning shall be accomplished by a qualified arborist and only after approval by the City's Landscape Architect. Pruning wounds shall not be sealed unless required by the City's Landscape Architect. Climbing "gaffs" shall not be used by any tree climber (except to reach an injured climber or when removing a tree).

- 4.3-39 The Certified Arborist, Horticulturalist, or Landscape Architect shall directly supervise the boxing, transport and replanting of removed healthy trees. Healthy mature trees that require removal due to project development shall be side-boxed no less than 90 days prior to relocation to the selected on-site location, and bottom-boxed no less than 1 week prior to relocation. After boxing has been completed, the boxed trees shall be transported and planted elsewhere on the Project Site, at a location where the on-site soils demonstrate the capacity to support the growth and maintenance of oak trees. Some of the trees to be removed will be transplanted in association with landscape design plans for the development area as approved by the City for this project. The majority of oak and other trees removed shall be transplanted on site, outside the development boundaries, in association with the Mature Tree Protection, Relocation, and Replacement Plan. Should it become evident that any removed mature trees cannot feasibly be relocated on the Project Site, a relocation site(s) shall be sought off site, subject to the approval of the Director of Environmental Services.
- 4.3-40 The applicant shall replace healthy mature trees, which cannot be boxed and transplanted, by the planting of not less than 48-inch box (container) sized trees, which have an aggregate value that is equal to the appraised value of the trees being replaced. The trees shall be grown from local seed stock. Smaller sized container saplings shall be planted in steeper areas that may preclude establishment of larger trees. Additional container stock saplings (15-gallon) shall be planted in the oak woodland mitigation area to mitigate for grading encroachments within the driplines of preserved oak trees. The rate at which these saplings will be transplanted shall be determined by the Certified Arborist, Horticulturalist, or Landscape Architect, with approval by the Director of Environmental Services, in compliance with the Simi Valley Development Code. Specific tree planting locations will be mapped and included in the Mature Tree Protection, Removal, and Replacement Plan.
- 4.3- 41. Prior to the grading of the Project Site, the vigor of the preserved-in place trees shall be assessed by the Certified Arborist, Horticulturalist, or Landscape Architect. Any trees in a weakened condition shall be treated as deemed necessary by the arborist, to invigorate them. Following that, during all phases of construction, the health of the trees shall be monitored on a monthly basis for disease signs and symptoms. These problems, should they arise, shall be remedied as recommended by the registered professional Arborist, Horticulturalist or Landscape Architect, and approved by the City's Landscape Architect.
- 4.3-42. In order to mitigate the impacts to approximately 3 acres of coast live oak woodland on the Project Site, the applicant shall artificially regenerate an oak woodland outside the development boundaries (including fuel management zones) of the Project Site. Specific steps discussing planting, transplanting, monitoring, and success criteria will be developed by the Certified Arborist, Horticulturalist or Landscape Architect and a qualified biologist and approved by the Director of Environmental Services, prior to approval of a grading permit for the project. The applicant shall replace the 3 acres of impacted coast live oak woodland by establishing a replacement coast live oak woodland totaling not less than 3 acres. The replacement woodland shall be established by the planting of not less than 36-inch-

box (container) sized trees at a ratio of not less than 10 trees per acre. The trees shall be grown from a local coast live oak seed stock. Smaller sized container saplings shall be planted in steeper areas that may preclude establishment of larger trees. Additional container stock saplings (15-gallon) shall be planted in the oak woodland mitigation area to mitigate for grading encroachments within the dripline of a preserved oak tree. The rate at which these saplings will be transplanted shall be determined by the Certified Arborist, Horticulturalist, or Landscape Architect, with approval by the Director of Environmental Services, in compliance with the Simi Valley Development Code. Specific tree planting locations will be mapped and included in the Mature Tree Protection, Removal, and Replacement Plan.

- 4.3-43. Specific monitoring requirements and success criteria shall be developed by the qualified arborist, approved by the Department of Environmental Services, and included in the Oak Woodland Regeneration Plan. However, at a minimum, criteria shall require 80 percent survival of both saved and transplanted mature trees and 100 percent survival of supplemental plantings, at the conclusion of a three-year monitoring period. Contingency actions shall include supplemental plantings until 80 percent survival of both saved and transplanted mature trees and 100 percent survival of supplemental plantings is achieved. Monitoring efforts will include evaluation of health and survival of both planted and transplanted trees. At a minimum, monitoring efforts will be conducted quarterly for the first three years.
- 4.3-44. Subject to the approval by the Director Environmental Services, additional oak tree plantings/transplants may occur in areas of disturbed coastal live oak woodland, consistent with existing plant community associations.
- 4.3-45. Specific details regarding methodologies for excavation, planting, boxing, and/or specific relocation sites of mature trees shall be included in the Mature Tree Protection, Removal and Replacement Plan, prior to grading activities, based on feasibility and procedures set forth by the registered professional Arborist, Horticulturalist or Landscape Architect.
- 4.3-46. Non-native shrubs and trees shall be removed from the revegetation areas and remaining coast live oak habitat on site.
- 4.3-47. Transplanted and container stock trees shall be planted on center at staggered distances in order to avoid extensive areas of closed canopy and to maintain areas of natural open savannah similar to existing conditions. Specific details of planting locations shall be outlined in the Oak Woodland Regeneration Plan and the Mature Tree Protection, Removal and Replacement Plan. Where it is recommended by the registered professional Arborist, Horticulturalist, or Landscape Architect, and approved by the City's Landscape Architect, that irrigation will be required, said irrigation shall be designed specifically for oak tree needs. Understory revegetation shall only be incorporated where it does not interfere with oak tree establishment and irrigation.

3.3.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
BIOLOGICAL RESOURCES – Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☑
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☐	☑
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☑
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☑
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☑
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☑

Would the Project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

No Substantial Change from Previous Analysis. The Proposed Project would result in fewer overall impacts to vegetation communities. The 2011 EIR disclosed that the Approved Project would result in direct impacts to a total of 790.72 acres of land. The Proposed Project would impact a total of 305.22 acres of land, which is a reduction in impacts of 485.50 acres (Chambers Group, 2024a). By substantially reducing the acreage of impacts, the Proposed Project would also reduce impacts related to special status species. Additional information is provided below related to specific species with potential to occur in the Project Site and nearby vicinity.

Special Status Plants

Protocol-level focused plant surveys were conducted in 2018, 2020, 2022, 2023, and 2024 within the Project Site. Of the 18 special status plant species that were identified with a potential for occurrence within the Project Site, as identified in the Approved Project's Native Plant Protection Plan (NPMP, GLA 2015), only Catalina mariposa lily (*Calochortus catalinae*) and slender mariposa lily (*Calochortus clavatus var. gracilis*) were recorded within the impact footprint of the Proposed Project. Impacts to these species will be mitigated through protection within the conserved lands of the Project Site in accordance with the terms of the Native Plant Protection Plan. Three additional California Rare Plant Rank (CRPR) 4 special status species, Hubby's phacelia (*Phacelia hubbyi*), San Diego viguiera (*Bahiopsis laciniata*), and Plummer's mariposa lily (*Calochortus plummerae*), were discovered during various surveying efforts from 2018 through 2023. As proposed, the Proposed Project would not result in impacts to areas containing Hubby's phacelia and San Diego viguiera. However, Plummer's mariposa lily was observed in 2024 within the impact footprint for the Proposed Project, which is a CRPR 4 species for which special protection is not afforded pursuant to CEQA. The other 14 species identified in the Native Plant Protection Plan were not observed during the surveys. These species are therefore presumed absent from the impact footprint for the Proposed Project. As such, the Proposed Project would result in no new or increased impacts related to special status plants. As required by the 2011 EIR, the Proposed Project would be required to implement the NPMP, which identifies methods for preserving special-status plant species at a 1:1 ratio within suitable habitats that would be preserved on the Project Site, or options for propagating those species that would be impacted within suitable habitats located within the proposed open space areas, but outside of fuel management zones, within the Project Site.

Special Status Animals

Coastal California Gnatcatcher

Although no coastal California gnatcatchers were observed during focused surveys conducted for the 2011 EIR, the 2011 EIR concluded that there was potential for this species to occur and applicable mitigation measures were included to avoid and offset impacts to gnatcatchers.

After certification of the 2011 EIR, in 2013, 2014, and 2016, coastal California gnatcatchers were observed during focused surveys within the southern portion of the Project Site in areas that are proposed to be conserved by the Proposed Project (Chambers Group, 2024a). None of the coastal California gnatcatcher territories or observations in 2013, 2014, and 2016 overlapped with areas of the Project Site that would be impacted by the Proposed Project (Chambers Group, 2024a).

In 2017, the USFWS issued a Biological Opinion for the Approved Project evaluated in the 2011 EIR, which included take coverage for the coastal California gnatcatcher. The 2017 Biological Opinion assumed impacts to 302.93 acres of suitable habitat and impacts to a total of up to 43 individual coastal California gnatcatchers consisting of five family groups, five pairs, and eight individuals, that would be impacted by the Approved Project (Chambers Group, 2024a).

As discussed in the Impact Analysis Memorandum, the Proposed Project would result in a 297.60-acre reduction of impacts to coastal sage scrub vegetation communities, which equates to a 71.5% reduction of impacts when compared to the Approved Project. Many of the coastal sage scrub communities that would be avoided comprise suitable habitat for coastal California gnatcatcher (Glenn Lukos Associates, 2025). The 2024 focused surveys for coastal California gnatcatcher did not identify any new individuals or territories. Focused surveys will be conducted again prior to construction of the Proposed Project to comply with mitigation measure 4.3-5.

In summary, the Proposed Project would result in approximately 123.46 acres of impacts to suitable coastal California gnatcatcher habitat, which is approximately 179.47 acres less of impacts to suitable habitat for coastal California gnatcatcher than was originally authorized by the USFWS in a Biological Opinion (BO) that was issued for the Approved Project in 2017 (Glenn Lukos Associates, 2025).

Given the reduction in impacts to suitable habitat for coastal California gnatcatcher, the Proposed Project would result in reduced impacts when compared to the Approved Project.

As required by the 2011 EIR, the Proposed Project would be required to implement mitigation measure 4.3-5, which requires that preconstruction surveys be conducted for coastal California gnatcatcher and that USFWS and CDFW be consulted if coastal California gnatcatchers are encountered to determine next steps.

Least Bell's Vireo

As disclosed in the 2011 EIR. the Project Site contains areas of suitable habitat for least Bell's vireo, including patches within Tapo Canyon Creek. The 2011 EIR stated that least Bell's vireo had been observed at other locations in the vicinity of the Project Site, but not within the Project Site itself. The 2011 EIR found that the Approved Project would have significant impacts related to least Bell's vireo, including the direct removal of habitat, which would be mitigated through conservation of habitat for this species. Protocol-level surveys for least Bell's vireo and other special status riparian birds were conducted in the Project Site in 2018, 2020, 2022, 2023, and 2024. According to the Project's Biological Resources Memorandum, there is no suitable habitat present in the impact footprint for the Proposed Project for least Bell's vireo or other special status riparian bird species. As such, the Proposed Project would have reduced impacts related to least Bell's vireo when compared to the Approved Project.

As required in the 2011 EIR, the Proposed Project would be required to implement mitigation measure 4.3-3, which requires that within one year prior to the grading or other proposed disturbances to Tapo Canyon Creek, the applicant shall retain a qualified biologist to conduct least Bell's vireo surveys, in accordance with USFWS protocols in areas of suitable habitat. Also, as required by mitigation measure 4.3-3, if construction activities are going to occur within the nesting season of the least Bell's vireo, and if least Bell's vireo individuals or active nests are observed or detected during protocol surveys, construction activities in the area shall be halted/postponed, and the CDFW and USFWS shall be contacted and informed of the finding immediately. The Proposed Project would also implement mitigation measure 4.3-3 also includes minimum requirements for compensatory mitigation of least

Bell's vireo habitat should it be impacted during construction. The Proposed Project would no longer include any impacts to Tapo Canyon Creek. As such, mitigation measure 4.3-3 is no longer applicable to the Proposed Project.

Pursuant to Section 7 of the Endangered Species Act, a Biological Opinion was previously issued for the Approved Project, which allows for one pair and one individual least Bell's vireo. Given the above, the Approved Project would not result in any increased impacts or new mitigation related to least Bell's vireo.

Southwestern Willow Flycatcher

The 2011 EIR found that the Approved Project would not result in any anticipated impacts to southwestern willow flycatcher given the species has never been observed on the Project Site or in the vicinity. Protocol-level surveys for southwestern willow flycatcher, were conducted in the Project Site in 2018, 2020, 2022, 2023, and 2024. According to the Project's Biological Resources Memorandum, there is no suitable habitat present in the impact footprint for the Proposed Project for southwestern willow flycatcher. As such, the Proposed Project would have no impacts to southwestern willow flycatcher, which is consistent with the Approved Project.

Western Burrowing Owl

The 2011 EIR disclosed that the Project Site contained suitable habitat for western burrowing owl and that this species had been previously recorded in the Project Site and nearby vicinity. Given the Approved Project's impacts to suitable habitat for burrowing owl, the 2011 EIR identified that this species would be significantly impacted prior to mitigation.

In 2014, the California Fish and Game Commission published their decision to make western burrowing owl a candidate for listing on the California Endangered Species Act. As such, the western burrowing owl now receives the same legal protection afforded to an endangered or threatened species.

As discussed in the Burrowing Owl Report, three burrowing owl surveys were conducted on January 6 – 7, January 19 – 20, and February 5 - 6, 2026, each spanning a two-day duration. No burrowing owls have been observed. Additionally, it is noted that pre-construction surveys conducted in October and November 2024 detected no burrowing owls or diagnostic sign thereof within or adjacent to the Project Site.

As required by mitigation measure 4.3-5, the Applicant will be required to conduct a preconstruction burrowing owl survey no more than three days prior to start of grading and major earthwork activities and to implement avoidance measures if burrowing owl are determined to be present during such surveys. Should burrowing owls be present, the protected area (500-foot buffer between Project activities and nesting burrowing owls during nesting season) will remain in effect until August 31 or at CDFW's discretion and based upon monitoring evidence, unless the young owls are foraging independently. Results of the surveys and relocation efforts shall be provided to CDFW in a mitigation status report.

The 2011 EIR described that the Approved Project would result in impacts to suitable habitat for northern harrier, which has been previously observed in the Project Site.

The 2011 EIR described that the Approved Project would result in impacts to suitable habitat for yellow warbler, which has been previously observed in the Project Site. With implementation of mitigation measure 4.3-4, which requires nesting bird surveys be conducted in certain situations and that nesting birds be avoided, impacts related to this species would be reduced to less than significant levels.

White-Tailed Kite

The 2011 EIR described that the Approved Project would result in impacts to suitable nesting and foraging habitat for white-tailed kite, which has moderate to high potential to occur on the Project Site. With implementation of mitigation measure 4.3-4, which requires nesting bird surveys be conducted in certain situations and that nesting birds be avoided, impacts related to this species would be reduced to less than significant levels. The Proposed Project would result in fewer overall impacts to habitat for white-tailed kite than would the Approved Project. The 2011 EIR disclosed that the Approved Project would result in direct impacts to a total of 790.72 acres of land. The Proposed Project would impact a total of 305.22 acres of land, which is a reduction in impacts of 485.50 acres (Chambers Group, 2024a). By substantially reducing the acreage of impacts, the Proposed Project would also reduce impacts to white-tailed kite when compared to the Approved Project

Western Spadefoot Toad

The 2011 EIR disclosed that the Approved Project would result in impacts to suitable habitat for western spadefoot toad, which had been observed in the Project Site. Therefore, the 2011 EIR included mitigation measure 4.3-2, which requires that focused surveys for western spadefoot toad, two-striped garter snake, and western pond turtle be conducted in consultation with CDFW and that if any of these species are identified in the Project Site that sensitive species protection plans be prepared and approved by CDFW prior to beginning construction. With implementation of this measure, impacts would be reduced to a less than significant level for this species. A habitat assessment was conducted in 2019 and 2023 for western spadefoot toad. The Applicant prepared a Western Spadefoot Toad Protection Plan for the Approved Project, in which a mitigation program would be implemented if the Approved Project were to (1) directly impact a western spadefoot toad occupied seasonal depression or lands within 250 feet of the occupied depression, and/or (2) directly impact lands occupied by western spadefoot toad adults. No western spadefoot toads were found within the impact footprint for the Proposed Project during the 2019 or 2023 surveys. The quality of the habitat within these proposed impact areas of the Project Site were determined not to be suitable for the western spadefoot toad. As discussed in the Proposed Project's Biological Resources Technical Memorandum, bio-filters proposed to be impacted by the Proposed Project were determined to not contain suitable habitat for western spadefoot toad. Given the above, the Approved Project would not result in any increased impacts or new mitigation related to western spadefoot toad.

Two-Striped Garter Snake

The 2011 EIR disclosed that the Approved Project would result in impacts to suitable habitat for two-striped garter snake, which has potential to occur in the Project Site. Therefore, the

2011 EIR included mitigation measure 4.3-2, which requires that focused surveys for western spadefoot toad, two-striped garter snake, and western pond turtle be conducted in consultation with CDFW and that if any of these species are identified in the Project Site that sensitive species protection plans be prepared and approved by CDFW prior to beginning construction. With implementation of this measure, the 2011 EIR Determined that impacts would be reduced to a less than significant level for this species. As discussed in the Proposed Project's Biological Resources Technical Memorandum, there is no suitable habitat for two-striped garter snake present within the impact footprint for the Proposed Project. Given the above, the Approved Project would not result in any increased impacts or new mitigation related to two-striped garter snake.

Western Pond Turtle

The 2011 EIR disclosed that the Approved Project would result in impacts to suitable habitat for southwestern pond turtle and that this species has potential to occur in the Project Site. Therefore, the 2011 EIR included mitigation measure 4.3-2, which requires that focused surveys for western spadefoot toad, two-striped garter snake, and western pond turtle be conducted in consultation with CDFW and that if any of these species are identified in the Project Site that sensitive species protection plans be prepared and approved by CDFW prior to beginning construction. With implementation of this measure, the 2011 EIR determined that impacts would be reduced to a less than significant level for this species. The Proposed Project's Biological Resources Technical Memorandum determined that there is no suitable habitat for western pond turtle present within the impact footprint for the Proposed Project. Given the above, the Approved Project would not result in any increased impacts or new mitigation related to western pond turtle.

Coastal Whiptail

The 2011 EIR disclosed that the Approved Project would result in impacts to suitable habitat for coastal whiptail, which had been observed in the Project Site. Mitigation measure 4.3-5 was specified requiring preconstruction coastal whiptail surveys, which would reduce impacts related to this species. The Proposed Project would result in fewer overall impacts to habitat for coastal whiptail than would the Approved Project. The 2011 EIR disclosed that the Approved Project would result in direct impacts to a total of 790.72 acres of land. The Proposed Project would impact a total of 305.22 acres of land, which is a reduction in impacts of 485.50 acres (Chambers Group, 2024a). By substantially reducing the acreage of impacts, the Proposed Project would also reduce impacts to white-tailed kite when compared to the Approved Project

Coast Horned Lizard

The 2011 EIR disclosed that the Approved Project would result in impacts to suitable habitat for coast horned lizard, which had been observed in the Project Site. Mitigation measure 4.3-5 was specified requiring preconstruction coast horned lizard surveys, which would reduce impacts related to this species. The Proposed Project would result in fewer overall impacts to habitat for coast horned lizard than would the Approved Project. The 2011 EIR disclosed that the Approved Project would result in direct impacts to a total of 790.72 acres of land. The Proposed Project would impact a total of 305.22 acres of land, which is a

reduction in impacts of 485.50 acres (Chambers Group, 2024a). By substantially reducing the acreage of impacts, the Proposed Project would also reduce impacts to coast horned lizard when compared to the Approved Project.

Conclusion

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

No Substantial Change from Previous Analysis. The Proposed Project would result in a 78.4% reduction in impacts to riparian habitat (Glenn Lukos Associates, 2025).

Similarly, the Proposed Project would result in reduced impacts to sensitive natural communities in the Project Site, which include Southern Willow Scrub, Mulefat Scrub, Willow Riparian, Western Sycamore Woodland, and Coast Live Oak Woodland (Glenn Lukos Associates, 2025). For example, the Proposed Project would result in an 86.2% reduction in impacts to Coast Live Oak Woodland areas of the Project Site (Glenn Lukos Associates, 2025).

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Substantial Change from Previous Analysis. The 2011 EIR disclosed that the Approved Project would result in impacts to streams and other jurisdictional waters, which would require the issuance of permits from the CDFW, RWQCB, and USACE. The 2011 EIR identified that the Approved Project would result in impacts to approximately 6.37 acres of jurisdictional waters. As required by mitigation measures 4.3-18 through 4.3-27 from the 2011 EIR, the Applicant would obtain permits from CDFW, RWQCB, and USACE and would negotiate compensatory mitigation with the regulatory agencies prior to conducting work in jurisdictional waters.

Based on the revised design for the Proposed Project, impacts to USACE jurisdictional waters have been reduced to 0.52-acre of permanent impacts. As required by the Section 404 permit that was issued by USACE for the Proposed Project, the Applicant would be required to implement on-site compensatory mitigation totaling 15.44 acres associated with USACE jurisdictional waters in the Project Site, as follows:

- 5.63 acres establishment of southern mixed willow riparian forest, mulefat scrub, coastal sage scrub, coyote brush scrub, and coast live oak woodland;

- 6.85 acres re-establishment of southern mixed willow riparian forest, mulefat scrub, and coastal sage scrub; and
- 2.96 acres of enhancement/invasive species removal of southern mixed willow riparian forest (1.48 ac credit received at 0.5:1 ratio).

Conservation easements have been recorded over the mitigation sites.

Impacts to CDFW streambed have been reduced to 3.77 acres of impacts. Similar to the mitigation approach for USACE jurisdictional waters, the Proposed Project would mitigate for 3.77 acres of impacts to CDFW streambed by implementing 15.44 acres of mitigation associated with CDFW streambed in the Project Site as follows:

- 5.63 acres establishment of southern mixed willow riparian forest, mulefat scrub, coastal sage scrub, coyote brush scrub, and coast live oak woodland;
- 6.85 acres re-establishment of southern mixed willow riparian forest, mulefat scrub, and coastal sage scrub; and
- 2.96 acres of enhancement/invasive species removal of southern mixed willow riparian forest (1.48 ac credit received at 0.5:1 ratio).

Conservation easements have been recorded over the mitigation sites.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

No Substantial Change from Previous Analysis. The 2011 EIR disclosed that the Approved Project would result in direct impacts to a total of 790.72 acres of land. The Proposed Project would impact a total of 305.22 acres of land, which is a reduction in impacts of 485.50 acres (Chambers Group, 2024a). By substantially reducing the acreage of impacts, entirely within the same overall footprint as the Approved Project, the Proposed Project would also reduce impacts related to wildlife movement when compared to the Approved Project.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Substantial Change from Previous Analysis. The 2011 EIR described that there were 683 protected trees inventoried in the Project Site, pursuant to the requirements contained in the City of Simi Valley's Development Code. The 2011 EIR disclosed that there would be 366 City-protected trees that would need to be directly impacted and/or removed in the Project Site as a result of the Approved Project. The Proposed Project would require the

removal of ## protected trees, which is a reduction in impacts of ## trees when compared to the 683 protected trees that were assumed to be removed as a part of the Approved Project.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Substantial Change from Previous Analysis. The Proposed Project does not occur within the boundaries of a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. As such, the Proposed Project would result in no impact related to this threshold.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to biological resources that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project. Mitigation measures from the 2011 EIR relating to biological resources continue to apply; however, no new mitigation measures are proposed as a part of the Proposed Project that would result in any new impacts that were not previously evaluated in the 2011 EIR.

3.4 CULTURAL RESOURCES

3.4.1 2011 EIR

The 2011 EIR identified that there were seven archaeological sites and nine isolated occurrences of prehistoric artifacts within the Project Site. As part of the development of the 2011 EIR, Phase I and Phase II investigations of the seven archaeological sites in the Project Site were conducted, which determined that these sites were not significant and that no additional studies of these sites were warranted. The 2011 EIR found that the Approved Project had a potential to result in the discovery of unknown archaeological resources in the Project Site. Mitigation measures 4.4.-1 through 4.4-5 were required for the Approved Project to mitigate impacts related to archaeological resources to less than significant levels.

The 2011 EIR found that there were no known cemeteries or burial grounds on the Project Site, but that the Project Site has a history of use by Native Americans. Therefore, the 2011 EIR determined that there was potential for the discovery of human remains, including unmarked burial grounds. Because the potential exists for human remains to be unearthed during the Proposed Project's grading activities, mitigation measure 4.4-6 was required for the Approved Project to mitigate impacts related to human remains.

The 2011 EIR disclosed that Patterson Ranch, which is a designated Ventura County Historical Landmark No. 71, is located in the Project Site adjacent to Bennett Road. As discussed in the 2011 EIR, there is a current historic resources management plan for the Whiteface Specific Plan that the Approved Project would be required to comply with. Structures associated with Patterson Ranch would be impacted by the Approved Project; therefore, mitigation measure 4.4-7 was required for the Approved Project which required that the Approved Project would modify its grading activities to exclude the Patterson Ranch Historical Landmark. Mitigation measure 4.4-7 required that grading activities shall not occur within 50 feet from the boundary of the Ventura County Historical Landmark No. 71 (Patterson Ranch) boundary.

Mitigation Program

- 4.4-1. Prior to the issuance of a grading permit, the project applicant shall retain a City-approved archaeologist to develop an archaeological mitigation and monitoring plan and a discovery clause/treatment plan. Both plans shall be reviewed and approved by the City Planning Division. The discovery clause/treatment plan shall include recovery and subsequent treatment of any archaeological or historical remains and associated data uncovered by brushing, grubbing, or excavation. The treatment plan shall provide procedures for the curation of any detected cultural specimens. Any recovered cultural resources shall be identified, sites recorded, mapped, and artifacts catalogued as required by standard professional archaeological practices. Examination by an archaeological specialist shall be included where necessary, dependent upon the artifacts, features, or sites that are encountered. Specialists will identify, date, and/or determine significance potential. A copy of the

executed agreement for monitoring the rough grading by the archaeologist and a Chumash monitor shall be submitted prior to issuance of the grading permit.

- 4.4-2. Prior to grading operations, a City-approved archaeologist shall be retained to make an assessment of the grading area to determine if full-time monitoring is needed. If the City-approved archaeologist is not needed full-time during grading activities, they shall be retained on-call during grading operations. If during earthmoving activities archaeological cultural deposits are discovered, all earthmoving activities shall be diverted temporarily in the immediate area (not less than 50 feet from the discovery site) around the deposits until the deposits have been evaluated, recorded, excavated, and/or recovered by a City-approved archaeologist, as necessary, and in accordance with the City-approved recovery plan. Earthmoving shall be allowed to proceed through the area after the archaeologist determines the artifacts are recovered and/or site mitigated to the extent necessary.
- 4.4-3. If a previously unknown cultural site is encountered during monitoring and it is determined by the archaeologist that a significance determination is required, the site shall be evaluated and recorded in accordance with requirements of the State Office of Historic Preservation (i.e., DPR 523 form). In this case, if the site is not determined to be significant, no measure subsequent to recording the site on appropriate forms is required. If any of the sites are determined to be significant, the City-approved archaeologist shall collect an adequate amount of artifacts at the specific archaeological site. The archaeologist shall determine the amount of artifacts needed to be collected.
- 4.4-4. Any recovered archaeological resources should be identified, sites recorded, mapped, and artifacts catalogued as required by standard archaeological practices. Examination by an archaeological specialist should be included where necessary, dependent upon the artifacts, features, or sites that are encountered. Specialists will identify, date, and/or determine significance potential.
- 4.4-5. A final report of findings will be prepared by the City-approved archaeologist for submission to the City, project applicant, and the South Central Coastal Information Center at California State University, Fullerton. The report will describe the history of the project area, summarize field and laboratory methods used, if applicable, and include any testing or special analysis information conducted to support the resultant findings.
- 4.4-6. If human remains are encountered during excavations associated with this project, all work shall halt, and the Ventura County Coroner shall be notified (Section 5097.98 of the Public Resources Code). The coroner will determine whether the remains are of forensic interest. If the coroner, with the aid of the City-approved archaeologist, determines that the remains are prehistoric, he/she will contact the Native American Heritage Commission (NAHC). The NAHC will be responsible for designating the most likely descendant (MLD), who will be responsible for the ultimate disposition of the remains, as required by Section 7050.5 of the California Health and Safety Code. The MLD will make his/her recommendations within 24 hours of being notified by the NAHC. This recommendation may include scientific

removal and nondestructive analysis of human remains and items associated with Native American burials (Section 7050.5 of the Health and Safety Code).

- 4.4-7. Prior to approval of Tentative Tract Maps, the project grading disturbance line shall be modified to exclude the Patterson Ranch Historical Landmark. Grading activities shall not occur within 50 feet from the boundary of the Ventura County Historical Landmark No. 71 (Patterson Ranch) boundary.
- 4.4-8. Prior to the issuance of grading permits, the project applicant shall retain a City-approved paleontologist to prepare a paleontological mitigation plan for the project. The mitigation plan shall include recovery and subsequent treatment of any paleontological resources and associated data uncovered by brushing, grubbing, or excavation. The treatment plan shall provide procedures for the curation of any detected paleontological resources. Any recovered paleontological resources shall be identified, sites recorded, mapped, and catalogued as required by standard professional paleontological practices. Examination by a qualified paleontologist shall be included where necessary, dependent upon the artifacts, features, or sites that are encountered. A qualified paleontologist will identify, date, and/or determine significance potential.
- 4.4-9. If during earthmoving activities paleontological deposits are discovered, all earthmoving activities shall be diverted temporarily in the immediate area (not less than 100 feet from the discovery site) around the deposits until the deposits have been evaluated, recorded, excavated, and/or recovered by a qualified paleontologist. Earthmoving shall be allowed to proceed through the area after the paleontologist determines the artifacts are recovered and/or site mitigated to the extent necessary. The qualified paleontologist will prepare a final monitoring and mitigation report to be filed with the client, the lead agency, and the repository.
- 4.4-10. Should the paleontological resource be determined to be significant by the paleontologist, the fossil discovery locality and field data forms will be used to record pertinent geologic data, stratigraphic sections will be measured, and appropriate sediment samples will be collected and submitted for analysis. Matrix sampling will be conducted to test for the presence of microfossils. Testing for microfossils shall consist of screen-washing small samples (approximately 200 pounds) to determine if significant fossils are present. If microfossils are present, additional matrix samples will be collected (up to 6,000 pounds per locality to ensure recovery of a scientifically significant microfossil sample).
- 4.4-11. Recovered fossils will be prepared to the point of curation, identified by a qualified paleontologist, listed in a database to facilitate analysis, and reposited in a designated paleontological curation facility, such as the Los Angeles County Museum.

3.4.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	☐	☑
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☐	☑
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☑

The responses in this section are partially based on a Cultural and Paleontological Resources Technical Memorandum that was prepared for the Proposed Project by Chambers Group in September 2024 (Chabers Group 2024c).

Would the Project:

a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5? and

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? and

c) Disturb any human remains, including those interred outside of formal cemeteries?

No Substantial Change from Previous Analysis. The updated record search and archival research results that were conducted for the Proposed Project did not substantively change the overall context, or the documented cultural sensitivity that was previously addressed in the 2011 EIR.

The Proposed Project would result in fewer overall impacts when compared to the Approved Project. The 2011 EIR disclosed that the Approved Project would result in direct impacts to a total of 790.72 acres of land. The Proposed Project would impact a total of 305.22 acres of land, which is a reduction in impacts of 485.50 acres (Chambers Group, 2024a). By substantially reducing the acreage of impacts, the Proposed Project would also reduce the potential for impacts to occur related to historical and archaeological resources, as well as related to human remains.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to cultural resources that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project. Mitigation measures from the 2011 EIR relating to cultural resources continue to apply; however, no new mitigation measures are proposed as a part of the Proposed Project that would result in any new impacts that were not previously evaluated in the 2011 EIR.

3.5 ENERGY

3.5.1 2011 EIR

Although the topic of energy was not part of the Appendix G of the State CEQA Guidelines at the time that the 2011 EIR was prepared, the topic of energy usage was evaluated in the 2011 EIR as a part of the air quality analyses contained in Section 4.2 of the 2011 EIR, which disclosed that the Approved project would result in demand for electricity, natural gas, gasoline, and other energy sources during construction and operation

Mitigation Program

The 2011 EIR did not include mitigation measures directly related to energy.

3.5.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
ENERGY – Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☐	☑
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☑

The responses in this section are based on an Energy Technical Memorandum that was prepared for the Proposed Project by Michael Baker International in January 2025 (Michael Baker International 2025b).

Would the Project:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

No Substantial Change from Previous Analysis. The 2011 EIR did not evaluate impacts pertaining to energy as it was not required at the time the 2011 EIR was prepared.

The impact analysis contained in the Energy Technical Memorandum prepared for the Proposed Project focuses on the three sources of energy that are relevant to the Proposed Project: electricity, natural gas, and transportation fuel for vehicle trips associated with project operations as well as the fuel necessary for project construction. The California Emissions Estimator Model (CalEEMod) version 2022.1 was utilized in the development of

the Energy Technical Memorandum to calculate the Proposed Project's construction and operational energy consumption.

As shown in Energy Technical Memorandum, during operation, the Proposed Project would constitute an approximate 0.0415 percent increase over County's typical annual electricity consumption and an approximate 0.0924 percent increase over the County's typical annual natural gas consumption; and vehicle fuel consumption would increase Ventura County's consumption by 0.2579 percent. During Phase 1 of construction of the Proposed Project, off-road construction equipment diesel fuel consumption and on-road construction fuel consumption would increase Ventura County's consumption by 2.1068 percent and 0.0153 percent, respectively. During construction of the Proposed Project, off-road construction equipment diesel fuel consumption and on-road construction fuel consumption would increase Ventura County's consumption by 2.4614 percent and 0.0340 percent, respectively.

Construction Energy Consumption

The Energy Technical Memorandum found that the Proposed Project would result in energy consumption in two general forms: (1) the fuel energy consumed by construction vehicles and equipment; and (2) bound energy in construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass. Fossil fuels for construction vehicles and other energy-consuming equipment would be used during demolition, grading, building construction, paving, and architectural coating. During construction of the Proposed Project, off-road fuel consumption and on-road fuel consumption would be approximately 111,911 gallons and 93,147 gallons, respectively. Consequently, the Proposed Project's off-road construction equipment diesel fuel consumption and on-road construction fuel consumption during Phase 2 would increase Ventura County's consumption by 2.4614 percent and 0.0340 percent, respectively. As such, the Proposed Project's construction would have a minimal effect on the local and regional energy supplies and would not require additional capacity. Some incidental energy conservation would occur during construction through compliance with State requirements that equipment not be in use for more than five minutes be turned off (i.e., Title 13, California Code of Regulations Section 2485). The Proposed Project's construction equipment would also be required to comply with the latest U.S. Environmental Protection Agency (USEPA) and CARB engine emissions standards. These emissions standards require highly efficient combustion systems that maximize fuel efficiency and reduce unnecessary fuel consumption. In addition, because the cost of fuel and transportation is a significant aspect of construction budgets, contractors and owners have a strong financial incentive to avoid wasteful, inefficient, and unnecessary consumption of energy during construction.

Substantial reductions in energy inputs for construction materials can be achieved by selecting building materials composed of recycled materials that require substantially less energy to produce than nonrecycled materials. The integration of green building materials can help reduce environmental impacts associated with the extraction, transport, processing, fabrication, installation, reuse, recycling, and disposal of these building industry source material. The Proposed Project's incremental increase in the use of energy bound in construction materials such as asphalt, steel, concrete, pipes and manufactured or processed materials (e.g., lumber and gas) would not substantially increase demand for energy

compared to overall local and regional demand for construction materials. Further, it is noted that construction fuel use is temporary and would cease upon completion of construction activities. There are no unusual project characteristics that would necessitate the use of construction equipment, or building materials, or methods that would be less energy efficient than at comparable construction sites in the region or State. Therefore, the Energy Technical Memorandum determined that the Proposed Project's fuel energy and construction materials consumed during construction would not represent a significant demand on energy resources and a less than significant impact would occur in this regard.

Operational Energy Consumption

Transportation Energy Demand

Pursuant to the Federal Energy Policy and Conservation Act of 1975, the National Highway Traffic and Safety Administration is responsible for establishing additional vehicle standards and for revising existing standards. Compliance with federal fuel economy standards is not determined for each individual vehicle model. Rather, compliance is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the United States. As indicated in the Energy Technical Memorandum prepared for the Proposed Project, operational fuel consumption for the Proposed Project is estimated to be approximately 658,862 gallons per year, which would increase Countywide automotive fuel consumption by 0.2579 percent. The Proposed Project does not propose any unusual features that would result in excessive long-term operational fuel consumption. The key drivers of transportation-related fuel consumption for the Proposed Project are passenger vehicles traveling to and from the Project Site. Additionally, light- and medium-duty trucks trips also account for a portion of the transportation-related fuel consumption used for street cleaning and trash collection that would be required for the Proposed Project. To reduce these potential impacts, the Proposed Project would provide electric vehicle (EV) charging facility in compliance with the Title 24 standards and would include short- and long-term bicycle parking spaces. This requirement would encourage and support alternative modes of travel and would thus reduce fuel consumption. Therefore, fuel consumption associated with vehicle trips generated by the project would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region. The Energy Technical Memorandum determined that the Proposed Project would result in a less than significant impact related to transportation energy demand and no mitigation is required.

Building Energy Demand

The CEC developed 2024 to 2040 forecasts for energy consumption and peak demand in support of the 2023 IEPR for each of the major electricity and natural gas planning areas and the State based on the economic and demographic growth projections. CEC forecasted baseline electricity consumption grows at a rate of about 1.7 percent annually through 2040 according to the Energy Technical Memorandum. The natural gas consumption grows at a rate of about 0.2 percent annually through 2035.1 As shown in the Energy Technical Memorandum for the Proposed Project, operational energy (electricity and natural gas) consumption for the Proposed Project would represent approximately 0.0415 and 0.0924

percent increase over the current Countywide electricity and natural gas consumption, which would be significantly below CEC's forecasts. Therefore, the Proposed Project would be consistent with the CEC's energy consumption forecasts and would not require additional energy capacity or supplies. Additionally, the Proposed Project would consume energy during the same time periods as other surrounding developments and would consume energy evenly throughout the day. As a result, the Proposed Project would not result in unique or more intensive peak or base period electricity demand. The Proposed Project would be required to comply with the most current Title 24, which provide minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting. Implementation of the most current Title 24 standards significantly reduces energy usage. Title 24 Building Energy Efficiency Standards are updated every 3-year and become more stringent between each update, as such complying with the most current Title 24 standards would make the Proposed Project more energy efficient than existing buildings built under the earlier versions of the Title 24 standards. Additionally, while the project would not install renewable energy systems for on-site energy generation, the installation solar-ready roofs would allow for the future addition of on-site energy production. The electricity provider for the City, SCE, is subject to California's Renewables Portfolio Standard (RPS) reflected in SB 100. The RPS requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 44 percent by the end of 2024, 52 percent by the end of 2027, 60 percent of total procurement by 2030, and 100 percent of total procurement by 2045. Renewable energy is generally defined as energy that comes from resources which are naturally replenished within a human timescale such as sunlight, wind, tides, waves, and geothermal heat. The increase in reliance of such energy resources further ensures that new development projects will not result in the waste of the finite energy resources. In summary, the Energy Technical Memorandum determined that the Proposed Project would result in a less than significant impact related to building energy demand and no mitigation is required.

Conclusion

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Substantial Change from Previous Analysis. The City does not have a plan adopted specifically for renewable energy or energy efficiency. As such, the analyses contained in the Proposed Project's Energy Technical Memorandum focused on the Proposed Project's consistency with applicable objectives, policies, and measures within the City's General Plan as well as the City's CAP.

The Energy Technical Memorandum determined that the Proposed Project would comply with all applicable goals and policies identified in the City's General Plan and CAP. The Energy Technical Memorandum determined that operational energy consumption for the Proposed Project would be substantially below CEC's forecasts in the 2023 IEPR (i.e.,

Statewide annual average growth rates of energy demand would be 1.7 percent for electricity and 0.2 percent for natural gas). Therefore, the Proposed Project was determined to be consistent with the CEC's 2023 IEPR. Further, the Proposed Project was determined in the Energy Technical Memorandum would be required to comply with the most current Title 24 (2022 Title 24), which provide minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting. The Proposed Project would also comply with the CALGreen standards which requires that new buildings increase building system efficiencies (e.g., lighting, HVAC, and plumbing fixtures) and would incorporate electric vehicles charging infrastructure. Implementation of the most current Title 24 standards would significantly reduce energy usage for the Proposed Project. Additionally, per the RPS, the Proposed Project would utilize electricity that would achieve 60 percent of total procurement by 2030, and 100 percent renewable energy by 2045. As such, the Proposed Project would comply with State energy plans including the 2023 IEPR, the most current Title 24 as well as CalGreen standards.

As shown in the Energy Technical Memorandum, the Proposed Project would comply with all applicable City's goals and policies for reducing energy usage and implementing energy efficiency. Therefore, the Proposed Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency and impacts would be less than significant. To further reduce impacts, the Proposed Project would implement mitigation measure 4.2-5 from the 2011 EIR, which requires incorporation of measures outlined in the BuildItGreen GreenPoint Checklist to an extent sufficient to score an overall Green Building rating for new residential structures proposed in this project. In conclusion, energy impacts resulting from the Proposed Project would be less than significant. The Proposed Project would not result in any new significant impacts compared to impacts that were disclosed in the 2011 EIR.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to energy that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project. Mitigation measures from the 2011 EIR relating to energy continue to apply; however, no new mitigation measures are proposed as a part of the Proposed Project that would result in any new impacts that were not previously evaluated in the 2011 EIR.

3.6 GEOLOGY AND SOILS

3.6.1 2011 EIR

The 2011 EIR analyzed potential impacts associated with the geological and soils conditions on the Project Site. Geotechnical evaluations of the Project Site were prepared as a part of the development of the 2011 EIR, which determined that the geotechnical characteristics vary greatly across the Project Site.

The 2011 EIR found that seismic activity is common across California, and that the Approved Project would result in less than significant impacts related to rupture of a known earthquake fault and strong seismic ground shaking with implementation of mitigation measures 4.5-1 and 4.5-2. Site investigations conducted for the 2011 EIR determined that the Simi-Santa Rosa fault is outside the limits of proposed development for the Proposed Project and there are no other known faults in the Project Site. Related to the proposed water tank, the 2011 EIR determined that the site where the water tank was proposed was neither underlain, nor immediately adjacent to active faults as defined by the State of California. The 2011 EIR disclosed that the nearest known active fault to the proposed water tank would be the SSRF, which is also a Alquist-Priolo Zone, located 1.5 miles south of the project boundary.

Mitigation measure 4.5-1 requires that prior to the approval of tract maps an earthquake engineering evaluation shall be performed to determine if ground motions within the Project Site would be amplified to an extent where greater than CBC and City code design values are required. A report documenting this evaluation shall be submitted to the City that contains appropriate design recommendations. Mitigation measure 4.5-2 requires that prior to approval of tentative tract maps, a detailed geotechnical investigation shall be performed by a state-certified geologist for the proposed water tank development and submitted to the City Engineer for review and approval. The investigation shall provide sufficient subsurface exploration to adequately characterize the site conditions. The investigation shall also address the various geotechnical aspects, including assessments for secondary earthquake effects of the proposed water tank development.

The 2011 EIR found that the Approved Project would result in significant impacts related to seismic-related ground failure, including liquefaction, which would put buildings built in the Project Site at higher risk of damage than buildings built on sites that are not susceptible to liquefaction. The 2011 EIR included mitigation measures 4.5-3 and 4.5-4 to reduce impacts related to this threshold to a less than significant level.

Mitigation measure 4.5-3 requires that prior to the approval of grading permits, a report documenting an evaluation of liquefaction zones shall be prepared for the Approved Project that shall contain appropriate liquefaction design recommendations for the proposed residential development. As required by mitigation measure 4.5-3, the known liquefaction zones in the impact footprint for the Approved Project shall be evaluated prior to the approval of grading permits to determine if groundwater is present and if soil/alluvial conditions are conducive to liquefaction and lateral spreading considering the potential earthquake ground shaking conditions for the site. Mitigation measure 4.5-3 requires that a report documenting this evaluation be prepared and submitted to the City Engineer for

review and approval and that the analysis contain appropriate liquefaction design recommendations (if needed) for the proposed residential development.

Mitigation measure 4.5-4 requires that prior to issuance of final grading permits, areas within the impact footprint of the Approved Project that have been determined by the State to have liquefaction and/or dynamic settlement potential, shall be appropriately remediated. Remediation may include the removal and replacement of liquefiable soils with compacted, drained fills, ground modification, and the design for potential settlement of liquefiable materials by a licensed civil engineer.

With implementation of mitigation measures 4.5-3 and 4.5-4, impacts related to ground failure would be reduced to less than significant levels.

The 2011 EIR disclosed that the Project Site contains a mix of steep topography and loose soils that are prone to landslides. The 2011 EIR found that following construction and occupancy of the buildings proposed by the Approved Project, structures and occupants of the Approved Project would be at a higher risk for damage and injury, respectively, if small or large landslides were to be triggered either by earthquakes or by other factors such a heavy rainfall or underground water sources.

The 2011 EIR found that the Approved Project would result in potentially significant impacts related to landslides requiring mitigation. Mitigation measure 4.5-5 was included for the Approved Project requiring that prior to the issuance of grading permits, the soils that have failed or are known to fail in the Project Site, and the resultant voids, shall be replaced with compacted fill and/or construction of buttress fills. All materials to be removed from the Project Site shall be overseen by a City-qualified engineer, free of deleterious materials (such as alluvium, colluvium, and uncompacted artificial fill), properly moisture conditioned, and certified by the City-qualified Engineer to be reused as compacted fill. 4.5-6 Prior to issuance of grading permits, proposed development near overlying natural slopes, boulder roll, and debris flow shall be reviewed and assessed by a City-qualified engineer. Development shall be proposed on the already disturbed areas and shall follow the requirements set forth in the Simi Valley Development Code Hillside Performance Standards. Where mass wasting could impact proposed improvements, procedures to enhance stability or eliminate potential impacts will be necessary on a site specific basis. 4.5-7 Prior to the issuance of grading permits, areas identified by the state as historical and/or potential landslide zones shall be reviewed by a licensed engineer or geologist and approved by the City Engineer to identify potential debris flow. Measures to stabilize landslides shall be submitted to the City Engineer for review and approval; such measures may include the design and construction of debris basins, containment walls, or debris fencing.

The 2011 EIR found that the Approved Project would result in temporary and permanent impacts related to soil erosion. Temporary erosion impacts would result from clearing, grubbing, and grading that would occur in the Project Site. As discussed in the 2011 EIR, the Approved Project would be required to comply with applicable laws requiring the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which would minimize short-term erosion impacts. During operation of the Approved Project, the 2011 EIR disclosed that the Approved Project would result in increased

impervious surface coverage in the Project Site, which would have the potential to increase erosion when compared to no project conditions. The 2011 EIR found that development of the proposed water tank would result in a potentially significant impact related to erosion. To reduce potential impacts related to erosion that could result from the proposed water tank, the 2011 EIR found that the Approved Project's potentially significant impacts would be reduced through implementation of mitigation measure 4.5-8, which requires that prior to the issuance of grading permits for the water tank pad, the Applicant shall prepare and submit to the City Engineer for review and approval, an analysis of the volume of oversize rock and rock rippability that has been prepared for the Approved Project by a qualified geologist. With implementation of mitigation measure 4.5-8, impacts related to soil erosion would be reduced to less than significant levels.

The 2011 EIR found that the Approved Project would result in potentially significant impacts related to soil instability, including lateral spreading, subsidence, liquefaction, and collapse prior to the implementation of mitigation. The Project Site contains a variety of soil types, some of which are prone to landslides, lateral spreading, subsidence, liquefaction, and collapse. Mitigation measures 4.5-9 through 4.5-19 were specified for the Approved Project in the 2011 EIR to reduce impacts related to this topic to less than significant levels.

As required by mitigation measure 4.5-9, prior to issuance of grading permits, mitigation plans for unstable slopes shall be prepared and submitted to the City Engineer for review and approval. Per mitigation measure 4.5-9, mitigation may include overexcavation and replacement with either drained stabilization fills or buttress fills. Stabilization fills should be utilized when cut slopes expose loose soils or faulted and fractured bedrock.

As required by mitigation measure 4.5-10, prior to the issuance or grading permits, a plan for structural setbacks, removal and replacement, or fill buttressing of landslides shall be prepared and submitted to the City Engineer for review and approval. As required by mitigation measure 4.5-10, the support of adverse bedding can be achieved by construction of drained buttress fills, the elimination of adverse bedding by slope layback, or containment of the hazard by catchment devices.

The 2011 EIR required that the Approved Project implement mitigation measure 4.5-11, which requires that prior to the issuance of grading permits; a plan for the removal of low density surficial soils from fill areas shall be prepared and submitted to the City Engineer for review and approval.

The 2011 EIR required that the Approved Project implement mitigation measure 4.5-12, which requires that prior to the issuance of grading permits plans for manufactured slopes shall be submitted to the City Engineer for review approval. Generally, fill slopes must be designed at a 2:1 (horizontal to vertical) or flatter ratio.

As required by mitigation measure, 4.5-13, prior to the issuance of grading permits for the Proposed Project, where landslides, adverse bedding, faulted or fractured bedrock, or other similar conditions exist on natural slopes superjacent to the planned tank pad and access road, plans for the potential hazard shall be prepared and submitted to the City Engineer for review and approval. As specified in mitigation measure 4.5-13, based on the grading design,

natural slope gradients, and underlying geologic conditions, mitigation techniques will likely be limited to removal and replacement of landslide debris.

As required by mitigation measure, 4.5-14, prior to issuance of grading permits, an evaluation of the interrelationships of the various combinations of slope configuration, geologic structure, and material strength characteristics will be prepared and submitted to the City Engineer for review and approval to assess each specific slope condition. Replacing withdrawn fluids with other fluids could mitigate potential for subsidence.

As required by mitigation measure, 4.5-15, prior to issuance of grading permits, site-specific geotechnical investigations to assess the potential for liquefaction under strong earthquake conditions, under the terms of the State of California Seismic Hazard Mapping Act, on all development within the state-designated liquefaction hazard zones shall be performed and the results, along with any proposed design features, submitted to the City Engineer for review and approval.

As required by mitigation measure, 4.5-16, prior to the issuance of grading permits, a qualified geologist shall develop site-specific analysis of the soils that contain landslide material, adverse bedding, faulted or fractured bedrock, or other similar conditions that exist on natural slopes in proximity to planned development, which shall be reviewed and approved by the City Engineer.

The 2011 EIR determined that the potential risks to life and property related to expansive units for the Approved Project would be potentially significant prior to the implementation of mitigation. Mitigation measure 4.5-17 was required for the Approved Project, which requires that prior to issuance of grading permits, plans for the areas of shallow groundwater and in cut areas, shall be submitted to the City Engineer for review and approval and shall include the installation of subdrains, backdrains, and slope toe drains.

As required by mitigation measure 4.5-18, prior to the issuance of grading permits, plans for those areas in the Project Site that have been designated to have highly expansive soils shall be submitted to the City Engineer for review and approval. Measures to control expansive soils shall include overexcavation of the expansive soils/bedrock and replacement with less expansive fill soils; proper design of foundations, slabs, streets and other improvements subject to the influence of these soils; selective grading techniques to place more highly expansive soils well below foundation elements; employment of pre-saturation techniques to lessen expansion potential; and control of surface and subsurface drainages to prevent moisture variations.

As required by mitigation measure 4.5-19, at the completion of grading, specific testing for expansion potential shall be performed by a qualified geologist on the as-graded near-surface materials and shall identify the findings in a report which would be submitted to the City Engineer for review and approval

In summary, with implementation of mitigation measure 4.5-9 through mitigation measure 4.5-19 from the 2011 EIR, potentially significant impacts related to soil instability, including potential landslides, lateral spreading, subsidence, liquefaction, and collapse would be reduced to less than significant levels.

In summary, the 2011 found that the Approved Project's impacts related to geological hazards would be less than significant with the implementation of the City of Simi Valley ordinances, such as the Hillside Performance Standards (HPS), the measures contained in the California Building Code (CBC), and mitigation measure 4.5-1 through mitigation measure4.5-19.

As described above, the 2011 EIR includes analysis of the Approved Project's proposed water tank that would be located just north of the existing water tank within the Project Site. A geotechnical investigation was conducted in the general vicinity of the proposed tank site as a part of the development of the 2011 EIR, which included the excavation and logging of numerous test pits and borings. In addition to the geotechnical investigations, geologic data was obtained during the grading of the existing water tank pad. The 2011 EIR determined that impacts related to the proposed water tank would be less than significant with implementation of the CBC and proposed mitigation measure 4.5-1 through mitigation measure 4.5-19.

Mitigation Program

- 4.5-1. In addition to all structures being designed in accordance with the California Building Code (CBC) and applicable City codes to ensure safety in the event of an earthquake, prior to the approval of tract maps an earthquake engineering evaluation shall be performed using PGA-based assessments to determine if ground motions within the Project Site would be amplified to an extent where greater than CBC and City code design values are required. A report documenting this evaluation shall contain appropriate design recommendations and shall be prepared and submitted to the City Engineer for review and approval prior to issuance of a grading permit. This shall include the potential for seiche- or ground failure-induced flooding from the water tank located within the Project Site.
- 4.5-2. Prior to approval of tentative tract maps, a detailed geotechnical investigation should be performed by a state-certified geologist for the proposed water tank development and submitted to the City Engineer for review and approval. The investigation should provide sufficient subsurface exploration to adequately characterize the site conditions. The investigation should address the various geotechnical aspects, including PGA-based assessments for secondary earthquake effects, of the proposed water tank development and should provide recommendations and mitigation measures as necessary.
- 4.5-3. Prior to the approval of grading permits, a report documenting an evaluation of liquefaction zones shall be prepared and contain appropriate liquefaction design recommendations for the proposed residential development. Identified liquefaction zones (Figure 4.5-5) of the proposed residential development shall be evaluated prior to the approval of grading permits to determine if groundwater is present and if soil/alluvial conditions are conducive to liquefaction and lateral spreading considering the potential earthquake ground shaking conditions for the site. A report documenting this evaluation shall be prepared and submitted to the City Engineer for review and approval. The analysis shall contain appropriate liquefaction design recommendations (if needed) for the proposed residential development.

- 4.5-4. Prior to issuance of final grading permits, areas within the proposed development determined by the State to have liquefaction and/or dynamic settlement potential, shall include the removal and replacement of liquefiable soils with compacted, drained fills, ground modification, and design for potential settlement of liquefiable materials by a licensed civil engineer would be required during the design and construction process to adhere to state policy regarding liquefaction.7 Proof of review shall be submitted to the City Engineer.
- 4.5-5. Prior to the issuance of grading permits, the soils that have failed or are known to fail, and the resultant voids, shall be replaced with compacted fill and/or construction of buttress fills. All materials to be removed from the Project Site shall be overseen by a City-qualified engineer, free of deleterious materials (such as alluvium, colluvium, and uncompacted artificial fill), properly moisture conditioned, and certified by the City-qualified Engineer to be reused as compacted fill.
- 4.5-6. Prior to issuance of grading permits, proposed development near overlying natural slopes, boulder roll, and debris flow shall be reviewed and assessed by a City-qualified engineer. Development shall be proposed on the already disturbed areas and shall follow the requirements set forth in the Simi Valley Development Code Hillside Performance Standards. Where mass wasting could impact proposed improvements, procedures to enhance stability or eliminate potential impacts will be necessary on a site specific basis.
- 4.5-7. Prior to the issuance of grading permits, areas identified by the state as historical and/or potential landslide zones shall be reviewed by a licensed engineer or geologist and approved by the City Engineer to identify potential debris flow. Measures to stabilize landslides shall be submitted to the City Engineer for review and approval; such measures may include the design and construction of debris basins, containment walls, or debris fencing.
- 4.5-8. Prior to the issuance of grading permits for the water tank pad, the developer shall prepare and submit to the City Engineer for review and approval, an analysis of the volume of oversize rock and rock rippability by a qualified geologist. Bedrock units are likely to produce oversize (>12 inches) material during excavation; these oversized materials will require special handling during grading to ensure that oversize materials are not placed at or near pad grades. Typically, deep fills can be used to accommodate oversize rocks, and placement of oversize rock using controlled disposal procedures is an accepted and effective technique.
- 4.5-9. Prior to issuance of grading permits, mitigation plans for unstable slopes shall be prepared and submitted to the City Engineer for review and approval. Mitigation may include overexcavation and replacement with either drained stabilization fills or buttress fills. Stabilization fills should be utilized when cut slopes expose loose soils or faulted and fractured bedrock. Where grading limits are not constrained, cut slope instability can be mitigated by constructing slopes at flatter angles than the underlying geologic structure.
- 4.5-10. Prior to the issuance or grading permits, a plan for structural setbacks, removal and replacement, or fill buttressing of landslides shall be prepared and submitted to the City Engineer for review and approval. The support of adverse

bedding can be achieved by construction of drained buttress fills, the elimination of adverse bedding by slope layback, or containment of the hazard by catchment devices. Correction of local surficial instabilities including debris flow and rockfall will be required and could include establishment of structural setbacks, construction of catchment devices, or physical elimination of the hazard by removal or containment.

- 4.5-11. Prior to the issuance of grading permits; a plan for the removal of low density surficial soils (such as alluvium, colluvium, and landslide materials) from fill areas shall be prepared and submitted to the City Engineer for review and approval. This will, include the identified low-density surficial soils, such as alluvium, colluvium, nonengineered fill and unsuitable landslide materials, prior to fill placement and where exposed at grade in cut areas. As the project design becomes more specific, further evaluation of the limits, depths, and engineering characteristics of low-density, unsuitable soils should be conducted, as required by the City Engineer, by a City-qualified engineer and specific removal criteria should be established. Generally, removed materials may be reused as compacted fill when free of deleterious materials and properly moisture conditioned.
- 4.5-12. Prior to the issuance of grading permits plans for manufactured slopes shall be submitted to the City Engineer for review approval. Fill slopes should be designed at a 2:1 (horizontal to vertical) or flatter ratio. Locally steeper fill slopes can be considered but should be constructed with geosynthetics to enhance the shear strength of fill materials. Higher compaction standards (typically 93 percent of the laboratory maximum density) should be implemented in deeper fills (greater than 50 feet) to enhance engineering characteristics and reduce the amount of potential settlement. Subsurface drainage devices should be installed below fills to intercept and direct water that may seep from the bedrock or be introduced from the surface.
- 4.5-13. Prior to the issuance of grading permits, where landslides, adverse bedding, faulted or fractured bedrock, or other similar conditions exist on natural slopes superjacent to the planned tank pad and access road, plans for the potential hazard shall be prepared and submitted to the City Engineer for review and approval. Based on the grading design, natural slope gradients, and underlying geologic conditions, mitigation techniques will likely be limited to removal and replacement of landslide debris. Correction of local surficial instabilities including soil slip/creep may be required and could include establishment of structural setbacks, construction of catchment devices, or physical elimination of the hazard by removal or containment.
- 4.5-14. Prior to issuance of grading permits, an evaluation of the interrelationships of the various combinations of slope configuration, geologic structure, and material strength characteristics will be prepared and submitted to the City Engineer for review and approval to assess each specific slope condition. Replacing withdrawn fluids with other fluids could mitigate potential for subsidence.
- 4.5-15. Prior to issuance of grading permits, site-specific geotechnical investigations to assess the potential for liquefaction under strong earthquake conditions, under the terms of the State of California Seismic Hazard Mapping Act, on all development within the state-designated liquefaction hazard zones shall be performed and the

results, along with any proposed design features, submitted to the City Engineer for review and approval.

- 4.5-16. Prior to the issuance of grading permits, a qualified geologist shall develop site-specific analysis of the soils that contain landslide material, adverse bedding, faulted or fractured bedrock, or other similar conditions that exist on natural slopes in proximity to planned development, which shall be reviewed and approved by the City Engineer.
- 4.5-17. Prior to issuance of grading permits, plans for the areas of shallow groundwater and in cut areas, shall be submitted to the City Engineer for review and approval and shall include the installation of subdrains, backdrains, and slope toe drains. In canyon bottoms, beneath design fills, subdrains are typically placed after the removal of unsuitable soils. All such drains should be designed to outlet into approved drainage devices. Control of surface waters is typically accomplished by storm water facilities and proper design and maintenance of surface drainage patterns.
- 4.5-18. Prior to the issuance of grading permits, plans for those areas that have been designated to have highly expansive soils shall be submitted to the City Engineer for review and approval. Measures to control expansive soils include overexcavation of the expansive soils/bedrock and replacement with less expansive fill soils; proper design of foundations, slabs, streets and other improvements subject to the influence of these soils; selective grading techniques to place more highly expansive soils well below foundation elements; employment of pre-saturation techniques to lessen expansion potential; and control of surface and subsurface drainages to prevent moisture variations.
- 4.5-19. At the completion of grading, specific testing for expansion potential shall be performed by a qualified geologist on the as-graded near surface materials and shall identify the findings in a report which would be submitted to the City Engineer for review and approval.

3.6.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
GEOLOGY AND SOILS – Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☑
ii) Strong seismic ground shaking?	☐	☐	☐	☑
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☑
iv) Landslides?	☐	☐	☐	☑
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☑
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☑
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☑
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☑
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☑

Would the Project:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

ii) Strong seismic ground shaking?

No Substantial Change from Previous Analysis. Based on a review of updated mapping of faults provided by the USGS, only the Simi-Santa Rosa fault zone occurs in the vicinity of the Project Site, which is the same as was disclosed in the 2011 EIR (USGS 2025a).

The Proposed Project would not result in impacts to any new areas of the Project Site that would increase impacts related to the rupture of a known earthquake fault or related to strong seismic ground shaking. The Proposed Project would move the proposed residential units from areas that are south of Lost Canyons Drive, closer to the fault zone, to areas north of Lost Canyons Drive that are further from the fault zone.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

iii) Seismic-related ground failure, including liquefaction?

No Substantial Change from Previous Analysis. As identified in the 2011 EIR, the 2025 Seismic Hazard Zone Mapping maintained by the California Geological Survey shows that much of the Project Site, including the impact footprint for the Proposed Project, are located within liquefaction zones, which are areas where liquefaction may occur during a strong earthquake (CGS 2025a). The Proposed Project would implement mitigation measures 4.5-9 through 4.5-19 from the 2011 EIR, which would reduce potentially significant impacts related to seismic-related ground failure, including liquefaction, to less than significant levels. The Proposed Project would occur within the same impact footprint as was approved for the Approved Project; therefore, the Proposed Project would not expand impacts into any new areas that are prone to landslides that were not previously evaluated.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

iv) Landslides?

No Substantial Change from Previous Analysis. As identified in the 2011 EIR, the 2025 Seismic Hazard Zone Mapping maintained by the California Geological Survey shows that much of the Project Site is susceptible to landslides; however, the portion of the Project Site that would be developed by the Proposed Project contains much fewer landslide susceptible areas as there are south of Lost Canyons Drive. The Proposed Project would implement mitigation measures 4.5-9 through 4.5-19 from the 2011 EIR, which would reduce potentially significant impacts related to seismic-related ground failure, including landslides, to less than significant levels. The Proposed Project would occur within the same impact footprint as was approved for the Approved Project; therefore, the Proposed Project would not expand impacts into any new areas that are prone to landslides that were not previously evaluated.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

b) Result in substantial soil erosion or the loss of topsoil?

No Substantial Change from Previous Analysis. As with the Approved Project, the Proposed Project would result in temporary and permanent impacts related to soil erosion. Temporary erosion impacts would result from clearing, grubbing, and grading that would occur in the Project Site. The Proposed Project would be required to comply with applicable

laws requiring the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which would minimize short-term erosion impacts. Given that the Proposed Project would result in less ground disturbance than would the Approved Project, soil erosion would be less for the Proposed Project than for the Approved Project.

During operation of the Proposed Project, the Proposed Project would result in increased impervious surface coverage in the Project Site when compared to existing conditions, which would have the potential to increase erosion when compared to no project conditions. However, the Proposed Project would result in the addition of less impervious surface than would the Approved Project, given the overall reduction in impacts that would occur with the Proposed Project when compared to the Approved Project. Also, as with the Approved Project, the Proposed Project would be required to implement operational best management practices related to water quality that would reduce these impacts.

The Proposed Project would not change the impacts related to the proposed water tank in the Project Site, and mitigation measure 4.5-8 would still be applicable to the Proposed Project.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

No Substantial Change from Previous Analysis. As with the Approved Project, the Proposed Project would result in potentially significant impacts related to soil instability, including lateral spreading, subsidence, liquefaction, and collapse prior to the implementation of mitigation. As disclosed in the 2011 EIR, the Project Site contains a variety of soil types, some of which are prone to landslides, lateral spreading, subsidence, liquefaction, and collapse. Mitigation measure 4.5-9 through mitigation measure 4.5-19 that were specified for the Approved Project in the 2011 EIR to reduce impacts would also apply to the Proposed Project. The Proposed Project would occur within the same impact footprint as was approved for the Approved Project; therefore, the Proposed Project would not expand impacts into any new areas that are geologically unstable that were not previously evaluated.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

d) h) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

No Substantial Change from Previous Analysis. As with the Approved Project, the Proposed Project would result in potentially significant impacts related to soil instability, including lateral spreading, subsidence, liquefaction, and collapse prior to the implementation of mitigation. As disclosed in the 2011 EIR, the Project Site contains a variety of soil types, some of which are prone to landslides, lateral spreading, subsidence, liquefaction, and collapse. Mitigation measure 4.5-9 through mitigation measure 4.5-19 that

were specified for the Approved Project in the 2011 EIR to reduce impacts would also apply to the Proposed Project. The Proposed Project would occur within the same impact footprint as was approved for the Approved Project; therefore, the Proposed Project would not expand impacts into any new areas that are geologically unstable that were not previously evaluated.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Substantial Change from Previous Analysis. The Proposed Project does not propose any new septic tanks or other wastewater disposal systems.

According to the 2011 EIR, the golf course clubhouse and the residence at the bunkhouse had septic systems for their sewer discharge. However, according to the DTSC's EnviroStor mapper, it appears that these septic tanks have since been removed (DTSC 2025a).

Therefore, the Proposed Project would not result in any new significant impacts related to this threshold.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No Substantial Change from Previous Analysis. A paleontological assessment was prepared for the Approved Project, which determined that at least 18 vertebrate fossil localities yielding more than 2,400 individual vertebrate specimens have been documented within the Project Site and in its immediate vicinity. The 2011 EIR determined that mitigation measures were required related to paleontological resources given the paleontological sensitivity in the Project Site. Mitigation measure 4.4.-8 through mitigation measure 4.4-11 were required for the Approved Project to mitigate impacts related to archaeological resources to less than significant levels. The Proposed Project would occur within the same impact footprint as was approved for the Approved Project; therefore, the Proposed Project would not expand impacts into any new areas that are paleontologically sensitive that were not previously evaluated.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to geology and soils that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project. Mitigation measures from the 2011 EIR relating to geology and soils continue to apply; however, no new mitigation measures are proposed as a part of the Proposed Project that would result in any new impacts that were not previously evaluated in the 2011 EIR.

3.7 GREENHOUSE GAS EMISSIONS

3.7.1 2011 EIR

Although the topic of greenhouse gas emissions was not part of the Appendix G of the State CEQA Guidelines at the time the 2011 EIR was prepared, the issue of GHG emissions and climate change impacts is not new information that was not known or could not have been known at the time of the certification of the 2011 EIR.

The United Nations Framework Convention on Climate Change (UNFCCC) was established in 1992. The regulation of GHG emissions to reduce climate change impacts was extensively debated and analyzed throughout the early 1990s. The studies and analyses of this issue resulted in the adoption of the Kyoto Protocol in 1997. Many EIRs from 2006 and earlier described how climate change (often called global warming) would result in sea-level rise and other environmental changes. At the time of approval of the 2011 EIR, the contribution of GHG emissions to climate change was a prominent issue of concern. Therefore, the fact that GHG emissions could have a significant adverse environmental impact was known at the time the General Plan was approved and the 2011 EIR was certified.

Greenhouse gas emissions was not evaluated as a standalone topic in the 2011 EIR given that it was not part of the Appendix G of the State CEQA Guidelines at the time that the 2011 EIR was prepared. However, the topic of greenhouse gas emissions for the Approved Project was evaluated in the 2011 EIR as a part of the air quality analyses contained in Section 4.2 of the 2011 EIR.

Overall related to greenhouse gas emissions, the 2011 EIR disclosed that the Approved Project would result in operational greenhouse gas emissions from automobiles and other sources such as utilities The 2011 EIR also quantified the anticipated greenhouse gas emissions for construction of the Approved Project. The 2011 EIR determined that the Approved Project would result in less than significant impacts related to greenhouse gas emissions with implementation of mitigation measure 4.2-5, which requires that measures from the BuildItGreen GreenPoint Checklist be incorporated into the Approved Project's design.

Mitigation Program

The 2011 EIR did not include mitigation measures directly related to greenhouse gas emissions.

3.7.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
GREENHOUSE GAS EMISSIONS – Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☐	☑
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☑

The responses in this section are based on a Greenhouse Gas Emissions Technical Memorandum that was prepared for the Proposed Project by Michael Baker International in January 2025 (Michael Baker International 2025c).

Would the Project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

No Substantial Change from Previous Analysis.

Project-Related Greenhouse Gas Emissions

The Proposed Project would not result in the addition of any new land uses compared to what was previously analyzed in the 2011 EIR.

Project-related GHG emissions would include emissions from direct and indirect sources. Direct project-related GHG emissions would include emissions from construction activities, area sources, mobile sources, and refrigerants, while indirect sources would include emissions from energy consumption, water demand, and solid waste generation. The CalEEMod model was used as a part of the development of the Proposed Project's Air Quality Technical Memorandum to calculate project-related GHG emissions that would result from the Proposed Project (Michael Baker International 2025a). The Proposed Project would be subject to mitigation measure 4.2-5 from the 2011 EIR, which aims to achieve a Green Building rating for new residential structures.

Direct Project-Related Source of Greenhouse Gases

Construction Emissions

As discussed in the Air Quality Technical Memorandum, the Proposed Project would result in a total of 3,557 MTCO2e of emissions during construction. Construction GHG emissions were amortized over 30 years (i.e., total construction emissions divided by the lifetime of the project, assumed to be 30 years). The amortization takes into consideration the temporary nature of construction activities. As shown in the Air Quality Technical Memorandum, construction of the Proposed Project was modeled and is estimated to generate approximately 118.57 MTCO2e of emissions per year when amortized over 30 years. Given the smaller footprint, the Proposed Project would result in less grading and would thereby result in less construction greenhouse gas emissions than would the Approved Project.

Mobile Source Emissions

According to the Transportation Technical Memorandum, the Proposed Project would result in 3,483 daily trips per day (Michael Baker International 2025c). As a result, the Proposed Project would result in a total of 4,000 MTCO2e per year of GHG emissions from mobile source (Michael Baker International 2025a). Given the same number of residential units would be developed, the Proposed Project would result in similar mobile source emissions as would the Approved Project.

Area Source Emissions

Area source emissions would be generated due to an increased demand for consumer products, architectural coating, and landscaping associated with the development of the Proposed Project. As shown in the Air Quality Technical Memorandum, the Proposed Project would result in a total of 4.53 MTCO2e per year of GHG emissions from area source. Given the same number of residential units would be developed, the Proposed Project would result in similar source emissions as would the Approved Project.

Refrigerants

Refrigerants are substances used in equipment for air conditioning and refrigeration. Most of the refrigerants used today are HFCs or blends thereof, which can have high global warming potential values. All equipment that uses refrigerants has a charge size (i.e., quantity of refrigerant the equipment contains), and an operational refrigerant leak rate, and each refrigerant has a global warming potential that is specific to that refrigerant. CalEEMod quantifies refrigerant emissions from leaks during regular operation and routine servicing over the equipment lifetime, and then derives average annual emissions from the lifetime estimate. As noted in the Air Quality Technical Memorandum, the Approved Project would result in 0.85 MTCO2e per year of GHG emissions from refrigerants. Given the same number of residential units would be developed, the Proposed Project would result in similar emissions of refrigerants as would the Approved Project.

Indirect Project-Related Source of Greenhouse Gases

Energy Consumption

Energy consumption emissions were calculated for the Proposed Project using the CalEEMod model and project-specific land use data as a part of the development of the Air Quality Technical Memorandum. The Proposed Project would be required to comply with the most current Title 24. Title 24 provides minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting. Additionally, the Proposed Project would include solar-ready roofs. Overall, the Proposed Project would indirectly result in 1,205 MTCO2e per year of GHG emissions due to energy consumption.

Water Demand

According to the Air Quality Technical Memorandum prepared for the Proposed Project, emissions from indirect impacts from water use for the Proposed Project would result in 90.6 MTCO2e per year of GHG emissions. Given the same number of residential units would be developed, the Proposed Project would result in similar emissions related to water demand as would the Approved Project.

Solid Waste

Solid waste associated with operations of the Lost Canyons Project would result in 91.4 MTCO2e per year of GHG emissions. Given the same number of residential units would be developed, the Proposed Project would result in similar emissions related to solid waste as would the Approved Project.

Total Project-Related Sources of Greenhouse Gases

As shown in the Air Quality Technical Memorandum, the total amount of the Proposed Project's GHG emissions, from direct and indirect sources combined would total approximately 5,510.95 MTCO2e per year. According top the Air Quality Technical Memorandum, these emissions would be lower than what was previously disclosed in the 2011 EIR for the Approved Project.

Consistency With Applicable Plans

The consistency analysis for the Approved Project within the 2011 EIR is based on the AB 32 Climate Change Scoping Plan, also known as 2008 Scoping Plan. However, this document has since been updated, with the most recent approved iteration being the 2022 Scoping Plan. The GHG plan consistency analysis for the project is based on the Proposed Project's consistency with the CARB's 2022 Scoping Plan, SCAG's 2020-2045 RTP/SCS, and City's General Plan as well as the City's CAP.

Consistency With 2022 Scoping Plan

The 2022 Scoping Plan identifies reduction measures necessary to achieve the goal of carbon neutrality by 2045 or earlier. Actions that reduce GHG emissions are identified for each AB 32 inventory sector. An evaluation of applicable reduction actions/strategies by emissions source category is provided for the Proposed Project within the Air Quality Technical Memorandum. As described therein, the Proposed Project would be consistent with the applicable reduction actions/strategies outlined in the 2022 Scoping Plan.

Consistency With the SCAG 2020-2045 RTP/SCS

On September 3, 2020, the Regional Council of SCAG formally adopted the 2020-2045 RTP/SCS. The 2020- 2045 RTP/SCS includes performance goals that were adopted to help focus future investments on the best-performing projects, as well as different strategies to preserve, maintain, and optimize the performance of the existing transportation system. The SCAG 2020-2045 RTP/SCS is forecast to help California reach its GHG reduction goals by reducing GHG emissions from passenger cars by eight percent below 2005 levels by 2020 and 19 percent by 2035 in accordance with the most recent CARB targets adopted in March 2018. Five key SCS strategies are included in the 2020-2045 RTP/SCS to help the region meet its regional VMT and GHG reduction goals, as required by the State. Table 3, Consistency with the 2020-2045 RTP/SCS shows the project's consistency with these five strategies found within the 2020-2045 RTP/SCS.

The 2024-2050 RTP/SCS (Connect SoCal 2024) was adopted on April 4, 2024. However, CARB concluded that the technical methodology SCAG used to quantify the GHG emission reductions for the Connect SoCal 2024 does not operate accurately. At the time of preparation of this EIR Addendum, CARB has not made its determination. Review by CARB is limited to acceptance or rejection of SCAG's determination that its SCS would, if implemented, achieve the region's GHG emissions reduction target. If CARB rejects SCAG's determination of meeting the GHG emission target, SCAG would need to revise the SCS or adopt an alternative planning strategy demonstrating the ability to achieve the target. As such, until CARB makes the decision, Connect SoCal 2024 is not a fully adopted document and is potentially subject to further updates, especially from the GHG reduction perspective of the methods and assumptions of the calculation of Auto Operating Costs (AOC)10, induced travel, electric vehicle incentives, job center parking and parking deregulation, off-model strategy assumptions, and emissions factors. As CARB has not made the decision at the time of preparation of the Air Quality Technical Memorandum, the consistency analysis shown in the Air Quality Technical Memorandum evaluates the 2020-2045 RTP/SCS. As shown in the Air Quality Technical Memorandum, the Proposed Project would be consistent with the GHG emission reduction strategies contained in the 2020-2045 RTP/SCS.

Consistency with General Plan and CAP

The City's General Plan contains several goals related to GHG emissions reduction. Similarly, the City's CAP contains goals intended to support sustainable development within the City. Implementation of the City's CAP would contribute to a reduction in the City's overall GHG emissions. An analysis of the Proposed Project's consistency with applicable policies from the CAP and General Plan are provided in the Air Quality Technical Memorandum, which determined the Proposed Project would be consistent.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to greenhouse gas emissions that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project. Mitigation measures from the 2011 EIR relating to greenhouse gas emissions continue to apply; however, no new mitigation measures are proposed as a part of the Proposed Project that would result in any new impacts that were not previously evaluated in the 2011 EIR.

3.8 HAZARDS AND HAZARDOUS MATERIALS

3.8.1 2011 EIR

During development of the 2011 EIR, a Phase I environmental site assessment (ESA) was prepared to identify the presence of hazardous materials within soil and groundwater within the Project Site. The Phase I ESA included a search of the California Department of Toxic Substances Control database, which indicated that there were two underground storage tanks (UST), five leaking underground storage tanks (LUST), and one state priority site (MaruFuji/Big Sky, Ltd., site located at Tapo and Dry Canyons, which includes a thousand acres of abandoned oil wells) located less than 1 mile from the Project Site boundaries.

The 2011 EIR disclosed that since there are drill sites within the Project Site, there would be the potential for impacts relating to future oil operations that would result from the Approved Project. Impacts would be less than significant with implementation of mitigation measures 4.6-1 through 4.6-4.

As required by mitigation measure 4.6-1, in the event that an abandoned oil well is encountered during construction activities, grading and earthmoving activities in the immediate area (within 50 feet) shall cease and the City Engineer and the regional DOGGR office in Ventura shall be notified immediately of the discovery. The oil well casing shall be checked for leaking oil or gases. The DOGGR representative shall determine appropriate actions, up to and including re-abandonment of the oil well casing.

As required by mitigation measure 4.6-2, prior to any issuance of grading permits, soil sampling shall be conducted at the locations of the potential oil wells located within the impact footprint of the Approved Project. The results of the soil sampling shall be submitted to the Ventura County Environmental Health Department (VCEHD). If sampling identifies contaminated soils, such soils shall be remediated under the supervision of—and as required by and subject to the approval of—the VCEHD

As required by mitigation measure 4.6-3, prior to the issuance of grading permits, the top of the abandoned wells located within 50 feet of a building pad should be a minimum of 10 feet below grade and wells located below structures will require proper venting under supervision of the City Engineer.

As required by mitigation measure 4.6-4, prior to the issuance of grading permits, mud pits and any existing fill associated with past oil field activities (i.e., roads and drill pads), if encountered, shall be evaluated and documented by a City-approved environmental scientist and the fill approved by a City geologist as to the potential impact to the proposed development.

With implementation of mitigation measures 4.6-1 through 4.6-4, the 2011 EIR determined that the Approved would result in less than significant impacts related to oil wells in the Project Site.

The 2011 EIR identified that the Approved Project had the potential to result in impacts related to hazardous soil contamination from prior site land uses. As a result, the Approved Project would implement mitigation measure 4.6-5 to minimize impacts, which requires that prior to any issuance of grading permits, soil sampling shall be conducted at locations of the existing golf courses. If sampling identifies contaminated soils, such soils shall be remediated under the supervision and subject to the approval of the VCEHD.

Related to exposing people or structures to a significant risk of loss, injury, or death involving wildland fires, the 2011 EIR determined that the Approved Project would result in significant impacts requiring mitigation. As such, mitigation measures 4.12-1 through 4.12-10 would be implemented, which would reduce these impacts to less than significant levels.

As required by mitigation measure 4.12-1, prior to issuance of grading plans the applicant shall prepare and submit to the City Planning Department for review and approval a construction traffic control plan which would minimize potential impacts to emergency service providers.

As required by mitigation measure 4.12-2, during all grading and site clearance activities, the applicant's general contractor shall ensure that all construction traffic is restricted to using Tapo Canyon Road and Lost Canyons Drive only per the approved traffic control plan, and all earth-moving equipment shall be equipped with spark arrestors and at least two portable fire extinguishers per vehicle. All equipment used in the vegetation clearance phase shall be equipped with spark arrestors and best available fire safety technology. The vegetation-clearance activities shall be coordinated with and approved by the VCFPD. Implementation of 4.12-2 would serve to reduce potential for the ignition of wildfires during construction and to maintain evacuation routes during construction.

As required by mitigation measure 4.12.-3, prior to the issuance of building permits, the applicant shall submit proof that all structures adjacent to open space shall be designed to satisfy at least a 1-hour fire-resistant rating and to meet other requirements,

As required by mitigation measure 4.12-4, prior to tentative map approval, the applicant shall submit drawings indicating that adequate access points, water mains, fire hydrants, valve connections, and other fire protection facilities is provided as required to VCFPD for review and approval.

As required by mitigation measure 4.12-5, prior to issuance of building permits, the applicant shall submit fire protection improvement plans to the City of Simi Valley and VCFPD for review and approval. Upon approval of the plans, the VCFPD shall certify in writing to the City Department of Engineering that the proposed fire protection improvements have been found to be satisfactory.

As required by mitigation measure 4.12-6, prior to issuance of occupancy permits, the applicant shall submit a plan for delineating building addresses for purposes of emergency response to the City of Simi Valley and VCFPD for review and approval.

As required by mitigation measure 4.12-7, prior to issuance of building permits tentative map approval, the applicant shall pay the required fire protection facilities fees for each applicable structure.

As required by mitigation measure 4.12-8, prior to the issuance of building permits, the applicant shall provide proof to the City Building Department of compliance with all applicable building and fire code requirements for items such as types of roofing materials, building construction, brush clearance, fire hydrant flows, hydrant spacing, access and design, fire sprinkler systems, and other hazard reduction programs, as set forth by the VCFPD.

As required by mitigation measure 4.12-9, prior to tentative map approval, the applicant shall submit proposed street alignments, grades, widths, lengths, and turning radii to VCFPD and City Engineer for review and approval.

As required by mitigation measure 4.12-10, prior to tentative map approval, the applicant shall provide landscape/fuel modification plans prepared by a licensed landscape architect to the VCFPD for review and approval. The use of drought tolerant, fire-resistant, native vegetation shall be incorporated into the landscape/fuel modification plans.

With implementation of mitigation measures 4.12-1 through 4.12-10, the Approved Project's impacts related to exposing people or structures to a significant risk of loss, injury, or death involving wildland fires would be reduced to less than significant levels.

The 2011 EIR stated that due to the geography of the area, there would be inadequate two-way radio system coverage for public health and safety agencies, which would result in potentially significant impacts prior to mitigation. The 2011 EIR required implementation of mitigation measure 4.6-6, which requires that prior to the issuance of a Zoning Clearance, the applicant shall conduct a signal strength coverage test to determine existing two-way radio coverage in the Project area. If two-way radio coverage is determined to be inadequate, the applicant shall work with the appropriate public health and safety agencies' representatives (City of Simi Valley Police Department, Ventura County Fire Department, Ventura County Waterworks District No. 8, and the Sanitation Services Division of the Department of Public Works) to engineer, construct, install, test and implement additional two-way radio sites/systems required to extend the coverage of local public health and safety communication systems into the Project area. With implementation of mitigation measure 4.6-6, the Approved Project was determined to result in less than significant impacts related to this topic.

The 2011 EIR stated that there was potential for workers to be exposed to Valley Fever during construction of the Approved Project. The 2011 EIR specified implementation of mitigation measures 4.6-7 through 4.6-9 to reduce the significance of impacts related to Valley Fever to less than significant levels.

Mitigation measure 4.6-7 requires that work crews use respirators during project clearing, grading, and excavation operations, in accordance with California Division of Occupational Safety and Health regulations. Also, the cabs of grading and construction equipment shall be air conditioned as required by this measure.

As required by mitigation measure 4.6-8, construction roads shall be paved, when possible, to reduce fugitive dust and potential exposure to the fungus; or the access road into the project site shall be paved or treated with environmentally safe dust control agents and where unpaved shall be wetted two times per day to minimize dust.

Mitigation measure 4.6-9 requires that, where acceptable to the Ventura County Fire Protection District, weed growth shall be controlled by mowing instead of discing, thereby leaving the ground undisturbed; a mulch covering shall also be used when possible.

Mitigation Program

- 4.6-1. In the event that an abandoned oil well is encountered during construction activities, grading and earthmoving activities in the immediate area (within 50 feet) shall cease and the City Engineer and the regional DOGGR office in Ventura shall be notified immediately of the discovery. The oil well casing shall be checked for leaking oil or gases. The DOGGR representative shall determine appropriate actions, up to and including re-abandonment of the oil well casing. Upon approval of the DOGGR representation, and the City Engineer, and after appropriate remediation efforts regarding the well have been completed, grading and earthmoving may resume.
- 4.6-2. Prior to any issuance of grading permits, soil sampling shall be conducted at the locations of the potential oil wells located within the project boundaries. The results of the soil sampling shall be submitted to the Ventura County Environmental Health Department (VCEHD). If sampling identifies contaminated soils, such soils shall be remediated under the supervision of—and as required by and subject to the approval of—the VCEHD.
- 4.6-3. Prior to the issuance of grading permits, the top of the abandoned wells located within 50 feet of a building pad should be a minimum of 10 feet below grade (California Code of Regulations, Title 14, Division 2, Chapter 3, Article 3, Section 1723.5) and wells located below structures will require proper venting under supervision of the City Engineer (Department of Conservation Well Review Program Item 6).
- 4.6-4. Prior to the issuance of grading permits, mud pits and any existing fill associated with past oil field activities (i.e., roads and drill pads), if encountered, shall be evaluated and documented by a City approved environmental scientist and the fill approved by a City geologist as to the potential impact to the proposed development.
- 4.6-5. Prior to any issuance of grading permits, soil sampling shall be conducted at locations of the existing golf courses. If sampling identifies contaminated soils, such soils shall be remediated under the supervision and subject to the approval of the VCEHD.
- 4.6-6 Prior to the issuance of a Zoning Clearance, the applicant shall conduct a signal strength coverage test to determine existing two-way radio coverage in the Project Site. If two-way radio coverage is determined to be inadequate, the applicant shall work with the appropriate public health and safety agencies' representatives (City of Simi Valley Police Department, Ventura County Fire Department, Ventura County

Waterworks District No. 8, and the Sanitation Services Division of the Department of Public Works) to engineer, construct, install, test and implement additional two-way radio sites/systems required to extend the coverage of local public health and safety communication systems into the Project Site.

- 4.6-7. Work crews shall use respirators during project clearing, grading, and excavation operations, in accordance with California Division of Occupational Safety and Health regulations. The cabs of grading and construction equipment shall be air conditioned.
- 4.6-8. Construction roads shall be paved, when possible, to reduce fugitive dust and potential exposure to the fungus; or the access road into the Project Site shall be paved or treated with environmentally safe dust control agents and where unpaved shall be wetted two times per day to minimize dust.
- 4.6-9. Where acceptable to the Ventura County Fire Protection District, weed growth shall be controlled by mowing instead of discing, thereby leaving the ground undisturbed; a mulch covering shall also be used when possible.

3.8.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☑
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☑
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☑
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☑
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☑
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☑

Would the Project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

No Substantial Change from Previous Analysis. The Proposed Project would occur within the same impact footprint as was approved for the Approved Project; therefore, the Proposed Project would not result in any new soils or demolition materials needing to be transported from the Project Site that could contain hazardous materials.

The Proposed Project would include similar land uses as were evaluated for the Approved Project. As such, the Proposed Project and the Approved Project would result in similar transport, use, and disposal of domestic hazardous materials as was evaluated in the 2011 EIR.

In conclusion, the Proposed Project would not result in any new significant impacts related to these thresholds.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Substantial Change from Previous Analysis. There are no new schools that are located within 0.25 mile of the impact footprint for the Proposed Project. Also, the Proposed Project would result in similar land uses to the land uses that were evaluated for the Approved Project. As such, the Proposed Project and the Approved Project would result in similar emissions and handling of hazardous materials, which would be minimal.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Substantial Change from Previous Analysis. As with the Approved Project, the Proposed Project has the potential to result in impacts related to hazardous soil contamination from prior site land uses. As a result, the Approved Project would implement mitigation measure 4.6-5 to minimize impacts, which requires that prior to any issuance of grading permits, soil sampling shall be conducted at locations of the existing golf courses. If sampling identifies contaminated soils, such soils shall be remediated under the supervision and subject to the approval of the VCEHD.

Related to exposing people or structures to a significant risk of loss, injury, or death involving wildland fires, the Proposed Project would result in significant impacts requiring mitigation to a similar extent as would the Approved Project. As such, mitigation measures 4.12-1

through 4.12-10 would be applicable to the Proposed Project, which would reduce these impacts related to this threshold to less than significant levels.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the project area?

No Substantial Change from Previous Analysis. The Project Site is not located within an airport land use plan or within two miles of a public airport or public use airport.

As such, the Proposed Project would not result in any new significant impacts related to this threshold.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Substantial Change from Previous Analysis. The 2011 EIR determined that the Approved Project would not impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The 2011 EIR discussed that the Proposed Project would include adequate primary and secondary access roads, which would allow for adequate access during an emergency such as a wildland fire.

The Proposed Project would result in similar impacts related to emergency evacuation as would the Approved Project given that the Proposed Project would result in similar roadway infrastructure being developed to evacuate the Project Site and because the Approved Project would not result in an increase in the number of units or individuals that would need to evacuate the Project Site when compared to the Approved Project.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Substantial Change from Previous Analysis. As with the Approved Project, the Proposed Project would occur entirely within a Project Site that is designated as a very high fire hazard severity zone by CalFire (CalFire 2025a).

The Proposed Project would potentially result in increased exposure of people and buildings to wildland fires, as would occur with the Approved Project.

To mitigate impacts related to wildfire to less than significant levels, the 2011 EIR included mitigation measures 4.12-1 through 4.12-10, which would also be applicable to the Proposed Project. With implementation of these measures, the Proposed Project would have similar impacts related to this threshold as would the Approved Project.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to hazards and hazardous materials that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project. Mitigation measures from the 2011 EIR relating to hazards and hazardous materials continue to apply; however, no new mitigation measures are proposed as a part of the Proposed Project that would result in any new impacts that were not previously evaluated in the 2011 EIR.

3.9 HYDROLOGY AND WATER QUALITY

3.9.1 2011 EIR

The 2011 EIR described that the Project Site is located within the boundaries of the VCWPD.

As described in the 2011 EIR, the Approved Project, during both construction and operational phases would have the potential to affect both the volume and quality of runoff from the Project Site.

During the construction phase of the Approved Project, the use of heavy equipment and the disturbance of soil on the Project Site would have the potential to substantially degrade the water quality and increase the volume of runoff. Potential construction impacts would be reduced by the implementation of the best management practices (BMPs) outlined in the storm water pollution prevention plan (SWPPP). The implementation of these measures, along with enforcement of the appropriate BMPs for construction, would reduce the construction-related degradation of water quality to less than significant. Mitigation measures applicable to construction-related water quality are provided as mitigation measures 4.7-1 through 4.7-8.

As required by mitigation measure 4.7-1, prior to issuance of a grading permit, the applicant shall obtain an NPDES General Construction Permit (CAS00002). This permit requires a SWPPP that specifies BMPs to reduce erosion of disturbed soils of more than 1 acre. A copy of the permit shall be submitted to the City Public Works Department prior to the start of grading activities.

As required by mitigation measures 4.7-2, during site preparation and construction, the contractor shall minimize disturbance of natural groundcover on the project site until such activity is required for grading and construction purposes. During grading operations, the developer shall designate a representative responsible for NPDES compliance. If determined necessary by the City Engineer, the NPDES representative shall be present on the project site Monday through Friday, on all other days when the probability of rain is 40 percent or higher, and prior to the start of and during all grading or clearing operations until the release of grading bonds. The NPDES representative shall have full authority to hire personnel, bind the developer in contracts, rent equipment, and purchase materials to the extent needed to effectuate best management practices (BMPs). The NPDES representative shall provide proof to the City Engineer of attendance and satisfactory completion of courses satisfactory to the City Engineer totaling no less than 8 hours directed specifically to NPDES compliance and effective use of BMPs. Proof of such attendance and completion shall be provided to the City Engineer prior to employment and/or designation of the NPDES representative.

As required by mitigation measures 4.7-3, the applicant shall prepare a runoff management plan (RMP) to be submitted to the City Engineer for review and acceptance prior to the issuance of grading permits. The Ventura County Watershed Protection District–adopted Master Drainage Plan and the Ventura County Watershed Protection District Design and Hydrology Manuals shall be used as the basis for the RMP, channel stabilization, or other City-approved measure shall be implemented.

As required by mitigation measures 4.7-4, during site preparation, grading, and construction, the contractor shall minimize disturbance of natural groundcover on the project site until such activity is required for grading and construction purposes.

As required by mitigation measures 4.7-5, prior to issuance of a grading permit, the applicant shall have prepared a Storm Water Quality Urban Impact Mitigation Plan (SQUIMP) and include non-structural, source control, and structural best management practices (BMPs). A certified erosion and sediment control professional or qualified civil engineer shall prepare the SQUIMP. The SQUIMP shall be submitted to the City Engineer for review and acceptance. The development of the SQUIMP shall conform to the current Ventura County National Pollutant Discharge Elimination System permit, the SQUIMP standards, and the Technical Guidance Manual for Storm Water Quality Control Measures.

As required by mitigation measure 4.7-6, prior to the issuance of a grading permit, the applicant shall file a Notice of Intent (NOI) with the Los Angeles Regional Water Quality Control Board, thereby providing notification and intent to comply with the State of California general permit. Prior to issuance of the first grading permit, a Storm Water Pollution Prevention Plan (SWPPP) must be completed for on-site and associated off-site construction activities. A copy of the permit shall be submitted to the City Public Works Department prior to the start of grading activities. A copy of the SWPPP must be available and implemented at the construction site at all times. The SWPPP outlines the source control and/or treatment control best management practices (BMPs) that will avoid or mitigate runoff pollutants at the construction site to the maximum extent practicable.

As required by mitigation measure 4.7-7, prior to the approval of tentative tract maps, the applicant will provide the exact number of debris basins and the locations and size of these debris basins to adequately mitigate the erosion of sediment. The size, locations, and number of debris basins will be subject to review and acceptance of the City Engineer

As required by mitigation measure 4.7-8, the accumulation of sediment and organic buildup shall be dredged from the debris basins and the Tapo Canyon regional detention basin as necessary to comply with SQUIMP requirements. The regional detention basin would be the responsibility of the VCWPD for ongoing regional flood control and maintenance. The Project development basins, including surface drains, storm drains, detention basins, debris basins, and stormwater pollution control devices shall be the responsibility of the homeowners association (HOA). The HOA, through a maintenance agreement with the VCWPD, will be responsible for certain designated maintenance responsibilities related to the public open space properties to be dedicated to the VCWPD.

The Approved Project was disclosed in the 2011 EIR as being planned to maintain the characteristics of the natural drainage system to the maximum extent feasible. The 2011 EIR stated that the Approved Project's storm drainage system was designed to achieve two primary objectives: (1) meet storm drainage design requirements of the City of Simi Valley and VCWPD and (2) minimize impacts to the existing channels and to support the natural vegetation and wildlife.

The City's Master Plan of Drainage has designated a location of a regional detention basin in Dry Canyon. The Approved Project amended the Master Plan of Drainage through the

dedication of land, in accordance with Ventura County Watershed Protection District standards, for a regional detention basin in Tapo Canyon. At the time of the development of the 2011 EIR, there were two potential alternatives for the Tapo Canyon watershed and five potential alternatives for the Dry Canyon watershed that were being considered by the County to handle the potential increase in runoff from the proposed development. Infrastructure to be constructed, under these alternatives included a detention basin and channel improvements that would mitigate potential impacts related to water quality, runoff volumes, groundwater recharge, and flooding. The County selected the Tapo Canyon alternative that included a regional detention basin and channel improvements. The Dry Canyon alternatives, which included channel improvements, were determined to have lower cost-benefit-cost ratios as compared to a Dry Canyon Region basin. As such, the Approved Project was required to construct on-site drainage improvements to the standards of the City of Simi Valley, VCWPD, and applicable regulatory agencies. Drainage improvements were to be designed and constructed to mitigate flooding impacts to the existing watersheds that would result from the Approved Project.

The 2011 EIR determined that the Approved Project would result in potentially significant impacts related to contributing runoff water that would exceed the capacity of existing or planned storm water drainage systems or that would provide substantial additional sources of polluted runoff. The Approved Project would add new impervious surface which would generate additional stormwater for receiving waters and stormwater facilities. As required by mitigation measure 4.7-9, the applicant shall dedicate land to VCWPD for development of the Tapo Canyon regional detention basin, and participate in onsite and offsite Dry and Tapo Canyon Watershed regional drainage facilities resulting from the proposed deletion of the Dry Canyon Regional Detention Basin from the City's Master Plan of Drainage as determined with the Tentative Tract Map approval process. It is noted that the Project is not responsible for constructing the regional basin. Through compliance with existing regulations and with implementation of mitigation measure 4.7-9, the Approved Project would result in less than significant impacts related to runoff.

Overall, with implementation of the mitigation measures 4.7-1 through 4.7-14, the Approved Project's impacts related to water quality and hydrology would be reduced to less than significant levels.

Mitigation Program

- 4.7-1. Prior to issuance of a grading permit, the applicant shall obtain an NPDES General Construction Permit (CAS00002). This permit requires a SWPPP that specifies BMPs to reduce erosion of disturbed soils of more than 1 acre. A copy of the permit shall be submitted to the City Public Works Department prior to the start of grading activities.
- 4.7-2. During site preparation and construction, the contractor shall minimize disturbance of natural groundcover on the Project Site until such activity is required for grading and construction purposes. During grading operations, the developer shall designate a representative responsible for NPDES compliance. If determined necessary by the City Engineer, the NPDES representative shall be present on the Project Site Monday through Friday, on all other days when the probability of rain is

40 percent or higher, and prior to the start of and during all grading or clearing operations until the release of grading bonds. The NPDES representative shall have full authority to hire personnel, bind the developer in contracts, rent equipment, and purchase materials to the extent needed to effectuate best management practices (BMPs). The NPDES representative shall provide proof to the City Engineer of attendance and satisfactory completion of courses satisfactory to the City Engineer totaling no less than 8 hours directed specifically to NPDES compliance and effective use of BMPs. Proof of such attendance and completion shall be provided to the City Engineer prior to employment and/or designation of the NPDES representative.

- 4.7-3. The applicant shall prepare a runoff management plan (RMP) to be submitted to the City Engineer for review and acceptance prior to the issuance of grading permits. The Ventura County Watershed Protection District–adopted Master Drainage Plan and the Ventura County Watershed Protection District Design and Hydrology Manuals shall be used as the basis for the RMP, channel stabilization, or other City-approved measure shall be implemented.
- 4.7-4. During site preparation, grading, and construction, the contractor shall minimize disturbance of natural groundcover on the Project Site until such activity is required for grading and construction purposes.
- 4.7-5. Prior to issuance of a grading permit, the applicant shall have prepared a Storm Water Quality Urban Impact Mitigation Plan (SQUIMP) and include non-structural, source control, and structural best management practices (BMPs). A certified erosion and sediment control professional or qualified civil engineer shall prepare the SQUIMP. The SQUIMP shall be submitted to the City Engineer for review and acceptance. The development of the SQUIMP shall conform to the current Ventura County National Pollutant Discharge Elimination System permit, the SQUIMP standards, and the Technical Guidance Manual for Storm Water Quality Control Measures.
- 4.7-6. Prior to the issuance of a grading permit, the applicant shall file a Notice of Intent (NOI) with the Los Angeles Regional Water Quality Control Board, thereby providing notification and intent to comply with the State of California general permit. Prior to issuance of the first grading permit, a Storm Water Pollution Prevention Plan (SWPPP) must be completed for on-site and associated off-site construction activities. A copy of the permit shall be submitted to the City Public Works Department prior to the start of grading activities. A copy of the SWPPP must be available and implemented at the construction site at all times. The SWPPP outlines the source control and/or treatment control best management practices (BMPs) that will avoid or mitigate runoff pollutants at the construction site to the maximum extent practicable.
- 4.7-7. Prior to the approval of tentative tract maps, the applicant will provide the exact number of debris basins and the locations and size of these debris basins to adequately mitigate the erosion of sediment. The size, locations, and number of debris basins will be subject to review and acceptance of the City Engineer.
- 4.7-8. The accumulation of sediment and organic buildup shall be dredged from the debris basins and the Tapo Canyon regional detention basin as necessary to comply

with SQUIMP requirements. The regional detention basin would be the responsibility of the VCWPD for ongoing regional flood control and maintenance. Storm drain facilities such as surface drains, storm drains, detention basins, debris basins, and stormwater pollution control devices shall be the responsibility of the homeowners association (HOA). The HOA, through a maintenance agreement with the VCWPD, will be responsible for certain designated maintenance responsibilities related to the public open space properties to be dedicated to the VCWPD.

- 4.7-9. The project owner shall dedicate land to VCWPD for development of the Tapo Canyon regional detention basin, and participate in onsite and offsite Dry and Tapo Canyon Watershed regional drainage facilities resulting from the proposed deletion of the Dry Canyon Regional Detention Basin from the City's Master Plan of Drainage as determined with the Tentative Tract Map approval process. Prior to the approval of final tentative tract maps, the applicant will dedicate the land for the Tapo Canyon Regional Basin in accordance with the standards of the Ventura County Watershed Protection District.
- 4.7-10. The SQUIMP shall include structural and/or treatment BMPs. The structural BMPs shall focus on meeting potential total maximum daily loads (TMDL) and pollutant standards for residential developments. The treatment BMPs shall conform to the Technical Guidance Manual for Storm Water Control Measures. The SQUIMP guidelines contained in the National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Ventura County state that structural BMPs are required for all new developments. The structural BMPs shall be sized to comply with numeric sizing criteria, in accordance with City requirements, unless an alternative to provide equivalent or better treatment is accepted by the City.
- 4.7-11 Prior to the issuance of grading permits, the applicant shall obtain a development permit from the City and shall meet all of the requirements of the City's Flood Damage Protection Prevention ordinance necessary as determined by the Floodplain Administrator, i.e., identification of the floodplain limits and base flood elevations, minimum setback distances, and final pad and finish floor elevations. The final pad and finish floor elevations shall be certified by a registered professional engineer and provided to the Floodplain Administrator and FEMA for review and acceptance.
- 4.7-12 Drainage improvements for the project shall be designed and constructed to comply with the drainage requirements of the City of Simi Valley, VCWPD, and applicable regulatory agencies.
- 4.7.13. Prior to the issuance of tentative tract maps, a certified hydrologist/certified registered civil engineer shall review and assess the flood potential and provide pertinent recommendations regarding the seiche potential from the proposed water tank in a report that shall be certified and accepted by the District Engineer
- 4.7.14. Prior to the issuance of tentative tract maps, a geotechnical firm would review the seismic design parameters for the proposed water tank. These designs shall be in accordance with the current California Building Codes (CBC) for seismic-resistant design and would be reviewed and accepted by the District Engineer.

3.9.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☐	☑
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☑
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would**:**	☐	☐	☐	☑
i) result in substantial erosion or siltation on- or off-site;				
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;				
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or				
iv) impede or redirect flood flows?				
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☑
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☑

Would the Project:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

No Substantial Change from Previous Analysis. As with the Approved Project, the Proposed Project would result in impacts to stormwater quality and quantity during both construction and operational phases of the Proposed Project.

During the construction phase of the Approved Project, the use of heavy equipment and the disturbance of soil on the Project Site would have the potential to substantially degrade the water quality and increase the volume of runoff. Potential construction impacts would be reduced by the implementation of the best management practices (BMPs) outlined in the storm water pollution prevention plan (SWPPP). The implementation of these measures, along with enforcement of the appropriate BMPs for construction, would reduce the

construction-related degradation of water quality to less than significant. Mitigation measures applicable to construction-related water quality are provided as mitigation measures 4.7-1 through 4.7-8.

Also, the Proposed Project would be required to implement mitigation measure 4.7-1 through mitigation measure 4.7-14, which are required to minimize impacts related to operational water quality effects of the Proposed Project. Also, as detailed in the Hydrology Study prepared for the Proposed Project, the Proposed Project would collect all onsite stormwater flows via subsurface storm drains that would convey the stormwater flows to one of five on-site detention basins that would be constructed in the Project Site to treat stormwater for water quality purposes and to mitigate for increased runoff. Also, the Proposed Project would intercept drainage from approximately 155 acres of off-site area and would convey these stormwater flows via subsurface storm drain to the Proposed Project's proposed downstream discharge points (RTM Engineering Consultants 2025a).

In conclusion, with implementation of these mitigation measures as well as the Proposed Project's updated drainage design, the Proposed Project would not result in any new or increased impacts related to this threshold.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project impede sustainable groundwater management of the basin?

No Substantial Change from Previous Analysis. The Proposed Project would not involve the construction or operation of any new wells that would directly decrease groundwater supplies.

The Proposed Project would include development of new impervious surfaces in the Project Site, which would reduce the amount of groundwater recharge that can occur within the Project Site. However, due to the nominal acreage of new impervious surface that would be added by the Proposed Project, the Proposed Project would not substantially impede any sustainable groundwater management efforts for the underlying groundwater basin.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

c) Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) result in substantial erosion or siltation on- or off-site;

ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

iv) impede or redirect flood flows?

No Substantial Change from Previous Analysis.

Erosion

As with the Approved Project, the Proposed Project would result in temporary and permanent impacts related to soil erosion. Temporary erosion impacts would result from clearing, grubbing, and grading that would occur in the Project Site. The Proposed Project would be required to comply with applicable laws requiring the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which would minimize short-term erosion impacts. Given that the Proposed Project would result in less ground disturbance than would the Approved Project, soil erosion would be less for the Proposed Project than for the Approved Project.

During operation of the Proposed Project, the Proposed Project would result in increased impervious surface coverage in the Project Site when compared to existing conditions, which would have the potential to increase erosion when compared to no project conditions. However, the Proposed Project would result in the addition of less impervious surface than would the Approved Project, given the overall reduction in impacts that would occur with the Proposed Project when compared to the Approved Project. Also, as with the Approved Project, the Proposed Project would be required to implement operational best management practices related to water quality that would reduce these impacts.

The Proposed Project would not change the impacts related to the proposed water tank in the Project Site, and mitigation measure 4.5-8 would still be applicable to the Proposed Project.

Overall, the Proposed Project would not increase effects related to erosion when compared to the Approved Project.

Surface Runoff

The Proposed Project would result in additional impervious surface within the Project Site; however, as discussed above, the Proposed Project would construct five new detention basins and a system of stormwater infrastructure in the Project Site to capture, convey, and retain stormwater from the 100-year storm event. Surface runoff is described in more detail in the Proposed Project's Hydrology Study (RTM Engineering Consultants 2025a). As such, the Proposed Project would result in similar impacts related to surface runoff as would the Approved Project.

Flood Flows

According to the Project's Hydrology Study, the Proposed Project would occur entirely outside of the 100-year floodplain; therefore, the Proposed Project would not increase any impacts related to impeding or redirecting flood flows (RTM Engineering Consultants 2025a). As such, the Proposed Project would not increase effects related to flood flows when compared to the Approved Project.

Conclusion

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

According to the 2011 EIR, the probability of a dam failure affecting the City is low.

According to the Project's Hydrology Study, the Proposed Project would occur entirely outside of the floodplain; therefore, the Proposed Project would not increase any impacts related to impeding or redirecting flood flows (RTM Engineering Consultants 2025a). As such, the Proposed Project would not increase effects related to flood flows when compared to the Approved Project.

The potential for secondary seismic hazards, such as tsunami and seiche, is also considered very low to none because the Project Site is located away from the ocean at an elevation that is above the mapped tsunami inundation zones.

Further, the Project Site is not located adjacent to a confined body of water; therefore, the potential for seismic hazard of a seiche (an oscillation of a body of water in an enclosed basin) is considered very low to none.

Therefore, the Project would not result in new significant impacts pertaining to flood hazard, tsunami, or seiche that would release pollutants due to inundation, that were not previously analyzed, and no mitigation measures are required.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Substantial Change from Previous Analysis. As with the Approved Project, the Proposed Project would result in impacts to stormwater quality and quantity during both construction and operational phases of the Proposed Project.

During the construction phase of the Approved Project, the use of heavy equipment and the disturbance of soil on the Project Site would have the potential to substantially degrade the water quality and increase the volume of runoff. Potential construction impacts would be reduced by the implementation of the best management practices (BMPs) outlined in the storm water pollution prevention plan (SWPPP). The implementation of these measures, along with enforcement of the appropriate BMPs for construction, would reduce the construction-related degradation of water quality to less than significant. Mitigation measures applicable to construction-related water quality are provided as mitigation measures 4.7-1 through 4.7-8.

Also, the Proposed Project would be required to implement mitigation measures 4.7-1 through 4.7-14, which are required to minimize impacts related to operational water quality effects of the Proposed Project. Also, as detailed in the Hydrology Study prepared for the Proposed Project, the Proposed Project would collect all onsite stormwater flows via subsurface storm drains that would convey the stormwater flows to one of five on-site detention basins that would be constructed in the Project Site to treat stormwater for water quality purposes and to mitigate for increased runoff. Also, the Proposed Project would intercept drainage from approximately 155 acres of off-site area and would convey these stormwater flows via subsurface storm drain to the Proposed Project's proposed downstream discharge points (RTM Engineering Consultants 2025a).

In conclusion, with implementation of these mitigation measures as well as the Proposed Project's updated drainage design, the Proposed Project would not result in any new or increased impacts related to this threshold.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to hydrology and water quality that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project. Mitigation measures from the 2011 EIR relating to hydrology and water quality continue to apply; however, no new mitigation measures are proposed as a part of the Proposed Project that would result in any new impacts that were not previously evaluated in the 2011 EIR.

3.10 LAND USE AND PLANNING

3.10.1 2011 EIR

The 2011 EIR evaluated the Approved Project's consistency with applicable land use plans and policies. The 2011 EIR examined the consistency of the Approved Project with the City of Simi Valley's General Plan. As described in the 2011 EIR, the Approved Project required revisions of the existing Whiteface Specific Plan to conform to the policies set forth in the City of Simi Valley General Plan and the Development Code.

The 2011 EIR required implementation of mitigation measures 4.8-1 and 4.-8-2 related to land use and planning.

Mitigation measure 4.8-1 states that the number of residential units allocated within a given planning area of the Approved Project may increase above the residential units approved within the Lost Canyons Specific Plan amendment for that planning area so long as (1) the total number of residential units does not exceed 364 units and (2) there are no new significant environmental impacts not previously studied in the 2011 EIR, processed concurrently with tentative tract map/planned development permit approvals by the Director of Environmental Services.

As required by mitigation measures 4.8-2, if the final grade of a grading plan or adjustment in the field differs from that which was approved by (a) no more than 2 feet along the project boundary when adjacent to existing homes; (b) no more than 4 feet along the project boundary when not adjacent to existing homes; (c) no more than 4 feet of increased elevation within the interior of the map; or (d) no more than 6 feet of decreased elevation within the interior of the map, the change in grading shall be approved by the City Engineer.

Mitigation Program

- 4.8-1. The number of residential units allocated within a given planning area of the Project Site_may increase above the residential units approved within the Lost Canyons Specific Plan amendment for that planning area so long as (1) the total number of residential units does not exceed 364 units and (2) there are no new significant environmental impacts not previously studied in this EIR, processed concurrently with tentative tract map/planned development permit approvals by the Director of Environmental Services.
- 4.8-2. If the final grade of a grading plan or adjustment in the field differs from that which was approved by (a) no more than 2 feet along the Project Site's boundary when adjacent to existing homes; (b) no more than 4 feet along the project boundary when not adjacent to existing homes; (c) no more than 4 feet of increased elevation within the interior of the map; or (d) no more than 6 feet of decreased elevation within the interior of the map, the change in grading shall be approved by the City Engineer.

3.10.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?	☐	☐	☐	☑
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☑

Would the Project:

a) Physically divide an established community?

No Substantial Change from Previous Analysis. As with the Approved Project, the Proposed Project would not result in the physical division of any established communities. The Proposed Project would not result in the construction of new roadways or other physical infrastructure that would divide or disrupt connections amongst and between existing neighborhoods.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Substantial Change from Previous Analysis. The Proposed Project would require discretionary approvals, including the City's approval of a General Plan Amendment, a Zone Change, a Specific Plan Amendment, a Planned Development Permit Modification, and a Tentative Map. With the City's approvals of these discretionary requests, the Proposed Project would not result in any significant impacts related to City plans, policies, or regulations.

The number of housing units would remain the same for the Proposed Project as was previously evaluated and disclosed for the Approved Project. As such, the Proposed Project would be consistent with regional plans that are dependent upon City demographics, such as the SCAG RTP/SCS.

The Project Site is not contained within the boundaries of an adopted Habitat Conservation Plan or a Natural Communities Conservation Plan (NCCP).

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to land use and planning that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project. Mitigation measures from the 2011 EIR relating to land use and planning continue to apply; however, no new mitigation measures are proposed as a part of the Proposed Project that would result in any new impacts that were not previously evaluated in the 2011 EIR.

3.11 MINERAL RESOURCES

3.11.1 2011 EIR

The 2011 EIR identified that the Project Site is located within areas designated as MRZ-3 by the California Department of Conservation. MRZ-3 zones are classified as containing mineral deposits whose significance cannot be evaluated based on available data. The Project Site lies south of a region designated as containing regionally significant construction aggregate resources. This adjacent area supplies Ventura County and surrounding production-consumption regions with aggregate materials and is permitted to do so for the next 50 years. The 2011 EIR concluded that the potential loss of known mineral resources at the Project Site would result in a less than significant impact.

Oil deposits, along with the possible presence of natural gas, are known to exist in the northern part of the City, including areas adjacent to and within the Project Site. At the time of the 2011 EIR, 51 oil wells were located within the Project Site, specifically in the Tapo Canyon portion. No wells were present in the Dry Canyon portion. Most of the wells were designated as idle or plugged, with the operators listed as inactive. Of the 51 wells, one—Tapo Canyon Well No. 35-1, owned by Seneca Resources Corporation—was designated as idle, while the remaining wells were reported as plugged and abandoned. Well No. 35-1 is temporarily abandoned and plugged, allowing the operator to potentially reopen it for oil extraction. In its current state, the well does not pose health, safety, aesthetic, or noise-related concerns. However, if reactivated, it could result in impacts similar to those associated with future wells.

The 2011 EIR disclosed that due to the presence of mineral resources and an existing well on the Project Site, the Approved Project included reduced minimum setback distances for active wells near residential units. The proposed and approved 50-foot setback from a drill site, combined with state regulations prohibiting active wells within 100 feet of the outer boundary of the parcel, results in a total setback of 150 feet. This distance is less than the City's Development Code requirement, which prohibits wells within 800 feet of any building or dwelling not necessary for well operations. Therefore, the Approved Project was found to be inconsistent with this provision of the Development Code.

To mitigate potential impacts from proximity to residential land uses, the 2011 EIR required implementation of mitigation measures 4.9-1 through 4.9-4:

- Mitigation Measure 4.9-1: If operating wells are located in areas planned for residential development, the Approved Project must install walls, fencing, and equipment screening to obscure unsightly conditions. These features must conform to Specific Plan standards and be shown on an exhibit submitted with the tract map. The Environmental Services Director must review and approve the location and design.
- Mitigation Measure 4.9-2: Prior to tract map approval for areas containing existing drill sites, the applicant must submit a completed Well Review Program request to DOGGR and take additional required steps.

- Mitigation Measure 4.9-3: For tract maps that include or are adjacent to Well No. 35-1, the applicant must comply with DOGGR's setback requirements to maintain rig access and avoid construction over or near the well.
- Mitigation Measure 4.9-4: No dwelling unit may be constructed within 300 feet of an active or temporarily abandoned well unless DOGGR designates the well as "critical." In all cases, habitable structures must be at least 150 feet from any active or temporarily abandoned well.

With implementation of mitigation measures 4.9-1 through 4.9-4, the 2011 EIR determined that the Approved Project would result in less than significant impacts related to mineral resources.

Mitigation Program

- 4.9-1. Should operating wells be located in areas where residential development is planned, the project shall install walls and fencing, and utility and equipment screening to block or obstruct unsightly conditions that distract from the neighborhood street scene. The location of such walls, fencing or other screens shall be in conformance with the standards set forth in the Specific Plan and shall be shown on an appropriate exhibit at the time of tract map submittal. The location and design of such walls, fencing and/or screening shall be reviewed and approved by the Director of Environmental Services.
- 4.9-2. Prior to approval of tract maps for areas that include existing drill site locations, the applicant shall submit to DOGGR:
    - a fully completed Well Review Program Application,
    - locate all known wells located on the development site property,
    - a preliminary copy of the development site plan to the DOGGR for review. The plan needs to show, at a minimum, the boundary of the development site property with all known wells plotted on the property, final grade of the development site property, and a visual bar scale.

  After the DOGGR has conducted a review and evaluation of all known wells located on the development site property, and the well sites have been restored, DOGGR will issue a Well Review Letter to the applicant and the local permitting agency.
- 4.9-3. Prior to approval of tract maps that include or are adjacent to well No. 35-1, the applicant shall provide for the setback requirements pursuant to DOGGR's Well Review Program for: 1) maintaining rig access to the well, and 2) not building over, or in close proximity to the well
- 4.9.4. The applicant shall not construct any dwelling unit within 300-feet of an active or temporarily abandoned well unless such well is designated by the DOGGR as a "critical well." In no case shall any habitable structure be built within 150 feet of any active or temporarily abandoned well.

3.11.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
MINERAL RESOURCES – Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☑
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☑

Would the Project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? and

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Substantial Change from Previous Analysis. As disclosed in the 2011 EIR for the Approved Project, the Proposed Project would result in loss of availability of mineral resources that are known to occur in the Project Site. However, the Proposed Project would reduce the overall impact footprint of the project so impacts would be reduced related to surface mineral resource availability.

Also, the Proposed Project would reduce opportunities for oil well drilling in the Project Site given the Proposed Project would develop new residential land uses in the Project Site and because setbacks are required from wells for residential land uses.

As with the Approved Project, the Proposed Project would not result in any direct effects to the site that is identified as a "locally important construction aggregate quarry" that is located immediately north of the Project Site (e.g., Gillibrand Industrial Sands).

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to mineral resources that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project. Mitigation measures from the 2011 EIR relating to mineral resources continue to apply; however, no new mitigation measures are proposed as a part of the Proposed Project that would result in any new impacts that were not previously evaluated in the 2011 EIR.

3.12 NOISE

3.12.1 2011 EIR

Noise Impact Analysis

The 2011 Environmental Impact Report (EIR) evaluated potential noise impacts from roadway sources, stationary sources, and construction activities associated with the Approved Project's residential uses. It disclosed that vehicular noise could affect sensitive receptors both within the Project Site and along the surrounding roadway network. Anticipated noise increases ranged from 0.0 dB(A) at several road segments (e.g., Erringer Road south of SR-118 eastbound Ramps, Avenida Simi, Sycamore Drive, and Tapo Canyon Road) to a maximum of 5.0 dB(A) along Lost Canyons Drive between Lost Canyons Golf Club and Tapo Canyon Road. Although a 5.0 dB(A) increase is typically considered significant, this segment was not adjacent to sensitive receptors at the time of analysis. Internal roadway noise was modeled to remain below the City of Simi Valley's 63.0 dB(A) CNEL threshold, resulting in a determination of less-than-significant impacts for both on-site and off-site roadway noise.

Oil Well Noise Impacts

Active oil wells were required to maintain a 150-foot setback from residential dwellings (100 feet per DOC requirements and 50 feet per the proposed Specific Plan). However, noise levels from drilling and well field equipment were projected to range from 59.8 to 77.8 dB(A) at 150 feet, exceeding thresholds for residential outdoor and indoor areas—even with attenuation of 17.0 to 25.0 dB(A). These impacts were deemed potentially significant depending on proximity to residential units.

To address this, mitigation measure 4.10 mandates a noise study prior to tract map approval in areas with active wells. If the study finds that noise thresholds would be exceeded, applicants must construct appropriate noise attenuation features (e.g., walls) before occupancy permits are issued, following Specific Plan guidelines.

Oil well operators must obtain a Conditional Use Permit (CUP), allowing the City to assess site conditions and proximity to sensitive uses. If the Specific Plan amendment is approved, applicants may be required to implement additional mitigation and best management practices (BMPs). For wells within 1,600 feet of residences, the Development Code mandates noise mitigation. With these measures, future oil well operations are expected to result in less-than-significant noise impacts.

One capped oil well, Tapo Canyon Well No. 35-1 (API No. 11121637), is located on the Project Site and may resume operation pending CUP approval. Any future operations at this or other drill sites must comply with the mitigation requirements, ensuring noise impacts remain less than significant.

Construction Noise and Vibration

Construction activities—including grading, building, and infrastructure development—were expected to generate temporary noise and vibration. Equipment such as tractors, loaders, mixers, and cranes could intermittently expose nearby residences (especially along the western, southwestern, and southeastern boundaries) to noise increases exceeding 5 dB(A) and vibration levels ranging from 0.003 to 0.089 in/sec. To mitigate these impacts, the following measures were required:

As required by mitigation measure 4.10-2, the construction contractors during grading and earthmoving activities shall adjust vibration amplitudes of the construction equipment on the Project Site, such as by limiting the number of pieces concurrently operating in one location in areas where conditions would affect structures, sensitivity of vibration equipment, and/or human tolerance.

Related to temporary noise increases during construction, mitigation measure 4.10-3 would be implemented, which requires that the applicant shall limit all site demolition, preparation, and construction activities to between the hours of 7:00 AM to 7:00 PM seven days a week (Section 5-16.02(i)). Furthermore, construction equipment maintenance, diesel engine start-ups, the positioning, and movement of equipment, and similar preconstruction staging activities shall be limited to the same hours. Non-noise-generating construction activities such as interior painting shall not be subject to these restrictions. The City of Simi Valley building official or a designee shall spot check and respond to complaints.

As required by mitigation measure 4.10-4, the applicant, as feasible, shall supply all construction equipment with improved noise muffling, and have the manufacturers' recommended noise-abatement measures, such as mufflers, engine covers, and engine vibration isolators in good working condition.

As required by mitigation measure 4.10-5, the applicant, as feasible, shall use hydraulic equipment instead of pneumatic impact tools and electric-powered equipment instead of diesel-powered equipment for all exterior construction work, unless the use of pneumatic impact tools and diesel powered equipment is specifically approved by the Deputy Director/City Planner. If use of these tools and equipment are allowed, the applicant shall specify the dates and times of use and shall notify the Deputy Director/City Planner when work involving this equipment is to take place.

As required by mitigation measure 4.10-6, the applicant shall turn off all equipment, such as construction equipment including heavy-duty equipment, motor vehicles, and portable equipment, if not in use.

As required by mitigation measure 4.10-7, the applicant shall require by contract specifications that the following construction best management practices (BMPs) be implemented by the contractor to reduce construction noise levels:

- Two weeks prior to the commencement of construction, notification disclosing the construction schedule, including various types of activities that would be occurring throughout the duration of the construction period, must be provided to surrounding

land uses (specifically the existing residential communities located along the western, southwestern and southeastern boundary of the proposed project) within 1,500 feet of the project site.

- Ensure that construction equipment is properly muffled according to industry standards and is in good working condition to reduce excess noise levels.
- Place noise-generating construction equipment and locate construction staging areas away from the sensitive uses (existing residential communities surrounding the proposed project) where feasible.
- As feasible, schedule high-noise-producing activities between the hours of 8:00 AM and 5:00 PM to minimize disruption to sensitive uses (existing residential communities surrounding the proposed project).
- Implement noise-attenuation measures to the extent feasible, which may include, but are not limited to, temporary noise barriers or noise blankets around stationary construction noise sources.
- Use electric air compressors and similar power tools rather than diesel equipment where feasible.
- Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances within the proposed project site to allow for surrounding residents and property owners to contact the job superintendent. If the City of Simi Valley or the job superintendent receives a complaint, the superintendent shall investigate, take appropriate corrective action, and report the action taken to the reporting party. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City of Simi Valley prior to the issuance of a grading permit.

As required by mitigation measure 4.10-8, the applicant shall require by contract specifications that staging areas along with the operation of earthmoving and grading equipment within the proposed project areas be located as far away from vibration- and noise-sensitive sites (residential communities located along the western, southwestern, and southeastern boundary of the proposed project site) as possible and where feasible.

As required by mitigation measure 4.10-9, the applicant shall require by contract specifications that heavily loaded trucks used during construction be routed away from existing residential streets and restricted to using Tapo Canyon Road and Lost Canyons Drive to access development areas within the proposed project site.

Mitigation Program

- 4.10-1. Prior to the approval of tract maps, in areas of existing active wells, the applicant shall conduct and submit to the Director of Environmental Services for review and approval, a noise study to determine whether noise attenuation features, such as walls, are required to reduce noise from existing oil wells to meet the City's thresholds. If the study determines that the proposed residential units will not meet

the noise requirements of the City, then the applicant shall provide for and construct, prior to issuance of occupancy permits, appropriate noise walls, pursuant to the guidelines for Walls and Fences provided in the proposed Specific Plan to reduce noise to existing levels.

- 4.10-2. The construction contractors during grading and earthmoving activities shall adjust vibration amplitudes of the construction equipment on site, such as by limiting the number of pieces concurrently operating in one location in areas where conditions would affect structures, sensitivity of vibration equipment, and/or human tolerance.
- 4.10-3. The applicant shall limit all site demolition, preparation, and construction activities to between the hours of 7:00 AM to 7:00 PM seven days a week (Section 5-16.02(i)). Furthermore, construction equipment maintenance, diesel engine start-ups, the positioning, and movement of equipment, and similar preconstruction staging activities shall be limited to the same hours. Non-noise-generating construction activities such as interior painting shall not be subject to these restrictions. The City of Simi Valley building official or a designee shall spot check and respond to complaints.
- 4.10-4. The applicant, as feasible, shall supply all construction equipment with improved noise muffling, and have the manufacturers' recommended noise-abatement measures, such as mufflers, engine covers, and engine vibration isolators in good working condition.
- 4.10-5. The applicant, as feasible, shall use hydraulic equipment instead of pneumatic impact tools and electric-powered equipment instead of diesel-powered equipment for all exterior construction work, unless the use of pneumatic impact tools and diesel powered equipment is specifically approved by the Deputy Director/City Planner. If use of these tools and equipment are allowed, the applicant shall specify the dates and times of use and shall notify the Deputy Director/City Planner when work involving this equipment is to take place.
- 4.10-6. The applicant shall turn off all equipment, such as construction equipment including heavy-duty equipment, motor vehicles, and portable equipment, if not in use.
- 4.10-7. The project applicant shall require by contract specifications that the following construction best management practices (BMPs) be implemented by the contractor to reduce construction noise levels:
    - Two weeks prior to the commencement of construction, notification disclosing the construction schedule, including various types of activities that would be occurring throughout the duration of the construction period, must be provided to surrounding land uses (specifically the existing residential communities located along the western, southwestern and southeastern boundary of the Project Site) within 1,500 feet of the Project Site.
    - Ensure that construction equipment is properly muffled according to industry standards and is in good working condition to reduce excess noise levels.

- Place noise-generating construction equipment and locate construction staging areas away from the sensitive uses (existing residential communities surrounding the Project Site) where feasible.
- As feasible, schedule high-noise-producing activities between the hours of 8:00 AM and 5:00 PM to minimize disruption to sensitive uses (existing residential communities surrounding the Project Site).
- Implement noise-attenuation measures to the extent feasible, which may include, but are not limited to, temporary noise barriers or noise blankets around stationary construction noise sources.
- Use electric air compressors and similar power tools rather than diesel equipment where feasible
- Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances within the Project Site to allow for surrounding residents and property owners to contact the job superintendent. If the City of Simi Valley or the job superintendent receives a complaint, the superintendent shall investigate, take appropriate corrective action, and report the action taken to the reporting party. Contract specifications shall be included in the project construction documents, which shall be reviewed by the City of Simi Valley prior to the issuance of a grading permit.

- 4.10-8. The project applicant shall require by contract specifications that staging areas along with the operation of earthmoving and grading equipment within the Project Site be located as far away from vibration- and noise-sensitive sites (residential communities located along the western, southwestern, and southeastern boundary of the Project Site) as possible and where feasible.
- 4.10-9. The project applicant shall require by contract specifications that heavily loaded trucks used during construction be routed away from existing residential streets to the extent feasible by primarily and restricted to using Tapo Canyon Road and Lost Canyons Drive to access development areas within the Project Site

3.12.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
NOISE – Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☑
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☑
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑

The responses in this section are based on a Noise and Vibration Assessment Technical Memorandum that was prepared for the Proposed Project by Michael Baker International in February 2025 (Michael Baker International 2025d).

Would the Project:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

No Substantial Change from Previous Analysis. As detailed in the 2011 EIR, construction of the Approved Project would result in construction noise associated with the use of heavy equipment, such as tractors, loaders, concrete mixers, and cranes in the Project Site. The Proposed Project would result in a similar amount of construction activity within the same footprint as would the Approved Project. Consistent with the findings of the 2011 EIR for the Approved Project, construction activities for the Proposed Project would also occasionally and intermittently expose the existing residential uses along the western, southwestern, and southeastern boundaries of the Project Site to noise levels of more than 5 dBA over existing conditions. However, demolition, grading, and construction activities would be limited to the hours of 7:00 AM to 7:00 PM. Additionally, any demolition, grading, and construction activities would be short-term and intermittent. As such, consistent with the finding in the 2011 EIR, the Proposed Project would be required to implement mitigation measure 4.10-3 through mitigation measure 4.10-9, which would reduce the Proposed Project's construction noise impacts to a less than significant level.

As detailed in the 2011 EIR, vehicular noise could potentially affect sensitive receptors within the approved project area, as well as sensitive receptors located along the surrounding roadway system. Noise increases resulting from the development of the

approved project range from a low of 0.0 dB(A) (Erringer Road south of SR-118 eastbound Ramps, Avenida Simi between Anderson Drive and Sycamore Drive, Sycamore Drive south of SR-118 eastbound Ramp, and Tapo Canyon Road south of SR-118 eastbound Ramps) to a high of 5.0 dBA (Lost Canyons Drive between Lost Canyons Golf Club and Tapo Canyon Road). An increase in noise levels of 5.0 dBA or more is typically considered significant and can impact sensitive receptors. However, the location of the road segment between Lost Canyon Golf Club (Driveway) to Tapo Canyon Road along Lost Canyons Drive is not adjacent to sensitive receptors. Modeling results of the future noise level, which the internal circulation road system within the approved project is expected to create, would be below the City of Simi Valley's standard of 63.0 dBA CNEL. As such, impacts associated with the internal roadway system of the Approved Project was determined in the 2011 EIR to be less than significant. Therefore, the 2011 EIR determined that impacts associated with on-site and off-site roadway noise would be less than significant.

Regarding point source noise, the 2011 EIR noted that future residents of the Approved Project would generate and be exposed to point source noise, including people talking, doors slamming, street cleaning, air conditioning units, lawn care equipment, stereos, and domestic animals. Given that the Proposed Project would include similar land uses, the Proposed Project would also result in these same noise effects. These noise sources would contribute to the ambient noise levels experienced in all similarly developed areas (e.g., those residential areas existing south of the Project Site) and typically do not exceed noise standards for the types of land uses proposed. As a result, consistent with the determination in the 2011 EIR, the Proposed Project would result in less than significant impacts related to potential point source noise impacts.

Also, the Proposed Project would be required to implement mitigation measures from the 2011 EIR including mitigation measure 4.10-1 and mitigation measure 4.10- 3, to address potential noise impacts to residential development adjacent to existing or future oil wells.

Short-Term Construction Noise Impacts

As with the Approved Project, the Proposed Project would result in short-term construction noise impacts. Noise from construction activities is generated by two primary sources: (1) the transport of workers and equipment/materials to construction sites and (2) the noise related to active construction equipment. These noise sources can be a nuisance to local residents and businesses or, in some cases, unbearable to sensitive receptors (i.e., residences, hospitals, senior centers, schools, day care facilities, etc.).

Construction noise levels in the vicinity of the Proposed Project's construction activities would fluctuate depending on the type, number, and duration of usage for the varying equipment in operation at any one given time. The effects of construction noise largely depend on the type of construction activities occurring on any given day, noise levels generated by those activities, distances to noise-sensitive receptors, and the existing ambient noise environment in the receptor's vicinity. Construction generally occurs in several discrete phases, with each phase requiring different equipment with varying noise characteristics. These phases alter the characteristics of the noise environment generated on the Project Site and in the surrounding community for the duration of the construction process.

Construction of the Proposed Project is anticipated to occur in two phases. Phase 1 would include construction of 180 residential lots in the eastern, southern, and western portions of the Project Site and would consist of the following activities: demolition, grading, building construction, paving, and architectural coating. Phase 2 of the Proposed Project in the northern portion of the Project Site would include grading, building construction, paving, and architectural coating. The Proposed Project would require the demolition of approximately 31,300 square feet of vacant structures associated with the former gold course facilities in the Project Site.

Noise levels from construction equipment and activities were modeled for the Proposed Project as a part of the Noise and Vibration Assessment Technical Memorandum using the Federal Highway Administration's RCNM. The estimated construction noise levels for the Proposed Project at the nearest noise-sensitive receptors were calculated and were presented in the Noise and Vibration Assessment Technical Memorandum.

The closest sensitive receptors to the Proposed Project's construction activities that could experience some noise and vibration due to the construction and development of the Proposed Project are the residential areas, known as the Glenmeadow neighborhood, located at the western edge of the Project Site, approximately 150 feet from the edge of the Proposed Project's impact footprint.

As shown in the Noise and Vibration Assessment Technical Memorandum, the nearest receptors to the Lost Canyons Project site could be exposed to temporary and intermittent construction noise levels during overlapping construction activities ranging from approximately 43.5 to 56.2 dBA Leq at the nearest residential use to the west. As such, construction noise would not have the potential to exceed the City's exterior land use compatibility standard of 63.0 dBA Leq by 10.0 dBA or more at the nearest sensitive receptors. It should be noted that the Proposed Project's potential construction impact on Phase 1 developments is not analyzed, as according to the construction schedule provided by the applicant, Phase 1 construction activities would not be completed and residential units would not be occupied when Phase 2 construction activities are occurring.

To further minimize impacts, the Proposed Project would be required to comply with mitigation measure 4.10-3 through mitigation measure 4.10-9 from the 2011 EIR. These mitigation measures lay out the required steps required to comply with the City's construction hours limitation as well as other best management practices regarding construction noise reduction that must be implemented during construction of the Proposed Project. In addition, it is acknowledged that according to the Simi Valley Municipal Code Section 5-16.02 (i), construction activities occurring between the hours of 7:00 AM and 7:00 PM, except when the urgent necessity, would not be declared to be nuisances by the City. The Proposed Project's construction activities would occur within the allowable hours specified by Simi Valley Municipal Code unless the City Engineer determines that limiting construction to these hours would create a health or safety issue or a substantial loss or inconvenience as described in the Simi Valley Municipal Code. Any demolition, grading, and construction activities would be short-term and intermittent and would be required to abide by the Simi Valley Municipal Code Noise Regulations. As such, the Proposed Project would result in less than significant impacts related to construction noise, which is similar to the finding in the 2011 EIR for the Approved Project.

Long-Term Operational Noise Impacts

Off-Site Mobile Noise

The Proposed Project's Noise and Vibration Assessment Technical Memorandum evaluated roadway segment noise levels for the "Existing" and "Existing with Project" scenarios to evaluate operational mobile noise impacts that would result from the Proposed Project. According to the Noise and Vibration Assessment Technical Memorandum, under the "Existing" scenario, noise levels at 100 feet from the roadway centerline would range from 51.6 dBA to 68.8 dBA CNEL with implementation of the Proposed Project. Existing baseline traffic noise levels would be greater than 63 dBA CNEL at Erringer Road between Simi Town Center Way and SR-118 EB Ramps, Erringer Road South of SR-118 EB Ramps, Tapo Canyon Road between Lost Canyons Drive and Alamo Street, Tapo Canyon Road between Alamo Street and SR-118 WB Ramps, Tapo Canyon Road between SR-118 WB Ramps and SR-118 EB Ramps, and Tapo Canyon Road South of SR-118 EB Ramps

The Proposed Project would generate approximately 3,483 trips per day without taking any credits from the existing use. Under the "Existing with Project" scenario, noise levels at 100 feet from the roadway centerline would range from 53.6 dBA to 68.8 dBA CNEL according to the Noise and Vibration Assessment Technical Memorandum. As shown in the Noise and Vibration Assessment Technical Memorandum, the Proposed Project would result in an increase in noise levels between the two scenarios from between 0.0 dBA to 3.2 dBA CNEL increases.

As shown in the Noise and Vibration Assessment Technical Memorandum, change in noise levels between the "Existing" scenario and the "Existing With Project" scenario would be less than 3 dBA for all roadway segments except for the Lost Canyons Drive (between Erringer Road and Lost Canyons Golf Club) segment. Further, "Existing With Project" traffic noise levels would remain below the City's land use compatibility standards of 63 dBA CNEL at this roadway segment with implementation of the Proposed Project according to the Noise and Vibration Assessment Technical Memorandum.

According to the Noise and Vibration Assessment Technical Memorandum, the Proposed Project would result in a significant noise impact if a permanent increase in ambient traffic noise levels of 3.0 dB occurs upon project implementation and the resulting noise level at the receiving sensitive receptor were to exceed the applicable exterior standard at a noise sensitive use.

As outlined in the Noise and Vibration Assessment Technical Memorandum, the Proposed Project would not result in this large of an increase in noise levels.

Cumulative Traffic Noise

In the Noise and Vibration Assessment Technical Memorandum, the "Future Without Project" and "Future With Project" scenarios were compared for the Proposed Project to evaluate long-term mobile source project noise impacts.

As detailed in the Noise and Vibration Assessment Technical Memorandum, traffic noise levels under the "Future Without Project" scenario would range from 58.2 dBA to 69.7 dBA CNEL. Under the "Future With Project" scenario, which would be with implementation of the Proposed Project, noise levels would range from 58.7 dBA to 69.8 dBA CNEL. Further, the increase in ambient noise between the two scenarios would range from 0.0 dBA to 0.9 dBA CNEL according to the Noise and Vibration Assessment Technical Memorandum. Based on applicable criteria, the Proposed Project would result in a significant noise impact if a permanent increase in ambient traffic noise levels of 3.0 dB were to occur upon implementation of the Proposed Project and the resulting noise level at the receiving sensitive receptor were to exceed the applicable exterior standard at that particular noise sensitive use.

As outlined in the Noise and Vibration Assessment Technical Memorandum, the Proposed Project would not result in this large of an increase in noise levels.

On-Site Operational Noise

Mechanical Equipment

As described in the Proposed Project's Noise and Vibration Assessment Technical Memorandum, noise from heating, ventilation, and air conditioning (HVAC) units would result from the Proposed Project, similar to what was anticipated in the 2011 EIR for the Approved Project. Typically, mechanical equipment, such as HVAC units, generate noise levels of 60 dBA at 20 feet from the source. Noise generated by stationary sources typically attenuates at a rate of 6 dBA per doubling of distance from the source. The nearest sensitive receptors to the Proposed Project's construction activities are the residential areas, known as the Glenmeadow neighborhood, located at the western edge of the Project Site. Measured from the nearest residence to a HVAC unit on the nearest proposed dwelling unit, the distance is approximately 800 feet. At the distance of 800 feet, noise levels from HVAC units would be approximately 28 dBA. As such, operation of the HVAC units would not have the potential to exceed the City's exterior land use compatibility standard for residential uses of 63.0 dBA Leq or the existing ambient noise of 60.6 dBA Leq at the nearest sensitive receptors. As a result, the Noise and Vibration Assessment Technical Memorandum determined that the Proposed Project would result in a less than significant impact related to operational mechanical noise.

Conclusion

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

b) Generation of excessive groundborne vibration or groundborne noise levels?

No Substantial Change from Previous Analysis. Similar to the Approved Project, the Proposed Project would result in construction activities that could lead to groundborne vibration and groundborne noise levels becoming excessive.

As described in the Noise and Vibration Assessment Technical Memorandum, the Proposed Project's demolition, grading, and construction activities would be limited to the hours of 7:00 AM to 7:00 PM. Additionally, any demolition, grading, and construction activities would be short-term and intermittent. As such, consistent with the findings in the 2011 EIR for the Approved Project, the Proposed Project was found to require implementation of mitigation. As required in the 2011 EIR, the Proposed Project would implement mitigation measure 4.10-2, which requires that the construction contractors for the Proposed Project adjust vibration amplitudes of the construction equipment on-site such as by limiting the number of pieces concurrently operating in one location in areas where conditions would affect structures, sensitivity of vibration equipment, and/or human tolerance, vibration impacts would be reduced to less than significant levels.

The Noise and Vibration Assessment Technical Memorandum evaluated short-term construction vibration impacts for the Proposed Project, which determined that the Proposed Project's construction would generate varying degrees of groundborne vibration, depending on the construction procedure and the construction equipment used. Operation of construction equipment would generate vibrations that would spread through the ground and that would diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the construction site would vary depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Groundborne vibrations from construction activities rarely reach levels that damage structures. The Caltrans Transportation and Construction Vibration Manual identifies various vibration damage criteria for different building classes. The evaluation of the Proposed Project contained in the Noise and Vibration Assessment Technical Memorandum uses the Caltrans architectural damage criterion for vibrations from continuous/frequent intermittent sources at new residential and commercial structure buildings of 0.5 inch-per-second (inch/second) PPV. The highest degree of groundborne vibration would be generated due to the operation of vibratory rollers during the paving phase as detailed in the Noise and Vibration Assessment Technical Memorandum. As previously mentioned, the nearest sensitive receptors are the residential areas, known as the Glenmeadow neighborhood, located at the western edge of the edge of the development at approximately 150 feet from the closest project boundary. Vibration from construction equipment is calculated at 150 feet to evaluate the architectural building damage criterion. Typical vibration produced by construction equipment is illustrated in the Noise and Vibration Assessment Technical Memorandum.

As indicated in the Noise and Vibration Assessment Technical Memorandum, the reference vibration velocities from typical heavy construction equipment operation would range from 0.003 to 0.210 inch/second PPV at 25 feet (reference) from the source of activity. At 150 feet, vibration velocities from typical heavy construction equipment, including vibratory rollers, would range from 0.002 to 0.0143 inch/second PPV which would not exceed Caltrans architectural damage criterion of 0.5 inch/second PPV as detailed in the Proposed Project's Noise and Vibration Assessment Technical Memorandum. As a result, construction groundborne vibration from the Proposed Project would not be capable of exceeding the 0.5 inch/second PPV significance threshold for vibration to the nearest structures and so the Proposed Project would result in a less than significant impact related to this topic.

Long-Term Operational Vibration Impacts

As described in the Proposed Project's Noise and Vibration Assessment Technical Memorandum, similar to the Approved Project, the Proposed Project would not involve any operational activities that would generate groundborne vibration. The project operation would not involve railroad operation and therefore would not result in vibration impacts at surrounding uses. Thus, no impacts would occur in this regard (Michael Baker International 2025d).

Conclusion

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the project area to excessive noise levels?

No Substantial Change from Previous Analysis. According to the 2011 EIR, the Approved Project is not located within the boundaries of any airport land use compatibility plans or within 2 miles of an airport or airstrip. Also, the Project Site is not located within the boundaries of any airport land use compatibility plans or within 2 miles of an airport or airstrip. Additionally, the project site is not located within the vicinity of a private airstrip or related facilities. There have been no new airports developed since the 2011 EIR was certified. As such, the Proposed Project would be no impact related to this threshold.

Conclusion

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to noise that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project. Mitigation measures from the 2011 EIR relating to noise continue to apply; however, no new mitigation measures are proposed as a part of the Proposed Project that would result in any new impacts that were not previously evaluated in the 2011 EIR.

3.13 POPULATION AND HOUSING

3.13.1 2011 EIR

The 2011 EIR described that the population of the City of Simi Valley was estimated by the California Department of Finance (DOF) to be 125,657 at the time of the preparation of the 2011 EIR. According to the City of Simi Valley Managed-Growth Plan, the maximum population projection for 2010 was expected to increase to 131,205 and to 135,828 for 2015. Based on the Managed-Growth Plan the average household size in the City is 3.157 persons; therefore, the 364 dwelling units generated by the Approved Project would translate into a population increase of 1,149 residents as described in the 2011 EIR. Overall, the increase in population due to the Approved Project would equal approximately 0.9 percent of the City's 2008 population and about 0.8 percent of the City's projected 2015 population. While the Approved Project would account for some of the projected growth within the City, on a project-specific basis it would not result in population increases that exceed City projections. As such, the 2011 EIR found that the Approved Project would not result in significant population impacts.

The 2011 EIR disclosed that the Approved Project's 364 additional residential units would have direct impacts to the housing inventory, which would result in an increase in the availability of market-rate housing opportunities in the City. Based on the City's maximum allocation of 73 allocation grants, or equivalent dwelling units, per quarter per calendar year the projected housing growth within the City of Simi Valley between 2010 and 2015 is estimated to be about 1,168 dwelling units. The 2011 EIR described that the 364 dwelling units proposed by the Approved Project would equal about 31 percent of the units projected to be developed within the City between 2010 and 2015, and would not result in City projections being exceeded. Therefore, the 2011 EIR determined that the Approved Project would not result in significant impacts related to housing and that no mitigation measures were not required.

Mitigation Program

The 2011 EIR did not include mitigation measures directly related to population and housing.

3.13.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
POPULATION AND HOUSING–Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☑
b) Displace substantial number of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

Would the Project:

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Substantial Change from Previous Analysis. As with the Approved Project, the Proposed Project would result in an additional 364 residential units within the Project Site. Using an average household size for Simi Valley of 2.8 persons per household, 364 new residential units would result in approximately 1,020 new residents, which is similar to the number of new residents anticipated in the 2011 EIR (US Census Bureau 2025).

Since the 2011 EIR was certified, Senate Bill 330 (SB 330) was passed in 2019 establishing the Housing Crisis Act (HCA), which was signed on October 9, 2019 and went into effect on January 1, 2020. On September 16, 2021, Senate Bill 8 (SB 8) was signed into law which made some clarifications and updated SB 330, extending the HCA from January 1, 2025 to January 1, 2030. Subsequently, in 2025, AB 130 was passed which amends the Housing Crisis Act to remove sunset dates that were imposed as a part of SB 330 making this law now permanent unless it is repealed. These laws were passed to address the current "housing crisis" in the State with three general aims: 1) increase residential unit development; 2) protect existing housing inventory; and 3) expedite permit processing. SB 330, SB 8, and AB 130 make numerous changes to the existing legislation such as the Permit Streamlining Act and the Housing Accountability Act to increase the production of housing units in California. The Proposed Project would include 364 residential units, which would achieve state and local goals and policies for housing production.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Substantial Change from Previous Analysis. The Proposed Project would not result in the displacement of any existing housing units or residents from within the Project Site.

As such, the Proposed Project would not result in any new significant impacts related to this threshold.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to population and housing that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project.

3.14 PUBLIC SERVICES

3.14.1 2011 EIR

Fire Services

Fire protection services would be provided to the Approved Project by the Ventura County Fire Protection District (VCFPD), under contract with the City of Simi Valley. The 2011 EIR determined that the VCFPD's resources are adequate to serve the Approved Project, and response times to service calls at the Project Site would meet VCFPD's standards.

The 2011 EIR disclosed that the Project Site is located near areas designated by the state as very high fire hazard, and by the VCFPD as high fire hazard areas.

The 2011 EIR disclosed that the Approved Project would result in risks of wildfire ignition during construction related to construction equipment that may emit sparks that would present a fire risk of, especially during site clearance.

The 2011 EIR disclosed that construction of the Approved Project would increase traffic both on and adjacent to the Project Site during working hours because commuting construction workers, trucks, and other construction vehicles would be added to normal traffic during buildout of the project. The 2011 EIR disclosed that the additional traffic could slow emergency response and evacuations if they needed to occur during construction of the Approved Project. However, the 2011 EIR determined that with adherence to existing City codes and requirements during construction, the Approved Project would result in less than significant impacts related to fire hazards.

The 2011 EIR disclosed that fire stations in the vicinity of the Project Site had capacity to serve the Approved Project, and the water supply was adequate to support firefighting requirements for the Approved Project. As discussed in the 2011 EIR, the Approved Project would be expected to require a minimum fire flow of 1,000 gallons per minute (gpm) for a 2-hour duration to provide sufficient water to fire fighters during an emergency, which can be provided by existing water tanks in the area in conjunction with the new water tank proposed for the northeastern portion of the Project Site.

The 2011 EIR specified that the Approved Project must implement mitigation measures 4-12-1 through and 4.12-10.

As response times and fire flows will meet VCFPD's service standards with implementation of the Approved Project, impacts related to fire services for the Approved Project were determined in the 2011 EIR to be less than significant.

Police Services

The 2011 EIR identified minor impacts to police services that would result from the construction of the Approved Project. Site development and construction would not normally require services from the police department, except in the cases of trespassing,

theft, or vandalism. Such activities at a construction site are usual, and do not typically place undue demands on law enforcement services. Slow-moving, construction-related traffic along local roadways may reduce optimal traffic flows and would conceivably delay emergency vehicles or contribute to a vehicle accident. However, the 2011 EIR determined this to be a less than significant impact given the periodic and temporary nature of construction-related traffic. Implementation of standard construction traffic control procedures—such as the use of flagmen and signage showing traffic detour plans, haul routes, hours of operation, protective devices, warning signs, and access to abutting properties—would further reduce any potential impact to less than significant.

The 2011 EIR disclosed that the City's Municipal Code establishes fees for residential development that are to be used for the maintenance of City roads and for the provision of law enforcement services. The 2011 EIR found that the Approved Project would result in the development of 364 residential units and the addition of an estimated 1,149 residents to the City's population that would need police services.

To reduce impacts related to police services, mitigation measures 4.13-1 through 4.13-5 would be implemented as a part of the Approved Project.

As required by mitigation measure 4.13-1, prior to the issuance of building permits, prior to final plan approval, the developer of the project shall pay the City's police facilities fee that is required of all new developments to defray the cost of providing increased levels of police protection.

As required by mitigation measure 4.13-2, prior to issuance of building permits, the City shall review development plans for the incorporation of defensible space concepts to reduce demands on police services. To the degree feasible, public safety planning recommendations shall be incorporated into the project plans.

As required by mitigation measure 4.13-3, where feasible, open spaces shall be designed to facilitate easy viewing from patrol cars and by citizens on adjacent streets. To the extent possible—and without destroying the character—access streets and trails shall be incorporated into open spaces for occasional patrols and other emergency vehicles.

As required by mitigation measure 4.13-4, the Approved Project would be required to implement security recommendations during construction and operation regarding site security, lighting, landscaping, building access and visibility, street circulation, building design, and defensible space, which are identified in the form of planning department conditions. These would be identified by the police department during the tentative tract map and residential planned development reviews.

As required by mitigation measure 4.13-5, to reduce emergency vehicle delays during construction, the applicant shall implement standard construction traffic control procedures, such as the use of flagmen, and signage showing traffic detour plans, haul routes, hours of operation, protective devices, warning signs, and access to abutting properties, that would further reduce any potential impact.

Education

The 2011 EIR described that the Approved Project would add 364 residential units and an estimated population of 1,149 to the City of Simi Valley. Using Simi Valley Unified School District (SVUSD) standard generation rates for residential development, the Approved Project was estimated in the 2011 EIR to generate approximately 201 new students (117 elementary school students, 29 middle school students, and 55 high school students). The 2011 EIR determined that enrollment at the elementary schools serving the Project Site would exceed capacity with the addition of the students that would be generated by the Approved Project. However, with payment of the SVUSD developer fees as required by MM 4.14-1, the 2011 EIR determined that the Approved Project's impacts related to education would be less than significant.

Parks and Recreational Facilities

The 2011 EIR disclosed that the Approved Project would result in the development of 364 residential units, which would add an estimated 1,149 residents to the City of Simi Valley. These residents would be expected to use the existing Rancho Simi Recreation and Park District (RSRPD) facilities, thus increasing demand for parks and recreational amenities within the City.

The 2011 EIR found that State and local laws that require development projects to dedicate parklands or pay fees in lieu of parkland dedication in order to expand and maintain park facilities would minimize the Approved Project's impacts related to parks and recreational facilities to a less than significant level, as outlined in mitigation measure 4.15-1 Prior to final tentative tract map recordation the applicant shall pay to the Rancho Simi Recreation and Park District the applicable facilities fees as determined by the district.

Also, to reduce impacts of the Approved Project to less than significant levels, mitigation measure 4.15-2 was required for the Project, which requires that prior to tentative tract map approval, a conservation mechanism shall be prepared for the preserved open space areas within the Project site, and subject to approval by the City Attorney.

Mitigation Program

- 4.12-1. Prior to issuance of grading plans the applicant shall prepare and submit to the City Planning Department for review and approval a construction traffic control plan including procedures such as the use of flagmen, and signage showing traffic detour plans, haul routes, hours of operation, protective devices, warning signs and access to abutting properties would further reduce any potential impact. The traffic control plan shall restrict construction traffic to Tapo Canyon Road and Lost Canyons Road only, and prohibit construction traffic on Anderson Drive, Ditch Road, Presidio Drive, Walnut Street, and Erringer Road.
- 4.12-2. During all grading and site clearance activities, the applicant's general contractor shall ensure that all construction traffic is restricted to using Tapo Canyon Road and Lost Canyons Drive only per the approved traffic control plan, and all earth-moving equipment shall be equipped with spark arrestors and at least two portable

fire extinguishers per vehicle. All equipment used in the vegetation clearance phase shall be equipped with spark arrestors and best available fire safety technology. The vegetation-clearance activities shall be coordinated with and approved by the VCFPD.

- 4.12.-3. Prior to the issuance of building permits, the applicant shall submit proof that all structures adjacent to open space shall be designed to satisfy at least a 1-hour fire-resistant rating. Such structures shall incorporate fire retardant features such as boxed-in eaves, reduced overhangs, double-paned windows, convection resistant roof design, non-combustible roofing material, and related design features, as determined necessary by the VCFPD set forth in the City of Simi Valley Building Code (Ventura County Fire Protection District, Fire Prevention Standard 14.3.1). Building permits shall not be issued until review of fire-retarding architectural features has been completed by the VCFPD and City of Simi Valley Building and Safety Division. Design standards meeting VCFPD City of Simi Valley Building and Safety Division criteria shall be included in the Fire Hazard Reduction Program and incorporated into the Fire Hazard Reduction Design Guidelines for the residential units (City of Simi Valley Development Code, Section 9-30.030).
- 4.12-4. Prior to tentative map approval, the applicant shall submit drawings indicating that adequate access points, water mains, fire hydrants, valve connections, and other fire protection facilities is provided as required to VCFPD for review and approval.
- 4.12-5. Prior to issuance of building permits, the applicant shall submit fire protection improvement plans to the City of Simi Valley and VCFPD for review and approval. Upon approval of the plans, the VCFPD shall certify in writing to the City Department of Engineering that the proposed fire protection improvements have been found to be satisfactory.
- 4.12-6. Prior to issuance of occupancy permits, the applicant shall submit a plan for delineating building addresses for purposes of emergency response to the City of Simi Valley and VCFPD for review and approval.
- 4.12-7. Prior to issuance of building permits tentative map approval, the applicant shall pay the required fire protection facilities fees for each applicable structure.
- 4.12-8. Prior to the issuance of building permits, the applicant shall provide proof to the City Building Department of compliance with all applicable building and fire code requirements for items such as types of roofing materials, building construction, brush clearance, fire hydrant flows, hydrant spacing, access and design, fire sprinkler systems, and other hazard reduction programs, as set forth by the VCFPD.
- 4.12-9. Prior to tentative map approval, the applicant shall submit proposed street alignments, grades, widths, lengths, and turning radii to VCFPD and City Engineer for review and approval.
- 4.12-10. Prior to tentative map approval, the applicant shall provide landscape/fuel modification plans prepared by a licensed landscape architect to the VCFPD for review and approval. The use of drought tolerant, fire-resistant, native vegetation shall be incorporated into the landscape/fuel modification plans.

- 4.13-1. Prior to the issuance of building permits, prior to final plan approval, the developer of the project shall pay the City's police facilities fee that is required of all new developments to defray the cost of providing increased levels of police protection. The required amount to be paid shall be determined at the time of final plan review. The sum of $150.00 (as of 2009) for each dwelling unit containing not more than one bedroom and the sum of $75.00 (as of 2009) for each additional bedroom contained therein; provided, however, the total fees for any new dwelling unit shall not exceed the sum of $300.00 (as of 2009).
- 4.13-2. Prior to issuance of building permits, the City shall review development plans for the incorporation of defensible space concepts to reduce demands on police services. To the degree feasible, public safety planning recommendations shall be incorporated into the project plans. The applicant shall prepare of list of project features and design components that demonstrate responsiveness to defensible space design concepts. Review and approval by the City of all defensible space design features incorporated into the project shall occur prior to initiation of the building plan check process.
- 4.13-3. Where feasible, open spaces shall be designed to facilitate easy viewing from patrol cars and by citizens on adjacent streets. To the extent possible—and without destroying the character—access streets and trails shall be incorporated into open spaces for occasional patrols and other emergency vehicles.
- 4.13-4. The project would also be required to implement security recommendations during construction and operation regarding site security, lighting, landscaping, building access and visibility, street circulation, building design, and defensible space, which are identified in the form of planning department conditions. These would be identified by the police department during the tentative tract map and residential planned development reviews.
- 4.13-5. To reduce emergency vehicle delays during construction, the applicant shall implement standard construction traffic control procedures, such as the use of flagmen, and signage showing traffic detour plans, haul routes, hours of operation, protective devices, warning signs, and access to abutting properties, that would further reduce any potential impact.
- 4.14-1. Prior to the issuance of occupancy permits, the developers of future projects within the Specific Plan boundaries shall pay the Simi Valley Unified School District developer fees in the amount of $2.63 per square for residential, and $0.35 per square foot of commercial.
- 4.15-1. Prior to final tentative tract map recordation the applicant shall pay to the Rancho Simi Recreation and Park District the applicable facilities fees as determined by the district.
- 4.15-2. Prior to tentative tract map approval, a conservation mechanism shall be prepared for the preserved open space areas within the Project Site, and subject to approval by the City Attorney

3.14.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
PUBLIC SERVICES–Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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 any of the public services:				
Fire protection?	☐	☐	☐	☑
Police protection?	☐	☐	☐	☑
Schools?	☐	☐	☐	☑
Parks?	☐	☐	☐	☑
Other public facilities?	☐	☐	☐	☑

Would the Project:

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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 any of the public services:

i) Fire protection?

No Substantial Change from Previous Analysis. As with the Approved Project, the Proposed Project would occur entirely within a Project Site that is designated as a very high fire hazard severity zone by CalFire (CalFire 2025a).

Fire protection services would be provided for the Proposed Project by the VCFPD, under contract with the City of Simi Valley. The 2011 EIR determined that the VCFPD's resources are adequate to serve the Approved Project, and response times to service calls at the Project Site would meet VCFPD's standards. The Proposed Project would result in the same number of residential units being developed within a smaller footprint in the same Project Site. As such, the Proposed Project would not require any new or physically altered fire protection facilities beyond what was previously disclosed in the 2011 EIR for the Approved Project.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

ii) Police protection?

No Substantial Change from Previous Analysis. Fire protection services would be provided to the Proposed Project by the VCFPD, under contract with the City of Simi Valley. The 2011 EIR determined that the VCFPD's resources are adequate to serve the Approved Project, and response times to service calls at the Project Site would meet VCFPD's standards. The Proposed Project would result in the same number of residential units being developed within a smaller footprint in the same Project Site. As such, the Proposed Project would not require any new or physically altered police protection facilities beyond what was previously disclosed in the 2011 EIR for the Approved Project.

As specified in the 2011 EIR, the Proposed Project must implement mitigation measures 4-12-1 through and 4.12-10 to reduce impacts related to police protection services.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

iii) Schools?

No Substantial Change from Previous Analysis. The Approved Project would result in the generation of new residents that would utilize local public schools. As with the Approved Project, the Proposed Project would result in enrollment at the elementary schools serving the Project Site that would exceed capacity with the addition of the students that would be generated by the Proposed Project. However, consistent with the findings of the 2011 EIR for the Approved Project, with payment of the SVUSD developer fees as required by MM 4.14-1, the Proposed Project's impacts related to education would be reduced to a less than significant level.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

iv) Parks?

No Substantial Change from Previous Analysis. As with the Approved Project, the Proposed Project would result in an additional 364 residential units within the Project Site. Using an average household size for Simi Valley of 2.8 persons per household, 364 new residential units would result in approximately 1,020 new residents, which is similar to the number of new residents anticipated in the 2011 EIR (US Census Bureau 2025). These new residents would be expected to utilize existing neighborhood and regional parks and other recreational facilities in the vicinity of the Project Site. Through the payment of fees as required by mitigation measure 4.15-1, the appropriate levels of service for parks would be maintained to accommodate the Proposed Project. Any new park projects implemented by others using in-lieu fees from the Proposed Project would be subject to their own review pursuant to CEQA.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

v) Other public facilities (libraries)?

No Substantial Change from Previous Analysis. As with the Approved Project, the Proposed Project would result in the generation of new residents that would utilize local public facilities including libraries. It is likely that residents of the Proposed Project would visit the Simi Valley Public Library occasionally, which would incrementally increase demand for library services. However, the Proposed Project would not result in sufficient demand to require the expansion of the existing library or the construction of a new library.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to public services that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project. Mitigation measures from the 2011 EIR relating to public services continue to apply; however, no new mitigation measures are proposed as a part of the Proposed Project that would result in any new impacts that were not previously evaluated in the 2011 EIR.

3.15 RECREATION

3.15.1 2011 EIR

The 2011 EIR described that the Approved Project would result in the development of 364 residential units, which would add an estimated 1,149 residents to the City of Simi Valley. These residents would require recreational facilities and would be expected to use the existing Rancho Simi Recreation and Park District (RSRPD) facilities, thus increasing demand for parks and recreational amenities within the City.

The 2011 EIR disclosed that the Approved Project would include the preservation of natural resources and the provision of a park, golf course and recreational amenities in combination with residential neighborhoods that would partially offset this increased demand for recreational amenities.

State and local laws require development projects to dedicate parklands or pay fees in lieu of parkland dedication in order to expand and maintain park facilities, as specified in mitigation measure 4.15-1. The 2011 EIR determined that the additional population generated by the Approved Project would cause a decrease in the ratio of parkland to residents within the City, from 8.9 acres of parkland per 1,000 residents to 8.8 acres of parkland per 1,000 residents; however, the 2011 EIR determined that the Approved Project would not cause the ratio to drop below the RSRPD standard of 5 acres per 1,000 residents. Therefore, the 2011 EIR found that the Approved Project would not require the construction of any additional parks or recreation facilities in order to meet the increased recreational demand that would result from the Approved Project.

To ensure the conservation of open space in the Project Site, mitigation measure 4.15-2 was imposed requiring that a conservation mechanism be prepared for the preserved open space in the Project Site.

Overall, the 2011 EIR determined that the Approved Project's impacts related to recreation would be less than significant with implementation of mitigation measures.

Mitigation Program

- 4.15-1. Prior to final tentative tract map recordation the applicant shall pay to the Rancho Simi Recreation and Park District the applicable facilities fees as determined by the district.
- 4.15-2. Prior to tentative tract map approval, a conservation mechanism shall be prepared for the preserved open space areas within the proposed project site, and subject to approval by the City Attorney.

3.15.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
RECREATION–Would the project:				
(a) 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?	☐	☐	☐	☑
(b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☑

Would the Project:

a) 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?

No Substantial Change from Previous Analysis. As with the Approved Project, the Proposed Project would result in an additional 364 residential units within the Project Site. Using an average household size for Simi Valley of 2.8 persons per household, 364 new residential units would result in approximately 1,020 new residents, which is similar to the number of new residents anticipated in the 2011 EIR (US Census Bureau 2025). These new residents would be expected to utilize existing neighborhood and regional parks and other recreational facilities in the vicinity of the Project Site. Through the payment of fees as required by mitigation measure 4.15-1, the potential physical deterioration that would result from the Proposed Project's increased demands on parks and recreational facilities would be minimized.

The Proposed Project would not include the development of new community park within the Project Site, which was included with the Approved Project. Instead, the Proposed Project would provide a private recreation center that would serve the future residents, and a lake feature that would serve as a visual amenity and function as a source for irrigation. The lake will operate like a reservoir; it will maintain a consistent water level for irrigation and provide additional storage capacity during storm events.

During normal operation, there is no discharge pipe flow—water is only pumped into the irrigation system. Storm flows will be released in a controlled manner by sizing a constriction upstream of the discharge pipe to limit outflow to the 10-year storm event. In a 100-year storm, flows will bypass the constriction and enter the discharge pipe directly. In the worst-case scenario, an overland escape path provides an additional safety outlet.

The Proposed Project would also provide recreational trails in the Project Site. In total, the Proposed Project would provide fewer recreational amenities to future residents than would the Approved Project, which could increase impacts to other recreational facilities. However, this increase related to demand for parks and recreational facilities would be minimized through payment of in-lieu fees.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

b) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

No Substantial Change from Previous Analysis. The potential environmental effects of the proposed private recreation center and trails have been evaluated in the 2011 EIR as well as within this EIR Addendum. There are no known or likely new recreational facilities that would be needed as a result of the new demand generated by the Proposed Project. Any new park projects implemented by others using in-lieu fees from the Proposed Project would be subject to their own review pursuant to CEQA.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to recreation that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project.

3.16 TRANSPORTATION

3.16.1 2011 EIR

As part of the development of the 2011 EIR, the capacity was evaluated at 17 intersections in the vicinity of the Project Site with the addition of traffic that was expected to be generated by the Approved Project. As described in the 2011 EIR, under existing conditions, the 17 study intersections operated at Level of Service (LOS) A during AM peak hour and PM peak hour conditions. As described in the 2011 EIR, site access for the Approved Project was planned via one primary gated access location at the existing intersection of Lost Canyons Golf Club Driveway and Lost Canyons Drive, in addition to a secondary gated access location at the "A" Street/Lost Canyons Drive intersection and a secondary gated access location at the "B" Street/Lost Canyons Drive intersection.

The 2011 EIR described that the Approved Project was estimated to generate approximately 2,840 net new daily trips, which would include approximately 233 net new AM peak hour trips and approximately 318 net new PM peak hour trips. With the addition of the Approved Project, the 2011 EIR determined that the 17 study intersections would continue to operate under LOS A conditions during AM peak hour and PM peak hour traffic conditions. Therefore, impacts related to level of service at intersections impacted by the Approved Project were determined to be less than significant.

The signal warrant analysis for the intersections of Lost Canyons Golf Course and Lost Canyons Drive, and Tapo Canyon Road and Lost Canyons Drive that were conducted as a part of the development of the 2011 EIR determined that these intersections did not require a traffic signal. The signal warrant analysis for the intersection of Tapo Canyon Road and Lost Canyons Drive determined that these intersections did require a traffic signal. A traffic signal was also recommended in the 2011 EIR at Lost Canyons Drive and Lost Canyons Golf Course due to the surrounding rolling topography. As a result of these signals being installed as a part of the Approved Project, the 2011 EIR determined that the Approved Project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersection) and that impacts related to this threshold would be less than significant with incorporation of mitigation measures. Specifically, mitigation measures 4.16-1 through 4.16-3 were required for the Approved Project to mitigate traffic-related impacts.

As required by mitigation measure 4.16-1, prior to the approval of tract maps, the applicant shall pay the Traffic Impact Fee specified in the City of Simi Valley Schedule of Service Charges (in effect at the time of payment), as stated in Resolution No. 91-93.

As required by mitigation measure 4.16-2, prior to the approval of tract maps, the applicant shall pay the Ventura County Reciprocal Traffic Fee, which is collected by the City of Simi Valley on behalf of the County.

As required by mitigation measure 4.16-3, prior to the issuance of any building final permits for Planning Area 2, installation of a traffic signal at Tapo Canyon Road and Lost Canyons Drive shall be constructed, concurrent with the reconstruction of Tapo Canyon Road.

As discussed in the 2011 EIR, the Approved Project would be accessible by two main streets (Tapo Canyon Road and Erringer Road) that would provide access to and from the Project Site. Additionally, the Approved Project would incorporate three emergency vehicle access (EVAs) roads in different locations along the boundary of the Approved Project to allow emergency ingress and egress to and from the Project Site. Since the Approved Project would fulfill the need for adequate access to and from the Project Site, impacts related to emergency access to the Project Site would be less than significant.

The 2011 EIR found that the Approved Project would result in a significant impact related to geometric design hazards, requiring implementation of mitigation. As required by mitigation measure 4.16-4, upon completion of the reconstruction of Tapo Canyon Road and after the majority of the project is occupied (but not later than one year after the issuance of occupancy permits for the 200th residential unit for the proposed project) and the general public has utilized Tapo Canyon Road, the posted speed limit on the roadway should be determined via a speed survey that would be conducted by the applicant and submitted to the City Engineer for review and approval. As required by mitigation measure 4.16-4, appropriate signage indicating the posted speed limit shall be installed upon completion of the speed survey and approval by the City Engineer.

With implementation of mitigation measures 4.16-1 through 4.16-4, the 2011 EIR determined that the Approved Project would result in less than significant impacts related to transportation.

Mitigation Program

- 4.16-1. Prior to the approval of tract maps, the applicant shall pay the Traffic Impact Fee specified in the City of Simi Valley Schedule of Service Charges (in effect at the time of payment), as stated in Resolution No. 91-93.
- 4.16-2. Prior to the approval of tract maps, the applicant shall pay the Ventura County Reciprocal Traffic Fee, which is collected by the City of Simi Valley on behalf of the County. The fee due to the County is $12,439.20 based on the Initial Study. This fee may be subject to adjustment at the time of deposit, due provisions in the TIMF Ordinance allowing the fee to be adjusted for inflation based on the Engineering News Record Construction Cost Index.
- 4.16-3. Prior to the issuance of any building final permits for Planning Area 2, installation of a traffic signal at Tapo Canyon Road and Lost Canyons Drive shall be constructed, concurrent with the reconstruction of Tapo Canyon Road.
- 4.16-4. Upon completion of the reconstruction of Tapo Canyon Road and after the majority of the project is occupied (but not later than one year after the issuance of occupancy permits for the 200th residential unit for the proposed project) and the general public has utilized Tapo Canyon Road, the posted speed limit on the roadway should be determined via a speed survey to be conducted by the applicant and submitted to the City Engineer for review and approval. Appropriate signage indicating the posted speed limit shall be installed upon completion of the speed survey and approval by the City Engineer.

3.16.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
TRANSPORTATION – Would the project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☑
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☑
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☑
d) Result in inadequate emergency access?	☐	☐	☐	☑

The responses in this section are partially based on a Transportation Technical Memorandum that was prepared for the Proposed Project by Michael Baker International in January 2025 (Michael Baker International 2025e).

Would the project:

a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

No Substantial Change from Previous Analysis. The Proposed Project would not conflict with any of the goals, policies, or plans that are contained in the City of Simi Valley's General Plan Mobility & Infrastructure Element or within the City's Bicycle Master Plan (Simi Valley, 2008a and 2012a).

The Proposed Project would result in an increase in daily trips from the 2,840 net new daily trips that were anticipated for the Approved Project to a total of 3,483 trips per day that are anticipated that are anticipated to be generated for the Proposed Project.

As a result, the Proposed Project would not result in any new significant impacts related to this threshold.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

No Substantial Change from Previous Analysis. State CEQA Guidelines Section 15064.3, subdivision (b) provides the criteria for analyzing transportation impacts, and a project's effect on automobile delay shall not constitute a significant environmental impact (OAL 2019). Generally, vehicle miles traveled (VMT) is the most appropriate measure of transportation impacts. VMT refers to the amount and distance of automobile travel attributable to a project.

This threshold was not explicitly addressed in the 2011 EIR since this threshold was not part of Appendix G of the State CEQA Guidelines at the time the 2011 EIR was prepared. However, the issue of VMT is not new information that was not known or that could not have been known at the time of the certification of the 2011 EIR. In fact, the Project's anticipated VMT effects were discussed in the air quality analyses contained in the 2011 EIR.

The Proposed Project would result in similar VMT effects as would the Approved Project given that both would result in the same number of residential units, which are the primary driver of VMT for both the Proposed Project and the Approved Project.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses?

No Substantial Change from Previous Analysis. The Proposed Project would not introduce any geometric design features or incompatible land uses that were not previously evaluated in the 2011 EIR for the Approved Project. Mitigation measure 4.16-4 would apply to the Proposed Project, which requires that upon completion of the reconstruction of Tapo Canyon Road and after the majority of the project is occupied (but not later than one year after the issuance of occupancy permits for the 200th residential unit for the proposed project) and the general public has utilized Tapo Canyon Road, the posted speed limit on the roadway should be determined via a speed survey that would be conducted by the applicant and submitted to the City Engineer for review and approval. As required by mitigation measure 4.16-4, appropriate signage indicating the posted speed limit shall be installed upon completion of the speed survey and approval by the City Engineer. With implementation of mitigation measure 4.16-4, the Proposed Project would have similar effects related to this threshold as would the Approved Project.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

d) Result in inadequate emergency access?

No Substantial Change from Previous Analysis. The 2011 EIR determined that the Approved Project would not impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The 2011 EIR discussed that the Proposed Project would include adequate primary and secondary access roads, which would allow for adequate access during an emergency such as a wildland fire.

The Proposed Project would result in similar impacts related to emergency evacuation as would the Approved Project given that the Proposed Project would result in similar roadway infrastructure being developed to evacuate the Project Site and because the Approved Project would not result in an increase in the number of units or individuals that would need to evacuate the Project Site when compared to the Approved Project.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to transportation that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project. Mitigation measures from the 2011 EIR relating to transportation continue to apply; however, no new mitigation measures are proposed as a part of the Proposed Project that would result in any new impacts that were not previously evaluated in the 2011 EIR.

3.17 TRIBAL CULTURAL RESOURCES

3.17.1 2011 EIR

The 2011 EIR was circulated before implementation of Assembly Bill 52 (AB 52), which requires that a lead agency to engage in consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. Prior to release a negative declaration, mitigated negative declaration, or an EIR for a project, the lead agency shall begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Res. Code § 21080.3.1(b).) AB 52; however, does not apply to EIR Addendums. As such, the Proposed Project would not trigger the tribal consultation requirements of AB 52.

Nonetheless, the 2011 EIR did disclose that there were seven archaeological sites and nine isolated occurrences of prehistoric artifacts within the Project Site. As part of the development of the 2011 EIR, Phase I and Phase II investigations of the seven archaeological sites in the Project Site were conducted, which determined that these sites were not significant and that no additional studies of these sites were warranted. The 2011 EIR found that the Approved Project had a potential to result in the discovery of unknown archaeological resources in the Project Site. Mitigation measures 4.4.-1 through 4.4-5 were required for the Approved Project to mitigate impacts related to archaeological resources to less than significant levels.

The 2011 EIR found that there were no known cemeteries or burial grounds on the Project Site, but that the Project Site has a history of use by Native Americans. Therefore, the 2011 EIR determined that there was potential for the discovery of human remains, including unmarked burial grounds. Because the potential exists for human remains to be unearthed during the Proposed Project's grading activities, mitigation measure 4.4-6 was required for the Approved Project to mitigate impacts related to human remains.

Mitigation Program

See mitigation measures provided in Section 3.4, Cultural Resources.

3.17.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
TRIBAL CULTURAL RESOURCES – Would the project:				
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	☐	☐	☐	☑
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☐	☑
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☐	☑

Compliance with AB 52 pertaining to Native American Tribal Consultation is required for projects with publicly circulated CEQA documents, such as EIRs, MNDs, or NDs filed on or after July 1, 2015. The present Addendum does not require circulation for public review; thus, discussion of the tribal consultation process and analysis of impacts to tribal cultural resources is not required here. However, for informational purposes, an analysis is provided below.

Would the Project:

a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? **and**

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the

criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

No Substantial Change from Previous Analysis. The updated record search and archival research results that were conducted for the Proposed Project did not substantively change the overall context, or the documented cultural sensitivity that was previously addressed in the 2011 EIR.

The Proposed Project would result in fewer overall impacts when compared to the Approved Project. The 2011 EIR disclosed that the Approved Project would result in direct impacts to a total of 790.72 acres of land. The Proposed Project would impact a total of 305.22 acres of land, which is a reduction in impacts of 485.50 acres (Chambers Group, 2024a). By substantially reducing the acreage of impacts, the Proposed Project would also reduce the potential for impacts to occur related to tribal cultural resources.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to tribal cultural resources that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project. The mitigation measure from the 2011 EIR relating to tribal cultural resources continues to apply; however, no new mitigation measures are proposed as a part of the Proposed Project that would result in any new impacts that were not previously evaluated in the 2011 EIR.

3.18 UTILITIES AND SERVICE SYSTEMS

3.18.1 2011 EIR

Water

The 2011 EIR disclosed that the Approved Project would add residential and commercial users to the Ventura County Water Works District (VCWWD) No. 8 service area, which would create additional demands for water within the districts.

The 2011 EIR described that the Approved Project would be divided into two primary water pressure zones, and would be served by three potable water tanks. One potable water tank is proposed within the project site, and two existing tanks are located in Sand Canyon.

The 2011 EIR described that water would be supplied to a new pump station from the 1355 Pressure Zone, which would require pump station upgrades, including modification to the pumps and pipelines. The 2011 EIR described that a looped pipeline system would connect existing facilities located at the intersection of Tapo Canyon Road and Lost Canyons Drive to a new approximately 1-million-gallon reservoir within the Project Site and to the existing 16-inch transmission pipeline located within Lost Canyons Drive. The 2011 EIR described that a new pipeline within Dry Canyon would connect to the new line within Lost Canyons Drive, with a pressure regulating station near the southern boundary of the project site to connect the two water pressure zones. As described in the 2011 EIR, water would be pumped to the new station from the existing pump station located on Tapo Street, which would require upgrades to existing pumps and pipelines.

The 2011 EIR evaluated the adequacy of existing water supplies and the water distribution system to serve the uses that would be allowed by the Approved Project. The 2011 EIR described that potable water for the Approved Project would be provided by VCWWD No. 8, which receives SWP water from CMWD. Water service at the Project Site would be provided by the Ventura County Waterworks District No. 8 (VCWWD No. 8), which purveys water provided by Calleguas Municipal Water District (CWMD). The 2011 EIR reported that at the time of the preparation of the 2011 EIR, VCWWD No. 8 delivered more than 23,000 acre-feet of water to approximately 24,000 service connections. The 2011 EIR determined that there were adequate VCWWD No. 8 facilities to provide potable and non-potable water to the Project Site. The 2011 EIR found that improvements to the existing potable water distribution system would be required to serve the Approved Project. However, the 2011 EIR found that no improvements to potable water treatment facilities would be required in order to serve the Approved Project.

The 2011 EIR described that the Approved Project would include improvements to the water delivery system that was required based on a new grading plan developed around the clubhouse area of the Approved Project. As described in an engineering letter that was prepared as a part of the development of the 2011 EIR, approximately 16 lot elevations would experience service pressures below 30 pressure pounds per square inch (psi) after a maximum day demand. As such, these lots would require service from a hydropneumatic station or other alternative approved by the VCWWD No. 8. As required by mitigation

measure 4.17-1, prior to the issuance of occupancy permits, the applicant shall construct new water storage tank and a new hydropneumatic booster pump station (Los Canyons Booster Pump Station) as part of the Project to provide service pressures above 30 psi for lot elevations with pressures less than 30 psi that would comply with VCWWD No. 8 district service pressure requirements and approved by the Director of Public Works. In light of this no lots would experience service pressure below 30 psi.

As discussed in the 2011 EIR, a majority of the water distributed by VCWWD No. 8 was imported SWP water. This water was treated by MWD and did not require additional treatment prior to distribution. As such, the Approved Project was determined to not require additional water treatment improvements.

At the time of the preparation of the 2011 EIR, the most recent urban water management plans prepared by VCWWD No. 8 and CWMD indicated that there was sufficient supplies of water available to supply current and projected demand for the district, including the Approved Project. The 2011 EIR found that the additional demand generated by the Approved Project would result in an approximately 238.5 acre-feet per year (afy), approximately 1 percent increase in water use within VCWWD No. 8. This would represent 3 percent of the 7,925-afy increase in potable water demand over the 20-year planning period covered by VCWWD's 2005 UWMP. As previously discussed, VCWWD No. 8 has a long-term contract with CMWD to provide 100 percent of the water requested, based on availability.

As such, the 2011 EIR determined that the Approved Project's impacts related to water would be less than significant.

Wastewater

The 2011 EIR described that the Project Site was not served by the City's sewer system. At the time of the development of the 2011 EIR, wastewater generated by the golf courses and associated structures were stored in an on-site septic tank system. At the time of the development of the 2011 EIR, City sewer lines served adjacent areas to the west and south of the Project Site but did not serve the Project Site itself. The golf course and commercial development were removed from the project.

The 2011 EIR evaluated wastewater impacts for the Approved Project at a conceptual planning level, relying on preliminary sewer studies and assumptions available at that time. The EIR concluded that certain off-site sewer improvements and upsizing of downstream pipe segments would be required to accommodate project-generated flows and avoid capacity constraints.

Subsequent to the 2011 EIR, the City approved the Lost Canyons Sewer System Master Plan Addendum, which provided a detailed, pipe-by-pipe hydraulic analysis of the same downstream sewer system using updated City GIS data, refined tributary area delineations, and City-standard hydraulic design criteria.

In contrast with the 2011 EIR, the 2017 Master Plan Addendum demonstrates that all evaluated 8-inch and 12-inch sewer segments operate within allowable City capacity criteria under post-development peak flow conditions, with no surcharge or exceedance of design depth limits.

The 2011 EIR described that the Approved Project would result in the development of 364 residential units, along with commercial and commercial recreation uses, which would discharge wastewater to existing sewer lines through new connections to existing sewer lines at Tapo Canyon Road and Valerie Avenue, and via a proposed new sewer line within Anderson Drive, extending from the project boundary to Avenida Simi and then southerly within Sycamore Drive to Cochran Street as described in more detail below.

The 2011 EIR described that the Proposed Project would include construction of the sewer lines necessary to convey wastewater from the proposed residential and commercial uses to existing sewer mains. The 2011 EIR included a conceptual sewer plan that showed the conceptual wastewater conveyance system prepared for the Approved Project in the sewer study that was prepared at that time. In order to determine the size of the new sewer mains, a wastewater generation factor of 275 gallons per day (gpd) per dwelling unit was used as a part of the Approved Project's sewer study, which was based on the City's wastewater design standards. The Project Site was divided into five drainage areas as a part of the sewer study, and flow rates were calculated and a peaking factor was added for each area to determine the design flow of each stretch of pipe. Proposed lines were tied into the existing wastewater conveyance system and checked to determine adequacy of the downstream mains. Based on calculations in the sewer study, 8-inch lines would be required to convey flows generated by the Approved Project's proposed uses to sewer mains. The 2011 EIR disclosed that in Area B of the Project Site, a pump station would be required to convey flows through a 3-inch force main to an 8-inch gravity line. These lines are existing. In order to provide sewer service to the Approved Project, which is currently unserved by the City's sewer system. The Approved Project proposed two new connections to existing sewer lines to accommodate the proposed development. Two connections would be made to existing sewer lines in Tapo Canyon Road at Presidio Drive and Valeria Avenue at Presidio Drive and Lost Canyon Drive. .

The 2017 Master Plan Addendum demonstrates that, when evaluated using City design standards and updated data, the same downstream system can accommodate project flows without physical upgrades. This indicates that the off-site improvements identified in the 2011 EIR were conservative planning assumptions rather than confirmed engineering requirements.

The 2011 EIR determined that the Approved Project would not exceed the wastewater treatment requirements of the applicable RWQCB and this is corroborated by the 2017 Sewer Master Plan. The 2011 EIR disclosed that implementation of the Approved Project would result in the generation of wastewater flows, which would be conveyed to the City's WQCP for treatment before discharge into Arroyo Simi. The 2011 EIR described that the Los Angeles RWQCB had adopted waste discharge requirements regulating the discharge of tertiary treated effluent from the WQCP to Arroyo Simi within the Calleguas Creek Watershed. Most of the surface water within the watershed has been identified as impaired, meaning it does not fully support designated beneficial uses such as water supply or wildlife

habitat. The 2011 EIR determined that the Approved Project would not alter the requirements of the Los Angeles RWQCB, and therefore would have no impact related to exceedance of applicable wastewater treatment requirements of the applicable Regional Water Quality Control Board. The 2011 EIR summarized the projected wastewater generation of the Approved Project, based on generation rates provided in the sewer study. As shown in the 2017 sewer master plan, the Approved Project would generate an estimated 100,100 gpd, or 0.10 mgd, of wastewater. As previously discussed, the City's WQCP has a rated capacity of 12.5 mgd and currently treats approximately 8 mgd, with an available capacity of 4.5 mgd at the time the 2011 EIR was prepared. As such, the 2011 EIR determined that the Approved Project's wastewater generation of 0.10 mgd could be accommodated by the WQCP's existing capacity. The 2011 EIR also disclosed that the City had plans to expand capacity at the WQCP to 17.5 mgd by 2014. The expansion has not been necessary because wastewater flows have decreased since 2011. As such, the project is not anticipated to result in wastewater generation in excess of existing City system capacity. Therefore, the 2011 EIR and 2017 sewer master sewer plan found that no new sewer treatment facilities would need to be constructed to accommodate the Approved Project. Accordingly, the 2011 EIR found that the Approved Project would not exceed wastewater treatment requirements of the Los Angeles RWQCB and impacts would be less than significant with implementation of mitigation measures 4.18-1 and 4.18-2.

As required by mitigation measure 4.18-1, prior to approval of tentative tract maps, the applicant shall pay fees in accordance with Development Code Section 9-66.050 to the City of Simi Valley.

As required by mitigation measure 4.18-2, the applicant shall be responsible for the construction of all on-site and off-site sanitary sewer faculties and connections required to serve the Approved Project. Also, as required by mitigation measure 4.18-2, the applicant shall enter into an agreement with City of Simi Valley Department of Public Works to construct the improvements and the system shall be dedicated to City of Simi Valley for maintenance.

With implementation of mitigation measures 4.18-1 and 4.18-2, the Approved Project was determined to have less than significant impact related to sewer systems.

Solid Waste

The 2011 EIR discussed that the Approved Project would result in demands for solid waste during construction and operation.

The 2011 EIR discussed that the construction of the Approved Project would involve grading and construction, which would result in the generation of construction waste. The 2011 EIR found that small amounts of demolition waste would be generated from the demolition of the existing golf course currently occupying a portion of the Project Site. The 2011 EIR discussed that construction-related solid waste materials would be typical construction debris, including wood, paper, glass, plastic, metals, cardboard, and green wastes. The 2011 EIR disclosed that the wastes generated would result in an incremental and intermittent increase in solid waste disposal at the Simi Valley Landfill.

The 2011 EIR describe that development of the Approved Project would result in 364 residential units and a minor amount of new commercial use at buildout. The 2011 EIR disclosed that the residents of these units would generate solid waste that would be collected and disposed of in the SVLRC. The 2011 EIR included estimated solid waste generation and determined that it would be able to be accommodated at the Simi Valley Landfill.

The 2011 EIR described that the City of Simi Valley Department of Community Services oversaw solid waste collection in the City. The 2011 discussed that solid waste collection in the City was provided by two private refuse collectors: GI Rubbish and Anderson Rubbish. GI Industries, an affiliate of GI Rubbish, provided residential collection services in the City. The 2011 EIR discussed that the property owners in the City are responsible for contracting directly with haulers for solid waste collection and disposal services. The 2011 EIR described that the local haulers picked up municipal solid waste from customers within the City and transported it to the Simi Valley Landfill and Recycling Center (SVLRC). The 2011 EIR discussed that the SVLRC had a permitted daily capacity of 3,000 tons per day (tpd) and received an average of 2,177 tpd, leaving available capacity of 823 tpd. The 2011 EIR found that the 1.69 tpd that would be generated by the Approved Project would require less than 1 percent of the remaining available capacity for this landfill. As such, the 2011 EIR found that the Approved Project's solid waste would, therefore, be able to be accommodated at the SVLRC, which the 2011 EIR determined had adequate remaining capacity to accept the Approved Project's solid waste until its projected closure in 2033. The 2011 EIR concluded that the Approved Project would be served by a landfill with sufficient permitted capacity, and impacts would, therefore, be less than significant.

Mitigation Program

- 4.17-1. Prior to the issuance of occupancy permits, the applicant shall provide a hydropneumatic booster pump station or a higher storage tank high water level and required piping to provide service pressures above 40 psi for lot elevations with pressures less than 30 psi that would comply with VCWWD No. 8 district service pressure requirements and approved by the Director of Public Works.
- 4.18-1. Prior to approval of tentative tract maps, the applicant shall pay fees in accordance with Development Code Section 9-66.050 to the City of Simi Valley.
- 4.18-2. The applicant shall be responsible for the construction of all on-site and off-site sanitary sewer faculties and connections required to serve the project. The applicant shall enter into an agreement with City of Simi Valley Department of Public Works to construct the improvements and the system shall be dedicated to City of Simi Valley for maintenance.

3.18.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	☑
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☑
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☑
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☑
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☑

Would the Project:

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

No Substantial Change from Previous Analysis.

Water

The Proposed Project, similar to the Approved Project, would add residential users to the area. Additionally, the Project would generate visitors to the clubhouse and recreation center. However, it should be noted that while the Proposed Project includes a clubhouse and recreation center, the prior golf course is considered a commercial level golf course with a sit-down restaurant, support facilities such as a clubhouse (including a central building with locker rooms, restrooms, lounges, and administrative offices), practice areas, guest amenities, and maintenance infrastructure. Therefore, the Proposed Project would not result in more water demand compared to the Approved Project, which was a fully developed commercial level golf course.

A Water System Master Plan was prepared for the Proposed Project, which has estimated water demands for the Proposed Project and identified water distribution requirements for the Proposed Project (RTM Engineering Consultants 2025b). As outlined in the Water System Master Plan, the Proposed Project would include 364 residential lots, a recreation center with a lake, drainage basins, and associated infrastructure. The Water System Master Plan identified that the Proposed Project's service pad elevations would range in elevation from approximately 1215 to approximately 1416 feet. The Water System Master Plan describes that the Proposed Project's recreation center and 140 lots would be served by the 1470 Pressure Zone by connecting to the existing 16" water line in Lost Canyons Drive, and that 222 lots would be served by a new 1537 pressure zone. The Water System Master Plan described that during final design, the delineation between the 1470 and 1537 pressure zones may be refined to optimize water system performance and residential lot pressures. The Water System Master Plan described that two lots that would be located on the southern portion of the Project Site would be serviced by joining existing City owned water pipes. Specifically, the first lot would connect to an existing 8" water line in Anderson Drive in the existing 1248 pressure zone. The second lot would connect to an existing 8" water line in Ditch Road in the existing 1355 pressure zone (RTM Engineering Consultants 2025b).

The Water System Master Plan describes that in addition to the residential demand for potable water, water demand would also result from the Homeowner's Association (HOA) community landscape. Water for the community's landscaping would be supplied from the proposed potable water system via an air-gapped connection to the existing 200,000-gallon tank. Also, the Proposed Project's proposed lake would have a connection to the domestic water system which would be used to offset evaporation loss when the non-potable supply is not available. A demand of 25 gpm was calculated using an evaporation loss factor of 0.5 inches of lake depth per day (RTM Engineering Consultants 2025b).

The Water System Master Plan also includes an evaluation of the required fire flow that would be needed to serve the Proposed Project. The Ventura County Fire Protection District (VCFPD) directed that the residential fire flow requirements for the Proposed Project be determined using the California Fire Code. The hydraulic model simulations provided in the Water System Master Plan assumed that both the fire hydrant and fire sprinkler demands would be applied simultaneously. Fire storage volume were calculated and were used to determine the Proposed Project's proposed reservoir size as well as the pump station flow rate that is needed (RTM Engineering Consultants 2025b).

As outlined in the Water System Master Plan, the water storage requirement for the Proposed Project would be met by the new 1537 reservoir that would be built as a part of the Proposed Project and will serve 222 lots as well as the existing Big Sky 1470 tank. The 1537 reservoir would be supplied by the new 1537 Lost Canyons Booster Pump Station. The sizing of the 1537 reservoir was determined by using the VCWWD No. 8 storage requirements that are presented in the Water System Master Plan. The calculations for reservoir storage take into account requirements related to operational storage, emergency storage, and fire storage volume (RTM Engineering Consultants 2025b). The reservoir provides sufficient capacity for the 1537 zone and includes a surplus storage of +48,691 gallons. The Project will utilize the previously approved plans for a 580,000-gallon reservoir, with revisions. The updated design will accommodate a dedicated transmission pipe from

the new Lost Canyons booster pump station to the new reservoir (superseding the previous design which included a combined transmission/distribution pipe). The new tank will have a water height of 24 feet, a diameter of 64 feet, and will be situated at a pad elevation of 1,513 feet. These revisions must be reviewed and approved by the VCWWD No. 8 prior to construction.

The Proposed Project would require the construction of a pump station. As outlined in the Water System Master Plan, a new 1537 Pump Station has been designed and approved by the city for the Proposed Project. According to the Water System Master Plan, the pump station was designed to deliver the MDD volume for the 1537 and 1470 zones within 12 hours to incorporate Southern California Edison (SCE) off peak pumping guidelines. The pump station was also designed to replace the required fire storage volume (FSV) for a period of 72 hours. The new 1537 Pump Station would be constructed at the southeast corner of the Project Site at the intersection of Street "U" and Lost Canyons Drive. As detailed in the Water System Master Plan, the City requested that this new pump station be sized so that it can provide fire flow when the proposed 1537 tank is offline for maintenance. Therefore, the pump station has been designed for the Proposed Project to include three vertical turbine pumps (VTP) (alternating for even wear), each rated for 800 gpm. In the case of fire, when the 1537 tank is offline, the pump station would have the capability of providing the fire flow (540 gpm) plus maximum day demand (139 gpm) in the 1537 zone.

It was previously thought that when the Approved Project became operational, it may cause a reduced suction pressure at the existing 1715 pump station on Tapo Canyon Road, which is located north of the Proposed Project's proposed Lost Canyon Pump Station. However, now that the new Walnut Ave pump station has been designed and will be constructed to replace the existing Tapo St. pump station, the low pressure issue at the 1715 pump station will be mitigated when the new Walnut Ave. pump station becomes operational. An alternate solution, if the low pressure issue persists after the Walnut Ave. pump station is operational, would be to run the existing 1715 pump station during the 12 hours each day when the new Lost Canyons pump station is shut down, so these two booster pump stations have no effect on each other. These final details would be evaluated in consultation with the City and VCWWD prior to implementation of the Proposed Project.

The Proposed Project would install a new looped water supply system for reliability of service. The developer would construct a 12" water pipeline that would connect the existing 1355 zone at the intersection of Tapo Canyon Road and Lost Canyons Drive to the proposed Lost Canyons 1537 Reservoir. The final alignment and design would be reviewed and approved by the City prior to implementation. According to the Water System Master Plan, there will also be a connection to the existing 16-inch pipeline in Lost Canyons Drive, that was constructed by the Big Sky development, thereby creating a looped system.

As described previously, the two individual lots at the southern end of the Project Site would be served by the existing 1248 and 1357 zones by connecting to existing water pipes in Anderson Drive and Ditch Road.

The Proposed Project would construct a pressure regulating station for reliability of the overall water system. The pressure regulating station would connect the 1537 Pressure Zone

to the 1470 Pressure Zone and would be located within the Proposed Project, near the main entrance of the residential development.

As detailed in the Water System Master Plan, the Proposed Project's proposed domestic water infrastructure, including the proposed reservoir, pump station and pipelines would comply with the requirements of the VCWWD No. 8, the City of Simi Valley, and the Ventura County Fire Department.

All of the potable water infrastructure proposed for the Proposed Project would occur within the impact footprint previously evaluated in the 2011 EIR. As such, the Proposed Project would not result in any new or increased impacts related to potable water that were not previously analyzed.

Wastewater

The Proposed Project, similar to the Approved Project, would add residential users to the area. Additionally, the Project would generate visitors to the clubhouse and recreation center. However, it should be noted that while the Proposed Project includes a clubhouse and recreation center, the prior golf course is considered a commercial level golf course with a sit-down restaurant, support facilities such as a clubhouse (including a central building with locker rooms, restrooms, lounges, and administrative offices), practice areas, guest amenities, and maintenance infrastructure. Therefore, the Proposed Project would not result in more demand for wastewater conveyance and treatment compared to the Approved Project.

A Sewer System Master Plan was prepared for the Proposed Project, which has estimated wastewater generation estimates for the Proposed Project and has identified sewer conveyance requirements for the Proposed Project (RTM Engineering Consultants 2025c). As detailed in the Sewer System Master Plan, the existing sewer system is sufficiently sized to convey the additional sewage flow that would result from the Proposed Project without requiring any off-site sewer infrastructure upgrades. The calculations prepared as a part of the Sewer System Master Plan show that all 8" pipes would convey sewage at a maximum depth of 0.28', which would be less than the City of Simi Valley's maximum of 1/2 full (0.33' in an 8" pipe). Additionally, the existing 12" pipe would be capable of conveying sewage at a maximum depth of 0.63', which is less than the City of Simi Valley's maximum of 2/3 full (0.67' in a 12" pipe). Anticipated sewage flows and depths at each of the off-site confluence points are provided in the Sewer System Master Plan.

As required by mitigation measure 4.18-1, prior to approval of tentative tract maps, the applicant shall pay fees in accordance with Development Code Section 9-66.050 to the City of Simi Valley.

As required by mitigation measure 4.18-2, the applicant shall be responsible for the construction of all on-site and off-site sanitary sewer facilities and connections required to serve the Proposed Project. Also, as required by mitigation measure 4.18-2, the applicant shall enter into an agreement with City of Simi Valley Department of Public Works to construct the sewer improvements and the sewer system shall be dedicated to City of Simi Valley for maintenance.

With implementation of mitigation measures 4.18-1 and 4.18-2, the Proposed Project would not result in any new or increased impacts related to wastewater.

Solid Waste

As with the Approved Project, the Proposed Project would result in increased demand for solid waste during construction and operation.

Similar to the Approved Project, the Proposed Project would result in the generation of small amounts of demolition waste from the demolition of the existing golf course facilities that occupy a portion of the Project Site.

Also, the Approved Project would result in 364 residential units and a clubhouse and recreation center uses at buildout that would result in ongoing generation of solid waste. As with the Approved Project, the Proposed Project would result in additional solid waste needing to be disposed of at the Simi Valley Landfill. However, it should be noted that while the Proposed Project includes a clubhouse and recreation center, the prior golf course is considered a commercial level golf course with a sit-down restaurant, support facilities such as a clubhouse (including a central building with locker rooms, restrooms, lounges, and administrative offices), practice areas, guest amenities, and maintenance infrastructure. Therefore, the Proposed Project would not result in more solid waste generation compared to the Approved Project.

Solid waste for the Proposed Project would likely be disposed of at the Simi Valle Landfill. Located northwest of the city of Simi Valley, the Simi Valley Landfill & Recycling Center (SVLRC) is a fully permitted non-hazardous municipal solid waste landfill and recycling facility that has served Ventura County for over 40 years. The SVLRC first opened in 1970 and Waste Management acquired the facility in 1983. The SVLRC is estimated to have remaining capacity of approximately 80 million cubic yards (Waste Management 2025a).

As with the Approved Project, the Proposed Project would be able to be accommodated at regional landfills, including the SVLRC. As such, the Approved Project would have less than significant impact related to solid waste.

Conclusion

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

b) Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple years?

No Substantial Change from Previous Analysis. As described above, the Proposed Project would include the development of adequate infrastructure to connect the Proposed Project's units and landscaping to the municipal water system.

A Water System Master Plan was prepared for the Proposed Project, which estimated water demands for the Proposed Project and identified water distribution requirements for the Proposed Project (RTM Engineering Consultants 2025b).

As detailed in the Water System Master Plan, the Proposed Project's proposed domestic water infrastructure, including the proposed reservoir, pump station and pipelines would comply with the requirements of the VCWWD, the City of Simi Valley, and the Ventura County Fire Department.

The VCWWD's 2020 Urban Water Management Plan (UWMP) included assumptions that residential development would occur in the Project Site to a similar extent to what is proposed by the Proposed Project. Further, the UWMP demonstrated that the VCWWD would have adequate water supplies available to serve its users during normal, dry, and multiple dry years (Waterworks District No. 8 2020).

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Substantial Change from Previous Analysis. As described above, the Proposed Project would include the development of adequate infrastructure to connect the Proposed Project's residential units and clubhouse to the existing off-site sewer system.

A Sewer System Master Plan was prepared for the Proposed Project, which estimated wastewater generation estimates for the Proposed Project and has identified sewer conveyance requirements for the Proposed Project (RTM Engineering Consultants 2025c). As detailed in the Sewer System Master Plan, the existing sewer system is sufficiently sized to convey the additional sewage flow that would result from the Proposed Project without requiring any off-site sewer infrastructure upgrades. The calculations prepared as a part of the Sewer System Master Plan show that all 8" pipes would convey sewage at a maximum depth of 0.28', which would be less than the City of Simi Valley's maximum of 1/2 full (0.33' in an 8" pipe). Additionally, the existing 12" pipe would be capable of conveying sewage at a maximum depth of 0.63', which is less than the City of Simi Valley's maximum of 2/3 full (0.67' in a 12" pipe). Anticipated sewage flows and depths at each of the off-site confluence points are provided in the Sewer System Master Plan.

As required by mitigation measure 4.18-1, prior to approval of tentative tract maps, the applicant shall pay fees in accordance with Development Code Section 9-66.050 to the City of Simi Valley.

As required by mitigation measure 4.18-2, the applicant shall be responsible for the construction of all on-site and off-site sanitary sewer facilities and connections required to serve the Proposed Project. Also, as required by mitigation measure 4.18-2, the applicant shall enter into an agreement with City of Simi Valley Department of Public Works to construct the sewer improvements and the sewer system shall be dedicated to City of Simi Valley for maintenance.

With implementation of mitigation measures 4.18-1 and 4.18-2, the Proposed Project would not result in any new or increased impacts related to this threshold.

***d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?* and**

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Substantial Change from Previous Analysis. As with the Approved Project, the Proposed Project would result in increased demand for solid waste during construction and operation. The Proposed Project does not include any new land uses that would increase solid waste generation.

Similar to the Approved Project, the Proposed Project would result in the generation of small amounts of demolition waste from the demolition of the existing golf course facilities that occupy a portion of the Project Site.

Also, the Approved Project would result in 364 residential units and a clubhouse and recreation uses at buildout that would result in ongoing generation of solid waste. As with the Approved Project, the Proposed Project would result in additional solid waste needing to be disposed of at the Simi Valley Landfill.

Solid waste for the Proposed Project would likely be disposed of at the Simi Valle Landfill. Located northwest of the city of Simi Valley, the Simi Valley Landfill & Recycling Center (SVLRC) is a fully permitted non-hazardous municipal solid waste landfill and recycling facility that has served Ventura County for over 40 years. The SVLRC first opened in 1970 and Waste Management acquired the facility in 1983. The SVLRC is estimated to have remaining capacity of approximately 80 million cubic yards (Waste Management 2025a).

As with the Approved Project, the Proposed Project would be able to be accommodated at regional landfills, including the SVLRC. As such, the Approved Project would have less than significant impact related to solid waste. The Proposed Project would comply with all current applicable laws and regulations related to solid waste. In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to utilities and service systems that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project. Mitigation measures from the 2011 EIR relating to utilities and service systems continue to apply; however, no new mitigation measures are proposed as a part of the Proposed Project that would result in any new impacts that were not previously evaluated in the 2011 EIR.

3.19 WILDFIRE

3.19.1 2011 EIR

Although wildfire was not evaluated as a stand-alone topic in the 2011 EIR, the 2011 EIR included an evaluation of the potential impacts of the Approved Project related to wildfire within Section 4.12, Public Services, of the 2011 EIR.

The 2011 EIR disclosed that the Approved Project would occur within a very high fire hazard severity zone and that the Approved Project would potentially result in increased exposure of people and buildings to wildland fires. Thus, the 2011 EIR found that the Proposed Project would result in less than significant impacts related to wildfire, including exposing people and structures to wildland fires and related hazards.

Mitigation Program

The 2011 EIR did not include mitigation measures directly related to wildfire.

3.19.2 PROPOSED PROJECT IMPACT ANALYSIS

Environmental Issues	New Significant Impact	More Severe Impacts	New Ability to Substantially Reduce Significant Impact	No Substantial Change From Previous Analysis
WILDFIRE– If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☑
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☑
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☑

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

No Substantial Change from Previous Analysis. The 2011 EIR determined that the Approved Project would not impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The 2011 EIR discussed that the Proposed Project would include adequate primary and secondary access roads, which would allow for adequate access during an emergency such as a wildland fire.

The Proposed Project would result in similar impacts related to emergency evacuation as would the Approved Project given that the Proposed Project would result in similar roadway infrastructure being developed to evacuate the Project Site and because the Approved Project would not result in an increase in the number of units or individuals that would need to evacuate the Project Site when compared to the Approved Project.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Substantial Change from Previous Analysis. As with the Approved Project, the Proposed Project would occur within a very high fire hazard severity zone. The Proposed Project would potentially result in increased exposure of people and buildings to wildland fires, as would occur with the Approved Project.

To mitigate impacts related to wildfire to less than significant levels, the 2011 EIR included mitigation measures 4.12-1 through 4.12-10, which would also be applicable to the Proposed Project. With implementation of these measures, the Proposed Project would have similar impacts related to this threshold as would the Approved Project.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Substantial Change from Previous Analysis. The Proposed Project would include fuel modification zones, the impacts of which have been evaluated in the 2011 EIR and in this EIR Addendum. The Proposed Project would not require the installation or maintenance of any other associated infrastructure that may result in temporary or ongoing impacts to the environment.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Substantial Change from Previous Analysis. As with the Approved Project, the Proposed Project would occur within a very high fire hazard severity zone. As such, if a wildfire were to occur, there is potential for occupants, buildings, and infrastructure in the Project Site to be adversely affected by post-fire runoff, slope instability, drainage changes, and other indirect effects from wildfires.

To mitigate impacts related to wildfire to less than significant levels, the 2011 EIR included mitigation measures 4.12-1 through 4.12-10, which would also be applicable to the Proposed Project, which have been previously summarized. With implementation of these measures, the Proposed Project would have similar impacts related to this threshold as would the Approved Project.

In conclusion, the Proposed Project would not result in any new significant impacts related to this threshold.

Conclusion

The Proposed Project would not result in any new or substantially increased effects related to wildfire that were not already previously evaluated and disclosed in the 2011 EIR that was prepared for the Approved Project. Mitigation measures from the 2011 EIR relating to wildfire continue to apply; however, no new mitigation measures are proposed as a part of the Proposed Project that would result in any new impacts that were not previously evaluated in the 2011 EIR.

4.0 CONCLUSIONS

Based on the analysis provided in this Addendum, there is substantial evidence to determine that (1) the Proposed Project does not represent a substantial change from the previously approved project evaluated in the 2011 EIR; (2) no substantial changes have occurred with respect to the circumstances under which the Proposed Project is undertaken; and (3) the Proposed Project has not introduced new information of substantial importance that was not previously known. The Proposed Project would not have any new or substantially more severe impacts than what was evaluated in the 2011 EIR. Also, based on our analyses herein, it is our determination that the 2011 EIR, when considered in conjunction with this Addendum, provides adequate documentation, pursuant to the CEQA for the Project.

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APPENDIX A

BIOLOGICAL RESOURCES SURVEYS

November 3, 2025
3151 Airway Avenue, Suite F-208
Costa Mesa, CA 92626
21091.01

Rick Nelson
Newport Pacific Land Company
100 Bayview Circle, Suite 240
Newport Beach, CA 92660

Subject: Lost Canyons Development Project, 180 Lots Transfer – Summary of Biological Resources Surveys

Dear Mr. Nelson,

Chambers Group, Inc. (Chambers Group) understands that Newport Pacific Land Company (NPLC) is seeking to transfer 180 estate lots for residential development from Dry and Tapo Canyons, to the north of Lost Canyons Drive on a portion of the former golf course. This area was identified for construction impacts during the original recordation of the TTM and impacts to biological resources have been previously addressed. Chambers Group has been conducting surveys for special status plant species and least Bell's vireo on the property since 2018 and the new proposed location for the 180 lots has been included in the survey footprints each year. A summary describing each biological resource category is presented below.

Special Status Plant Species

Surveys Conducted

- Protocol-level focused plant surveys in 2018, 2020, 2022, 2023, and 2024

Results

These results should be interpreted with the following statement taken into account in regards to California Environmental Quality Act (CEQA) protection criteria for CRPR ranked species. As per the CNPS Rare Plant Program Committee's 2020 Technical Memorandum, Considerations for Including CRPR 4 Plant Taxa in CEQA Biological Resource Impact Analysis, "CNPS and CDFW maintain that all CRPR 1 (plants rare, threatened, or endangered in California and elsewhere) and CRPR 2 (plants rare, threatened, or endangered in California, but more common elsewhere) taxa meet the definition of endangered, rare, or threatened under CEQA Section 15380 and must be evaluated during CEQA review. Plant taxa ranked as CRPR 4 (plants of limited distribution) generally do not currently appear to meet the criteria for listing as threatened or endangered, but CNPS and CDFW strongly recommend that these taxa be evaluated in CEQA documents. However, the basis for inclusion of CRPR 4 taxa in CEQA analyses is not as clear-cut as the basis for CRPR 1 and 2 taxa, and guidelines for determining which CRPR 4 taxa should be evaluated under CEQA have not been fully articulated."

- Of the 18 special status plant species that were identified with a potential for occurrence within the Phase 1 Impact Area that includes the area where the 180 lots are proposed to be located as identified in the Native Plant Protection Plan (NPMP, GLA 2015), only Catalina mariposa lily (*Calochortus catalinae*) and slender mariposa lily (*Calochortus clavatus* var. *gracilis*) were recorded within the impact areas surveyed in 2024. Impacts to these species will be mitigated at a 1:1 ratio as per the Native Plant Mitigation Plan (NPMP) through protection within the Conserved Lands and transfer of the 180 lots into the already proposed impact areas will not result in any additional impacts or the need for additional mitigation.
- Three additional California Rare Plant Rank (CRPR) 4 special status species, Hubby's phacelia (*Phacelia hubbyi*), San Diego viguiera (*Bahiopsis laciniata*), and Plummer's mariposa lily (*Calochortus plummerae*), were discovered during various surveying efforts from 2018 through 2023. Due to changes made to the Project boundary in 2024, the locations identified to contain Hubby's phacelia and San Diego viguiera are now excluded from the Project site and were not observed in any other areas within the new Project boundary during 2024 focused plant surveys. Plummer's mariposa lily was observed in 2024 but is a CRPR 4 species for which CEQA protection is not afforded

based on a 2012 analysis of the CRPR status criteria in the "Rare Plant Status Review: *Calochortus plummerae* Proposed Rank Change from 1B.2, G3/S3 to 4.2, G4/S4" prepared by the CNPS and the California Natural Diversity Database (CNDDB). In 1994, the Plummer's mariposa lily was placed on the CNPS Inventory (5th Edition) and given its CRPR 1B.2 status as many historical populations had been extirpated, with only 58 known occurrences, and many extant populations threatened or were very small. This memo explains that the reasons for a change in status from CRPR 1B.2, G3[i]/S3[ii] to CRPR 4.2, G4[iii]/S4[iv] were that, "[…] surveys have shown that *Calochortus plummerae* is more common than previously known" based on the 2012 reexamination of available population records estimating well over 18,500 individuals. At this time the Plummer's mariposa lily, "does not appear to be of high conservation concern given the following: its widespread distribution, high number of occurrences, the presence of some large populations, and given that nearly half of its occurrences are on protected lands."

The other 14 species identified in the NPMP were not observed during the protocol-level focused plant surveys in 2018, 2020, 2022, 2023, and 2024, when each of these species would be conspicuous and identifiable. These species are therefore presumed absent[v] from the Phase 1 Impact Areas and location where the 180 lots are proposed for transfer. The transfer of the 180 lots to the location identified will not result in any additional impacts or the need for additional mitigation as proposed impacts will already be mitigated with the implementation of the NPMP and compliance with resource agency permits.

Least Bell's Vireo and Other Riparian Birds

Surveys Conducted

- Protocol-level vireo surveys 2018, 2020, 2022, 2023, and 2024

Results

- Suitable arroyo willow-Fremont cottonwood habitat or other riparian habitat is not present for least Bell's vireo (LBVI) or other special status riparian bird species in the area where the transfer of the 180 lots is proposed. There is riparian habitat north of the area where the lots are proposed to be transferred in Tapo Canyon Tributaries B and D per the Habitat Mitigation and Monitoring Plan (Glenn Lukos Associates 2016), but this area will not be impacted by construction, and the habitat will remain in place. Incidental take of one pair and one individual LBVI has been mitigated through proposed habitat conservation, enhancement, and restoration for impacts elsewhere within the proposed development boundary and no further mitigation is recommended.
- The Habitat Mitigation and Monitoring Plan calls for the establishment of 1.14 acres, reestablishment along with invasive species removal on 1.87 acres, and enhancement through invasive species removal of 2.96 acres of southern mixed willow riparian forest within Tapo Canyon Creek and Gillibrand Creek. Restoration involving creation and enhancement of riparian habitat will occur along Tapo Canyon Creek west of Tapo Canyon Road, southern of Lost Canyons Drive. A Conservation Easement has been placed over this area to protect the habitat in perpetuity.

Coastal California Gnatcatcher

Surveys Conducted

- Last protocol-level surveys conducted October 2023 – March 2024

Results

- Glenn Lukos Associates, Inc. (2024) observed twelve territories/pairs within their Survey Area. None of the territories/pairs were observed north of Los Canyons Drive or within the proposed new Tentative Tract Map impact limits.
- Vegetation within the proposed impact area where the new proposed location for the 180 lots occurs was cleared prior to the nesting season of 2025. This vegetation will be maintained until grading can commence.

Western Spadefoot Toad

Surveys Conducted

- Habitat assessment 2019 and 2023

Results

- Glenn Lukos Associates, Inc. (2015) prepared a Western Spadefoot Toad (WST) Protection Plan in which a mitigation program would be implemented if the Project will (1) directly impact a WST occupied seasonal depression or lands within 250 feet of the occupied depression, and/or (2) directly impact lands occupied by WST adults, as described in Section V.7.
- No WST were found within the new location for the 180 lots during the 2019 or 2023 surveys. Surveys were conducted on multiple days during 2023, which was a normal rainfall year. No WST were found within the Project site during the 2023 surveys. The quality of the habitat within the Phase 1 impact areas of the Project site contains terrestrial vegetation, but ponding does not occur where persistent pools remain long enough to support eggs turning to tadpoles. Therefore, the Phase 1 areas do not contain suitable habitat for the WST. Furthermore, the bio-filters proposed to be impacted by Project activities that formerly may have supported WST, no long contain suitable habitat for WST as they are no longer irrigated and the vegetation has transitioned to more upland scrub; therefore, the proposed transfer of the 180 lots would not result in any impacts or the need for additional mitigation for WST.

Two-Striped Garter Snake

There is no habitat for two-striped garter snake present within the proposed impact areas north of Lost Canyons Drive or in the areas where the 180 lots are proposed for transfer. The area where the 180 lots are proposed for transfer consists primarily of disturbed/shortpod mustard/non-native grassland habitat as mapped in 2020.

Western Pond Turtle

There is no habitat for western pond turtle present within the proposed impact areas north of Lost Canyons Drive or in the areas where the 180 lots are proposed for transfer. The area where the 180 lots are proposed for transfer consists primarily of disturbed/shortpod mustard/non-native grassland habitat as mapped in 2020.

Burrowing Owl

Chambers Group qualified biologists conducted surveys for burrowing owl (BUOW) concurrently with the focused plant surveys throughout the Project site in April, June and August 2024. No BUOW were observed. Thirty-day pre-construction surveys with additional checks conducted 24 hours before ground disturbance and avoidance buffers will be implemented during construction if necessary.

Either all mitigation for those special status species with a potential to occur in the area proposed for development has been accomplished through existing resource agency permits and no new impacts associated with the 180-lot transfer would occur beyond those already identified for the project, or the habitat for these species is not present within the proposed area for the transfer of the 180 lots. Please let me know if you have any questions regarding this letter.

Sincerely,

CHAMBERS GROUP, INC.

Heather Clayton

Heather Clayton
Senior Biologist
hclayton@chambersgroupinc.com
(949) 261-5414, ext. 7241

[i] The Global Rank (G-rank) is an indication of the overall condition and imperilment of an element throughout its global range. It is a letter+number score that reflects a combination of Rarity, Threat and Trend factors, with weighting being heavier on the rarity factors. The Global Ranks are assigned by NatureServe in coordination with the state program(s) where the element occurs. G-rank G3 means the species is vulnerable — at moderate risk of extinction or elimination due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors. G-rank G4 means the species is apparently secure — uncommon but not rare; some cause for long-term concern due to declines or other factors (CNPS 2025).

[ii] The State Rank (S-rank) is an indication of the condition and imperilment of an element throughout its range within the state. As with the G-rank, it is a letter+number score that reflects a combination of Rarity, Threat and Trend factors, weighted more heavily on rarity. The State Ranks are assigned by the CNDDB biologists using standard natural heritage methodology. S-rank S3 means the species is vulnerable — vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation. S-rank S4 means the species is apparently secure — uncommon but not rare; some cause for long-term concern due to declines or other factors (CNPS 2025).

[iii] The Global Rank (G-rank) is an indication of the overall condition and imperilment of an element throughout its global range. It is a letter+number score that reflects a combination of Rarity, Threat and Trend factors, with weighting being heavier on the rarity factors. The Global Ranks are assigned by NatureServe in coordination with the state program(s) where the element occurs. G-rank G3 means the species is vulnerable — at moderate risk of extinction or elimination due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors. G-rank G4 means the species is apparently secure — uncommon but not rare; some cause for long-term concern due to declines or other factors (CNPS 2025).

[iv] The State Rank (S-rank) is an indication of the condition and imperilment of an element throughout its range within the state. As with the G-rank, it is a letter+number score that reflects a combination of Rarity, Threat and Trend factors, weighted more heavily on rarity. The State Ranks are assigned by the CNDDB biologists using standard natural heritage methodology. S-rank S3 means the species is vulnerable — vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation. S-rank S4 means the species is apparently secure — uncommon but not rare; some cause for long-term concern due to declines or other factors (CNPS 2025).

[v] Species absence is assumed based on non-detection during protocol-level focused plant surveys, but species may occur at low and undetected densities or has the potential to move in later.

APPENDIX B

UPDATED PHASE 1 MATURE TREE INVENTORY

CHAMBERS GROUP

February 19, 2025
(21091.01)

Gary Gafford
Newport Pacific Land Company
100 Bayview Circle, Suite 2200
Newport Beach, CA 92660

SUBJECT: RESULTS OF THE UPDATED PHASE 1 MATURE TREE INVENTORY CONDUCTED FOR THE LOST CANYONS DEVELOPMENT PROJECT IN THE CITY OF SIMI VALLEY, VENTURA COUNTY, CALIFORNIA

Dear Mr. Gafford,

The City of Simi Valley (City) has a Mature Tree Preservation Ordinance which requires an approved Tree Removal Permit prior to the removal of mature trees from a property. Grading of Phase 1 areas as part of the Lost Canyons Development project (Project) will require the removal or relocation of a number of mature trees. The Mature Tree Preservation Ordinance also requires the replacement of all mature trees, especially oak trees in the genus *Quercus,* and that the value of those trees be determined by appraisal. As per Change Order 09, Tasks 4A and 4B, this tree report is an update to the findings of the 2018 mature tree inventory data submitted in August 2019 for the Phase 1 area of the Project in Simi Valley, Ventura County. This report satisfies the requirements for a Tree Removal Permit in accordance with the City of Simi Valley's Mature Tree Preservation Ordinance (Municipal Code Section 9-38) applies to all protected trees within City Limits.

The objective of the inventory was to update and qualify the present condition of all "mature" trees located within the approximately 211-acre grading impact area to determine the appropriate preservation, relocation, or replacement measures for each tree. This report also includes updates to exhibits to include the new boundary for the reduced Phase 1 footprint in accordance with FM 5734-1 that includes the 32 lot and the 180 lot transfers. Any trees within this footprint that cannot be preserved in place will need to be relocated or mitigated.

Mature trees as defined by the City of Simi Valley are defined as any living tree of importance to the City of Simi Valley with a diameter of at least 5 inches (for oak trees in the genus *Quercus*) and 9.5 inches (for non-oak species) as measured 4.5 feet above mean natural grade (referred to as the diameter at breast height, DBH). This report presents the results of the updated 2024 Tree Inventory for trees within the Phase 1 proposed impact area. Mature trees were mapped, measured, and tagged and their health and overall condition was evaluated. The inventory also serves to update the previous tree inventory conducted in 2018 by Chambers Group by assessing the current conditions of the site and quantifying the number of trees proposed for preservation or removal based on the current grading design, including impacts to protected tree species along Tapo Canyon Road as part of future improvements to the road.

PROJECT LOCATION AND DESCRIPTION

The Project site is bordered by Tapo Canyon Road to the east, lies north of California State Route 118, is bisected by Lost Canyons Drive, and is bordered by existing residential development to the south and west and undeveloped land to the east and north (Figure 1). The site contains substantial areas of previous ground disturbance characterized by a vacated golf course.

The overall property comprises 1,770 acres, but only approximately 211 acres are proposed for development at this time. Up to 364 single-family residential units and recreation amenities along with associated fuel modification will be developed per the current grading design.

METHODS

The 2024 mature tree inventory was conducted by an ISA-certified arborist or horticulturalist trained in conducting tree assessments including Chambers Group biologists Allison Lane and Kellie Crouch, certified field botanist/horticulturalist Jessica Calvillo and senior certified field botanist/ISA-certified arborist Heather Clayton on September 3 and 4, 2024. Data recorded for each mature tree are consistent with information required as part of the City of Simi Valley Tree Removal Permit application (submitted separately). Trees were inventoried within the limits of the survey area depicted on Figure 2. Areas in which construction impacts are not anticipated (e.g., California Department of Fish and Wildlife jurisdiction) were excluded from the inventory.

The following tasks were conducted during the inventory:

1. Mature trees with a DBH equal to or greater than 5 inches for oak trees or 9.5 inches for other tree species were mapped. The DBH of each tree was calculated and recorded. In the case of mature trees with multiple trunks, the total diameter was calculated by summing the individual diameters of all trunks that were equal to or greater than 3 inches. Global Positioning System (GPS) coordinates, with sub-meter accuracy, were recorded for each tree; and points were overlaid onto an aerial photograph and correspond to the tree identification (ID) numbers on the Tree Impact Status Results Map (Figure 2).

2. Trees were tagged with numbered aluminum tags and identified to species during the 2018 inventory. The tags were affixed to the tree's trunk and correspond to the tree ID numbers on the Tree Impact Status Results Map (Figure 2). To the extent feasible, all tags were attached to the north side of the tree, or in a logical location most visible from existing access paths. Any new trees added to the inventory in 2024 or trees with missing tags received a new tag and tree ID number.

3. The tree canopy spread was estimated by averaging the greatest extent of two perpendicular canopy widths.

4. An overall physical condition score was assigned to each tree based on an evaluation of its health, structure, form, and age. Table 1 through Table 4 present the criteria used to establish each rating. The health of the tree includes such adverse factors as damage caused by various pests including termites, wood-boring beetles, fungus, and hemi-parasitic plants (e.g., mistletoe). Other factors affecting tree health include mechanical damage caused by fire, or by human activities resulting in soil compaction, undercutting, damaged root systems, or improperly pruned limbs. The form and structural stability of each tree was also examined. Trees that are unstable (e.g., with root systems undercut, trees growing on steep slopes subject to slides) are assumed to have a shorter potential life span.

5. If a tree was growing in a parking lot or adjacent to a building such that the presence or potential for root/pavement conflict existed, the tree received a 25 to 35 percent reduction in the functional

limitation score. External limitations (e.g., restrictions on size, competing infrastructure, utility lines, water use limitations, the presence of serious pests in in the area) were also evaluated.

6. Trees were also assessed for their potential for transplantation. Mature trees were considered as good candidates for transplantation if trees were in good or excellent health with full foliage, good canopy cover (75 percent or more of coverage), few broken branches, and little to no insect damage or disease (typically with a health grade of B or better). Equipment access for tree removal also played a minimal role in the potential for transplantation determinations. If a tree was deemed suitable for transplantation and was found within the limits of the proposed Phase 1 project grading limits, it was identified as "To Be Relocated." Trees not suitable for transplanting within the project limits were identified as "To Be Removed."

Table 1. Grading Criteria for Tree Health

Health	Rating (%)	Description (Vigor)
A	81 – 100	High vigor and nearby perfect health with little or no twig dieback, discoloration, or defoliation
B	61 – 80	Vigor is normal for the species. No significant damage due to diseases or pests. Any twig dieback, defoliation, or discoloration is minor.
C	31 – 60	Reduced vigor. Damage due to insects or diseases may be significant and associated with defoliation but is not likely to be fatal. Twig dieback, defoliation, discoloration, and/or dead branches may comprise up to 50% of the crown.
D	1 – 30	Unhealthy and declining in appearance. Poor vigor. Low foliage density and poor foliage color are present. Appears to be dying and in the last stages of life. Potentially fatal pest infestation. Extensive twig and/or branch dieback.
F	0	Last stages of life or dead.

Table 2. Grading Criteria for Tree Structure

Structure	Rating (%)	Description (Trunk Structural Integrity)
Excellent	81 – 100	Nearly ideal and free of defects.
Good	61 – 80	Well-developed structure. Defects are minor and can be corrected.
Fair	41 – 60	A single defect of a significant nature or multiple moderate defects. Defects are not practical to correct or would require multiple treatments over several years.

Structure	Rating (%)	Description (Trunk Structural Integrity)
Poor	21 – 40	A single serious defect or multiple significant defects. Recent change in tree orientation. Observed structural problems cannot be corrected. Failure may occur at any time.
Very Poor	6 – 20	Single or multiple severe defects. Failure is probably or imminent.
Dead	0 – 5	Dead

Table 3. Grading Criteria for Tree Form

Form	Rating (%)	Description (Habit: shape or silhouette and position relative to other trees)
Excellent	81 – 100	Nearly ideal for the species. Generally symmetric. Consistent with the intended use.
Good	61 – 80	Minor asymmetries/deviations from species norm. Mostly consistent with the intended use. Function and aesthetics are not compromised.
Fair	41 – 60	Major asymmetries/deviations from species norm and/or aesthetics are compromised.
Poor	21 – 40	Largely asymmetric/abnormal. Detracts from intended use and/or aesthetics to a significant degree.
Very Poor	6 – 20	Visually unappealing. Provides little or no function in the landscape.
Dead	0 – 5	Dead

Table 4. Grading Criteria for Tree Age

Age	State of Development
Young	Seedling/sapling
Semi-Mature	Nearing fruit production
Mature	Has flowered/produced fruit
Overmature	Senescent, nearing the end of its life

TREE SPECIES

A total of 115 mature trees of interest are present within the approximately 211-acre proposed impact areas and associated Backbone or infrastructure areas within the 2024 Tree Survey Area (Figure 2), representing 7 of the 16 different tree species present on site. Five of the tree species are native to California, meaning that they are indigenous to California prior to European colonization. Two tree species are non-native, meaning they are not indigenous to California, but have been introduced from another region or country. Although there are multiple tree species classified as invasive non-native species meaning they are not native to California and known to cause harm to the environment, economy, or human health (California Invasive Plant Council 2024) that are present on site that would fit the definition of a mature tree, these species have been excluded from the inventory and are not afforded special protection by CDFW or the City. Table 5 presents a list of the species included in the inventory that were found within or adjacent to the proposed impact areas.

Table 5. Mature Trees Included in the Inventory

Number of Individuals	Scientific Name	Common Name	Status
3	*Arbutus unedo*	strawberry tree	Non-Native
10	*Juglans californica*	black walnut	Native
13	*Platanus racemosa*	California sycamore	Native
3	*Populus fremontii* subsp. *fremontii*	Fremont cottonwood	Native
82	*Quercus agrifolia*	coast live oak	Native
1	*Quercus ilex*	holly oak	Non-Native
3	*Quercus lobata*	valley oak	Native
115	**Total Trees in and adjacent to Proposed Impact Areas**		

SIMI VALLEY MATURE TREE PRESERVATION ORDINANCE

The Mature Tree Preservation Ordinance requires an approved Tree Removal Permit prior to beginning any grading for projects that will remove mature trees. Grading of the Backbone and Phase 1 areas will require the removal of mature trees. The City's tree ordinance also requires the replacement of all mature trees, especially oak trees in the genus *Quercus,* and that the value of those trees be determined by appraisal. Further details regarding tree protection measures during construction is discussed under separate cover as an updated Mature Tree Protection, Relocation, and Regeneration Plan.

The Simi Valley Municipal Code of Ordinances for Tree Preservation, Cutting, and Removal states:

- 9-38.070 – Tree Removal Permits
    - A.1. Tree Permit Required. "No protected tree shall be removed, relocated, cut down, or otherwise destroyed, unless a Tree Removal Permit has been first issued by the Director."
    - D.4. Conditions of Approval. "If relocation of the tree(s) is not feasible, the Director may require that the appraised value of the tree(s) be used to replant trees on the subject site."
- 9-38.080 – Standards for Granting or Disapproving Tree Removal Permits, Mandatory Criteria
    - A.2. "It is necessary to remove the trees in order to construct improvements which allow economic enjoyment of the property."

MITIGATION REQUIREMENTS

The invasive tree species that are listed on the California Invasive Plant Council's (Cal-IPC) Invasive Plant Inventory are prohibited from being planted or maintained within the Project footprint as stipulated in the Project's Biological Opinion (BO), Environmental Impact Report (EIR), and Habitat Mitigation and Monitoring Plan (HMMP) and are required to be removed from the Project site. Cal-IPC defines invasive non-native plants that threaten wildlands as plants that (1) are not native to, yet can spread into, wildland ecosystems; and that also (2) displace native species, hybridize with native species, alter biological communities, or alter ecosystem processes. Because of the risks to native plants and communities, invasive tree species will not be protected or preserved on the site. River red gum (*Eucalyptus camaldulensis*), olive (*Olea europea*), tamarisk (*Tamarix* spp.), tree-of-heaven (*Ailanthus altissima*) and tree tobacco (*Nicotiana glauca*) are invasive non-native species found growing on the site; and, per the agency requirements, they must be removed. The invasive tree species on site were included in the 2018 Tree Inventory but have been assigned an appraisal value of $0 and are proposed for removal with no mitigation.

As per the City's Tree Removal Permit application (Item 7), Chambers Group has compiled a table with the individual tree data including: species, identification number, trunk diameter, spread, single or multi-trunk structure, form, health status, aesthetic value, damage or disease, appraised value as determined by an ISA-certified arborist, and whether the tree is proposed to be removed, relocated, or if it will be preserved in place and protected during construction activities (Attachment 1).

CHANGES FROM 2018

Appraised values in 2018 were calculated in accordance with the 9th Edition of the "Guide for Plant Appraisal" (Guide) as prepared by the Council of Tree and Landscape Appraisers (CTLA) and published by the International Society of Arboriculture (ISA 2000). Trees were appraised in 2024 according to the 10th Edition (third printing) of the Guide (ISA 2019, Rev. 2020) in which a number of changes in protocol were made.

The 10th Edition of the Guide also sought to avoid issues with double counting and to be more consistent with the general appraisal community. Rather than determining an appraisal value based on species, condition and location ratings, the 10th Edition used three categories of depreciation: physical deterioration (condition),

functional limitations, and external limitations. Depreciation for species was included in the 9th Edition of the Guide because the basic cost was aimed to the ideal species (i.e., one rated as 100%). Where species were less than ideal, the species factor allowed depreciation to be applied. Species rating commingled genetic factors, response to growing conditions, business practice, and personal appreciation of aesthetics. Therefore, in the 10th edition of the Guide, the "Species Rating" was replaced by incorporating it into the functional limitations score where a species genotype with a specific location allowed for a more defined assessment of performance. Because the 2024 inventory used the 10th Edition Guide as a standard for determining appraisal values, the eliminated species rating tended to increase the appraisal values by up to 30 percent.

Whereas in the 9th Edition of the Guide the appraiser was tasked with calculating a replacement cost for the largest available nursery tree, typically a 48-inch box tree or greater, the 10th Edition Guide emphasizes that that replacement tree cost be based on the largest *commonly* available nursery tree. For the purposes of the 2024 inventory update, a 24-inch box nursery tree was used to calculate the replacement nursery tree cost as recommended by the Western Chapter of ISA. During the appraisal update, Chambers Group also used guidance from the Urban Forest Ecosystems Institute (Cal Poly 2025) in which each of the tree species present on site were placed into a group rating category (1, 2, 3, or 4) and assigned a cross-sectional area based on their appropriate group by species. Where a $1,200 replacement tree cost and similar installation cost was used for the oak, sycamore, and cottonwood trees in 2018, a lower value between $200 and $400 was applied for all tree species in 2024. The resulting appraisal value of these trees would decrease if all other conditions remained the same.

The 2018 and 2024 appraisal values for trees that require mitigation is presented below (Table 6).

Table 6: Appraised Value of Trees for the Phase 1 Construction Areas

Tree Status	2018		2024	
	Appraised Value	Count	Appraised Value	Count
To Be Removed	$481,730.00	30	$1,280,290.00 ‡	38
To Be Relocated	$1,023,670.00	54	$1,012,500.00	67
To Be Preserved in Place	$915,360.00	24	$461,930.00	10
Total	**$2,420,760.00**	**108**	**$2,754,720.00**	**115**

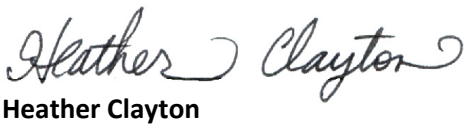
‡ Value for which mitigation will be required.

A copy of the Appraisal Field Data Sheets is included as Attachment 2 and a summary of the individual trees within their proposed categories for removal, relocation or preservation is included in Attachment 3.

Please contact me at (949) 261-5414 extension 7241 or hclayton@chambersgroupinc.com if you have any questions or concerns regarding this memo.

Sincerely,

CHAMBERS GROUP, INC.



Heather Clayton
CNPS Certified Botanist, CFB-0012
ISA Certified Arborist, WE-13716

FIGURES

Figure 1 – Project Location Map
Figure 2 – Tree Impact Status Results Map

ATTACHMENTS

Attachment 1 – Individual Tree Data Results Table
Attachment 2 – Tree Appraisal Field Data Sheets
Attachment 3 – Summary Table of Trees by Status

REFERENCES

California Invasive Plant Council (Cal-IPC)

2024 Definition of Invasive Plants. Cal-IPC. Berkeley, CA. Accessed on September 9, 2024 from https://www.cal-ipc.org/plants/impact/.

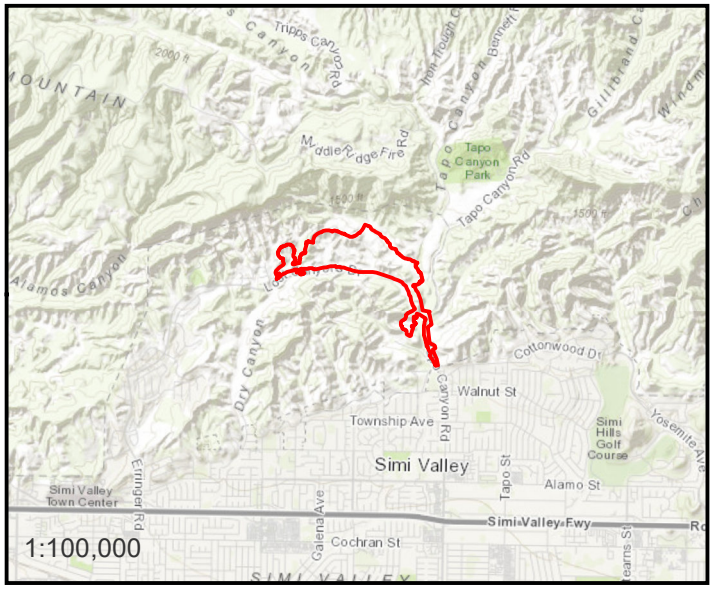
Cal Poly State University, San Luis Obispo (Cal Poly)

2025 SelecTree. Urban Forest Ecosystems Institute (UFEI). "*Regional Plant Appraisal Committee Statement.*" 1995-2025. Accessed January 2025 from https://selectree.calpoly.edu/appraisals.

International Society of Arboriculture (ISA)

2000 Guide for Plant Appraisal, 9th. Council of Tree and Landscape Appraisers. Champaign, IL. 143 pp.

2019 Guide for Plant Appraisal, 10th Edition Revised 2020. Council of Tree and Landscape Appraisers. Atlanta, GA. 181 pp.







Project Location

Figure 1
Project Location

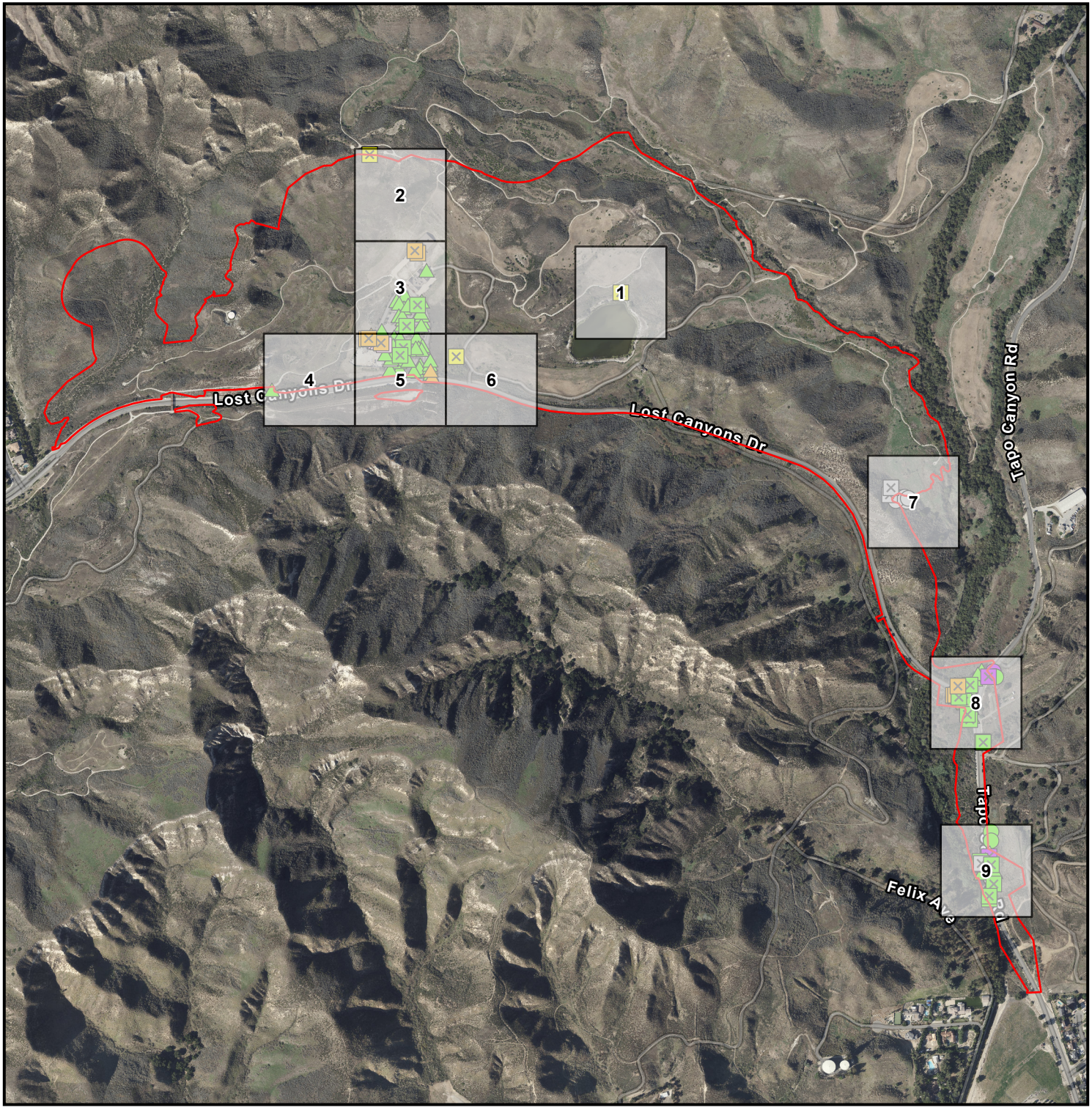
N

0 750 1,500 3,000

Feet

Name: 21091 TREE Fig 1 Location.Mxd
Print Date: 8/2/2024, Author: pcarlos

CHAMBERS GROUP



Lost Canyons

Tree Impact Status
Tree Inventory Updated 2024
Overview

- Project Location

To Be Removed

- Black walnut
- California sycamore
- Coast live oak
- Fremont cottonwood
- Strawberry tree
- Valley oak

To Be Relocated

- Black walnut
- California sycamore
- Coast live oak
- Strawberry tree
- Holly oak

To be Preserved Outside of Project Limits

- Black walnut
- Coast live oak
- Valley oak

N

0 500 1,000 2,000

Feet

Name: 21091 Lost Canyons Restoration and Monitoring Services.Mxd
Print Date: 2/13/2025 3:15 PM Author: pcarlos

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Lost Canyons

Tree Impact Status
Tree Inventory Updated 2024

Project Location

To Be Removed

Fremont cottonwood

N

0 45 90 180

Feet

Name: 21091 Lost Canyons Restoration and Monitoring Services.Mxd
Print Date: 2/13/2025 3:15 PM Author: pcarlos

CHAMBERS GROUP



Lost Canyons

Tree Impact Status

Tree Inventory Updated 2024

Project Location

To Be Removed

Fremont cottonwood

N

0 45 90 180

Feet

Name: 21091 Lost Canyons Restoration and Monitoring Services.Mxd
Print Date: 2/13/2025 3:15 PM Author: pcarlos

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Lost Canyons

Tree Impact Status

Tree Inventory Updated 2024

Project Location

To Be Removed

- California sycamore
- Coast live oak

To Be Relocated

- California sycamore
- Coast live oak

N

0 45 90 180

Feet

Name: 21091 Lost Canyons Restoration and Monitoring Services.Mxd
Print Date: 2/13/2025 3:15 PM Author: pcarlos

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Lost Canyons

Tree Impact Status
Tree Inventory Updated 2024

Project Location

To Be Relocated

Coast live oak

N

0 45 90 180

Feet

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Print Date: 2/13/2025 3:15 PM Author: pcarlos

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Lost Canyons

Tree Impact Status

Tree Inventory Updated 2024

Project Location

To Be Removed

- California sycamore
- Coast live oak
- Strawberry tree

To Be Relocated

- California sycamore
- Coast live oak
- Strawberry tree
- Holly oak

N

0 45 90 180

Feet

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Print Date: 2/13/2025 3:15 PM Author: pcarlos

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Lost Canyons

Tree Impact Status
Tree Inventory Updated 2024

Project Location

To Be Removed

Fremont cottonwood

N

0 45 90 180

Feet

Name: 21091 Lost Canyons Restoration and Monitoring Services.Mxd
Print Date: 2/13/2025 3:15 PM Author: pcarlos

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Lost Canyons

Tree Impact Status
Tree Inventory Updated 2024

Project Location

To Be Removed

Black walnut

To be Preserved Outside of Project Limits

Black walnut

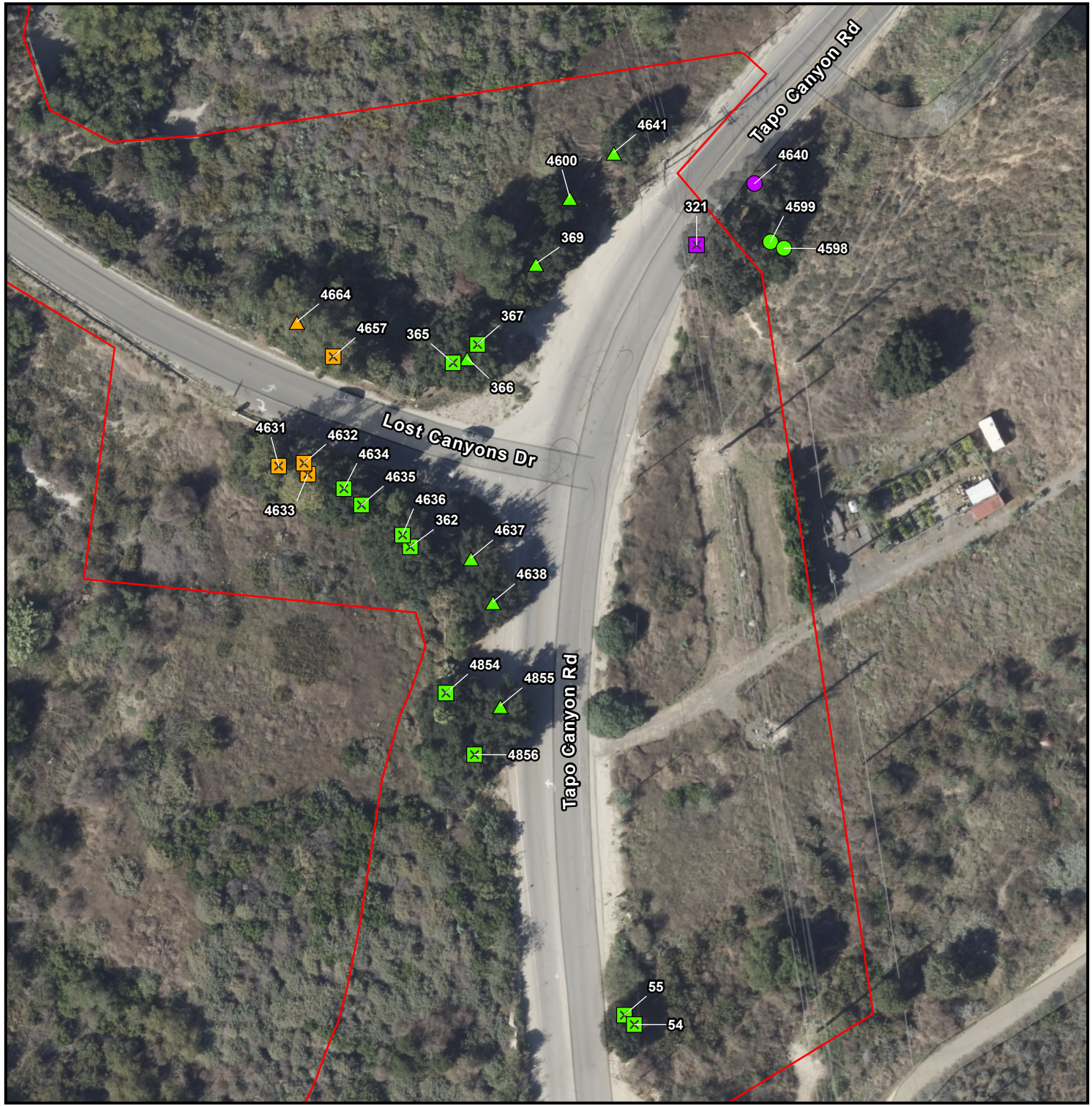
N

0 45 90 180

Feet

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Lost Canyons

Tree Impact Status

Tree Inventory Updated 2024

- Project Location

To Be Removed

- California sycamore
- Coast live oak
- Valley oak

To Be Relocated

- California sycamore
- Coast live oak

To be Preserved Outside of Project Limits

- Coast live oak
- Valley oak

N

0 45 90 180

Feet

Name: 21091 Lost Canyons Restoration and Monitoring Services.Mxd
Print Date: 2/13/2025 3:15 PM Author: pcarlos

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Lost Canyons

Tree Impact Status
Tree Inventory Updated 2024

Project Location

To Be Removed

- Black walnut
- Coast live oak
- Valley oak

To Be Relocated

- Black walnut
- Coast live oak

To be Preserved Outside of Project Limits

- Coast live oak

N

0 45 90 180

Feet

Name: 21091 Lost Canyons Restoration and Monitoring Services.Mxd
Print Date: 2/13/2025 3:15 PM Author: pcarlos

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ATTACHMENT 1 – INDIVIDUAL TREE DATA RESULTS TABLE

ATTACHMENT 1: INDIVIDUAL TREE DATA RESULTS

Tree ID	Species	2024 DBH (in)	Trunk Form	Spread (ft)	Height (ft)	Health	Condition (%)	Aesthetic	Structure (%)	Form (%)	Notes	Longitude	Latitude	Additional Costs incl. Installation	2018 Appraisal Value	2024 Appraised Value	To Be Removed	To Be Relocated	To be Preserved
54	Coast live oak *(Quercus agrifolia)*	10	Single	14.4	20	B	62	C	50	50	Dying branches in lower canopy, crowded and leaning from tree 55	-118.7204	34.304909	$210.00	N/A	$2,900.00	x		
55	Coast live oak *(Quercus agrifolia)*	39.5	Multi-Trunk	43.3	20	B	61	C	41	40	Few dead branches near bottom, major crossing branches	-118.72057	34.3049592	$210.00	N/A	$41,510.00	x		
235	Coast live oak *(Quercus agrifolia)*	67.5	Multi-Trunk	48	25	B	79	A-	80	65	Active wood rat nest in center trunk, on a slope, scattered dead branches,	-118.72014	34.3021978	$210.00	N/A	$156,380.00	x		
237	Coast live oak *(Quercus agrifolia)*	53.5	Multi-Trunk	60.75	31	B	78	A	70	85	Minor dead branches	-118.72013	34.302589	$210.00	N/A	$97,080.00	x		
238	Valley oak *(Quercus lobata)*	25.5	Single	50.5	40	C	51	C	45	50	Thin canopy, witch's hair, next to road	-118.72029	34.3026737	$390.00	N/A	$27,110.00	x		
240	Coast live oak *(Quercus agrifolia)*	38.25	Multi-Trunk	43.5	39	B	78	B+	80	58	Interior branch dieback, woodpecker holes, epicormic shoots, ants, near wood rat nest	-118.72022	34.3032056	$210.00	N/A	$49,720.00			x
249	Coast live oak *(Quercus agrifolia)*	39	Multi-Trunk	49.75	45	B	79	B+	80	70	Wood rat nest, insect damage, healed old wounds, fissures on major limbs, barbed wire at base of trunk, near the road	-118.72017	34.3020056	$210.00	N/A	$52,350.00	x		
254	Coast live oak *(Quercus agrifolia)*	16.5	Single	38.35	38	B	78	B	80	65	Adjacent to wood rat nest, canopy overhangs road, minor flagging, few dead branches	-118.72034	34.3024867	$210.00	N/A	$9,420.00		x	
321	Valley oak *(Quercus lobata)*	39	Single	55	35	C	55	C	50	41	Minor flagging, galls, epicormic shoots, broken branches, minor fire damage, beehive in broken trunk, wolf branches, growing into barbed wire. DBH is less than measured in 2018.	-118.72027	34.3064584	$390.00	$42,200.00	$67,800.00	x		
362	Coast live oak *(Quercus agrifolia)*	46.3	Multi-Trunk	66	37	B	66	B-	57	62	Several dead limbs, interior foliage thin, some bark splitting, drought stress. DBH discrepancy due to exclusion of trunks that are now dead.	-118.72084	34.3057254	$210.00	$174,900.00	$61,600.00	x		
365	Coast live oak	36.5	Multi-Trunk	29.5	22	B	61	C	41	40	Thin canopy, fungal issue on branches, other oak's canopy hanging causing the tree to lean.	-118.72076	34.3061186	$210.00	$28,400.00	$35,470.00	x		

Tree ID	Species	2024 DBH (in)	Trunk Form	Spread (ft)	Height (ft)	Health	Condition (%)	Aesthetic	Structure (%)	Form (%)	Notes	Longitude	Latitude	Additional Costs incl. Installation	2018 Appraisal Value	2024 Appraised Value	To Be Removed	To Be Relocated	To be Preserved
	(Quercus agrifolia)																		
366	Coast live oak *(Quercus agrifolia)*	30	Single	44.9	30	B	76	B	75	70	Cankers/galls on trunk, bore holes, dead branches in inner canopy	-118.72071	34.3060584	$210.00	$30,800.00	$29,890.00		x	
367	Coast live oak *(Quercus agrifolia)*	22	Single	36.3	26	C	52	C	55	60	Significant bore hole damage in trunk, sparse canopy, crowded by other oak (#366)	-118.72067	34.3061172	$210.00	$12,500.00	$11,130.00	x		
369	Coast live oak *(Quercus agrifolia)*	34	Multi-Trunk	33.3	25	A	96	A	80	80	Minor signs of past insect and sunburn damage to trunk, canopy has dense vigorous growth	-118.7205	34.3062609	$210.00	$60,800.00	$48,360.00		x	
388	Coast live oak *(Quercus agrifolia)*	43.5	Multi-Trunk	30.6	24	B	80	A	85	85	Parking lot. Minor branch dieback, minor flagging. Was previously tree ID #4101.	-118.73408	34.3135413	$210.00	$61,300.00	$49,470.00		x	
4006	California sycamore (*Platanus racemosa)*	19.5	Single	36.1	44	B	76	B+	78	65	Insect damage on half of trunk, thickened bark, splitting branches. Other tag on tree not associated with the survey is #391.	-118.73373	34.3142771	$360.00	$10,000.00	$21,860.00	x		
4007	Fremont cottonwood *(Populus fremontii)*	17.1	Multi-Trunk	20.6	21	C	44	D	21	31	1/3 of canopy dead, insect damage, broken limbs, drought stress, twig dieback	-118.73497	34.3161618	$366.00	$2,540.00	$8,150.00	x		
4091	Coast live oak *(Quercus agrifolia)*	8.5	Single	20	12	B	68	B	65	63	Minimal flagging	-118.73713	34.3115602	$210.00	$3,140.00	$2,340.00		x	
4181	Black walnut *(Juglans californica)*	67.5	Multi-Trunk	49	12	C	45	D	35	10	Many large trunks died back, resprouted from base. DBH discrepancy due to exclusion of dead trunks.	-118.72263	34.3099205	$342.00	$50,200.00	$145,220.00	x		
4182	Black walnut *(Juglans californica)*	72.05	Multi-Trunk	37.8	13	C	45	D	35	10	Fire damage, main trunks mainly dead, a lot of current trunks are resprouts. DBH discrepancy due to inclusion of trunks that were previously excluded for being too small.	-118.72247	34.3097304	$342.00	$36,000.00	$165,410.00			x
4187	Fremont cottonwood *(Populus fremontii)*	21.75	Multi-Trunk	34.35	35	C	52	C	55	61	Broken limbs, nutrient deficiencies, drought stress, ants, dense shrub understory	-118.72905	34.3135246	$366.00	$5,400.00	$15,240.00	x		
4510	Coast live oak	10.7	Single	28	15	B	67	B	60	60	Parking lot. A lot of shrubs in understory, minor branch dieback	-118.73427	34.3133929	$210.00	$5,700.00	$2,710.00		x	

Tree ID	Species	2024 DBH (in)	Trunk Form	Spread (ft)	Height (ft)	Health	Condition (%)	Aesthetic	Structure (%)	Form (%)	Notes	Longitude	Latitude	Additional Costs incl. Installation	2018 Appraisal Value	2024 Appraised Value	To Be Removed	To Be Relocated	To be Preserved
	(Quercus agrifolia)																		
4511	Coast live oak *(Quercus agrifolia)*	31.1	Multi-Trunk	31.3	16	B	74	B	70	60	Parking lot. Some spots on trunk, thin canopy inside (interior branch dieback). DBH discrepancy due to inclusion of trunks that were previously excluded for being too small.	-118.73406	34.3132672	$210.00	$30,800.00	$23,500.00		x	
4513	Coast live oak *(Quercus agrifolia)*	22.5	Multi-Trunk	25.9	10.2	A	93	B	70	60	Parking lot. Gopher holes, adjacent to large Toyon - creating asymmetrical form. Drought-stressed.	-118.73385	34.3133484	$210.00	$23,100.00	$15,530.00		x	
4514	Coast live oak *(Quercus agrifolia)*	15.2	Multi-Trunk	18.9	8.3	B	64	B-	55	45	Parking lot. Minor branch dieback, exposed roots, super compacted	-118.73368	34.3131943	$210.00	$9,700.00	$4,380.00		x	
4515	Coast live oak *(Quercus agrifolia)*	17.9	Multi-Trunk	19.3	9.5	B	74	B	70	60	Parking lot. Minor branch dieback, oozing out of previous prune scar. A tag not associated to the inventory was labled #385.	-118.73362	34.3130953	$210.00	$12,600.00	$7,930.00		x	
4516	Coast live oak *(Quercus agrifolia)*	32.1	Multi-Trunk	24.6	16	C	50	B-	41	45	Parking lot. Roots exposed, small mammal burrowing, yellowing leaves, sparse foliage in some areas, major crossing branches. DBH discrepancy due to inclusion of trunks that were previously excluded for being too small.	-118.73372	34.3131399	$210.00	$28,000.00	$16,980.00		x	
4517	Coast live oak *(Quercus agrifolia)*	25.8	Multi-Trunk	29	20	C	59	B+	50	90	Parking lot. Ants, fissures, decaying regions, insect damage (boring), exposed roots, burrowing mammals, interior canopy thin. DBH discrepancy due to exclusion of trunks that were now dead.	-118.73411	34.3131256	$210.00	$64,400.00	$12,990.00		x	
4518	Coast live oak *(Quercus agrifolia)*	30	Multi-Trunk	29.5	15	B	78	B+	83	80	Parking lot. Exposed roots, gopher damage, moderate branch dieback, bottom branches bigger than top	-118.73419	34.3130857	$210.00	$26,100.00	$23,050.00		x	
4519	Coast live oak *(Quercus agrifolia)*	14.2	Single	33.8	21	B	66	B	50	62	Parking lot. Minor of insect damage on trunk, small mammal root exposure, surrounded by concrete, leaning	-118.73406	34.3130743	$210.00	$9,600.00	$4,540.00		x	
4523	Coast live oak *(Quercus agrifolia)*	12.5	Single	27.3	18	B	66	B	50	58	Parking lot. Ants, tree leaning	-118.7341	34.3129518	$210.00	$9,600.00	$3,570.00		x	

Tree ID	Species	2024 DBH (in)	Trunk Form	Spread (ft)	Height (ft)	Health	Condition (%)	Aesthetic	Structure (%)	Form (%)	Notes	Longitude	Latitude	Additional Costs incl. Installation	2018 Appraisal Value	2024 Appraised Value	To Be Removed	To Be Relocated	To be Preserved
4524	Coast live oak *(Quercus agrifolia)*	29.4	Multi-Trunk	30.1	18	A	87	C+	75	78	Parking lot. Exposed roots, burrowing, some crossing branches. DBH discrepancy due to inclusion of trunks that were previously excluded for being too small.	-118.73396	34.3129293	$210.00	$17,900.00	$24,680.00	x		
4525	Coast live oak *(Quercus agrifolia)*	16.6	Multi-Trunk	20.9	14.5	B	65	B+	50	50	Parking lot. Grassy understory, significant crossing branches	-118.73391	34.3128803	$210.00	$9,600.00	$6,040.00		x	
4526	Coast live oak *(Quercus agrifolia)*	13.8	Single	26.5	9.5	A	95	A	75	81	Parking lot. Mammal burrows near exposed roots, weedy understory	-118.73371	34.3129447	$210.00	$11,100.00	$6,100.00		x	
4527	Coast live oak *(Quercus agrifolia)*	22	Multi-Trunk	23.2	10	A	88	C+	80	60	Parking lot. Exposed roots with burrowing mammals	-118.73359	34.3129537	$210.00	$13,800.00	$14,070.00		x	
4529	Coast live oak *(Quercus agrifolia)*	8.7	Multi-Trunk	21.45	14	B	66	B-	65	60	Parking lot. Small mammal burrows at base of trunk, minor flagging	-118.73457	34.3127195	$210.00	$4,240.00	$1,840.00		x	
4530	Coast live oak *(Quercus agrifolia)*	16.5	Multi-Trunk	22.75	16	B	72	B+	60	78	Parking lot. Insect damage, ants, dense understory, adjacent to shrubs	-118.73426	34.3126755	$210.00	$9,600.00	$6,590.00		x	
4531	Coast live oak *(Quercus agrifolia)*	14.95	Multi-Trunk	22	17	B	77	A-	76	79	Parking lot. Burrowing mammals underneath	-118.73416	34.3126565	$210.00	$11,100.00	$5,810.00		x	
4532	Coast live oak *(Quercus agrifolia)*	8.7	Single	26.5	15	B	77	B+	82	80	Parking lot. Thin canopy, surrounded on 3 sides by pavement, adjacent to large coyote brush	-118.73413	34.3125936	$210.00	$2,200.00	$2,110.00		x	
4536	Coast live oak *(Quercus agrifolia)*	13.5	Single	28.5	22	B	74	B	78	78	Parking lot. Minor flagging, branches touching ground, some interior branch dieback	-118.73375	34.3126849	$210.00	$8,200.00	$4,600.00		x	
4537	Coast live oak *(Quercus agrifolia)*	14.2	Multi-Trunk	22	16	B	68	B+	58	75	Parking lot. Shrubs in understory, secondary trunk with offshoots	-118.73364	34.312521	$210.00	$4,260.00	$4,670.00		x	
4538	Coast live oak *(Quercus agrifolia)*	12.5	Multi-Trunk	15.75	14	B	67	B-	68	61	Parking lot. Two competing stems at base, shrubs in understory, minor twig dieback	-118.73361	34.3124477	$210.00	$5,900.00	$3,620.00		x	

Tree ID	Species	2024 DBH (in)	Trunk Form	Spread (ft)	Height (ft)	Health	Condition (%)	Aesthetic	Structure (%)	Form (%)	Notes	Longitude	Latitude	Additional Costs incl. Installation	2018 Appraisal Value	2024 Appraised Value	To Be Removed	To Be Relocated	To be Preserved
4539	Coast live oak *(Quercus agrifolia)*	15	Multi-Trunk	24.25	19	C	57	C+	75	60	Parking lot. Major sapsucker damage, boring insect damage, shrubs under canopy, thin canopy	-118.7337	34.3124869	$210.00	$7,200.00	$4,380.00		x	
4541	Coast live oak *(Quercus agrifolia)*	22.8	Multi-Trunk	30.25	21	C	58	B	78	80	Parking lot. Insect damage, large canker on trunk, ants, twig dieback, small mammal burrows under roots. DBH discrepancy due to inclusion of trunks that were previously excluded for being too small.	-118.73402	34.3124552	$210.00	$16,600.00	$10,020.00	x		
4542	Coast live oak *(Quercus agrifolia)*	7.75	Single	20.5	22	C	52	C+	55	60	Parking lot. Epicormic shoots, close to pavement on 2 sides	-118.73415	34.3124914	$210.00	$1,450.00	$1,230.00		x	
4543	Coast live oak *(Quercus agrifolia)*	9.25	Single	21.75	20	C	52	C+	55	60	Parking lot. Branch dieback, surrounded on 3 sides by pavement, drought stressed, thinning canopy	-118.7341	34.3124112	$210.00	$4,240.00	$1,660.00		x	
4544	Coast live oak *(Quercus agrifolia)*	26.55	Multi-Trunk	25.75	22	B	70	B+	60	68	Parking lot. Crossed stems, epicormic shoots, minor branch dieback	-118.73436	34.3124367	$210.00	$30,800.00	$16,270.00		x	
4545	Coast live oak *(Quercus agrifolia)*	31.9	Multi-Trunk	33.5	22	B	67	B+	61	61	Parking lot. Small mammal burrows, fungal issues on trunk, minor flagging, surrounded by pavement on 3 sides	-118.73434	34.3124713	$210.00	$53,000.00	$22,400.00		x	
4547	Strawberry tree *(Arbutus unedo)*	6.5	Multi-Trunk	11	12	D	25	D	30	50	Parking lot. Cracked stem, roots growing into foundation of adjacent building, dead branches, thin canopy, drought stress	-118.73454	34.312461	$384.00	$3,030.00	$1,370.00	x		
4548	California sycamore (*Platanus racemosa)*	16.5	Single	32	48	B	77	A-	78	83	Parking lot. Claw marks, thickened bark in patches, adjacent to building	-118.73459	34.3125315	$360.00	$14,600.00	$12,050.00	x		
4549	Strawberry tree *(Arbutus unedo)*	19.25	Multi-Trunk	18.75	14	B	66	B	61	58	Parking lot. Adjacent to building	-118.73476	34.3125408	$384.00	$2,910.00	$23,310.00		x	
4550	California sycamore (*Platanus racemosa)*	8.5	Single	15	30	D	17	D	21	15	Parking lot. Loss of upper canopy, missing bark on half of trunk, epicormic shoots, drought stressed, dying limbs	-118.73491	34.3126135	$360.00	$2,770.00	$1,050.00	x		
4554	Coast live oak *(Quercus agrifolia)*	17.05	Multi-Trunk	18.8	12	A	96	A	80	81	Parking lot. Minor flagging, dead branches inside canopy, some wolf branches. DBH discrepancy due to inclusion of trunks that were	-118.73433	34.3122569	$210.00	$12,800.00	$9,290.00		x	

Tree ID	Species	2024 DBH (in)	Trunk Form	Spread (ft)	Height (ft)	Health	Condition (%)	Aesthetic	Structure (%)	Form (%)	Notes	Longitude	Latitude	Additional Costs incl. Installation	2018 Appraisal Value	2024 Appraised Value	To Be Removed	To Be Relocated	To be Preserved
											previously excluded for being too small.								
4555	Holly oak *(Quercus ilex)*	28.1	Multi-Trunk	30.5	20	B	67	A	60	65	Parking lot. Previously misidentified as coast live oak. Leaves slightly sparse, mistletoe. DBH discrepancy due to inclusion of trunks that were previously excluded for being too small.	-118.73431	34.3122771	$378.00	$22,500.00	$52,890.00		x	
4556	Coast live oak *(Quercus agrifolia)*	43	Multi-Trunk	35	18	A	96	A	80	80	Parking lot. Minimal dead branches	-118.73427	34.3123188	$210.00	$80,300.00	$57,970.00		x	
4557	Coast live oak *(Quercus agrifolia)*	17.5	Multi-Trunk	25	15	A	96	A	81	80	Parking lot. Some areas of sparse leaves, roots exposed by burrowing mammals	-118.73379	34.3123239	$210.00	$20,500.00	$9,780.00		x	
4558	Coast live oak *(Quercus agrifolia)*	22.5	Multi-Trunk	23.3	9	B	62	C	50	50	Parking lot. Old dead branches, lots of new growth, asymmetric form. DBH discrepancy due to inclusion of trunks that were previously excluded for being too small.	-118.73397	34.3122604	$210.00	$6,500.00	$10,420.00		x	
4559	Coast live oak *(Quercus agrifolia)*	11.3	Single	30.5	15	A	93	A	70	60	Parking lot. Leaning, minor insect damage, branches touching ground	-118.73415	34.3122415	$210.00	$6,600.00	$4,070.00		x	
4560	Coast live oak *(Quercus agrifolia)*	21.7	Multi-Trunk	25.5	15	A	97	A	81	81	Tree is in good health.	-118.73415	34.3120871	$210.00	$20,000.00	$20,030.00		x	
4562	Coast live oak *(Quercus agrifolia)*	15.75	Multi-Trunk	23.8	18	B	63	A	55	55	Insect damage, dieback	-118.73377	34.3120625	$210.00	$6,100.00	$6,990.00		x	
4563	Coast live oak *(Quercus agrifolia)*	35.5	Multi-Trunk	42.5	20	A	96	A	80	81	Minor flagging, dead branches in middle of canopy	-118.73371	34.311981	$210.00	$45,500.00	$52,700.00		x	
4564	Coast live oak *(Quercus agrifolia)*	27	Multi-Trunk	22.8	20	B	75	A-	70	70	Parking lot. Insect damage, oozing on trunk	-118.73371	34.3120903	$210.00	$30,400.00	$18,000.00		x	
4565	Coast live oak *(Quercus agrifolia)*	8	Single	17	9	B	67	B	61	61	Parking lot. Epicormic growth at base	-118.73365	34.3121241	$210.00	$2,610.00	$1,610.00		x	

Tree ID	Species	2024 DBH (in)	Trunk Form	Spread (ft)	Height (ft)	Health	Condition (%)	Aesthetic	Structure (%)	Form (%)	Notes	Longitude	Latitude	Additional Costs incl. Installation	2018 Appraisal Value	2024 Appraised Value	To Be Removed	To Be Relocated	To be Preserved
4566	Coast live oak *(Quercus agrifolia)*	11.5	Multi-Trunk	16	10	B	77	A	80	75	Twig dieback	-118.73344	34.3121451	$210.00	$8,000.00	$4,630.00		x	
4567	Coast live oak *(Quercus agrifolia)*	29.8	Multi-Trunk	30.8	20	A	97	A	81	85	Minor twig dieback	-118.73347	34.3121377	$210.00	$39,000.00	$37,580.00		x	
4568	Coast live oak *(Quercus agrifolia)*	18.5	Multi-Trunk	22	15	A	93	A	70	70	Minor asymmetry	-118.7334	34.3121452	$210.00	$14,500.00	$14,020.00		x	
4570	California sycamore (*Platanus racemosa)*	9.5	Single	27.8	20	B	61	D	41	41	Minor twig dieback, leaf fungal damage, form of branches unbalanced	-118.73342	34.3120035	$360.00	$5,100.00	$4,450.00		x	
4571	Coast live oak *(Quercus agrifolia)*	23.5	Multi-Trunk	26.5	9.5	B	76	C	80	50	Minor dead branches	-118.73384	34.3133677	$210.00	$7,800.00	$18,420.00		x	
4572	Coast live oak *(Quercus agrifolia)*	30.85	Multi-Trunk	38.9	18	A	98	A	82	81	Parking lot. Sapsucker damage, burrowing mammals. DBH discrepancy due to inclusion of trunks that were previously excluded for being too small.	-118.73353	34.3140206	$210.00	$12,400.00	$30,560.00		x	
4576	Coast live oak *(Quercus agrifolia)*	16.6	Multi-Trunk	14	8	B	65	B-	64	61	Several branches dying back	-118.73346	34.312207	$210.00	$7,900.00	$7,980.00		x	
4577	Coast live oak *(Quercus agrifolia)*	27	Multi-Trunk	32.8	11	A	96	A	80	80	Minimal dead branches within inner canopy, some branches touching ground. DBH discrepancy due to inclusion of trunks that were previously excluded for being too small. Previously recorded as tree ID #4561.	-118.73434	34.312063	$210.00	N/A	$30,570.00		x	
4578	Coast live oak *(Quercus agrifolia)*	23.2	Multi-Trunk	26.5	20	A	97	A	81	81	Parking lot. Minimal dead branches within canopy. Was previously tree ID #4553	-118.73445	34.3123304	$210.00	$18,600.00	$17,200.00		x	
4579	Coast live oak *(Quercus agrifolia)*	5	Single	14	10	D	24	C-	21	35	Parking lot. Newly identified tree in 2024. Previous DBH fell below threshold for protection. Very sparse leaves, dead branches, epicormic growth from base.	-118.73416	34.3122317	$210.00	N/A	$410.00	x		

Tree ID	Species	2024 DBH (in)	Trunk Form	Spread (ft)	Height (ft)	Health	Condition (%)	Aesthetic	Structure (%)	Form (%)	Notes	Longitude	Latitude	Additional Costs incl. Installation	2018 Appraisal Value	2024 Appraised Value	To Be Removed	To Be Relocated	To be Preserved
4580	California sycamore (*Platanus racemosa)*	9.1	Single	24	24	B	77	B+	81	78	Minor fungal leaf issues. Was previously tree ID #4570	-118.73341	34.3119454	$360.00	$5,100.00	$5,100.00		x	
4597	Black walnut *(Juglans californica)*	41.45	Multi-Trunk	28.4	10	D	15	F	4	25	Newly identified tree in 2024. Branch dieback, leaf dieback from fungus, sparse canopy, resprout from fire.	-118.72263	34.3096852	$342.00	N/A	$18,550.00	x		
4598	Coast live oak *(Quercus agrifolia)*	29.7	Multi-Trunk	35	12	C	46	C	41	21	Newly identified tree in 2024. Tree previously fell outside grading limits. Growing on hillside, some bare branches, drooping, dead branches inside canopy/low density canopy.	-118.72012	34.3063328	$210.00	N/A	$17,820.00			x
4599	Coast live oak *(Quercus agrifolia)*	44.7	Multi-Trunk	38.3	16	B	62	C	50	30	Newly identified tree in 2024. Tree previously fell outside grading limits. Growing/drooping on hillside toward road, some branch die-off.	-118.7201	34.3062325	$210.00	N/A	$53,960.00			x
4600	Coast live oak *(Quercus agrifolia)*	19.8	Single	27.2	18	B	64	C+	45	61	Newly identified tree in 2024. Tree previously fell outside grading limits. Insect damage to main trunk, scraggly branches growing from trunk base, sparse foliage due to fungal infection under canopy, some branch dieback	-118.72048	34.306242	$210.00	N/A	$11,100.00		x	
4631	California sycamore (*Platanus racemosa)*	34	Multi-Trunk	27.7	35	C	35	D	22	25	Thickened bark at base, some dead branches, very narrow canopy, mistletoe present	-118.72109	34.3059846	$360.00	$48,300.00	$30,450.00	x		
4632	California sycamore (*Platanus racemosa)*	0	N/A	N/A	N/A	F	0	N/A	0	0	Tree is dead. In 2018 DBH was 24 inches and Health was C. Tree health declined and was dead in 2024	-118.72097	34.3060174	$0.00	$19,500.00	$0.00	x		
4633	California sycamore (*Platanus racemosa)*	29.5	Multi-Trunk	32	34	B	75	B	75	65	Thin canopy, drought stress, shrubby understory	-118.72102	34.3058913	$360.00	$26,500.00	$48,910.00	x		
4634	Coast live oak *(Quercus agrifolia)*	28.7	Single	41.6	30	B	71	B	62	70	Fungal issues, crossing branches. DBH discrepancy due to exclusion of trunks that were now dead.	-118.72098	34.3058904	$210.00	$103,800.00	$25,580.00	x		
4635	Coast live oak *(Quercus agrifolia)*	27.6	Multi-Trunk	36	18	C	51	D+	61	45	Minor oozing, insect damage, thin canopy impacted by crowding from # 4634, dying branches	-118.72095	34.3057973	$210.00	$21,200.00	$17,070.00	x		
4636	Coast live oak	24	Multi-Trunk	42	19	B	63	C	55	58	Wood rat scat on floor, insect damage, minor fungal issues, thin canopy, dying branches, competing for light. DBH	-118.72087	34.3058274	$210.00	$36,600.00	$15,950.00	x		

Tree ID	Species	2024 DBH (in)	Trunk Form	Spread (ft)	Height (ft)	Health	Condition (%)	Aesthetic	Structure (%)	Form (%)	Notes	Longitude	Latitude	Additional Costs incl. Installation	2018 Appraisal Value	2024 Appraised Value	To Be Removed	To Be Relocated	To be Preserved
	(Quercus agrifolia)										discrepancy due to inclusion of trunks that were previously excluded for being too small.								
4637	Coast live oak *(Quercus agrifolia)*	12.75	Single	35.5	30	B	68	B	65	60	Slight lean, area used for parking, exposed roots, soil compaction & weathering	-118.72071	34.3057497	$210.00	$4,200.00	$5,010.00		x	
4638	Coast live oak *(Quercus agrifolia)*	20.8	Single	50.25	25	B	73	B	70	65	Area under trees compacted from parked cars, exposed roots, soil weathering, adjacent to road	-118.72064	34.3057211	$210.00	$10,000.00	$13,910.00		x	
4640	Valley oak *(Quercus lobata)*	44	Single	47.5	35	D	15	D	15	35	Burl, broken branches, 2 larger limbs remain but others have died and broken off, old fire damage	-118.72035	34.3063696	$390.00	$29,500.00	$23,790.00			x
4641	Coast live oak *(Quercus agrifolia)*	19	Single	35.4	20	A	98	A	87	85	Minor branch dieback in inner canopy	-118.72037	34.3063825	$210.00	$8,700.00	$15,560.00		x	
4642	Black walnut *(Juglans californica)*	23.9	Multi-Trunk	30.3	10	D	22	D	21	21	Fire damage, dead branches, insect damage, sparse foliage with fungus. DBH discrepancy due to inclusion of trunks that were previously excluded for being too small.	-118.72255	34.3097067	$342.00	$5,400.00	$9,220.00			x
4643	Black walnut *(Juglans californica)*	34.3	Multi-Trunk	31.5	11	D	28	D	40	23	Many dead branches, old fire damage, sparse foliage with fungus, insect damage	-118.72229	34.3097672	$342.00	$10,600.00	$23,620.00			x
4644	Black walnut *(Juglans californica)*	35.8	Multi-Trunk	32.5	12	D	25	D	25	40	Large woodrat nest at base, old fire damage, insect damage, dead and broken branches, sparse foliage with fungus	-118.72222	34.3110102	$342.00	$11,700.00	$22,980.00			x
4645	Black walnut *(Juglans californica)*	39.5	Multi-Trunk	32.3	10	D	25	D	25	40	Old fire damage, dead branches, sparse foliage with fungus. DBH discrepancy due to exclusion of trunks that were now dead.	-118.72229	34.3096437	$342.00	$1,310.00	$27,900.00			x
4657	California sycamore (*Platanus racemosa)*	32.6	Multi-Trunk	43	38	B	62	C+	0	60	Bore holes from insects, fungal issues on leaves	-118.72097	34.3060718	$360.00	$26,500.00	$49,370.00	x		
4664	California sycamore (*Platanus racemosa)*	24.75	Multi-Trunk	24	20	C	57	B	70	75	A few dead branches, signs of Anthracnose	-118.72107	34.3061501	$360.00	$20,100.00	$26,330.00		x	
4850	Coast live oak	5.6	Single	12.6	8.4	C	51	C-	41	61	Parking lot. Thin canopy, dying branches, insect damage, sparse & sickly foliage, potential fungal	-118.73375	34.3132632	$210.00	N/A	$730.00	x		

Tree ID	Species	2024 DBH (in)	Trunk Form	Spread (ft)	Height (ft)	Health	Condition (%)	Aesthetic	Structure (%)	Form (%)	Notes	Longitude	Latitude	Additional Costs incl. Installation	2018 Appraisal Value	2024 Appraised Value	To Be Removed	To Be Relocated	To be Preserved
	(Quercus agrifolia)										infection. Tree was below minimum DBH threshold for protection in 2018.								
4851	Coast live oak *(Quercus agrifolia)*	10.2	Single	27.3	14	C	51	C	50	50	Parking lot. Yellowing leaves, thin canopy, 3 sides surrounded by concrete. Was previously tree ID #4512	-118.73411	34.3132367	$210.00	$3,670.00	$1,940.00		x	
4852	California sycamore (*Platanus racemosa)*	16.75	Single	40.25	42	A	96	A	80	80	Past pruning created minor asymmetry to keep away from building, minimal insect damage. Was previously tree ID #4005	-118.7338	34.3143032	$360.00	$8,400.00	$20,390.00	x		
4853	Fremont cottonwood *(Populus fremontii)*	57.3	Multi-Trunk	28.25	30	C	49	C+	35	60	4 large trunks had been cut and regrowth of new many (14) smaller branches, presence of ants, minor staining, wood rat nests nearby, nutrient deficiencies, drought stress. Was previously tree ID #4047 and only largest trunks were measured.	-118.73283	34.3123148	$366.00	$1,810.00	$97,670.00	x		
4854	Coast live oak *(Quercus agrifolia)*	25.5	Single	46.5	26	C	53	C	62	58	Crossing branches, twig dieback (particularly in the interior canopy), area used to park under, drought stress, old insect damage	-118.7207	34.3055285	$210.00	N/A	$15,160.00	x		
4855	Coast live oak *(Quercus agrifolia)*	23	Single	50.25	32	B	76	B+	70	80	minor flagging, area used to park under, adjacent to road, exposed roots	-118.72061	34.3054998	$210.00	N/A	$17,650.00		x	
4856	Coast live oak *(Quercus agrifolia)*	21.1	Single	39	28	B	68	C+	68	65	Minor staining on some upper branches, area used to park under, adjacent to road	-118.72062	34.3054089	$210.00	N/A	$13,350.00	x		
4857	Coast live oak *(Quercus agrifolia)*	19.5	Multi-Trunk	24	35	B	66	C	60	58	Trunk fissure, crossing branches, close competition with walnut, adjacent to road	-118.72067	34.3027827	$210.00	N/A	$11,100.00	x		
4858	Black walnut *(Juglans californica)*	43.7	Multi-Trunk	25	18	B	72	C	50	60	Large cable running through trunk, many dead stems from base, crossing branches, dying limbs, insect damage	-118.72038	34.3025993	$342.00	N/A	$97,500.00	x		
4859	Black walnut *(Juglans californica)*	10.75	Multi-Trunk	17	11	C	57	D	40	42	leaning, growing along the ground, shaded by other walnut, cut branches, adjacent to distribution pool, near the road	-118.72037	34.3026161	$342.00	N/A	$5,000.00	x		
4860	Coast live oak *(Quercus agrifolia)*	22.75	Multi-Trunk	34	16	C	49	D	38	42	Growing along ground, major diseased limb, shaded by other oak, on a slope, wood rat nest	-118.72023	34.3020506	$210.00	N/A	$11,210.00	x		

Tree ID	Species	2024 DBH (in)	Trunk Form	Spread (ft)	Height (ft)	Health	Condition (%)	Aesthetic	Structure (%)	Form (%)	Notes	Longitude	Latitude	Additional Costs incl. Installation	2018 Appraisal Value	2024 Appraised Value	To Be Removed	To Be Relocated	To be Preserved
4861	Coast live oak *(Quercus agrifolia)*	31.95	Multi-Trunk	42	18	B	76	B-	82	78	Dead branches on the interior, minor flagging, drought stress	-118.72011	34.3024585	$210.00	N/A	$33,870.00		x	
4862	Black walnut *(Juglans californica)*	22.5	Multi-Trunk	31	16	B	75	B	75	62	Small mammal burrows underneath trunk, some interior branch dieback, shrubs in the understory, adjacent to road	-118.72027	34.3029081	$342.00	N/A	$27,170.00		x	
4863	Coast live oak *(Quercus agrifolia)*	54.1	Single	68.25	45	C	53	C	55	60	Loss of major limb, other dead branches, crossing stems, cavity in trunk, insect damage, some fungal issues	-118.72023	34.3030721	$210.00	N/A	$67,510.00			x
4864	Coast live oak *(Quercus agrifolia)*	23.75	Multi-Trunk	19.25	18	C	53	C+	62	58	Parking lot. Ants present, interior branch dieback, canker at base of trunk, insect damage. Was previously tree ID #4528	-118.73462	34.3127314	$210.00	$17,000.00	$9,940.00		x	
4865	Coast live oak *(Quercus agrifolia)*	16.5	Multi-Trunk	19.25	13	C	53	B-	45	60	Parking lot. Some fissures and spreading back on several stems, crossing limbs. New tree previously not recorded in parking lot.	-118.7346	34.3128049	$210.00	N/A	$4,910.00		x	
4866	California sycamore (*Platanus racemosa)*	12.3	Single	35	50	A	97	A	82	81	Ants present, shrubs at base of trunk causing thickened bark on one side. Was previously tree ID #4552	-118.73482	34.3126576	$360.00	$6,100.00	$11,280.00		x	
4867	California sycamore (*Platanus racemosa)*	16.5	Single	31.35	45	B	65	C	62	50	Parking lot. Growing adjacent to building, leaning, near culvert, epicormic shoots, thickened bark. Was previously tree ID #4551.	-118.73493	34.3126502	$360.00	$8,700.00	$8,920.00	x		
4868	Strawberry tree *(Arbutus unedo)*	16.5	Multi-Trunk	19.5	14	A	95	A-	78	65	Parking lot. Adjacent to building	-118.73467	34.3125408	$384.00	N/A	$28,350.00		x	
4869	Coast live oak *(Quercus agrifolia)*	22.5	Multi-Trunk	30.75	18	B	67	B	60	70	Parking lot. Minor flagging, major trunk lean, mistletoe. Was previously tree ID #4540. DBH discrepancy due to inclusion of trunks that were previously excluded for being too small.	-118.73393	34.3124719	$210.00	$11,100.00	$11,250.00		x	
4870	Coast live oak *(Quercus agrifolia)*	4.5	Multi-Trunk	16.75	14	B	61	B-	45	41	Parking lot. Crossed branches, competing with other shrubs, thin canopy	-118.7338	34.3124417	$210.00	N/A	$610.00		x	

ATTACHMENT 2 – TREE APPRAISAL WORKSHEETS

ATTACHMENT 3 – SUMMARY TABLE OF TREES BY STATUS

ATTACHMENT 3: SUMMARY TABLE OF TREES BY STATUS

Trees to Be Removed

Tree ID	Species	DBH (In)	Appraised Value*
54	Coast live oak *(Quercus agrifolia)*	10	$2,900.00
55	Coast live oak *(Quercus agrifolia)*	39.5	$41,510.00
235	Coast live oak *(Quercus agrifolia)*	67.5	$156,380.00
237	Coast live oak *(Quercus agrifolia)*	53.5	$97,080.00
238	Valley oak *(Quercus lobata)*	25.5	$27,110.00
249	Coast live oak *(Quercus agrifolia)*	39	$52,350.00
321	Valley oak *(Quercus lobata)*	39	$67,800.00
362	Coast live oak *(Quercus agrifolia)*	46.3	$61,600.00
365	Coast live oak *(Quercus agrifolia)*	36.5	$35,470.00
367	Coast live oak *(Quercus agrifolia)*	22	$11,130.00
4006	California sycamore (*Platanus racemosa)*	19.5	$21,860.00
4007	Fremont cottonwood *(Populus fremontii)*	17.1	$8,150.00
4181	Black walnut *(Juglans californica)*	67.5	$145,220.00
4187	Fremont cottonwood *(Populus fremontii)*	21.75	$15,240.00
4524	Coast live oak *(Quercus agrifolia)*	29.4	$24,680.00
4541	Coast live oak *(Quercus agrifolia)*	22.8	$10,020.00
4547	Strawberry tree *(Arbutus unedo)*	6.5	$1,370.00
4548	California sycamore (*Platanus racemosa)*	16.5	$12,050.00
4550	California sycamore (*Platanus racemosa)*	8.5	$1,050.00
4579	Coast live oak *(Quercus agrifolia)*	5	$410.00
4597	Black walnut *(Juglans californica)*	41.45	$18,550.00
4631	California sycamore (*Platanus racemosa)*	34	$30,450.00
4632	California sycamore (*Platanus racemosa)*	0	$0.00
4633	California sycamore (*Platanus racemosa)*	29.5	$48,910.00
4634	Coast live oak *(Quercus agrifolia)*	28.7	$25,580.00
4635	Coast live oak *(Quercus agrifolia)*	27.6	$17,070.00
4636	Coast live oak *(Quercus agrifolia)*	24	$15,950.00
4657	California sycamore (*Platanus racemosa)*	32.6	$49,370.00
4850	Coast live oak *(Quercus agrifolia)*	5.6	$730.00
4852	California sycamore (*Platanus racemosa)*	16.75	$20,390.00
4853	Fremont cottonwood *(Populus fremontii)*	57.3	$97,670.00
4854	Coast live oak *(Quercus agrifolia)*	25.5	$15,160.00
4856	Coast live oak *(Quercus agrifolia)*	21.1	$13,350.00
4857	Coast live oak *(Quercus agrifolia)*	19.5	$11,100.00
4858	Black walnut *(Juglans californica)*	43.7	$97,500.00
4859	Black walnut *(Juglans californica)*	10.75	$5,000.00
4860	Coast live oak *(Quercus agrifolia)*	22.75	$11,210.00
4867	California sycamore (*Platanus racemosa)*	16.5	$8,920.00
Total Appraised Value			**$1,280,290.00***

* Appraised value of trees to be removed equals the total replacement value of new trees to be installed.

Trees to Be Relocated

Tree ID	Species	DBH (In)	Appraised Value
254	Coast live oak *(Quercus agrifolia)*	16.5	$9,420.00
366	Coast live oak *(Quercus agrifolia)*	30	$29,890.00
369	Coast live oak *(Quercus agrifolia)*	34	$48,360.00
388	Coast live oak *(Quercus agrifolia)*	43.5	$49,470.00
4091	Coast live oak *(Quercus agrifolia)*	8.5	$2,340.00
4510	Coast live oak *(Quercus agrifolia)*	10.7	$2,710.00
4511	Coast live oak *(Quercus agrifolia)*	31.1	$23,500.00
4513	Coast live oak *(Quercus agrifolia)*	22.5	$15,530.00
4514	Coast live oak *(Quercus agrifolia)*	15.2	$4,380.00
4515	Coast live oak *(Quercus agrifolia)*	17.9	$7,930.00
4516	Coast live oak *(Quercus agrifolia)*	32.1	$16,980.00
4517	Coast live oak *(Quercus agrifolia)*	25.8	$12,990.00
4518	Coast live oak *(Quercus agrifolia)*	30	$23,050.00
4519	Coast live oak *(Quercus agrifolia)*	14.2	$4,540.00
4523	Coast live oak *(Quercus agrifolia)*	12.5	$3,570.00
4525	Coast live oak *(Quercus agrifolia)*	16.6	$6,040.00
4526	Coast live oak *(Quercus agrifolia)*	13.8	$6,100.00
4527	Coast live oak *(Quercus agrifolia)*	22	$14,070.00
4529	Coast live oak *(Quercus agrifolia)*	8.7	$1,840.00
4530	Coast live oak *(Quercus agrifolia)*	16.5	$6,590.00
4531	Coast live oak *(Quercus agrifolia)*	14.95	$5,810.00
4532	Coast live oak *(Quercus agrifolia)*	8.7	$2,110.00
4536	Coast live oak *(Quercus agrifolia)*	13.5	$4,600.00
4537	Coast live oak *(Quercus agrifolia)*	14.2	$4,670.00
4538	Coast live oak *(Quercus agrifolia)*	12.5	$3,620.00
4539	Coast live oak *(Quercus agrifolia)*	15	$4,380.00
4542	Coast live oak *(Quercus agrifolia)*	7.75	$1,230.00
4543	Coast live oak *(Quercus agrifolia)*	9.25	$1,660.00
4544	Coast live oak *(Quercus agrifolia)*	26.55	$16,270.00
4545	Coast live oak *(Quercus agrifolia)*	31.9	$22,400.00
4549	Strawberry tree *(Arbutus unedo)*	19.25	$23,310.00
4554	Coast live oak *(Quercus agrifolia)*	17.05	$9,290.00
4555	Holly oak *(Quercus ilex)*	28.1	$52,890.00
4556	Coast live oak *(Quercus agrifolia)*	43	$57,970.00
4557	Coast live oak *(Quercus agrifolia)*	17.5	$9,780.00
4558	Coast live oak *(Quercus agrifolia)*	22.5	$10,420.00
4559	Coast live oak *(Quercus agrifolia)*	11.3	$4,070.00
4560	Coast live oak *(Quercus agrifolia)*	21.7	$20,030.00
4562	Coast live oak *(Quercus agrifolia)*	15.75	$6,990.00
4563	Coast live oak *(Quercus agrifolia)*	35.5	$52,700.00
4564	Coast live oak *(Quercus agrifolia)*	27	$18,000.00
4565	Coast live oak *(Quercus agrifolia)*	8	$1,610.00
4566	Coast live oak *(Quercus agrifolia)*	11.5	$4,630.00
4567	Coast live oak *(Quercus agrifolia)*	29.8	$37,580.00
4568	Coast live oak *(Quercus agrifolia)*	18.5	$14,020.00
4570	California sycamore (*Platanus racemosa)*	9.5	$4,450.00
4571	Coast live oak *(Quercus agrifolia)*	23.5	$18,420.00
4572	Coast live oak *(Quercus agrifolia)*	30.85	$30,560.00
4576	Coast live oak *(Quercus agrifolia)*	16.6	$7,980.00
4577	Coast live oak *(Quercus agrifolia)*	27	$30,570.00
4578	Coast live oak *(Quercus agrifolia)*	23.2	$17,200.00
4580	California sycamore (*Platanus racemosa)*	9.1	$5,100.00
4600	Coast live oak *(Quercus agrifolia)*	19.8	$11,100.00
4637	Coast live oak *(Quercus agrifolia)*	12.75	$5,010.00
4638	Coast live oak *(Quercus agrifolia)*	20.8	$13,910.00
4641	Coast live oak *(Quercus agrifolia)*	19	$15,560.00
4664	California sycamore (*Platanus racemosa)*	24.75	$15,510.00
4851	Coast live oak *(Quercus agrifolia)*	10.2	$1,940.00
4855	Coast live oak *(Quercus agrifolia)*	23	$17,650.00
4861	Coast live oak *(Quercus agrifolia)*	31.95	$33,870.00
4862	Black walnut *(Juglans californica)*	22.5	$16,820.00
4864	Coast live oak *(Quercus agrifolia)*	23.75	$9,940.00
4865	Coast live oak *(Quercus agrifolia)*	16.5	$4,910.00
4866	California sycamore (*Platanus racemosa)*	12.3	$6,730.00
4868	Strawberry tree *(Arbutus unedo)*	16.5	$8,800.00
4869	Coast live oak *(Quercus agrifolia)*	22.5	$11,250.00
4870	Coast live oak *(Quercus agrifolia)*	4.5	$610.00
Total Appraised Value			**$967,230.00**

Trees to Be Preserved

Tree ID	Species	DBH (In)	Appraised Value
240	Coast live oak *(Quercus agrifolia)*	38.25	$49,720.00
4182	Black walnut *(Juglans californica)*	72.05	$165,410.00
4598	Coast live oak *(Quercus agrifolia)*	29.7	$17,820.00
4599	Coast live oak *(Quercus agrifolia)*	44.7	$53,960.00
4640	Valley oak *(Quercus lobata)*	44	$23,790.00
4642	Black walnut *(Juglans californica)*	23.9	$9,220.00
4643	Black walnut *(Juglans californica)*	34.3	$23,620.00
4644	Black walnut *(Juglans californica)*	35.8	$22,980.00
4645	Black walnut *(Juglans californica)*	39.5	$27,900.00
4863	Coast live oak *(Quercus agrifolia)*	54.1	$67,510.00
Total Appraised Value			**$461,930.00**

APPENDIX C

SUMMARY OF CULTURAL AND PALEONTOLOGICAL RESOURCES STUDIES

Lost Canyons Cultural and Paleontological Resources

Newport Pacific Land Company

CHAMBERS GROUP

September 17, 2024
3151 Airway Avenue, Suite F-208
Costa Mesa, CA 92626
21091.01

Rick Nelson
Newport Pacific Land Company
100 Bayview Circle, Suite 240
Newport Beach, CA 92660

Subject: Lost Canyons Development Project, 180 Lots Transfer – Summary of Cultural and Paleontological Resources Studies

Dear Mr. Nelson,

Chambers Group, Inc. (Chambers Group) understands that Newport Pacific Land Company (NPLC) is seeking to transfer 180 estate lots for residential development from Dry and Tapo Canyons, to the north of Lost Canyons Drive on a portion of the former golf course. This area was identified for construction impacts during the original recordation of the TTM and impacts to cultural and paleontological resources have been previously addressed. The applicable planning document for the Project, Whiteface Specific Plan Amendment 6: Lost Canyons Final EIR (FEIR; Impact Sciences, Inc. 2010), includes summaries describing the cultural and paleontological resource context, results of previous studies, and associated mitigation measures (MMs) adopted for the Project.

In response to the proposed 180-lot transfer, updated records searches were requested from the South-Central Coastal Information Center (SCCIC) and the Native American Heritage Commission (NAHC) to search their Sacred Land Files (SLF) and the Natural History Museum of Los Angeles County (NHMLA) on July 31, 2024. These updated records searches were requested to confirm if any newly identified cultural, Tribal Cultural, or paleontological resources have been documented in the Project site or surrounding half-mile vicinity study area since the last records searches for the proposed Lost Canyons Preliminary Concept Plan that were referenced in 2006 (SWCA).

Cultural Resources

Previous Studies Conducted and Referenced in Lost Canyons FEIR

- SWCA Environmental Consultants, Cultural Resources Archival Research for the Proposed Lost Canyons Preliminary Concept Plan, prepared by Joan C. Brown, November 2006.
- Ronald M. Bissell, Cultural Resources Reconnaissance of 1,800 Acres Located in the Simi Valley, 1989.
- Patrick O. Maxon, Cultural Resources Reconnaissance of a Portion of the Big Sky Property, Lost Canyons Development, 1999.
- Ancient Enterprise, Inc., Preliminary Summary of Archaeological Test Investigations at Big Sky Ranch (West) Simi Valley, 1994.

2024 Records Seach Results

The results of the NAHC SLF records search were received on September 4, 2024. The NAHC SLF results were negative for documented resources within the Project site. However, the NAHC acknowledged that the absence of specific site or Tribal Cultural Resource information in the SLF does not indicate the absence of resources important to the local tribal groups in the vicinity, and other sources should be contacted for information regarding documented cultural resources.

The SCCIC records search results were received on September 16, 2024. The results were positive with a total of two cultural resources documented within the proposed Project site. The SCCIC results also included 15 documented resources within the half-mile study area surrounding the Project site. Additionally, 23 cultural resource studies have

been conducted that include the Project site, or a portion of the Project site, and 12 studies have been completed in the half-mile study area. The two previously documented cultural resources within the Project site were first recorded during the 1989 cultural resources reconnaissance of 1800 acres (Bissell) and these two resources were not documented within the 180-lot transfer area. Further, one of these two resources has since been documented as no longer visible or potentially no longer extant during the subsequent cultural resources reconnaissance of a portion of the Big Sky Property (Maxon 1999). The other cultural resource documented within the Project site is not located within the 180-lot transfer area. This resource is also documented as an isolated occurrence, which is generally not considered a significant cultural resource, per CEQA guidelines.

Results

Per FEIR Section 4.4, the 2006 record search and archival research (SWCA) also included information regarding archaeological sites and investigations within the study area, which included the current area designated for the 180-lot transfer, and a check of historic maps, the California State Historic Resources Inventory (NRHP), and the listing of California Historical Landmarks. The search indicated that seven archaeological sites were recorded within the study area. This provided baseline data from which an assessment of potential adverse impacts to these resources could be ascertained. The potential impacts to archeological resources were found to be less than significant with implementation of MMs 4.4-1 through 4.4-7.

The 2024 updated records search results do not substantively change the overall context, or the documented cultural resource sensitivity previously addressed in the FEIR. As such, Chambers Group confirms that the transfer of the 180 lots to the proposed location will result in no additional mitigation as potential impacts will already be mitigated through the implementation of applicable MMs adopted for the Project (MMs 4.4-1 through 4.4-7).

Paleontological Resources

Previous Studies Conducted and Referenced in Lost Canyons FEIR

- ENSR, Environmental Site Assessment Update, Big Sky Country Club Golf Course Development Site, 1999.
- SWCA Environmental Consultants, Paleontological Assessment of the Lost Canyons Project, 2006.

2024 Records Seach Results

The results of the NHMLA records search were received on August 18, 2024, and were negative for documented fossil localities within the Project site. However, the NHMLA results also indicated that several significant fossil localities are documented in the surrounding half-mile study area. Further, the NHMLA confirmed that the same significant fossil bearing sedimentary deposits are documented as underlying the Project site.

Results

Per FEIR Section 4.4, a paleontological assessment of the Lost Canyons Project was completed to determine the likelihood of encountering paleontological resources within the Specific Plan area (SWCA 2006), which included the proposed location for the 180 lots that would be transferred to the north of Lost Canyons Drive. This report focused on a comprehensive literature review and a museum records search. The records search indicated that at least 18 vertebrate fossil localities yielding more than 2,400 individual vertebrate specimens have been documented within the Lost Canyons Specific Plan Area and in its immediate vicinity. Any adverse impacts to paleontological resources were found to be less than significant with the implementation of MMs 4.4-8 through 4.4-11.

The 2024 updated records search results do not substantively change the overall context, or the documented paleontological resource sensitivity previously addressed in the FEIR. As such, Chambers Group confirms that the transfer of the 180 lots to the proposed location will not result in a substantial increase in the severity of previously identified impacts or in newly identified significant impacts. Potential impacts will already be mitigated through the implementation of applicable MMs adopted for the Project (MMs 4.4-8 through 4.4-11).

In summary, all MMs adopted for the Project regarding cultural, Tribal Cultural, and paleontological resources remain applicable and shall be enforced as outlined in the Archaeological Resources Mitigation and Monitoring Plan (AMMP;

Chambers Group 2019) and Paleontological Resources Mitigation and Monitoring Plan (PRMMP; Chambers Group 2019), respectively. The updated 2024 records search results do not substantively change the previous FEIR determinations regarding cultural or paleontological resources. As such, the proposed 180-lot transfer will not result in a substantial increase in the severity of previously identified impacts or in new significant impacts beyond those already identified in the FEIR and mitigated through the adopted Project MMs. Please let us know if you have any questions regarding this letter and the recommendations provided. Upon request, all the 2024 records search result data can be provided as it was received from the respective repositories but will require secure file transfer due to confidentiality agreements.

Sincerely,
CHAMBERS GROUP, INC.



Lucas Tutschulte
Cultural Resources Team Lead
ltutschulte@chambersgroupinc.com
(858) 541-2800, ext. 7114

APPENDIX D

REDUCED FOOTPRINT IMPACT ANALYSIS

GLENN LUKOS ASSOCIATES
Regulatory Services

February 25, 2025

Alicia Guerra
Buchalter
425 Market Street, Suite 2900
San Francisco, CA 94105

SUBJECT: Results of the Reduced Footprint Impact Analysis for the Lost Canyons Development Project Located in Simi Valley, Ventura County, California

Dear Ms. Guerra:

This letter report provides the results of a biological analysis conducted by Glenn Lukos Associates, Inc. (GLA) to support the City of Simi Valley's preparation and adoption of a subsequent environmental document associated with the Lost Canyons "Proposed New Tentative Tract Map" (the "Proposed New TTM"). We understand that the City of Simi Valley Planning Department is considering tiering from the Lost Canyons Project Final Environmental Impact Report ("FEIR"). Newport Pacific Land Company (NPLC) proposes the relocation of the remaining TTM 5734 residential lots from the southern portions of Dry and Tapo Canyons to create a cluster development within the previously approved golf course area.

As requested by NPLC, this report documents the changes in biological impacts to native and special-status vegetation communities and the federal listed as threatened coastal California gnatcatcher (*Polioptila californica californica*), as well as changes in jurisdictional impacts to waters of the U.S. regulated under Section 404 of the Clean Water Act, for the Proposed New TTM as compared to the FEIR Approved Footprint.

In summary, the Proposed New TTM would not result in new significant or a substantial increase in the severity of the environmental impacts evaluated in the FEIR analysis of the Approved Footprint, specific to special-status vegetation communities, the coastal California gnatcatcher, and waters of the U.S. Therefore, all impacts to these specific resources associated with the Proposed New TTM have previously been analyzed in the FEIR. Additionally, the Proposed New TTM will result in reduced biological impacts to vegetation communities, reduced impacts to coastal California gnatcatcher habitat, and reduced impacts to waters of the U.S., when compared to the FEIR analysis for the Approved Footprint.

1.0 INTRODUCTION

1.1 Site Location

The Project site comprises approximately 1,770.53 acres in the City of Simi Valley, Ventura County, California [Exhibit 1 – Regional Map] and is located within Sections 25, 26, 27, 34, 35, and 36 of Township 3 North, Range 18 West, of the Simi Valley West (dated 1951 and photo-revised in 1969) and Simi Valley East (dated 1951 and photo-revised 1969) U.S. Geological Survey (USGS) 7.5" Quadrangle Maps [Exhibit 2 – Vicinity Map]. The site is bordered by Tapo Canyon Road to the east, lies north of California State Route 118, is bisected by Lost Canyons Road, and is bordered by existing residential development to the south and west, undeveloped land to the east and north, and development to the west, and contains an existing golf course.

1.2 Project Description

The City of Simi Valley adopted the Whiteface Specific Plan (herein referred to as the Specific Plan) in 1992 and amended the Specific Plan seven times since. The original Project footprint included 1,770.53 acres of the approximate 2,686-acre Specific Plan area. The City adopted the Specific Plan following certification of the Lost Canyons Project FEIR (2010). The certified FEIR included an evaluation of impacts to biological resources based on various biological studies.

In 2010, the FEIR evaluated the Approved Footprint onsite and offsite impacts totaling approximately 790.72 acres. When the City certified the FEIR, the Lost Canyons Golf Club and other disturbed or developed land cover types within the approved disturbance area comprised a total of approximately 249.56 acres of already graded and disturbed land. Therefore, impacts to undisturbed land cover types within the approved disturbance area totaled approximately 541.16 acres.

The Proposed New TTM involves the relocation of the remaining TTM 5734 residential lots from the southern portions of Dry and Tapo Canyons to create a cluster development that would occur entirely within the limits of the previously approved golf course area. In general, impacts associated with the Proposed New TTM would total approximately 305.22 acres and will effectively reduce the overall impact footprint by a total of 485.50 acres. Disturbed or developed land cover types within the Proposed New TTM comprise a total of approximately 145.45 acres. Therefore, the Proposed New TTM will impact approximately 159.77 acres of undisturbed land cover types, approximately 381.39 acres (70.5%) less than the FEIR Approved Footprint.

2.0 DISCUSSION

This section provides the results of updated vegetation mapping and updated focused surveys for coastal California gnatcatcher, as well as discussions that examine the potential impacts to the aforementioned resources associated with the Proposed New TTM footprint as compared to the Approved Footprint evaluated in the FEIR. This section also provides an analysis of waters of the U.S. subject to U.S. Army Corps of Engineers (Corps) jurisdiction associated with the Proposed New TTM.

2.1 Vegetation Communities

Vegetation communities depicted in the FEIR Approved Footprint were mapped in 2007 for the Village Core, Golf Course, Dry Canyon, and Tapo Canyon Planning Areas. Mapping was conducted based on a site reconnaissance and Google Earth aerial imagery. Plant communities were characterized per the Manual of California Vegetation (MCV) and California Department of Fish and Wildlife's (CDFW) List of California Terrestrial Natural Communities. The FEIR mapping identified a total of 23 different vegetation communities/land cover types that are detailed in Table 2-1 below.

Vegetation mapping used to assess impacts for the Proposed New TTM was updated by GLA in 2013 [Exhibit 3 – Vegetation Map]. Mapping was conducted based on a site reconnaissance and Google Earth aerial imagery. Vegetation communities were mapped according to the Holland (1986[1]) Classification System, and were then cross-walked to the broader vegetation/land use type categories depicted in the FEIR mapping. The 2013 mapping identified a total of 13 different vegetation communities/land cover types that are detailed in Table 2-1 below.

While the FEIR Approved Footprint vegetation mapping identified far more coastal sage scrub vegetation communities than the updated mapping for the Proposed New TTM, the two mapping efforts still align in the broader vegetation/land use type categories depicted in Table 2-1 below; Coastal Sage Scrub, Woodland, Riparian, Native Grassland, Non-Native Grassland, and Disturbed/Developed. As depicted in Table 2-1 below, there is a reduction in impacts to each of the broader vegetation/land use categories.

[1] Holland, R. F. 1986. Preliminary descriptions of the terrestrial natural communities of California. Sacramento, CA: Nongame Heritage Program, California Dept. Fish and Game.156 pp.

Table 2-1. Comparison of Vegetation/Land Use Type Impacts

Vegetation/Land Use Type	FEIR Approved Footprint Impacts (acres)	Proposed New TTM Impacts (acres)	Total Change in Impacts (acres)
Coastal Sage Scrub Total	**416.20**	**118.60**	**-297.60**
Black Sage/Goldenbush	*5.00*	-	
California Sagebrush	*3.49*	-	
California Sagebrush/Black Sage	*9.03*	-	
California Sagebrush/Purple Sage	*45.20*	-	
Coast Prickly Pear	*0.18*	-	
Coyote Brush	*1.27*	*2.31*	
Deerweed	*189.85*	-	
Deerweed/California Sagebrush	*1.62*	-	
Deerweed/Chaparral Mallow	*6.48*	-	
Deerweed/Coyote Brush	*0.56*	-	
Purple Sage/Goldenbush	*3.40*	-	
Quailbush	*0.32*	-	
Undifferentiated CSS	*179.80*	*96.52*	
Undifferentiated Disturbed CSS	-	*19.77*	
Woodland Total	**3.19**	**0.44**	**-2.75**
Coast Live Oak Woodland	*3.19*	*0.44*	
Riparian Total	**49.74**	**10.72**	**-39.02**
Elderberry Scrub	-	-	
Southern Willow Scrub	*32.21*	*1.87*	
Southern Riparian Scrub (Mulefat)	*17.53*	*4.18*	
Western Sycamore Woodland	-	*0.06*	
Willow Riparian	-	*4.61*	
Native Grassland Total	**1.94**	**0.00**	**-1.94**
Giant Wild Rye	*1.67*	-	
Native Perennial Grasses	*0.27*	-	
Non-Native Grassland Total	**70.09**	**30.01**	**-40.08**
Disturbed/Developed Total	**249.56**	**145.45**	**-104.11**
Bare	-	*0.50*	
Developed Areas	*24.90*	-	
Disturbed	-	*140.34*	
Eucalyptus Woodland	*7.60*	-	
Golf Course Landscape	*195.37*	-	
Golf Course Facilities	*12.71*	-	
Manmade Wetland	*8.98*	-	
Ornamental	-	*0.60*	
Water	-	*4.01*	
Total Impacts (acres)	**790.72**	**305.22**	**-485.50**

Given that the Proposed New TTM occurs entirely within the Approved Footprint evaluated in the FEIR, and that the Proposed New TTM will result in a reduction of impacts to each vegetation/land use type already categorized and analyzed by the FEIR, there would be less impacts to vegetation communities associated with the Proposed New TTM.

2.2 Special-Status Vegetation Communities

Special-status vegetation communities identified in the FEIR included Southern Riparian Scrub, Southern Willow Scrub, and Coast Live Oak Woodland. Special-status vegetation communities identified by the updated mapping for the Proposed New TTM include Southern Willow Scrub, Mulefat Scrub, Willow Riparian, Western Sycamore Woodland, and Coast Live Oak Woodland.

Given that the Proposed New TTM occurs entirely within the limits of the FEIR Approved Footprint, the addition of three special-status riparian vegetation communities (Mulefat Scrub, Willow Riparian and Western Sycamore Woodland) in the updated mapping is the result of a higher resolution mapping of riparian communities, rather than a physical change in conditions. In total, the Proposed New TTM will result in a 39.02-acre (78.4%) reduction in impacts to riparian communities.

Coast Live Oak Woodland was identified in the FEIR as well as in the updated mapping for the Proposed New TTM. In total, the Proposed New TTM will result in a 2.75-acre (86.2%) reduction in impacts to Coast Live Oak Woodland.

2.3 Coastal California Gnatcatcher

Although no coastal California gnatcatchers were observed during focused surveys conducted for the FEIR, it was determined that there was potential for the species to occur and applicable mitigation measures were included in the FEIR to offset and/or avoid impacts to the species (Mitigation Measures 4.3-4, 4.3-5, and 4.3-10).

Prior to 2013-2014, the coastal California gnatcatcher had not been detected on or adjacent to the Project site. Focused surveys during the breeding season were conducted within portions of, or within the entirety of, the Project site in 1998 and 2008, all of which were negative. However, in 2013-2014 GLA conducted focused surveys for the coastal California gnatcatcher and observed up to three California gnatcatcher family groups, three potential pairs, and five individuals. In 2016, focused surveys were conducted in lands proposed for conservation. Two gnatcatcher family groups, two gnatcatcher pairs, one single adult male gnatcatcher (likely paired), one single adult gnatcatcher, and one unconfirmed gnatcatcher were observed. Updated coastal California gnatcatcher surveys were conducted in winter of 2023/2024 in both the development areas and lands proposed for conservation. During the 2023/2024 surveys, a total of 12

gnatcatcher territories/pairs were observed, none of which occurred north of Lost Canyons Drive or within the Proposed New TTM impact limits.

Three mitigation measures recommended in the FEIR, Mitigation Measures 4.3-4, 4.3-5, and 4.3-10, were included to address coastal California gnatcatcher in the event they were detected after the City certified the FEIR. These mitigation measures would still apply to the Proposed New TTM, which occurs entirely within the limits of the FEIR Approved Footprint and will result in a 297.60-acre (71.5%) reduction of impacts to coastal sage scrub vegetation communities, many of which comprise suitable habitat for coastal California gnatcatcher. As such, the Proposed New TTM would not result in any new or substantially greater impacts to coastal California gnatcatcher.

The United States Fish and Wildlife Service (USFWS) issued a Biological Opinion (BO) in January 2017 for the Approved Footprint evaluated in the FEIR (File Number SPL-2008-00815-AJS), which included take coverage for the coastal California gnatcatcher. The 2017 USFWS BO listed a total of up to 43 individual coastal California gnatcatchers, consisting of five family groups, five pairs, and eight individuals, as being detected in the action area as part of their analysis. The BO determined that approximately 302.93 acres of suitable coastal California gnatcatcher habitat within the action area (FEIR Approved Footprint) would be permanently removed through project implementation. As a result, the terms and conditions of the BO mandate the conservation, restoration and enhancement of coastal sage scrub habitat to effectively offset the loss of 302.93 acres of coastal California gnatcatcher habitat. The Proposed New TTM will result in impacts to approximately 118.60 acres of various coastal sage scrub vegetation communities, which represents a 184.33-acre (60.8%) reduction in impacts to potentially suitable coastal California gnatcatcher habitat.

The Proposed New TTM occurs entirely within the limits of the FEIR Approved Footprint and will result in a total reduction of approximately 297.60 acres (71.5%) of impacts to coastal sage scrub vegetation communities. Additionally, updated surveys conducted in 2024 for coastal California gnatcatcher did not detect any new or additional coastal California gnatcatcher pairs or territories within the Proposed New TTM [Exhibit 4 – CAGN Survey Results Map].

3.0 Impacts to Corps Jurisdiction

The FEIR evaluated permanent impacts to 6.37 acres of Corps jurisdiction associated with the Approved Footprint. Based on the refined design to avoid Corps jurisdiction to the maximum extent practicable as required by Section 404 of the Clean Water Act, the Corps issued a standard individual permit for 2.04 acres of permanent impacts. The 404 permit requires onsite implementation of compensatory mitigation totaling 13.96 acres. The Proposed New TTM would permanently impact 0.52 acre. The requirement for 13.96 acres of compensatory mitigation

results in a 27:1 mitigation ratio for the Proposed New TTM footprint, which greatly exceeds typical mitigation ratios required by the Corps.

4.0 CONCLUSION

In summary, with the reduction in acreage compared to the Approved Footprint evaluated in the EIR, the Proposed New TTM would not result in any additional or substantially more severe impacts to vegetation resources, coastal California gnatcatcher, or waters of the U.S. that were not already analyzed in the FEIR.

5.0 REFERENCES

[USFWS] U.S. Fish and Wildlife Service. 2000. Biological Opinion on Lost Canyons Residential Development, Simi Valley, Ventura County, California (File Number SPL-2008-00815-AJS). Ventura, CA: U.S. Fish and Wildlife Service. Dated January 2017.

Impact Sciences. 2010. Whiteface Specific Plan Amendment 6: Lost Canyons Final Environmental Impact Report Volume I Section 1.0–4.5 SCH #2008061111, Simi Valley, Ventura County, California.

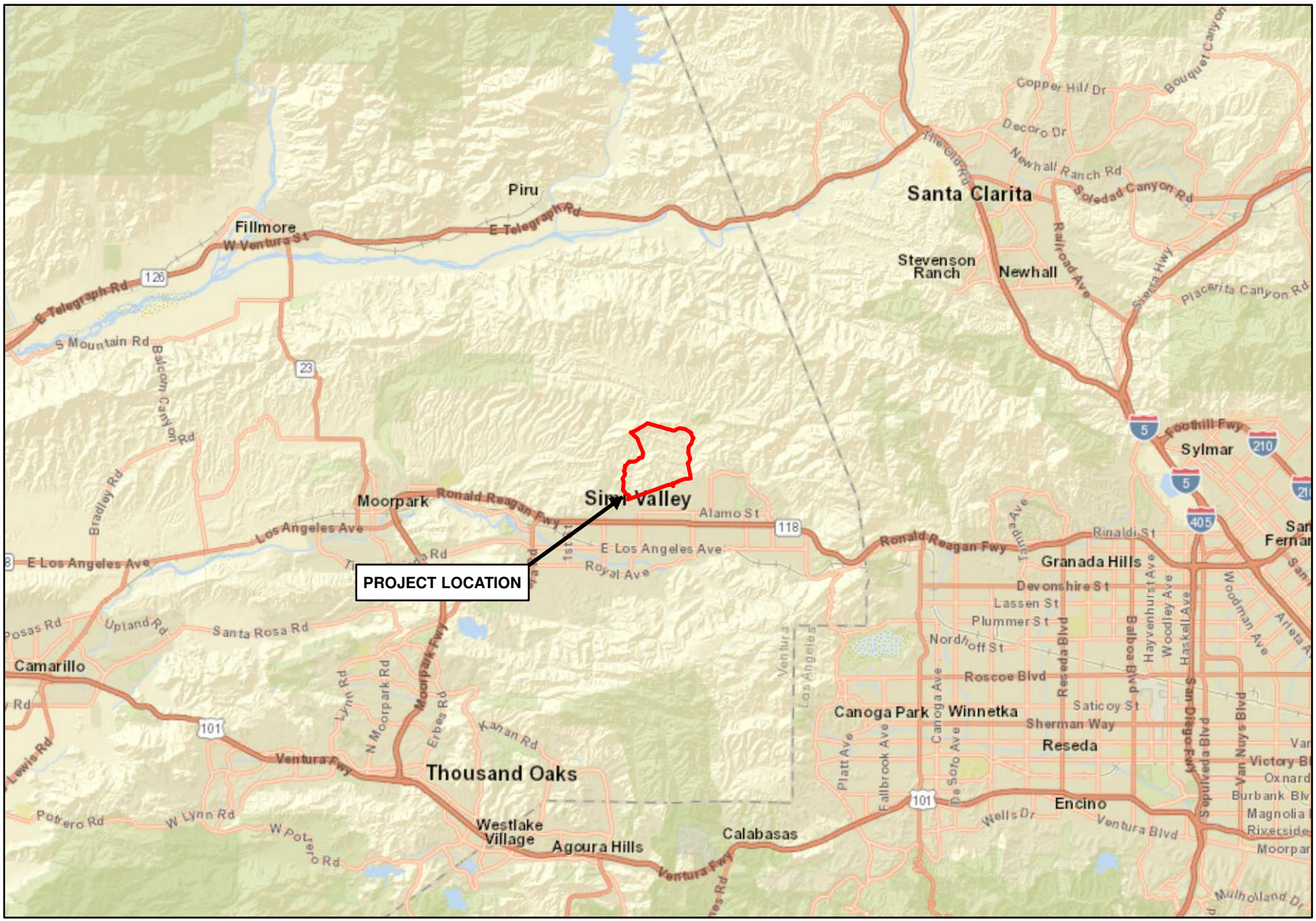
If you have any questions, please call me at (949) 340-2562.
Sincerely,

GLENN LUKOS ASSOCIATES, INC.



Jason Fitzgibbon
Senior Wildlife Biologist

p:1356-02a. reval letter report_v4-JF Final



Source: ESRI World Street Map

N

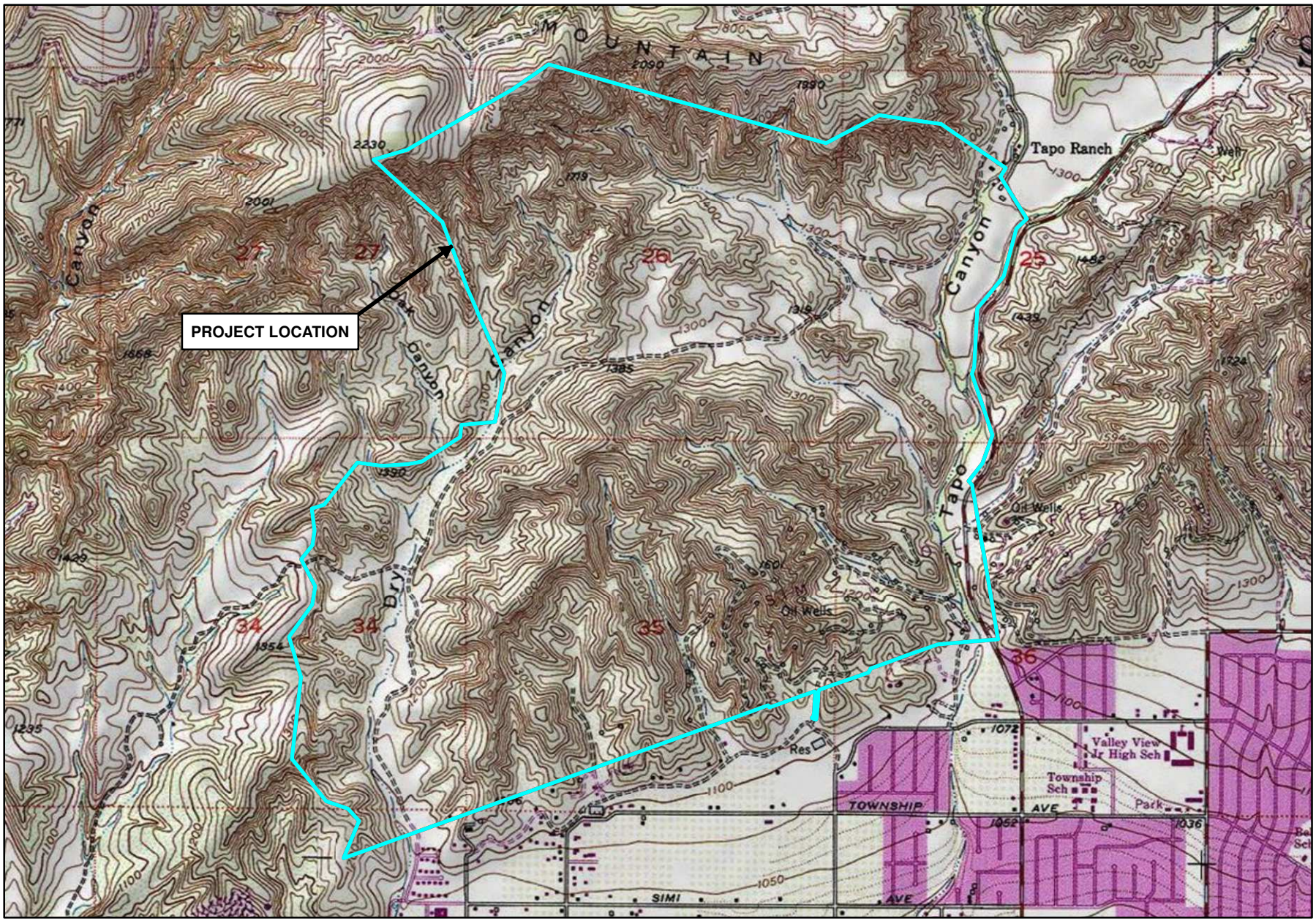
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LOST CANYONS PROJECT

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1



Adapted from USGS Simi Valley East & Simi Valley West, CA quadrangle

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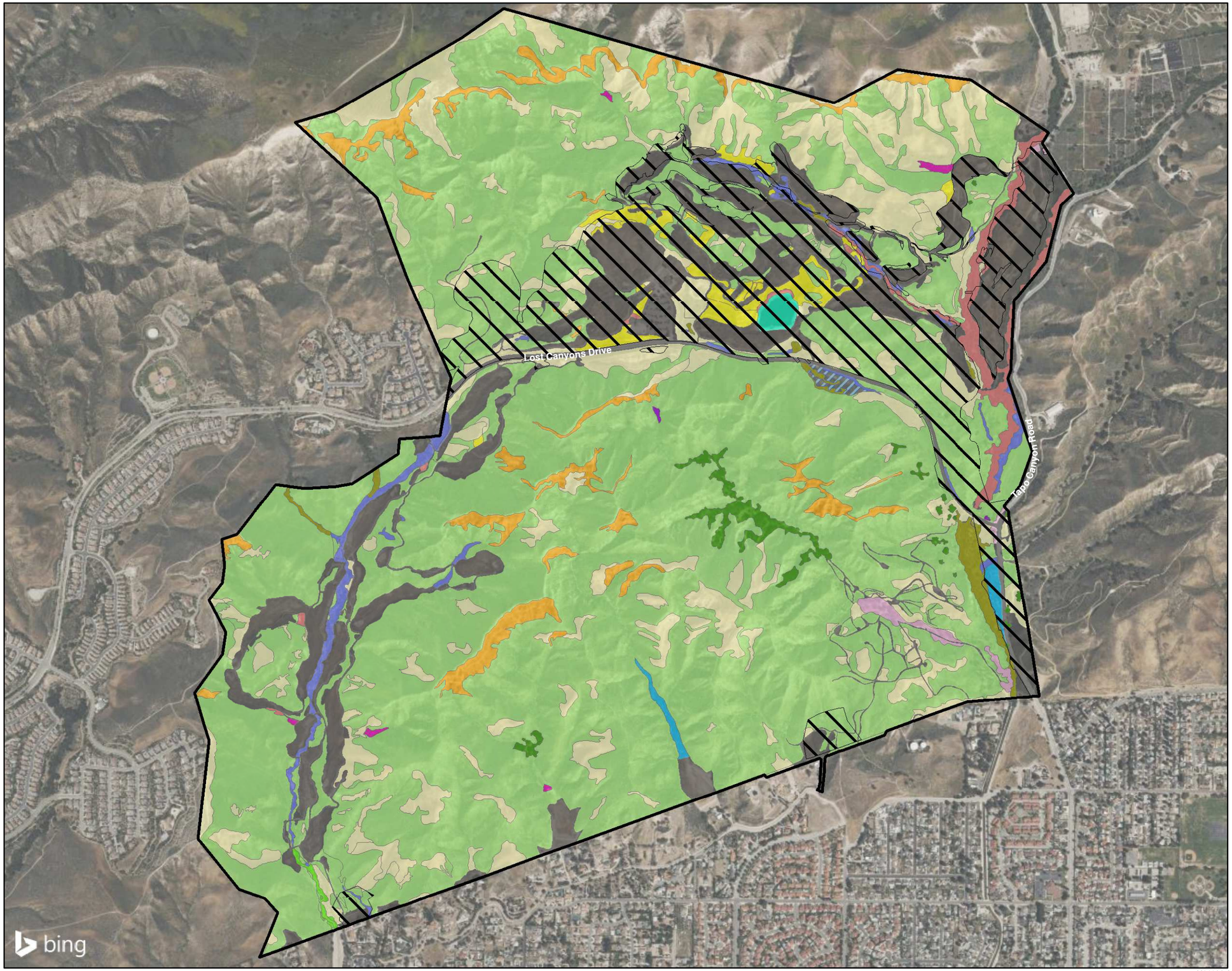
0 1,000 2,000 4,000 Feet

LOST CANYONS PROJECT

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2



- Project Site
- Proposed New TTM
- Alluvial Sage Scrub
- Bare
- Coastal Sage Scrub
- Coyote Brush Scrub
- Disturbed
- Disturbed Coastal Sage Scrub
- Elderberry Scrub
- Mulefat Scrub
- Non-native Grassland
- Oak Woodland
- Ornamental
- Southern Willow Scrub
- Water
- Western Sycamore Woodland
- Wetland
- Southern Mixed Riparian Forest

N

0 575 1,150 2,300

Feet

1 inch = 1,150 feet

The project site boundary depicted was certified by RTM and NPLC

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: North American 1983
Map Prepared by: K. Kartunen, GLA
Date Prepared: February 21, 2025

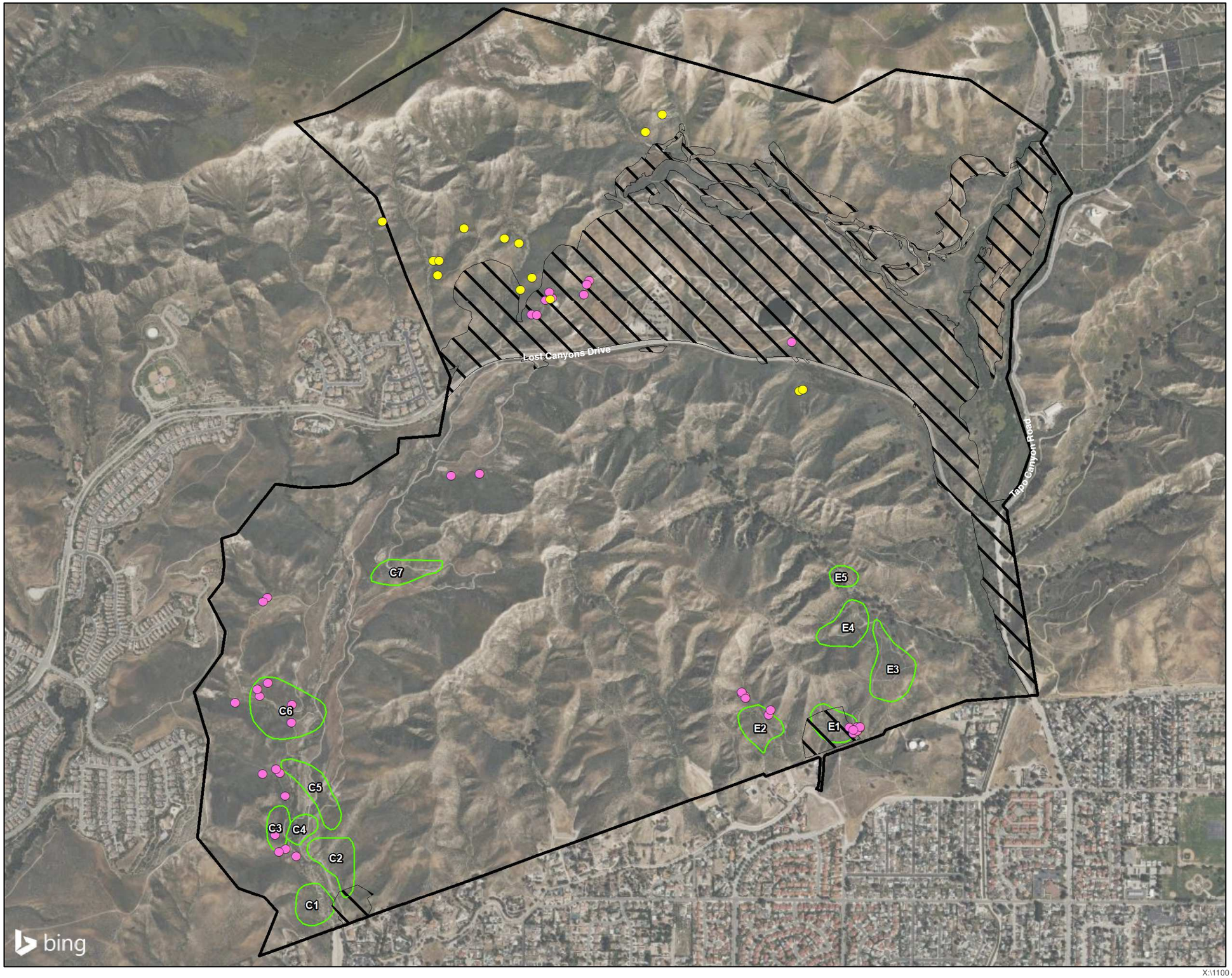
LOST CANYONS PROJECT

Vegetation Map

GLENN LUKOS ASSOCIATES

Exhibit 3

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Project Site

Proposed New TTM

CAGN Territory - 2024

CAGN - 2013/2014

CAGN - 2016

N

0 575 1,150 2,300

Feet

1 inch = 1,150 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: North American 1983
Map Prepared by: K. Kartunen, GLA
Date Prepared: February 20, 2025

LOST CANYONS PROJECT

CAGN Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4

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APPENDIX E

AIR QUALITY ASSESSMENT MEMORANDUM

Michael Baker INTERNATIONAL

We Make a Difference

MEMORANDUM

To: Rick Nelson, Newport Pacific Land Company

From: Darshan Shivaiah, Michael Baker International

Date: November 12, 2025

Subject: Lost Canyons 180 Lots Transfer Project – Air Quality Assessment

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PURPOSE AND BACKGROUND

The purpose of this technical memorandum is to evaluate potential short- and long-term air quality impacts that would result from the construction and operation of the proposed Lost Canyons 180 Lot Transfer Project (project), located within the City of Simi Valley (City). The project is within the scope of buildout of the Whiteface Specific Plan (Specific Plan), which was analyzed in the *Whiteface Specific Plan Amendment 6* (approved project)*: Lost Canyons Final Environmental Impact Report*, dated November 2010 (2010 EIR). This memorandum compares the project's impacts with the impacts identified for the approved project in the 2010 EIR.

The City adopted the Specific Plan in 1992 for an approximately 1,770-acre project site consisting of two neighboring valleys (Dry and Tapo Canyons) located at the base of Big Mountain, and proposed sites for a residential community referred to as, "Lost Canyons." The 2010 EIR evaluated the approved project which consisted of various land uses, including a mix of residential types, natural open space, a multi-purpose trail system, and an area for the development of a golf course and related commercial recreational amenities. Specifically, the approved project includes the following land uses:

- 364 single-family dwelling units (located within a private gated community)
- Private 18-hole golf course (located within a private gated community)
- Private neighborhood park (located within a private gated community)
- Private 25 Golf Course Member Suite (located within a private gated community)
- Private approximately 6,000 square-foot service-oriented commercial use (located within a private gated community)
- Public trail head with public parking lot

The proposed project would internally relocate 180 dwelling units from Dry Canyon and Tapo Canyon, south of Lost Canyons Drive, to the Clubcore area, north of Lost Canyons Drive that were included in the approved project. This reflects a zero-sum net change in the total number of dwelling units and is an equal transfer of units within the overall residential land uses evaluated in the 2010 EIR. While the 2010 EIR evaluated multiple components and various land uses, the overall total dwelling units remains at 364 single-family dwelling units. The proposed density transfer of 180 lots would occur internally within the area evaluated in the 2010 EIR and would not result in an addition of land uses compared to what was

previously analyzed in the 2010 EIR. Therefore, as the project does not propose new land uses beyond those previously analyzed in the 2010 EIR, the air pollutants emissions shown in this memorandum are for informational purposes only. Lots 363 and 364, located south of Lost Canyons Drive, was previously analyzed in the approved project; refer to Appendix A, *Concept Illustrative Exhibit Lots 363 & 364*. Implementation of the proposed project would relocate 180 dwelling units from Dry Canyon and Topo Canyon, south of Lost Canyons Drive, to the Clubcore area and would not impact or relocate these 2 lots. As such, the following technical memorandum would not evaluate impacts associated with these lots.

The proposed project would not include the development of a new private 18-hole golf course, a clubhouse, a private neighborhood park, or a public trail head with parking lot as was approved with the approved project. The proposed project proposes to provide private neighborhood parks within the new development, including a private recreation building for residents of the development. In addition, the existing public trailhead and parking lot located on the east side of the Lost Canyons Drive and Tapo Canyon Road intersection would remain and be dedicated to the Rancho Simi Recreation Park District (RSRPD). The project also proposes to construct a new trailhead off of Bennet Road.

PROJECT LOCATION

The City is roughly 42.25 square miles in the southeast portion of Ventura County (County), approximately 40 miles northwest of Downtown Los Angeles. The City borders the Santa Susana Mountains to the north, the Simi Hills to the east and south, and is adjacent to Thousand Oaks to the southwest and Moorpark to the west; refer to Exhibit 1, *Regional Vicinity Map.*

Dry Canyon and Tapo Canyon, two neighboring valleys located at the base of Big Mountain, consist of the proposed residential community named Lost Canyons; refer to Exhibit 2, *Site Vicinity*. Regional access to the project site is provided via State Route (SR) 118. Local access to the project site is provided via Lost Canyons Drive, Erringer Road, and Tapo Canyon Road.

EXISTING SITE CONDITIONS

The Specific Plan area is located north of Lost Canyons Drive in the City of Simi Valley. Existing uses on the site include two graded 18-hole golf courses, a clubhouse, and associated facilities such as a cart barn, driving range, parking lot, and open space, which is permanently closed.

According to the *Simi Valley General Plan* (General Plan), Land Use Map, the General Plan designates the residential community Residential Medium Density.[1] According to the City's Zoning Map, the proposed residential community is zoned Residential Medium Density.[2]

[1] City of Simi Vally, *City of Simi Valley General Plan, Land Use Map*, 2023, https://www.simivalley.org/home/showpublisheddocument/24714/638289835458270000, accessed September 1, 2024.

[2] City of Simi Valley, *Zoning Simi Valley*, https://www.arcgis.com/apps/mapviewer/index.html?webmap=b20ec935fa594a90a6e7128fd4f96268&extent=-118.859,34.2101,-118.6054,34.3319, accessed September 1, 2024.



Michael Baker INTERNATIONAL

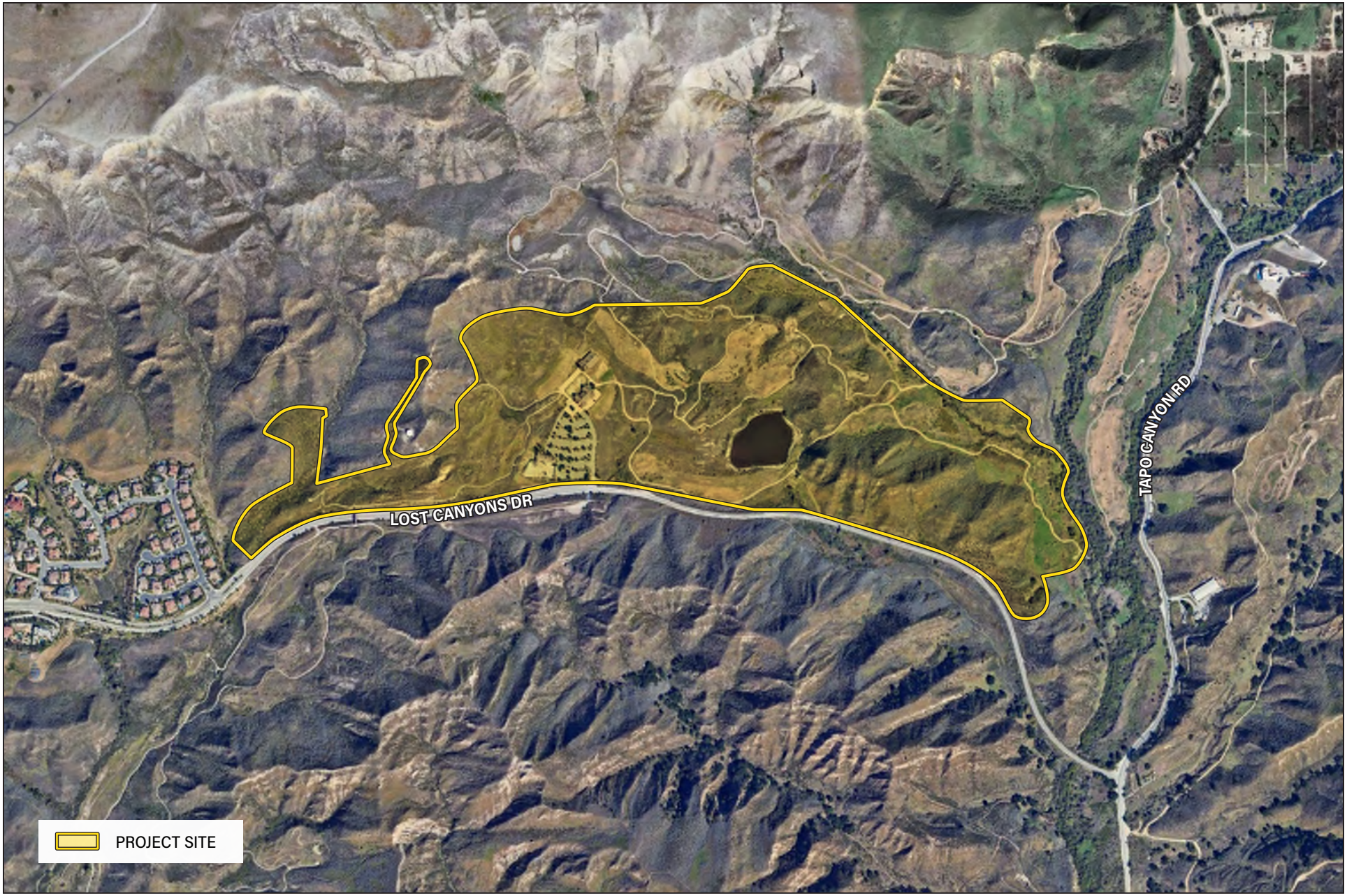
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10/24 • JN 200855

LOST CANYONS 180 LOTS TRANSFER PROJECT
AIR QUALITY ASSESSMENT

Regional Vicinity

Exhibit 1



Source: Google Earth Pro, October 2025

Michael Baker INTERNATIONAL

NOT TO SCALE

10/2025 • JN 200855

LOST CANYONS 180 LOTS TRANSFER PROJECT
AIR QUALITY ASSESSMENT

Site Vicinity Map

Exhibit 2

PROJECT DESCRIPTION

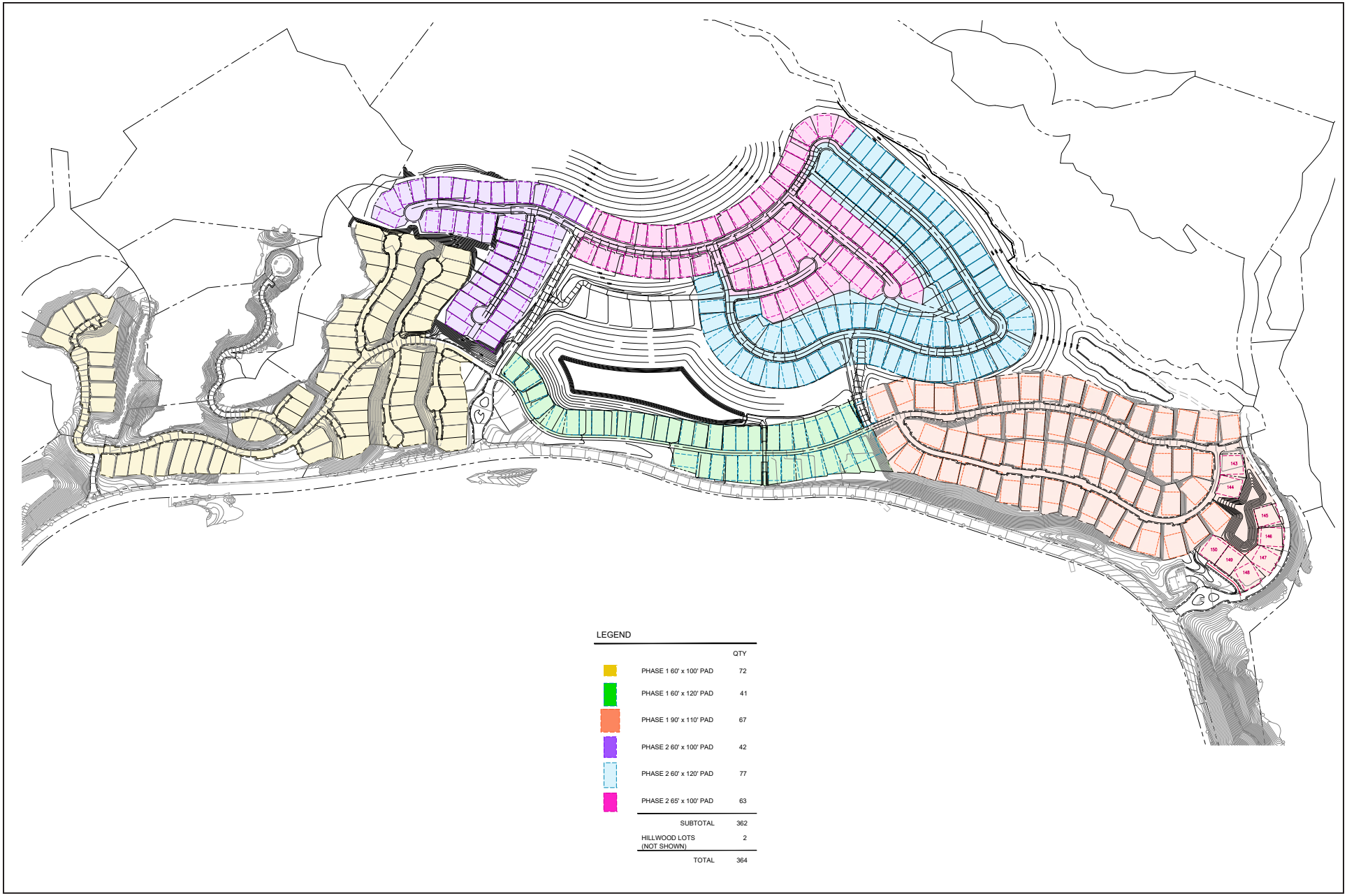
The proposed project would internally relocate 180 dwelling units from Dry Canyon and Topo Canyon, south of Lost Canyons Drive, to the Clubcore area (former golf course), north of Lost Canyons Drive; refer to Exhibit 3, *Conceptual Site Plan*. This reflects a zero-sum net change in the total number of dwelling units and is an equal transfer of units within the overall residential land uses proposed within the 2010 EIR. The overall total dwelling units remains at 364 single-family dwelling units for the Lost Canyons Project. Ultimately, 362 lots are planned north of Lost Canyons Drive and 2 lots south of Lost Canyons Drive, including one lot in Dry Canyon and another lot in Tapo Canyon South, both accessible on the southern property boundary from existing easements.

Construction of proposed 364 single-family dwelling units would occur in two phases. Phase 1 would include construction of 180 residential lots and Phase 2 would include construction of 184 residential lots. For purposes of this analysis, the project is the transfer of 180 lots as part of the Phase 2 184-lot phase of the Lost Canyons Project.

Construction activities for Phase 1 is anticipated to begin in 2025 and would consist of demolition, grading, building construction, paving, and architectural coating. Construction activities for Phase 2 could begin in 2027 and would include grading, building construction, paving, and architectural coating. The project would demolish approximately 31,300 square feet of buildings during Phase 1 demolition. Earthwork would be balanced on-site.

CRITERIA AIR POLLUTANTS

Air quality is a general description of how levels of air pollution and other atmospheric conditions can affect public health and the environment. Under the Federal Clean Air Act (FCAA), the U.S. Environmental Protection Agency (USEPA) has identified six air pollutants that are environmentally prevalent and produced by human activities that are of concern with respect to health, the environment, and welfare of the public. These specific pollutants, known as criteria air pollutants, are pollutants for which the federal and state governments have established ambient air quality standards—or criteria—for outdoor concentrations to protect public health. These pollutants are common byproducts of human activities and have been documented through scientific research to cause various adverse health effect outcomes. The federal ambient concentration criteria are known as the National Ambient Air Quality Standards (NAAQS), and the California ambient concentration criteria are referred to as the California Ambient Air Quality Standards (CAAQS). The criteria air pollutants regulated at the federal level include carbon monoxide (CO), ground-level ozone (O_3), nitrogen dioxide (NO_2), respirable particulate matter ten microns or less in diameter (PM_{10}), fine particulate matter 2.5 microns or less in diameter ($PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb).



Source: RTM Engineering Consultants, October 2024

Michael Baker INTERNATIONAL

NOT TO SCALE

10/2024 • JN 200855

LOST CANYONS 180 LOTS TRANSFER PROJECT
AIR QUALITY ASSESSMENT

Conceptual Site Plan

Exhibit 3

Carbon Monoxide (CO)

Carbon monoxide is a colorless, odorless gas primarily emitted from combustion processes and motor vehicles due to incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO is a localized pollutant that is found in high concentrations only near its source; therefore, elevated concentrations are usually only found near areas of high traffic volumes. Other sources of CO include the incomplete combustion of petroleum fuels at power plants and fuel combustion from wood stoves and fireplaces during the winter. CO causes several health problems, including the aggravation of some heart diseases, reduced tolerance for exercise, impaired mental function, and impaired fetal development. At high levels of exposure, CO reduces the amount of oxygen in the blood, which may be fatal.

Ozone (O_3)

Ozone is a gas that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NO_X), both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. As a highly reactive molecule, O_3 readily combines with many different components of the atmosphere. Consequently, high O_3 levels tend to occur only while high VOC and NO_X levels are present to sustain the formation process, and O_3 levels rapidly decline once the precursors have been depleted. O_3 is considered a regional pollutant because its reactions occur on a regional rather than local scale. In addition, because O_3 requires sunlight to form, significant concentrations occur between the months of April and October. O_3 is a pungent, colorless, toxic gas with direct health effects on humans, including changes in breathing patterns, reduction of breathing capacity, increased susceptibility to infections, inflammation of lung tissue, and some immunological changes. Groups most sensitive to O_3 include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

Nitrogen Dioxide (NO_2)

Nitrogen dioxide is a nitrogen oxide compound produced by the combustion of fossil fuels, such as in both gasoline and diesel-powered internal combustion engines, and from point sources, such as power plants. NO_2 absorbs blue light, gives a reddish-brown cast to the atmosphere, and reduces visibility. The principal form of NO_X produced by combustion is nitric oxide, which reacts rapidly to form NO_2, creating the mixture of nitric oxide and NO_2. NO_2 is an acute irritant that can aggravate respiratory illnesses and symptoms. NO_2 may have negative impacts on those with existing illnesses, such as chronic pulmonary fibrosis and an increase in bronchitis in young children.

Particulate Matter (PM_{10} and $PM_{2.5}$)

Particulate matter pollution consists of very small liquid and solid particles floating in the air (e.g., soot, dust, aerosols, fumes, and mists) that can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. PM_{10} and $PM_{2.5}$ consist of extremely small, suspended particles or droplets 10 microns and 2.5 microns or smaller in diameter, respectively. Man-made sources of PM_{10} are agricultural operations, industrial processes, combustion of fossil fuels, construction, demolition operations, and entrainment of road dust into the atmosphere. Natural sources of PM_{10} include windblown dust, wildfire smoke, and sea spray salt. Elevated levels of PM_{10} can cause respiratory irritation, reduced lung function, aggravation of cardiovascular disease, and cancer in individuals. $PM_{2.5}$ is generally associated with combustion processes, as well as formation in the atmosphere as a secondary pollutant through chemical reactions. $PM_{2.5}$ is more likely to penetrate deeply into the lungs and poses a health threat to all groups but particularly to the elderly, children, and those with respiratory problems.

Elevated levels of $PM_{2.5}$ can cause respiratory stress, decreased lung function, and increased risk of long-term disease, such as chronic bronchitis, asthma, and lung cancer.

Sulfur Dioxide (SO_2)

Sulfur oxides (SO_X) are compounds of sulfur and oxygen molecules. SO_2 is classified in a group of highly reactive gases known as "oxides of sulfur." The largest sources of SO_2 emissions are from fossil fuel combustion at power plants and other industrial facilities. Other sources of SO_2 emissions include industrial processes, such as extracting metal from ore, and the burning of fuels with a high sulfur content by locomotives, large ships, and off-road equipment. SO_2 is linked to several adverse effects on the respiratory system, including aggravation of respiratory diseases, such as asthma and emphysema, and reduced lung function.

Volatile Organic Compounds (VOC)

Volatile Organic Compounds are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical reactions and/or may be toxic. Compounds of carbon (also known as organic compounds) have different levels of reactivity; that is, they do not react at the same speed or do not form O_3 to the same extent when exposed to photochemical processes. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints. Exceptions to the VOC designation include carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. The terms VOC and reactive organic gases (ROG) (see below) are often used interchangeably.

Reactive Organic Gases (ROG)

Like VOCs, Reactive Organic Gases (ROGs) are also precursors in forming O_3 and consist of compounds containing methane, ethane, propane, butane, and longer chain hydrocarbons, which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and nitrogen oxides react in the presence of sunlight. The terms ROG and VOC are often used interchangeably.

Lead (Pb)

Lead is a metal found naturally in the environment, as well as in manufactured products. Historically, the major sources of Pb emissions have been mobile and industrial sources. Since the 1970s, the USEPA has set national regulations to gradually reduce the Pb content in gasoline. As a result of phasing out leaded gasoline, metal processing is the current primary source of Pb emissions. The highest level of Pb in the air is generally found near Pb smelters. Other stationary sources include waste incinerators, utilities, and lead-acid battery manufacturers. The health impacts of Pb include behavioral and hearing disabilities in children and nervous system impairment.

Toxic Air Contaminants (TACs)

Toxic air contaminants are air pollutants that may cause or contribute to an increase in deaths or serious illness, or that may pose a present or potential hazard to human health. TACs are different than criteria pollutants because ambient air quality standards have not been established for TACs. One of the main sources of TACs in California is diesel engine exhaust that contains solid material known as diesel

particulate matter (DPM). TACs include both organic and inorganic chemical substances that may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. Exposure to TACs may result in long-term health effects, such as cancer, birth defects, neurological damage, asthma, or genetic damage; or short-term acute effects, such as eye watering, respiratory irritation, runny nose, throat pain, and headaches. TACs are considered either carcinogenic or non-carcinogenic based on the nature of the health effects associated with exposure. For carcinogenic TACs, potential health impacts are evaluated in terms of overall relative risk expressed as excess cancer cases per one million exposed individuals. Non-carcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. TAC impacts are described by carcinogenic risk and by chronic (i.e., long duration) and acute (i.e., severe but of short duration) adverse effects on human health.

VALLEY FEVER

Coccidioidomycosis, more commonly known as "Valley Fever," is primarily a disease of the lungs caused by the spores of the *Coccidioides immitis* fungus. The spores are found in soils, become airborne when the soil is disturbed, and are subsequently inhaled into the lungs. After the fungal spores have settled in the lungs, they change into a multicellular structure called a spherule. Fungal growth in the lungs occurs as the spherule grows and bursts, releasing endospores, which then develop into more spherules.

Valley Fever symptoms occur within two to three weeks of exposure. Approximately 60 percent of Valley Fever cases are mild and display flu-like symptoms or no symptoms at all. Of those who are exposed and seek medical treatment, the most common symptoms include fatigue, cough, loss of appetite, rash, headache, and joint aches. In some cases, painful red bumps may develop on the skin. One important fact to mention is that these symptoms are not unique to Valley Fever and may be caused by other illnesses as well. Identifying and confirming this disease require specific laboratory tests such as: (1) microscopic identification of the fungal spherules in infected tissue, sputum, or body fluid sample; (2) growing a culture of *Coccidioides immitis* from a tissue specimen, sputum, or body fluid; (3) detection of antibodies (serological tests specifically for Valley Fever) against the fungus in blood serum or other body fluids; and (4) administering the Valley Fever Skin Test (called coccidioidin or spherulin), which indicate prior exposure to the fungus. Valley Fever is not contagious, and therefore, cannot be passed on from person to person. Most of those who are infected would recover without treatment within six months and would have a life-long immunity to the fungal spores. In severe cases, especially in those patients with rapid and extensive primary illness, those who are at risk for dissemination of disease, and those who have disseminated disease, antifungal drug therapy is used. The type of medication used, and the duration of drug therapy are determined by the severity of disease and response to the therapy. The medications used include ketoconazole, itraconazole and fluconazole in chronic, mild-to-moderate disease, and amphotericin B, given intravenously or inserted into the spinal fluid, for rapidly progressive disease. Although these treatments are often helpful, evidence of disease may persist, and years of treatment may be required. The usual course of Valley Fever in healthy people is complete recovery within six months. In most cases, the body's immune response is effective, and no specific course of treatment is necessary. About five percent of cases of Valley Fever result in pneumonia (infection of the lungs), while another five percent of patients develop lung cavities after their initial infection with Valley Fever. These cavities occur most often in older adults, usually without symptoms, and about 50 percent of them disappear within two years. Occasionally, these cavities rupture, causing chest pain and difficulty breathing, and require surgical repair. Only one to two percent of those exposed who seek medical attention would develop a disease that disseminates (spreads) to other parts of the body other than the lungs.

Factors that affect the susceptibility to coccidioidal dissemination are race, sex, pregnancy, age, and immunosuppression. While there are no racial or gender differences in susceptibility to primary infection with coccidioidomycosis, differences in risk of disseminated infection do appear to exist. Men have a higher rate of dissemination than do women and several studies have shown that the rate of dissemination in African Americans and Filipinos is several times higher than in the rest of the U.S. population. Native Americans, Hispanics, and Asians may also have a higher rate of dissemination than the general population, but these population differences are not well defined.

The *Coccidioides immitis* fungal spores are often found in the soil around rodent burrows, Indian ruins, and burial grounds. The spores become airborne when the soil is disturbed by winds, construction, farming, and soil disturbing activities. This type of fungus is endemic to the southwestern United States. The City is in an area designated as suspected endemic for Valley Fever by the Center for Disease Control and Prevention (CDC). [3]

ENVIRONMENTAL SETTING

Regional Topography

The CARB divides the State into 15 air basins that share similar meteorological and topographical features. The project site lies within the South Central Coast Air Basin (Basin). The Basin is an approximately 9,610 square mile area bounded by the Pacific Ocean to the west and the Pinos and Freeborn Mountain to the north and east. The Basin includes Ventura, Santa Barbara, and San Luis Obispo Counties. The Basin's terrain and geographical location (i.e., a coastal plain with connecting broad valleys and low hills) determine its distinctive climate.

The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of pollutants throughout the Basin.

Climate

The climate of the Ventura County area and all of the Basin is strongly influenced by its proximity to the Pacific Ocean and the location of the semi-permanent high-pressure cell in the northeastern Pacific Ocean. The Mediterranean climate of the region produces moderate average temperatures, although slightly more extreme temperatures can be reached in the winter and summer. The closest climate monitoring site to the City with available recent year data is the Oxnard monitoring site. The average high temperature is up to 74.8°F during the month of September and average low temperature is 65.5°F during the month of January. The annual average precipitation is 14.82 inches. Rainfall occurs most frequently in February, with an average rainfall of 3.33 inches.[4]

The height of the inversion is important in determining pollutant concentration. An inversion is defined as a layer of the atmosphere in which the temperature increases as elevation increases. When the inversion is approximately 2,500 feet above sea level, the sea breezes carry the pollutants inland to escape

[3] Centers for Disease Control and Prevention, *More information about the estimated areas with blastomycosis, coccidioidomycosis (Valley fever), and histoplasmosis in the United States*, https://www.cdc.gov/fungal/pdf/more-information-about-fungal-maps-508.pdf, accessed September 27, 2024.

[4] Period of Record Monthly Climate Summary, *Oxnard, CA*, https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6569, accessed September 27, 2024.

over the mountain slopes or through the passes. At a height of 1,200 feet, the terrain prevents the pollutants from entering the upper atmosphere, resulting in a settlement in the foothill communities. Below 1,200 feet, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal Basin. Usually, inversions are lower before sunrise than during the day. Mixing heights for inversions are lower in the summer and more persistent, being partly responsible for the high levels of ozone (O_3) observed during the summer months in the Basin. Smog in southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods of time, allowing them to form secondary pollutants by reacting with sunlight.

The area in which the project is located offers clear skies and sunshine yet is still susceptible to air inversions. These inversions trap a layer of stagnant air near the ground, where it is then further loaded with pollutants. These inversions cause haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces, and other sources.

Local Ambient Air Quality

CARB monitors ambient air quality at approximately 250 air monitoring stations across the State. Air quality monitoring stations usually measure pollutant concentrations ten feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The closest air monitoring station to the project site that monitors O_3, NO_2, PM_{10}, and $PM_{2.5}$ is the Simi Valley – Cochran Street Monitoring Station located at 5400 Cochran Street, Simi Valley 93063. The closest air monitoring station to the project site that monitors CO is the Las Flores Canyon Number One Monitoring Site located at Calle Real & State Highway 1, in the City of Capitan. Local air quality data from 2021 to 2023 is provided in Table 1, *Measured Air Quality Levels*. Table 1 lists the monitored maximum concentrations and number of exceedances of federal/state air quality standards for each year.

Sensitive Receptors

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

The closest sensitive receptors to the project site are the residential areas located to the west (approximately 150 feet from the proposed project's boundary line) known as Glenmeadow neighborhood.

Table 1
Measured Air Quality Levels

Pollutant	Primary Standard		Year	Maximum Concentration[1]	Number of Days State/Federal Std. Exceeded
	California	Federal			
Ozone (O_3)[3] (1-hour)	0.09 ppm for 1 hour	NA[6]	2021 2022 2023	0.090 ppm 0.094 ppm 0.094 ppm	0/0 0/0 0/0
Ozone (O_3)[3] (8-hour)	0.070 ppm for 8 hours	0.070 ppm for 8 hours	2021 2022 2023	0.077 ppm 0.082 ppm 0.081 ppm	8/8 11/10 12/12
Carbon Monoxide (CO)[2] (1-hour)	20 ppm for 1 hour	35 ppm for 1 hour	2021 2022 2023	4.500 ppm 0.500 ppm 0.600 ppm	0/0 0/0 0/0
Nitrogen Dioxide (NO_2)[1,3]	0.18 ppm for 1 hour	0.100 ppm for 1 hour	2021 2022 2023	0.035 ppm 0.022 ppm 0.032 ppm	0/0 0/0 0/0
Fine Particulate Matter ($PM_{2.5}$)[3, 4]	No Separate Standard	35 µg/m³ for 24 hours	2021 2022 2023	60.0 µg/m³ 62.0 µg/m³ 19.9 µg/m³	NA/6 NA/5 NA/0
Coarse Particulate Matter (PM_{10})[3, 4, 5]	50 µg/m³ for 24 hours	150 µg/m³ for 24 hours[7]	2021 2022 2023	90.5 µg/m³ 103.7 µg/m³ 85.5 µg/m³	9/0 11/0 4/0

ppm = parts per million
µg/m³ = micrograms per cubic meter
NA = Not Applicable
PM_{10} = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less

Notes:
1. Maximum concentration is measured over the same period as the California Standards.
2. Data collected from the Las Flores Canyon Number One Monitoring Station located at Calle Real & State Hwy 1, Capitan, CA 93117.
3. Data collected from the Simi Valley-Cochran Street Monitoring Station located at 5400 Cochran Street, Simi Valley, CA 93063.
4. PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.
5. PM_{10} exceedances are based on State thresholds established prior to amendments adopted on June 20, 2002.
6. The Federal standard for 1-hour ozone was revoked in June 2005.
7. The Federal standard for average PM_{10} was revoked in December 2006.

Sources:
California Air Resources Board, *ADAM Air Quality Data Statistics*, http://www.arb.ca.gov/adam/, accessed September 27, 2024.
California Air Resources Board, *AQMIS2: Air Quality Data*, https://www.arb.ca.gov/aqmis2/aqdselect.php, accessed September 27, 2024.

REGULATORY SETTING

Federal

Federal Clean Air Act

The FCAA of 1970 and the FCAA Amendments of 1971 required the USEPA to establish NAAQS, which required the USEPA to adopt more stringent air quality standards or to include standards for other specific pollutants. The FCAA was amended in 1990 to address a large number of air pollutants that are known to cause or may reasonably be anticipated to cause adverse effects to human health or adverse environmental effects. A total of 188 specific pollutants and chemical groups were initially identified as hazardous air pollutants, and the list has been modified over time. The FCAA Amendments included new regulatory programs to control acid deposition and regulate the issuance of stationary source operating permits. These standards identify levels of air quality for "criteria" pollutants that are considered the

maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect the public health and welfare; refer to Table 2, *National and California Ambient Air Quality Standards*.

State

State Implementation Plan

The FCAA Amendments require that states submit and implement a State Implementation Plan (SIP) for areas not meeting air quality standards. In California, the SIP is a collection of documents that set forth the State's strategies for achieving the NAAQS and CAAQS—a compilation of new and previously submitted plans, programs (such as monitoring, modeling, and permitting), district rules, state regulations, and federal controls. CARB is the lead agency for all purposes related to the SIP under state law. Local air districts are responsible for preparing and implementing air quality attainment plans for pollutants for which the local air district is in non-compliance, and the plans are incorporated into the SIP.

California Clean Air Act (CCAA) and the California Air Resources Board

Clean Air Act permitting in California is the shared responsibility of the CARB, its 35 air pollution control agencies (districts), and USEPA Region 9. Generally, CARB plays an oversight role for permitting and does not issue any pre-construction or operating permits. However, the state agency provides significant support to agencies that need permitting assistance.

CARB administers the air quality policy in California. The CAAQS were established in 1969 pursuant to the Mulford-Carrell Act. These standards, shown with the NAAQS in Table 2, are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates. The CCAA, which was approved in 1988, requires that each local air district prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with the CAAQS. These AQMPs also serve as the basis for the preparation of the SIP for the State of California.

Like the USEPA, CARB also designates areas within California as either attainment or non-attainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as non-attainment for a pollutant if air quality data show that a state standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a state standard and are not used as a basis for designating areas as non-attainment.

Table 2
National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California[1]		Federal[2]	
		Standard[3]	Attainment Status	Standards[3,4]	Attainment Status
Ozone (O_3)	1 Hour	0.09 ppm (180 μg/m³)	**Nonattainment**	N/A	N/A[5]
	8 Hours	0.070 ppm (137 μg/m³)	**Nonattainment**	0.070 ppm (137 μg/m³)	**Nonattainment**
Particulate Matter (PM_{10})	24 Hours	50 μg/m³	**Nonattainment**	150 μg/m³	Attainment/Maintenance
	Annual Arithmetic Mean	20 μg/m³	**Nonattainment**	N/A	N/A
Fine Particulate Matter ($PM_{2.5}$)	24 Hours	No Separate State Standard		35 μg/m³	**Nonattainment**
	Annual Arithmetic Mean	12 μg/m³	**Nonattainment**	12.0 μg/m³	**Nonattainment**
Carbon Monoxide (CO)	8 Hours	9.0 ppm (10 mg/m³)	Attainment	9 ppm (10 mg/m³)	Attainment/Maintenance
	1 Hour	20 ppm (23 mg/m³)	Attainment	35 ppm (40 mg/m³)	Attainment/Maintenance
Nitrogen Dioxide (NO_2)[5]	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)	N/A	53 ppb (100 μg/m³)	Attainment/Maintenance
	1 Hour	0.18 ppm (339 μg/m³)	Attainment	100 ppb (188 μg/m³)	Attainment/Maintenance
Lead (Pb)[7,8]	30 days Average	1.5 μg/m³	Attainment	N/A	N/A
	Calendar Quarter	N/A	N/A	1.5 μg/m³	**Nonattainment**
	Rolling 3-Month Average	N/A	N/A	0.15 μg/m³	**Nonattainment**
Sulfur Dioxide (SO_2)[6]	24 Hours	0.04 ppm (105 μg/m³)	Attainment	0.14 ppm (for certain areas)	Unclassified/Attainment
	3 Hours	N/A	N/A	N/A	N/A
	1 Hour	0.25 ppm (655 μg/m³)	Attainment	75 ppb (196 μg/m³)	N/A
	Annual Arithmetic Mean	N/A	N/A	0.30 ppm (for certain areas)	Unclassified/Attainment
Visibility-Reducing Particles[9]	8 Hours (10 a.m. to 6 p.m., PST)	Extinction coefficient = 0.23 km@<70% RH	Unclassified	**No Federal Standards**	
Sulfates	24 Hour	25 μg/m³	Attainment		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 μg/m³)	Unclassified		
Vinyl Chloride[7]	24 Hour	0.01 ppm (26 μg/m³)	N/A		

Notes: μg/m³ = micrograms per cubic meter; ppm = parts per million; ppb = parts per billion; km = kilometer(s); RH = relative humidity; PST = Pacific Standard Time; N/A = Not Applicable

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and 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. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three 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/m³ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon 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.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
5. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (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.
6. 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 1-hour national 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 one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of ppb. California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
7. CARB has identified lead and vinyl chloride as 'toxic air contaminants' 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.
8. The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 μg/m³ as a quarterly average) remains in effect until one 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.
9. In 1989, CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: California Air Resources Board, *Ambient Air Quality Standards Chart,* http://www.arb.ca.gov/research/aaqs/aaqs2.pdf, May 4, 2016.

Regional

Ventura County Air Pollution Control District

The Ventura County Air Pollution Control District (VCAPCD) is one of California's 35 air quality management districts that have prepared AQMPs to accomplish a five-percent annual reduction in air emissions. VCAPCD adopted the 2022 Air Quality Management Plan (AQMP) on December 13, 2022. The primary purpose of the 2022 AQMP is to identify, develop, and implement strategies and control measures to meet the 2015 eight-hour ozone NAAQS – 70 parts per billion (ppb) as expeditiously as practicable by 2026 using local, state, and federal clean air programs. The 2022 AQMP incorporates Southern California Association of Governments' (SCAG) *2020-2045 Regional Transportation Plan/Sustainable Communities Strategy* (2020-2045 RTP/SCS) and motor vehicle emissions from CARB. Although SCAG recently adopted the 2024-2050 RTP/SCS, the VCAPCD has not adopted an updated AQMP. The 2022 AQMP relies on a multi-level partnership of governmental agencies at the Federal, State, regional, and local level. These agencies (EPA, CARB, local governments, SCAG, and the VCAPCD) are the primary agencies that implement the AQMP programs.

Air Pollutant Emissions Thresholds

The VCAPCD provides significance thresholds for both construction and operation of projects within the VCAPCD's jurisdiction. If the VCAPCD thresholds are exceeded, a potentially significant impact could result. However, ultimately the lead agency determines the thresholds of significance for impacts. If a project proposes development in excess of the established thresholds, as outlined in Table 3, *Ventura County Air Pollution Control District Emissions Thresholds*, a significant air quality impact may occur, and additional analysis is warranted to fully assess the significance of impacts. The project is located within the City of Simi Valley. As such, the project would utilize the City of Simi Valley significance threshold of 13.7 tons per year for ROG and NO_x as directed by the City of Simi Valley City Council. The VCAPCD has not established quantitative thresholds for particulate matter, which includes fugitive dust for either operation or construction.

Table 3
Ventura County Air Pollution Control District Emissions Thresholds

Location	Pollutant (tons per year)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
City of Simi Valley	13.7	13.7	-	-	-	-
Notes: ROG = reactive organic gases; NO_X = nitrous oxides; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter 10 microns in diameter or less; $PM_{2.5}$ = particulate matter 2.5 microns in diameter or less						
Source: Ventura County Air Pollution Control District, *Ventura County Air Quality Assessment Guidelines*, October 2003.						

Southern California Association of Governments

On September 3, 2020, the Regional Council of SCAG formally adopted the 2020-2045 RTP/SCS. The SCS portion of the 2020-2045 RTP/SCS highlights strategies for the region to reach the regional target of reducing greenhouse gases (GHGs) from autos and light-duty trucks by 8 percent per capita by 2020, and 19 percent by 2035 (compared to 2005 levels). Specially, these strategies are:

- Focus growth near destinations and mobility options;
- Promote diverse housing choices;

- Leverage technology innovations;
- Support implementation of sustainability policies; and
- Promote a green region.

Furthermore, the 2020-2045 RTP/SCS discusses a variety of land use tools to help achieve the state-mandated reductions in GHG emissions through reduced per capita vehicle miles traveled (VMT). Some of these tools include center-focused placemaking, focusing on priority growth areas, job centers, transit priority areas, as well as high quality transit areas and green regions.

The most recent 2024-2050 RTP/SCS was adopted by SCAG's Regional Council in April 2024. The 2024-2050 RTP/SCS outlines a vision for a more resilient and equitable future, with investment, policies, and strategies for achieving the region's shared goals through 2050. The 2024-2050 RTP/SCS sets forth a forecasted regional development pattern which, when integrated with the transportation network, measures, and policies, will reduce GHG emissions from automobiles and light-duty trucks and achieve the GHG emissions reduction target for the region set by the CARB. In addition, the 2024-2050 RTP/SCS is supported by a combination of transportation and land use strategies that outline how the region can achieve California's GHG-emission-reduction goals and federal Clean Air Act requirements. These are articulated in a set of Regional Strategic Investments, Regional Planning Policies, and Implementation Strategies. The Regional Planning Policies are a resource for County Transportation Commissions (CTCs) and local jurisdictions, who can refer to specific policies to demonstrate alignment with the 2024-2050 RTP/SCS when seeking resources from state or federal programs. The Implementation Strategies articulate priorities for SCAG efforts in fulfilling or going beyond the Regional Planning Policies.[5] While SCAG has adopted the 2024-2050 RTP/SCS, CARB has not yet certified it or approved SCAG's greenhouse gas emissions reduction calculations.

Local

City of Simi Valley

City of Simi Valley General Plan

The *City of Simi Valley General Plan* (General Plan), adopted in June 2012, contains the following goals related to air quality.

Natural Resources Element

Goal NR-9 Air Quality. Air Quality in the City and the Simi Valley environs is improved.

Policy NR-9.3 Improved Technology. Promote and implement state and federal regulations that improve transportation technology, vehicle mileage performance, and cleaner fuels.

Policy NR-9.5 Dust and Particulate Control. Adopt procedures to regulate and minimize particulate emissions from paved and unpaved roads, parking lots, and building construction activities.

[5] Southern California Association of Governments, *Connect SoCal: A Plan for Navigating to a Brighter Future (2024-2050 Regional Transportation Plan/Sustainable Communities Strategy)*, adopted April 4, 2024.

Policy NR-9.6 Construction and Operation. Evaluate development project applications, including for particulate matter, by using the procedures and thresholds established in the most recent version of the Ventura County Air Quality Assessment Guidelines as published by the Ventura County Air Pollution Control District, and ensure that projects incorporate all applicable construction and operation mitigation measures contained therein.

CALIFORNIA ENVIRONMENTAL QUALITY ACT THRESHOLDS

In accordance with the *California Environmental Quality Act Guidelines* (CEQA Guidelines), project impacts are evaluated to determine whether significant adverse environmental impacts would occur. This analysis will focus on whether the proposed project would result in new significant impacts or in a substantial increase in the severity of the prior impacts identified in the 2010 EIR for the approved project. If the proposed project results in new or substantially greater impacts, the environmental analysis will identify mitigation measures, if required, to reduce or avoid any potentially significant impacts that are identified. According to Appendix G of the CEQA Guidelines, the proposed project would have a significant impact related to air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan (refer to Impact Statement AQ-1);
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable Federal or State ambient air quality standard (refer to Impact Statement AQ-2);
- Expose sensitive receptors to substantial pollutant concentrations (refer to Impact Statement AQ-3); and/or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (refer to Impact Statement AQ-4).

SIGNIFICANCE CRITERIA AND METHODOLOGY

The Impact Analysis will estimate the construction-related and long-term operational air pollutant emissions of the proposed project based on construction schedule and land use types using the California Emissions Estimator Model version 2022.1 (CalEEMod).

As previously stated, the project proposes the internal density transfer of 180 lots within the Specific Plan area and would not result in an addition or reduction of land uses compared to what was previously analyzed in the 2010 EIR. While the 2010 EIR consists of multiple components and various land uses, only the residential component (364 single-family dwelling units) is analyzed as a part of this memorandum as the project does not propose any changes to other land uses, and the emissions shown in this report are for informational purposes only. The consistency with 2022 AQMP will also be analyzed. Impacts of the proposed project resulting in other emissions, such as those leading to odors, will be assessed qualitatively.

IMPACT ANALYSIS

AQ-1 WOULD THE PROJECT CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF THE APPLICABLE AIR QUALITY PLAN?

Level of Significance: Less Than Significant Impact.

The 2010 EIR demonstrated approved project consistency with the 2008 AQMP[6], which was the latest AQMP when the 2010 EIR was prepared. This was done by comparing actual population growth with the projected growth rates used in the 2008 AQMP. The EIR evaluated the approved project based on its location in the Simi Valley Growth Area. The 1995 AQMP forecasted a population of 131,207 for 2005. By June 30, 2009, the population was estimated at 123,751. The City of Simi Valley's Managed-Growth Plan projected a 2010 population of 131,205. The 2010 EIR concluded that the population was below both the VCAPCD and the City's projections when the 2010 EIR was prepared, and therefore is consistent with the 2008 AQMP, indicating less than significant impacts. Additionally, the 2010 EIR concluded that the approved project is consistent with the City of Simi Valley General Plan, with no increase in the number of proposed units, ensuring consistency with the 2008 AQMP.

The 2010 EIR also concluded that the approved project would implement several emission-reduction strategies from the 2008 AQMP. These included extending public bicycle paths and multi-use trails to encourage biking and walking. Recreational uses would be designed to promote non-vehicular transportation like walking and golf cart usage. Multi-purpose trails for pedestrians, non-motorized bicycles, and electric carts would be provided, along with parking for bicycles and electric vehicles in common areas. Overall, the approved project would align with the 2008 AQMP emission-reduction strategies and had a less than significant impact on air quality standards.

Population growth rates are indicators of future emissions from population-related categories. VCAPCD's *Ventura County Air Quality Assessment Guidelines* (dated October 2003) recommend using the most recent AQMP population forecasts for consistency analyses. In order to reduce emissions, the VCAPCD adopted the 2022 AQMP which establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving State and Federal air quality standards. The AQMP is a regional and multi-agency effort including the VCAPCD, CARB, SCAG, and EPA. The 2022 AQMP was adopted by the VCAPCD on December 13, 2022, and incorporates the latest scientific and technical information and planning assumptions, including the latest applicable growth assumptions from SCAG 2020-2045 RTP/SCS, and updated emission inventory methodologies for various source categories. According to VCAPCD's *Ventura County Air Quality Assessment Guidelines*, project consistency with the 2022 AQMP can be determined by comparing the actual population growth in the County with the projected growth rates used in the 2022 AQMP. The projected growth rate in population is used as an indicator of future emissions from population-related emission categories in the 2022 AQMP. These emission estimates are used, in part, to project the date by which the County will attain the federal ozone standard.

The proposed project would internally relocate 180 dwelling units that were included in the approved project from Dry Canyon and Tapo Canyon, south of Lost Canyons Drive, to the Clubcore area, north of Lost Canyons Drive. This reflects a zero-sum net change in the total number of dwelling units and is an equal transfer of units within the overall tentative tract map area. The overall total dwelling units remains at 364 single-family dwelling units for the Lost Canyons Project. The proposed density transfer would not

[6] Ventura County Air Pollution Control District, *Final Ventura County 2007 Air Quality Management Plan*, May 13, 2008.

change the land use designation and zoning of the project site compared to the land use designation for the project site that was previously analyzed in the General Plan. Therefore, the proposed project is consistent with the City of Simi Valley General Plan land use designation as it redistributes the proposed development within the Specific Plan. Further, as the number and type of residential units proposed would not change, the estimated population growth anticipated from the project also would not change. Therefore, the project would not have the potential to result in population growth in exceedance of what was predicted for the County of Ventura, and the project would be consistent with the 2022 AQMP.

Conclusion

The project would not result in new significant impacts and no substantial increase in the severity of previously identified impacts disclosed in the 2010 EIR would occur. Likewise, there are no changed circumstances involving new or more severe impacts and no new information of substantial importance requiring new analysis or project-specific mitigation measures.

Mitigation Measures: No new impacts related to Impact AQ-1 would occur compared to what was evaluated in the 2010 EIR. Therefore, no mitigation measures are required. No 2010 EIR mitigation measures apply to the proposed project.

AQ-2 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?

Level of Significance: Less Than Significant Impact with Mitigation Incorporated.

The 2010 EIR quantified the construction and operational emissions of the approved project and compared them to the VCAPCD's regional significance thresholds. It stated that neither the City nor the VCAPCD identified construction as a cause of significant air quality impacts, provided that standard construction control measures were implemented during construction activities. The 2010 EIR concluded that emissions during construction would not exceed VCAPCD's thresholds for VOC and NO_x with the recommended construction control measures in place.

Long-term operational impacts from mobile and stationary sources associated with the implementation of the approved project were analyzed and calculated using the Urban Emission (URBEMIS) 2007 computer model. The operational modeling assumed that 100 percent of all residential units would use natural gas appliances and include natural gas fireplaces. The 2010 EIR concluded that operational emissions would not exceed the applicable VCAPCD's thresholds for the City of Simi Valley. However, the prior environmental analysis of the entire Specific Plan determined that the Specific Plan as a whole would exceed the City's thresholds for VOC and NO_x. Therefore, the air quality impacts of the approved project were considered significant as part of the overall Specific Plan project.

Additionally, the approved project was subject to the operational mitigation measures identified in the 2010 EIR. The 2010 EIR concluded that impacts would be reduced to the extent feasible through the implementation of the 2010 EIR Mitigation Measures AQ-1 through AQ-4. Although these measures would reduce emissions, long-term impacts associated with the approved project would continue to contribute to air quality deterioration, as the Specific Plan as a whole would generate pollutant emissions in excess of VOC and NO_x thresholds. Therefore, impacts would be significant and unavoidable.

Construction

Short-term air quality impacts are predicted to occur during demolition, grading, building construction, paving, and architectural coating operations associated with implementation of the proposed project. Temporary air emissions would result from the following activities:

- Particulate (fugitive dust) emissions from grading and building construction; and
- Exhaust emissions from the construction equipment, hauling trucks, and motor vehicles of the construction crew.

The Lost Canyons Project's 364 homes would be constructed in two phases. Phase 1 is anticipated to begin in 2025 and would include demolition, grading, building construction, and architectural coating activities. Phase 2 construction activities could begin in 2027 and would include grading, building construction, and architectural coating activities. The Lost Canyons Project would demolish approximately 31,300 square feet of buildings during demolition. Earthwork would be balanced on-site. Phase 1 and Phase 2 construction activities would overlap and total emissions during the overlapping construction activities were also calculated. Refer to Appendix B, *Air Quality Emissions Data* for the detailed CalEEMod output. Table 4, *Construction Criteria Pollutant Emissions* summarizes the estimated total annual emissions of VOC (ROG), NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$ for the Lost Canyons Project.

Table 4
Construction Criteria Pollutant Emissions

Construction Emissions[2]	Pollutant (tons/year)[1,2]					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Phase 1 Emissions						
Year 2025	0.13	1.23	1.19	<0.01	0.15	0.08
Year 2026	0.36	3.07	3.82	0.01	0.38	0.20
Year 2027	0.17	1.35	2.13	<0.01	0.17	0.07
Year 2028	1.17	0.54	0.89	<0.01	0.07	0.03
Phase 2 Emissions						
Year 2026	0.24	2.09	2.19	<0.01	0.29	0.16
Year 2027	0.28	2.34	3.27	0.01	0.27	0.14
Year 2028	0.22	1.80	2.93	<0.01	0.21	0.09
Year 2029	1.21	0.64	1.10	<0.01	0.09	0.03
Total Emission during Overlapping Construction Phases						
Year 2026	0.60	5.16	6.01	<0.01	0.67	0.36
Year 2027	0.45	3.69	5.4	0.01	0.44	0.21
Year 2028	1.39	2.34	3.82	<0.01	0.28	0.12

Notes:
1. Emissions were calculated using CalEEMod version 2022.1. The higher emissions between summer and winter were presented as a conservative analysis.
2. Modeling assumptions include compliance with VCAPCD Rule 55 which requires: replace ground cover in disturbed areas quickly; water exposed surfaces three times daily; cover stockpiles with tarps; and limit speeds on unpaved roads to 15 miles per hour; and VCAPCD Rule 74.2 which requires low ROG paints not exceeding 50 grams ROG per liter.

As previously stated, the proposed density transfer of 180 lots would occur internally within the Specific Plan area and therefore, would not result in an addition or reduction of land uses compared to what was

previously analyzed in the 2010 EIR. Further, the 2010 EIR assumed construction would occur between the year 2011 and 2016. The proposed project would generate lower construction emissions than previously calculated for the approved project in the 2010 EIR, due to improved emission standards, cleaner fuel, and more efficient engines of the construction equipment in effect under current conditions. While the proposed Specific Plan amendment consists of multiple components and various land uses, only the residential component of the Lost Canyons Project (364 single-family dwelling units) is analyzed as a part of this assessment because that is the only change to the approved project. As such, the proposed project would not result in new impacts beyond those previously analyzed in the 2010 EIR and the emissions shown in Table 4 are for informational purposes only.

Fugitive Dust Emissions

Construction activities are a source of fugitive dust emissions that may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the project area. Fugitive dust emissions are associated with land clearing, ground excavation, cut-and-fill, and truck travel on unpaved roadways. Fugitive dust emissions vary substantially from day to day, depending on the level of activity, specific operations, and weather conditions. Fugitive dust from grading and construction is expected to be short-term and would cease upon project completion. It should be noted that most of this material is inert silicates, rather than the complex organic particulates released from combustion sources, which are more harmful to health.

Dust (larger than 10 microns) generated by such activities usually becomes more of a local nuisance than a serious health problem. Of particular health concern is the amount of PM_{10} generated as a part of fugitive dust emissions. PM_{10} poses a serious health hazard alone or in combination with other pollutants. $PM_{2.5}$ is mostly produced by mechanical processes. These include automobile tire wear, industrial processes such as cutting and grinding, and re-suspension of particles from the ground or road surfaces by wind and human activities such as construction or agriculture. $PM_{2.5}$ is mostly derived from combustion sources, such as automobiles, trucks, and other vehicle exhaust, as well as from stationary sources. These particles are either directly emitted or are formed in the atmosphere from the combustion of gases such as NO_X and sulfur oxides (SO_X) combining with ammonia. $PM_{2.5}$ components from material in the earth's crust, such as dust, are also present, with the amount varying in different locations.

The project would implement required VCAPCD dust control techniques (i.e., daily watering), limitations on construction hours, and adhere to VCAPCD Rule 55 (watering of inactive and active perimeters, truck hauling requirements, track out requirements, etc.), to reduce PM_{10} and $PM_{2.5}$ concentrations. The VCAPCD has not established PM_{10} and $PM_{2.5}$ thresholds of significance; however, the project would comply with the applicable dust reduction strategies as per the VCAPCD Rule 55 to reduce PM_{10} and $PM_{2.5}$ concentrations. Thus, consistent with the air quality impact analysis conclusions included in the 2010 EIR, PM_{10} and $PM_{2.5}$ emissions impacts associated with construction would be less than significant.

Construction Equipment and Worker Vehicle Exhaust

Exhaust emissions (e.g., NO_x and CO) from construction activities include emissions associated with the transport of machinery and supplies to and from the project site, emissions produced on-site as the equipment is used, and emissions from trucks transporting materials to/from the site. Therefore, consistent with the air quality impact analysis conclusions included in the 2010 EIR, air quality impacts from equipment and vehicle exhaust emissions associated with the 180-lot transfer would be less than significant.

ROG Emissions

In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O_3 precursors. As required, all architectural coatings for the proposed project structures would comply with VCAPCD Rule 74.2. Rule 74.2 provides specifications on painting practices as well as regulates the ROG content of paint to not exceed 50 grams per liter. Consistent with the impact findings in the 2010 EIR, ROG emissions impacts associated with the 180-lot transfer would be less than significant; refer to Table 4.

Total Construction Emissions

Table 4 summarizes the estimated total annual construction emissions of VOC (ROG), NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$ for the Lost Canyons Project, which includes the proposed project. The impact of the Lost Canyons Project would be less than the impact identified for the approved project in the 2010 EIR. As the proposed project reflects a zero-sum net change in the total number of dwelling units and is an equal transfer of units within the overall tentative tract map area, the project would result in no new or substantially greater construction impacts compared to what was evaluated in the 2010 EIR.

Naturally Occurring Asbestos

Asbestos is a term used for several types of naturally occurring fibrous minerals that are human health hazards when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by state, federal, and international agencies and was identified as a toxic air contaminant by CARB in 1986.

Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All of these activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed. According to the California Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report* (August 2000), serpentinite and ultramafic rocks are not known to occur within the vicinity of the project site.[7] Thus, there would be no impact in this regard.

Operations

Long-term air quality impacts typically consist of mobile source emissions generated from project-related traffic (i.e., motor vehicle use by residents and guests), and emissions from area and energy sources and are shown in Table 5, *Operational Criteria Pollutant Emissions*. Emissions associated with each of these sources were calculated and are discussed below. As previously stated, the proposed density transfer of 180 lots would occur internally within the Specific Plan area and therefore, would not result in an addition

[7] California Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report*, August 2000.

or reduction of land uses compared to what was previously analyzed in the 2010 EIR. While the proposed Specific Plan consists of multiple components and various land uses, only the residential component of the Lost Canyons Project (364 single-family dwelling units) is analyzed as a part of this assessment. As such, the proposed project would not result in new impacts beyond those previously analyzed in the 2010 EIR and the emissions shown in Table 5 are for informational purposes only.

Table 5
Project Operational Emissions

Scenario	Emissions (tons per year)[1]					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Phase 1 Emissions						
Area Source	1.56	0.01	0.92	<0.01	<0.01	<0.01
Energy Source	0.02	0.36	0.15	<0.01	0.03	0.03
Mobile Source	1.21	0.99	8.31	0.02	2.09	0.54
Total Phase 1 Annual Emission[2]	***2.79***	***1.36***	***9.39***	***0.02***	***2.12***	***0.57***
Total (Phase 1 and Phase 2) Emissions						
Area Source	3.16	0.02	1.86	<0.01	<0.01	<0.01
Energy Source	0.04	0.73	0.31	<0.01	0.06	0.06
Mobile Source	2.46	2.00	16.84	0.04	4.23	1.09
Total Project Emission[2]	***5.65***	***2.75***	***19.02***	***0.04***	***4.29***	***1.15***
Notes: 1. Emissions were calculated using CalEEMod, version 2022.1. 2. The numbers may be slightly off due to rounding.						
Refer to Appendix B for assumptions used in this analysis.						

Mobile Source

Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, ROG, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ are all pollutants of regional concern (NO_X and ROG react with sunlight to form O_3 [photochemical smog], and wind currents readily transport SO_X, PM_{10}, and $PM_{2.5}$). However, CO tends to be a localized pollutant, dispersing rapidly at the source.

Project-generated vehicle emissions have been estimated using CalEEMod. Based on the *Lost Canyons 180 Lot Transfer Project - Transportation* (Transportation Memo) prepared by Michael Baker International, dated November 10, 2025, the project would generate 3,483 trips per day without taking any trip credits from the existing golf course use. As discussed above, implementation of the proposed project would internally relocate 180 dwelling units and would reflect a zero-sum net change in the total number of dwelling units under the approved project. Thus, implementation of the proposed project would not result in an increase or decrease in mobile trips generated. Table 5 presents emissions generated by vehicle traffic associated with the Lost Canyons Project.

Area Source Emissions

Area source emissions would be generated from consumer products and architectural coatings. The project would use all electric landscaping equipment. However, this design feature has not been accounted in the modeling as a conservative analysis. Table 5 presents the Lost Canyons Project's criteria pollutant emissions from area sources.

Energy Source Emissions

Energy source emissions would be generated by electricity and natural gas (non-hearth) usage associated with the proposed project. The primary use of electricity and natural gas by the proposed project would be for space heating and cooling, water heating, ventilation, lighting, appliances, and electronics. The project would install high efficiency lighting, appliances, and solar ready roofs. However, as a conservative analysis, these project design features were not accounted in the modeling. Table 5 presents the Lost Canyons Project's criteria pollutant emissions from energy sources.

Total Operational Emissions

Table 5 presents the total operational emissions. In order to be consistent with the methodologies in the 2010 EIR, the Lost Canyons Project's operational emissions are compared with the Specific Plan's operational emissions for ROG and NO_x. Table 6, *Estimated Operational Emissions Comparison Specific Plan and Lost Canyons Project* shows the percentage of the emissions that the Lost Canyons Project is estimated to emit relative to the overall emissions of the Specific Plan. It should be noted that the proposed project reflects a zero-sum net change in the total number of dwelling units and is an equal transfer of units within the overall tentative tract map area. Therefore, the project would result in no new operational impacts compared to what was evaluated in the 2010 EIR.

Table 6
Estimated Operational Emissions Comparison Specific Plan and Lost Canyons Project

Emissions	Pollutant (tons/year)	
	ROG	NO_X
Lost Canyons Project[1]	5.65	2.75
Specific Plan[2]	93.69	74.21
Lost Canyons Project Percentage of Total Emissions	**6.03 %**	**3.71%**
VCAPCD Threshold for the City of Simi Valley[3]	13.7	13.7
Amount Specific Plan Emissions Exceed Threshold	79.99	60.51
Lost Canyons Project Proportion of Emissions Exceeding Threshold	**4.82**	**2.24**

Notes:
1. Refer to Table 5 of this memorandum. Higher emissions between summer and winter are presented.
2. 2010 EIR *Table 4.2-13, Estimated Operational Emissions Comparison Whiteface Specific Plan and Lost Canyons Project.*
3. Thresholds based off the Ventura County Air Quality Assessment Guidelines for the City of Simi Valley.

Air Quality Health Impacts

Adverse health effects induced by criteria pollutant emissions are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, and the number and character of exposed individual [e.g., age, gender]). In particular, ozone precursors VOCs and NOx affect air quality on a regional scale. Health effects related to ozone are therefore the product of emissions generated by numerous sources throughout a region. Existing models have limited sensitivity to small changes in criteria pollutant concentrations, and, as such, translating project-generated criteria pollutants to specific health effects or additional days of nonattainment would produce

meaningless results. In other words, the project's less than significant increases in regional air pollution from criteria air pollutants would have nominal or negligible impacts on human health.

As noted in the Brief of Amicus Curiae by the South Coast Air Quality Management District (SCAQMD), the SCAQMD acknowledged it would be extremely difficult, if not impossible to quantify health impacts of criteria pollutants for various reasons including modeling limitations as well as where in the atmosphere air pollutants interact and form. Further, as noted in the Brief of Amicus Curiae by the San Joaquin Valley Air Pollution Control District (SJVAPCD), SJVAPCD has acknowledged that currently available modeling tools are not equipped to provide a meaningful analysis of the correlation between an individual development project's air emissions and specific human health impacts.

The SCAQMD acknowledges that health effects quantification from ozone, as an example is correlated with the increases in ambient level of ozone in the air (concentration) that an individual person breathes. SCAQMD's Brief of Amicus Curiae states that it would take a large amount of additional emissions to cause a modeled increase in ambient ozone levels over the entire region. The SCAQMD states that based on their own modeling in the SCAQMD's 2012 Air Quality Management Plan, a reduction of 432 tons (864,000 pounds) per day of NO_X and a reduction of 187 tons (374,000 pounds) per day of VOCs would reduce ozone levels at highest monitored site by only nine parts per billion. As such, the SCAQMD concludes that it is not currently possible to accurately quantify ozone-related health impacts caused by NO_X or VOC emissions from relatively small projects (defined as projects with regional scope) due to photochemistry and regional model limitations. As the construction and operational air emissions from the proposed project would be less than significant, the project would have a less than significant impact for air quality health impacts as well.

Conclusion

In conclusion, both construction and operational air quality impacts resulting from the Lost Canyons Project, which includes the proposed project, would be less than significant. As the proposed project reflects a zero-sum net change in the total number of dwelling units and is an equal transfer of units within the overall tentative tract map area, the project would result in no new impacts compared to what was evaluated in the 2010 EIR. As such, the project would not result in new significant impacts and no substantial increase in the severity of previously identified impacts disclosed in the 2010 EIR would occur. Likewise, there are no changed circumstances involving new or substantially more severe impacts and no new information of substantial importance requiring a new analysis or project-specific mitigation measures for the proposed 180-lot transfer.

The 2010 EIR Mitigation Measures 4.2-1 and 4.2-2 detailed below require the project to comply with the applicable VCAPCD Air Quality Assessment Guidelines to minimize the generation of fugitive dust (PM_{10}), ROG, and NO_X emissions during construction. The 2010 EIR Mitigation Measure 4.2-3 requires the project to contribute to a Transportation Demand Management (TDM) fund which would be used to develop regional programs to offset air pollutant emissions associated with buildout of the proposed project. The total amount that would be contributed to an off-site TDM fund shall be based on a prorated amount. The prorated amount shall be calculated as a percentage of the total emissions by dividing the ROG and NO_x emissions generated by the proposed project, as shown in Table 6 above. Regardless, the proposed project would implement Mitigation Measures 4.2-1 through 4.2-4 to further reduce short-term construction and long-term operational emissions.

Mitigation Measures:

The following 2010 EIR mitigation measures apply to the proposed project. Changes that have been made are depicted as strike through and double underlined text.

4.2-1 During construction, the contractors shall implement the following control measures provided in the VCAPCD Air Quality Assessment Guidelines to minimize the generation of fugitive dust (PM_{10}), ROC, and NO_X:

- The area disturbed by clearing, grading, earth-moving, or excavation operations shall be minimized to the extent practicable to prevent excessive amounts of dust.

- Pre-grading/excavation activities shall include watering the areas to be graded or excavated before grading or excavation operations commences. Application of water (preferably reclaimed or non-potable, if available) should penetrate sufficiently to minimize fugitive dust during grading activities.

- Fugitive dust produced during grading excavation and construction activities shall be controlled by the following activities:

  (a) All trucks shall be required to cover their loads as required by California Vehicles Code Section 23114.
  (b) All graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on-site roadways, shall be treated to prevent fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally safe soil stabilization material, and/or roll-compaction as appropriate. Watering shall be done as often as necessary and reclaimed or non-potable water shall be used whenever possible.

- Graded and/or excavated inactive areas of the construction site shall be monitored at least weekly for dust stabilization. Soil stabilization methods, such as water and roll-compaction, and environmentally safe dust-control materials, shall be periodically applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area should be seeded and watered until grass growth is evident, or periodically treated with environmentally safe dust suppressants to prevent excessive fugitive dust.

- Signs limiting traffic to 15 miles per hour or less shall be posted on site.

- During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earth-moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on-site activities and operations from being a nuisance or hazard, either off site or on site. The site superintendent/supervisor shall use discretion in conjunction with the VCAPCD in determining when winds are excessive.

- Adjacent streets and roads shall be swept at least once per day, preferably at the end of the day if visible soil material is carried over to adjacent streets and roads.

- Personnel involved in grading operations, including contractors and subcontractors, should be advised to wear respiratory protection in accordance with California Division of Occupational Safety and Health regulations.

4.2-2 During construction, contractors shall comply with the following measures, as feasible, to reduce NO_X and ROC from heavy equipment as recommended by the VCAPCD in its Ventura County Air Quality Assessment Guidelines:

- Minimize equipment idling time.

- Maintain equipment engines in good condition and in proper tune as per manufacturer's specifications.

- Lengthen the construction period during smog season (May through October) to minimize the number of vehicles and equipment operating at the same time.

- Use alternatively fueled construction equipment, such as compressed natural gas (CNG), liquefied natural gas (LNG), or electric, if feasible.

4.2-3 The proposed project shall contribute to a Transportation Demand Management (TDM) fund to be used to develop regional programs to offset air pollutant emissions associated with buildout of the proposed project. The total amount that would be contributed to an off-site TDM fund shall be based on a prorated amount. The prorated amount shall be calculated as a percentage of the total emissions by dividing the ROG and NO_x emissions generated by this proposed project, as shown in Table 6, by the ROG and NO_x emissions generated by the Whiteface Specific Plan, as shown in Table 6. TDM funds shall be calculated based upon the methodology described in the VCAPCD Air Quality Assessment Guidelines. The VCAPCD Air Quality Assessment Guidelines recommend that all development projects with significant air quality impacts fully mitigate excess emissions through funding measures for at least three years, after buildout. The proposed project shall pay its fair share contribution of the cost to the TDM of the Whiteface Specific Plan for both ROC (6.03 percent of the Whiteface Plan) and NO_x (3.71 percent of the Whiteface Specific Plan); Table 6 shows the percentage of the emissions that the proposed project is estimated to emit relative to the Whiteface Specific Plan.

~~The estimated fee (in 2009 dollars) is calculated for a three year period to be $196,945 (based on $6.81 per pound per day ROG exceeded times 26.41 lbs/day (4.82 tons per year) exceeded/day times 365 days operated per year times 3 years after buildout = $196,945 for ROG and $9.91 per pound per day NO_x exceeded times 12.27 lbs/day (2.24 tons per year) exceeded/day times 365 days operated per year times 3 years after buildout = $133,190). While the cost of the off-site TDM fund is be calculated separately for ROC and NOx, the amount is based on only the higher of the two costs since funding will result in mitigation programs that reduce both pollutants.~~

Payment of fees shall be ~~re-calculated~~ calculated, based on the VCAPCD *Air Quality Assessment Guidelines* and amounts in effect*,* at the time final tract maps are approved and occur prior to issuance of building permits.

4.2-4 Only natural gas fireplaces shall be installed into new residential units.

AQ-3 WOULD THE PROJECT EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS?

Level of Significance: Less Than Significant Impact with the Mitigation Incorporated.

The 2010 EIR concluded less than significant CO hotspot impact as the 2010 EIR would not generate traffic that would contribute to potential adverse traffic impacts that may result in the formation of CO hotspots. The 2010 EIR further conducted a Health Risk Assessment to determine potential health risks associated with construction from the proposed project and concluded that the 2010 EIR would result in less than significant health impacts due to the short period of construction and lack of toxic air contaminants sources on-site during operation.

The 2010 EIR analyzed impacts from the Valley Fever as a part of the analysis in *Section 4.6: Hazards and Hazardous Materials*. The 2010 EIR concluded that construction activities during rainy winters, springs, or after wind and dust storms can expose workers to Valley Fever spores present in the soil. This exposure can occur in both phases of the project, leading to potentially significant health impacts for construction workers and others in the area. The 2010 EIR included Mitigation Measures 4.6-7 through 4.6-9, which required use of respirators and air-conditioned equipment cabs during clearing, grading, and excavation, treating construction roads with dust control agents, and unpaved roads wetted twice daily to minimize dust and control of weed growth by mowing instead of discing to keep the ground undisturbed, with mulch covering used when possible. Therefore, with the implementation of these mitigation measures, impacts resulting from the Valley Fewer during approved project construction would be less than significant.

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

The closest sensitive receptors to the project site are the residential areas located to the west (approximately 150 feet from the proposed project's boundary line) known as Glenmeadow neighborhood.

Localized Air Quality Health Impacts

Construction

Project construction activities are anticipated to involve the operation of diesel-powered equipment, which would emit Diesel Particulate Matter (DPM). In 1998, the CARB identified diesel exhaust as a Toxic Air Contaminant (TAC). Cancer health risks associated with exposures to diesel exhaust typically are associated with chronic exposure, in which a 30-year exposure period often is assumed. The project would be constructed over two phases for a period of approximately five years. The proposed project would comply with the VCAPCD Rule 57.1, which requires fuel burning equipment to not emit particulate matter

emissions exceeding 0.12 pounds per million British thermal unit (BTU) of fuel input. Compliance with VCAPCD Rule 57.1 would reduce the amount of DPM emissions from the construction of the project.

As previously discussed, the closest sensitive receptors are single-family residences located approximately 150 feet to the west. The proposed project would generate lower construction emissions than previously calculated for the approved project in the 2010 EIR, due to improved emission standards, cleaner fuel, and more efficient engines of the construction equipment. Therefore, the proposed project would not result in additional localized air quality impact than what was previously concluded in the 2010 EIR Furthermore, the 2010 EIR concluded that the cancer risk resulting from the approved project construction activities would not exceed the VCAPCD significance threshold. As the proposed project would generate lower construction emissions than the approved project, construction of the proposed project is not anticipated to result in an elevated cancer risk to nearby sensitive receptors and the impact would be less than significant.

Operation

The project would transfer 180 single-family residential dwelling units. Residential development would result in very limited operation activities with potential health risks, including landscaping maintenance operations when required. These activities would not result in the generation of excessive TAC emissions, or associated health risks from the project's operation. Therefore, operation of the proposed project is not anticipated to result in an elevated cancer risk to nearby sensitive receptors and the impact would be less than significant.

Carbon Monoxide Hotspots

CO emissions are a function of vehicle idling time, meteorological conditions, and traffic flow. Under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthful levels (i.e., adversely affecting residents, school children, hospital patients, the elderly, etc.). The VCAPCD requires a quantified assessment of CO hotspots when a project would generate indirect emissions greater than the applicable ozone project significance thresholds (25 pounds per day of NO_X and ROG), and may significantly impact roadway intersections that are currently operating at, or are expected to operate at, Levels of Service (LOS) E or F. Because traffic congestion is highest at intersections where vehicles queue and are subject to reduced speeds, these hot spots are typically produced at intersections.

According to the Transportation Memo, the local roadway (Lost Canyons Drive) is classified as LOS A. Furthermore, none of the analyzed local roadways in the Transportation Memo would operate at LOS E or F under existing or future conditions, and the low volume of traffic (a maximum of 3,483 average daily trip per the approved project) generated would not significantly impact analyzed roadway intersections. As discussed above, implementation of the proposed project (internally relocating 180 dwelling units) would reflect a zero-sum net change in the total number of dwelling units. Thus, implementation of the proposed project would not result in an increase or decrease in mobile trips generated. Therefore, according to the VCAPCD guidelines, the project is not qualified for a quantified assessment of CO hotspots. Less than significant impacts would result in this regard.

Valley Fever

As discussed, above, the City and the project site are in an area designated as suspected endemic for Valley Fever by the CDC. Nearby sensitive receptors as well as construction workers could be exposed to Valley Fever from fugitive dust generated during project construction. construction activities would release the spores that cause Valley Fever, increases in Valley Fever tend to occur only after major ground-disturbing events. Other factors include disturbance of topsoil of undeveloped land (to a depth of 12 inches); dry, alkaline, sandy soils; virgin, undisturbed, non-urban areas; and special events (fairs, concerts, motocross track) on unvegetated soil. The VCAPCD has no recommended threshold for a significant Valley Fever impact. Further, the project would be required to comply with 2010 EIR Mitigation Measures 4.6-7 through 4.6-9, which requires the use of respirators and air-conditioned equipment cabs during clearing, grading, and excavation, treating construction roads with dust control agents, and unpaved roads wetted twice daily to minimize dust and control of weed growth by mowing instead of discing to keep the ground undisturbed, with mulch covering used when possible. Therefore, with compliance with VCAPCD Rules and implementation of 2010 EIR mitigation measures, impacts in this regard would be reduced to less than significant levels.

Conclusion

In conclusion, both construction and operational localized air quality impacts resulting from the proposed project would be less than significant with the implementation of 2010 EIR mitigation measures. As such, the project would not result in new significant impacts and no substantial increase in the severity of previously identified impacts disclosed in the 2010 EIR would occur. Likewise, there are no changed circumstances involving new or more severe impacts and no new information of substantial importance requiring new analysis or project-specific mitigation measures.

Mitigation Measures:

The applicable 2010 EIR mitigation measures are detailed below:

4.6-7 Work crews shall use respirators during project clearing, grading, and excavation operations, in accordance with California Division of Occupational Safety and Health regulations. The cabs of grading and construction equipment shall be air conditioned.

4.6-8 Construction roads shall be paved, when possible, to reduce fugitive dust and potential exposure to the fungus; or the access road into the project site shall be paved or treated with environmentally safe dust control agents and where unpaved shall be wetted two times per day to minimize dust.

4.6-9 Where acceptable to the Ventura County Fire Protection District, weed growth shall be controlled by mowing instead of discing, thereby leaving the ground undisturbed; a mulch covering shall also be used when possible.

AQ-4 WOULD THE PROJECT RESULT IN OTHER EMISSIONS (SUCH AS THOSE LEADING TO ODORS) ADVERSELY AFFECTING A SUBSTANTIAL NUMBER OF PEOPLE?

Level of Significance: Less Than Significant Impact.

The 2010 EIR proposed a master-planned community that includes private open spaces, multi-purpose public recreation trails, a private park, and up to 364 single-family detached homes. Since single-family homes, golf courses, and community-serving retail uses typically do not emit objectionable odors, and no odor-emitting facilities like wastewater treatment plants or refineries are nearby, the 2010 EIR determined that the approved project was not expected to generate or experience significant objectionable odors.

Construction

Construction activities associated with the project may generate detectable odors from heavy-duty equipment exhaust and architectural coatings. However, construction-related odors would be short-term in nature and cease upon project completion. In addition, the project would be required to comply with the California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485, which minimizes the idling time of construction equipment either by requiring equipment to be shut off when not in use or limiting idling time to no more than five minutes. Compliance with these existing regulations would further reduce the detectable odors from heavy-duty equipment exhaust. The project would also be required to comply with the VCAPCD Rule 74.2, which would require VOC contents of paint to not exceed 50 grams per liter. Any odor impacts to existing adjacent land uses would be short-term and negligible. As such, the project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. Impacts would be less than significant in this regard.

Operation

According to VCAPCD's Guidelines, land uses associated with odor complaints typically include wastewater treatment plants, landfills, composting, chemical plants, fiberglass operations, food processing facilities, dairies, rendering plants, refineries, and agricultural uses. The proposed project involves construction and operation of a residential uses and does not include any uses identified by the VCAPCD as being associated with odors. As such, operation of the proposed project would not generate odors that would impact nearby receptors and a less than significant impact would occur in this regard. The project would be required to comply with VCAPCD Rule 51 (Nuisance) which prohibits emission of any contaminants or materials, including odors, which causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person. Compliance with VCAPCD Rule 51 would ensure potential restaurant-related odors during operation would not create objectionable odors affecting a substantial number of people. As such, impacts would be less than significant in this regard.

Conclusion

In conclusion, both construction and operational odor impacts resulting from the proposed project would be less than significant. The project would not result in new significant impacts and no substantial increase in the severity of previously identified impacts disclosed in the 2010 EIR would occur. Likewise, there are no changed circumstances involving new or more severe impacts and no new information of substantial importance requiring new analysis or project-specific mitigation measures.

Mitigation Measures: No new impacts related to Impact AQ-4 would occur compared to what was evaluated in the 2010 EIR. Therefore, no project-specific mitigation measures are required. There are no applicable 2010 EIR mitigation measures.

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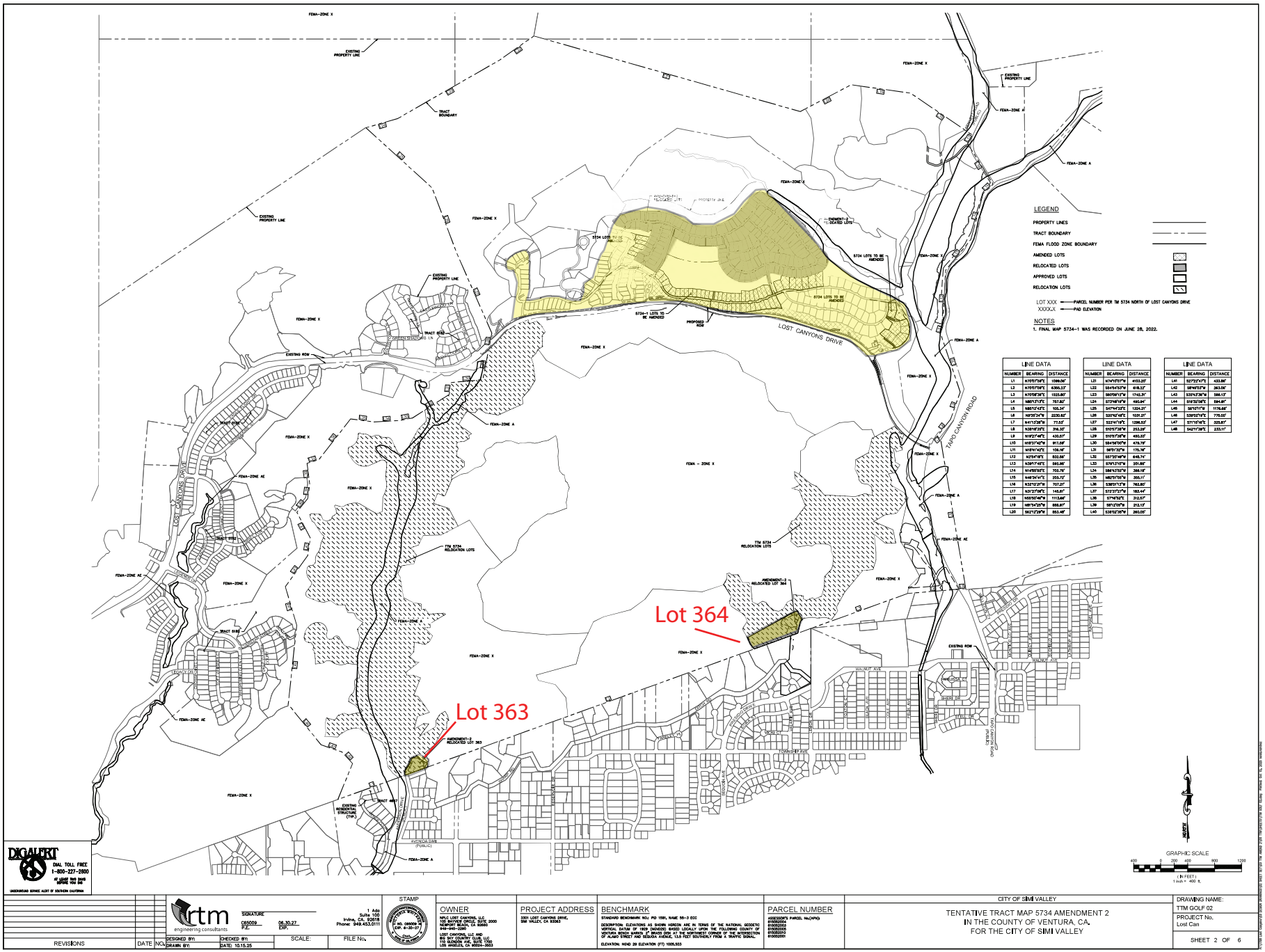
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Appendix A

Concept Illustrative Exhibit
Lots 363 & 364



LINE DATA		
NUMBER	BEARING	DISTANCE
L1	N79°57'57"E	1096.06'
L2	N75°07'08"E	6305.33'
L3	N75°08'36"E	1525.80'
L4	N80°17'17"E	707.82'
L5	N85°12'43"E	105.34'
L6	N9°35'24"W	2230.82'
L7	N41°13'28"W	77.53'
L8	N38°18'39"E	316.70'
L9	N19°27'48"E	435.01'
L10	N19°37'42"W	917.99'
L11	N19°41'42"E	138.16'
L12	N75°41'8"E	833.56'
L13	N39°17'48"E	883.96'
L14	N14°55'52"E	702.70'
L15	N48°34'41"E	253.72'
L16	N32°12'27"W	707.21'
L17	N31°27'06"E	145.97'
L18	N69°07'46"W	1113.66'
L19	N89°54'25"W	888.97'
L20	S82°12'29"W	853.46'

LINE DATA		
NUMBER	BEARING	DISTANCE
L21	N74°07'07"W	6133.25'
L22	S84°04'03"W	418.33'
L23	S80°09'13"W	1742.31'
L24	S73°49'18"W	480.94'
L25	S47°44'33"E	1224.21'
L26	S20°52'48"E	1031.21'
L27	S33°41'19"E	1296.55'
L28	S15°57'38"W	253.29'
L29	S19°57'38"W	480.33'
L30	S84°58'00"W	476.76'
L31	N6°51'32"W	175.76'
L32	S57°35'48"W	648.74'
L33	S76°17'19"W	201.85'
L34	S86°43'32"W	366.18'
L35	N45°57'56"W	355.11'
L36	S38°01'13"W	763.80'
L37	S72°37'37"W	183.44'
L38	S7°49'52"E	312.57'
L39	S9°10'05"W	212.15'
L40	S38°02'36"W	260.05'

LINE DATA		
NUMBER	BEARING	DISTANCE
L41	S37°52'47"E	453.86'
L42	S8°46'57"W	263.06'
L43	S33°43'36"W	566.13'
L44	S15°30'08"E	594.87'
L45	S6°15'11"W	1176.65'
L46	S35°01'47"E	775.00'
L47	S71°16'45"E	225.87'
L48	S42°17'39"E	233.11'

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STAMP

OWNER
WILD LOST CANYONS, LLC
100 BAYVIEW CIRCLE, SUITE 2000
NEWPORT BEACH, CA 92660
949-719-2200
LOST CANYONS, LLC AND
SAP VENTURES CLINE, LLC
115 ELDRIDGE AVE, SUITE 1700
LOS ANGELES, CA 90004-3503

PROJECT ADDRESS
3301 LOST CANYONS DRIVE,
SIMI VALLEY, CA 93063

BENCHMARK
STANDARD BENCHMARK NO.: PID 1585, NAME 55-3 EOC
DESCRIPTION: ELEVATIONS AS SHOWN HEREON ARE IN TERMS OF THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29) WHICH APPLY UPON THE FOLLOWING COUNTY OF VENTURA BENCH MARKS (2 BRASS DISC AT NE QUADRANT CONCRETE INTERSECTION OF ALAMO STREET AND MCLEAN AVENUE, 13.5 FEET SOUTHERLY FROM A TRAFFIC SIGNAL.
ELEVATION: NGVD 29 ELEVATION (FT) 1005.533

PARCEL NUMBER
ASSESSOR'S PARCEL No.(APN):
619060204
619060304
619060305
619060306
619060307

CITY OF SIMI VALLEY
TENTATIVE TRACT MAP 5734 AMENDMENT 2
IN THE COUNTY OF VENTURA, CA.
FOR THE CITY OF SIMI VALLEY

DRAWING NAME:
TTM GOLF 02
PROJECT No.
Lost Can
SHEET 2 OF 6

REVISIONS	DATE	NO.	DESIGNED BY:	CHECKED BY:	SCALE:	FILE No.
			DRAWN BY:	DATE: 10.15.25		

Michael Baker INTERNATIONAL

Not to Scale

Concept Illustrative

November 2025

H:\PDATA\200855_Lost Canyon Traffic\Traffic AWR 180 Lots\9_ Exhibits

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Lost Canyon Phase-1
Construction Start Date	6/1/2025
Operational Year	2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	23.0
Location	3301 Lost Canyons Dr, Simi Valley, CA 93065, USA
County	Ventura
City	Simi Valley
Air District	Ventura County APCD
Air Basin	South Central Coast
TAZ	3503
EDFZ	8
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.28

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Single Family Housing	180	Dwelling Unit	58.4	351,000	2,108,314	21,083	542	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	88.1	88.0	45.3	56.6	0.10	1.83	10.7	12.5	1.68	4.01	5.68	—	12,397	12,397	0.45	0.22	6.42	12,480
Mit.	88.1	88.0	45.3	56.6	0.10	1.83	3.86	5.69	1.68	1.30	2.98	—	12,397	12,397	0.45	0.22	6.42	12,480
% Reduced	—	—	—	—	—	—	64%	54%	—	68%	48%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.69	3.95	34.5	39.4	0.07	1.44	9.66	11.1	1.33	3.76	5.09	—	8,548	8,548	0.34	0.14	0.12	8,581
Mit.	4.69	3.95	34.5	39.4	0.07	1.44	2.85	4.29	1.33	1.06	2.38	—	8,548	8,548	0.34	0.14	0.12	8,581
% Reduced	—	—	—	—	—	—	70%	61%	—	72%	53%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.46	6.40	16.8	21.0	0.04	0.67	3.86	4.53	0.62	1.44	2.06	—	4,631	4,631	0.17	0.10	1.30	4,663

Mit.	6.46	6.40	16.8	21.0	0.04	0.67	1.43	2.10	0.62	0.48	1.10	—	4,631	4,631	0.17	0.10	1.30	4,663
% Reduced	—	—	—	—	—	—	63%	54%	—	67%	47%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.18	1.17	3.07	3.82	0.01	0.12	0.70	0.83	0.11	0.26	0.38	—	767	767	0.03	0.02	0.22	772
Mit.	1.18	1.17	3.07	3.82	0.01	0.12	0.26	0.38	0.11	0.09	0.20	—	767	767	0.03	0.02	0.22	772
% Reduced	—	—	—	—	—	—	63%	54%	—	67%	47%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.98	2.49	23.8	21.2	0.04	0.93	1.99	2.92	0.86	0.36	1.22	—	4,814	4,814	0.18	0.22	3.49	4,887
2026	6.29	5.30	45.3	56.6	0.10	1.83	10.7	12.5	1.68	4.01	5.68	—	12,397	12,397	0.45	0.22	6.42	12,480
2027	1.54	1.30	10.3	16.7	0.03	0.35	1.01	1.36	0.31	0.24	0.56	—	3,803	3,803	0.12	0.14	4.22	3,851
2028	88.1	88.0	9.79	16.5	0.03	0.30	1.01	1.32	0.28	0.24	0.52	—	3,775	3,775	0.11	0.13	3.79	3,821
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.90	3.28	29.8	29.5	0.06	1.23	9.47	10.7	1.14	3.72	4.85	—	6,854	6,854	0.28	0.06	0.03	6,880
2026	4.69	3.95	34.5	39.4	0.07	1.44	9.66	11.1	1.33	3.76	5.09	—	8,548	8,548	0.34	0.14	0.12	8,581
2027	1.54	1.29	10.4	16.4	0.03	0.35	1.01	1.36	0.31	0.24	0.56	—	3,767	3,767	0.12	0.14	0.11	3,811
2028	1.46	1.25	9.84	16.2	0.03	0.30	1.01	1.32	0.28	0.24	0.52	—	3,739	3,739	0.12	0.13	0.10	3,781
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.87	0.73	6.74	6.52	0.01	0.28	1.82	2.09	0.25	0.69	0.94	—	1,511	1,511	0.06	0.02	0.17	1,520
2026	2.34	1.97	16.8	21.0	0.04	0.67	3.86	4.53	0.62	1.44	2.06	—	4,631	4,631	0.17	0.09	1.11	4,663

2027	1.10	0.92	7.41	11.7	0.02	0.25	0.71	0.96	0.22	0.17	0.40	—	2,695	2,695	0.08	0.10	1.30	2,727
2028	6.46	6.40	2.97	4.90	0.01	0.09	0.31	0.40	0.08	0.07	0.16	—	1,126	1,126	0.03	0.04	0.50	1,139
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.16	0.13	1.23	1.19	< 0.005	0.05	0.33	0.38	0.05	0.13	0.17	—	250	250	0.01	< 0.005	0.03	252
2026	0.43	0.36	3.07	3.82	0.01	0.12	0.70	0.83	0.11	0.26	0.38	—	767	767	0.03	0.01	0.18	772
2027	0.20	0.17	1.35	2.13	< 0.005	0.05	0.13	0.17	0.04	0.03	0.07	—	446	446	0.01	0.02	0.22	451
2028	1.18	1.17	0.54	0.89	< 0.005	0.02	0.06	0.07	0.02	0.01	0.03	—	186	186	0.01	0.01	0.08	189

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.98	2.49	23.8	21.2	0.04	0.93	1.45	2.39	0.86	0.28	1.14	—	4,814	4,814	0.18	0.22	3.49	4,887
2026	6.29	5.30	45.3	56.6	0.10	1.83	3.86	5.69	1.68	1.30	2.98	—	12,397	12,397	0.45	0.22	6.42	12,480
2027	1.54	1.30	10.3	16.7	0.03	0.35	1.01	1.36	0.31	0.24	0.56	—	3,803	3,803	0.12	0.14	4.22	3,851
2028	88.1	88.0	9.79	16.5	0.03	0.30	1.01	1.32	0.28	0.24	0.52	—	3,775	3,775	0.11	0.13	3.79	3,821
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.90	3.28	29.8	29.5	0.06	1.23	2.65	3.89	1.14	1.01	2.15	—	6,854	6,854	0.28	0.06	0.03	6,880
2026	4.69	3.95	34.5	39.4	0.07	1.44	2.85	4.29	1.33	1.06	2.38	—	8,548	8,548	0.34	0.14	0.12	8,581
2027	1.54	1.29	10.4	16.4	0.03	0.35	1.01	1.36	0.31	0.24	0.56	—	3,767	3,767	0.12	0.14	0.11	3,811
2028	1.46	1.25	9.84	16.2	0.03	0.30	1.01	1.32	0.28	0.24	0.52	—	3,739	3,739	0.12	0.13	0.10	3,781
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.87	0.73	6.74	6.52	0.01	0.28	0.56	0.84	0.25	0.20	0.45	—	1,511	1,511	0.06	0.02	0.17	1,520
2026	2.34	1.97	16.8	21.0	0.04	0.67	1.43	2.10	0.62	0.48	1.10	—	4,631	4,631	0.17	0.09	1.11	4,663
2027	1.10	0.92	7.41	11.7	0.02	0.25	0.71	0.96	0.22	0.17	0.40	—	2,695	2,695	0.08	0.10	1.30	2,727

2028	6.46	6.40	2.97	4.90	0.01	0.09	0.31	0.40	0.08	0.07	0.16	—	1,126	1,126	0.03	0.04	0.50	1,139
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.16	0.13	1.23	1.19	< 0.005	0.05	0.10	0.15	0.05	0.04	0.08	—	250	250	0.01	< 0.005	0.03	252
2026	0.43	0.36	3.07	3.82	0.01	0.12	0.26	0.38	0.11	0.09	0.20	—	767	767	0.03	0.01	0.18	772
2027	0.20	0.17	1.35	2.13	< 0.005	0.05	0.13	0.17	0.04	0.03	0.07	—	446	446	0.01	0.02	0.22	451
2028	1.18	1.17	0.54	0.89	< 0.005	0.02	0.06	0.07	0.02	0.01	0.03	—	186	186	0.01	0.01	0.08	189

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.6	15.9	7.02	57.9	0.13	0.24	11.5	11.8	0.24	2.92	3.16	91.0	15,912	16,003	9.97	0.55	39.8	16,457
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	15.6	14.9	7.50	47.3	0.13	0.24	11.5	11.8	0.23	2.92	3.16	91.0	15,474	15,565	10.0	0.59	3.48	15,994
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.0	15.3	7.43	51.4	0.13	0.24	11.4	11.6	0.24	2.88	3.12	91.0	15,551	15,642	10.0	0.58	18.6	16,084
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.91	2.79	1.36	9.39	0.02	0.04	2.07	2.12	0.04	0.53	0.57	15.1	2,575	2,590	1.66	0.10	3.08	2,663

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.28	6.79	4.95	46.9	0.12	0.08	11.5	11.6	0.07	2.92	3.00	—	12,084	12,084	0.50	0.50	37.3	12,283
Area	9.05	9.00	0.10	10.2	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.3	27.3	< 0.005	< 0.005	—	27.4
Energy	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	3,588	3,588	0.32	0.02	—	3,601
Water	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Waste	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	16.6	15.9	7.02	57.9	0.13	0.24	11.5	11.8	0.24	2.92	3.16	91.0	15,912	16,003	9.97	0.55	39.8	16,457
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.21	6.70	5.52	46.4	0.11	0.08	11.5	11.6	0.07	2.92	3.00	—	11,673	11,673	0.54	0.54	0.97	11,848
Area	8.11	8.11	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
Energy	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	3,588	3,588	0.32	0.02	—	3,601
Water	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Waste	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	15.6	14.9	7.50	47.3	0.13	0.24	11.5	11.8	0.23	2.92	3.16	91.0	15,474	15,565	10.0	0.59	3.48	15,994
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.15	6.65	5.41	45.6	0.12	0.08	11.4	11.4	0.07	2.88	2.96	—	11,737	11,737	0.52	0.53	16.1	11,924
Area	8.58	8.55	0.05	5.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	13.5	13.5	< 0.005	< 0.005	—	13.5
Energy	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	3,588	3,588	0.32	0.02	—	3,601
Water	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Waste	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	16.0	15.3	7.43	51.4	0.13	0.24	11.4	11.6	0.24	2.88	3.12	91.0	15,551	15,642	10.0	0.58	18.6	16,084
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	1.31	1.21	0.99	8.31	0.02	0.01	2.07	2.09	0.01	0.53	0.54	—	1,943	1,943	0.09	0.09	2.67	1,974
Area	1.57	1.56	0.01	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.23	2.23	< 0.005	< 0.005	—	2.24
Energy	0.04	0.02	0.36	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	594	594	0.05	< 0.005	—	596
Water	—	—	—	—	—	—	—	—	—	—	—	2.16	35.3	37.4	0.23	0.01	—	44.8
Waste	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Total	2.91	2.79	1.36	9.39	0.02	0.04	2.07	2.12	0.04	0.53	0.57	15.1	2,575	2,590	1.66	0.10	3.08	2,663

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.28	6.79	4.95	46.9	0.12	0.08	11.5	11.6	0.07	2.92	3.00	—	12,084	12,084	0.50	0.50	37.3	12,283
Area	9.05	9.00	0.10	10.2	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.3	27.3	< 0.005	< 0.005	—	27.4
Energy	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	3,588	3,588	0.32	0.02	—	3,601
Water	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Waste	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	16.6	15.9	7.02	57.9	0.13	0.24	11.5	11.8	0.24	2.92	3.16	91.0	15,912	16,003	9.97	0.55	39.8	16,457
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.21	6.70	5.52	46.4	0.11	0.08	11.5	11.6	0.07	2.92	3.00	—	11,673	11,673	0.54	0.54	0.97	11,848
Area	8.11	8.11	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
Energy	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	3,588	3,588	0.32	0.02	—	3,601
Water	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Waste	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	15.6	14.9	7.50	47.3	0.13	0.24	11.5	11.8	0.23	2.92	3.16	91.0	15,474	15,565	10.0	0.59	3.48	15,994
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.15	6.65	5.41	45.6	0.12	0.08	11.4	11.4	0.07	2.88	2.96	—	11,737	11,737	0.52	0.53	16.1	11,924
Area	8.58	8.55	0.05	5.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	13.5	13.5	< 0.005	< 0.005	—	13.5
Energy	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	3,588	3,588	0.32	0.02	—	3,601
Water	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Waste	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	16.0	15.3	7.43	51.4	0.13	0.24	11.4	11.6	0.24	2.88	3.12	91.0	15,551	15,642	10.0	0.58	18.6	16,084
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.31	1.21	0.99	8.31	0.02	0.01	2.07	2.09	0.01	0.53	0.54	—	1,943	1,943	0.09	0.09	2.67	1,974
Area	1.57	1.56	0.01	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.23	2.23	< 0.005	< 0.005	—	2.24
Energy	0.04	0.02	0.36	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	594	594	0.05	< 0.005	—	596
Water	—	—	—	—	—	—	—	—	—	—	—	2.16	35.3	37.4	0.23	0.01	—	44.8
Waste	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Total	2.91	2.79	1.36	9.39	0.02	0.04	2.07	2.12	0.04	0.53	0.57	15.1	2,575	2,590	1.66	0.10	3.08	2,663

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	2.86	2.40	22.2	19.9	0.03	0.92	—	0.92	0.84	—	0.84	—	3,425	3,425	0.14	0.03	—	3,437
Demoliti on	—	—	—	—	—	—	1.48	1.48	—	0.22	0.22	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.16	0.14	1.28	1.15	< 0.005	0.05	—	0.05	0.05	—	0.05	—	197	197	0.01	< 0.005	—	198
Demoliti on	—	—	—	—	—	—	0.09	0.09	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.03	0.03	0.23	0.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.6	32.6	< 0.005	< 0.005	—	32.7
Demoliti on	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.94	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.81	204
Vendor	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	0.00
Hauling	0.06	0.03	1.57	0.38	0.01	0.02	0.31	0.33	0.02	0.09	0.10	—	1,188	1,188	0.03	0.19	2.68	1,247

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	11.3
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.09	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	68.4	68.4	< 0.005	0.01	0.07	71.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.84	1.84	< 0.005	< 0.005	< 0.005	1.87
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.01	11.9

3.2. Demolition (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.86	2.40	22.2	19.9	0.03	0.92	—	0.92	0.84	—	0.84	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.95	0.95	—	0.14	0.14	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.16	0.14	1.28	1.15	< 0.005	0.05	—	0.05	0.05	—	0.05	—	197	197	0.01	< 0.005	—	198
Demoliti on	—	—	—	—	—	—	0.05	0.05	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.03	0.03	0.23	0.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.6	32.6	< 0.005	< 0.005	—	32.7
Demoliti on	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.94	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.81	204
Vendor	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	0.00
Hauling	0.06	0.03	1.57	0.38	0.01	0.02	0.31	0.33	0.02	0.09	0.10	—	1,188	1,188	0.03	0.19	2.68	1,247
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	11.3
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.09	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	68.4	68.4	< 0.005	0.01	0.07	71.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.84	1.84	< 0.005	< 0.005	< 0.005	1.87
Vendor	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	0.00

Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.01	11.9

3.3. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.68	0.58	5.34	5.10	0.01	0.22	—	0.22	0.20	—	0.20	—	1,188	1,188	0.05	0.01	—	1,192
Dust From Material Movement	—	—	—	—	—	—	1.66	1.66	—	0.66	0.66	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.13	0.11	0.98	0.93	< 0.005	0.04	—	0.04	0.04	—	0.04	—	197	197	0.01	< 0.005	—	197
Dust From Material Movement	—	—	—	—	—	—	0.30	0.30	—	0.12	0.12	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.11	1.14	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	256	256	0.01	0.01	0.03	259
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.21	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	46.3	46.3	< 0.005	< 0.005	0.08	47.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.67	7.67	< 0.005	< 0.005	0.01	7.78
Vendor	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	0.00
Hauling	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	0.00

3.4. Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.68	0.58	5.34	5.10	0.01	0.22	—	0.22	0.20	—	0.20	—	1,188	1,188	0.05	0.01	—	1,192
Dust From Material Movement	—	—	—	—	—	—	0.43	0.43	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.98	0.93	< 0.005	0.04	—	0.04	0.04	—	0.04	—	197	197	0.01	< 0.005	—	197
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.03	0.03	—	—	—	—	—	—	—

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.11	1.14	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	256	256	0.01	0.01	0.03	259
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.21	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	46.3	46.3	< 0.005	< 0.005	0.08	47.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.67	7.67	< 0.005	< 0.005	0.01	7.78
Vendor	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	0.00
Hauling	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	0.00

3.5. Grading (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.29	1.08	9.70	9.82	0.02	0.40	—	0.40	0.37	—	0.37	—	2,350	2,350	0.10	0.02	—	2,358
Dust From Material Movement	—	—	—	—	—	—	3.28	3.28	—	1.30	1.30	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.24	0.20	1.77	1.79	< 0.005	0.07	—	0.07	0.07	—	0.07	—	389	389	0.02	< 0.005	—	390
Dust From Material Movement	—	—	—	—	—	—	0.60	0.60	—	0.24	0.24	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.17	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	262	262	< 0.005	0.01	0.98	266
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.06	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	0.01	0.03	254
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.38	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	89.9	89.9	< 0.005	< 0.005	0.15	91.1
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	14.9	14.9	< 0.005	< 0.005	0.03	15.1
Vendor	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	0.00
Hauling	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	0.00

3.6. Grading (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.29	1.08	9.70	9.82	0.02	0.40	—	0.40	0.37	—	0.37	—	2,350	2,350	0.10	0.02	—	2,358

Dust From Material Movement	—	—	—	—	—	—	0.85	0.85	—	0.34	0.34	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.77	1.79	< 0.005	0.07	—	0.07	0.07	—	0.07	—	389	389	0.02	< 0.005	—	390
Dust From Material Movement	—	—	—	—	—	—	0.16	0.16	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.17	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	262	262	< 0.005	0.01	0.98	266
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.06	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	0.01	0.03	254
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.38	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	89.9	89.9	< 0.005	< 0.005	0.15	91.1
Vendor	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	0.00

Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	14.9	14.9	< 0.005	< 0.005	0.03	15.1
Vendor	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	0.00
Hauling	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	0.00

3.7. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.45	4.13	5.43	0.01	0.16	—	0.16	0.15	—	0.15	—	1,004	1,004	0.04	0.01	—	1,007

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.75	0.99	< 0.005	0.03	—	0.03	0.03	—	0.03	—	166	166	0.01	< 0.005	—	167
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.26	0.26	3.80	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	849	849	0.01	0.03	3.19	862
Vendor	0.02	0.02	0.70	0.22	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	583	583	0.01	0.09	1.52	610
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.26	0.32	3.44	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	812	812	0.01	0.03	0.08	822
Vendor	0.02	0.02	0.73	0.23	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	583	583	0.01	0.09	0.04	609
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.13	1.44	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	342	342	0.01	0.01	0.58	347
Vendor	0.01	0.01	0.30	0.09	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	244	244	< 0.005	0.04	0.27	255
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.7	56.7	< 0.005	< 0.005	0.10	57.5
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	40.4	40.4	< 0.005	0.01	0.05	42.3
Hauling	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	0.00

3.8. Building Construction (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.45	4.13	5.43	0.01	0.16	—	0.16	0.15	—	0.15	—	1,004	1,004	0.04	0.01	—	1,007
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.75	0.99	< 0.005	0.03	—	0.03	0.03	—	0.03	—	166	166	0.01	< 0.005	—	167

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.26	0.26	3.80	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	849	849	0.01	0.03	3.19	862
Vendor	0.02	0.02	0.70	0.22	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	583	583	0.01	0.09	1.52	610
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.26	0.32	3.44	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	812	812	0.01	0.03	0.08	822
Vendor	0.02	0.02	0.73	0.23	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	583	583	0.01	0.09	0.04	609
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.13	1.44	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	342	342	0.01	0.01	0.58	347
Vendor	0.01	0.01	0.30	0.09	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	244	244	< 0.005	0.04	0.27	255
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.7	56.7	< 0.005	< 0.005	0.10	57.5
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	40.4	40.4	< 0.005	0.01	0.05	42.3
Hauling	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	0.00

3.9. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.71	9.24	0.02	0.24	—	0.24	0.22	—	0.22	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	1.22	1.69	< 0.005	0.04	—	0.04	0.04	—	0.04	—	283	283	0.01	< 0.005	—	284
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.29	0.26	0.25	3.56	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	834	834	0.01	0.03	2.89	847
Vendor	0.02	0.01	0.67	0.21	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	572	572	0.01	0.09	1.33	599
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.25	0.29	3.21	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	798	798	0.01	0.03	0.07	808
Vendor	0.02	0.01	0.69	0.22	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	572	572	0.01	0.09	0.03	598
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.18	0.20	2.30	0.00	0.00	0.60	0.60	0.00	0.14	0.14	—	574	574	0.01	0.02	0.89	582
Vendor	0.02	0.01	0.50	0.15	< 0.005	0.01	0.12	0.12	< 0.005	0.03	0.04	—	409	409	0.01	0.06	0.41	427
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.42	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	95.0	95.0	< 0.005	< 0.005	0.15	96.3
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.6	67.6	< 0.005	0.01	0.07	70.7
Hauling	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	0.00

3.10. Building Construction (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405

Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.71	9.24	0.02	0.24	—	0.24	0.22	—	0.22	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	1.22	1.69	< 0.005	0.04	—	0.04	0.04	—	0.04	—	283	283	0.01	< 0.005	—	284
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.26	0.25	3.56	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	834	834	0.01	0.03	2.89	847
Vendor	0.02	0.01	0.67	0.21	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	572	572	0.01	0.09	1.33	599
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.29	0.25	0.29	3.21	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	798	798	0.01	0.03	0.07	808
Vendor	0.02	0.01	0.69	0.22	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	572	572	0.01	0.09	0.03	598
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.18	0.20	2.30	0.00	0.00	0.60	0.60	0.00	0.14	0.14	—	574	574	0.01	0.02	0.89	582
Vendor	0.02	0.01	0.50	0.15	< 0.005	0.01	0.12	0.12	< 0.005	0.03	0.04	—	409	409	0.01	0.06	0.41	427
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.42	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	95.0	95.0	< 0.005	< 0.005	0.15	96.3
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.6	67.6	< 0.005	0.01	0.07	70.7
Hauling	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	0.00

3.11. Building Construction (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.29	2.64	3.82	0.01	0.09	—	0.09	0.08	—	0.08	—	708	708	0.03	0.01	—	711
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.48	0.70	< 0.005	0.02	—	0.02	0.01	—	0.01	—	117	117	< 0.005	< 0.005	—	118
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.25	0.23	3.35	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	819	819	0.01	0.03	2.61	831
Vendor	0.02	0.01	0.64	0.21	< 0.005	< 0.005	0.16	0.17	< 0.005	0.05	0.05	—	558	558	0.01	0.08	1.18	584
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.24	0.26	3.01	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	783	783	0.01	0.03	0.07	793
Vendor	0.02	0.01	0.66	0.21	< 0.005	< 0.005	0.16	0.17	< 0.005	0.05	0.05	—	558	558	0.01	0.08	0.03	583
Hauling	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.08	0.89	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	233	233	< 0.005	0.01	0.33	236
Vendor	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	165	165	< 0.005	0.02	0.15	172
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	38.6	38.6	< 0.005	< 0.005	0.06	39.1
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.3	27.3	< 0.005	< 0.005	0.02	28.5
Hauling	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	0.00

3.12. Building Construction (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.29	2.64	3.82	0.01	0.09	—	0.09	0.08	—	0.08	—	708	708	0.03	0.01	—	711
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.48	0.70	< 0.005	0.02	—	0.02	0.01	—	0.01	—	117	117	< 0.005	< 0.005	—	118
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.25	0.23	3.35	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	819	819	0.01	0.03	2.61	831
Vendor	0.02	0.01	0.64	0.21	< 0.005	< 0.005	0.16	0.17	< 0.005	0.05	0.05	—	558	558	0.01	0.08	1.18	584
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.24	0.26	3.01	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	783	783	0.01	0.03	0.07	793
Vendor	0.02	0.01	0.66	0.21	< 0.005	< 0.005	0.16	0.17	< 0.005	0.05	0.05	—	558	558	0.01	0.08	0.03	583
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.08	0.89	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	233	233	< 0.005	0.01	0.33	236
Vendor	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	165	165	< 0.005	0.02	0.15	172
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	38.6	38.6	< 0.005	< 0.005	0.06	39.1
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.3	27.3	< 0.005	< 0.005	0.02	28.5
Hauling	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	0.00

3.13. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.52	3.51	< 0.005	0.11	—	0.11	0.10	—	0.10	—	534	534	0.02	< 0.005	—	536

Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.46	0.64	< 0.005	0.02	—	0.02	0.02	—	0.02	—	88.4	88.4	< 0.005	< 0.005	—	88.7
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.88	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	197	197	< 0.005	0.01	0.74	199
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.80	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	188	188	< 0.005	0.01	0.02	190
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.03	0.28	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	66.9	66.9	< 0.005	< 0.005	0.11	67.8
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	11.2
Vendor	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	0.00

Hauling	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	0.00

3.14. Paving (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.52	3.51	< 0.005	0.11	—	0.11	0.10	—	0.10	—	534	534	0.02	< 0.005	—	536
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.46	0.64	< 0.005	0.02	—	0.02	0.02	—	0.02	—	88.4	88.4	< 0.005	< 0.005	—	88.7
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.88	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	197	197	< 0.005	0.01	0.74	199
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.80	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	188	188	< 0.005	0.01	0.02	190
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.03	0.28	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	66.9	66.9	< 0.005	< 0.005	0.11	67.8
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	11.2
Vendor	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	0.00
Hauling	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	0.00

3.15. Architectural Coating (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	87.9	87.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.15	9.15	< 0.005	< 0.005	—	9.18
Architectural Coatings	6.02	6.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.51	1.51	< 0.005	< 0.005	—	1.52
Architectural Coatings	1.10	1.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.67	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	164	164	< 0.005	0.01	0.52	166
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.8	10.8	< 0.005	< 0.005	0.02	11.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.79	1.79	< 0.005	< 0.005	< 0.005	1.81
Vendor	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	0.00
Hauling	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	0.00

3.16. Architectural Coating (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	87.9	87.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.15	9.15	< 0.005	< 0.005	—	9.18
Architectural Coatings	6.02	6.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.51	1.51	< 0.005	< 0.005	—	1.52

Architectural Coating	1.10	1.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.67	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	164	164	< 0.005	0.01	0.52	166
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.8	10.8	< 0.005	< 0.005	0.02	11.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.79	1.79	< 0.005	< 0.005	< 0.005	1.81
Vendor	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	0.00
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.28	6.79	4.95	46.9	0.12	0.08	11.5	11.6	0.07	2.92	3.00	—	12,084	12,084	0.50	0.50	37.3	12,283
Total	7.28	6.79	4.95	46.9	0.12	0.08	11.5	11.6	0.07	2.92	3.00	—	12,084	12,084	0.50	0.50	37.3	12,283
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.21	6.70	5.52	46.4	0.11	0.08	11.5	11.6	0.07	2.92	3.00	—	11,673	11,673	0.54	0.54	0.97	11,848
Total	7.21	6.70	5.52	46.4	0.11	0.08	11.5	11.6	0.07	2.92	3.00	—	11,673	11,673	0.54	0.54	0.97	11,848
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.31	1.21	0.99	8.31	0.02	0.01	2.07	2.09	0.01	0.53	0.54	—	1,943	1,943	0.09	0.09	2.67	1,974
Total	1.31	1.21	0.99	8.31	0.02	0.01	2.07	2.09	0.01	0.53	0.54	—	1,943	1,943	0.09	0.09	2.67	1,974

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.28	6.79	4.95	46.9	0.12	0.08	11.5	11.6	0.07	2.92	3.00	—	12,084	12,084	0.50	0.50	37.3	12,283
Total	7.28	6.79	4.95	46.9	0.12	0.08	11.5	11.6	0.07	2.92	3.00	—	12,084	12,084	0.50	0.50	37.3	12,283

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.21	6.70	5.52	46.4	0.11	0.08	11.5	11.6	0.07	2.92	3.00	—	11,673	11,673	0.54	0.54	0.97	11,848
Total	7.21	6.70	5.52	46.4	0.11	0.08	11.5	11.6	0.07	2.92	3.00	—	11,673	11,673	0.54	0.54	0.97	11,848
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.31	1.21	0.99	8.31	0.02	0.01	2.07	2.09	0.01	0.53	0.54	—	1,943	1,943	0.09	0.09	2.67	1,974
Total	1.31	1.21	0.99	8.31	0.02	0.01	2.07	2.09	0.01	0.53	0.54	—	1,943	1,943	0.09	0.09	2.67	1,974

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	179	179	0.02	< 0.005	—	180
Total	—	—	—	—	—	—	—	—	—	—	—	—	179	179	0.02	< 0.005	—	180

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	179	179	0.02	< 0.005	—	180
Total	—	—	—	—	—	—	—	—	—	—	—	—	179	179	0.02	< 0.005	—	180

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Total	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Total	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.04	0.02	0.36	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	415	415	0.04	< 0.005	—	416
Total	0.04	0.02	0.36	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	415	415	0.04	< 0.005	—	416

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Total	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Total	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.04	0.02	0.36	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	415	415	0.04	< 0.005	—	416
Total	0.04	0.02	0.36	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	415	415	0.04	< 0.005	—	416

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	7.51	7.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.60	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.94	0.89	0.10	10.2	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.3	27.3	< 0.005	< 0.005	—	27.4
Total	9.05	9.00	0.10	10.2	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.3	27.3	< 0.005	< 0.005	—	27.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Hearths	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
Consumer Products	7.51	7.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.60	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	8.11	8.11	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	1.37	1.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.08	0.08	0.01	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.23	2.23	< 0.005	< 0.005	—	2.24
Total	1.57	1.56	0.01	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.23	2.23	< 0.005	< 0.005	—	2.24

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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

Consumer Product	7.51	7.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.60	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.94	0.89	0.10	10.2	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.3	27.3	< 0.005	< 0.005	—	27.4
Total	9.05	9.00	0.10	10.2	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.3	27.3	< 0.005	< 0.005	—	27.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	7.51	7.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.60	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	8.11	8.11	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	1.37	1.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape Equipm	0.08	0.08	0.01	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.23	2.23	< 0.005	< 0.005	—	2.24
Total	1.57	1.56	0.01	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.23	2.23	< 0.005	< 0.005	—	2.24

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Total	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Total	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.16	35.3	37.4	0.23	0.01	—	44.8
Total	—	—	—	—	—	—	—	—	—	—	—	2.16	35.3	37.4	0.23	0.01	—	44.8

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Total	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Total	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.16	35.3	37.4	0.23	0.01	—	44.8
Total	—	—	—	—	—	—	—	—	—	—	—	2.16	35.3	37.4	0.23	0.01	—	44.8

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273

Total	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Total	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2
Total	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Total	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Total	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2
Total	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	6/1/2025	6/30/2025	5.00	21.0	—
Grading	Grading	10/1/2025	7/1/2026	5.00	196	—
Building Construction	Building Construction	6/1/2026	5/30/2028	5.00	522	—
Paving	Paving	1/1/2026	6/30/2026	5.00	129	—
Architectural Coating	Architectural Coating	6/1/2028	7/5/2028	5.00	25.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38

Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74

Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	17.1	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	64.8	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	19.2	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—

Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	13.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	17.1	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	64.8	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	19.2	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—

Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	13.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	710,775	236,925	0.00	0.00	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	31,300	—
Grading	—	—	588	0.00	—
Paving	0.00	0.00	0.00	0.00	1.98

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	1.98	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	349	0.03	< 0.005
2026	0.00	346	0.03	< 0.005
2027	0.00	346	0.03	< 0.005
2028	0.00	346	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	1,721	1,721	1,721	628,092	16,315	16,315	16,315	5,954,970

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	1,721	1,721	1,721	628,092	16,315	16,315	16,315	5,954,970

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	180
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	180
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
710775	236,925	0.00	0.00	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,141,251	346	0.0330	0.0040	7,816,640

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,141,251	346	0.0330	0.0040	7,816,640

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	6,822,617	33,584,628

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	6,822,617	33,584,628

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	145	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	145	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0

Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	17.3	annual days of extreme heat
Extreme Precipitation	5.65	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	21.9	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	69.6
AQ-PM	38.3
AQ-DPM	13.9
Drinking Water	65.8
Lead Risk Housing	7.17
Pesticides	1.48
Toxic Releases	18.0
Traffic	81.4
Effect Indicators	—
CleanUp Sites	17.1
Groundwater	22.1
Haz Waste Facilities/Generators	84.0
Impaired Water Bodies	87.0
Solid Waste	81.3
Sensitive Population	—
Asthma	37.5
Cardio-vascular	40.2
Low Birth Weights	49.3
Socioeconomic Factor Indicators	—
Education	8.42
Housing	52.1
Linguistic	38.6
Poverty	19.4
Unemployment	25.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	92.71140767
Employed	84.60156551
Median HI	90.55562684
Education	—
Bachelor's or higher	63.68535866
High school enrollment	100
Preschool enrollment	16.27101245
Transportation	—
Auto Access	87.47593995
Active commuting	3.118182985
Social	—
2-parent households	57.5003208
Voting	86.14140896
Neighborhood	—
Alcohol availability	77.14615681
Park access	32.84999358
Retail density	16.1170281
Supermarket access	32.32388041
Tree canopy	45.01475683
Housing	—
Homeownership	76.19658668
Housing habitability	85.62812781
Low-inc homeowner severe housing cost burden	62.40215578
Low-inc renter severe housing cost burden	90.56845887
Uncrowded housing	83.16437829
Health Outcomes	—

Insured adults	66.66238932
Arthritis	45.8
Asthma ER Admissions	64.2
High Blood Pressure	31.6
Cancer (excluding skin)	25.9
Asthma	55.1
Coronary Heart Disease	61.0
Chronic Obstructive Pulmonary Disease	56.7
Diagnosed Diabetes	80.8
Life Expectancy at Birth	71.9
Cognitively Disabled	74.6
Physically Disabled	76.0
Heart Attack ER Admissions	26.9
Mental Health Not Good	67.2
Chronic Kidney Disease	73.0
Obesity	69.5
Pedestrian Injuries	56.1
Physical Health Not Good	72.6
Stroke	75.8
Health Risk Behaviors	—
Binge Drinking	14.4
Current Smoker	66.4
No Leisure Time for Physical Activity	76.1
Climate Change Exposures	—
Wildfire Risk	32.3
SLR Inundation Area	0.0
Children	87.0
Elderly	28.2

English Speaking	76.1
Foreign-born	24.9
Outdoor Workers	46.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	78.6
Traffic Density	78.9
Traffic Access	23.0
Other Indices	—
Hardship	14.0
Other Decision Support	—
2016 Voting	86.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	37.0
Healthy Places Index Score for Project Location (b)	79.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	As per the applicant
Operations: Vehicle Data	Based on the Lost Canyons Traffic Analysis - 180 Lot Transfer, Michael Baker International

Lost Canyon Phase-2 Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Lost Canyon Phase-2
Construction Start Date	6/1/2026
Operational Year	2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	23.0
Location	3301 Lost Canyons Dr, Simi Valley, CA 93065, USA
County	Ventura
City	Simi Valley
Air District	Ventura County APCD
Air Basin	South Central Coast
TAZ	3503
EDFZ	8
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.28

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Single Family Housing	184	Dwelling Unit	59.7	358,800	2,155,166	21,551	554	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	30.1	30.1	27.3	28.7	0.06	1.12	9.47	10.6	1.03	3.72	4.75	—	6,861	6,861	0.27	0.16	4.98	6,887
Mit.	30.1	30.1	27.3	28.7	0.06	1.12	2.65	3.78	1.03	1.01	2.04	—	6,861	6,861	0.27	0.16	4.98	6,887
% Reduced	—	—	—	—	—	—	72%	64%	—	73%	57%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	30.1	30.1	32.7	39.0	0.07	1.34	9.66	11.0	1.23	3.76	4.99	—	8,540	8,540	0.34	0.16	0.13	8,573
Mit.	30.1	30.1	32.7	39.0	0.07	1.34	2.85	4.19	1.23	1.06	2.29	—	8,540	8,540	0.34	0.16	0.13	8,573
% Reduced	—	—	—	—	—	—	70%	62%	—	72%	54%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.69	6.60	12.8	17.9	0.03	0.50	3.96	4.43	0.46	1.56	1.99	—	3,684	3,684	0.13	0.10	1.31	3,711
Mit.	6.69	6.60	12.8	17.9	0.03	0.50	1.11	1.58	0.46	0.42	0.86	—	3,684	3,684	0.13	0.10	1.31	3,711

% Reduced	—	—	—	—	—	—	72%	64%	—	73%	57%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.22	1.21	2.34	3.27	0.01	0.09	0.72	0.81	0.08	0.28	0.36	—	610	610	0.02	0.02	0.22	614
Mit.	1.22	1.21	2.34	3.27	0.01	0.09	0.20	0.29	0.08	0.08	0.16	—	610	610	0.02	0.02	0.22	614
% Reduced	—	—	—	—	—	—	72%	64%	—	73%	57%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.71	3.13	27.3	28.7	0.06	1.12	9.47	10.6	1.03	3.72	4.75	—	6,861	6,861	0.27	0.06	0.98	6,887
2027	2.49	2.10	17.3	27.6	0.04	0.64	1.23	1.87	0.59	0.30	0.88	—	5,539	5,539	0.18	0.16	4.98	5,595
2028	2.34	2.00	16.5	27.3	0.04	0.56	1.23	1.79	0.52	0.30	0.81	—	5,506	5,506	0.18	0.15	4.48	5,561
2029	30.1	30.1	9.40	16.3	0.03	0.28	1.03	1.31	0.26	0.25	0.51	—	3,774	3,774	0.11	0.13	3.47	3,821
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.71	3.12	27.3	28.6	0.06	1.12	9.47	10.6	1.03	3.72	4.75	—	6,849	6,849	0.27	0.06	0.03	6,875
2027	4.54	3.82	32.7	39.0	0.07	1.34	9.66	11.0	1.23	3.76	4.99	—	8,540	8,540	0.34	0.16	0.13	8,573
2028	2.34	2.00	16.6	26.8	0.04	0.56	1.23	1.79	0.52	0.30	0.81	—	5,461	5,461	0.18	0.15	0.12	5,512
2029	30.1	30.1	9.49	16.0	0.03	0.28	1.03	1.31	0.26	0.25	0.51	—	3,739	3,739	0.12	0.13	0.09	3,782
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.56	1.31	11.4	12.0	0.03	0.47	3.96	4.43	0.43	1.56	1.99	—	2,869	2,869	0.11	0.03	0.18	2,880
2027	1.81	1.52	12.8	17.9	0.03	0.50	2.16	2.66	0.46	0.77	1.23	—	3,684	3,684	0.13	0.07	0.93	3,711
2028	1.41	1.21	9.85	16.1	0.03	0.32	0.81	1.14	0.30	0.19	0.49	—	3,409	3,409	0.11	0.10	1.31	3,444

2029	6.69	6.60	3.52	6.02	0.01	0.10	0.40	0.50	0.09	0.10	0.19	—	1,386	1,386	0.04	0.05	0.57	1,402
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.28	0.24	2.09	2.19	< 0.005	0.09	0.72	0.81	0.08	0.28	0.36	—	475	475	0.02	< 0.005	0.03	477
2027	0.33	0.28	2.34	3.27	0.01	0.09	0.39	0.49	0.08	0.14	0.23	—	610	610	0.02	0.01	0.15	614
2028	0.26	0.22	1.80	2.93	< 0.005	0.06	0.15	0.21	0.05	0.04	0.09	—	564	564	0.02	0.02	0.22	570
2029	1.22	1.21	0.64	1.10	< 0.005	0.02	0.07	0.09	0.02	0.02	0.03	—	229	229	0.01	0.01	0.09	232

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.71	3.13	27.3	28.7	0.06	1.12	2.65	3.78	1.03	1.01	2.04	—	6,861	6,861	0.27	0.06	0.98	6,887
2027	2.49	2.10	17.3	27.6	0.04	0.64	1.23	1.87	0.59	0.30	0.88	—	5,539	5,539	0.18	0.16	4.98	5,595
2028	2.34	2.00	16.5	27.3	0.04	0.56	1.23	1.79	0.52	0.30	0.81	—	5,506	5,506	0.18	0.15	4.48	5,561
2029	30.1	30.1	9.40	16.3	0.03	0.28	1.03	1.31	0.26	0.25	0.51	—	3,774	3,774	0.11	0.13	3.47	3,821
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.71	3.12	27.3	28.6	0.06	1.12	2.65	3.78	1.03	1.01	2.04	—	6,849	6,849	0.27	0.06	0.03	6,875
2027	4.54	3.82	32.7	39.0	0.07	1.34	2.85	4.19	1.23	1.06	2.29	—	8,540	8,540	0.34	0.16	0.13	8,573
2028	2.34	2.00	16.6	26.8	0.04	0.56	1.23	1.79	0.52	0.30	0.81	—	5,461	5,461	0.18	0.15	0.12	5,512
2029	30.1	30.1	9.49	16.0	0.03	0.28	1.03	1.31	0.26	0.25	0.51	—	3,739	3,739	0.12	0.13	0.09	3,782
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.56	1.31	11.4	12.0	0.03	0.47	1.11	1.58	0.43	0.42	0.86	—	2,869	2,869	0.11	0.03	0.18	2,880
2027	1.81	1.52	12.8	17.9	0.03	0.50	0.96	1.46	0.46	0.30	0.76	—	3,684	3,684	0.13	0.07	0.93	3,711
2028	1.41	1.21	9.85	16.1	0.03	0.32	0.81	1.14	0.30	0.19	0.49	—	3,409	3,409	0.11	0.10	1.31	3,444
2029	6.69	6.60	3.52	6.02	0.01	0.10	0.40	0.50	0.09	0.10	0.19	—	1,386	1,386	0.04	0.05	0.57	1,402

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.28	0.24	2.09	2.19	< 0.005	0.09	0.20	0.29	0.08	0.08	0.16	—	475	475	0.02	< 0.005	0.03	477
2027	0.33	0.28	2.34	3.27	0.01	0.09	0.18	0.27	0.08	0.05	0.14	—	610	610	0.02	0.01	0.15	614
2028	0.26	0.22	1.80	2.93	< 0.005	0.06	0.15	0.21	0.05	0.04	0.09	—	564	564	0.02	0.02	0.22	570
2029	1.22	1.21	0.64	1.10	< 0.005	0.02	0.07	0.09	0.02	0.02	0.03	—	229	229	0.01	0.01	0.09	232

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	17.0	16.3	7.19	59.4	0.14	0.25	11.8	12.1	0.24	3.00	3.24	93.0	16,317	16,410	10.2	0.57	40.8	16,875
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	15.9	15.3	7.69	48.5	0.13	0.25	11.8	12.1	0.24	3.00	3.24	93.0	15,868	15,961	10.2	0.60	3.56	16,400
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.3	15.7	7.62	52.8	0.13	0.25	11.7	11.9	0.24	2.96	3.20	93.0	15,947	16,040	10.2	0.60	19.1	16,492
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.98	2.86	1.39	9.63	0.02	0.05	2.13	2.17	0.04	0.54	0.58	15.4	2,640	2,656	1.69	0.10	3.16	2,730

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	7.48	6.97	5.08	48.1	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	12,404	12,404	0.51	0.52	38.3	12,609
Area	9.25	9.20	0.10	10.5	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.9	27.9	< 0.005	< 0.005	—	28.0
Energy	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	3,667	3,667	0.33	0.02	—	3,681
Water	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	17.0	16.3	7.19	59.4	0.14	0.25	11.8	12.1	0.24	3.00	3.24	93.0	16,317	16,410	10.2	0.57	40.8	16,875
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.41	6.88	5.67	47.6	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	11,982	11,982	0.55	0.55	0.99	12,162
Area	8.29	8.29	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
Energy	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	3,667	3,667	0.33	0.02	—	3,681
Water	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	15.9	15.3	7.69	48.5	0.13	0.25	11.8	12.1	0.24	3.00	3.24	93.0	15,868	15,961	10.2	0.60	3.56	16,400
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.34	6.82	5.56	46.8	0.12	0.08	11.7	11.7	0.08	2.96	3.03	—	12,048	12,048	0.54	0.54	16.5	12,240
Area	8.77	8.74	0.05	5.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	13.8	13.8	< 0.005	< 0.005	—	13.8
Energy	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	3,667	3,667	0.33	0.02	—	3,681
Water	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	16.3	15.7	7.62	52.8	0.13	0.25	11.7	11.9	0.24	2.96	3.20	93.0	15,947	16,040	10.2	0.60	19.1	16,492
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.34	1.25	1.01	8.53	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,995	1,995	0.09	0.09	2.74	2,026
Area	1.60	1.60	0.01	0.94	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.28	2.28	< 0.005	< 0.005	—	2.29

Energy	0.04	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	607	607	0.05	< 0.005	—	609
Water	—	—	—	—	—	—	—	—	—	—	—	2.21	36.1	38.3	0.23	0.01	—	45.8
Waste	—	—	—	—	—	—	—	—	—	—	—	13.2	0.00	13.2	1.32	0.00	—	46.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43
Total	2.98	2.86	1.39	9.63	0.02	0.05	2.13	2.17	0.04	0.54	0.58	15.4	2,640	2,656	1.69	0.10	3.16	2,730

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.48	6.97	5.08	48.1	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	12,404	12,404	0.51	0.52	38.3	12,609
Area	9.25	9.20	0.10	10.5	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.9	27.9	< 0.005	< 0.005	—	28.0
Energy	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	3,667	3,667	0.33	0.02	—	3,681
Water	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	17.0	16.3	7.19	59.4	0.14	0.25	11.8	12.1	0.24	3.00	3.24	93.0	16,317	16,410	10.2	0.57	40.8	16,875
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.41	6.88	5.67	47.6	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	11,982	11,982	0.55	0.55	0.99	12,162
Area	8.29	8.29	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
Energy	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	3,667	3,667	0.33	0.02	—	3,681
Water	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	15.9	15.3	7.69	48.5	0.13	0.25	11.8	12.1	0.24	3.00	3.24	93.0	15,868	15,961	10.2	0.60	3.56	16,400

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.34	6.82	5.56	46.8	0.12	0.08	11.7	11.7	0.08	2.96	3.03	—	12,048	12,048	0.54	0.54	16.5	12,240
Area	8.77	8.74	0.05	5.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	13.8	13.8	< 0.005	< 0.005	—	13.8
Energy	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	3,667	3,667	0.33	0.02	—	3,681
Water	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	16.3	15.7	7.62	52.8	0.13	0.25	11.7	11.9	0.24	2.96	3.20	93.0	15,947	16,040	10.2	0.60	19.1	16,492
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.34	1.25	1.01	8.53	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,995	1,995	0.09	0.09	2.74	2,026
Area	1.60	1.60	0.01	0.94	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.28	2.28	< 0.005	< 0.005	—	2.29
Energy	0.04	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	607	607	0.05	< 0.005	—	609
Water	—	—	—	—	—	—	—	—	—	—	—	2.21	36.1	38.3	0.23	0.01	—	45.8
Waste	—	—	—	—	—	—	—	—	—	—	—	13.2	0.00	13.2	1.32	0.00	—	46.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43
Total	2.98	2.86	1.39	9.63	0.02	0.05	2.13	2.17	0.04	0.54	0.58	15.4	2,640	2,656	1.69	0.10	3.16	2,730

3. Construction Emissions Details

3.1. Grading (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.52	1.27	11.4	11.5	0.03	0.47	—	0.47	0.43	—	0.43	—	2,763	2,763	0.11	0.02	—	2,773
Dust From Material Movement	—	—	—	—	—	—	3.85	3.85	—	1.53	1.53	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.28	0.23	2.08	2.11	< 0.005	0.09	—	0.09	0.08	—	0.08	—	458	458	0.02	< 0.005	—	459
Dust From Material Movement	—	—	—	—	—	—	0.70	0.70	—	0.28	0.28	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.17	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	262	262	< 0.005	0.01	0.98	266
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.06	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	0.01	0.03	254
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.45	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	106	106	< 0.005	< 0.005	0.18	107
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.5	17.5	< 0.005	< 0.005	0.03	17.7
Vendor	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	0.00
Hauling	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	0.00

3.2. Grading (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.52	1.27	11.4	11.5	0.03	0.47	—	0.47	0.43	—	0.43	—	2,763	2,763	0.11	0.02	—	2,773

Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.40	0.40	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.23	2.08	2.11	< 0.005	0.09	—	0.09	0.08	—	0.08	—	458	458	0.02	< 0.005	—	459
Dust From Material Movement	—	—	—	—	—	—	0.18	0.18	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.17	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	262	262	< 0.005	0.01	0.98	266
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.06	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	0.01	0.03	254
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.45	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	106	106	< 0.005	< 0.005	0.18	107
Vendor	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	0.00

Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.5	17.5	< 0.005	< 0.005	0.03	17.7
Vendor	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	0.00
Hauling	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	0.00

3.3. Grading (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.51	2.95	25.6	27.3	0.06	1.04	—	1.04	0.96	—	0.96	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	0.52	4.51	4.80	0.01	0.18	—	0.18	0.17	—	0.17	—	1,162	1,162	0.05	0.01	—	1,166

Dust From Material Movement	—	—	—	—	—	—	1.62	1.62	—	0.64	0.64	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.82	0.88	< 0.005	0.03	—	0.03	0.03	—	0.03	—	192	192	0.01	< 0.005	—	193
Dust From Material Movement	—	—	—	—	—	—	0.30	0.30	—	0.12	0.12	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	0.99	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	246	246	< 0.005	0.01	0.02	249
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.18	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	43.7	43.7	< 0.005	< 0.005	0.07	44.3
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.23	7.23	< 0.005	< 0.005	0.01	7.33

Vendor	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	0.00
Hauling	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	0.00

3.4. Grading (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.51	2.95	25.6	27.3	0.06	1.04	—	1.04	0.96	—	0.96	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	0.52	4.51	4.80	0.01	0.18	—	0.18	0.17	—	0.17	—	1,162	1,162	0.05	0.01	—	1,166
Dust From Material Movement	—	—	—	—	—	—	0.42	0.42	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	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	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.82	0.88	< 0.005	0.03	—	0.03	0.03	—	0.03	—	192	192	0.01	< 0.005	—	193
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	0.99	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	246	246	< 0.005	0.01	0.02	249
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.18	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	43.7	43.7	< 0.005	< 0.005	0.07	44.3
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.23	7.23	< 0.005	< 0.005	0.01	7.33
Vendor	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	0.00
Hauling	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	0.00

3.5. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	0.37	3.38	4.66	0.01	0.12	—	0.12	0.11	—	0.11	—	863	863	0.04	0.01	—	866
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.62	0.85	< 0.005	0.02	—	0.02	0.02	—	0.02	—	143	143	0.01	< 0.005	—	143
Onsite truck	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	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.26	0.26	3.64	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	853	853	0.01	0.03	2.96	866
Vendor	0.03	0.01	0.68	0.22	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	585	585	0.01	0.09	1.36	612
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.26	0.29	3.28	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	815	815	0.01	0.03	0.08	825
Vendor	0.02	0.01	0.71	0.22	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	585	585	0.01	0.09	0.04	611
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.10	1.19	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	296	296	< 0.005	0.01	0.46	300
Vendor	0.01	< 0.005	0.26	0.08	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	211	211	< 0.005	0.03	0.21	220
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	49.0	49.0	< 0.005	< 0.005	0.08	49.6
Vendor	< 0.005	< 0.005	0.05	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.9	34.9	< 0.005	0.01	0.04	36.4
Hauling	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	0.00

3.6. Building Construction (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	0.37	3.38	4.66	0.01	0.12	—	0.12	0.11	—	0.11	—	863	863	0.04	0.01	—	866
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.62	0.85	< 0.005	0.02	—	0.02	0.02	—	0.02	—	143	143	0.01	< 0.005	—	143
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.26	0.26	3.64	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	853	853	0.01	0.03	2.96	866
Vendor	0.03	0.01	0.68	0.22	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	585	585	0.01	0.09	1.36	612
Hauling	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.26	0.29	3.28	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	815	815	0.01	0.03	0.08	825
Vendor	0.02	0.01	0.71	0.22	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	585	585	0.01	0.09	0.04	611
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.10	1.19	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	296	296	< 0.005	0.01	0.46	300
Vendor	0.01	< 0.005	0.26	0.08	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	211	211	< 0.005	0.03	0.21	220
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	49.0	49.0	< 0.005	< 0.005	0.08	49.6
Vendor	< 0.005	< 0.005	0.05	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.9	34.9	< 0.005	0.01	0.04	36.4
Hauling	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	0.00

3.7. Building Construction (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	0.71	6.39	9.26	0.02	0.22	—	0.22	0.20	—	0.20	—	1,717	1,717	0.07	0.01	—	1,723
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	1.17	1.69	< 0.005	0.04	—	0.04	0.04	—	0.04	—	284	284	0.01	< 0.005	—	285
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.26	0.25	0.23	3.42	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	838	838	0.01	0.03	2.67	850
Vendor	0.03	0.01	0.65	0.21	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	570	570	0.01	0.08	1.21	596
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.26	0.25	0.26	3.08	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	801	801	0.01	0.03	0.07	811
Vendor	0.02	0.01	0.68	0.22	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	571	571	0.01	0.08	0.03	596
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.18	0.18	0.19	2.22	0.00	0.00	0.61	0.61	0.00	0.14	0.14	—	578	578	0.01	0.02	0.82	585
Vendor	0.02	0.01	0.48	0.15	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.04	—	409	409	0.01	0.06	0.37	427
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.40	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	95.6	95.6	< 0.005	< 0.005	0.14	96.9
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.7	67.7	< 0.005	0.01	0.06	70.7
Hauling	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	0.00

3.8. Building Construction (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.85	0.71	6.39	9.26	0.02	0.22	—	0.22	0.20	—	0.20	—	1,717	1,717	0.07	0.01	—	1,723
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	1.17	1.69	< 0.005	0.04	—	0.04	0.04	—	0.04	—	284	284	0.01	< 0.005	—	285
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.26	0.25	0.23	3.42	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	838	838	0.01	0.03	2.67	850
Vendor	0.03	0.01	0.65	0.21	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	570	570	0.01	0.08	1.21	596
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.26	0.25	0.26	3.08	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	801	801	0.01	0.03	0.07	811
Vendor	0.02	0.01	0.68	0.22	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	571	571	0.01	0.08	0.03	596
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.18	0.19	2.22	0.00	0.00	0.61	0.61	0.00	0.14	0.14	—	578	578	0.01	0.02	0.82	585
Vendor	0.02	0.01	0.48	0.15	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.04	—	409	409	0.01	0.06	0.37	427
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.40	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	95.6	95.6	< 0.005	< 0.005	0.14	96.9
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.7	67.7	< 0.005	0.01	0.06	70.7

Hauling	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	0.00

3.9. Building Construction (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	3.04	4.57	0.01	0.10	—	0.10	0.09	—	0.09	—	849	849	0.03	0.01	—	852
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.07	0.06	0.55	0.83	< 0.005	0.02	—	0.02	0.02	—	0.02	—	141	141	0.01	< 0.005	—	141
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.25	0.20	3.20	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	823	823	0.01	0.03	2.40	835
Vendor	0.03	0.01	0.61	0.20	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	555	555	0.01	0.08	1.07	581
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.22	0.26	2.88	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	787	787	0.01	0.03	0.06	797
Vendor	0.02	0.01	0.64	0.21	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	555	555	0.01	0.08	0.03	580
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.03	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	281	281	< 0.005	0.01	0.37	284
Vendor	0.01	< 0.005	0.23	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	197	197	< 0.005	0.03	0.16	206
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.19	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	46.5	46.5	< 0.005	< 0.005	0.06	47.1
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	32.5	32.5	< 0.005	< 0.005	0.03	34.0
Hauling	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	0.00

3.10. Building Construction (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	3.04	4.57	0.01	0.10	—	0.10	0.09	—	0.09	—	849	849	0.03	0.01	—	852
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.55	0.83	< 0.005	0.02	—	0.02	0.02	—	0.02	—	141	141	0.01	< 0.005	—	141
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.25	0.20	3.20	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	823	823	0.01	0.03	2.40	835
Vendor	0.03	0.01	0.61	0.20	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	555	555	0.01	0.08	1.07	581
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.22	0.26	2.88	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	787	787	0.01	0.03	0.06	797
Vendor	0.02	0.01	0.64	0.21	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	555	555	0.01	0.08	0.03	580
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.03	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	281	281	< 0.005	0.01	0.37	284
Vendor	0.01	< 0.005	0.23	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	197	197	< 0.005	0.03	0.16	206
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.19	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	46.5	46.5	< 0.005	< 0.005	0.06	47.1
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	32.5	32.5	< 0.005	< 0.005	0.03	34.0
Hauling	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	0.00

3.11. Paving (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57	0.48	4.54	6.51	0.01	0.19	—	0.19	0.18	—	0.18	—	988	988	0.04	0.01	—	991
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.83	1.19	< 0.005	0.04	—	0.04	0.03	—	0.03	—	164	164	0.01	< 0.005	—	164
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.82	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	193	193	< 0.005	0.01	0.67	196
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.74	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	185	185	< 0.005	0.01	0.02	187
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.49	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	122	122	< 0.005	< 0.005	0.19	123
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	20.1	20.1	< 0.005	< 0.005	0.03	20.4
Vendor	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	0.00
Hauling	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	0.00

3.12. Paving (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57	0.48	4.54	6.51	0.01	0.19	—	0.19	0.18	—	0.18	—	988	988	0.04	0.01	—	991
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.83	1.19	< 0.005	0.04	—	0.04	0.03	—	0.03	—	164	164	0.01	< 0.005	—	164
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.82	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	193	193	< 0.005	0.01	0.67	196
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.74	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	185	185	< 0.005	0.01	0.02	187
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.49	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	122	122	< 0.005	< 0.005	0.19	123
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	20.1	20.1	< 0.005	< 0.005	0.03	20.4
Vendor	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	0.00
Hauling	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	0.00

3.13. Paving (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34	0.29	2.76	4.13	0.01	0.11	—	0.11	0.10	—	0.10	—	630	630	0.03	0.01	—	632
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.50	0.75	< 0.005	0.02	—	0.02	0.02	—	0.02	—	104	104	< 0.005	< 0.005	—	105
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.77	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	190	190	< 0.005	0.01	0.60	192
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.70	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	181	181	< 0.005	0.01	0.02	184
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.29	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	76.1	76.1	< 0.005	< 0.005	0.11	77.1
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.6	12.6	< 0.005	< 0.005	0.02	12.8
Vendor	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	0.00
Hauling	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	0.00

3.14. Paving (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34	0.29	2.76	4.13	0.01	0.11	—	0.11	0.10	—	0.10	—	630	630	0.03	0.01	—	632
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.50	0.75	< 0.005	0.02	—	0.02	0.02	—	0.02	—	104	104	< 0.005	< 0.005	—	105
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.77	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	190	190	< 0.005	0.01	0.60	192
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.70	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	181	181	< 0.005	0.01	0.02	184
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.29	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	76.1	76.1	< 0.005	< 0.005	0.11	77.1
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.6	12.6	< 0.005	< 0.005	0.02	12.8
Vendor	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	0.00
Hauling	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	0.00

3.15. Architectural Coating (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	29.9	29.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	29.9	29.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.16	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.4	27.4	< 0.005	< 0.005	—	27.5
Architectural Coatings	6.15	6.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.54	4.54	< 0.005	< 0.005	—	4.56
Architectural Coatings	1.12	1.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.64	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	165	165	< 0.005	0.01	0.48	167
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.05	0.58	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	157	157	< 0.005	0.01	0.01	159
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	32.6	32.6	< 0.005	< 0.005	0.04	33.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.39	5.39	< 0.005	< 0.005	0.01	5.46
Vendor	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	0.00
Hauling	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	0.00

3.16. Architectural Coating (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	29.9	29.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	29.9	29.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.16	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.4	27.4	< 0.005	< 0.005	—	27.5

Architect Coatings	6.15	6.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.54	4.54	< 0.005	< 0.005	—	4.56
Architectural Coatings	1.12	1.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.64	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	165	165	< 0.005	0.01	0.48	167
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.05	0.58	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	157	157	< 0.005	0.01	0.01	159
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	32.6	32.6	< 0.005	< 0.005	0.04	33.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.39	5.39	< 0.005	< 0.005	0.01	5.46
Vendor	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	0.00
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.48	6.97	5.08	48.1	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	12,404	12,404	0.51	0.52	38.3	12,609
Total	7.48	6.97	5.08	48.1	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	12,404	12,404	0.51	0.52	38.3	12,609
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.41	6.88	5.67	47.6	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	11,982	11,982	0.55	0.55	0.99	12,162
Total	7.41	6.88	5.67	47.6	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	11,982	11,982	0.55	0.55	0.99	12,162
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.34	1.25	1.01	8.53	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,995	1,995	0.09	0.09	2.74	2,026
Total	1.34	1.25	1.01	8.53	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,995	1,995	0.09	0.09	2.74	2,026

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.48	6.97	5.08	48.1	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	12,404	12,404	0.51	0.52	38.3	12,609
Total	7.48	6.97	5.08	48.1	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	12,404	12,404	0.51	0.52	38.3	12,609
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.41	6.88	5.67	47.6	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	11,982	11,982	0.55	0.55	0.99	12,162
Total	7.41	6.88	5.67	47.6	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	11,982	11,982	0.55	0.55	0.99	12,162
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.34	1.25	1.01	8.53	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,995	1,995	0.09	0.09	2.74	2,026
Total	1.34	1.25	1.01	8.53	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,995	1,995	0.09	0.09	2.74	2,026

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	183	183	0.02	< 0.005	—	184
Total	—	—	—	—	—	—	—	—	—	—	—	—	183	183	0.02	< 0.005	—	184

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113

Total	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	183	183	0.02	< 0.005	—	184
Total	—	—	—	—	—	—	—	—	—	—	—	—	183	183	0.02	< 0.005	—	184

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Total	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Total	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.04	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	424	424	0.04	< 0.005	—	425
Total	0.04	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	424	424	0.04	< 0.005	—	425

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Total	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Total	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.04	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	424	424	0.04	< 0.005	—	425
Total	0.04	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	424	424	0.04	< 0.005	—	425

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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

Consumer Products	7.68	7.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.62	0.62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.96	0.91	0.10	10.5	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.9	27.9	< 0.005	< 0.005	—	28.0
Total	9.25	9.20	0.10	10.5	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.9	27.9	< 0.005	< 0.005	—	28.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	7.68	7.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.62	0.62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	8.29	8.29	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	1.40	1.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	0.09	0.08	0.01	0.94	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.28	2.28	< 0.005	< 0.005	—	2.29
Total	1.60	1.60	0.01	0.94	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.28	2.28	< 0.005	< 0.005	—	2.29

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	7.68	7.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.62	0.62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.96	0.91	0.10	10.5	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.9	27.9	< 0.005	< 0.005	—	28.0
Total	9.25	9.20	0.10	10.5	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.9	27.9	< 0.005	< 0.005	—	28.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	7.68	7.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.62	0.62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	8.29	8.29	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	1.40	1.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.09	0.08	0.01	0.94	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.28	2.28	< 0.005	< 0.005	—	2.29
Total	1.60	1.60	0.01	0.94	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.28	2.28	< 0.005	< 0.005	—	2.29

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Total	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Total	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.21	36.1	38.3	0.23	0.01	—	45.8
Total	—	—	—	—	—	—	—	—	—	—	—	2.21	36.1	38.3	0.23	0.01	—	45.8

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Total	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Total	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.21	36.1	38.3	0.23	0.01	—	45.8
Total	—	—	—	—	—	—	—	—	—	—	—	2.21	36.1	38.3	0.23	0.01	—	45.8

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Total	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Total	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.2	0.00	13.2	1.32	0.00	—	46.2
Total	—	—	—	—	—	—	—	—	—	—	—	13.2	0.00	13.2	1.32	0.00	—	46.2

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Total	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Total	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.2	0.00	13.2	1.32	0.00	—	46.2
Total	—	—	—	—	—	—	—	—	—	—	—	13.2	0.00	13.2	1.32	0.00	—	46.2

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	6/1/2026	3/31/2027	5.00	218	—
Building Construction	Building Construction	7/1/2027	6/30/2029	5.00	522	—
Paving	Paving	2/1/2027	7/31/2028	5.00	391	—
Architectural Coating	Architectural Coating	7/1/2029	10/12/2029	5.00	75.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20

Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	66.2	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	19.7	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

Architectural Coating	—	—	—	—
Architectural Coating	Worker	13.2	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	66.2	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	19.7	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	13.2	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	726,570	242,190	0.00	0.00	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	—	—	654	0.00	—
Paving	0.00	0.00	0.00	0.00	2.03

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	2.03	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	346	0.03	< 0.005
2027	0.00	346	0.03	< 0.005

2028	0.00	346	0.03	< 0.005
2029	0.00	346	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	1,766	1,766	1,766	644,736	16,747	16,747	16,747	6,112,772

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	1,766	1,766	1,766	644,736	16,747	16,747	16,747	6,112,772

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	184
Conventional Wood Stoves	0
Catalytic Wood Stoves	0

Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	184
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
726570	242,190	0.00	0.00	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,166,612	346	0.0330	0.0040	7,990,343

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,166,612	346	0.0330	0.0040	7,990,343

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	6,974,230	34,330,956

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	6,974,230	34,330,956

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	148	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	148	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	17.3	annual days of extreme heat
Extreme Precipitation	5.65	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	21.9	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2

Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	69.6
AQ-PM	38.3
AQ-DPM	13.9
Drinking Water	65.8
Lead Risk Housing	7.17
Pesticides	1.48
Toxic Releases	18.0
Traffic	81.4
Effect Indicators	—
CleanUp Sites	17.1
Groundwater	22.1

Haz Waste Facilities/Generators	84.0
Impaired Water Bodies	87.0
Solid Waste	81.3
Sensitive Population	—
Asthma	37.5
Cardio-vascular	40.2
Low Birth Weights	49.3
Socioeconomic Factor Indicators	—
Education	8.42
Housing	52.1
Linguistic	38.6
Poverty	19.4
Unemployment	25.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	92.71140767
Employed	84.60156551
Median HI	90.55562684
Education	—
Bachelor's or higher	63.68535866
High school enrollment	100
Preschool enrollment	16.27101245
Transportation	—
Auto Access	87.47593995
Active commuting	3.118182985

Social	—
2-parent households	57.5003208
Voting	86.14140896
Neighborhood	—
Alcohol availability	77.14615681
Park access	32.84999358
Retail density	16.1170281
Supermarket access	32.32388041
Tree canopy	45.01475683
Housing	—
Homeownership	76.19658668
Housing habitability	85.62812781
Low-inc homeowner severe housing cost burden	62.40215578
Low-inc renter severe housing cost burden	90.56845887
Uncrowded housing	83.16437829
Health Outcomes	—
Insured adults	66.66238932
Arthritis	45.8
Asthma ER Admissions	64.2
High Blood Pressure	31.6
Cancer (excluding skin)	25.9
Asthma	55.1
Coronary Heart Disease	61.0
Chronic Obstructive Pulmonary Disease	56.7
Diagnosed Diabetes	80.8
Life Expectancy at Birth	71.9
Cognitively Disabled	74.6
Physically Disabled	76.0

Heart Attack ER Admissions	26.9
Mental Health Not Good	67.2
Chronic Kidney Disease	73.0
Obesity	69.5
Pedestrian Injuries	56.1
Physical Health Not Good	72.6
Stroke	75.8
Health Risk Behaviors	—
Binge Drinking	14.4
Current Smoker	66.4
No Leisure Time for Physical Activity	76.1
Climate Change Exposures	—
Wildfire Risk	32.3
SLR Inundation Area	0.0
Children	87.0
Elderly	28.2
English Speaking	76.1
Foreign-born	24.9
Outdoor Workers	46.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	78.6
Traffic Density	78.9
Traffic Access	23.0
Other Indices	—
Hardship	14.0
Other Decision Support	—
2016 Voting	86.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	37.0
Healthy Places Index Score for Project Location (b)	79.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	As per the applicant
Operations: Vehicle Data	Based on Lost Canyons Traffic Analysis - 180 Lot Transfer, Michael Baker International. Trip credits from the existing golf course use has not been taken into consideration.

APPENDIX F

ENERGY ASSESSMENT MEMORANDUM

Michael Baker INTERNATIONAL

We Make a Difference

MEMORANDUM

To: Rick Nelson, Newport Pacific Land Company

From: Winnie Woo, Michael Baker International

Date: November 12, 2025

Subject: Lost Canyons 180 Lots Transfer Project – Energy Assessment

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PURPOSE AND BACKGROUND

The purpose of this technical memorandum is to evaluate potential short- and long-term energy impacts that would result from the construction and operation of the proposed Density Transfer of 180 lots for the Lost Canyons Project (project), located within the City of Simi Valley (City). The project is within the scope of buildout of the Whiteface Specific Plan (Specific Plan), which was analyzed in the *Whiteface Specific Plan Amendment 6* (approved project)*: Lost Canyons Final Environmental Impact Report*, dated November 2010 (2010 EIR). This memorandum compares the project's impacts with the impacts identified for the approved project in the 2010 EIR.

The City adopted the Specific Plan in 1992 for an approximately 1,770-acre project site consisting of two neighboring valleys (Dry and Tapo Canyons) located at the base of Big Mountain, and proposed sites for a residential community referred to as, "Lost Canyons". The 2010 EIR evaluated the approved project which consisted of various land uses, including a mix of residential types, natural open space, a multi-purpose trail system, and an area for the development of a golf course and related commercial recreational amenities. Specifically, the approved project includes the following land uses:

- 364 single-family dwelling units (located within a private gated community)
- Private 18-hole golf course (located within a private gated community)
- Private neighborhood park (located within a private gated community)
- Private 25 Golf Course Member Suite (located within a private gated community)
- Private approximately 6,000 square-foot service-oriented commercial use (located within a private gated community)
- Public trail head with public parking lot

The proposed project would internally relocate 180 dwelling units from Dry Canyon and Tapo Canyon, south of Lost Canyons Drive, to the Clubcore area, north of Lost Canyons Drive that were included in the approved project. This reflects a zero-sum net change in the total number of dwelling units and is an equal transfer of units within the overall residential land uses evaluated in the 2010 EIR. While the 2010 EIR evaluated multiple components and various land uses, the overall total dwelling units remains at 364 single-family dwelling units. The proposed density transfer of 180 lots would occur internally within the area evaluated in the 2010 EIR and would not result in an addition of land uses compared to what was

previously analyzed in the 2010 EIR. Lots 363 and 364, located south of Lost Canyons Drive, was previously analyzed in the approved project; refer to Appendix A, *Concept Illustrative Exhibit Lots 363 & 364*. Implementation of the proposed project would relocate 180 dwelling units from Dry Canyon and Topo Canyon, south of Lost Canyons Drive, to the Clubcore area and would not impact or relocate these 2 lots. As such, the following technical memorandum would not evaluate impacts associated with these lots.

The proposed project would not include the development of a new private 18-hole golf course, a clubhouse, a private neighborhood park, or a public trail head with parking lot as was approved with the approved project. The proposed project proposes to provide private neighborhood parks within the new development, including a private recreation building for residents of the development. In addition, the existing public trailhead and parking lot located on the east side of the Lost Canyons Drive and Tapo Canyon Road intersection would remain and be dedicated to the Rancho Simi Recreation Park District (RSRPD). The project also proposes to construct a new trailhead off of Bennet Road.

Energy considerations were discussed in the 2010 EIR Section 4.2, *Air Quality*. Specifically, 2010 EIR Table 4.2-18, *Consistency of Sustainable Strategies with AB 32 Proposed Scoping Plan Measures*, and Table 4.2-19, *General Plan Goals and Policies Analysis* include analyses on the approved project's consistency with applicable policies relevant to energy. Nonetheless, this memorandum evaluates energy impacts from the project such that any potentially significant energy impacts under CEQA could be identified, and mitigation measures adopted, if applicable.

PROJECT LOCATION

The City is roughly 42.25 square miles in the southeast portion of Ventura County (County), approximately 40 miles northwest of Downtown Los Angeles. The City borders the Santa Susana Mountains to the north, the Simi Hills to the east and south, and is adjacent to Thousand Oaks to the southwest and Moorpark to the west; refer to Exhibit 1, *Regional Vicinity Map.*

Dry Canyon and Tapo Canyon, two neighboring valleys located at the base of Big Mountain, consist of the proposed residential community named Lost Canyons; refer to Exhibit 2, *Site Vicinity*. Regional access to the project site is provided via State Route (SR) 118. Local access to the project site is provided via Lost Canyons Drive, Erringer Road, and Tapo Canyon Road.

EXISTING SITE CONDITIONS

The Specific Plan area is located north of Lost Canyons Drive in the City of Simi Valley. Existing uses on the site include two graded 18-hole golf courses, a clubhouse, and associated facilities such as a cart barn, driving range, parking lot, and open space, which is permanently closed.

According to the *Simi Valley General Plan* (General Plan), Land Use Map, the General Plan designates the residential community Residential Medium Density.[1] According to the City's Zoning Map, the proposed residential community is zoned Residential Medium Density.[2]

[1] City of Simi Vally, *City of Simi Valley General Plan, Land Use Map*, 2023, https://www.simivalley.org/home/showpublisheddocument/24714/638289835458270000, accessed September 1, 2024.

[2] City of Simi Valley, *Zoning Simi Valley*, https://www.arcgis.com/apps/mapviewer/index.html?webmap=b20ec935fa594a90a6e7128fd4f96268&extent=-118.859,34.2101,-118.6054,34.3319, accessed September 1, 2024.



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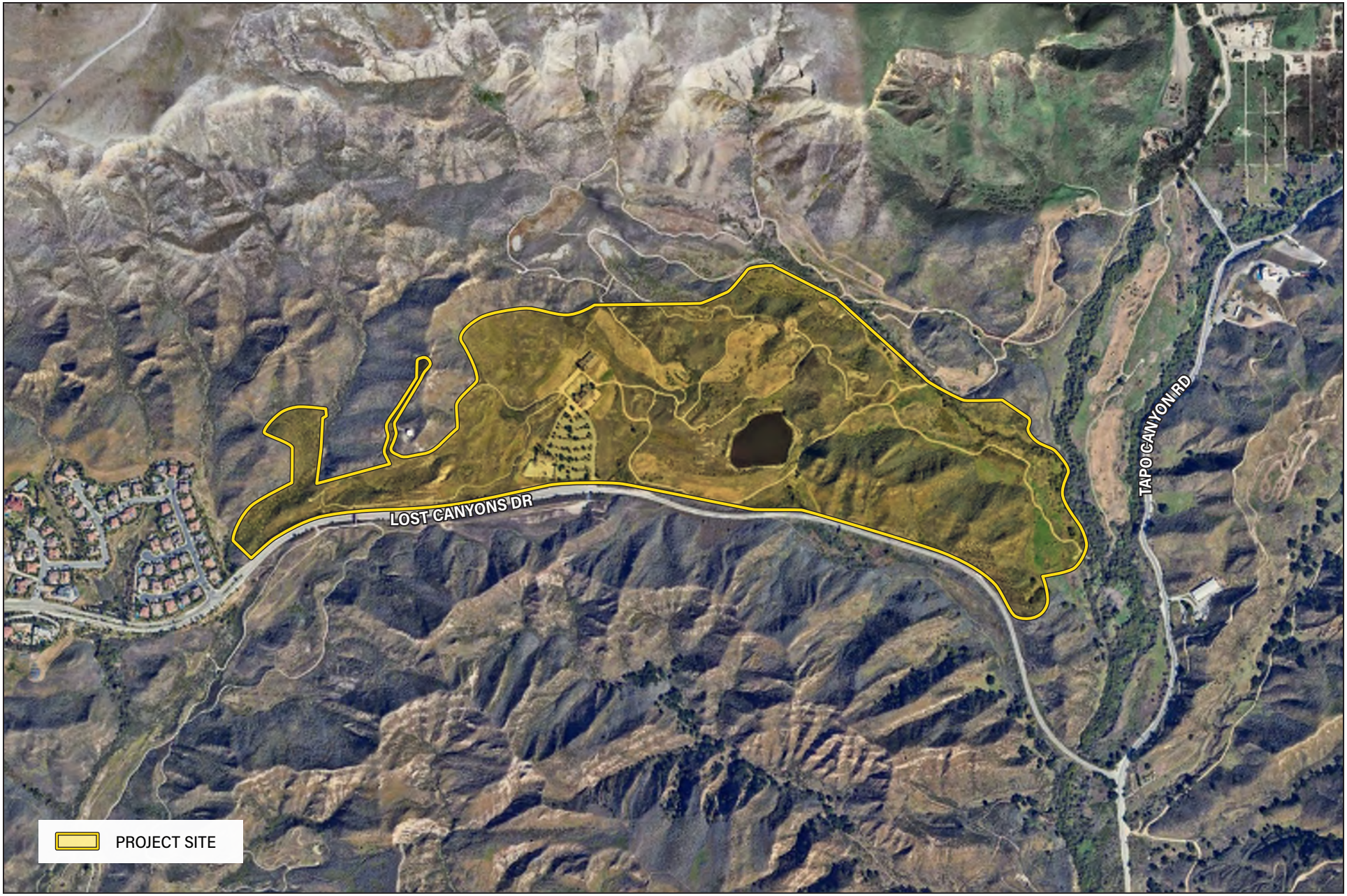
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LOST CANYONS 180 LOTS TRANSFER PROJECT
ENERGY TECHNICAL MEMORANDUM

Regional Vicinity

Exhibit 1



Source: Google Earth Pro, October 2025

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LOST CANYONS 180 LOTS TRANSFER PROJECT
ENERGY TECHNICAL MEMORANDUM

Site Vicinity Map

Exhibit 2

PROJECT DESCRIPTION

The proposed project would internally relocate 180 dwelling units from Dry Canyon and Topo Canyon, south of Lost Canyons Drive, to the Clubcore area (former golf course), north of Lost Canyons Drive; refer to Exhibit 3, *Conceptual Site Plan*. This reflects a zero-sum net change in the total number of dwelling units and is an equal transfer of units within the overall residential land uses proposed within the 2010 EIR. The overall total dwelling units remains at 364 single-family dwelling units for the Lost Canyons Project. Ultimately, 362 lots are planned north of Lost Canyons Drive and 2 lots south of Lost Canyons Drive, including one lot in Dry Canyon and another lot in Tapo Canyon South, both accessible on the southern property boundary from existing easements.

Construction of the proposed 364 single-family dwelling units would occur in two phases. Phase 1 would include construction of 180 residential lots and Phase 2 would include construction of 184 residential lots. For purposes of this analysis, the project is the transfer of 180 lots as part of the Phase 2 184-lot phase of the Lost Canyons Project.

Construction activities for Phase 1 is anticipated to begin in 2025 and would consist of demolition, grading, building construction, paving, and architectural coating. Construction activities for Phase 2 could begin in 2027 and would include grading, building construction, paving, and architectural coating. The project would demolish approximately 31,300 square feet of buildings during Phase 1 demolition. Earthwork would be balanced on-site.

EXISTING SETTING

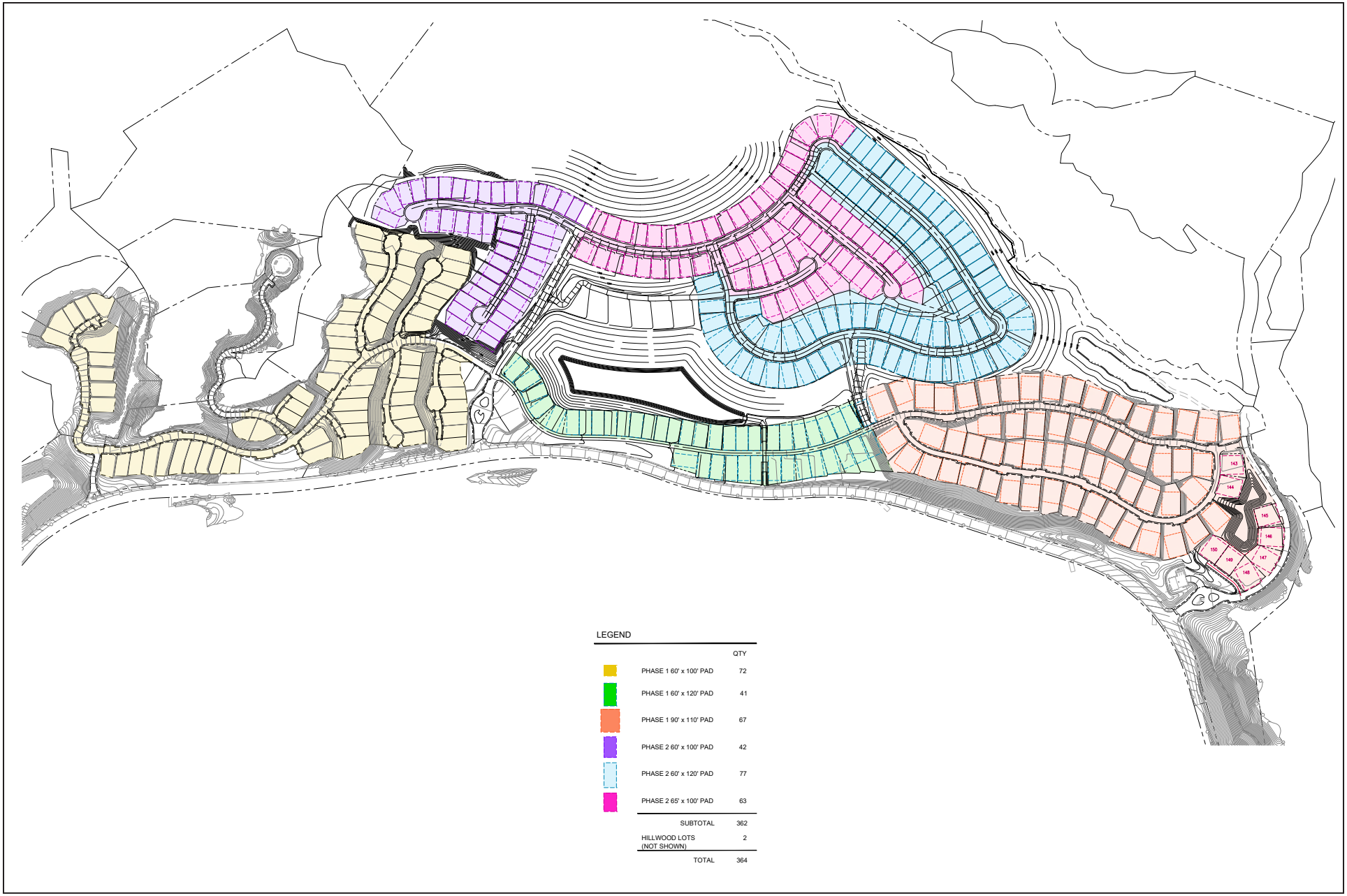
Electricity

Southern California Edison (SCE) provides electricity services, billing, customer service and power line maintenance and repair in the City of Simi Valley. Over the past 15 years, electricity generation in California has undergone a transition. Historically, California has relied heavily on oil- and gas-fired plants to generate electricity. Spurred by regulatory measures and tax incentives, California's electrical system has become more reliant on renewable energy sources, including cogeneration, wind energy, solar energy, geothermal energy, biomass conversion, transformation plants, and small hydroelectric plants. Unlike petroleum production, electricity generation is usually not tied to the location of the fuel source and can be delivered great distances via the electrical grid. The generating capacity of a unit of electricity is expressed in megawatts (MW). Net generation refers to the gross amount of energy produced by a unit, minus the amount of energy the unit consumes. Generation is typically measured in kilowatt-hours (kWh), megawatt-hours (MWh), or gigawatt-hours (GWh).

Natural Gas

Southern California Gas (SoCalGas) provides natural gas service to the project Site. SoCalGas provides natural gas to approximately 21.8 million customers across a 24,000-square-mile territory, including parts of the following counties: Riverside, Orange, San Bernardino, Los Angeles, Ventura, Santa Barbara, Kern, Inyo, Tulare, and Mono. Natural gas generation is expressed in therms, where one therm is equivalent to 100,000 British Thermal Unit (BTU). In 2022, the total natural gas consumption in the SoCalGas service area was 5,026 million therms, with the residential sector consumption at 2,230 million therms.[3]

[3] California Energy Commission, *Gas Consumption by Entity*, http://www.ecdms.energy.ca.gov/, accessed October 17, 2024.



Source: RTM Engineering Consultants, October 2024

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LOST CANYONS 180 LOTS TRANSFER PROJECT
ENERGY TECHNICAL MEMORANDUM

Conceptual Site Plan

Exhibit 3

Automotive Fuel

In California, gasoline consumed primarily by light-duty cars, pickup trucks, and sport utility vehicles is the most used transportation fuel. Diesel, the second most-used transportation fuel, is primarily consumed by heavy-duty trucks, delivery vehicles, buses, trains, ships, boats and barges, farm equipment, and heavy-duty construction and military vehicles. Both gasoline and diesel are primarily petroleum-based, and their consumption releases greenhouse gas (GHG) emissions. The transportation sector is the single largest source of GHG emissions in California and accounts for the largest share of California's energy consumption. Approximately 40 percent of all inventoried GHG emissions in California in 2019 was generated by the transportation sector. California's transportation sector accounts for one-third of California's total energy consumption in 2020. To reduce Statewide vehicle emissions, California requires that all motorists use California Reformulated Gasoline, which is sourced almost exclusively from California refineries.

Energy Usage

Energy usage is typically quantified using the British Thermal Unit (BTU). Total energy usage in California was 7,359 trillion BTU in 2021, which equates to an average of 189 million BTU per capita.[4] Of California's total energy usage, the breakdown by sector is 38 percent transportation, 23 percent industrial, 19 percent commercial, and 20 percent residential.[5] Electricity in California are generally consumed by stationary users such as residences and commercial and industrial facilities, whereas petroleum consumption is generally accounted for by transportation-related energy use. In 2023, taxable gasoline sales (including aviation gasoline) in California accounted for 13,584,697,637 gallons of gasoline.[6] The energy consumption attributable to the Ventura County (County) from 2012 to 2022 is shown in Table 1, *Electricity and Natural Gas Consumption in Ventura County 2012-2022*. The year 2022 is the most recent year for which data is currently available.

[4] U.S Energy Information Administration, *California State Energy Profile*, https://www.eia.gov/state/print.php?sid=CA, accessed April 9, 2024.

[5] U.S Energy Information Administration, *California State Energy Profile*, https://www.eia.gov/state/print.php?sid=CA, accessed April 9, 2024.

[6] California Department of Tax and Fee Administration, *Net Taxable Gasoline Gallons*, available at: https://www.cdtfa.ca.gov/taxes-and-fees/spftrpts.htm, accessed April 9, 2024.

Table 1
Electricity and Natural Gas Consumption in Ventura County 2012-2021

Year	Electricity Consumption (in millions of kilowatt hours)	Natural Gas Consumption (in millions of therms)
2012	5,519.33	186.98
2013	5,395.23	189.88
2014	5,484.17	159.76
2015	5,591.50	162.35
2016	5,453.87	173.17
2017	5,505.27	170.92
2018	5,441.75	166.83
2019	5,454.53	186.51
2020	5,454.58	180.18
2021	5,358.76	175.68
2022	5,558.91	171.05

Sources:
California Energy Commission, *Electricity Consumption by County*, http://www.ecdms.energy.ca.gov/, accessed April 9, 2024.
California Energy Commission, *Gas Consumption by County*, http://www.ecdms.energy.ca.gov/, accessed April 9, 2024.

Automotive fuel consumption in the County from 2012 to 2024 is shown in Table 2, *Automotive Fuel Consumption in Ventura County 2012-2024*.

Table 2
Automotive Fuel Consumption in Ventura County 2012-2022

Year	On-Road Automotive Fuel Consumption (gallons)	Heavy-Duty Vehicle/Diesel Fuel Consumption (Construction Equipment) (gallons)
2012	294,170,217	3,328,400
2013	293,759,520	3,584,311
2014	295,069,522	3,847,643
2015	301,538,806	4,122,398
2016	306,170,085	4,405,010
2017	309,059,793	4,698,798
2018	306,229,543	5,001,615
2019	304,523,096	5,315,575
2020	271,554,637	4,560,261
2021	302,449,103	4,563,442
2022	299,309,754	4,561,866
2023	294,809,817	4,561,115
2024	288,624,040	4,541,365

Sources:
California Air Resources Board, *On-Road EMFAC., https://arb.ca.gov/emfac/*, accessed October 21, 2024.
California Air Resources Board, *Off-Road EMFAC., https://arb.ca.gov/emfac/offroad/*, accessed October 22, 2024.

REGULATORY SETTING

State

Senate Bill 100

Senate Bill (SB) 100 (Chapter 312, Statutes of 2018) requires that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt-hours (kWh) of those products sold to their retail end-use customers achieve 44 percent of retail sales by December 31, 2024; 52 percent by December 31, 2027; 60 percent by December 31, 2030; and 100 percent by December 31, 2045. SB 100 requires the California Public Utilities Commission (CPUC), California Energy Commission (CEC), State board, and all other State agencies incorporate this policy into all relevant planning. In addition, SB 100 requires the CPUC, CEC, and State board to utilize programs authorized under existing statutes to achieve such renewable energy goals.

California Building Energy Efficiency Standards (Title 24)

The 2022 California Building Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6), commonly referred to as "Title 24," became effective on January 1, 2023. In general, Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The 2022 Title 24 standards encourage efficient electric heat pumps, establish electric-ready requirements for new homes, expand solar photovoltaic and battery storage standards, strengthen ventilation standards, and more. Buildings whose permit applications are applied for on or after January 1, 2023, must comply with the 2022 Title 24 standards.

California Green Building Standards (CALGreen)

The 2022 California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as CALGreen, went into effect on January 1, 2023. The California Green Building Standards (CALGreen) is the first-in-the-nation mandatory green buildings standards code. The California Building Standards Commission developed the green building standards in an effort to meet the goals of California's landmark initiative Assembly Bill (AB) 32, which established a comprehensive program of cost-effective reductions of GHGs to 1990 levels by 2020. CALGreen was developed to (1) reduce GHGs from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the environmental directives of the administration. CALGreen requires that new buildings employ water efficiency and conservation, increase building system efficiencies (e.g., lighting, heating/ventilation and air conditioning [HVAC], and plumbing fixtures), divert construction waste from landfills, and incorporate electric vehicles charging infrastructure. There is growing recognition among developers and retailers that sustainable construction is not prohibitively expensive, and that there is a significant cost-savings potential in green building practices and materials.[7]

[7] U.S. Green Building Council, *Green Building Costs and Savings*, https://www.usgbc.org/articles/green-building-costs-and-savings, accessed April 9, 2024.

California Public Utilities Commission Energy Efficiency Strategic Plan

The CPUC prepared an *Energy Efficiency Strategic Plan* (Strategic Plan) in September 2008 with the goal of promoting energy efficiency and GHG reductions. In January 2011, a lighting chapter was adopted and added to the Strategic Plan. The Strategic Plan is California's single roadmap to achieving maximum energy savings in the State from 2009 to 2020 and beyond. The Strategic Plan contains the practical strategies and actions to attain significant Statewide energy savings, because of a year-long collaboration by energy experts, utilities, businesses, consumer groups, and governmental organizations in California, throughout the West, nationally and internationally.

California Public Utilities Commission Community Choice Aggregation

Community Choice Aggregation (CCA) was enacted by Assembly Bill 117 (AB 117) in 2002. Under AB 117, "all electrical corporations must cooperate fully with community choice aggregators investigating, pursuing, or implementing community choice aggregator programs."

The investor-owned utility (IOU) continues to provide transmission and distribution, metering, billing, collection, and customer service to retail customers participating in CCAs. SCE is an investor-owned public utility company and is subjected to AB 117. AB 117 also provided guidance on how communities may create a CCA program. AB 117 requires that the city or county pass an ordinance to implement a CCA program within its jurisdiction. Two or more cities or counties may participate in a CCA program as a group through a Joint Powers agency. Potential customers within a community's service area are automatically enrolled in a CCA program unless they opt out if they are notified in writing of their right to opt out. If a customer opts out of CCA service, the IOU will continue to serve them as bundled customers.

CCAs are responsible to meet regulatory compliance requirements established in Resource Adequacy (RA), Integrated Resource Planning (IRP), and Renewable Portfolio Standards (RPS). CCAs are responsible for tracking and compliance with CPUC regulations.

California Energy Commission Integrated Energy Policy Report

In 2002, the California State legislature adopted Senate Bill (SB) 1389, which requires the CEC to develop an Integrated Energy Policy Report (IEPR) every two years. SB 1389 requires the CEC to conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices, and use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the State's economy, and protect public health and safety.

The CEC adopted the 2023 Integrated Energy Policy Report (2023 IEPR) on February 14, 2024. The 2023 IEPR provides the results of the CEC's assessments of a variety of energy issues facing California, many of which will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining reliability and controlling costs. The 2023 IEPR discusses speeding connection of clean resources to the electricity grid, the potential use of clean and renewable hydrogen, and the California Energy Demand Forecast to 2040.

Executive Order N-79-20

Executive Order N-79-20, issued September 23, 2020, directs the State to require all new cars and passenger trucks sold in the State to be zero-emission vehicles by 2035. Executive Order N-79-20 further states that all medium- and heavy-duty vehicles sold in the State will be zero-emission by 2045.

Local

City of Simi Valley

Simi Valley General Plan

The *Simi Valley General Plan* (General Plan) guides development decisions through 2030 and beyond. Sustainability is a key theme of the General Plan, and the goals and policies are designed to locate housing, jobs, and services closer to one another to reduce automobile traffic, congestion, pollution, and resource consumption, while increasing the viability of businesses and social interaction, energy efficiency, water conservation, and recycling. Simi Valley's plans for future growth and development are guided by a commitment to protect the natural environment and to maintain and enhance the quality of life for all people in Simi Valley. The following goals and policies from the Community Development, Mobility and Infrastructure, Natural Resources, and Housing Chapters are related to energy:

Community Development Chapter, Land Use and Community Design Section

Goal LU-3 City Structure and Form. Land uses are located, designed, and scaled to respect Simi Valley's natural setting; maintain distinct and interconnected places for residents to live, shop, work, and play; and reduce automobile dependence.

Policy LU-3.2 Citywide Development Pattern. Provide for an overall pattern of land uses that promotes efficient development; minimizes the impact of traffic congestion; reduces transportation distances, energy consumption, air pollution, and greenhouse gas emissions; ensures compatibility between uses; protects the natural hillsides, major watercourses, and trees; enhances community livability and public health; and sustains economic vitality.

Goal LU-8 City Sustained and Renewed. Land development practices that sustain natural environmental resources, the economy, and societal well-being for use by future generations, while reducing greenhouse gas emissions and impacts on climate change, are maintained.

Policy LU-8.1 Regulating Sustainable Development. Implement the most current version of the California Green Building Standards Code with amendments and update periodically to reflect future amendments and require development projects, major renovations, and municipal structures to be consistent with these.

Policy LU-8.2 Sustainable Building Practices. Promote sustainable building practices that utilize architectural design features, materials, interior fixtures and finishes, and construction techniques to reduce energy and water consumption, human exposure to toxic and chemical pollution, and disposal of waste materials.

Policy LU-8.4 Sustainable Land Development Practices. Promote land development practices that reduce energy and water consumption, pollution, greenhouse gas emissions, and disposal of waste materials incorporating such techniques as:

a. Concentration of uses and design of development to promote walking and use of public transit in lieu of the automobile
b. Capture and re-use of stormwater on-site for irrigation
c. Management of wastewater and use of recycled water
d. Orientation of buildings to maximize opportunities for solar energy use, daylighting, and ventilation
e. Use of landscapes that protect native soil, conserve water, provide for wildlife, reduce green waste, and reduce the risk of wildfires
f. Use of permeable paving materials or reduction of paved surfaces
g. Shading of surface parking, walkways, and plazas
h. Recycling and/or salvaging for reuse of construction and demolition debris

Policy LU-8.9 Green Buildings. Require all new construction and/or retrofitting of structures to be built to an identified green building standard.

Mobility and Infrastructure Chapter, Infrastructure and Utilities Section

Goal IU-6 Reliable Energy Resources. Affordable, reliable, and environmentally sensitive energy resources are available for the City's residents and businesses.

Policy IU-6.4 Renewable Energy. Promote the installation and construction of renewable energy systems and facilities such as wind, solar, hydropower, geothermal, and biomass facilities where appropriate.

Policy IU-6.5 Photovoltaic Panels for Private Projects. Expand the provision of incentives for the installation of solar energy panels on private development.

Natural Resources Chapter

Goal NR-7 Reliable Energy Resources. Reliable, affordable, and environmentally sensitive energy resources are available for residents and businesses.

Policy NR-7.4 Solar-Ready Buildings. Require that, where feasible, all new buildings be constructed to allow for easy, cost-effective installation of solar energy systems in the future addressing such elements as: optimal roof orientation, clear access, adequacy of structural support, and installation of electrical conduit and plumbing.

Goal NR-8 Reduced Energy Consumption. Energy consumption is minimized through sustainable building practices and other reduction strategies.

Policy NR-8.4 Solar Homes Partnership. Require that projects of five or more housing units participate in the California Energy Commission's new solar homes partnership, which provides rebates to developers who offer solar power in at least 50% of new units, or a program with similar provisions.

Housing Chapter

Goal HE-2 Existing Housing Stock. The existing residential housing stock is maintained and improved where necessary.

Policy HE-2.6 Energy Conservation in New Housing. Encourage the use of energy conserving techniques in the siting and design of new housing.

Policy HE-2.7 Enforce Energy Conservation Laws. Actively enforce all state energy conservation requirements for new residential construction.

Policy HE-2.8 Promote Solar Power. Encourage and promote the maximum use of passive solar heating and cooling opportunities in housing units throughout the City.

Simi Valley Climate Action Plan

The *Simi Valley Climate Action Plan* (CAP) includes goals and policies related to energy which would help the City meet current and anticipated future State and Federal regulations. The following goals, objectives, and policies are applicable to the proposed project:

Transportation

Measure R2-T1/M2-T1: Anti-Idling Enforcement – This measure involves the adoption and enforcement of an Anti-Idling Ordinance for heavy-duty diesel trucks, including local delivery trucks and long-haul truck transport within the City. This policy would prohibit idling of on- and off-road heavy duty diesel vehicles for more than 5 minutes. This policy would be implemented by requiring signage at all loading docks and along truck routes informing drivers of the requirement to shut down their trucks after five minutes of idle time at loading docks and parking areas. Variances to the policy would include the necessity to idle while in traffic lanes due to traffic congestion on the roadway and during emergency situations. Employers who own and operate truck fleets would be required to inform their drivers of the anti-idling policy.

Measure R2-T4/M2-T4: Preferential Parking – Implementation of this reduction measure would encourage the adoption of a comprehensive parking program for public and private parking lots that facilitate carpooling and alternate transportation. Incentives to encourage carpooling and the use of alternate transportation methods would include:

- Providing reserved preferential parking spaces for car-share, carpool, and ultra-low or zero emission vehicles;
- Provide larger parking spaces that can accommodate vans used for ride-sharing programs and reserve them for vanpools, and include adequate passenger waiting/loading areas;
- Allow shared parking to reduce the number of spaces where feasible. For example, in areas where there are multiple land uses, provide resident restricted parking during nighttime hours (7pm to 7am) and open the parking lot for use by patrons of the surrounding commercial buildings during daytime hours; and
- Provide convenient pedestrian pathways through parking areas.

Measure R2-T8/M2-T8: Expand Renewable Fuel/Low-Emission Vehicle Use – Implementation of the following would promote the expanded use of renewable fuel and low-emission vehicles:

- Collaboration between local and regional governments and business to foster the increased use of renewable fuels through the siting of new alternative fueling/recharging locations;
- Providing preferential parking for ultra low-, zero- emission, and alternative fuel vehicles;
- Collaboration with energy providers to ensure the availability of necessary facilities and infrastructure to encourage the use of privately owned zero emission vehicles. This can be accomplished by having conveniently located charging and fueling stations for these vehicles;
- Provide incentives for taxicabs to use gas-electric hybrid vehicles or, at a minimum, smaller more fuel-efficient vehicles.

New developments within the City will be required to provide the necessary facilities and infrastructure in all land use types to encourage the use of low or zero-emission vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling stations). In addition, a requirement will be established for all new industrial and commercial land uses that requires all forklifts, yard trucks, or vehicles that are predominantly used onsite at nonresidential land uses to be electric-powered or powered by biofuels that are produced from waste products, or shall use other technologies that do not rely on direct fossil fuel consumption.

CALIFORNIA ENVIRONMENTAL QUALITY ACT THRESHOLDS

In accordance with the *California Environmental Quality Act Guidelines* (CEQA Guidelines), project impacts are evaluated to determine whether significant adverse environmental impacts would occur. This analysis will focus on the project's potential impacts and provide mitigation measures, if required, to reduce or avoid any potentially significant impacts that are identified. According to Appendix G of the CEQA Guidelines, the proposed project would have a significant impact related to energy if it would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation (refer to Impact Statement EN-1); and/or
- Conflict with or obstruct a State or local plan for renewable energy or energy efficiency (refer to Impact Statement EN-2).

SIGNIFICANCE CRITERIA AND METHODOLOGY

Appendix F of the CEQA Guidelines

Appendix F of the CEQA Guidelines is an advisory document that assists environmental document preparers in determining whether a project will result in the inefficient, wasteful, and unnecessary consumption of energy. The analysis in Impact Statement EN-1 relies upon Appendix F of the CEQA Guidelines, which includes the following criteria to determine whether this threshold of significance is met:

- **Criterion 1**: The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
- **Criterion 2**: The effects of the project on local and regional energy supplies and on requirements for additional capacity.
- **Criterion 3**: The effects of the project on peak and base period demands for electricity and other forms of energy.
- **Criterion 4**: The degree to which the project complies with existing energy standards.
- **Criterion 5**: The effects of the project on energy resources.
- **Criterion 6**: The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

Quantification of the project's energy usage addresses **Criterion 1**. The discussion on construction-related energy use focuses on **Criteria 2, 4,** and **5**. The discussion on operational energy use is divided into transportation energy demand and building energy demand. The transportation energy demand analysis discusses **Criteria 2, 4,** and **6**, and the building energy demand analysis discusses **Criteria 2, 3, 4,** and **5**.

This analysis will focus on whether the proposed project would result in new significant impacts or in a substantial increase in the severity of the prior impacts identified in the 2010 EIR for the approved project. If the proposed project results in new or substantially greater impacts, the environmental analysis will identify mitigation measures, if required, to reduce or avoid any potentially significant impacts that are identified.

Construction Methodology

Project construction would require temporary energy consumption primarily using fuel for construction equipment, construction worker vehicle trips to and from the project site, and the import and export of earth materials to and from the project site by heavy trucks. The estimated construction fuel consumption is based on the proposed project's construction equipment list, timing/phasing, and hours of duration for construction equipment, as well as vendor, hauling, and construction worker trips. The Lost Canyons Project would be constructed in two phases. Phase 1 construction activities is anticipated to begin in 2025 and would consist of demolition, grading, building construction, paving, and architectural coating. Phase 2 construction activities could begin in 2027 and would include grading, building construction, paving, and architectural coating. Earthwork would be balanced on-site with no import or export of earthwork materials. Energy consumption during construction, including gasoline and diesel fuel consumption from construction equipment, hauling trips, vendor trips, and worker trips, was estimated using the assumptions and factors from California Emissions Estimator Model (CalEEMod). The results of the CalEEMod modeling for construction estimates are included in Appendix B, *Energy Data*.

Operational Methodology

The proposed project would require energy use in the form of electricity and fuel consumption. The project's estimated energy consumption is based primarily on CalEEMod's default settings for the County, and consumption factors provided by SCE, the electricity provider for the project site, and SoCalGas, the natural gas provider for the project site. The annual electricity and natural gas consumption from the

proposed project was compared to the total consumption in the County in 2022, the latest year consumption data is available.

The amount of operational fuel use was estimated using the California Air Resources Board (CARB) Emissions Factor 2021 (EMFAC2021) computer program, which provides projections for typical daily fuel (i.e., diesel and gasoline) usage in the County, and the project's trip generation. According to the *Lost Canyons 180 Lot Transfer Transportation Memo*, prepared by Michael Baker International and dated November 5, 2025, the proposed project would generate approximately 3,483 total daily trips. The results of the CalEEMod modeling for operational energy consumption estimates are included in Appendix B, *Energy Data*.

IMPACT ANALYSIS

EN-1 WOULD THE PROJECT RESULT IN POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACT DUE TO WASTEFUL, INEFFICIENT, OR UNNECESSARY CONSUMPTION OF ENERGY RESOURCES, DURING PROJECT CONSTRUCTION OR OPERATION?

Level of Significance: Less Than Significant Impact.

The 2010 EIR did not evaluate impacts pertaining to Energy as it was not required at the time the 2010 EIR was prepared.

The impact analysis focuses on the three sources of energy that are relevant to the proposed project: electricity, natural gas, and transportation fuel for vehicle trips associated with project operations as well as the fuel necessary for project construction. The California Emissions Estimator Model (CalEEMod) version 2022.1 was utilized to calculate the project's construction and operational energy consumption.

The project's estimated energy consumption is summarized in Table 3, *Project and Countywide Energy Consumption*.

Table 3
Project and Countywide Energy Consumption

Energy Type	Project Annual Energy Consumption[1]	Ventura County Annual Energy Consumption[2]	Percentage Increase Countywide
Phase 1 Fuel Consumption			
Construction Off-Road Fuel Consumption	95,788 gallons	4,546,697 gallons	2.1068%
Construction On-Road Fuel Consumption	86,132 gallons	281,120,870 gallons	0.0306%
Phase 2 Fuel Consumption			
Construction Off-Road Fuel Consumption	111,911 gallons	4,546,697 gallons	2.4614%
Construction On-Road Fuel Consumption	93,147 gallons	273,868,030 gallons	0.0340%
Operational			
Electricity Consumption[3]	2,308 MWh	5,558,913 MWh	0.0415%
Natural Gas Consumption[4]	158,070 therms	171,045,020 therms	0.0924%
Operational Automotive Fuel Consumption	658,862 gallons	255,450,567 gallons	0.2579%

Energy Type	Project Annual Energy Consumption[1]	Ventura County Annual Energy Consumption[2]	Percentage Increase Countywide
Notes: 1. Project electricity consumptions as modeled in California Emissions Estimator Model Version 2022.1 (CalEEMod) computer model. Project fuel consumption calculated based on CalEEMod results. Countywide operational fuel consumption, off-road construction equipment diesel fuel consumption, and on-road fuel consumption are from CARB EMFAC2021. 2. The project's increase in electricity consumption is compared to the total consumption in Ventura County in 2022 (latest year where data is available). Phase 1 project construction off-road fuel consumption was compared with the projected Ventura's Countywide off-road fuel consumption in 2026 as 2025 data is not available; on-road fuel consumption was compared with the projected Countywide on-road fuel consumption in 2025. Phase 2 project construction off-road and on-road fuel consumption was compared with the projected Ventura's Countywide off-road fuel consumption and Ventura's Countywide on-road fuel consumption in 2026. The project increases in operational automotive fuel consumption is compared with the projected Countywide on-road fuel consumption in 2029 (first year of operation). 3. Ventura County electricity consumption data source: California Energy Commission, *Electricity Consumption by County*, http://www.ecdms.energy.ca.gov/elecbycounty.aspx, accessed April 9, 2024. 4. Ventura County natural gas consumption data source: California Energy Commission, *Gas Consumption by County*, https://ecdms.energy.ca.gov/gasbycounty.aspx, accessed April 9, 2024.			
Source: Refer to Appendix B, *Energy Data* for CalEEMod outputs and assumptions used in this analysis.			

As shown in Table 3, during operation, the Lost Canyons Project, which includes the proposed project, would constitute an approximate 0.0415 percent increase over County's typical annual electricity consumption and an approximate 0.0924 percent increase over the County's typical annual natural gas consumption; vehicle fuel consumption would increase Ventura County's consumption by 0.2579 percent. During Phase 1 construction, the Lost Canyons Project's off-road construction equipment diesel fuel consumption and on-road construction fuel consumption would increase Ventura County's consumption by 2.1068 percent and 0.0153 percent, respectively. During Phase 2 construction, the Lost Canyons Project's off-road construction equipment diesel fuel consumption and on-road construction fuel consumption would increase Ventura County's consumption by 2.4614 percent and 0.0340 percent, respectively (**Criterion 1**).It should be noted that the proposed project would be constructed under Phase 2, and therefore Phase 1 construction fuel consumptions are presented for informational purposes.

Construction Energy Consumption

During construction, the project would consume energy in two general forms: (1) the fuel energy consumed by construction vehicles and equipment; and (2) bound energy in construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass.

Fossil fuels for construction vehicles and other energy-consuming equipment would be used during demolition, grading, building construction, paving, and architectural coating. As indicated in Table 3, during Phase 2 construction, the Lost Canyons Project's off-road fuel consumption and on-road fuel consumption from construction would be approximately 111,911 gallons and 93,147 gallons, respectively. Consequently, the Lost Canyons Project's off-road construction equipment diesel fuel consumption and on-road construction fuel consumption during Phase 2 would increase Ventura County's consumption by 2.4614 percent and 0.0340 percent, respectively. As such, project construction would have a minimal effect on the local and regional energy supplies and would not require additional capacity (**Criterion 2**).

Some incidental energy conservation would occur during construction through compliance with State requirements that equipment not in use for more than five minutes be turned off (i.e., Title 13, California Code of Regulations Section 2485). Project construction equipment would also be required to comply with the latest U.S. Environmental Protection Agency (USEPA) and CARB engine emissions standards. These emissions standards require highly efficient combustion systems that maximize fuel efficiency and reduce unnecessary fuel consumption. In addition, because the cost of fuel and transportation is a significant

aspect of construction budgets, contractors and owners have a strong financial incentive to avoid wasteful, inefficient, and unnecessary consumption of energy during construction (**Criterion 4**).

Substantial reductions in energy inputs for construction materials can be achieved by selecting building materials composed of recycled materials that require substantially less energy to produce than nonrecycled materials.[8] The integration of green building materials can help reduce environmental impacts associated with the extraction, transport, processing, fabrication, installation, reuse, recycling, and disposal of these building industry source material. The project-related incremental increase in the use of energy bound in construction materials such as asphalt, steel, concrete, pipes and manufactured or processed materials (e.g., lumber and gas) would not substantially increase demand for energy compared to overall local and regional demand for construction materials. Further, it is noted that construction fuel use is temporary and would cease upon completion of construction activities. There are no unusual project characteristics that would necessitate the use of construction equipment, or building materials, or methods that would be less energy efficient than at comparable construction sites in the region or State. Therefore, fuel energy and construction materials consumed during construction would not represent a significant demand on energy resources (**Criterion 5**) and a less than significant impact would occur in this regard.

Operational Energy Consumption

Transportation Energy Demand

Pursuant to the Federal Energy Policy and Conservation Act of 1975, the National Highway Traffic and Safety Administration is responsible for establishing additional vehicle standards and for revising existing standards. Compliance with federal fuel economy standards is not determined for each individual vehicle model. Rather, compliance is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the United States. As indicated in Table 3, operational fuel consumption of the Lost Canyons Project, which includes the proposed project, is estimated to be approximately 658,862 gallons per year, which would increase Countywide automotive fuel consumption by 0.2579 percent. As such, the project does not propose any unusual features that would result in excessive long-term operational fuel consumption (**Criterion 2**).

The key drivers of transportation-related fuel consumption for the proposed project are passenger vehicles traveling to and from the project site. Additionally, light- and medium-duty trucks trips also account for a portion of the transportation-related fuel consumption used for street cleaning and trash collection. However, residents commuting factors are outside of the scope of the design of the proposed project. Notwithstanding, the proposed project would provide electric vehicle (EV) charging facility in compliance with the Title 24 standards and would include short- and long-term bicycle parking spaces. This requirement would encourage and support alternative modes of travel and thus reduce fuel consumption (**Criterion 4** and **Criterion 6**). Therefore, fuel consumption associated with vehicle trips generated by the project would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region. A less than significant impact would occur in this regard.

[8] California Department of Resources Recycling and Recovery, *Green Building*, https://calrecycle.ca.gov/greenbuilding/, accessed April 29, 2024.

Building Energy Demand

The CEC developed 2024 to 2040 forecasts for energy consumption and peak demand in support of the 2023 IEPR for each of the major electricity and natural gas planning areas and the State based on the economic and demographic growth projections. CEC forecasted baseline electricity consumption grows at a rate of about 1.7 percent annually through 2040.[9] The natural gas consumption grows at a rate of about 0.2 percent annually through 2035.[10]

As shown in Table 3, operational energy (electricity and natural gas) consumption of the Lost Canyons Project, which includes the proposed project, would represent approximately 0.0415 and 0.0924 percent increase over the current Countywide electricity and natural gas consumption, which would be significantly below CEC's forecasts. Therefore, the project would be consistent with the CEC's energy consumption forecasts and would not require additional energy capacity or supplies (**Criterion 2**). Additionally, the project would consume energy during the same time periods as other surrounding developments and would consume energy evenly throughout the day. As a result, the project would not result in unique or more intensive peak or base period electricity demand (**Criterion 3**).

The proposed project would be required to comply with the most current Title 24 (i.e., 2022 Title 24), which provide minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting. Implementation of the most current Title 24 standards significantly reduces energy usage. Title 24 Building Energy Efficiency Standards are updated every 3-year and become more stringent between each update, as such complying with the most current Title 24 standards would make the proposed project more energy efficient than existing buildings built under the earlier versions of the Title 24 standards (**Criterion 4**). Additionally, while the project would not install renewable energy systems for on-site energy generation, the installation solar-ready roofs would allow for the future addition of on-site energy production.

The electricity provider for the City, SCE, is subject to California's Renewables Portfolio Standard (RPS) reflected in SB 100. The RPS requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 44 percent by the end of 2024, 52 percent by the end of 2027, 60 percent of total procurement by 2030, and 100 percent of total procurement by 2045. Renewable energy is generally defined as energy that comes from resources which are naturally replenished within a human timescale such as sunlight, wind, tides, waves, and geothermal heat. The increase in reliance of such energy resources further ensures that new development projects will not result in the waste of the finite energy resources (**Criterion 5**).
The project would not cause wasteful, inefficient, and unnecessary consumption of building energy during project operation, or preempt future energy development or future energy conservation. A less than significant impact would occur.

Conclusion

In conclusion, energy impacts resulting from the proposed project would be less than significant. The project would not result in new significant impacts compared to identified impacts disclosed in the 2010 EIR. Likewise, there are no changed circumstances involving new or more severe impacts and no new

[9] California Energy Commission, *2023 Integrated Energy Policy Report, page 130*, February 14, 2024.

[10] Based on *2023 Integrated Energy Policy Report*, the gas forecast is updated every two years, in odd years. As such, the natural gas consumption shown here is based on the California Energy Commission, *Final 2022 Integrated Energy Policy Report Update, page 140*, May 10, 2023.

information of substantial importance requiring new analysis or project-specific mitigation measures.

Mitigation Measures: Impacts related to Impact EN-1 would be less than significant. Therefore, no project-specific mitigation measures are required. There are no applicable 2010 EIR mitigation measures.

EN-2 WOULD THE PROJECT CONFLICT WITH OR OBSTRUCT A STATE OR LOCAL PLAN FOR RENEWABLE ENERGY OR ENERGY EFFICIENCY?

Level of Significance: Less Than Significant Impact with Mitigation Incorporated.

The City does not have a plan adopted specifically for renewable energy or energy efficiency. Nonetheless, this analysis would be focused on project consistency with applicable objectives, policies, and measures within the City's General Plan as well as the City's CAP.

Consistency With General Plan and CAP

The project would comply with all applicable goals and policies identified in the City's General Plan and CAP, as listed in Table 4, *Consistency with the General Plan and CAP*.

As discussed above, operational energy consumption of the Lost Canyons Project, which includes the proposed project, would be substantially below CEC's forecasts in the 2023 IEPR (i.e., Statewide annual average growth rates of energy demand would be 1.7 percent for electricity and 0.2 percent for natural gas); refer to Table 3. Therefore, the project would be consistent with the CEC's 2023 IEPR. Further, the proposed project would be required to comply with the most current Title 24 (2022 Title 24), which provide minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting. The project would also comply with the CALGreen standards which requires that new buildings increase building system efficiencies (e.g., lighting, HVAC, and plumbing fixtures) and incorporate electric vehicles charging infrastructure. Implementation of the most current Title 24 standards significantly reduces energy usage. Additionally, per the RPS, the project would utilize electricity that would achieve 60 percent of total procurement by 2030, and 100 percent renewable energy by 2045. As such, the project would comply with State energy plans including the 2023 IEPR, the most current Title 24 as well as CalGreen standards.

Table 4
Consistency with General Plan and CAP

Policies	Project Consistency
General Plan	
Community Development Chapter, Land Use and Community Design Section	
Goal LU-3 City Structure and Form. Land uses are located, designed, and scaled to respect Simi Valley's natural setting; maintain distinct and interconnected places for residents to live, shop, work, and play; and reduce automobile dependence. **Policy LU-3.2 Citywide Development Pattern.** Provide for an overall pattern of land uses that promotes efficient development; minimizes the impact of traffic congestion; reduces transportation distances, energy consumption, air pollution, and greenhouse gas emissions; ensures compatibility between uses; protects the natural hillsides, major watercourses, and trees; enhances community livability and public health; and sustains economic vitality.	**Consistent**. The project would be built in accordance with the most recent Title 24 standards. As previously discussed, the Title 24 standards provide minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting. Implementation of the most current Title 24 standards significantly reduces energy usage. Additionally, Title 24 standards are updated every three years and become more stringent between each update, as such complying with the most current Title 24 standards would make the proposed project more energy efficient than existing buildings. As such, the project would reduce energy consumption and be consistent with this action.
Goal LU-8 City Sustained and Renewed. Land development practices that sustain natural environmental resources, the economy, and societal well-being for use by future generations, while reducing greenhouse gas emissions and impacts on climate change, are maintained. **Policy LU-8.1 Regulating Sustainable Development.** Implement the most current version of the California Green Building Standards Code with amendments and update periodically to reflect future amendments and require development projects, major renovations, and municipal structures to be consistent with these. **Policy LU-8.2 Sustainable Building Practices.** Promote sustainable building practices that utilize architectural design features, materials, interior fixtures and finishes, and construction techniques to reduce energy and water consumption, human exposure to toxic and chemical pollution, and disposal of waste materials. **Policy LU-8.4 Sustainable Land Development Practices**. Promote land development practices that reduce energy and water consumption, pollution, greenhouse gas emissions, and disposal of waste materials incorporating such techniques as: a. Concentration of uses and design of development to promote walking and use of public transit in lieu of the automobile b. Capture and re-use of stormwater on-site for irrigation c. Management of wastewater and use of recycled water d. Orientation of buildings to maximize opportunities for solar energy use, daylighting, and ventilation e. Use of landscapes that protect native soil, conserve water, provide for wildlife, reduce green waste, and reduce the risk of wildfires	**Consistent.** The proposed development would meet the most recent Title 24 and CALGreen standards which requires energy efficient measures to be incorporated. Specifically, the project would include design features such as high efficiency lighting, energy efficient appliances, solar ready roofs, low flow fixtures, water efficient irrigation, and design features (i.e., color scheme, landscaping, window placement) which would reduce the urban heat island effect. The proposed project would also include solar-ready roof for all new units. Additionally, the project would be required to comply with Senate Bill 1383 regarding solid waste reduction. As such, the project is consistent with this policy.

f. Use of permeable paving materials or reduction of paved surfaces g. Shading of surface parking, walkways, and plazas h. Recycling and/or salvaging for reuse of construction and demolition debris **Policy LU-8.9 Green Buildings.** Require all new construction and/or retrofitting of structures to be built to an identified green building standard.	
Mobility and Infrastructure Chapter, Infrastructure and Utilities Section	
Goal IU-6 Reliable Energy Resources. Affordable, reliable, and environmentally sensitive energy resources are available for the City's residents and businesses. **Policy IU-6.4 Renewable Energy.** Promote the installation and construction of renewable energy systems and facilities such as wind, solar, hydropower, geothermal, and biomass facilities where appropriate. **Policy IU-6.5 Photovoltaic Panels for Private Projects.** Expand the provision of incentives for the installation of solar energy panels on private development.	**Consistent.** The proposed project would include energy efficient technologies such as high efficiency lighting, energy efficient appliances, and solar-ready roofs. While the project would not install renewable energy systems for on-site energy generation, the solar-ready roofs would allow for the future on-site energy production. As such, the project is consistent with these policies.
Natural Resources Chapter	
Goal NR-7 Reliable Energy Resources. Reliable, affordable, and environmentally sensitive energy resources are available for residents and businesses. **Policy NR-7.4 Solar-Ready Buildings.** Require that, where feasible, all new buildings be constructed to allow for easy, cost-effective installation of solar energy systems in the future addressing such elements as: optimal roof orientation, clear access, adequacy of structural support, and installation of electrical conduit and plumbing.	**Consistent.** Refer to Response to General Plan Goal IU-6.
Goal NR-8 Reduced Energy Consumption. Energy consumption is minimized through sustainable building practices and other reduction strategies. **Policy NR-8.4 Solar Homes Partnership.** Require that projects of five or more housing units participate in the California Energy Commission's new solar homes partnership, which provides rebates to developers who offer solar power in at least 50% of new units, or a program with similar provisions.	**Consistent.** Refer to Response to General Plan Goal IU-6.

Housing Chapter	
Goal HE 2 Existing Housing Stock. The existing residential housing stock is maintained and improved where necessary. **Policy HE 2.6 Energy Conservation in New Housing.** Encourage the use of energy conserving techniques in the siting and design of new housing. **Policy HE 2.7 Enforce Energy Conservation Laws.** Actively enforce all state energy conservation requirements for new residential construction. **Policy HE 2.8 Promote Solar Power.** Encourage and promote the maximum use of passive solar heating and cooling opportunities in housing units throughout the City**.**	**Consistent.** Refer to Response to General Plan Goals Goal LU-3 and LU-8.
CAP	
Transportation	
Measure R2-T4/M2-T4: Preferential Parking - Implementation of this reduction measure would encourage the adoption of a comprehensive parking program for public and private parking lots that facilitate carpooling and alternate transportation. Incentives to encourage carpooling and the use of alternate transportation methods would include: • Providing reserved preferential parking spaces for car-share, carpool, and ultra-low or zero emission vehicles; • Provide larger parking spaces that can accommodate vans used for ride-sharing programs and reserve them for vanpools, and include adequate passenger waiting/loading areas; • Allow shared parking to reduce the number of spaces where feasible. For example, in areas where there are multiple land uses, provide resident restricted parking during nighttime hours (7pm to 7am) and open the parking lot for use by patrons of the surrounding commercial buildings during daytime hours; and • Provide convenient pedestrian pathways through parking areas.	**Consistent.** The proposed project would provide electric vehicle (EV) charging facility in compliance with the Title 24 standards and would include short- and long-term bicycle parking spaces. As such, the project is consistent with this policy.
Measure R2-T8/M2-T8: Expand Renewable Fuel/Low-Emission Vehicle Use - Implementation of the following would promote the expanded use of renewable fuel and low-emission vehicles: • Collaboration between local and regional governments and business to foster the increased use of renewable fuels through the siting of new alternative fueling/recharging locations; • Providing preferential parking for ultra low-, zero- emission, and alternative fuel vehicles; • Collaboration with energy providers to ensure the availability of necessary facilities and infrastructure to encourage the use of privately owned zero emission vehicles. This can be accomplished by having conveniently located charging and fueling stations for these vehicles; • Provide incentives for taxicabs to use gas-electric hybrid vehicles or, at a minimum, smaller more fuel-efficient vehicles.	**Consistent.** Refer to Response to Measure R2-T4/M2-T4. As such, the project is consistent with this policy.

New developments within the City will be required to provide the necessary facilities and infrastructure in all land use types to encourage the use of low or zero-emission vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling stations). In addition, a requirement will be established for all new industrial and commercial land uses that requires all forklifts, yard trucks, or vehicles that are predominantly used onsite at nonresidential land uses to be electric-powered or powered by biofuels that are produced from waste products, or shall use other technologies that do not rely on direct fossil fuel consumption.	
Sources: City of Simi Valley, *City of Simi Valley Climate Action Plan*, June 4, 2012. City of Simi Valley, *City of Simi Valley General Plan*, June 2012	

As shown in Table 4, the project would comply with all applicable City's goals and policies for reducing energy usage and implementing energy efficiency. Therefore, the proposed project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency and impacts would be less than significant.

To further reduce impacts, the project would implement 2010 EIR Mitigation Measure 4.2-5, which requires incorporation of measures outlined in the BuildItGreen GreenPoint Checklist to an extent sufficient to score an overall Green Building rating for new residential structures proposed in this project.

Conclusion

In conclusion, energy impacts resulting from the proposed project would be less than significant. The project would not result in new significant impacts compared to identified impacts disclosed in the 2010 EIR. Likewise, there are no changed circumstances involving new or more severe impacts and no new information of substantial importance requiring new analysis or project-specific mitigation measures.

Mitigation Measures:

The following 2010 EIR Mitigation Measure is applicable to the project:

4.2-5 To the degree feasible, the proposed project shall implement measures from the BuildItGreen GreenPoint Checklist included in the guidelines to an extent sufficient to score an overall Green Building rating for new residential structures. These guidelines include, but are not limited to, the following measures that could be selectively implemented by the proposed project site development team in the construction of the 364 residential units, deletion of the existing golf course (Shadow Golf Course), and the privatization of the second existing golf course on premises (Sky Golf Course). Application of the GreenPoint Checklist, using the following guidelines, is designated to reduce environmental impacts in regards to GHG emissions:

- Protect topsoil and minimize disruption of existing plants and trees.
- Recycle construction waste (including GreenWaste).
- Use recycled-content aggregate (minimum 25 percent).
- Replace Portland Cement in concrete with Recycled Flyash or Slag.
- Construct resource-efficient landscapes.
- Minimize turf areas in landscape installed by the developer.
- Plant shade trees.

- Group plants by water needs (Hydrozoning).
- Install high-efficiency irrigation systems.
- Use 50 percent salvaged or recycled-content materials for 50 percent of non-plant landscape areas.
- Use FSC-certified wood.
- Use solid wall systems (Includes SIPs, ICFs, and any non-stick frame assembly).
- Design energy heels on roof trusses (75 percent of attic insulation height at outside edge of exterior wall).
- Use recycled-content steel studs for 90 percent of interior wall framing.
- Thermal mass walls: 5/8-inch drywall on all interior walls or walls weighing more than 40 pounds/cubic feet.
- Use recycled-content (no virgin plastic) or FSC-certified decking.
- Install insulation with 75 percent recycled content.
- Inspect quality of insulation installation before applying drywall.
- Distribute domestic hot water efficiently.
- Install only high-efficiency toilets (dual-flush or 1.3 gallons per flush [gpf]).
- Design and install HVAC Systems to ACCA Manual J, D, and S recommendations.
- Install zoned, hydronic radiant heating with slab insulation.
- Install high efficiency air conditioning with environmentally responsible refrigerants.
- Design and install effective ductwork.
- Install high-efficiency HVAC filters (MERV 6+).
- Do not install fireplaces or install sealed gas fireplaces with efficiency ratings of not less than 60 percent using CSA standards.
- Install effective exhaust systems in bathrooms and kitchens.
- Install mechanical ventilation system for cooling.
- Install mechanical fresh air ventilation systems.
- Pre-plumb for solar water heating.
- Install solar water heating systems.
- Install wiring conduit for Future Photovoltaic installation and provide 200 feet of south-facing roofing.
- Install Photovoltaic (PV) panels.
- Use recycled-content paint.
- Use environmentally preferable materials for interior finish: (a) FSC-certified Wood (b) Reclaimed (c) Rapidly renewable (d) Recycled-content or (e) Finger-jointed.
- Use environmentally preferable flooring: (a) FSC-certified Wood, (b) Reclaimed, (c) Rapidly Renewable, (d) Recycled-Content, (e) Exposed Concrete. Flooring adhesive must have <50 grams per liter (gpl) of VOCs.
- Thermal mass floors: Floor covering other than carpet on 50 percent or more of concrete floors.
- Flooring meets Section 01350 or CRI Green Label Plus Requirements (50 percent minimum).
- Install water-and energy-efficient dishwashers.
- Install water- and energy-efficient clothes washing machines.
- Install ENERGY STAR appliances.
- Install built-in recycling and composting center.

REFERENCES

Documents

1. California Department of Tax and Fee Administration, *Net Taxable Gasoline Gallons*, available at: https://www.cdtfa.ca.gov/taxes-and-fees/spftrpts.htm, accessed April 9, 2024.

2. California Energy Commission, *Electricity Consumption by County*, http://www.ecdms.energy.ca.gov/, accessed April 9, 2024.

3. California Energy Commission, *Gas Consumption by Entity*, http://www.ecdms.energy.ca.gov/, accessed April 9, 2024.

4. U.S Energy Information Administration, *California State Energy Profile*, https://www.eia.gov/state/print.php?sid=CA, accessed April 9, 2024.

5. U.S. Green Building Council, *Green Building Costs and Savings*, https://www.usgbc.org/articles/green-building-costs-and-savings, accessed April 9, 2024.

6. City of Simi Vally, *City of Simi Valley General Plan, Land Use Map*, 2023, https://www.simivalley.org/home/showpublisheddocument/24714/638289835458270000, accessed September 1, 2024.

7. City of Simi Valley, *Zoning Simi Valley*, https://www.arcgis.com/apps/mapviewer/index.html?webmap=b20ec935fa594a90a6e7128fd4f96268&extent=-118.859,34.2101,-118.6054,34.3319, accessed September 1, 2024.

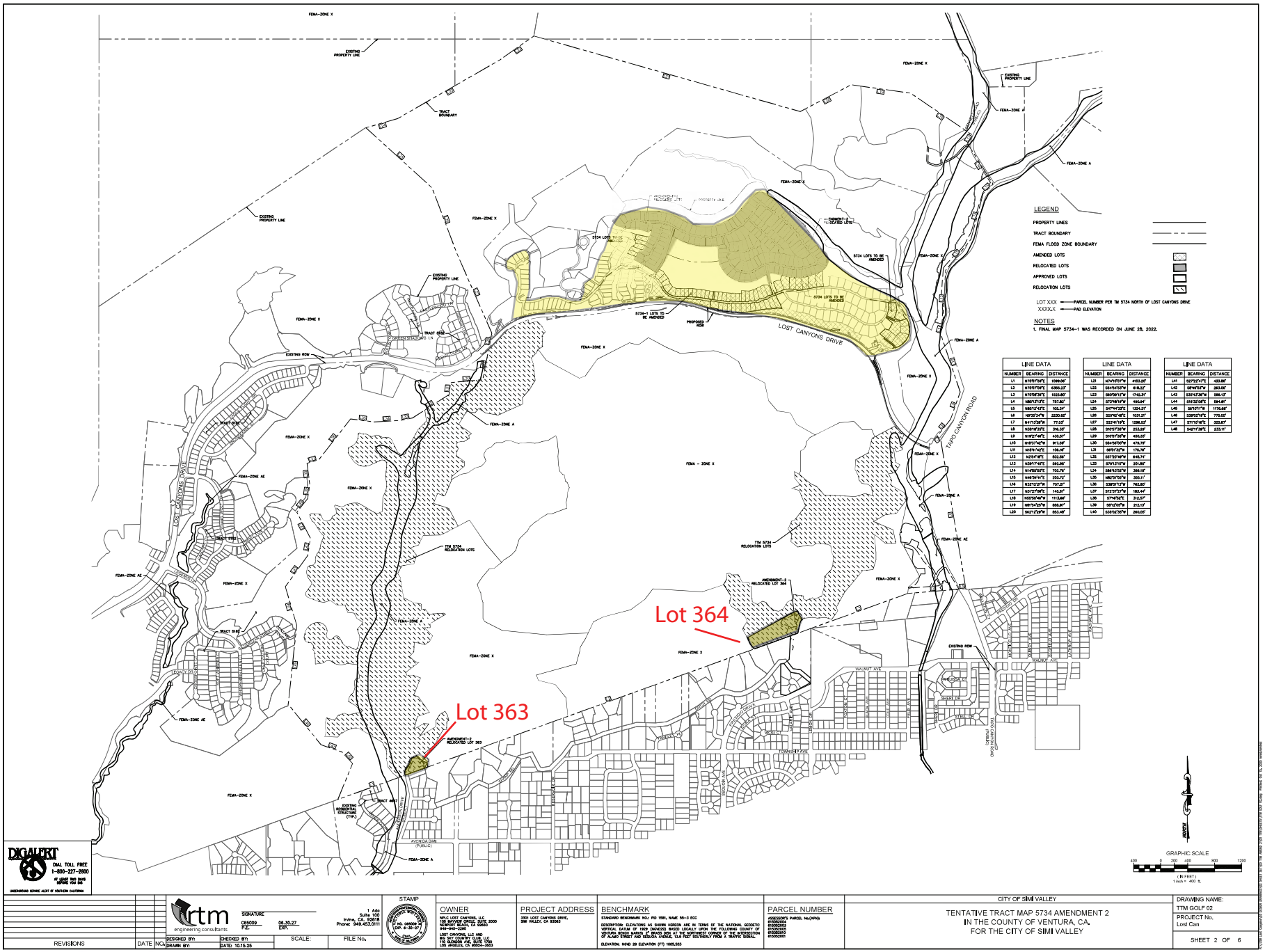
8. Michael Baker International, *Lost Canyons 180 Lot Transfer Project - Transportation*, November 10, 2025.

Programs

1. Google Earth, 2024.

2. California Air Pollution Control Officers Association, California Emissions Estimator Model (CalEEMod), version 2022.1.

Appendix A
Concept Illustrative Exhibit
Lots 363 & 364



LINE DATA		
NUMBER	BEARING	DISTANCE
L1	N79°57'57"E	1096.06'
L2	N75°07'08"E	6305.33'
L3	N75°08'36"E	1525.80'
L4	N80°17'17"E	707.82'
L5	N85°12'43"E	105.34'
L6	N9°35'24"W	2230.82'
L7	N41°13'28"W	77.53'
L8	N38°18'39"E	316.70'
L9	N19°27'48"E	435.01'
L10	N19°37'42"W	917.99'
L11	N19°41'42"E	138.16'
L12	N75°41'8"E	833.56'
L13	N39°17'48"E	883.96'
L14	N14°55'52"E	702.70'
L15	N48°34'41"E	253.72'
L16	N32°12'27"W	707.21'
L17	N31°27'06"E	145.97'
L18	N69°07'46"W	1113.66'
L19	N89°54'25"W	888.97'
L20	S82°12'29"W	853.46'

LINE DATA		
NUMBER	BEARING	DISTANCE
L21	N74°07'07"W	6133.25'
L22	S84°04'03"W	418.33'
L23	S80°09'13"W	1742.31'
L24	S73°49'18"W	480.94'
L25	S47°44'33"E	1224.21'
L26	S20°52'48"E	1031.21'
L27	S33°41'19"E	1296.55'
L28	S15°57'38"W	253.29'
L29	S19°57'38"W	480.33'
L30	S84°58'00"W	476.76'
L31	N6°51'32"W	175.76'
L32	S57°35'48"W	648.74'
L33	S76°17'19"W	201.85'
L34	S86°43'32"W	366.18'
L35	N45°57'56"W	355.11'
L36	S38°01'13"W	763.80'
L37	S72°37'37"W	183.44'
L38	S7°49'52"E	312.57'
L39	S9°10'05"W	212.15'
L40	S38°02'36"W	260.05'

LINE DATA		
NUMBER	BEARING	DISTANCE
L41	S37°52'47"E	453.86'
L42	S8°46'57"W	263.06'
L43	S33°43'36"W	566.13'
L44	S15°30'08"E	594.87'
L45	S6°15'11"W	1176.65'
L46	S35°01'47"E	775.00'
L47	S71°16'45"E	225.87'
L48	S42°17'39"E	233.11'

DIGALERT
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UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

rtm engineering consultants
1 Ada
Suite 100
Irvine, CA. 92618
Phone: (949) 453.0111

SIGNATURE
C65009 P.E.
06.30.27 EXP.

STAMP

OWNER
WILD LOST CANYONS, LLC
100 BAYVIEW CIRCLE, SUITE 2000
NEWPORT BEACH, CA 92660
949-719-2200
LOST CANYONS, LLC AND
SAP VENTURES CLINE, LLC
115 ELDRIDGE AVE, SUITE 1700
LOS ANGELES, CA 90004-3503

PROJECT ADDRESS
3301 LOST CANYONS DRIVE,
SIMI VALLEY, CA 93063

BENCHMARK
STANDARD BENCHMARK NO.: PID 1585, NAME 55-3 EOC
DESCRIPTION: ELEVATIONS AS SHOWN HEREON ARE IN TERMS OF THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29) WHICH APPLY UPON THE FOLLOWING COUNTY OF VENTURA BENCH MARKS (2 BRASS DISC AT NE QUADRANT CONCRETE INTERSECTION OF ALAMO STREET AND MCLEAN AVENUE, 13.5 FEET SOUTHERLY FROM A TRAFFIC SIGNAL.
ELEVATION: NGVD 29 ELEVATION (FT) 1005.533

PARCEL NUMBER
ASSESSOR'S PARCEL No.(APN):
619060204
619060304
619060305
619060306
619060307

CITY OF SIMI VALLEY
TENTATIVE TRACT MAP 5734 AMENDMENT 2
IN THE COUNTY OF VENTURA, CA.
FOR THE CITY OF SIMI VALLEY

DRAWING NAME:
TTM GOLF 02
PROJECT No.
Lost Can
SHEET 2 OF 6

REVISIONS	DATE	NO.	DESIGNED BY:	CHECKED BY:	SCALE:	FILE No.
			DRAWN BY:	DATE: 10.15.25		

Michael Baker INTERNATIONAL

Not to Scale

Concept Illustrative

November 2025

H:\PDATA\200855_Lost Canyon Traffic\Traffic AWR 180 Lots\9_ Exhibits

Appendix B
Energy Data

Lost Canyons 180 Lots Transfer Project

Energy Calculations
Construction Off-Road (Equipment)
Fuel Consumption

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Fuel Consumption Rate (gallon/hour)[1]	Duration (total hours/day)	# days	Total Fuel Consumption (gallon)
Demolition	Rubber Tired Dozers	2	8	367	0.4	5.87	16	21	1,972.99
Demolition	Excavators	3	8	36	0.38	0.55	24	21	275.79
Demolition	Concrete/Industrial Saws	1	8	33	0.73	0.96	8	21	161.88
Grading	Graders	1	8	148	0.41	2.43	8	196	3,805.85
Grading	Excavators	2	8	36	0.38	0.55	16	196	1,716.02
Grading	Tractors/Loaders/Backhoes	2	8	84	0.37	1.24	16	196	3,898.68
Grading	Scrapers	2	8	423	0.48	8.12	16	196	25,469.34
Grading	Rubber Tired Dozers	1	8	367	0.4	5.87	8	196	9,207.30
Building Construction	Forklifts	3	8	82	0.2	0.66	24	522	8,218.37
Building Construction	Generator Sets	1	8	14	0.74	0.41	8	522	1,730.53
Building Construction	Cranes	1	7	367	0.29	4.26	7	522	15,555.81
Building Construction	Welders	1	8	46	0.45	0.83	8	522	3,457.73
Building Construction	Tractors/Loaders/Backhoes	3	7	84	0.37	1.24	21	522	13,627.96
Paving	Pavers	2	8	81	0.42	1.36	16	129	2,808.69
Paving	Paving Equipment	2	8	89	0.36	1.28	16	129	2,645.22
Paving	Rollers	2	8	36	0.38	0.55	16	129	1,129.42
Architectural Coating	Air Compressors	1	6	37	0.48	0.71	6	25	106.56
								Total Construction Off-Road Fuel Consumption (gallon)	***95,788.14***
								Countywide Off-Road Fuel Consumption (2026) (gallon)[2]	***4,546,697.00***
								Percentage Increase Countywide	***2.1068%***

Notes:

1. Fuel Consumption Rate = Horsepower x Load Factor x Fuel Consumption Factor

Where:

Fuel Consumption Factor for a diesel engine is 0.04 gallons per horsepower per hour (gal/hp/hr) and a gasoline engine is 0.06 gal/hp/hr.

2. Countywide operational fuel consumption, off-road construction equipment diesel fuel consumption, and on-road fuel consumption are from CARB's OFFROAD2021 (v1.0.5) Emissions Inventory.

Source: Refer to CalEEMod outputs for assumptions used in this analysis.

Lost Canyons 180 Lots Transfer Project

Energy Calculations

Constrution On-Road (Mobile) Fuel Consumption

WORKER TRIPS						
Phase	**Phase Length (# days)**	**# Worker Trips**	**Worker Trip Length**	**Total VMT**	**Fuel Consumption Factor (Miles/Gallon/Day)**	**Total Fuel Consumption (gallon)**
Demolition	21	30	18.5	11,655		468.02
Grading	196	40	18.5	145,040		5,824.23
Building Construction	522	129.6	18.5	1,251,547	**24.90284233**	50,257.20
Paving	129	30	18.5	71,595		2,874.97
Architectural Coating	25	26	18.5	12,025		482.88
					Worker Trips Total	*59,907.31*
VENDOR TRIPS						
Phase	**Phase Length (# days)**	**# Vendor Trips**	**Vendor Trip Length**	**Total VMT**	**Fuel Consumption Factor (Miles/Gallon/Day)**	**Total Fuel Consumption (gallon)**
Demolition	21	0	10.2	0		0.00
Grading	196	0	10.2	0		0.00
Building Construction	522	38.4	10.2	204,457	**8.343886151**	24,503.81
Paving	129	0	10.2	0		0.00
Architectural Coating	25	0	10.2	0		0.00
					Vendor Trips Total	*24,503.81*
HAULING TRIPS						
Phase	**Phase Length (# days)**	**# Hauling Trips**	**Hauling Trip Length**	**Total VMT**	**Fuel Consumption Factor (Miles/Gallon/Day)[1]**	**Total Fuel Consumption (gallon)**
Demolition	21	34.2	20	14,364		1,721.50
Grading	196	0	20	0		0.00
Building Construction	522	0	20	0	**8.343886151**	0.00
Paving	129	0	20	0		0.00
Architectural Coating	25	0	20	0		0.00
					Hauling Trips Total	*1,721.50*
					Total Construction On-Road (Mobile) Fuel Consumption (gallon)	**86,132.61**
					Countywide On-Road Fuel Consumption (2025) (gallon) [1]	*281,120,870*
					Percentage Increase Countywide	***0.0306%***

Notes:

1. Countywide operational fuel consumption, off-road construction equipment diesel fuel consumption, and on-road fuel consumption are from CARB's EMFAC2021.

Source: Refer to CalEEMod outputs for assumptions used in this analysis.

Lost Canyons 180 Lots Transfer Project

Energy Calculations
Construction Off-Road (Equipment)
Fuel Consumption

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Fuel Consumption Rate (gallon/hour)[1]	Duration (total hours/day)	# days	Total Fuel Consumption (gallon)
Grading	Graders	1	8	148	0.41	2.43	8	218	4,233.04
Grading	Excavators	2	8	36	0.38	0.55	16	218	1,908.63
Grading	Tractors/Loaders/Backhoes	2	8	84	0.37	1.24	16	218	4,336.28
Grading	Scrapers	2	8	423	0.48	8.12	16	218	28,328.14
Grading	Rubber Tired Dozers	1	8	367	0.4	5.87	8	218	10,240.77
Building Construction	Forklifts	3	8	82	0.2	0.66	24	522	8,218.37
Building Construction	Generator Sets	1	8	14	0.74	0.41	8	522	1,730.53
Building Construction	Cranes	1	7	367	0.29	4.26	7	522	15,555.81
Building Construction	Welders	1	8	46	0.45	0.83	8	522	3,457.73
Building Construction	Tractors/Loaders/Backhoes	3	7	84	0.37	1.24	21	522	13,627.96
Paving	Pavers	2	8	81	0.42	1.36	16	391	8,513.16
Paving	Paving Equipment	2	8	89	0.36	1.28	16	391	8,017.69
Paving	Rollers	2	8	36	0.38	0.55	16	391	3,423.28
Architectural Coating	Air Compressors	1	6	37	0.48	0.71	6	75	319.68
								Total Construction Off-Road Fuel Consumption (gallon)	***111,911.08***
								Countywide Off-Road Fuel Consumption (2026) (gallon) [2]	***4,546,697.00***
								Percentage Increase Countywide	***2.4614%***

Notes:

1. Fuel Consumption Rate = Horsepower x Load Factor x Fuel Consumption Factor

   Where:

   Fuel Consumption Factor for a diesel engine is 0.04 gallons per horsepower per hour (gal/hp/hr) and a gasoline engine is 0.06 gal/hp/hr.

2. Countywide operational fuel consumption, off-road construction equipment diesel fuel consumption, and on-road fuel consumption are from CARB's OFFROAD2021 (v1.0.5) Emissions Inventory.

Source: Refer to CalEEMod outputs for assumptions used in this analysis.

Lost Canyons 180 Lots Transfer Project

Energy Calculations

Constrution On-Road (Mobile) Fuel Consumption

WORKER TRIPS						
Phase	**Phase Length (# days)**	**# Worker Trips**	**Worker Trip Length**	**Total VMT**	**Fuel Consumption Factor (Miles/Gallon/Day)**	**Total Fuel Consumption (gallon)**
Grading	218	40	18.5	161,320	**24.90284233**	6,477.98
Building Construction	522	132.4	18.5	1,278,587		51,343.01
Paving	391	30	18.5	217,005		8,714.07
Architectural Coating	75	26.4	18.5	36,630		1,470.92
					Worker Trips Total	*68,005.96*
VENDOR TRIPS						
Phase	**Phase Length (# days)**	**# Vendor Trips**	**Vendor Trip Length**	**Total VMT**	**Fuel Consumption Factor (Miles/Gallon/Day)**	**Total Fuel Consumption (gallon)**
Grading	218	0	10.2	0	**8.343886151**	0.00
Building Construction	522	39.4	10.2	209,781		25,141.93
Paving	391	0	10.2	0		0.00
Architectural Coating	75	0	10.2	0		0.00
					Vendor Trips Total	*25,141.93*
HAULING TRIPS						
Phase	**Phase Length (# days)**	**# Hauling Trips**	**Hauling Trip Length**	**Total VMT**	**Fuel Consumption Factor (Miles/Gallon/Day)[1]**	**Total Fuel Consumption (gallon)**
Grading	218	0	20	0	**8.343886151**	0.00
Building Construction	522	0	20	0		0.00
Paving	391	0	20	0		0.00
Architectural Coating	75	0	20	0		0.00
					Hauling Trips Total	*0.00*
					Total Construction On-Road (Mobile) Fuel Consumption (gallon)	**93,147.89**
					Countywide On-Road Fuel Consumption (2026) (gallon) [1]	273,868,030
					Percentage Increase Countywide	***0.0340%***

Notes:

1. Countywide operational fuel consumption, off-road construction equipment diesel fuel consumption, and on-road fuel consumption are from CARB's EMFAC2021.

Source: Refer to CalEEMod outputs for assumptions used in this analysis.

Lost Canyons 180 Lots Transfer Project

Energy Calculations
Electricty and Natural Gas Usage

Land Use	Electricity Use		Natural Gas Use	
	(kWh/yr)	(MWh/yr)	(kBTU/yr)	(Therms/yr)
Phase-1 Single Family Housing	1,141,251	1,141	7,816,640	78,166
Phase-2 Single Family Housing	1,166,612	1,167	7,990,343	79,903
Total	***2,307,863***	***2,308***	***15,806,983***	***158,070***

Source: Refer to CalEEMod outputs for assumptions used in this analysis.

Energy Type	Project Annual Energy Consumption	Ventura County Annual Energy Consumption (2022)[1,2]	Percentage Increase Countywide
Electricity (MWh)	2,308	5,558,913	0.0415%
Natural Gas (therms)	158,070	171,045,020	0.0924%

Notes:

1. County annual electricity consumption data source: California Energy Commission, *Electricity Consumption by County* , http://www.ecdms.energy.ca.gov/elecbycounty.aspx.
2. County annual natural gas consumption data source: California Energy Commission, *Gas Consumption by County* , http://www.ecdms.energy.ca.gov/gasbycounty.aspx.

Source: Refer to CalEEMod outputs for assumptions used in this analysis.

Lost Canyons 180 Lots Transfer Project

Energy Calculations

Operation On-Road (Mobile) Fuel Consumption

Vehicle Type	Percent of Vehicle Trips[1]	Daily Trips[2]	Annual Vehicle Miles Traveled	Average Fuel Economy (miles per gallon)[3]	Total Annual Fuel Consumption (gallon)[4]
Passenger Cars	0.49	1,714	5,937,412	22	269,882
Light/Medium Trucks	0.48	1,668	5,778,614	17.3	334,024
Heavy Trucks/Other	0.03	102	351,716	6.4	54,956
Total	***1.00***	**3,483**	***12,067,742***	**--**	***658,862***
				Total Operational On-Road (Mobile) Fuel Consumption (gallon)	**658,862**
				Countywide On-Road Fuel Consumption (2029) (gallon)[5]	255,450,567
				Percentage Increase Countywide	***0.2579%***

Notes:

1. Percent of Vehicle Trip distribution based on trip characteristics within the CalEEMod model.
2. Daily Trips taken from Traffic Study
3. Average fuel economy derived from the Department of Transportation.
4. Total Daily Fuel Consumption calculated by dividing the daily VMT by the average fuel economy (i.e., VMT/Average Fuel Economy).
5. Countywide operational fuel consumption, off-road construction equipment diesel fuel consumption, and on-road fuel consumption are from CARB's EMFAC2021.

Source: Refer to CalEEMod outputs for assumptions used in this analysis.

Lost Canyon Phase-1 Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Lost Canyon Phase-1
Construction Start Date	6/1/2025
Operational Year	2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	23.0
Location	3301 Lost Canyons Dr, Simi Valley, CA 93065, USA
County	Ventura
City	Simi Valley
Air District	Ventura County APCD
Air Basin	South Central Coast
TAZ	3503
EDFZ	8
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.28

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Single Family Housing	180	Dwelling Unit	58.4	351,000	2,108,314	21,083	542	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	88.1	88.0	45.3	56.6	0.10	1.83	10.7	12.5	1.68	4.01	5.68	—	12,397	12,397	0.45	0.22	6.42	12,480
Mit.	88.1	88.0	45.3	56.6	0.10	1.83	3.86	5.69	1.68	1.30	2.98	—	12,397	12,397	0.45	0.22	6.42	12,480
% Reduced	—	—	—	—	—	—	64%	54%	—	68%	48%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.69	3.95	34.5	39.4	0.07	1.44	9.66	11.1	1.33	3.76	5.09	—	8,548	8,548	0.34	0.14	0.12	8,581
Mit.	4.69	3.95	34.5	39.4	0.07	1.44	2.85	4.29	1.33	1.06	2.38	—	8,548	8,548	0.34	0.14	0.12	8,581
% Reduced	—	—	—	—	—	—	70%	61%	—	72%	53%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.46	6.40	16.8	21.0	0.04	0.67	3.86	4.53	0.62	1.44	2.06	—	4,631	4,631	0.17	0.10	1.30	4,663

Mit.	6.46	6.40	16.8	21.0	0.04	0.67	1.43	2.10	0.62	0.48	1.10	—	4,631	4,631	0.17	0.10	1.30	4,663
% Reduced	—	—	—	—	—	—	63%	54%	—	67%	47%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.18	1.17	3.07	3.82	0.01	0.12	0.70	0.83	0.11	0.26	0.38	—	767	767	0.03	0.02	0.22	772
Mit.	1.18	1.17	3.07	3.82	0.01	0.12	0.26	0.38	0.11	0.09	0.20	—	767	767	0.03	0.02	0.22	772
% Reduced	—	—	—	—	—	—	63%	54%	—	67%	47%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.98	2.49	23.8	21.2	0.04	0.93	1.99	2.92	0.86	0.36	1.22	—	4,814	4,814	0.18	0.22	3.49	4,887
2026	6.29	5.30	45.3	56.6	0.10	1.83	10.7	12.5	1.68	4.01	5.68	—	12,397	12,397	0.45	0.22	6.42	12,480
2027	1.54	1.30	10.3	16.7	0.03	0.35	1.01	1.36	0.31	0.24	0.56	—	3,803	3,803	0.12	0.14	4.22	3,851
2028	88.1	88.0	9.79	16.5	0.03	0.30	1.01	1.32	0.28	0.24	0.52	—	3,775	3,775	0.11	0.13	3.79	3,821
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.90	3.28	29.8	29.5	0.06	1.23	9.47	10.7	1.14	3.72	4.85	—	6,854	6,854	0.28	0.06	0.03	6,880
2026	4.69	3.95	34.5	39.4	0.07	1.44	9.66	11.1	1.33	3.76	5.09	—	8,548	8,548	0.34	0.14	0.12	8,581
2027	1.54	1.29	10.4	16.4	0.03	0.35	1.01	1.36	0.31	0.24	0.56	—	3,767	3,767	0.12	0.14	0.11	3,811
2028	1.46	1.25	9.84	16.2	0.03	0.30	1.01	1.32	0.28	0.24	0.52	—	3,739	3,739	0.12	0.13	0.10	3,781
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.87	0.73	6.74	6.52	0.01	0.28	1.82	2.09	0.25	0.69	0.94	—	1,511	1,511	0.06	0.02	0.17	1,520
2026	2.34	1.97	16.8	21.0	0.04	0.67	3.86	4.53	0.62	1.44	2.06	—	4,631	4,631	0.17	0.09	1.11	4,663

2027	1.10	0.92	7.41	11.7	0.02	0.25	0.71	0.96	0.22	0.17	0.40	—	2,695	2,695	0.08	0.10	1.30	2,727
2028	6.46	6.40	2.97	4.90	0.01	0.09	0.31	0.40	0.08	0.07	0.16	—	1,126	1,126	0.03	0.04	0.50	1,139
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.16	0.13	1.23	1.19	< 0.005	0.05	0.33	0.38	0.05	0.13	0.17	—	250	250	0.01	< 0.005	0.03	252
2026	0.43	0.36	3.07	3.82	0.01	0.12	0.70	0.83	0.11	0.26	0.38	—	767	767	0.03	0.01	0.18	772
2027	0.20	0.17	1.35	2.13	< 0.005	0.05	0.13	0.17	0.04	0.03	0.07	—	446	446	0.01	0.02	0.22	451
2028	1.18	1.17	0.54	0.89	< 0.005	0.02	0.06	0.07	0.02	0.01	0.03	—	186	186	0.01	0.01	0.08	189

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.98	2.49	23.8	21.2	0.04	0.93	1.45	2.39	0.86	0.28	1.14	—	4,814	4,814	0.18	0.22	3.49	4,887
2026	6.29	5.30	45.3	56.6	0.10	1.83	3.86	5.69	1.68	1.30	2.98	—	12,397	12,397	0.45	0.22	6.42	12,480
2027	1.54	1.30	10.3	16.7	0.03	0.35	1.01	1.36	0.31	0.24	0.56	—	3,803	3,803	0.12	0.14	4.22	3,851
2028	88.1	88.0	9.79	16.5	0.03	0.30	1.01	1.32	0.28	0.24	0.52	—	3,775	3,775	0.11	0.13	3.79	3,821
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.90	3.28	29.8	29.5	0.06	1.23	2.65	3.89	1.14	1.01	2.15	—	6,854	6,854	0.28	0.06	0.03	6,880
2026	4.69	3.95	34.5	39.4	0.07	1.44	2.85	4.29	1.33	1.06	2.38	—	8,548	8,548	0.34	0.14	0.12	8,581
2027	1.54	1.29	10.4	16.4	0.03	0.35	1.01	1.36	0.31	0.24	0.56	—	3,767	3,767	0.12	0.14	0.11	3,811
2028	1.46	1.25	9.84	16.2	0.03	0.30	1.01	1.32	0.28	0.24	0.52	—	3,739	3,739	0.12	0.13	0.10	3,781
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.87	0.73	6.74	6.52	0.01	0.28	0.56	0.84	0.25	0.20	0.45	—	1,511	1,511	0.06	0.02	0.17	1,520
2026	2.34	1.97	16.8	21.0	0.04	0.67	1.43	2.10	0.62	0.48	1.10	—	4,631	4,631	0.17	0.09	1.11	4,663
2027	1.10	0.92	7.41	11.7	0.02	0.25	0.71	0.96	0.22	0.17	0.40	—	2,695	2,695	0.08	0.10	1.30	2,727

2028	6.46	6.40	2.97	4.90	0.01	0.09	0.31	0.40	0.08	0.07	0.16	—	1,126	1,126	0.03	0.04	0.50	1,139
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.16	0.13	1.23	1.19	< 0.005	0.05	0.10	0.15	0.05	0.04	0.08	—	250	250	0.01	< 0.005	0.03	252
2026	0.43	0.36	3.07	3.82	0.01	0.12	0.26	0.38	0.11	0.09	0.20	—	767	767	0.03	0.01	0.18	772
2027	0.20	0.17	1.35	2.13	< 0.005	0.05	0.13	0.17	0.04	0.03	0.07	—	446	446	0.01	0.02	0.22	451
2028	1.18	1.17	0.54	0.89	< 0.005	0.02	0.06	0.07	0.02	0.01	0.03	—	186	186	0.01	0.01	0.08	189

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.6	15.9	7.02	57.9	0.13	0.24	11.5	11.8	0.24	2.92	3.16	91.0	15,912	16,003	9.97	0.55	39.8	16,457
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	15.6	14.9	7.50	47.3	0.13	0.24	11.5	11.8	0.23	2.92	3.16	91.0	15,474	15,565	10.0	0.59	3.48	15,994
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.0	15.3	7.43	51.4	0.13	0.24	11.4	11.6	0.24	2.88	3.12	91.0	15,551	15,642	10.0	0.58	18.6	16,084
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.91	2.79	1.36	9.39	0.02	0.04	2.07	2.12	0.04	0.53	0.57	15.1	2,575	2,590	1.66	0.10	3.08	2,663

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.28	6.79	4.95	46.9	0.12	0.08	11.5	11.6	0.07	2.92	3.00	—	12,084	12,084	0.50	0.50	37.3	12,283
Area	9.05	9.00	0.10	10.2	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.3	27.3	< 0.005	< 0.005	—	27.4
Energy	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	3,588	3,588	0.32	0.02	—	3,601
Water	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Waste	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	16.6	15.9	7.02	57.9	0.13	0.24	11.5	11.8	0.24	2.92	3.16	91.0	15,912	16,003	9.97	0.55	39.8	16,457
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.21	6.70	5.52	46.4	0.11	0.08	11.5	11.6	0.07	2.92	3.00	—	11,673	11,673	0.54	0.54	0.97	11,848
Area	8.11	8.11	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
Energy	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	3,588	3,588	0.32	0.02	—	3,601
Water	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Waste	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	15.6	14.9	7.50	47.3	0.13	0.24	11.5	11.8	0.23	2.92	3.16	91.0	15,474	15,565	10.0	0.59	3.48	15,994
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.15	6.65	5.41	45.6	0.12	0.08	11.4	11.4	0.07	2.88	2.96	—	11,737	11,737	0.52	0.53	16.1	11,924
Area	8.58	8.55	0.05	5.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	13.5	13.5	< 0.005	< 0.005	—	13.5
Energy	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	3,588	3,588	0.32	0.02	—	3,601
Water	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Waste	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	16.0	15.3	7.43	51.4	0.13	0.24	11.4	11.6	0.24	2.88	3.12	91.0	15,551	15,642	10.0	0.58	18.6	16,084
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	1.31	1.21	0.99	8.31	0.02	0.01	2.07	2.09	0.01	0.53	0.54	—	1,943	1,943	0.09	0.09	2.67	1,974
Area	1.57	1.56	0.01	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.23	2.23	< 0.005	< 0.005	—	2.24
Energy	0.04	0.02	0.36	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	594	594	0.05	< 0.005	—	596
Water	—	—	—	—	—	—	—	—	—	—	—	2.16	35.3	37.4	0.23	0.01	—	44.8
Waste	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Total	2.91	2.79	1.36	9.39	0.02	0.04	2.07	2.12	0.04	0.53	0.57	15.1	2,575	2,590	1.66	0.10	3.08	2,663

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.28	6.79	4.95	46.9	0.12	0.08	11.5	11.6	0.07	2.92	3.00	—	12,084	12,084	0.50	0.50	37.3	12,283
Area	9.05	9.00	0.10	10.2	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.3	27.3	< 0.005	< 0.005	—	27.4
Energy	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	3,588	3,588	0.32	0.02	—	3,601
Water	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Waste	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	16.6	15.9	7.02	57.9	0.13	0.24	11.5	11.8	0.24	2.92	3.16	91.0	15,912	16,003	9.97	0.55	39.8	16,457
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.21	6.70	5.52	46.4	0.11	0.08	11.5	11.6	0.07	2.92	3.00	—	11,673	11,673	0.54	0.54	0.97	11,848
Area	8.11	8.11	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
Energy	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	3,588	3,588	0.32	0.02	—	3,601
Water	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Waste	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	15.6	14.9	7.50	47.3	0.13	0.24	11.5	11.8	0.23	2.92	3.16	91.0	15,474	15,565	10.0	0.59	3.48	15,994
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.15	6.65	5.41	45.6	0.12	0.08	11.4	11.4	0.07	2.88	2.96	—	11,737	11,737	0.52	0.53	16.1	11,924
Area	8.58	8.55	0.05	5.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	13.5	13.5	< 0.005	< 0.005	—	13.5
Energy	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	3,588	3,588	0.32	0.02	—	3,601
Water	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Waste	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	16.0	15.3	7.43	51.4	0.13	0.24	11.4	11.6	0.24	2.88	3.12	91.0	15,551	15,642	10.0	0.58	18.6	16,084
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.31	1.21	0.99	8.31	0.02	0.01	2.07	2.09	0.01	0.53	0.54	—	1,943	1,943	0.09	0.09	2.67	1,974
Area	1.57	1.56	0.01	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.23	2.23	< 0.005	< 0.005	—	2.24
Energy	0.04	0.02	0.36	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	594	594	0.05	< 0.005	—	596
Water	—	—	—	—	—	—	—	—	—	—	—	2.16	35.3	37.4	0.23	0.01	—	44.8
Waste	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Total	2.91	2.79	1.36	9.39	0.02	0.04	2.07	2.12	0.04	0.53	0.57	15.1	2,575	2,590	1.66	0.10	3.08	2,663

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	2.86	2.40	22.2	19.9	0.03	0.92	—	0.92	0.84	—	0.84	—	3,425	3,425	0.14	0.03	—	3,437
Demoliti on	—	—	—	—	—	—	1.48	1.48	—	0.22	0.22	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.16	0.14	1.28	1.15	< 0.005	0.05	—	0.05	0.05	—	0.05	—	197	197	0.01	< 0.005	—	198
Demoliti on	—	—	—	—	—	—	0.09	0.09	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.03	0.03	0.23	0.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.6	32.6	< 0.005	< 0.005	—	32.7
Demoliti on	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.94	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.81	204
Vendor	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	0.00
Hauling	0.06	0.03	1.57	0.38	0.01	0.02	0.31	0.33	0.02	0.09	0.10	—	1,188	1,188	0.03	0.19	2.68	1,247

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	11.3
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.09	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	68.4	68.4	< 0.005	0.01	0.07	71.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.84	1.84	< 0.005	< 0.005	< 0.005	1.87
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.01	11.9

3.2. Demolition (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.86	2.40	22.2	19.9	0.03	0.92	—	0.92	0.84	—	0.84	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.95	0.95	—	0.14	0.14	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.16	0.14	1.28	1.15	< 0.005	0.05	—	0.05	0.05	—	0.05	—	197	197	0.01	< 0.005	—	198
Demoliti on	—	—	—	—	—	—	0.05	0.05	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.03	0.03	0.23	0.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.6	32.6	< 0.005	< 0.005	—	32.7
Demoliti on	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.94	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.81	204
Vendor	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	0.00
Hauling	0.06	0.03	1.57	0.38	0.01	0.02	0.31	0.33	0.02	0.09	0.10	—	1,188	1,188	0.03	0.19	2.68	1,247
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	11.3
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.09	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	68.4	68.4	< 0.005	0.01	0.07	71.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.84	1.84	< 0.005	< 0.005	< 0.005	1.87
Vendor	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	0.00

Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.01	11.9

3.3. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.68	0.58	5.34	5.10	0.01	0.22	—	0.22	0.20	—	0.20	—	1,188	1,188	0.05	0.01	—	1,192
Dust From Material Movement	—	—	—	—	—	—	1.66	1.66	—	0.66	0.66	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.13	0.11	0.98	0.93	< 0.005	0.04	—	0.04	0.04	—	0.04	—	197	197	0.01	< 0.005	—	197
Dust From Material Movement	—	—	—	—	—	—	0.30	0.30	—	0.12	0.12	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.11	1.14	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	256	256	0.01	0.01	0.03	259
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.21	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	46.3	46.3	< 0.005	< 0.005	0.08	47.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.67	7.67	< 0.005	< 0.005	0.01	7.78
Vendor	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	0.00
Hauling	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	0.00

3.4. Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.68	0.58	5.34	5.10	0.01	0.22	—	0.22	0.20	—	0.20	—	1,188	1,188	0.05	0.01	—	1,192
Dust From Material Movement	—	—	—	—	—	—	0.43	0.43	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.98	0.93	< 0.005	0.04	—	0.04	0.04	—	0.04	—	197	197	0.01	< 0.005	—	197
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.03	0.03	—	—	—	—	—	—	—

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.11	1.14	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	256	256	0.01	0.01	0.03	259
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.21	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	46.3	46.3	< 0.005	< 0.005	0.08	47.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.67	7.67	< 0.005	< 0.005	0.01	7.78
Vendor	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	0.00
Hauling	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	0.00

3.5. Grading (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.29	1.08	9.70	9.82	0.02	0.40	—	0.40	0.37	—	0.37	—	2,350	2,350	0.10	0.02	—	2,358
Dust From Material Movement	—	—	—	—	—	—	3.28	3.28	—	1.30	1.30	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.24	0.20	1.77	1.79	< 0.005	0.07	—	0.07	0.07	—	0.07	—	389	389	0.02	< 0.005	—	390
Dust From Material Movement	—	—	—	—	—	—	0.60	0.60	—	0.24	0.24	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.17	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	262	262	< 0.005	0.01	0.98	266
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.06	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	0.01	0.03	254
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.38	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	89.9	89.9	< 0.005	< 0.005	0.15	91.1
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	14.9	14.9	< 0.005	< 0.005	0.03	15.1
Vendor	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	0.00
Hauling	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	0.00

3.6. Grading (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.29	1.08	9.70	9.82	0.02	0.40	—	0.40	0.37	—	0.37	—	2,350	2,350	0.10	0.02	—	2,358

Dust From Material Movement	—	—	—	—	—	—	0.85	0.85	—	0.34	0.34	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.77	1.79	< 0.005	0.07	—	0.07	0.07	—	0.07	—	389	389	0.02	< 0.005	—	390
Dust From Material Movement	—	—	—	—	—	—	0.16	0.16	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.17	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	262	262	< 0.005	0.01	0.98	266
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.06	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	0.01	0.03	254
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.38	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	89.9	89.9	< 0.005	< 0.005	0.15	91.1
Vendor	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	0.00

Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	14.9	14.9	< 0.005	< 0.005	0.03	15.1
Vendor	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	0.00
Hauling	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	0.00

3.7. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.45	4.13	5.43	0.01	0.16	—	0.16	0.15	—	0.15	—	1,004	1,004	0.04	0.01	—	1,007

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.75	0.99	< 0.005	0.03	—	0.03	0.03	—	0.03	—	166	166	0.01	< 0.005	—	167
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.26	0.26	3.80	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	849	849	0.01	0.03	3.19	862
Vendor	0.02	0.02	0.70	0.22	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	583	583	0.01	0.09	1.52	610
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.26	0.32	3.44	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	812	812	0.01	0.03	0.08	822
Vendor	0.02	0.02	0.73	0.23	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	583	583	0.01	0.09	0.04	609
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.13	1.44	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	342	342	0.01	0.01	0.58	347
Vendor	0.01	0.01	0.30	0.09	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	244	244	< 0.005	0.04	0.27	255
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.7	56.7	< 0.005	< 0.005	0.10	57.5
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	40.4	40.4	< 0.005	0.01	0.05	42.3
Hauling	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	0.00

3.8. Building Construction (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.45	4.13	5.43	0.01	0.16	—	0.16	0.15	—	0.15	—	1,004	1,004	0.04	0.01	—	1,007
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.75	0.99	< 0.005	0.03	—	0.03	0.03	—	0.03	—	166	166	0.01	< 0.005	—	167

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.26	0.26	3.80	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	849	849	0.01	0.03	3.19	862
Vendor	0.02	0.02	0.70	0.22	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	583	583	0.01	0.09	1.52	610
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.26	0.32	3.44	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	812	812	0.01	0.03	0.08	822
Vendor	0.02	0.02	0.73	0.23	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	583	583	0.01	0.09	0.04	609
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.13	1.44	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	342	342	0.01	0.01	0.58	347
Vendor	0.01	0.01	0.30	0.09	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	244	244	< 0.005	0.04	0.27	255
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.7	56.7	< 0.005	< 0.005	0.10	57.5
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	40.4	40.4	< 0.005	0.01	0.05	42.3
Hauling	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	0.00

3.9. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.71	9.24	0.02	0.24	—	0.24	0.22	—	0.22	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	1.22	1.69	< 0.005	0.04	—	0.04	0.04	—	0.04	—	283	283	0.01	< 0.005	—	284
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.29	0.26	0.25	3.56	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	834	834	0.01	0.03	2.89	847
Vendor	0.02	0.01	0.67	0.21	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	572	572	0.01	0.09	1.33	599
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.25	0.29	3.21	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	798	798	0.01	0.03	0.07	808
Vendor	0.02	0.01	0.69	0.22	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	572	572	0.01	0.09	0.03	598
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.18	0.20	2.30	0.00	0.00	0.60	0.60	0.00	0.14	0.14	—	574	574	0.01	0.02	0.89	582
Vendor	0.02	0.01	0.50	0.15	< 0.005	0.01	0.12	0.12	< 0.005	0.03	0.04	—	409	409	0.01	0.06	0.41	427
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.42	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	95.0	95.0	< 0.005	< 0.005	0.15	96.3
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.6	67.6	< 0.005	0.01	0.07	70.7
Hauling	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	0.00

3.10. Building Construction (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405

Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.71	9.24	0.02	0.24	—	0.24	0.22	—	0.22	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	1.22	1.69	< 0.005	0.04	—	0.04	0.04	—	0.04	—	283	283	0.01	< 0.005	—	284
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.26	0.25	3.56	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	834	834	0.01	0.03	2.89	847
Vendor	0.02	0.01	0.67	0.21	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	572	572	0.01	0.09	1.33	599
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.29	0.25	0.29	3.21	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	798	798	0.01	0.03	0.07	808
Vendor	0.02	0.01	0.69	0.22	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	572	572	0.01	0.09	0.03	598
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.18	0.20	2.30	0.00	0.00	0.60	0.60	0.00	0.14	0.14	—	574	574	0.01	0.02	0.89	582
Vendor	0.02	0.01	0.50	0.15	< 0.005	0.01	0.12	0.12	< 0.005	0.03	0.04	—	409	409	0.01	0.06	0.41	427
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.42	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	95.0	95.0	< 0.005	< 0.005	0.15	96.3
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.6	67.6	< 0.005	0.01	0.07	70.7
Hauling	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	0.00

3.11. Building Construction (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.29	2.64	3.82	0.01	0.09	—	0.09	0.08	—	0.08	—	708	708	0.03	0.01	—	711
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.48	0.70	< 0.005	0.02	—	0.02	0.01	—	0.01	—	117	117	< 0.005	< 0.005	—	118
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.25	0.23	3.35	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	819	819	0.01	0.03	2.61	831
Vendor	0.02	0.01	0.64	0.21	< 0.005	< 0.005	0.16	0.17	< 0.005	0.05	0.05	—	558	558	0.01	0.08	1.18	584
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.24	0.26	3.01	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	783	783	0.01	0.03	0.07	793
Vendor	0.02	0.01	0.66	0.21	< 0.005	< 0.005	0.16	0.17	< 0.005	0.05	0.05	—	558	558	0.01	0.08	0.03	583
Hauling	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.08	0.89	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	233	233	< 0.005	0.01	0.33	236
Vendor	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	165	165	< 0.005	0.02	0.15	172
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	38.6	38.6	< 0.005	< 0.005	0.06	39.1
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.3	27.3	< 0.005	< 0.005	0.02	28.5
Hauling	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	0.00

3.12. Building Construction (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.29	2.64	3.82	0.01	0.09	—	0.09	0.08	—	0.08	—	708	708	0.03	0.01	—	711
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.48	0.70	< 0.005	0.02	—	0.02	0.01	—	0.01	—	117	117	< 0.005	< 0.005	—	118
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.25	0.23	3.35	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	819	819	0.01	0.03	2.61	831
Vendor	0.02	0.01	0.64	0.21	< 0.005	< 0.005	0.16	0.17	< 0.005	0.05	0.05	—	558	558	0.01	0.08	1.18	584
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.24	0.26	3.01	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	783	783	0.01	0.03	0.07	793
Vendor	0.02	0.01	0.66	0.21	< 0.005	< 0.005	0.16	0.17	< 0.005	0.05	0.05	—	558	558	0.01	0.08	0.03	583
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.08	0.89	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	233	233	< 0.005	0.01	0.33	236
Vendor	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	165	165	< 0.005	0.02	0.15	172
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	38.6	38.6	< 0.005	< 0.005	0.06	39.1
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.3	27.3	< 0.005	< 0.005	0.02	28.5
Hauling	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	0.00

3.13. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.52	3.51	< 0.005	0.11	—	0.11	0.10	—	0.10	—	534	534	0.02	< 0.005	—	536

Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.46	0.64	< 0.005	0.02	—	0.02	0.02	—	0.02	—	88.4	88.4	< 0.005	< 0.005	—	88.7
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.88	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	197	197	< 0.005	0.01	0.74	199
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.80	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	188	188	< 0.005	0.01	0.02	190
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.03	0.28	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	66.9	66.9	< 0.005	< 0.005	0.11	67.8
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	11.2
Vendor	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	0.00

Hauling	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	0.00

3.14. Paving (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.52	3.51	< 0.005	0.11	—	0.11	0.10	—	0.10	—	534	534	0.02	< 0.005	—	536
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.46	0.64	< 0.005	0.02	—	0.02	0.02	—	0.02	—	88.4	88.4	< 0.005	< 0.005	—	88.7
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.88	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	197	197	< 0.005	0.01	0.74	199
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.80	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	188	188	< 0.005	0.01	0.02	190
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.03	0.28	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	66.9	66.9	< 0.005	< 0.005	0.11	67.8
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	11.2
Vendor	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	0.00
Hauling	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	0.00

3.15. Architectural Coating (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	87.9	87.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.15	9.15	< 0.005	< 0.005	—	9.18
Architectural Coatings	6.02	6.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.51	1.51	< 0.005	< 0.005	—	1.52
Architectural Coatings	1.10	1.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.67	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	164	164	< 0.005	0.01	0.52	166
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.8	10.8	< 0.005	< 0.005	0.02	11.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.79	1.79	< 0.005	< 0.005	< 0.005	1.81
Vendor	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	0.00
Hauling	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	0.00

3.16. Architectural Coating (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	87.9	87.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.15	9.15	< 0.005	< 0.005	—	9.18
Architectural Coatings	6.02	6.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.51	1.51	< 0.005	< 0.005	—	1.52

Architectural Coating	1.10	1.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.67	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	164	164	< 0.005	0.01	0.52	166
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.8	10.8	< 0.005	< 0.005	0.02	11.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.79	1.79	< 0.005	< 0.005	< 0.005	1.81
Vendor	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	0.00
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.28	6.79	4.95	46.9	0.12	0.08	11.5	11.6	0.07	2.92	3.00	—	12,084	12,084	0.50	0.50	37.3	12,283
Total	7.28	6.79	4.95	46.9	0.12	0.08	11.5	11.6	0.07	2.92	3.00	—	12,084	12,084	0.50	0.50	37.3	12,283
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.21	6.70	5.52	46.4	0.11	0.08	11.5	11.6	0.07	2.92	3.00	—	11,673	11,673	0.54	0.54	0.97	11,848
Total	7.21	6.70	5.52	46.4	0.11	0.08	11.5	11.6	0.07	2.92	3.00	—	11,673	11,673	0.54	0.54	0.97	11,848
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.31	1.21	0.99	8.31	0.02	0.01	2.07	2.09	0.01	0.53	0.54	—	1,943	1,943	0.09	0.09	2.67	1,974
Total	1.31	1.21	0.99	8.31	0.02	0.01	2.07	2.09	0.01	0.53	0.54	—	1,943	1,943	0.09	0.09	2.67	1,974

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.28	6.79	4.95	46.9	0.12	0.08	11.5	11.6	0.07	2.92	3.00	—	12,084	12,084	0.50	0.50	37.3	12,283
Total	7.28	6.79	4.95	46.9	0.12	0.08	11.5	11.6	0.07	2.92	3.00	—	12,084	12,084	0.50	0.50	37.3	12,283

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.21	6.70	5.52	46.4	0.11	0.08	11.5	11.6	0.07	2.92	3.00	—	11,673	11,673	0.54	0.54	0.97	11,848
Total	7.21	6.70	5.52	46.4	0.11	0.08	11.5	11.6	0.07	2.92	3.00	—	11,673	11,673	0.54	0.54	0.97	11,848
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.31	1.21	0.99	8.31	0.02	0.01	2.07	2.09	0.01	0.53	0.54	—	1,943	1,943	0.09	0.09	2.67	1,974
Total	1.31	1.21	0.99	8.31	0.02	0.01	2.07	2.09	0.01	0.53	0.54	—	1,943	1,943	0.09	0.09	2.67	1,974

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	179	179	0.02	< 0.005	—	180
Total	—	—	—	—	—	—	—	—	—	—	—	—	179	179	0.02	< 0.005	—	180

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	179	179	0.02	< 0.005	—	180
Total	—	—	—	—	—	—	—	—	—	—	—	—	179	179	0.02	< 0.005	—	180

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Total	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Total	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.04	0.02	0.36	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	415	415	0.04	< 0.005	—	416
Total	0.04	0.02	0.36	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	415	415	0.04	< 0.005	—	416

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Total	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Total	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.04	0.02	0.36	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	415	415	0.04	< 0.005	—	416
Total	0.04	0.02	0.36	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	415	415	0.04	< 0.005	—	416

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	7.51	7.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.60	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.94	0.89	0.10	10.2	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.3	27.3	< 0.005	< 0.005	—	27.4
Total	9.05	9.00	0.10	10.2	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.3	27.3	< 0.005	< 0.005	—	27.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Hearths	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
Consumer Products	7.51	7.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.60	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	8.11	8.11	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	1.37	1.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.08	0.08	0.01	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.23	2.23	< 0.005	< 0.005	—	2.24
Total	1.57	1.56	0.01	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.23	2.23	< 0.005	< 0.005	—	2.24

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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

Consumer Product	7.51	7.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.60	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.94	0.89	0.10	10.2	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.3	27.3	< 0.005	< 0.005	—	27.4
Total	9.05	9.00	0.10	10.2	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.3	27.3	< 0.005	< 0.005	—	27.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	7.51	7.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.60	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	8.11	8.11	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	1.37	1.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape Equipm	0.08	0.08	0.01	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.23	2.23	< 0.005	< 0.005	—	2.24
Total	1.57	1.56	0.01	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.23	2.23	< 0.005	< 0.005	—	2.24

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Total	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Total	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.16	35.3	37.4	0.23	0.01	—	44.8
Total	—	—	—	—	—	—	—	—	—	—	—	2.16	35.3	37.4	0.23	0.01	—	44.8

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Total	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Total	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.16	35.3	37.4	0.23	0.01	—	44.8
Total	—	—	—	—	—	—	—	—	—	—	—	2.16	35.3	37.4	0.23	0.01	—	44.8

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273

Total	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Total	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2
Total	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Total	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Total	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2
Total	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	6/1/2025	6/30/2025	5.00	21.0	—
Grading	Grading	10/1/2025	7/1/2026	5.00	196	—
Building Construction	Building Construction	6/1/2026	5/30/2028	5.00	522	—
Paving	Paving	1/1/2026	6/30/2026	5.00	129	—
Architectural Coating	Architectural Coating	6/1/2028	7/5/2028	5.00	25.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38

Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74

Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	17.1	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	64.8	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	19.2	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—

Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	13.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	17.1	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	64.8	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	19.2	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—

Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	13.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	710,775	236,925	0.00	0.00	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	31,300	—
Grading	—	—	588	0.00	—
Paving	0.00	0.00	0.00	0.00	1.98

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	1.98	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	349	0.03	< 0.005
2026	0.00	346	0.03	< 0.005
2027	0.00	346	0.03	< 0.005
2028	0.00	346	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	1,721	1,721	1,721	628,092	16,315	16,315	16,315	5,954,970

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	1,721	1,721	1,721	628,092	16,315	16,315	16,315	5,954,970

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	180
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	180
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
710775	236,925	0.00	0.00	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,141,251	346	0.0330	0.0040	7,816,640

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,141,251	346	0.0330	0.0040	7,816,640

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	6,822,617	33,584,628

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	6,822,617	33,584,628

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	145	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	145	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0

Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	17.3	annual days of extreme heat
Extreme Precipitation	5.65	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	21.9	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	69.6
AQ-PM	38.3
AQ-DPM	13.9
Drinking Water	65.8
Lead Risk Housing	7.17
Pesticides	1.48
Toxic Releases	18.0
Traffic	81.4
Effect Indicators	—
CleanUp Sites	17.1
Groundwater	22.1
Haz Waste Facilities/Generators	84.0
Impaired Water Bodies	87.0
Solid Waste	81.3
Sensitive Population	—
Asthma	37.5
Cardio-vascular	40.2
Low Birth Weights	49.3
Socioeconomic Factor Indicators	—
Education	8.42
Housing	52.1
Linguistic	38.6
Poverty	19.4
Unemployment	25.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	92.71140767
Employed	84.60156551
Median HI	90.55562684
Education	—
Bachelor's or higher	63.68535866
High school enrollment	100
Preschool enrollment	16.27101245
Transportation	—
Auto Access	87.47593995
Active commuting	3.118182985
Social	—
2-parent households	57.5003208
Voting	86.14140896
Neighborhood	—
Alcohol availability	77.14615681
Park access	32.84999358
Retail density	16.1170281
Supermarket access	32.32388041
Tree canopy	45.01475683
Housing	—
Homeownership	76.19658668
Housing habitability	85.62812781
Low-inc homeowner severe housing cost burden	62.40215578
Low-inc renter severe housing cost burden	90.56845887
Uncrowded housing	83.16437829
Health Outcomes	—

Insured adults	66.66238932
Arthritis	45.8
Asthma ER Admissions	64.2
High Blood Pressure	31.6
Cancer (excluding skin)	25.9
Asthma	55.1
Coronary Heart Disease	61.0
Chronic Obstructive Pulmonary Disease	56.7
Diagnosed Diabetes	80.8
Life Expectancy at Birth	71.9
Cognitively Disabled	74.6
Physically Disabled	76.0
Heart Attack ER Admissions	26.9
Mental Health Not Good	67.2
Chronic Kidney Disease	73.0
Obesity	69.5
Pedestrian Injuries	56.1
Physical Health Not Good	72.6
Stroke	75.8
Health Risk Behaviors	—
Binge Drinking	14.4
Current Smoker	66.4
No Leisure Time for Physical Activity	76.1
Climate Change Exposures	—
Wildfire Risk	32.3
SLR Inundation Area	0.0
Children	87.0
Elderly	28.2

English Speaking	76.1
Foreign-born	24.9
Outdoor Workers	46.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	78.6
Traffic Density	78.9
Traffic Access	23.0
Other Indices	—
Hardship	14.0
Other Decision Support	—
2016 Voting	86.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	37.0
Healthy Places Index Score for Project Location (b)	79.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	As per the applicant
Operations: Vehicle Data	Based on the Lost Canyons Traffic Analysis - 180 Lot Transfer, Michael Baker International

Lost Canyon Phase-2 Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Lost Canyon Phase-2
Construction Start Date	6/1/2026
Operational Year	2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	23.0
Location	3301 Lost Canyons Dr, Simi Valley, CA 93065, USA
County	Ventura
City	Simi Valley
Air District	Ventura County APCD
Air Basin	South Central Coast
TAZ	3503
EDFZ	8
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.28

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Single Family Housing	184	Dwelling Unit	59.7	358,800	2,155,166	21,551	554	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	30.1	30.1	27.3	28.7	0.06	1.12	9.47	10.6	1.03	3.72	4.75	—	6,861	6,861	0.27	0.16	4.98	6,887
Mit.	30.1	30.1	27.3	28.7	0.06	1.12	2.65	3.78	1.03	1.01	2.04	—	6,861	6,861	0.27	0.16	4.98	6,887
% Reduced	—	—	—	—	—	—	72%	64%	—	73%	57%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	30.1	30.1	32.7	39.0	0.07	1.34	9.66	11.0	1.23	3.76	4.99	—	8,540	8,540	0.34	0.16	0.13	8,573
Mit.	30.1	30.1	32.7	39.0	0.07	1.34	2.85	4.19	1.23	1.06	2.29	—	8,540	8,540	0.34	0.16	0.13	8,573
% Reduced	—	—	—	—	—	—	70%	62%	—	72%	54%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.69	6.60	12.8	17.9	0.03	0.50	3.96	4.43	0.46	1.56	1.99	—	3,684	3,684	0.13	0.10	1.31	3,711
Mit.	6.69	6.60	12.8	17.9	0.03	0.50	1.11	1.58	0.46	0.42	0.86	—	3,684	3,684	0.13	0.10	1.31	3,711

% Reduced	—	—	—	—	—	—	72%	64%	—	73%	57%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.22	1.21	2.34	3.27	0.01	0.09	0.72	0.81	0.08	0.28	0.36	—	610	610	0.02	0.02	0.22	614
Mit.	1.22	1.21	2.34	3.27	0.01	0.09	0.20	0.29	0.08	0.08	0.16	—	610	610	0.02	0.02	0.22	614
% Reduced	—	—	—	—	—	—	72%	64%	—	73%	57%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.71	3.13	27.3	28.7	0.06	1.12	9.47	10.6	1.03	3.72	4.75	—	6,861	6,861	0.27	0.06	0.98	6,887
2027	2.49	2.10	17.3	27.6	0.04	0.64	1.23	1.87	0.59	0.30	0.88	—	5,539	5,539	0.18	0.16	4.98	5,595
2028	2.34	2.00	16.5	27.3	0.04	0.56	1.23	1.79	0.52	0.30	0.81	—	5,506	5,506	0.18	0.15	4.48	5,561
2029	30.1	30.1	9.40	16.3	0.03	0.28	1.03	1.31	0.26	0.25	0.51	—	3,774	3,774	0.11	0.13	3.47	3,821
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.71	3.12	27.3	28.6	0.06	1.12	9.47	10.6	1.03	3.72	4.75	—	6,849	6,849	0.27	0.06	0.03	6,875
2027	4.54	3.82	32.7	39.0	0.07	1.34	9.66	11.0	1.23	3.76	4.99	—	8,540	8,540	0.34	0.16	0.13	8,573
2028	2.34	2.00	16.6	26.8	0.04	0.56	1.23	1.79	0.52	0.30	0.81	—	5,461	5,461	0.18	0.15	0.12	5,512
2029	30.1	30.1	9.49	16.0	0.03	0.28	1.03	1.31	0.26	0.25	0.51	—	3,739	3,739	0.12	0.13	0.09	3,782
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.56	1.31	11.4	12.0	0.03	0.47	3.96	4.43	0.43	1.56	1.99	—	2,869	2,869	0.11	0.03	0.18	2,880
2027	1.81	1.52	12.8	17.9	0.03	0.50	2.16	2.66	0.46	0.77	1.23	—	3,684	3,684	0.13	0.07	0.93	3,711
2028	1.41	1.21	9.85	16.1	0.03	0.32	0.81	1.14	0.30	0.19	0.49	—	3,409	3,409	0.11	0.10	1.31	3,444

2029	6.69	6.60	3.52	6.02	0.01	0.10	0.40	0.50	0.09	0.10	0.19	—	1,386	1,386	0.04	0.05	0.57	1,402
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.28	0.24	2.09	2.19	< 0.005	0.09	0.72	0.81	0.08	0.28	0.36	—	475	475	0.02	< 0.005	0.03	477
2027	0.33	0.28	2.34	3.27	0.01	0.09	0.39	0.49	0.08	0.14	0.23	—	610	610	0.02	0.01	0.15	614
2028	0.26	0.22	1.80	2.93	< 0.005	0.06	0.15	0.21	0.05	0.04	0.09	—	564	564	0.02	0.02	0.22	570
2029	1.22	1.21	0.64	1.10	< 0.005	0.02	0.07	0.09	0.02	0.02	0.03	—	229	229	0.01	0.01	0.09	232

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.71	3.13	27.3	28.7	0.06	1.12	2.65	3.78	1.03	1.01	2.04	—	6,861	6,861	0.27	0.06	0.98	6,887
2027	2.49	2.10	17.3	27.6	0.04	0.64	1.23	1.87	0.59	0.30	0.88	—	5,539	5,539	0.18	0.16	4.98	5,595
2028	2.34	2.00	16.5	27.3	0.04	0.56	1.23	1.79	0.52	0.30	0.81	—	5,506	5,506	0.18	0.15	4.48	5,561
2029	30.1	30.1	9.40	16.3	0.03	0.28	1.03	1.31	0.26	0.25	0.51	—	3,774	3,774	0.11	0.13	3.47	3,821
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.71	3.12	27.3	28.6	0.06	1.12	2.65	3.78	1.03	1.01	2.04	—	6,849	6,849	0.27	0.06	0.03	6,875
2027	4.54	3.82	32.7	39.0	0.07	1.34	2.85	4.19	1.23	1.06	2.29	—	8,540	8,540	0.34	0.16	0.13	8,573
2028	2.34	2.00	16.6	26.8	0.04	0.56	1.23	1.79	0.52	0.30	0.81	—	5,461	5,461	0.18	0.15	0.12	5,512
2029	30.1	30.1	9.49	16.0	0.03	0.28	1.03	1.31	0.26	0.25	0.51	—	3,739	3,739	0.12	0.13	0.09	3,782
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.56	1.31	11.4	12.0	0.03	0.47	1.11	1.58	0.43	0.42	0.86	—	2,869	2,869	0.11	0.03	0.18	2,880
2027	1.81	1.52	12.8	17.9	0.03	0.50	0.96	1.46	0.46	0.30	0.76	—	3,684	3,684	0.13	0.07	0.93	3,711
2028	1.41	1.21	9.85	16.1	0.03	0.32	0.81	1.14	0.30	0.19	0.49	—	3,409	3,409	0.11	0.10	1.31	3,444
2029	6.69	6.60	3.52	6.02	0.01	0.10	0.40	0.50	0.09	0.10	0.19	—	1,386	1,386	0.04	0.05	0.57	1,402

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.28	0.24	2.09	2.19	< 0.005	0.09	0.20	0.29	0.08	0.08	0.16	—	475	475	0.02	< 0.005	0.03	477
2027	0.33	0.28	2.34	3.27	0.01	0.09	0.18	0.27	0.08	0.05	0.14	—	610	610	0.02	0.01	0.15	614
2028	0.26	0.22	1.80	2.93	< 0.005	0.06	0.15	0.21	0.05	0.04	0.09	—	564	564	0.02	0.02	0.22	570
2029	1.22	1.21	0.64	1.10	< 0.005	0.02	0.07	0.09	0.02	0.02	0.03	—	229	229	0.01	0.01	0.09	232

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	17.0	16.3	7.19	59.4	0.14	0.25	11.8	12.1	0.24	3.00	3.24	93.0	16,317	16,410	10.2	0.57	40.8	16,875
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	15.9	15.3	7.69	48.5	0.13	0.25	11.8	12.1	0.24	3.00	3.24	93.0	15,868	15,961	10.2	0.60	3.56	16,400
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.3	15.7	7.62	52.8	0.13	0.25	11.7	11.9	0.24	2.96	3.20	93.0	15,947	16,040	10.2	0.60	19.1	16,492
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.98	2.86	1.39	9.63	0.02	0.05	2.13	2.17	0.04	0.54	0.58	15.4	2,640	2,656	1.69	0.10	3.16	2,730

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	7.48	6.97	5.08	48.1	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	12,404	12,404	0.51	0.52	38.3	12,609
Area	9.25	9.20	0.10	10.5	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.9	27.9	< 0.005	< 0.005	—	28.0
Energy	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	3,667	3,667	0.33	0.02	—	3,681
Water	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	17.0	16.3	7.19	59.4	0.14	0.25	11.8	12.1	0.24	3.00	3.24	93.0	16,317	16,410	10.2	0.57	40.8	16,875
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.41	6.88	5.67	47.6	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	11,982	11,982	0.55	0.55	0.99	12,162
Area	8.29	8.29	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
Energy	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	3,667	3,667	0.33	0.02	—	3,681
Water	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	15.9	15.3	7.69	48.5	0.13	0.25	11.8	12.1	0.24	3.00	3.24	93.0	15,868	15,961	10.2	0.60	3.56	16,400
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.34	6.82	5.56	46.8	0.12	0.08	11.7	11.7	0.08	2.96	3.03	—	12,048	12,048	0.54	0.54	16.5	12,240
Area	8.77	8.74	0.05	5.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	13.8	13.8	< 0.005	< 0.005	—	13.8
Energy	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	3,667	3,667	0.33	0.02	—	3,681
Water	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	16.3	15.7	7.62	52.8	0.13	0.25	11.7	11.9	0.24	2.96	3.20	93.0	15,947	16,040	10.2	0.60	19.1	16,492
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.34	1.25	1.01	8.53	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,995	1,995	0.09	0.09	2.74	2,026
Area	1.60	1.60	0.01	0.94	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.28	2.28	< 0.005	< 0.005	—	2.29

Energy	0.04	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	607	607	0.05	< 0.005	—	609
Water	—	—	—	—	—	—	—	—	—	—	—	2.21	36.1	38.3	0.23	0.01	—	45.8
Waste	—	—	—	—	—	—	—	—	—	—	—	13.2	0.00	13.2	1.32	0.00	—	46.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43
Total	2.98	2.86	1.39	9.63	0.02	0.05	2.13	2.17	0.04	0.54	0.58	15.4	2,640	2,656	1.69	0.10	3.16	2,730

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.48	6.97	5.08	48.1	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	12,404	12,404	0.51	0.52	38.3	12,609
Area	9.25	9.20	0.10	10.5	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.9	27.9	< 0.005	< 0.005	—	28.0
Energy	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	3,667	3,667	0.33	0.02	—	3,681
Water	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	17.0	16.3	7.19	59.4	0.14	0.25	11.8	12.1	0.24	3.00	3.24	93.0	16,317	16,410	10.2	0.57	40.8	16,875
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.41	6.88	5.67	47.6	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	11,982	11,982	0.55	0.55	0.99	12,162
Area	8.29	8.29	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
Energy	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	3,667	3,667	0.33	0.02	—	3,681
Water	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	15.9	15.3	7.69	48.5	0.13	0.25	11.8	12.1	0.24	3.00	3.24	93.0	15,868	15,961	10.2	0.60	3.56	16,400

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.34	6.82	5.56	46.8	0.12	0.08	11.7	11.7	0.08	2.96	3.03	—	12,048	12,048	0.54	0.54	16.5	12,240
Area	8.77	8.74	0.05	5.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	13.8	13.8	< 0.005	< 0.005	—	13.8
Energy	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	3,667	3,667	0.33	0.02	—	3,681
Water	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	16.3	15.7	7.62	52.8	0.13	0.25	11.7	11.9	0.24	2.96	3.20	93.0	15,947	16,040	10.2	0.60	19.1	16,492
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.34	1.25	1.01	8.53	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,995	1,995	0.09	0.09	2.74	2,026
Area	1.60	1.60	0.01	0.94	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.28	2.28	< 0.005	< 0.005	—	2.29
Energy	0.04	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	607	607	0.05	< 0.005	—	609
Water	—	—	—	—	—	—	—	—	—	—	—	2.21	36.1	38.3	0.23	0.01	—	45.8
Waste	—	—	—	—	—	—	—	—	—	—	—	13.2	0.00	13.2	1.32	0.00	—	46.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43
Total	2.98	2.86	1.39	9.63	0.02	0.05	2.13	2.17	0.04	0.54	0.58	15.4	2,640	2,656	1.69	0.10	3.16	2,730

3. Construction Emissions Details

3.1. Grading (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.52	1.27	11.4	11.5	0.03	0.47	—	0.47	0.43	—	0.43	—	2,763	2,763	0.11	0.02	—	2,773
Dust From Material Movement	—	—	—	—	—	—	3.85	3.85	—	1.53	1.53	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.28	0.23	2.08	2.11	< 0.005	0.09	—	0.09	0.08	—	0.08	—	458	458	0.02	< 0.005	—	459
Dust From Material Movement	—	—	—	—	—	—	0.70	0.70	—	0.28	0.28	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.17	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	262	262	< 0.005	0.01	0.98	266
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.06	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	0.01	0.03	254
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.45	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	106	106	< 0.005	< 0.005	0.18	107
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.5	17.5	< 0.005	< 0.005	0.03	17.7
Vendor	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	0.00
Hauling	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	0.00

3.2. Grading (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.52	1.27	11.4	11.5	0.03	0.47	—	0.47	0.43	—	0.43	—	2,763	2,763	0.11	0.02	—	2,773

Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.40	0.40	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.23	2.08	2.11	< 0.005	0.09	—	0.09	0.08	—	0.08	—	458	458	0.02	< 0.005	—	459
Dust From Material Movement	—	—	—	—	—	—	0.18	0.18	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.17	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	262	262	< 0.005	0.01	0.98	266
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.06	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	0.01	0.03	254
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.45	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	106	106	< 0.005	< 0.005	0.18	107
Vendor	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	0.00

Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.5	17.5	< 0.005	< 0.005	0.03	17.7
Vendor	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	0.00
Hauling	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	0.00

3.3. Grading (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.51	2.95	25.6	27.3	0.06	1.04	—	1.04	0.96	—	0.96	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	0.52	4.51	4.80	0.01	0.18	—	0.18	0.17	—	0.17	—	1,162	1,162	0.05	0.01	—	1,166

Dust From Material Movement	—	—	—	—	—	—	1.62	1.62	—	0.64	0.64	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.82	0.88	< 0.005	0.03	—	0.03	0.03	—	0.03	—	192	192	0.01	< 0.005	—	193
Dust From Material Movement	—	—	—	—	—	—	0.30	0.30	—	0.12	0.12	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	0.99	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	246	246	< 0.005	0.01	0.02	249
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.18	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	43.7	43.7	< 0.005	< 0.005	0.07	44.3
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.23	7.23	< 0.005	< 0.005	0.01	7.33

Vendor	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	0.00
Hauling	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	0.00

3.4. Grading (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.51	2.95	25.6	27.3	0.06	1.04	—	1.04	0.96	—	0.96	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	0.52	4.51	4.80	0.01	0.18	—	0.18	0.17	—	0.17	—	1,162	1,162	0.05	0.01	—	1,166
Dust From Material Movement	—	—	—	—	—	—	0.42	0.42	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	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	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.82	0.88	< 0.005	0.03	—	0.03	0.03	—	0.03	—	192	192	0.01	< 0.005	—	193
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	0.99	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	246	246	< 0.005	0.01	0.02	249
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.18	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	43.7	43.7	< 0.005	< 0.005	0.07	44.3
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.23	7.23	< 0.005	< 0.005	0.01	7.33
Vendor	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	0.00
Hauling	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	0.00

3.5. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	0.37	3.38	4.66	0.01	0.12	—	0.12	0.11	—	0.11	—	863	863	0.04	0.01	—	866
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.62	0.85	< 0.005	0.02	—	0.02	0.02	—	0.02	—	143	143	0.01	< 0.005	—	143
Onsite truck	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	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.26	0.26	3.64	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	853	853	0.01	0.03	2.96	866
Vendor	0.03	0.01	0.68	0.22	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	585	585	0.01	0.09	1.36	612
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.26	0.29	3.28	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	815	815	0.01	0.03	0.08	825
Vendor	0.02	0.01	0.71	0.22	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	585	585	0.01	0.09	0.04	611
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.10	1.19	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	296	296	< 0.005	0.01	0.46	300
Vendor	0.01	< 0.005	0.26	0.08	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	211	211	< 0.005	0.03	0.21	220
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	49.0	49.0	< 0.005	< 0.005	0.08	49.6
Vendor	< 0.005	< 0.005	0.05	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.9	34.9	< 0.005	0.01	0.04	36.4
Hauling	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	0.00

3.6. Building Construction (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	0.37	3.38	4.66	0.01	0.12	—	0.12	0.11	—	0.11	—	863	863	0.04	0.01	—	866
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.62	0.85	< 0.005	0.02	—	0.02	0.02	—	0.02	—	143	143	0.01	< 0.005	—	143
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.26	0.26	3.64	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	853	853	0.01	0.03	2.96	866
Vendor	0.03	0.01	0.68	0.22	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	585	585	0.01	0.09	1.36	612
Hauling	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.26	0.29	3.28	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	815	815	0.01	0.03	0.08	825
Vendor	0.02	0.01	0.71	0.22	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	585	585	0.01	0.09	0.04	611
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.10	1.19	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	296	296	< 0.005	0.01	0.46	300
Vendor	0.01	< 0.005	0.26	0.08	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	211	211	< 0.005	0.03	0.21	220
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	49.0	49.0	< 0.005	< 0.005	0.08	49.6
Vendor	< 0.005	< 0.005	0.05	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.9	34.9	< 0.005	0.01	0.04	36.4
Hauling	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	0.00

3.7. Building Construction (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	0.71	6.39	9.26	0.02	0.22	—	0.22	0.20	—	0.20	—	1,717	1,717	0.07	0.01	—	1,723
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	1.17	1.69	< 0.005	0.04	—	0.04	0.04	—	0.04	—	284	284	0.01	< 0.005	—	285
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.26	0.25	0.23	3.42	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	838	838	0.01	0.03	2.67	850
Vendor	0.03	0.01	0.65	0.21	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	570	570	0.01	0.08	1.21	596
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.26	0.25	0.26	3.08	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	801	801	0.01	0.03	0.07	811
Vendor	0.02	0.01	0.68	0.22	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	571	571	0.01	0.08	0.03	596
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.18	0.18	0.19	2.22	0.00	0.00	0.61	0.61	0.00	0.14	0.14	—	578	578	0.01	0.02	0.82	585
Vendor	0.02	0.01	0.48	0.15	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.04	—	409	409	0.01	0.06	0.37	427
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.40	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	95.6	95.6	< 0.005	< 0.005	0.14	96.9
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.7	67.7	< 0.005	0.01	0.06	70.7
Hauling	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	0.00

3.8. Building Construction (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.85	0.71	6.39	9.26	0.02	0.22	—	0.22	0.20	—	0.20	—	1,717	1,717	0.07	0.01	—	1,723
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	1.17	1.69	< 0.005	0.04	—	0.04	0.04	—	0.04	—	284	284	0.01	< 0.005	—	285
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.26	0.25	0.23	3.42	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	838	838	0.01	0.03	2.67	850
Vendor	0.03	0.01	0.65	0.21	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	570	570	0.01	0.08	1.21	596
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.26	0.25	0.26	3.08	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	801	801	0.01	0.03	0.07	811
Vendor	0.02	0.01	0.68	0.22	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	571	571	0.01	0.08	0.03	596
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.18	0.19	2.22	0.00	0.00	0.61	0.61	0.00	0.14	0.14	—	578	578	0.01	0.02	0.82	585
Vendor	0.02	0.01	0.48	0.15	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.04	—	409	409	0.01	0.06	0.37	427
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.40	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	95.6	95.6	< 0.005	< 0.005	0.14	96.9
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.7	67.7	< 0.005	0.01	0.06	70.7

Hauling	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	0.00

3.9. Building Construction (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	3.04	4.57	0.01	0.10	—	0.10	0.09	—	0.09	—	849	849	0.03	0.01	—	852
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.07	0.06	0.55	0.83	< 0.005	0.02	—	0.02	0.02	—	0.02	—	141	141	0.01	< 0.005	—	141
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.25	0.20	3.20	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	823	823	0.01	0.03	2.40	835
Vendor	0.03	0.01	0.61	0.20	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	555	555	0.01	0.08	1.07	581
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.22	0.26	2.88	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	787	787	0.01	0.03	0.06	797
Vendor	0.02	0.01	0.64	0.21	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	555	555	0.01	0.08	0.03	580
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.03	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	281	281	< 0.005	0.01	0.37	284
Vendor	0.01	< 0.005	0.23	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	197	197	< 0.005	0.03	0.16	206
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.19	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	46.5	46.5	< 0.005	< 0.005	0.06	47.1
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	32.5	32.5	< 0.005	< 0.005	0.03	34.0
Hauling	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	0.00

3.10. Building Construction (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	3.04	4.57	0.01	0.10	—	0.10	0.09	—	0.09	—	849	849	0.03	0.01	—	852
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.55	0.83	< 0.005	0.02	—	0.02	0.02	—	0.02	—	141	141	0.01	< 0.005	—	141
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.25	0.20	3.20	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	823	823	0.01	0.03	2.40	835
Vendor	0.03	0.01	0.61	0.20	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	555	555	0.01	0.08	1.07	581
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.22	0.26	2.88	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	787	787	0.01	0.03	0.06	797
Vendor	0.02	0.01	0.64	0.21	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	555	555	0.01	0.08	0.03	580
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.03	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	281	281	< 0.005	0.01	0.37	284
Vendor	0.01	< 0.005	0.23	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	197	197	< 0.005	0.03	0.16	206
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.19	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	46.5	46.5	< 0.005	< 0.005	0.06	47.1
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	32.5	32.5	< 0.005	< 0.005	0.03	34.0
Hauling	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	0.00

3.11. Paving (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57	0.48	4.54	6.51	0.01	0.19	—	0.19	0.18	—	0.18	—	988	988	0.04	0.01	—	991
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.83	1.19	< 0.005	0.04	—	0.04	0.03	—	0.03	—	164	164	0.01	< 0.005	—	164
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.82	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	193	193	< 0.005	0.01	0.67	196
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.74	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	185	185	< 0.005	0.01	0.02	187
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.49	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	122	122	< 0.005	< 0.005	0.19	123
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	20.1	20.1	< 0.005	< 0.005	0.03	20.4
Vendor	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	0.00
Hauling	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	0.00

3.12. Paving (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57	0.48	4.54	6.51	0.01	0.19	—	0.19	0.18	—	0.18	—	988	988	0.04	0.01	—	991
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.83	1.19	< 0.005	0.04	—	0.04	0.03	—	0.03	—	164	164	0.01	< 0.005	—	164
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.82	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	193	193	< 0.005	0.01	0.67	196
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.74	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	185	185	< 0.005	0.01	0.02	187
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.49	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	122	122	< 0.005	< 0.005	0.19	123
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	20.1	20.1	< 0.005	< 0.005	0.03	20.4
Vendor	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	0.00
Hauling	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	0.00

3.13. Paving (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34	0.29	2.76	4.13	0.01	0.11	—	0.11	0.10	—	0.10	—	630	630	0.03	0.01	—	632
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.50	0.75	< 0.005	0.02	—	0.02	0.02	—	0.02	—	104	104	< 0.005	< 0.005	—	105
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.77	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	190	190	< 0.005	0.01	0.60	192
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.70	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	181	181	< 0.005	0.01	0.02	184
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.29	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	76.1	76.1	< 0.005	< 0.005	0.11	77.1
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.6	12.6	< 0.005	< 0.005	0.02	12.8
Vendor	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	0.00
Hauling	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	0.00

3.14. Paving (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34	0.29	2.76	4.13	0.01	0.11	—	0.11	0.10	—	0.10	—	630	630	0.03	0.01	—	632
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.50	0.75	< 0.005	0.02	—	0.02	0.02	—	0.02	—	104	104	< 0.005	< 0.005	—	105
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.77	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	190	190	< 0.005	0.01	0.60	192
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.70	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	181	181	< 0.005	0.01	0.02	184
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.29	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	76.1	76.1	< 0.005	< 0.005	0.11	77.1
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.6	12.6	< 0.005	< 0.005	0.02	12.8
Vendor	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	0.00
Hauling	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	0.00

3.15. Architectural Coating (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	29.9	29.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	29.9	29.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.16	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.4	27.4	< 0.005	< 0.005	—	27.5
Architectural Coatings	6.15	6.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.54	4.54	< 0.005	< 0.005	—	4.56
Architectural Coatings	1.12	1.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.64	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	165	165	< 0.005	0.01	0.48	167
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.05	0.58	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	157	157	< 0.005	0.01	0.01	159
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	32.6	32.6	< 0.005	< 0.005	0.04	33.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.39	5.39	< 0.005	< 0.005	0.01	5.46
Vendor	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	0.00
Hauling	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	0.00

3.16. Architectural Coating (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	29.9	29.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	29.9	29.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.16	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.4	27.4	< 0.005	< 0.005	—	27.5

Architect Coatings	6.15	6.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.54	4.54	< 0.005	< 0.005	—	4.56
Architectural Coatings	1.12	1.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.64	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	165	165	< 0.005	0.01	0.48	167
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.05	0.58	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	157	157	< 0.005	0.01	0.01	159
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	32.6	32.6	< 0.005	< 0.005	0.04	33.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.39	5.39	< 0.005	< 0.005	0.01	5.46
Vendor	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	0.00
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.48	6.97	5.08	48.1	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	12,404	12,404	0.51	0.52	38.3	12,609
Total	7.48	6.97	5.08	48.1	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	12,404	12,404	0.51	0.52	38.3	12,609
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.41	6.88	5.67	47.6	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	11,982	11,982	0.55	0.55	0.99	12,162
Total	7.41	6.88	5.67	47.6	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	11,982	11,982	0.55	0.55	0.99	12,162
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.34	1.25	1.01	8.53	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,995	1,995	0.09	0.09	2.74	2,026
Total	1.34	1.25	1.01	8.53	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,995	1,995	0.09	0.09	2.74	2,026

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.48	6.97	5.08	48.1	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	12,404	12,404	0.51	0.52	38.3	12,609
Total	7.48	6.97	5.08	48.1	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	12,404	12,404	0.51	0.52	38.3	12,609
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.41	6.88	5.67	47.6	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	11,982	11,982	0.55	0.55	0.99	12,162
Total	7.41	6.88	5.67	47.6	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	11,982	11,982	0.55	0.55	0.99	12,162
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.34	1.25	1.01	8.53	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,995	1,995	0.09	0.09	2.74	2,026
Total	1.34	1.25	1.01	8.53	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,995	1,995	0.09	0.09	2.74	2,026

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	183	183	0.02	< 0.005	—	184
Total	—	—	—	—	—	—	—	—	—	—	—	—	183	183	0.02	< 0.005	—	184

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113

Total	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	183	183	0.02	< 0.005	—	184
Total	—	—	—	—	—	—	—	—	—	—	—	—	183	183	0.02	< 0.005	—	184

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Total	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Total	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.04	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	424	424	0.04	< 0.005	—	425
Total	0.04	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	424	424	0.04	< 0.005	—	425

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Total	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Total	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.04	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	424	424	0.04	< 0.005	—	425
Total	0.04	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	424	424	0.04	< 0.005	—	425

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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

Consumer Products	7.68	7.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.62	0.62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.96	0.91	0.10	10.5	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.9	27.9	< 0.005	< 0.005	—	28.0
Total	9.25	9.20	0.10	10.5	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.9	27.9	< 0.005	< 0.005	—	28.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	7.68	7.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.62	0.62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	8.29	8.29	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	1.40	1.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	0.09	0.08	0.01	0.94	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.28	2.28	< 0.005	< 0.005	—	2.29
Total	1.60	1.60	0.01	0.94	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.28	2.28	< 0.005	< 0.005	—	2.29

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	7.68	7.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.62	0.62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.96	0.91	0.10	10.5	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.9	27.9	< 0.005	< 0.005	—	28.0
Total	9.25	9.20	0.10	10.5	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.9	27.9	< 0.005	< 0.005	—	28.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	7.68	7.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.62	0.62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	8.29	8.29	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	1.40	1.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.09	0.08	0.01	0.94	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.28	2.28	< 0.005	< 0.005	—	2.29
Total	1.60	1.60	0.01	0.94	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.28	2.28	< 0.005	< 0.005	—	2.29

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Total	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Total	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.21	36.1	38.3	0.23	0.01	—	45.8
Total	—	—	—	—	—	—	—	—	—	—	—	2.21	36.1	38.3	0.23	0.01	—	45.8

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Total	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Total	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.21	36.1	38.3	0.23	0.01	—	45.8
Total	—	—	—	—	—	—	—	—	—	—	—	2.21	36.1	38.3	0.23	0.01	—	45.8

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Total	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Total	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.2	0.00	13.2	1.32	0.00	—	46.2
Total	—	—	—	—	—	—	—	—	—	—	—	13.2	0.00	13.2	1.32	0.00	—	46.2

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Total	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Total	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.2	0.00	13.2	1.32	0.00	—	46.2
Total	—	—	—	—	—	—	—	—	—	—	—	13.2	0.00	13.2	1.32	0.00	—	46.2

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	6/1/2026	3/31/2027	5.00	218	—
Building Construction	Building Construction	7/1/2027	6/30/2029	5.00	522	—
Paving	Paving	2/1/2027	7/31/2028	5.00	391	—
Architectural Coating	Architectural Coating	7/1/2029	10/12/2029	5.00	75.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20

Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	66.2	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	19.7	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

Architectural Coating	—	—	—	—
Architectural Coating	Worker	13.2	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	66.2	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	19.7	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	13.2	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	726,570	242,190	0.00	0.00	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	—	—	654	0.00	—
Paving	0.00	0.00	0.00	0.00	2.03

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	2.03	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	346	0.03	< 0.005
2027	0.00	346	0.03	< 0.005

2028	0.00	346	0.03	< 0.005
2029	0.00	346	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	1,766	1,766	1,766	644,736	16,747	16,747	16,747	6,112,772

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	1,766	1,766	1,766	644,736	16,747	16,747	16,747	6,112,772

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	184
Conventional Wood Stoves	0
Catalytic Wood Stoves	0

Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	184
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
726570	242,190	0.00	0.00	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,166,612	346	0.0330	0.0040	7,990,343

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,166,612	346	0.0330	0.0040	7,990,343

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	6,974,230	34,330,956

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	6,974,230	34,330,956

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	148	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	148	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	17.3	annual days of extreme heat
Extreme Precipitation	5.65	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	21.9	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2

Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	69.6
AQ-PM	38.3
AQ-DPM	13.9
Drinking Water	65.8
Lead Risk Housing	7.17
Pesticides	1.48
Toxic Releases	18.0
Traffic	81.4
Effect Indicators	—
CleanUp Sites	17.1
Groundwater	22.1

Haz Waste Facilities/Generators	84.0
Impaired Water Bodies	87.0
Solid Waste	81.3
Sensitive Population	—
Asthma	37.5
Cardio-vascular	40.2
Low Birth Weights	49.3
Socioeconomic Factor Indicators	—
Education	8.42
Housing	52.1
Linguistic	38.6
Poverty	19.4
Unemployment	25.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	92.71140767
Employed	84.60156551
Median HI	90.55562684
Education	—
Bachelor's or higher	63.68535866
High school enrollment	100
Preschool enrollment	16.27101245
Transportation	—
Auto Access	87.47593995
Active commuting	3.118182985

Social	—
2-parent households	57.5003208
Voting	86.14140896
Neighborhood	—
Alcohol availability	77.14615681
Park access	32.84999358
Retail density	16.1170281
Supermarket access	32.32388041
Tree canopy	45.01475683
Housing	—
Homeownership	76.19658668
Housing habitability	85.62812781
Low-inc homeowner severe housing cost burden	62.40215578
Low-inc renter severe housing cost burden	90.56845887
Uncrowded housing	83.16437829
Health Outcomes	—
Insured adults	66.66238932
Arthritis	45.8
Asthma ER Admissions	64.2
High Blood Pressure	31.6
Cancer (excluding skin)	25.9
Asthma	55.1
Coronary Heart Disease	61.0
Chronic Obstructive Pulmonary Disease	56.7
Diagnosed Diabetes	80.8
Life Expectancy at Birth	71.9
Cognitively Disabled	74.6
Physically Disabled	76.0

Heart Attack ER Admissions	26.9
Mental Health Not Good	67.2
Chronic Kidney Disease	73.0
Obesity	69.5
Pedestrian Injuries	56.1
Physical Health Not Good	72.6
Stroke	75.8
Health Risk Behaviors	—
Binge Drinking	14.4
Current Smoker	66.4
No Leisure Time for Physical Activity	76.1
Climate Change Exposures	—
Wildfire Risk	32.3
SLR Inundation Area	0.0
Children	87.0
Elderly	28.2
English Speaking	76.1
Foreign-born	24.9
Outdoor Workers	46.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	78.6
Traffic Density	78.9
Traffic Access	23.0
Other Indices	—
Hardship	14.0
Other Decision Support	—
2016 Voting	86.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	37.0
Healthy Places Index Score for Project Location (b)	79.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	As per the applicant
Operations: Vehicle Data	Based on Lost Canyons Traffic Analysis - 180 Lot Transfer, Michael Baker International. Trip credits from the existing golf course use has not been taken into consideration.

APPENDIX G

GREENHOUSE GAS EMISSIONS ASSESSMENT MEMORANDUM

Michael Baker INTERNATIONAL

We Make a Difference

MEMORANDUM

To: Rick Nelson, Newport Pacific Land Company

From: Darshan Shivaiah, Michael Baker International

Date: February 6, 2025

Subject: Lost Canyons 180 Lots Transfer Project – Greenhouse Gas Emissions Assessment

PURPOSE AND BACKGROUND

The purpose of this technical memorandum is to evaluate potential greenhouse gas (GHG) emissions impacts resulting from the construction and operation of the proposed Lost Canyons 180 Lots Transfer Project (project), located within the City of Simi Valley (City). The project is within the scope of buildout of the Whiteface Specific Plan (Specific Plan), which was analyzed in the *Whiteface Specific Plan Amendment 6* (approved project)*: Lost Canyon Final Environmental Impact Report*, dated November 2010 (2010 EIR). This memorandum compares the project's impacts with the impacts identified for the approved project in the 2010 EIR.

The Specific Plan was originally adopted in 1992 and encompasses an approximately 1,770-acre project site consisting of two neighboring valleys (Dry and Tapo Canyons) located at the base of Big Mountain, and proposed sites for a residential community to be named Lost Canyons. The approved project analyzed in the 2010 EIR included a variety of land uses, including a mix of residential types, natural open space, a multi-purpose trail system, and an area for the development of a golf course and related commercial recreational amenities. Specifically, the following land uses were approved:

- 364 single-family dwelling units (located within a private gated community)
- Private 18-hole golf course (located within a private gated community)
- Private neighborhood park (located within a private gated community)
- Private 25 Golf Course Member Suite (located within a private gated community)
- Private approximately 6,000 square-foot service-oriented commercial use (located within a private gated community)
- Public trail head with public parking lot

The proposed project would internally relocate 180 dwelling units from Dry Canyon and Tapo Canyon, south of Lost Canyons Drive, to the Clubcore area, north of Lost Canyons Drive. This reflects a zero-sum net change in the total number of dwelling units and is an equal transfer of units within the overall residential land uses evaluated in the 2010 EIR. While the 2010 EIR evaluated multiple components and various land uses, the overall total dwelling units remains at 364 single-family dwelling units. The proposed density transfer of 180 lots would occur internally within the area evaluated in the 2010 EIR and would not result in an addition or reduction of land uses compared to what was previously analyzed in

the 2010 EIR. Therefore, as the project does not propose new land uses beyond those previously analyzed in the 2010 EIR, the GHG emissions shown in this memorandum are for informational purposes only.

PROJECT LOCATION

The City is roughly 42.25 square miles in the southeast portion of Ventura County (County), approximately 40 miles northwest of Downtown Los Angeles. The City borders the Santa Susana Mountains to the north, the Simi Hills to the east and south, and is adjacent to Thousand Oaks to the southwest and Moorpark to the west; refer to Exhibit 1, *Regional Vicinity Map.*

Dry Canyon and Tapo Canyon, two neighboring valleys located at the base of Big Mountain, consist of the proposed residential community named Lost Canyons; refer to Exhibit 2, *Site Vicinity*. Regional access to the project site is provided via State Route (SR) 118. Local access to the project site is provided via Lost Canyon Road, Erringer Road, and Tapo Canyon Road.

EXISTING SITE CONDITIONS

The Specific Plan area is located north of Lost Canyon Road in the City of Simi Valley. Existing uses on the site include two graded 18-hole golf courses, a clubhouse, and associated facilities such as a cart barn, driving range, parking lot, and open space, which is permanently closed.

According to the *Simi Valley General Plan* (General Plan), Land Use Map, the General Plan designates the residential community Residential Medium Density.[1] According to the City's Zoning Map, the proposed residential community is zoned Residential Medium Density.[2]

PROJECT DESCRIPTION

The proposed project would internally relocate 180 dwelling units from Dry Canyon and Topo Canyon, south of Lost Canyons Drive, to the Clubcore area (former golf course), north of Lost Canyons Drive; refer to Exhibit 3, *Conceptual Site Plan*. This reflects a zero-sum net change in the total number of dwelling units and is an equal transfer of units within the overall residential land uses proposed within the 2010 EIR. The overall total dwelling units remains at 364 single-family dwelling units for the Lost Canyons Project. Ultimately, 362 lots are planned north of Lost Canyons Drive and 2 lots south of Lost Canyons Drive, including one lot in Dry Canyon and another lot in Tapo Canyon South, both accessible on the southern property boundary from existing easements.

Construction of the Lost Canyons Project 364 single-family dwelling units would occur in two phases. Phase 1 would include construction of 180 residential lots and Phase 2 would include construction of 184 residential lots. For purposes of this analysis, the project is the transfer of 180 lots as part of the Phase 2 184-lot phase of the Lost Canyons Project.

[1] City of Simi Vally, *City of Simi Valley General Plan, Land Use Map*, 2023, https://www.simivalley.org/home/showpublisheddocument/24714/638289835458270000, accessed September 1, 2024.

[2] City of Simi Valley, *Zoning Simi Valley*, https://www.arcgis.com/apps/mapviewer/index.html?webmap=b20ec935fa594a90a6e7128fd4f96268&extent=-118.859,34.2101,-118.6054,34.3319, accessed September 1, 2024.



LOST CANYONS 180 LOTS TRANSFER PROJECT

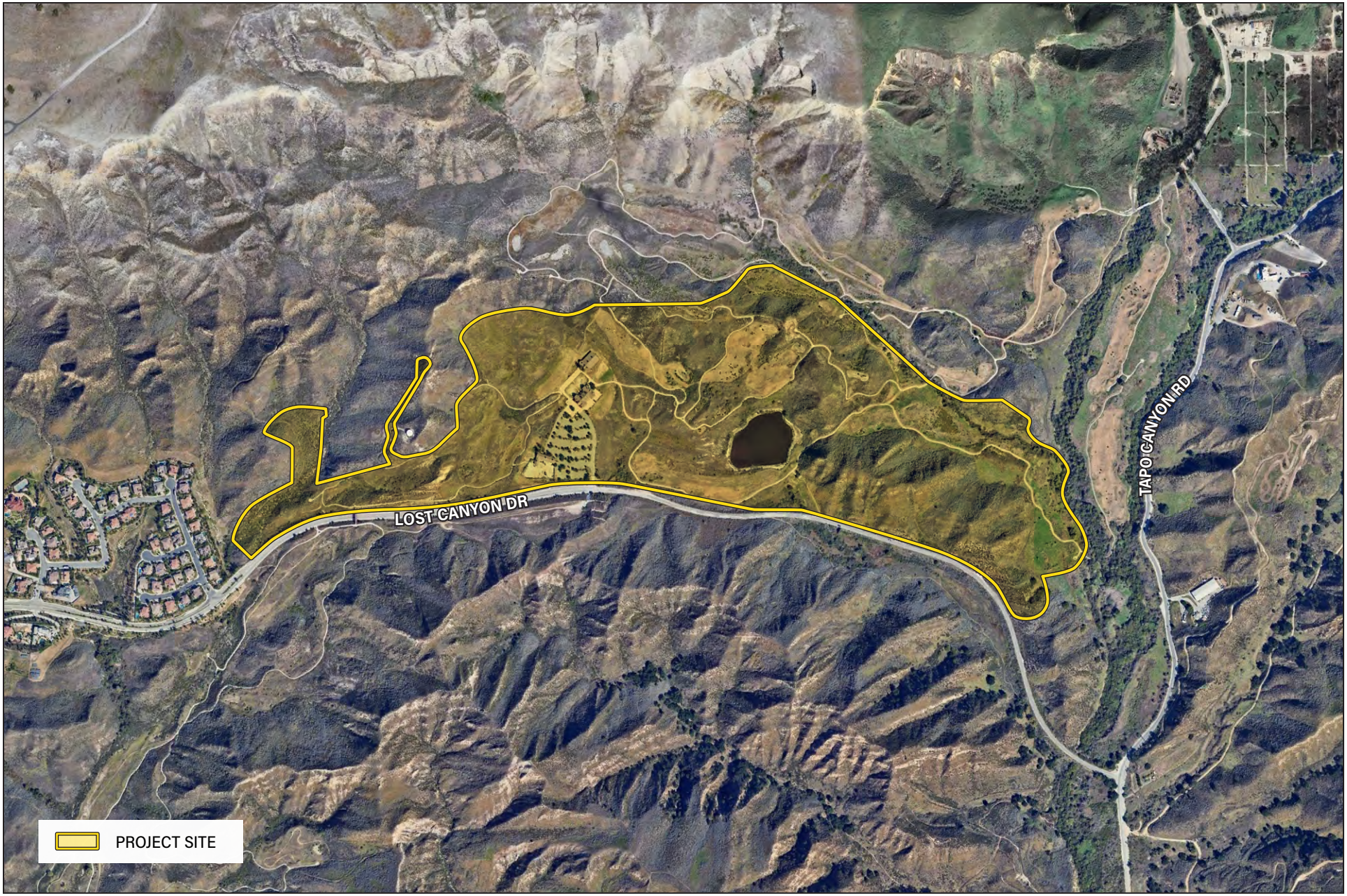
Michael Baker INTERNATIONAL

NOT TO SCALE

10/24 • JN 200855

Regional Vicinity

Exhibit 1



Source: Google Earth Pro, October 2024

LOST CANYONS 180 LOTS TRANSFER PROJECT

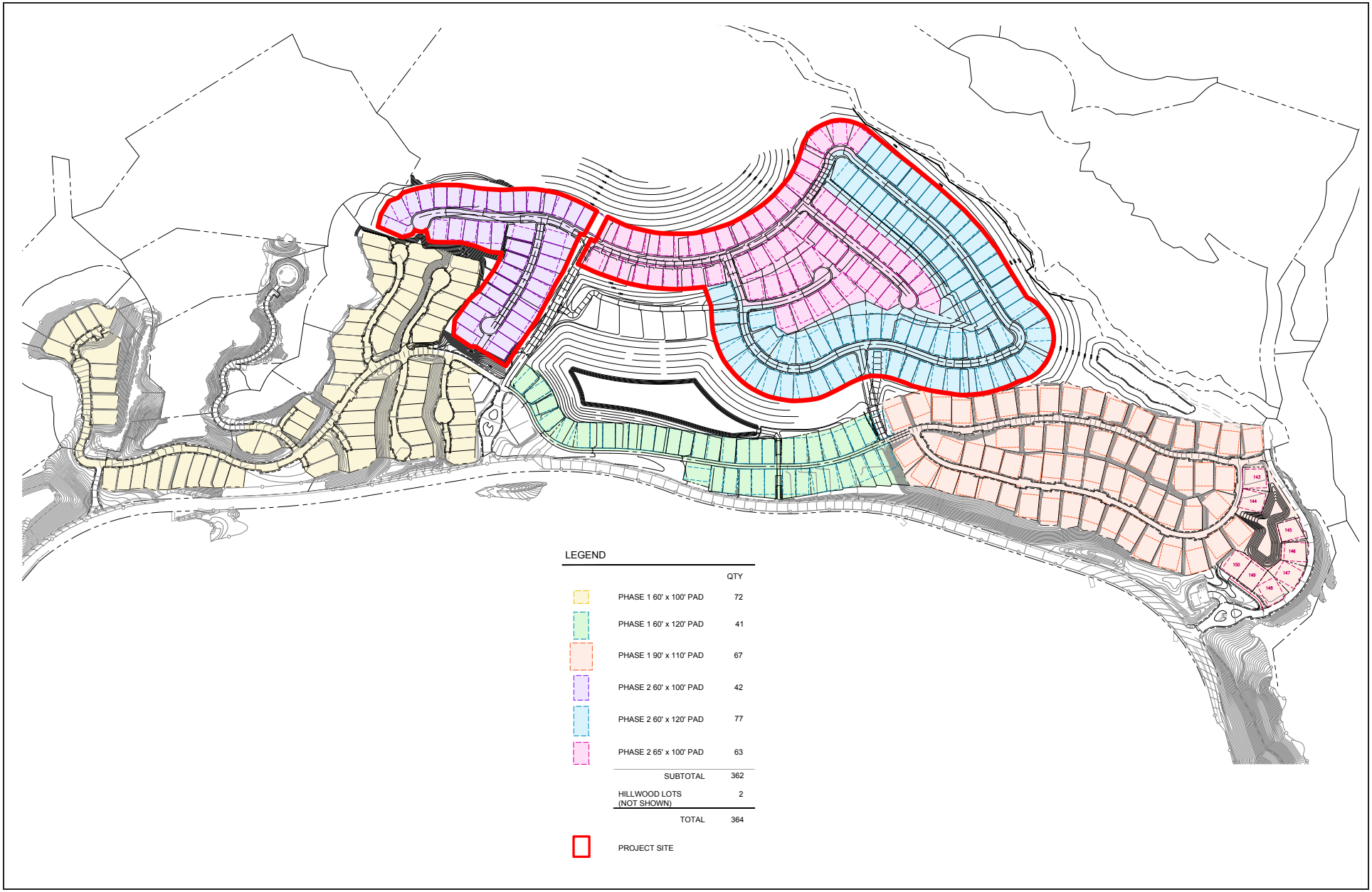
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Site Vicinity Map

Exhibit 2



Source: RTM Engineering Consultants, October 2024

LOST CANYONS 180 LOTS TRANSFER PROJECT

Michael Baker INTERNATIONAL

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Conceptual Site Plan

Exhibit 3

Construction activities for Phase 1 is anticipated to begin in 2025 and would consist of demolition, grading, building construction, paving, and architectural coating. Construction activities for Phase 2 could begin in 2027 and would include grading, building construction, paving, and architectural coating. The project would demolish approximately 31,300 square feet of buildings during Phase 1 demolition. Earthwork would be balanced on-site.

GLOBAL CLIMATE CHANGE

California is a substantial contributor of global greenhouse gases (GHGs), emitting over 381.3 million metric tons of carbon dioxide equivalent ($MTCO_2e$) in 2021.[3] Methane (CH_4) is also an important GHG that potentially contributes to global climate change. GHGs are global in their effect, which is to increase the earth's ability to absorb heat in the atmosphere. As primary GHGs have a long lifetime in the atmosphere, accumulate over time, and are generally well-mixed, their impact on the atmosphere is mostly independent of the point of emission. Every nation emits GHGs and as a result makes an incremental cumulative contribution to global climate change; therefore, global cooperation will be required to reduce the rate of GHG emissions enough to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

The impact of human activities on global climate change is apparent in the observational record. Air trapped by ice has been extracted from core samples taken from polar ice sheets to determine the global atmospheric variation of CO_2, CH_4, and nitrous oxide (N_2O) from before the start of industrialization (approximately 1750), to over 650,000 years ago. For that period, it was found that CO_2 concentrations ranged from 180 to 300 parts per million (ppm). For the period from approximately 1750 to the present, global CO_2 concentrations increased from a pre-industrialization period concentration of 280 to 379 ppm in 2005, with the 2005 value far exceeding the upper end of the pre-industrial period range. As of October 2024, the highest monthly average concentration of CO_2 in the atmosphere was recorded at 421.8 ppm.[4]

The Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. It concluded that a stabilization of GHGs at 400 to 450 ppm carbon dioxide equivalent (CO_2e)[5] concentration is required to keep global mean warming below 2 degrees Celsius (°C), which in turn is assumed to be necessary to avoid dangerous climate change.

SCOPE OF ANALYSIS FOR CLIMATE CHANGE

The study area for climate change and the analysis of GHG emissions is broad as climate change is influenced by worldwide emissions and their global effects. However, the study area is also limited by the *California Environmental Quality Act Guidelines* [Section 15064(d)] (CEQA Guidelines), which directs lead agencies to consider an "indirect physical change" only if that change is a reasonably foreseeable impact which may be caused by the project.

The baseline against which to compare potential impacts of the project includes the natural and anthropogenic drivers of global climate change, including worldwide GHG emissions from human activities

[3] California Air Resources Board, *California Greenhouse Gas Emissions for 2000 to 2021,* https://ww2.arb.ca.gov/ghg-inventory-data, accessed September 27, 2024.

[4] Scripps Institution of Oceanography, *Carbon Dioxide Concentration at Mauna Loa Observatory*, https://scripps.ucsd.edu/programs/keelingcurve/, accessed October 10, 2024.

[5] Carbon Dioxide Equivalent (CO_2e) – A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential.

that have grown more than 70 percent between 1970 and 2004. The State of California is leading the nation in managing GHG emissions. Accordingly, the impact analysis for the project relies on guidelines, analyses, policy, and plans for reducing GHG emissions established by the California Air Resources Board (CARB).

REGULATORY SETTING

Federal

GHG Endangerment Ruling

The U.S. Supreme Court in *Massachusetts et al. v. Environmental Protection Agency et al*. (549 U.S. 05-1120 [2007]) held that the U.S. Environmental Protection Agency (USEPA) has the authority to regulate motor vehicle GHG emissions under the federal Clean Air Act (CAA) and make a determination whether or not GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably endanger public health or welfare. In December 2009, the USEPA issued an endangerment finding for GHG emissions under the CAA, which set the stage for future regulations as the finding did not impose any emission reduction requirements. Accordingly, in response to the endangerment finding, the USEPA issued a Final Rule for mandatory reporting of GHG emissions in October 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and vehicle engines and requires facilities that emit 25,000 metric tons of CO_2e or more per year to submit an annual report.

Corporate Average Fuel Economy (CAFE) Standards

Established by the US Congress in 1975, the Corporate Average Fuel Economy (CAFE) Standards (49 Code of Federal Regulations [CFR] Parts 531 and 533) set fuel economy standards for all new passenger cars and light trucks sold in the United States. The National Highway Traffic Safety Administration (NHTSA) and the USEPA jointly administer the CAFE standards, which become more stringent each year.

In August 2016, the USEPA and NHTSA announced the adoption of phase two programs related to the fuel economy and GHG emissions standards for medium- and heavy-duty trucks. The phase two program applied 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 and sizes of buses and work trucks. The final standards were expected to lower CO_2 emissions by approximately 1.1 billion metric tons of CO_2 and reduce oil consumption by up to two billion barrels over the lifetime of the vehicles sold under the program. The NHTSA and the USEPA jointly published the "Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program" (SAFE I Rule) in September 2019 and issued the Final SAFE Rule (i.e., SAFE Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks) in April 2020. The SAFE I Rule relaxed federal CAFE vehicle standards and revoked California's authority to set its own vehicle standards. On December 29, 2021, the NHTSA issued the final rule to repeal the SAFE I Rule, effective January 28, 2022, which removes the improper restrictions placed on states and local governments from developing innovative policies to address their specific environmental and public health challenges.[6] The USEPA also issued a decision on March 14, 2022, that rescinded its 2019 withdrawal of California's authority to set its own vehicle standards.

[6] Federal Register, Vol. 86, No. 247, December 29, 2021.

State

Executive Order S-03-05

Executive Order S-03-05, signed by Governor Schwarzenegger in June 2005, set the following GHG reduction targets for the State:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

Assembly Bill 1493

Assembly Bill (AB) 1493, also known as the Pavley Bill, requires that the CARB develop and adopt by January 1, 2005, regulations that achieve "the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." On June 30, 2009, the USEPA granted the waiver of CAA preemption to California for its GHG emissions standards for motor vehicles beginning with the 2009 model year. Pavley I regulated model years from 2009 to 2016, and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG," regulates model years from 2017 to 2025. The Advanced Clean Cars program coordinates the goals of the LEV, Zero Emissions Vehicles (ZEV), and Clean Fuels Outlet programs, which should provide major reductions in GHG emissions. By 2025, when the rules will be fully implemented, new automobiles will emit 34 percent fewer GHGs and 75 percent fewer smog-forming emissions from their model year 2016 levels.

Assembly Bill 32 - California Global Warming Solutions Act of 2006, Senate Bill 32 - California Global Warming Solutions Act of 2016, and Climate Change Scoping Plans

California's major initiative for reducing GHG emissions is outlined in AB 32, the California Global Warming Solutions Act of 2006, which was signed into law in 2006. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 and required CARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 required CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, CARB approved a 1990 statewide GHG level and 2020 limit of 427 $MMTCO_2e$. To implement AB 32, the first Climate Change Scoping Plan (2008 Scoping Plan) was approved by CARB on December 11, 2008, and included measures to address GHG emissions reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. Many of the GHG emissions reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard [LCFS], Advanced Clean Car [ACC] standards, and Cap-and-Trade Program) have been adopted since approval of the Scoping Plan.

In May 2014, CARB approved the first update to the 2008 Scoping Plan, the 2013 Scoping Plan, which defined CARB's climate change priorities for the next five years and set the groundwork to reach post-2020 statewide goals. The update highlighted California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan and evaluated how to align the State's longer-term GHG emissions reduction strategies with other state policy priorities, including those for water, waste, natural resources, clean energy, transportation, and land use.

Senate Bill (SB) 32, signed into law on September 8, 2016, extended AB 32 by requiring the State to further reduce GHGs to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remained unchanged). In December 2017, CARB adopted the 2017 Scoping Plan (an update to the 2013 Scoping Plan), which provided a framework for achieving the 2030 target. The 2017 Scoping Plan relied on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, as

well as implementation of then recently adopted policies, such as SB 350 and SB 1383. The 2017 Scoping Plan also put an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan, the 2017 Scoping Plan did not provide project-level thresholds for land use development. Instead, it recommended that local governments adopt policies and locally appropriate quantitative thresholds consistent with statewide per capita goals of no more than 6 $MTCO_2e$ by 2030 and 2 $MTCO_2e$ by 2050.

In response to the passage of AB 1279 and the identification of the 2045 GHG emissions reduction target, CARB adopted the 2022 Climate Change Scoping Plan (2022 Scoping Plan) in December 2022. The 2022 Scoping Plan builds upon the framework established by the 2008 Climate Change Scoping Plan and previous updates while identifying a new, technologically feasible, cost-effective, and equity-focused path to achieve California's climate target. The 2022 Scoping Plan includes policies to achieve a significant reduction in fossil fuel combustion, further reductions in short-lived climate pollutants, support for sustainable development, increased action on natural and working lands to reduce emissions and sequester carbon, and the capture and storage of carbon.

The 2022 Scoping Plan assesses the progress California is making toward reducing its GHG emissions by at least 40 percent below 1990 levels by 2030, as called for in SB 32 and laid out in the 2017 Scoping Plan; addresses recent legislation and direction from Governor Newsom; extends and expands upon these earlier plans; and implements a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045, as well as taking an additional step of adding carbon neutrality as a science-based guide for California's climate work. As stated in the 2022 Scoping Plan, "the plan outlines how carbon neutrality can be achieved by taking bold steps to reduce GHGs to meet the anthropogenic emissions target and by expanding actions to capture and store carbon through the State's natural and working lands and using a variety of mechanical approaches." Specifically, the 2022 Scoping Plan achieves the following:

- Identifies a path to keep California on track to meet its SB 32 GHG reduction target of at least 40 percent below 1990 emissions by 2030.
- Identifies a technologically feasible, cost-effective path to achieve carbon neutrality by 2045 and a reduction in anthropogenic emissions by 85 percent below 1990 levels.
- Focuses on strategies for reducing California's dependency on petroleum to provide consumers with clean energy options that address climate change, improve air quality, and support economic growth and clean sector jobs.
- Integrates equity and protecting California's most impacted communities as driving principles throughout the document.
- Incorporates the contribution of natural and working lands to the State's GHG emissions, as well as their role in achieving carbon neutrality.
- Relies on the most up-to-date science, including the need to deploy all viable tools to address the existential threat that climate change presents, including carbon capture and sequestration, as well as direct air capture.
- Evaluates the substantial health and economic benefits of taking action.
- Identifies key implementation actions to ensure success.

In addition to reducing emissions from transportation, energy, and industrial sectors, the 2022 Scoping Plan includes emissions and carbon sequestration in natural and working lands and explores how they contribute to long-term climate goals. Under the Scoping Plan Scenario, California's 2030 emissions are anticipated to be 48 percent below 1990 levels, representing an acceleration of the current SB 32 target. The Cap-and-Trade Program continues to play a large factor in the reduction of near-term emissions for meeting the accelerated 2030 reduction target. Every sector of the economy will need to begin to transition in this decade to meet these GHG emissions reduction goals and achieve carbon neutrality no later than 2045. The 2022 Scoping Plan approaches decarbonization from two perspectives, managing a phasedown of existing energy sources and technologies, as well as increasing, developing, and deploying alternative clean energy sources and technology.

Senate Bill 375 - 2008 Sustainable Communities and Climate Protection Act

SB 375, signed in August 2008, enhances the State's ability to reach AB 32 goals by directing CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. In addition, SB 375 directs each of the State's 18 major metropolitan planning organizations to prepare a "sustainable communities' strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The Southern California Association of Governments (SCAG) was assigned targets of an 8-percent reduction in GHGs from transportation sources by 2020 and a 19-percent reduction in GHGs from transportation sources by 2035. In the SCAG region, SB 375 also provides the option for the coordinated development of subregional plans by the subregional councils of governments and the county transportation commissions to meet SB 375 requirements.

Senate Bill 100 - California Renewables Portfolio Standard Program

Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the State's Renewables Portfolio Standard (RPS) Program, which had been last updated by SB 350 in 2015. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

Executive Order B-55-18 to Achieve Carbon Neutrality

On September 10, 2018, Governor Brown issued Executive Order B-55-18, which established a new Statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter. This goal is in addition to the existing statewide GHG emissions reduction targets established by SB 375, SB 32, SB 1383, and SB 100.

California Building Standards Code

California Code of Regulations Title 24 is referred to as the California Building Standards Code. It consists of a compilation of several distinct standards and codes related to building construction, including plumbing, electrical, interior acoustics, energy efficiency, and accessibility for persons with physical and sensory disabilities. These standards are updated every three years. The most recent update, the 2022 California Building Standards, went into effect on January 1, 2023.

Part 6 – Building Energy Efficiency Standards/Energy Code

California Code of Regulations Title 24, Part 6, is the Building Energy Efficiency Standards, also referred to as the California Energy Code. This code, originally enacted in 1978, establishes energy-efficiency standards for residential and nonresidential buildings to reduce California's energy demand. New construction and major renovations must demonstrate their compliance with the current Energy Code through submittal and approval of a Title 24 Compliance Report to the local building permit review authority and the California Energy Commission. The 2022 Energy Code continues to improve upon the previous 2019 Title 24 standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The 2022 Energy Code is anticipated to reduce GHG emissions by 10 $MMTCO_2e$ over the next 30 years and result in approximately $1.5 billion in consumer savings. Compliance with Title 24 is enforced through the building permit process.

Part 11 – California Green Building Standards

Title 24, Part 11, is referred to as the California Green Building Standards (CALGreen) Code and was developed to help the State achieve its GHG emissions reduction goals under AB 32 by codifying standards for reducing building-related energy, water, and resource demand, which in turn reduces GHG emissions from energy, water, and resource demand. The CALGreen Code establishes mandatory measures, which include energy efficiency, water conservation, material conservation, planning and design, and overall environmental quality, for new residential and nonresidential buildings.

Regional

Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy

SCAG formally adopted the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) on September 3, 2020, to provide a roadmap for sensible ways to expand transportation options, improve air quality, and bolster Southern California's long-term economic viability. The 2020-2045 RTP/SCS builds upon the progress made through implementation of the 2016-2040 RTP/SCS and includes ten goals focused on promoting economic prosperity, improving mobility, protecting the environment, and supporting healthy/complete communities. These performance goals were adopted to help focus future investments on the best-performing projects, as well as different strategies to preserve, maintain, and optimize the performance of the existing transportation system. The 2020-2045 RTP/SCS is forecast to help California reach its GHG reduction goals by reducing GHG emissions from passenger cars by 8 percent below 2005 levels by 2020 and 19 percent by 2035 in accordance with the most recent CARB targets adopted in March 2018. The SCS implementation strategies include focusing growth near destinations and mobility options, promoting diverse housing choices, leveraging technology innovations, and supporting implementation of sustainability policies. The SCS establishes a land use vision of center-focused placemaking, concentrating growth in and near Priority Growth Areas, transferring of development rights, urban greening, creating greenbelts and community separators, and implementing regional advance mitigation to help the region meet its regional vehicle miles traveled (VMT) and GHG reduction goals, as required by the State.

The most recent 2024-2050 RTP/SCS was adopted by SCAG's Regional Council in April 2024. The 2024-2050 RTP/SCS outlines a vision for a more resilient and equitable future, with investment, policies, and strategies for achieving the region's shared goals through 2050. The 2024-2050 RTP/SCS sets forth a

forecasted regional development pattern which, when integrated with the transportation network, measures, and policies, will reduce GHG emissions from automobiles and light-duty trucks and achieve the GHG emissions reduction target for the region set by the CARB. In addition, the 2024-2050 RTP/SCS is supported by a combination of transportation and land use strategies that outline how the region can achieve California's GHG-emission-reduction goals and federal Clean Air Act requirements. These are articulated in a set of Regional Strategic Investments, Regional Planning Policies, and Implementation Strategies. The Regional Planning Policies are a resource for County Transportation Commissions (CTCs) and local jurisdictions, who can refer to specific policies to demonstrate alignment with the 2024-2050 RTP/SCS when seeking resources from state or federal programs. The Implementation Strategies articulate priorities for SCAG efforts in fulfilling or going beyond the Regional Planning Policies.[7] While SCAG has adopted the 2024-2050 RTP/SCS, CARB has not yet certified it or approved SCAG's GHG emissions reduction calculations.

Local

Simi Valley General Plan

The *City of Simi Valley General Plan* (General Plan), adopted in June 2012, contains the following goals related to GHG emission reduction.

Community Development Chapter, Land Use and Community Design Section

Goal LU-3 City Structure and Form. Land uses are located, designed, and scaled to respect Simi Valley's natural setting; maintain distinct and interconnected places for residents to live, shop, work, and play; and reduce automobile dependence.

Policy LU-3.2 Citywide Development Pattern. Provide for an overall pattern of land uses that promotes efficient development; minimizes the impact of traffic congestion; reduces transportation distances, energy consumption, air pollution, and greenhouse gas emissions; ensures compatibility between uses; protects the natural hillsides, major watercourses, and trees; enhances community livability and public health; and sustains economic vitality.

Goal LU-8 City Sustained and Renewed. Land development practices that sustain natural environmental resources, the economy, and societal well-being for use by future generations, while reducing greenhouse gas emissions and impacts on climate change, are maintained.

Policy LU-8.1 Regulating Sustainable Development. Implement the most current version of the California Green Building Standards Code with amendments and update periodically to reflect future amendments and require development projects, major renovations, and municipal structures to be consistent with these.

Policy LU-8.2 Sustainable Building Practices. Promote sustainable building practices that utilize architectural design features, materials, interior fixtures and finishes, and construction techniques to reduce energy and water consumption, human exposure to toxic and chemical pollution, and disposal of waste materials.

[7] Southern California Association of Governments, *Connect SoCal: A Plan for Navigating to a Brighter Future (2024-2050 Regional Transportation Plan/Sustainable Communities Strategy)*, adopted April 4, 2024.

Policy LU-8.4 Sustainable Land Development Practices. Promote land development practices that reduce energy and water consumption, pollution, greenhouse gas emissions, and disposal of waste materials incorporating such techniques as:

a. Concentration of uses and design of development to promote walking and use of public transit in lieu of the automobile
b. Capture and re-use of stormwater on-site for irrigation
c. Management of wastewater and use of recycled water
d. Orientation of buildings to maximize opportunities for solar energy use, daylighting, and ventilation
e. Use of landscapes that protect native soil, conserve water, provide for wildlife, reduce green waste, and reduce the risk of wildfires
f. Use of permeable paving materials or reduction of paved surfaces
g. Shading of surface parking, walkways, and plazas
h. Recycling and/or salvaging for reuse of construction and demolition debris

Policy LU-8.9 Green Buildings. Require all new construction and/or retrofitting of structures to be built to an identified green building standard.

Housing Chapter

Goal HE-2 Existing Housing Stock. The existing residential housing stock is maintained and improved where necessary.

Policy HE-2.6 Energy Conservation in New Housing. Encourage the use of energy conserving techniques in the siting and design of new housing.

Policy HE-2.7 Enforce Energy Conservation Laws. Actively enforce all state energy conservation requirements for new residential construction.

Policy HE-2.8 Promote Solar Power. Encourage and promote the maximum use of passive solar heating and cooling opportunities in housing units throughout the City.

Mobility and Infrastructure Chapter, Infrastructure and Utilities Section

Goal IU-6 Reliable Energy Resources. Affordable, reliable, and environmentally sensitive energy resources are available for the City's residents and businesses.

Policy IU-6.4 Renewable Energy. Promote the installation and construction of renewable energy systems and facilities such as wind, solar, hydropower, geothermal, and biomass facilities where appropriate.

Policy IU-6.5 Photovoltaic Panels for Private Projects. Expand the provision of incentives for the installation of solar energy panels on private development.

Natural Resources Chapter

Goal NR-7 Reliable Energy Resources. Reliable, affordable, and environmentally sensitive energy resources are available for residents and businesses.

Policy NR-7.4 Solar-Ready Buildings. Require that, where feasible, all new buildings be constructed to allow for easy, cost-effective installation of solar energy systems in the future addressing such elements as: optimal roof orientation, clear access, adequacy of structural support, and installation of electrical conduit and plumbing.

Goal NR-8 Reduced Energy Consumption. Energy consumption is minimized through sustainable building practices and other reduction strategies.

Policy NR-8.4 Solar Homes Partnership. Require that projects of five or more housing units participate in the California Energy Commission's new solar homes partnership, which provides rebates to developers who offer solar power in at least 50% of new units, or a program with similar provisions.

City of Simi Valley Climate Action Plan

The *Simi Valley Climate Action Plan* (CAP) includes goals and policies related to GHG which would help the City meet current and anticipated future State and Federal regulations. The following goals, objectives, and policies are applicable to the proposed project:

Transportation

Measure R2-T1/M2-T1: Anti-Idling Enforcement – This measure involves the adoption and enforcement of an Anti-Idling Ordinance for heavy-duty diesel trucks, including local delivery trucks and long-haul truck transport within the City. This policy would prohibit idling of on- and off-road heavy duty diesel vehicles for more than 5 minutes. This policy would be implemented by requiring signage at all loading docks and along truck routes informing drivers of the requirement to shut down their trucks after five minutes of idle time at loading docks and parking areas. Variances to the policy would include the necessity to idle while in traffic lanes due to traffic congestion on the roadway and during emergency situations. Employers who own and operate truck fleets would be required to inform their drivers of the anti-idling policy.

Measure R2-T4/M2-T4: Preferential Parking – Implementation of this reduction measure would encourage the adoption of a comprehensive parking program for public and private parking lots that facilitate carpooling and alternate transportation. Incentives to encourage carpooling and the use of alternate transportation methods would include:

- Providing reserved preferential parking spaces for car-share, carpool, and ultra-low or zero emission vehicles;
- Provide larger parking spaces that can accommodate vans used for ride-sharing programs and reserve them for vanpools, and include adequate passenger waiting/loading areas;
- Allow shared parking to reduce the number of spaces where feasible. For example, in areas where there are multiple land uses, provide resident restricted parking during nighttime hours (7pm to 7am) and open the parking lot for use by patrons of the surrounding commercial buildings during daytime hours; and
- Provide convenient pedestrian pathways through parking areas.

Measure R2-T8/M2-T8: Expand Renewable Fuel/Low-Emission Vehicle Use – Implementation of the following would promote the expanded use of renewable fuel and low-emission vehicles:

- Collaboration between local and regional governments and business to foster the increased use of renewable fuels through the siting of new alternative fueling/recharging locations;
- Providing preferential parking for ultra low-, zero- emission, and alternative fuel vehicles;
- Collaboration with energy providers to ensure the availability of necessary facilities and infrastructure to encourage the use of privately owned zero emission vehicles. This can be accomplished by having conveniently located charging and fueling stations for these vehicles;
- Provide incentives for taxicabs to use gas-electric hybrid vehicles or, at a minimum, smaller more fuel-efficient vehicles.

New developments within the City will be required to provide the necessary facilities and infrastructure in all land use types to encourage the use of low or zero-emission vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling stations). In addition, a requirement will be established for all new industrial and commercial land uses that requires all forklifts, yard trucks, or vehicles that are predominantly used onsite at nonresidential land uses to be electric-powered or powered by biofuels that are produced from waste products, or shall use other technologies that do not rely on direct fossil fuel consumption.

CALIFORNIA ENVIRONMENTAL QUALITY ACT THRESHOLDS

In accordance with the CEQA Guidelines, project impacts are evaluated to determine whether significant adverse environmental impacts would occur. According to Appendix G of the CEQA Guidelines, the proposed project would have a significant impact related to GHGs if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (refer to Impact Statement GHG-1); and/or

- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases (refer to Impact Statement GHG-2).

The baseline against which to compare potential impacts of a project includes the natural and anthropogenic drivers of global climate change, including worldwide GHG emissions from increased fossil fuel consumption and industrial emissions.[8] As a result, the study area for climate change and the analysis of GHG emissions is broad. However, the study area is also limited by CEQA Guidelines Section 15064.4(b), which directs lead agencies to consider an "indirect physical change" only if that change is a reasonably foreseeable impact, which may be caused by the project.

SIGNIFICANCE CRITERIA AND METHODOLOGY

Amendments to CEQA Guidelines Section 15064.4 were adopted to assist lead agencies in determining the significance of the impacts of GHG emissions. Consistent with existing CEQA practice, Section 15064.4 gives lead agencies the discretion to determine whether to assess those emissions quantitatively or qualitatively. This section recommends certain factors to be considered in the determination of

[8] USEPA, Global *Greenhouse Gas Emissions Data*, https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data, accessed September 27, 2024.

significance (i.e., the extent to which a project may increase or reduce GHG emissions compared to the existing environment; whether the project exceeds an applicable significance threshold; and the extent to which the project complies with regulations or requirements adopted to implement a plan for the reduction or mitigation of GHGs). The amendments do not establish a quantified or performance-based threshold of significance; rather, lead agencies are granted discretion to establish significance thresholds for their respective jurisdictions, including looking to thresholds developed by other public agencies or suggested by other experts, such as the California Air Pollution Control Officers Association (CAPCOA), so long as any threshold chosen is supported by substantial evidence (see *CEQA Guidelines* Section 15064.7(c)).

The City has not adopted a numerical significance threshold for assessing impacts related to GHG emissions. Similarly, the VCAPCD, CARB, or any other State or regional agency have not yet adopted a numerical significance threshold for assessing GHG emissions that is applicable to the project. Since there is no applicable adopted or accepted numerical threshold of significance for GHG emissions, the methodology for evaluating the project's impacts related to GHG emissions focuses on its consistency with statewide, regional, and local plans adopted for the purpose of reducing and/or mitigating GHG emissions. This evaluation of consistency with such plans is the sole basis for determining the significance of the project's GHG-related impacts on the environment.

Notwithstanding, for informational purposes, this analysis calculates the amount of GHG emissions that would be attributable to the project using recommended air quality models, as described below. The primary purpose of quantifying the project's GHG emissions is to satisfy State CEQA Guidelines Section 15064.4(a), which calls for a good-faith effort to describe and calculate emissions. The estimated emissions inventory is also used to determine if there would be a reduction in the project's incremental contribution of GHG emissions as a result of compliance with regulations and requirements adopted to implement plans for the reduction or mitigation of GHG emissions.

It should be noted that the 2010 EIR acknowledged that neither the City nor the VCAPCD has developed a numerical threshold but discussed both the SCAQMD 3,000 $MTCO_2e$ per year screening threshold and the Bay Area Air Quality Management District (BAAQMD) 1,100 $MTCO_2e$ per year screening threshold as points of reference to evaluate a project's cumulative GHG impacts. As these thresholds were based on the State's GHG emissions reduction goal identified in AB 32 for the year 2020, which is outdated, these thresholds are not deemed applicable for this analysis. As previously stated, the project proposes the internal density transfer of 180 lots within the Specific Plan area and would not result in an addition or reduction of land uses compared to what was previously analyzed in the 2010 EIR. While the 2010 EIR evaluated multiple components and various land uses, only the residential component of the Lost Canyons Project (364 single-family dwelling units) is analyzed as a part of this memorandum as the project does not propose any changes to other land uses, and the emissions shown in this report are for informational purposes only. The Lost Canyons Project construction and operational GHG emission are calculated using the most recent version of the California Emissions Estimator Model (CalEEMod), version 2022.1.

IMPACT ANALYSIS

GHG-1 WOULD THE PROJECT GENERATE GREENHOUSE GAS EMISSIONS, EITHER DIRECTLY OR INDIRECTLY, THAT MAY HAVE A SIGNIFICANT IMPACT ON THE ENVIRONMENT?

GHG-2 WOULD THE PROJECT CONFLICT WITH AN APPLICABLE PLAN, POLICY OR REGULATION ADOPTED FOR THE PURPOSE OF REDUCING THE EMISSIONS OF GREENHOUSE GASES

Level of Significance: Less Than Significant Impact with Mitigation Incorporated.

The 2010 EIR quantified the construction and operational GHG emissions using the Urban Emissions (URBEMIS) 2007 computer model. The 2010 EIR stated individual projects of this size typically do not significantly influence climate change or substantially contribute to the global GHG inventory. GHG impacts are considered cumulative, meaning there are no non-cumulative GHG emission impacts from a climate change perspective. The 2010 EIR estimated the approved project would generate approximately 7,292.37 $MTCO_2e$ per year.

The 2010 EIR stated that, although GHG emissions can be quantified, there were no numeric thresholds to assess their impact from a project. Therefore, the significance of the project's GHG emissions was evaluated based on its consistency with the State's emissions reduction goals under AB 32. Thus, while the project would emit GHGs contributing to the greenhouse effect, its incremental impact must be viewed in the broader context of cumulative effects. The 2010 EIR concluded that a project's consistency with the AB 32 Climate Change Scoping Plan (2008 Scoping Plan) could not be explicitly evaluated because many measures were still under development or not specific to project-level developments, at the time when 2010 EIR was prepared. However, the 2010 EIR incorporated design features consistent with some goals and strategies of the 2008 Scoping Plan, while some measures were not applicable due to technological, practical, or cost constraints, or because they were beyond the scope. Further, the 2010 EIR included Mitigation Measure 4.2-5 which aims to achieve a Green Building rating for new residential structures. The application of these guidelines was intended to reduce environmental impacts, particularly GHG emissions.

Lastly, the 2010 EIR concluded that the approved project would generate GHG emissions and there were no established numerical or performance-based thresholds for evaluating cumulative significance under CEQA. Therefore, if such thresholds were adopted, the project's cumulative GHG impacts would likely remain significant and unavoidable.

Project-Related Greenhouse Gas Emissions

As previously stated, the project proposes a density transfer of 180 lots that would occur internally and is within the scope of the 2010 EIR and therefore, would not result in an addition or reduction of land uses compared to what was previously analyzed in the 2010 EIR. The Lost Canyons Project consists of the development of 364 single-family residential uses and would be constructed in two phases. Phase 1 is anticipated to begin in 2025 and would include demolition, grading, building construction, and architectural coating activities. Phase 2 construction activities could begin in 2027 and would include grading, building construction, and architectural coating activities. The Lost Canyons Project would demolish approximately 31,300 square feet of buildings during demolition. Earthwork would be balanced on-site. Phase 1 and Phase 2 construction activities would overlap and total emissions during the overlapping construction activities were also calculated.

Project-related GHG emissions include emissions from direct and indirect sources. Direct project-related GHG emissions include emissions from construction activities, area sources, mobile sources, and refrigerants, while indirect sources include emissions from energy consumption, water demand, and solid waste generation. The CalEEMod was used to calculate project-related GHG emissions. The proposed project is subject to the 2010 EIR Mitigation Measure 4.2-5 which aims to achieve a Green Building rating for new residential structures. However, these measures were not included in the CalEEMod modeling as a conservative analysis. CalEEMod outputs are contained within Appendix A, *Greenhouse Gas Emissions Data*. Table 1, *Estimated Greenhouse Gas Emissions*, presents the estimated GHG emissions associated with the Lost Canyons Project.

Table 1
Estimated Greenhouse Gas Emissions

Source	CO_2	CH_4	N_2O	Refrigerants	CO_2e
	Metric Tons/year[1]				
Direct Emissions					
Construction (amortized over 30 years)[2]	117.57	<0.01	<0.01	0.03	118.57
Mobile Source[3]	3,938.00	0.18	0.18	5.41	4,000.00
Area Source	4.51	<0.01	<0.01	0.00	4.53
Refrigerants	0.00	0.00	0.00	0.85	0.85
Total Direct Emissions	*4,060.08*	*0.18*	*0.18*	*6.29*	*4,123.95*
Indirect Emissions					
Energy Source	1,201	0.10	<0.01	--	1,205.00
Water	75.70	0.46	<0.01	--	90.60
Solid Waste	26.10	2.61	<0.01	--	91.40
Total Indirect Emissions	*1,302.80*	*3.17*	*<0.01*	--	*1,387.00*
Total Proposed Project Emissions	***5,510.95 $MTCO_2e$/year***				

Notes:
1. Emissions calculated using California Emissions Estimator Model Version 2022.1 (CalEEMod) computer model; totals may be slightly off due to rounding.
2. Total construction GHG emissions equate to 3,557 $MTCO_2e$. Value shown is amortized over the lifetime of the project (assumed to be 30 years).
3. Based on the *Lost Canyons 180 Lot Transfer Transportation Memo* prepared by Micheal Baker International, dated October 22, 2024.

Source: Refer to Appendix A, *Greenhouse Gas Emissions Data* for assumptions used in this analysis.

Direct Project-Related Source of Greenhouse Gases

Construction Emissions. Based on CalEEMod, the Lost Canyons Project would result in a total of 3,557 $MTCO_2e$ of emissions during construction. Construction GHG emissions are amortized over 30 years (i.e., total construction emissions divided by the lifetime of the Lost Canyons Project, assumed to be 30 years). The amortization takes into consideration the temporary nature of construction activities. As shown in Table 1, construction of the Lost Canyons Project would generate approximately 118.57 $MTCO_2e$ of emissions per year when amortized over 30 years.

Mobile Source Emissions. According to the *Lost Canyons 180 Lot Transfer Transportation Memo* prepared by Michael Baker International, dated October 22, 2024, the Lost Canyons Project would result in 3,483 daily trips per day. As a conservative analysis, daily trips on Saturday and Sundays are assumed to be the same as weekdays; refer to Appendix A. The Lost Canyons Project would result in a total of 4,000 $MTCO_2e$ per year of GHG emissions from mobile source; refer to Table 1.

Area Source. Area source emissions would be generated due to an increased demand for consumer products, architectural coating, and landscaping associated with the development of the Lost Canyons

Project. The Lost Canyons Project would result in a total of 4.53 $MTCO_2e$ per year of GHG emissions from area source; refer to Table 1.

Refrigerants. Refrigerants are substances used in equipment for air conditioning and refrigeration. Most of the refrigerants used today are HFCs or blends thereof, which can have high global warming potential values. All equipment that uses refrigerants has a charge size (i.e., quantity of refrigerant the equipment contains), and an operational refrigerant leak rate, and each refrigerant has a global warming potential that is specific to that refrigerant. CalEEMod quantifies refrigerant emissions from leaks during regular operation and routine servicing over the equipment lifetime, and then derives average annual emissions from the lifetime estimate. As noted in Table 1, the Lost Canyons Project would result in 0.85 $MTCO_2e$ per year of GHG emissions from refrigerants.

Indirect Project-Related Source of Greenhouse Gases

Energy Consumption. Energy consumption emissions were calculated using the CalEEMod model and project-specific land use data. The Lost Canyons Project would be required to comply with the most current Title 24 (i.e., 2022 Title 24). The 2022 Title 24 provides minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting. Additionally, the proposed project would also include solar-ready roofs. Overall, the Lost Canyons Project would indirectly result in 1,205 $MTCO_2e$ per year of GHG emissions due to energy consumption; refer to Table 1.

Water Demand. According to CalEEMod, emissions from indirect impacts from water use would result in 90.6 $MTCO_2e$ per year of GHG emissions; refer to Table 1.

Solid Waste. Solid waste associated with operations of the Lost Canyons Project would result in 91.4 $MTCO_2e$ per year of GHG emissions; refer to Table 1.

Total Project-Related Sources of Greenhouse Gases

As shown in Table 1, the total amount of Lost Canyons Project related GHG emissions, which includes the proposed project, from direct and indirect sources combined would total approximately 5,510.95 $MTCO_2e$ per year and would be lower than what was previously presented in the 2010 EIR. It should be noted that the proposed project reflects a zero-sum net change in the total number of dwelling units and is an equal transfer of units within the overall tentative tract map area. Therefore, the project would result in no new GHG emissions compared to what was evaluated in the 2010 EIR.

Furthermore, as discussed above, the significance of the proposed project potential impacts regarding GHG emissions and climate change is not determined by the SCAQMD bright-line screening thresholds, but by the project's consistency with applicable plans, which is discussed in more detail below.

Consistency With Applicable Plans

The consistency analysis within the 2010 EIR is based on the AB 32 Climate Change Scoping Plan, also known as 2008 Scoping Plan. However, this document has since been updated, with the most recent approved iteration being the 2022 Scoping Plan. The GHG plan consistency analysis for the project is based on the project's consistency with the CARB's 2022 Scoping Plan, SCAG's 2020-2045 RTP/SCS, and City's General Plan as well as the City's CAP.

Consistency With 2022 Scoping Plan

The 2022 Scoping Plan identifies reduction measures necessary to achieve the goal of carbon neutrality by 2045 or earlier. Actions that reduce GHG emissions are identified for each AB 32 inventory sector. Provided in Table 2, *Consistency with the 2022 Scoping Plan: AB 32 GHG Inventory Sectors*, is an evaluation of applicable reduction actions/strategies by emissions source category to determine if the project would be consistent with reduction actions/strategies outlined in the 2022 Scoping Plan.

Table 2
Consistency with the 2022 Scoping Plan: AB 32 Inventory Sectors

Actions and Strategies	Project Consistency Analysis
Smart Growth / Vehicles Miles Traveled (VMT)	
Reduce VMT per capita to 25% below 2019 levels by 2030, and 30% below 2019 levels by 2045	**Consistent**. Development of the potential bus stop along Lost Canyons Drive within the proposed project site would encourage residents and guests to use the alternate mode of transportation. The development of a trail/bicycle/electrical vehicle system within the proposed project site that connects residential units between various regional trails throughout the foothills surrounding the proposed project site. The proposed project is also located within a Specific Plan which includes a variety of land uses, such as a mix of residential types, natural open space, a multi-purpose trail system, and an area for the development of a golf course and related commercial recreational amenities. Furthermore, the project would provide bicycle parking and electric vehicle (EV) charging stations, which would promote alternative modes of transportation to reduce VMT. The project would be consistent with this action.
New Residential and Commercial Buildings	
All electric appliances beginning 2026 (residential) and 2029 (commercial), contributing to 6 million heat pumps installed statewide by 2030	**Consistent.** The project is expected to consist of natural gas heating and/or cooking on-site. However, the City of Simi Valley has not adopted an ordinance or program limiting the use of natural gas for on-site cooking and/or heating. Additionally, the City also does not have any policy that requires an all-electric development. However, if such policies are adopted in the future, the project would comply with the applicable goals or policies limiting the use of natural gas equipment in the future and/or requiring all electric developments. Furthermore, the project would install high efficiency lighting which would reduce energy consumption. The project would be consistent with this action.
Construction Equipment	
Achieve 25% of energy demand electrified by 2030 and 75% electrified by 2045	**Consistent.** It should be noted that project construction would be completed prior to 2030. As such, the project would not be required to have 25 percent of construction equipment energy demand electrified. Additionally, the City of Simi Valley has not adopted an ordinance or program requiring electricity-powered construction equipment. However, if adopted, the project would comply with the applicable goals or policies requiring the use of electric equipment in the future. The project would be consistent with this action.
Non-combustion Methane Emissions	
Divert 75% of organic waste from landfills by 2025	**Consistent**. SB 1383 establishes targets to achieve a 50 percent reduction in the level of the statewide disposal of organic waste from the 2014 level by 2020 and a 75 percent reduction by 2025. The law establishes an additional target that not less than 20 percent of currently disposed edible food is recovered for human consumption by 2025. The project would comply with local and regional regulations and recycle or compost 75 percent of waste by 2025 pursuant to SB 1383. The project would be consistent with this action.
Source: California Air Resources Board, *2022 Scoping Plan*, November 16, 2022.	

Consistency with the SCAG 2020-2045 RTP/SCS

On September 3, 2020, the Regional Council of SCAG formally adopted the 2020-2045 RTP/SCS. The 2020-2045 RTP/SCS includes performance goals that were adopted to help focus future investments on the best-performing projects, as well as different strategies to preserve, maintain, and optimize the performance of the existing transportation system. The SCAG 2020-2045 RTP/SCS is forecast to help California reach its GHG reduction goals by reducing GHG emissions from passenger cars by eight percent below 2005 levels by 2020 and 19 percent by 2035 in accordance with the most recent CARB targets adopted in March 2018. Five key SCS strategies are included in the 2020-2045 RTP/SCS to help the region meet its regional VMT and GHG reduction goals, as required by the State. Table 3, *Consistency with the 2020-2045 RTP/SCS* shows the project's consistency with these five strategies found within the 2020-2045 RTP/SCS.

Table 3
Consistency with the 2020-2045 RTP/SCS

Reduction Strategy	Applicable Land Use Tools	Description of Project Measure(S) / Documentation of Compliance / Explanation of Non-Compliance	Project Consistency
Focus Growth Near Destinations and Mobility Options			
A) Emphasize land use patterns that facilitate multimodal access to work, educational and other destinations B) Focus on a regional jobs/housing balance to reduce commute times and distances and expand job opportunities near transit and along center-focused main streets C) Plan for growth near transit investments and support implementation of first/last mile strategies D) Promote the redevelopment of underperforming retail developments and other outmoded nonresidential uses E) Prioritize infill and redevelopment of underutilized land to accommodate new growth, increase amenities and connectivity in existing neighborhoods F) Encourage design and transportation options that reduce the reliance on and number of solo car trips (this could include mixed	**Center Focused Placemaking, Priority Growth Areas (PGA), Job Centers, High Quality Transit Areas (HQTAs), Transit Priority Areas (TPA), Neighborhood Mobility Areas (NMAs), Livable Corridors, Spheres of Influence (SOIs), Green Region, Urban Greening.**	A) Development of the potential bus stop along Lost Canyons Drive within the proposed project site would encourage residents and guests to use the alternate mode of transportation. The development of a trail/bicycle/electrical vehicle system within the proposed project site that connects residential units between various regional trails and commercial uses throughout the foothills surrounding the proposed project site. Furthermore, the project would provide bicycle parking and EV charging stations, which would promote alternative modes of transportation to reduce VMT. The project would be consistent with this action. B) The project would develop residential uses in an area where future commercial and recreational developments are proposed as a part of the Specific Plan. Thus, the proposed project would create job/housing opportunity within the City. Furthermore, development of the potential bus stops along Lost Canyons Drive within the proposed project site would create an opportunity to expand growth opportunities near transit development. C) See responses A and B. D) The project proposes to develop residential uses by replacing an underperforming golf facility and thus is consistent with this strategy. E) The project proposes to replace an underperforming golf facility with residential uses and thus is consistent with this strategy. F) Refer to responses A, B and D. G) This strategy is not applicable to the project. Nonetheless, the proposed parking spaces would be in compliance with the City's requirements.	**Consistent. The project would be consistent with the strategy.**

Reduction Strategy	Applicable Land Use Tools	Description of Project Measure(S) / Documentation of Compliance / Explanation of Non-Compliance	Project Consistency
uses or locating and orienting close to existing destinations) G) Identify ways to "right size" parking requirements and promote alternative parking strategies (e.g. shared parking or smart parking)			
Promote Diverse Housing Choices			
A) Preserve and rehabilitate affordable housing and prevent displacement B) Identify funding opportunities for new workforce and affordable housing development C) Create incentives and reduce regulatory barriers for building context sensitive accessory dwelling units to increase housing supply D) Provide support to local jurisdictions to streamline and lessen barriers to housing development that supports reduction of greenhouse gas emissions	**PGA, Job Centers, HQTAs, NMA, TPAs, Livable Corridors, Green Region, Urban Greening.**	The project would not displace affordable housing developments. This strategy is not applicable to the proposed project.	**Not Applicable.**
Leverage Technology Innovations			
A) Promote low emission technologies such as neighborhood electric vehicles, shared rides hailing, car sharing, bike sharing and scooters by providing supportive and safe infrastructure such as dedicated lanes, charging and parking/drop-off space B) Improve access to services through technology—such as telework and telemedicine as well as other incentives such as a "mobility wallet," an app-based system for storing transit and other multi-modal payments C) Identify ways to incorporate "micro-power grids" in communities, for example solar energy, hydrogen fuel	**HQTA, TPAs, NMA, Livable Corridors.**	A) The project would provide bicycle parking and EV charging stations in accordance with the most recent Title 24 standards and CALGreen Code. These features would promote low emission technologies such as bicycle and electric vehicles. Thus, the project would be consistent with this strategy. B) This reduction strategy is not applicable to individual development projects. C) The project would install solar ready roofs for new residential development, which could generate renewable energy on-site in the future, if deemed feasible by future residences. Therefore, the proposed project would incorporate "micro-power grids" in the community, and the project would be consistent with this strategy.	**Consistent. The project would be consistent with this reduction strategy.**

Reduction Strategy	Applicable Land Use Tools	Description of Project Measure(S) / Documentation of Compliance / Explanation of Non-Compliance	Project Consistency
cell power storage, and power generation			
Support Implementation of Sustainability Policies			
A) Pursue funding opportunities to support local sustainable development implementation projects that reduce greenhouse gas emissions B) Support statewide legislation that reduces barriers to new construction and that incentivizes development near transit corridors and stations C) Support local jurisdictions in the establishment of Enhanced Infrastructure Financing Districts (EIFDs), Community Revitalization and Investment Authorities (CRIAs), or other tax increment or value capture tools to finance sustainable infrastructure and development projects, including parks and open space D) Work with local jurisdictions/communities to identify opportunities and assess barriers to implement sustainability strategies E) Enhance partnerships with other planning organizations to promote resources and best practices in the SCAG region F) Continue to support long range planning efforts by local jurisdictions G) Provide educational opportunities to local decisions makers and staff on new tools, best practices and policies related to implementing the Sustainable Communities Strategy	**Center Focused Placemaking, Priority Growth Areas (PGA), Job Centers, High Quality Transit Areas (HQTAs), Transit Priority Areas (TPA), Neighborhood Mobility Areas (NMAs), Livable Corridors, Spheres of Influence (SOIs), Green Region, Urban Greening.**	The strategies shown here are associated with City-wide planning efforts and are not applicable to individual development projects. Nonetheless, the project would comply with sustainable practices included in the CALGreen Code and 2022 Title 24 standards. Furthermore, the project would exceed Title 24 standards and install high-efficiency lighting, solar-ready roof, and energy-efficient appliances, and generate on-site renewable energy. Additionally, the project would install low-flow fixtures, water-efficiency irrigation, and drought tolerant landscape. As previously discussed, the proposed project would provide bicycle parking and EV charging facility, which would promote alternative modes of transportation.	**Consistent. The project would be consistent with this reduction strategy.**
Promote a Green Region			

Reduction Strategy	Applicable Land Use Tools	Description of Project Measure(S) / Documentation of Compliance / Explanation of Non-Compliance	Project Consistency
A) Support development of local climate adaptation and hazard mitigation plans, as well as project implementation that improves community resiliency to climate change and natural hazards B) Support local policies for renewable energy production, reduction of urban heat islands and carbon sequestration C) Integrate local food production into the regional landscape D) Promote more resource efficient development focused on conservation, recycling and reclamation E) Preserve, enhance and restore regional wildlife connectivity F) Reduce consumption of resource areas, including agricultural land G) Identify ways to improve access to public park space	**Green Region, Urban Greening, Greenbelts and Community Separators.**	A) The project would be required to comply with the CALGreen Code and 2022 Title 24 standards. Furthermore, the project would exceed Title 24 standards and install high-efficiency lighting, solar-ready roof, and energy-efficient appliances, and generate on-site renewable energy. Additionally, it would install low-flow fixtures, water-efficient irrigation, and drought-tolerant landscape. B) The project would install solar ready roofs for new residential development, which could generate renewable energy on-site in the future, if deemed feasible by future residences. Thus, the project would support renewable energy production that reduces GHG emissions. C) The project would not propose any land use related to food production. D) The project would comply with local and regional regulations and recycle or compost 75 percent of waste by 2025 pursuant to SB 1383. E) The project would be located within a Specific Plan area which largely consist of open space. Based on the 2010 EIR, all development within the Specific Plan would design wildlife overcrossings, under crossings, and surface crossings to meet minimum standards for cross-section, length, location, fencing and vegetative plantings. As such, the proposed project would be consistent with the strategy. F) The project would not propose any use related to food production or agricultural activities. G) The proposed project site would connect the residential units between various regional trails throughout the foothills, surrounding the proposed project site. As such, the proposed project would be consistent with the strategy.	**Consistent. The project would be consistent with this reduction strategy.**
Source: Southern California Association of Governments, *2020-2045 Regional Transportation Plan/Sustainable Communities Strategy – Connect SoCal*, September 3, 2020.			

As mentioned above, 2024-2050 RTP/SCS (Connect SoCal 2024) was adopted on April 4, 2024. However, CARB concluded that the technical methodology SCAG used to quantify the GHG emission reductions for the Connect SoCal 2024 does not operate accurately.[9] At the time of preparation of this memorandum, CARB has not made its determination. Review by CARB is limited to acceptance or rejection of SCAG's determination that its SCS would, if implemented, achieve the region's GHG emissions reduction target. If CARB rejects SCAG's determination of meeting the GHG emission target, SCAG would need to revise the SCS or adopt an alternative planning strategy demonstrating the ability to achieve the target. As such, until CARB makes the decision, Connect SoCal 2024 is not a fully adopted document and is potentially subject to further updates, especially from the GHG reduction perspective of the methods and

[9] California Air Resources Board, *RE: CARB Review of Southern California Association of Governments' 2024 SCS Senate Bill 375 Greenhouse Gas Emissions Draft Technical Methodology, March 29, 2024*. https://ww2.arb.ca.gov/sites/default/files/2024-04/SCAG%20memo%20final.pdf, accessed on September 4, 2024.

assumptions of the calculation of Auto Operating Costs (AOC)[10], induced travel, electric vehicle incentives, job center parking and parking deregulation, off-model strategy assumptions, and emissions factors. As CARB has not made the decision at the time of preparation of this document, the consistency analysis shown in Table 3 relies upon the 2020-2045 RTP/SCS.

As shown therein, the proposed project would be consistent with the GHG emission reduction strategies contained in the 2020-2045 RTP/SCS.

Consistency with General Plan and CAP

As discussed above, the General Plan contains several goals related to GHG emissions reduction. Similarly, the City's CAP contains goals intended to support sustainable development within the City, and implementation of the CAP would contribute to a reduction in the City's overall GHG emissions.

Table 4, *Consistency with Applicable Goals and Policies of Simi Valley General Plan and Climate Action Plan*, compares the proposed project to applicable policies from the CAP and General Plan.

Table 4
Consistency with Applicable Goals and Policies of
Simi Valley General Plan and Climate Action Plan

Policies	Project Consistency
General Plan	
Community Development Chapter, Land Use, and Community Design Section	
Goal LU-3 City Structure and Form. Land uses are located, designed, and scaled to respect Simi Valley's natural setting; maintain distinct and interconnected places for residents to live, shop, work, and play; and reduce automobile dependence. **Policy LU-3.2 Citywide Development Pattern.** Provide for an overall pattern of land uses that promotes efficient development; minimizes the impact of traffic congestion; reduces transportation distances, energy consumption, air pollution, and greenhouse gas emissions; ensures compatibility between uses; protects the natural hillsides, major watercourses, and trees; enhances community livability and public health; and sustains economic vitality.	**Consistent**. The project would be built in accordance with the most recent Title 24 standards. As previously discussed, the Title 24 standards provide minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting. Implementation of the most current Title 24 standards significantly reduces energy usage. Additionally, the Title 24 standards are updated every three years and become more stringent between each update, as such complying with the most current Title 24 standards would make the proposed project more energy efficient than existing buildings. The project would reduce energy consumption and be consistent with this action.

[10] AOC is used as key variable across several major model components of the travel demand model, such as vehicle ownership, destination choice, and mode choice. This parameter represents the expenses associated with the usage of vehicles, expressed in cents per mile or dollar per mile. AOC plays a pivotal role as a fundamental parameter within the travel demand model.

Policies	Project Consistency
Goal LU-8 City Sustained and Renewed. Land development practices that sustain natural environmental resources, the economy, and societal well-being for use by future generations, while reducing greenhouse gas emissions and impacts on climate change, are maintained. **Policy LU-8.1 Regulating Sustainable Development.** Implement the most current version of the California Green Building Standards Code with amendments and update periodically to reflect future amendments and require development projects, major renovations, and municipal structures to be consistent with these. **Policy LU-8.2 Sustainable Building Practices.** Promote sustainable building practices that utilize architectural design features, materials, interior fixtures and finishes, and construction techniques to reduce energy and water consumption, human exposure to toxic and chemical pollution, and disposal of waste materials. **Policy LU-8.4 Sustainable Land Development Practices**. Promote land development practices that reduce energy and water consumption, pollution, greenhouse gas emissions, and disposal of waste materials incorporating such techniques as: a. Concentration of uses and design of development to promote walking and use of public transit in lieu of the automobile b. Capture and re-use of stormwater on-site for irrigation c. Management of wastewater and use of recycled water d. Orientation of buildings to maximize opportunities for solar energy use, daylighting, and ventilation e. Use of landscapes that protect native soil, conserve water, provide for wildlife, reduce green waste, and reduce the risk of wildfires f. Use of permeable paving materials or reduction of paved surfaces g. Shading of surface parking, walkways, and plazas h. Recycling and/or salvaging for reuse of construction and demolition debris **Policy LU-8.9 Green Buildings.** Require all new construction and/or retrofitting of structures to be built to an identified green building standard.	**Consistent.** The proposed development would meet the most recent Title 24 and CALGreen standards which requires energy efficient measures to be incorporated. Specifically, the project would include design features such as high efficiency lighting, energy efficient appliances, solar ready roofs, low flow fixtures, water efficient irrigation, and design features (i.e., color scheme, landscaping, window placement) which would reduce the urban heat island effect. The proposed project would also include solar-ready roof for all new units. Additionally, the project would be required to comply with Senate Bill 1383 regarding solid waste reduction. The project is consistent with this policy.
Mobility and Infrastructure Chapter, Infrastructure and Utilities Section	
Goal IU-6 Reliable Energy Resources. Affordable, reliable, and environmentally sensitive energy resources are available for the City's residents and businesses. **Policy IU-6.4 Renewable Energy.** Promote the installation and construction of renewable energy systems and facilities such as wind, solar, hydropower, geothermal, and biomass facilities where appropriate.	**Consistent.** The proposed project would include energy efficient technologies such as high efficiency lighting, energy efficient appliances, and solar-ready roofs. While the project would not install renewable energy systems for on-site energy generation, the solar-ready roofs would allow for the future on-site energy production. As such, the project is consistent with these policies.

Policies	Project Consistency
Policy IU-6.5 Photovoltaic Panels for Private Projects. Expand the provision of incentives for the installation of solar energy panels on private development.	
Natural Resources Chapter	
Goal NR-7 Reliable Energy Resources. Reliable, affordable, and environmentally sensitive energy resources are available for residents and businesses. **Policy NR-7.4 Solar-Ready Buildings.** Require that, where feasible, all new buildings be constructed to allow for easy, cost-effective installation of solar energy systems in the future addressing such elements as: optimal roof orientation, clear access, adequacy of structural support, and installation of electrical conduit and plumbing.	**Consistent.** Refer to Response to General Plan Goal IU-6.
Goal NR-8 Reduced Energy Consumption. Energy consumption is minimized through sustainable building practices and other reduction strategies. **Policy NR-8.4 Solar Homes Partnership.** Require that projects of five or more housing units participate in the California Energy Commission's new solar homes partnership, which provides rebates to developers who offer solar power in at least 50% of new units, or a program with similar provisions.	**Consistent.** Refer to Response to General Plan Goal IU-6.
Housing Chapter	
Goal HE 2 Existing Housing Stock. The existing residential housing stock is maintained and improved where necessary **Policy HE 2.6 Energy Conservation in New Housing.** Encourage the use of energy conservation techniques in the siting and design of new housing. **Policy HE 2.7 Enforce Energy Conservation Laws.** Actively enforce all state energy conservation requirements for new residential construction. **Policy HE 2.8 Promote Solar Power.** Encourage and promote the maximum use of passive solar heating and cooling opportunities in housing units throughout the City.	**Consistent.** Refer to Response to General Plan Goals Goal LU-3 and LU-8.
CAP	
Transportation	
Measure R2-T4/M2-T4: Preferential Parking - Implementation of this reduction measure would encourage the adoption of a comprehensive parking program for public and private parking lots that facilitate carpooling and alternate transportation. Incentives to encourage carpooling and the use of alternate transportation methods would include: • Providing reserved preferential parking spaces for car-share, carpool, and ultra-low or zero emission vehicles; • Provide larger parking spaces that can accommodate vans used for ride-sharing programs and reserve them for vanpools, and include adequate passenger waiting/loading areas;	**Consistent.** The proposed project would provide electric vehicle (EV) charging facility in compliance with the Title 24 standards and would include short- and long-term bicycle parking spaces. As such, the project is consistent with this policy.

Policies	Project Consistency
• Allow shared parking to reduce the number of spaces where feasible. For example, in areas where there are multiple land uses, provide resident restricted parking during nighttime hours (7pm to 7am) and open the parking lot for use by patrons of the surrounding commercial buildings during daytime hours; and Provide convenient pedestrian pathways through parking areas.	
Measure R2-T8/M2-T8: Expand Renewable Fuel/Low-Emission Vehicle Use - Implementation of the following would promote the expanded use of renewable fuel and low-emission vehicles: • Collaboration between local and regional governments and business to foster the increased use of renewable fuels through the siting of new alternative fueling/recharging locations; • Providing preferential parking for ultra low-, zero-emission, and alternative fuel vehicles; • Collaboration with energy providers to ensure the availability of necessary facilities and infrastructure to encourage the use of privately owned zero emission vehicles. This can be accomplished by having conveniently located charging and fueling stations for these vehicles; • Provide incentives for taxicabs to use gas-electric hybrid vehicles or, at a minimum, smaller more fuel-efficient vehicles. New developments within the City will be required to provide the necessary facilities and infrastructure in all land use types to encourage the use of low or zero-emission vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling stations). In addition, a requirement will be established for all new industrial and commercial land uses that requires all forklifts, yard trucks, or vehicles that are predominantly used onsite at nonresidential land uses to be electric-powered or powered by biofuels that are produced from waste products, or shall use other technologies that do not rely on direct fossil fuel consumption.	**Consistent.** Refer to Response to Measure R2-T4/M2-T4. As such, the project is consistent with this policy.
Sources: City of Simi Valley, *City of Simi Valley Climate Action Plan*, June 4, 2012. City of Simi Valley, *City of Simi Valley General Plan*, June 2012	

Conclusion

As shown in Table 1, the total emissions of the Lost Canyons Project, which includes the proposed project, would be approximately 5,510.95 $MTCO_2e$ per year and would be consistent with statewide, regional, and local GHG reduction plans and would also be consistent with the State's long-term goal to achieve statewide carbon neutrality (zero-net emissions). The Lost Canyons Project would generate lower GHG emissions than previously calculated for the approved project in the 2010 EIR, which was 7,292.37 $MTCO_2e$, due to more stringent regulations (i.e., building codes, renewable energy regulations, etc.), improved emission standards, cleaner fuel, and more efficient engines of construction equipment. It should be noted that the proposed project reflects a zero-sum net change in the total number of dwelling units and is an equal transfer of units within the overall tentative tract map area. As such, the proposed

project would not result in additional GHG impact than what was previously concluded in the 2010 EIR. Therefore, implementation of the proposed project would not generate significant GHG emissions that would have a significant impact on the environment or conflict with an applicable GHG reduction plan, policy or regulation and impacts would be less than significant.

Based on the above discussion, the proposed project would not result in new significant impacts and no substantial increase in the severity of previously identified impacts disclosed in the 2010 EIR would occur. Likewise, there are no changed circumstances involving new or more severe impacts and no new information of substantial importance requiring new analysis or project-specific mitigation measures.

Mitigation Measures:

The following 2010 EIR mitigation measure applies to the project:

4.2-5 To the degree feasible, the proposed project shall implement measures from the BuildItGreen GreenPoint Checklist included in the guidelines to an extent sufficient to score an overall Green Building rating for new residential structures. These guidelines include, but are not limited to, the following measures that could be selectively implemented by the proposed project site development team in the construction of the 364 residential units, deletion of the existing golf course (Shadow Golf Course), and the privatization of the second existing golf course on premises (Sky Golf Course). Application of the GreenPoint Checklist, using the following guidelines, is designated to reduce environmental impacts in regards to GHG emissions:

- Protect topsoil and minimize disruption of existing plants and trees.
- Recycle construction waste (including GreenWaste).
- Use recycled-content aggregate (minimum 25 percent).
- Replace Portland Cement in concrete with Recycled Flyash or Slag.
- Construct resource-efficient landscapes.
- Minimize turf areas in landscape installed by the developer.
- Plant shade trees.
- Group plants by water needs (Hydrozoning).
- Install high-efficiency irrigation systems.
- Use 50 percent salvaged or recycled-content materials for 50 percent of non-plant landscape areas.
- Use FSC-certified wood.
- Use solid wall systems (Includes SIPs, ICFs, and any non-stick frame assembly).
- Design energy heels on roof trusses (75 percent of attic insulation height at outside edge of exterior wall).
- Use recycled-content steel studs for 90 percent of interior wall framing.
- Thermal mass walls: 5/8-inch drywall on all interior walls or walls weighing more than 40 pounds/cubic feet.
- Use recycled-content (no virgin plastic) or FSC-certified decking.
- Install insulation with 75 percent recycled content.
- Inspect quality of insulation installation before applying drywall.
- Distribute domestic hot water efficiently.
- Install only high-efficiency toilets (dual-flush or 1.3 gallons per flush [gpf]).
- Design and install HVAC Systems to ACCA Manual J, D, and S recommendations.

- Install zoned, hydronic radiant heating with slab insulation.
- Install high efficiency air conditioning with environmentally responsible refrigerants.
- Design and install effective ductwork.
- Install high-efficiency HVAC filters (MERV 6+).
- Do not install fireplaces or install sealed gas fireplaces with efficiency ratings of not less than 60 percent using CSA standards.
- Install effective exhaust systems in bathrooms and kitchens.
- Install mechanical ventilation system for cooling.
- Install mechanical fresh air ventilation systems.
- Pre-plumb for solar water heating.
- Install solar water heating systems.
- Install wiring conduit for Future Photovoltaic installation and provide 200 feet of south-facing roofing.
- Install Photovoltaic (PV) panels.
- Use recycled-content paint.
- Use environmentally preferable materials for interior finish: (a) FSC-certified Wood (b) Reclaimed (c) Rapidly renewable (d) Recycled-content or (e) Finger-jointed.
- Use environmentally preferable flooring: (a) FSC-certified Wood, (b) Reclaimed, (c) Rapidly Renewable, (d) Recycled-Content, (e) Exposed Concrete. Flooring adhesive must have <50 grams per liter (gpl) of VOCs.
- Thermal mass floors: Floor covering other than carpet on 50 percent or more of concrete floors.
- Flooring meets Section 01350 or CRI Green Label Plus Requirements (50 percent minimum).
- Install water-and energy-efficient dishwashers.
- Install water- and energy-efficient clothes washing machines.
- Install ENERGY STAR appliances.
- Install built-in recycling and composting center.

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Greenhouse Gas Emissions Data

Lost Canyon Phase-1 Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Lost Canyon Phase-1
Construction Start Date	6/1/2025
Operational Year	2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	23.0
Location	3301 Lost Canyons Dr, Simi Valley, CA 93065, USA
County	Ventura
City	Simi Valley
Air District	Ventura County APCD
Air Basin	South Central Coast
TAZ	3503
EDFZ	8
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.28

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Single Family Housing	180	Dwelling Unit	58.4	351,000	2,108,314	21,083	542	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	88.1	88.0	45.3	56.6	0.10	1.83	10.7	12.5	1.68	4.01	5.68	—	12,397	12,397	0.45	0.22	6.42	12,480
Mit.	88.1	88.0	45.3	56.6	0.10	1.83	3.86	5.69	1.68	1.30	2.98	—	12,397	12,397	0.45	0.22	6.42	12,480
% Reduced	—	—	—	—	—	—	64%	54%	—	68%	48%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.69	3.95	34.5	39.4	0.07	1.44	9.66	11.1	1.33	3.76	5.09	—	8,548	8,548	0.34	0.14	0.12	8,581
Mit.	4.69	3.95	34.5	39.4	0.07	1.44	2.85	4.29	1.33	1.06	2.38	—	8,548	8,548	0.34	0.14	0.12	8,581
% Reduced	—	—	—	—	—	—	70%	61%	—	72%	53%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.46	6.40	16.8	21.0	0.04	0.67	3.86	4.53	0.62	1.44	2.06	—	4,631	4,631	0.17	0.10	1.30	4,663

Mit.	6.46	6.40	16.8	21.0	0.04	0.67	1.43	2.10	0.62	0.48	1.10	—	4,631	4,631	0.17	0.10	1.30	4,663
% Reduced	—	—	—	—	—	—	63%	54%	—	67%	47%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.18	1.17	3.07	3.82	0.01	0.12	0.70	0.83	0.11	0.26	0.38	—	767	767	0.03	0.02	0.22	772
Mit.	1.18	1.17	3.07	3.82	0.01	0.12	0.26	0.38	0.11	0.09	0.20	—	767	767	0.03	0.02	0.22	772
% Reduced	—	—	—	—	—	—	63%	54%	—	67%	47%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.98	2.49	23.8	21.2	0.04	0.93	1.99	2.92	0.86	0.36	1.22	—	4,814	4,814	0.18	0.22	3.49	4,887
2026	6.29	5.30	45.3	56.6	0.10	1.83	10.7	12.5	1.68	4.01	5.68	—	12,397	12,397	0.45	0.22	6.42	12,480
2027	1.54	1.30	10.3	16.7	0.03	0.35	1.01	1.36	0.31	0.24	0.56	—	3,803	3,803	0.12	0.14	4.22	3,851
2028	88.1	88.0	9.79	16.5	0.03	0.30	1.01	1.32	0.28	0.24	0.52	—	3,775	3,775	0.11	0.13	3.79	3,821
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.90	3.28	29.8	29.5	0.06	1.23	9.47	10.7	1.14	3.72	4.85	—	6,854	6,854	0.28	0.06	0.03	6,880
2026	4.69	3.95	34.5	39.4	0.07	1.44	9.66	11.1	1.33	3.76	5.09	—	8,548	8,548	0.34	0.14	0.12	8,581
2027	1.54	1.29	10.4	16.4	0.03	0.35	1.01	1.36	0.31	0.24	0.56	—	3,767	3,767	0.12	0.14	0.11	3,811
2028	1.46	1.25	9.84	16.2	0.03	0.30	1.01	1.32	0.28	0.24	0.52	—	3,739	3,739	0.12	0.13	0.10	3,781
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.87	0.73	6.74	6.52	0.01	0.28	1.82	2.09	0.25	0.69	0.94	—	1,511	1,511	0.06	0.02	0.17	1,520
2026	2.34	1.97	16.8	21.0	0.04	0.67	3.86	4.53	0.62	1.44	2.06	—	4,631	4,631	0.17	0.09	1.11	4,663

2027	1.10	0.92	7.41	11.7	0.02	0.25	0.71	0.96	0.22	0.17	0.40	—	2,695	2,695	0.08	0.10	1.30	2,727
2028	6.46	6.40	2.97	4.90	0.01	0.09	0.31	0.40	0.08	0.07	0.16	—	1,126	1,126	0.03	0.04	0.50	1,139
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.16	0.13	1.23	1.19	< 0.005	0.05	0.33	0.38	0.05	0.13	0.17	—	250	250	0.01	< 0.005	0.03	252
2026	0.43	0.36	3.07	3.82	0.01	0.12	0.70	0.83	0.11	0.26	0.38	—	767	767	0.03	0.01	0.18	772
2027	0.20	0.17	1.35	2.13	< 0.005	0.05	0.13	0.17	0.04	0.03	0.07	—	446	446	0.01	0.02	0.22	451
2028	1.18	1.17	0.54	0.89	< 0.005	0.02	0.06	0.07	0.02	0.01	0.03	—	186	186	0.01	0.01	0.08	189

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.98	2.49	23.8	21.2	0.04	0.93	1.45	2.39	0.86	0.28	1.14	—	4,814	4,814	0.18	0.22	3.49	4,887
2026	6.29	5.30	45.3	56.6	0.10	1.83	3.86	5.69	1.68	1.30	2.98	—	12,397	12,397	0.45	0.22	6.42	12,480
2027	1.54	1.30	10.3	16.7	0.03	0.35	1.01	1.36	0.31	0.24	0.56	—	3,803	3,803	0.12	0.14	4.22	3,851
2028	88.1	88.0	9.79	16.5	0.03	0.30	1.01	1.32	0.28	0.24	0.52	—	3,775	3,775	0.11	0.13	3.79	3,821
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.90	3.28	29.8	29.5	0.06	1.23	2.65	3.89	1.14	1.01	2.15	—	6,854	6,854	0.28	0.06	0.03	6,880
2026	4.69	3.95	34.5	39.4	0.07	1.44	2.85	4.29	1.33	1.06	2.38	—	8,548	8,548	0.34	0.14	0.12	8,581
2027	1.54	1.29	10.4	16.4	0.03	0.35	1.01	1.36	0.31	0.24	0.56	—	3,767	3,767	0.12	0.14	0.11	3,811
2028	1.46	1.25	9.84	16.2	0.03	0.30	1.01	1.32	0.28	0.24	0.52	—	3,739	3,739	0.12	0.13	0.10	3,781
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.87	0.73	6.74	6.52	0.01	0.28	0.56	0.84	0.25	0.20	0.45	—	1,511	1,511	0.06	0.02	0.17	1,520
2026	2.34	1.97	16.8	21.0	0.04	0.67	1.43	2.10	0.62	0.48	1.10	—	4,631	4,631	0.17	0.09	1.11	4,663
2027	1.10	0.92	7.41	11.7	0.02	0.25	0.71	0.96	0.22	0.17	0.40	—	2,695	2,695	0.08	0.10	1.30	2,727

2028	6.46	6.40	2.97	4.90	0.01	0.09	0.31	0.40	0.08	0.07	0.16	—	1,126	1,126	0.03	0.04	0.50	1,139
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.16	0.13	1.23	1.19	< 0.005	0.05	0.10	0.15	0.05	0.04	0.08	—	250	250	0.01	< 0.005	0.03	252
2026	0.43	0.36	3.07	3.82	0.01	0.12	0.26	0.38	0.11	0.09	0.20	—	767	767	0.03	0.01	0.18	772
2027	0.20	0.17	1.35	2.13	< 0.005	0.05	0.13	0.17	0.04	0.03	0.07	—	446	446	0.01	0.02	0.22	451
2028	1.18	1.17	0.54	0.89	< 0.005	0.02	0.06	0.07	0.02	0.01	0.03	—	186	186	0.01	0.01	0.08	189

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.6	15.9	7.02	57.9	0.13	0.24	11.5	11.8	0.24	2.92	3.16	91.0	15,912	16,003	9.97	0.55	39.8	16,457
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	15.6	14.9	7.50	47.3	0.13	0.24	11.5	11.8	0.23	2.92	3.16	91.0	15,474	15,565	10.0	0.59	3.48	15,994
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.0	15.3	7.43	51.4	0.13	0.24	11.4	11.6	0.24	2.88	3.12	91.0	15,551	15,642	10.0	0.58	18.6	16,084
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.91	2.79	1.36	9.39	0.02	0.04	2.07	2.12	0.04	0.53	0.57	15.1	2,575	2,590	1.66	0.10	3.08	2,663

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.28	6.79	4.95	46.9	0.12	0.08	11.5	11.6	0.07	2.92	3.00	—	12,084	12,084	0.50	0.50	37.3	12,283
Area	9.05	9.00	0.10	10.2	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.3	27.3	< 0.005	< 0.005	—	27.4
Energy	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	3,588	3,588	0.32	0.02	—	3,601
Water	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Waste	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	16.6	15.9	7.02	57.9	0.13	0.24	11.5	11.8	0.24	2.92	3.16	91.0	15,912	16,003	9.97	0.55	39.8	16,457
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.21	6.70	5.52	46.4	0.11	0.08	11.5	11.6	0.07	2.92	3.00	—	11,673	11,673	0.54	0.54	0.97	11,848
Area	8.11	8.11	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
Energy	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	3,588	3,588	0.32	0.02	—	3,601
Water	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Waste	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	15.6	14.9	7.50	47.3	0.13	0.24	11.5	11.8	0.23	2.92	3.16	91.0	15,474	15,565	10.0	0.59	3.48	15,994
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.15	6.65	5.41	45.6	0.12	0.08	11.4	11.4	0.07	2.88	2.96	—	11,737	11,737	0.52	0.53	16.1	11,924
Area	8.58	8.55	0.05	5.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	13.5	13.5	< 0.005	< 0.005	—	13.5
Energy	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	3,588	3,588	0.32	0.02	—	3,601
Water	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Waste	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	16.0	15.3	7.43	51.4	0.13	0.24	11.4	11.6	0.24	2.88	3.12	91.0	15,551	15,642	10.0	0.58	18.6	16,084
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	1.31	1.21	0.99	8.31	0.02	0.01	2.07	2.09	0.01	0.53	0.54	—	1,943	1,943	0.09	0.09	2.67	1,974
Area	1.57	1.56	0.01	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.23	2.23	< 0.005	< 0.005	—	2.24
Energy	0.04	0.02	0.36	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	594	594	0.05	< 0.005	—	596
Water	—	—	—	—	—	—	—	—	—	—	—	2.16	35.3	37.4	0.23	0.01	—	44.8
Waste	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Total	2.91	2.79	1.36	9.39	0.02	0.04	2.07	2.12	0.04	0.53	0.57	15.1	2,575	2,590	1.66	0.10	3.08	2,663

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.28	6.79	4.95	46.9	0.12	0.08	11.5	11.6	0.07	2.92	3.00	—	12,084	12,084	0.50	0.50	37.3	12,283
Area	9.05	9.00	0.10	10.2	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.3	27.3	< 0.005	< 0.005	—	27.4
Energy	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	3,588	3,588	0.32	0.02	—	3,601
Water	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Waste	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	16.6	15.9	7.02	57.9	0.13	0.24	11.5	11.8	0.24	2.92	3.16	91.0	15,912	16,003	9.97	0.55	39.8	16,457
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.21	6.70	5.52	46.4	0.11	0.08	11.5	11.6	0.07	2.92	3.00	—	11,673	11,673	0.54	0.54	0.97	11,848
Area	8.11	8.11	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
Energy	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	3,588	3,588	0.32	0.02	—	3,601
Water	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Waste	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	15.6	14.9	7.50	47.3	0.13	0.24	11.5	11.8	0.23	2.92	3.16	91.0	15,474	15,565	10.0	0.59	3.48	15,994
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.15	6.65	5.41	45.6	0.12	0.08	11.4	11.4	0.07	2.88	2.96	—	11,737	11,737	0.52	0.53	16.1	11,924
Area	8.58	8.55	0.05	5.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	13.5	13.5	< 0.005	< 0.005	—	13.5
Energy	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	3,588	3,588	0.32	0.02	—	3,601
Water	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Waste	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	16.0	15.3	7.43	51.4	0.13	0.24	11.4	11.6	0.24	2.88	3.12	91.0	15,551	15,642	10.0	0.58	18.6	16,084
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.31	1.21	0.99	8.31	0.02	0.01	2.07	2.09	0.01	0.53	0.54	—	1,943	1,943	0.09	0.09	2.67	1,974
Area	1.57	1.56	0.01	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.23	2.23	< 0.005	< 0.005	—	2.24
Energy	0.04	0.02	0.36	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	594	594	0.05	< 0.005	—	596
Water	—	—	—	—	—	—	—	—	—	—	—	2.16	35.3	37.4	0.23	0.01	—	44.8
Waste	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Total	2.91	2.79	1.36	9.39	0.02	0.04	2.07	2.12	0.04	0.53	0.57	15.1	2,575	2,590	1.66	0.10	3.08	2,663

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	2.86	2.40	22.2	19.9	0.03	0.92	—	0.92	0.84	—	0.84	—	3,425	3,425	0.14	0.03	—	3,437
Demoliti on	—	—	—	—	—	—	1.48	1.48	—	0.22	0.22	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.16	0.14	1.28	1.15	< 0.005	0.05	—	0.05	0.05	—	0.05	—	197	197	0.01	< 0.005	—	198
Demoliti on	—	—	—	—	—	—	0.09	0.09	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.03	0.03	0.23	0.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.6	32.6	< 0.005	< 0.005	—	32.7
Demoliti on	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.94	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.81	204
Vendor	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	0.00
Hauling	0.06	0.03	1.57	0.38	0.01	0.02	0.31	0.33	0.02	0.09	0.10	—	1,188	1,188	0.03	0.19	2.68	1,247

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	11.3
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.09	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	68.4	68.4	< 0.005	0.01	0.07	71.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.84	1.84	< 0.005	< 0.005	< 0.005	1.87
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.01	11.9

3.2. Demolition (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.86	2.40	22.2	19.9	0.03	0.92	—	0.92	0.84	—	0.84	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.95	0.95	—	0.14	0.14	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.16	0.14	1.28	1.15	< 0.005	0.05	—	0.05	0.05	—	0.05	—	197	197	0.01	< 0.005	—	198
Demoliti on	—	—	—	—	—	—	0.05	0.05	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.03	0.03	0.23	0.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.6	32.6	< 0.005	< 0.005	—	32.7
Demoliti on	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.94	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.81	204
Vendor	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	0.00
Hauling	0.06	0.03	1.57	0.38	0.01	0.02	0.31	0.33	0.02	0.09	0.10	—	1,188	1,188	0.03	0.19	2.68	1,247
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	11.3
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.09	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	68.4	68.4	< 0.005	0.01	0.07	71.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.84	1.84	< 0.005	< 0.005	< 0.005	1.87
Vendor	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	0.00

Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.01	11.9

3.3. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.68	0.58	5.34	5.10	0.01	0.22	—	0.22	0.20	—	0.20	—	1,188	1,188	0.05	0.01	—	1,192
Dust From Material Movement	—	—	—	—	—	—	1.66	1.66	—	0.66	0.66	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.13	0.11	0.98	0.93	< 0.005	0.04	—	0.04	0.04	—	0.04	—	197	197	0.01	< 0.005	—	197
Dust From Material Movement	—	—	—	—	—	—	0.30	0.30	—	0.12	0.12	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.11	1.14	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	256	256	0.01	0.01	0.03	259
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.21	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	46.3	46.3	< 0.005	< 0.005	0.08	47.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.67	7.67	< 0.005	< 0.005	0.01	7.78
Vendor	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	0.00
Hauling	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	0.00

3.4. Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.68	0.58	5.34	5.10	0.01	0.22	—	0.22	0.20	—	0.20	—	1,188	1,188	0.05	0.01	—	1,192
Dust From Material Movement	—	—	—	—	—	—	0.43	0.43	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.98	0.93	< 0.005	0.04	—	0.04	0.04	—	0.04	—	197	197	0.01	< 0.005	—	197
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.03	0.03	—	—	—	—	—	—	—

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.11	1.14	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	256	256	0.01	0.01	0.03	259
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.21	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	46.3	46.3	< 0.005	< 0.005	0.08	47.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.67	7.67	< 0.005	< 0.005	0.01	7.78
Vendor	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	0.00
Hauling	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	0.00

3.5. Grading (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.29	1.08	9.70	9.82	0.02	0.40	—	0.40	0.37	—	0.37	—	2,350	2,350	0.10	0.02	—	2,358
Dust From Material Movement	—	—	—	—	—	—	3.28	3.28	—	1.30	1.30	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.24	0.20	1.77	1.79	< 0.005	0.07	—	0.07	0.07	—	0.07	—	389	389	0.02	< 0.005	—	390
Dust From Material Movement	—	—	—	—	—	—	0.60	0.60	—	0.24	0.24	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.17	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	262	262	< 0.005	0.01	0.98	266
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.06	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	0.01	0.03	254
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.38	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	89.9	89.9	< 0.005	< 0.005	0.15	91.1
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	14.9	14.9	< 0.005	< 0.005	0.03	15.1
Vendor	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	0.00
Hauling	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	0.00

3.6. Grading (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.29	1.08	9.70	9.82	0.02	0.40	—	0.40	0.37	—	0.37	—	2,350	2,350	0.10	0.02	—	2,358

Dust From Material Movement	—	—	—	—	—	—	0.85	0.85	—	0.34	0.34	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.77	1.79	< 0.005	0.07	—	0.07	0.07	—	0.07	—	389	389	0.02	< 0.005	—	390
Dust From Material Movement	—	—	—	—	—	—	0.16	0.16	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.17	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	262	262	< 0.005	0.01	0.98	266
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.06	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	0.01	0.03	254
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.38	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	89.9	89.9	< 0.005	< 0.005	0.15	91.1
Vendor	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	0.00

Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	14.9	14.9	< 0.005	< 0.005	0.03	15.1
Vendor	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	0.00
Hauling	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	0.00

3.7. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.45	4.13	5.43	0.01	0.16	—	0.16	0.15	—	0.15	—	1,004	1,004	0.04	0.01	—	1,007

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.75	0.99	< 0.005	0.03	—	0.03	0.03	—	0.03	—	166	166	0.01	< 0.005	—	167
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.26	0.26	3.80	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	849	849	0.01	0.03	3.19	862
Vendor	0.02	0.02	0.70	0.22	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	583	583	0.01	0.09	1.52	610
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.26	0.32	3.44	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	812	812	0.01	0.03	0.08	822
Vendor	0.02	0.02	0.73	0.23	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	583	583	0.01	0.09	0.04	609
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.13	1.44	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	342	342	0.01	0.01	0.58	347
Vendor	0.01	0.01	0.30	0.09	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	244	244	< 0.005	0.04	0.27	255
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.7	56.7	< 0.005	< 0.005	0.10	57.5
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	40.4	40.4	< 0.005	0.01	0.05	42.3
Hauling	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	0.00

3.8. Building Construction (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.45	4.13	5.43	0.01	0.16	—	0.16	0.15	—	0.15	—	1,004	1,004	0.04	0.01	—	1,007
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.75	0.99	< 0.005	0.03	—	0.03	0.03	—	0.03	—	166	166	0.01	< 0.005	—	167

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.26	0.26	3.80	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	849	849	0.01	0.03	3.19	862
Vendor	0.02	0.02	0.70	0.22	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	583	583	0.01	0.09	1.52	610
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.26	0.32	3.44	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	812	812	0.01	0.03	0.08	822
Vendor	0.02	0.02	0.73	0.23	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	583	583	0.01	0.09	0.04	609
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.13	1.44	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	342	342	0.01	0.01	0.58	347
Vendor	0.01	0.01	0.30	0.09	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	244	244	< 0.005	0.04	0.27	255
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.7	56.7	< 0.005	< 0.005	0.10	57.5
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	40.4	40.4	< 0.005	0.01	0.05	42.3
Hauling	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	0.00

3.9. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.71	9.24	0.02	0.24	—	0.24	0.22	—	0.22	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	1.22	1.69	< 0.005	0.04	—	0.04	0.04	—	0.04	—	283	283	0.01	< 0.005	—	284
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.29	0.26	0.25	3.56	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	834	834	0.01	0.03	2.89	847
Vendor	0.02	0.01	0.67	0.21	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	572	572	0.01	0.09	1.33	599
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.25	0.29	3.21	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	798	798	0.01	0.03	0.07	808
Vendor	0.02	0.01	0.69	0.22	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	572	572	0.01	0.09	0.03	598
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.18	0.20	2.30	0.00	0.00	0.60	0.60	0.00	0.14	0.14	—	574	574	0.01	0.02	0.89	582
Vendor	0.02	0.01	0.50	0.15	< 0.005	0.01	0.12	0.12	< 0.005	0.03	0.04	—	409	409	0.01	0.06	0.41	427
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.42	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	95.0	95.0	< 0.005	< 0.005	0.15	96.3
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.6	67.6	< 0.005	0.01	0.07	70.7
Hauling	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	0.00

3.10. Building Construction (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405

Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.71	9.24	0.02	0.24	—	0.24	0.22	—	0.22	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	1.22	1.69	< 0.005	0.04	—	0.04	0.04	—	0.04	—	283	283	0.01	< 0.005	—	284
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.26	0.25	3.56	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	834	834	0.01	0.03	2.89	847
Vendor	0.02	0.01	0.67	0.21	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	572	572	0.01	0.09	1.33	599
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.29	0.25	0.29	3.21	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	798	798	0.01	0.03	0.07	808
Vendor	0.02	0.01	0.69	0.22	< 0.005	0.01	0.16	0.17	< 0.005	0.05	0.05	—	572	572	0.01	0.09	0.03	598
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.18	0.20	2.30	0.00	0.00	0.60	0.60	0.00	0.14	0.14	—	574	574	0.01	0.02	0.89	582
Vendor	0.02	0.01	0.50	0.15	< 0.005	0.01	0.12	0.12	< 0.005	0.03	0.04	—	409	409	0.01	0.06	0.41	427
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.42	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	95.0	95.0	< 0.005	< 0.005	0.15	96.3
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.6	67.6	< 0.005	0.01	0.07	70.7
Hauling	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	0.00

3.11. Building Construction (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.29	2.64	3.82	0.01	0.09	—	0.09	0.08	—	0.08	—	708	708	0.03	0.01	—	711
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.48	0.70	< 0.005	0.02	—	0.02	0.01	—	0.01	—	117	117	< 0.005	< 0.005	—	118
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.25	0.23	3.35	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	819	819	0.01	0.03	2.61	831
Vendor	0.02	0.01	0.64	0.21	< 0.005	< 0.005	0.16	0.17	< 0.005	0.05	0.05	—	558	558	0.01	0.08	1.18	584
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.24	0.26	3.01	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	783	783	0.01	0.03	0.07	793
Vendor	0.02	0.01	0.66	0.21	< 0.005	< 0.005	0.16	0.17	< 0.005	0.05	0.05	—	558	558	0.01	0.08	0.03	583
Hauling	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.08	0.89	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	233	233	< 0.005	0.01	0.33	236
Vendor	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	165	165	< 0.005	0.02	0.15	172
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	38.6	38.6	< 0.005	< 0.005	0.06	39.1
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.3	27.3	< 0.005	< 0.005	0.02	28.5
Hauling	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	0.00

3.12. Building Construction (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.29	2.64	3.82	0.01	0.09	—	0.09	0.08	—	0.08	—	708	708	0.03	0.01	—	711
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.48	0.70	< 0.005	0.02	—	0.02	0.01	—	0.01	—	117	117	< 0.005	< 0.005	—	118
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.25	0.23	3.35	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	819	819	0.01	0.03	2.61	831
Vendor	0.02	0.01	0.64	0.21	< 0.005	< 0.005	0.16	0.17	< 0.005	0.05	0.05	—	558	558	0.01	0.08	1.18	584
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.24	0.26	3.01	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	783	783	0.01	0.03	0.07	793
Vendor	0.02	0.01	0.66	0.21	< 0.005	< 0.005	0.16	0.17	< 0.005	0.05	0.05	—	558	558	0.01	0.08	0.03	583
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.08	0.89	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	233	233	< 0.005	0.01	0.33	236
Vendor	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	165	165	< 0.005	0.02	0.15	172
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	38.6	38.6	< 0.005	< 0.005	0.06	39.1
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.3	27.3	< 0.005	< 0.005	0.02	28.5
Hauling	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	0.00

3.13. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.52	3.51	< 0.005	0.11	—	0.11	0.10	—	0.10	—	534	534	0.02	< 0.005	—	536

Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.46	0.64	< 0.005	0.02	—	0.02	0.02	—	0.02	—	88.4	88.4	< 0.005	< 0.005	—	88.7
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.88	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	197	197	< 0.005	0.01	0.74	199
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.80	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	188	188	< 0.005	0.01	0.02	190
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.03	0.28	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	66.9	66.9	< 0.005	< 0.005	0.11	67.8
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	11.2
Vendor	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	0.00

Hauling	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	0.00

3.14. Paving (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.52	3.51	< 0.005	0.11	—	0.11	0.10	—	0.10	—	534	534	0.02	< 0.005	—	536
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.46	0.64	< 0.005	0.02	—	0.02	0.02	—	0.02	—	88.4	88.4	< 0.005	< 0.005	—	88.7
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.88	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	197	197	< 0.005	0.01	0.74	199
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.80	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	188	188	< 0.005	0.01	0.02	190
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.03	0.28	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	66.9	66.9	< 0.005	< 0.005	0.11	67.8
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	11.2
Vendor	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	0.00
Hauling	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	0.00

3.15. Architectural Coating (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	87.9	87.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.15	9.15	< 0.005	< 0.005	—	9.18
Architectural Coatings	6.02	6.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.51	1.51	< 0.005	< 0.005	—	1.52
Architectural Coatings	1.10	1.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.67	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	164	164	< 0.005	0.01	0.52	166
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.8	10.8	< 0.005	< 0.005	0.02	11.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.79	1.79	< 0.005	< 0.005	< 0.005	1.81
Vendor	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	0.00
Hauling	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	0.00

3.16. Architectural Coating (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	87.9	87.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.15	9.15	< 0.005	< 0.005	—	9.18
Architectural Coatings	6.02	6.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.51	1.51	< 0.005	< 0.005	—	1.52

Architectural Coating	1.10	1.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.67	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	164	164	< 0.005	0.01	0.52	166
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.8	10.8	< 0.005	< 0.005	0.02	11.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.79	1.79	< 0.005	< 0.005	< 0.005	1.81
Vendor	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	0.00
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.28	6.79	4.95	46.9	0.12	0.08	11.5	11.6	0.07	2.92	3.00	—	12,084	12,084	0.50	0.50	37.3	12,283
Total	7.28	6.79	4.95	46.9	0.12	0.08	11.5	11.6	0.07	2.92	3.00	—	12,084	12,084	0.50	0.50	37.3	12,283
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.21	6.70	5.52	46.4	0.11	0.08	11.5	11.6	0.07	2.92	3.00	—	11,673	11,673	0.54	0.54	0.97	11,848
Total	7.21	6.70	5.52	46.4	0.11	0.08	11.5	11.6	0.07	2.92	3.00	—	11,673	11,673	0.54	0.54	0.97	11,848
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.31	1.21	0.99	8.31	0.02	0.01	2.07	2.09	0.01	0.53	0.54	—	1,943	1,943	0.09	0.09	2.67	1,974
Total	1.31	1.21	0.99	8.31	0.02	0.01	2.07	2.09	0.01	0.53	0.54	—	1,943	1,943	0.09	0.09	2.67	1,974

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.28	6.79	4.95	46.9	0.12	0.08	11.5	11.6	0.07	2.92	3.00	—	12,084	12,084	0.50	0.50	37.3	12,283
Total	7.28	6.79	4.95	46.9	0.12	0.08	11.5	11.6	0.07	2.92	3.00	—	12,084	12,084	0.50	0.50	37.3	12,283

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.21	6.70	5.52	46.4	0.11	0.08	11.5	11.6	0.07	2.92	3.00	—	11,673	11,673	0.54	0.54	0.97	11,848
Total	7.21	6.70	5.52	46.4	0.11	0.08	11.5	11.6	0.07	2.92	3.00	—	11,673	11,673	0.54	0.54	0.97	11,848
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.31	1.21	0.99	8.31	0.02	0.01	2.07	2.09	0.01	0.53	0.54	—	1,943	1,943	0.09	0.09	2.67	1,974
Total	1.31	1.21	0.99	8.31	0.02	0.01	2.07	2.09	0.01	0.53	0.54	—	1,943	1,943	0.09	0.09	2.67	1,974

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	179	179	0.02	< 0.005	—	180
Total	—	—	—	—	—	—	—	—	—	—	—	—	179	179	0.02	< 0.005	—	180

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,082	1,082	0.10	0.01	—	1,089
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	179	179	0.02	< 0.005	—	180
Total	—	—	—	—	—	—	—	—	—	—	—	—	179	179	0.02	< 0.005	—	180

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Total	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Total	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.04	0.02	0.36	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	415	415	0.04	< 0.005	—	416
Total	0.04	0.02	0.36	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	415	415	0.04	< 0.005	—	416

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Total	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Total	0.23	0.12	1.97	0.84	0.01	0.16	—	0.16	0.16	—	0.16	—	2,505	2,505	0.22	< 0.005	—	2,512
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.04	0.02	0.36	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	415	415	0.04	< 0.005	—	416
Total	0.04	0.02	0.36	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	415	415	0.04	< 0.005	—	416

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	7.51	7.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.60	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.94	0.89	0.10	10.2	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.3	27.3	< 0.005	< 0.005	—	27.4
Total	9.05	9.00	0.10	10.2	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.3	27.3	< 0.005	< 0.005	—	27.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Hearths	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
Consumer Products	7.51	7.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.60	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	8.11	8.11	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	1.37	1.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.08	0.08	0.01	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.23	2.23	< 0.005	< 0.005	—	2.24
Total	1.57	1.56	0.01	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.23	2.23	< 0.005	< 0.005	—	2.24

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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

Consumer Product	7.51	7.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.60	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.94	0.89	0.10	10.2	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.3	27.3	< 0.005	< 0.005	—	27.4
Total	9.05	9.00	0.10	10.2	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.3	27.3	< 0.005	< 0.005	—	27.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	7.51	7.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.60	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	8.11	8.11	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	1.37	1.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape Equipm	0.08	0.08	0.01	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.23	2.23	< 0.005	< 0.005	—	2.24
Total	1.57	1.56	0.01	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.23	2.23	< 0.005	< 0.005	—	2.24

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Total	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Total	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.16	35.3	37.4	0.23	0.01	—	44.8
Total	—	—	—	—	—	—	—	—	—	—	—	2.16	35.3	37.4	0.23	0.01	—	44.8

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Total	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Total	—	—	—	—	—	—	—	—	—	—	—	13.1	213	226	1.36	0.03	—	270
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.16	35.3	37.4	0.23	0.01	—	44.8
Total	—	—	—	—	—	—	—	—	—	—	—	2.16	35.3	37.4	0.23	0.01	—	44.8

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273

Total	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Total	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2
Total	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Total	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Total	—	—	—	—	—	—	—	—	—	—	—	78.0	0.00	78.0	7.79	0.00	—	273
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2
Total	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.51	2.51
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	6/1/2025	6/30/2025	5.00	21.0	—
Grading	Grading	10/1/2025	7/1/2026	5.00	196	—
Building Construction	Building Construction	6/1/2026	5/30/2028	5.00	522	—
Paving	Paving	1/1/2026	6/30/2026	5.00	129	—
Architectural Coating	Architectural Coating	6/1/2028	7/5/2028	5.00	25.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38

Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74

Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	17.1	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	64.8	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	19.2	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—

Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	13.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	17.1	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	64.8	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	19.2	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—

Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	13.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	710,775	236,925	0.00	0.00	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	31,300	—
Grading	—	—	588	0.00	—
Paving	0.00	0.00	0.00	0.00	1.98

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	1.98	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	349	0.03	< 0.005
2026	0.00	346	0.03	< 0.005
2027	0.00	346	0.03	< 0.005
2028	0.00	346	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	1,721	1,721	1,721	628,092	16,315	16,315	16,315	5,954,970

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	1,721	1,721	1,721	628,092	16,315	16,315	16,315	5,954,970

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	180
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	180
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
710775	236,925	0.00	0.00	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,141,251	346	0.0330	0.0040	7,816,640

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,141,251	346	0.0330	0.0040	7,816,640

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	6,822,617	33,584,628

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	6,822,617	33,584,628

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	145	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	145	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0

Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	17.3	annual days of extreme heat
Extreme Precipitation	5.65	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	21.9	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	69.6
AQ-PM	38.3
AQ-DPM	13.9
Drinking Water	65.8
Lead Risk Housing	7.17
Pesticides	1.48
Toxic Releases	18.0
Traffic	81.4
Effect Indicators	—
CleanUp Sites	17.1
Groundwater	22.1
Haz Waste Facilities/Generators	84.0
Impaired Water Bodies	87.0
Solid Waste	81.3
Sensitive Population	—
Asthma	37.5
Cardio-vascular	40.2
Low Birth Weights	49.3
Socioeconomic Factor Indicators	—
Education	8.42
Housing	52.1
Linguistic	38.6
Poverty	19.4
Unemployment	25.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	92.71140767
Employed	84.60156551
Median HI	90.55562684
Education	—
Bachelor's or higher	63.68535866
High school enrollment	100
Preschool enrollment	16.27101245
Transportation	—
Auto Access	87.47593995
Active commuting	3.118182985
Social	—
2-parent households	57.5003208
Voting	86.14140896
Neighborhood	—
Alcohol availability	77.14615681
Park access	32.84999358
Retail density	16.1170281
Supermarket access	32.32388041
Tree canopy	45.01475683
Housing	—
Homeownership	76.19658668
Housing habitability	85.62812781
Low-inc homeowner severe housing cost burden	62.40215578
Low-inc renter severe housing cost burden	90.56845887
Uncrowded housing	83.16437829
Health Outcomes	—

Insured adults	66.66238932
Arthritis	45.8
Asthma ER Admissions	64.2
High Blood Pressure	31.6
Cancer (excluding skin)	25.9
Asthma	55.1
Coronary Heart Disease	61.0
Chronic Obstructive Pulmonary Disease	56.7
Diagnosed Diabetes	80.8
Life Expectancy at Birth	71.9
Cognitively Disabled	74.6
Physically Disabled	76.0
Heart Attack ER Admissions	26.9
Mental Health Not Good	67.2
Chronic Kidney Disease	73.0
Obesity	69.5
Pedestrian Injuries	56.1
Physical Health Not Good	72.6
Stroke	75.8
Health Risk Behaviors	—
Binge Drinking	14.4
Current Smoker	66.4
No Leisure Time for Physical Activity	76.1
Climate Change Exposures	—
Wildfire Risk	32.3
SLR Inundation Area	0.0
Children	87.0
Elderly	28.2

English Speaking	76.1
Foreign-born	24.9
Outdoor Workers	46.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	78.6
Traffic Density	78.9
Traffic Access	23.0
Other Indices	—
Hardship	14.0
Other Decision Support	—
2016 Voting	86.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	37.0
Healthy Places Index Score for Project Location (b)	79.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	As per the applicant
Operations: Vehicle Data	Based on the Lost Canyons Traffic Analysis - 180 Lot Transfer, Michael Baker International

Lost Canyon Phase-2 Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Lost Canyon Phase-2
Construction Start Date	6/1/2026
Operational Year	2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	23.0
Location	3301 Lost Canyons Dr, Simi Valley, CA 93065, USA
County	Ventura
City	Simi Valley
Air District	Ventura County APCD
Air Basin	South Central Coast
TAZ	3503
EDFZ	8
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.28

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Single Family Housing	184	Dwelling Unit	59.7	358,800	2,155,166	21,551	554	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	30.1	30.1	27.3	28.7	0.06	1.12	9.47	10.6	1.03	3.72	4.75	—	6,861	6,861	0.27	0.16	4.98	6,887
Mit.	30.1	30.1	27.3	28.7	0.06	1.12	2.65	3.78	1.03	1.01	2.04	—	6,861	6,861	0.27	0.16	4.98	6,887
% Reduced	—	—	—	—	—	—	72%	64%	—	73%	57%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	30.1	30.1	32.7	39.0	0.07	1.34	9.66	11.0	1.23	3.76	4.99	—	8,540	8,540	0.34	0.16	0.13	8,573
Mit.	30.1	30.1	32.7	39.0	0.07	1.34	2.85	4.19	1.23	1.06	2.29	—	8,540	8,540	0.34	0.16	0.13	8,573
% Reduced	—	—	—	—	—	—	70%	62%	—	72%	54%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.69	6.60	12.8	17.9	0.03	0.50	3.96	4.43	0.46	1.56	1.99	—	3,684	3,684	0.13	0.10	1.31	3,711
Mit.	6.69	6.60	12.8	17.9	0.03	0.50	1.11	1.58	0.46	0.42	0.86	—	3,684	3,684	0.13	0.10	1.31	3,711

% Reduced	—	—	—	—	—	—	72%	64%	—	73%	57%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.22	1.21	2.34	3.27	0.01	0.09	0.72	0.81	0.08	0.28	0.36	—	610	610	0.02	0.02	0.22	614
Mit.	1.22	1.21	2.34	3.27	0.01	0.09	0.20	0.29	0.08	0.08	0.16	—	610	610	0.02	0.02	0.22	614
% Reduced	—	—	—	—	—	—	72%	64%	—	73%	57%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.71	3.13	27.3	28.7	0.06	1.12	9.47	10.6	1.03	3.72	4.75	—	6,861	6,861	0.27	0.06	0.98	6,887
2027	2.49	2.10	17.3	27.6	0.04	0.64	1.23	1.87	0.59	0.30	0.88	—	5,539	5,539	0.18	0.16	4.98	5,595
2028	2.34	2.00	16.5	27.3	0.04	0.56	1.23	1.79	0.52	0.30	0.81	—	5,506	5,506	0.18	0.15	4.48	5,561
2029	30.1	30.1	9.40	16.3	0.03	0.28	1.03	1.31	0.26	0.25	0.51	—	3,774	3,774	0.11	0.13	3.47	3,821
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.71	3.12	27.3	28.6	0.06	1.12	9.47	10.6	1.03	3.72	4.75	—	6,849	6,849	0.27	0.06	0.03	6,875
2027	4.54	3.82	32.7	39.0	0.07	1.34	9.66	11.0	1.23	3.76	4.99	—	8,540	8,540	0.34	0.16	0.13	8,573
2028	2.34	2.00	16.6	26.8	0.04	0.56	1.23	1.79	0.52	0.30	0.81	—	5,461	5,461	0.18	0.15	0.12	5,512
2029	30.1	30.1	9.49	16.0	0.03	0.28	1.03	1.31	0.26	0.25	0.51	—	3,739	3,739	0.12	0.13	0.09	3,782
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.56	1.31	11.4	12.0	0.03	0.47	3.96	4.43	0.43	1.56	1.99	—	2,869	2,869	0.11	0.03	0.18	2,880
2027	1.81	1.52	12.8	17.9	0.03	0.50	2.16	2.66	0.46	0.77	1.23	—	3,684	3,684	0.13	0.07	0.93	3,711
2028	1.41	1.21	9.85	16.1	0.03	0.32	0.81	1.14	0.30	0.19	0.49	—	3,409	3,409	0.11	0.10	1.31	3,444

2029	6.69	6.60	3.52	6.02	0.01	0.10	0.40	0.50	0.09	0.10	0.19	—	1,386	1,386	0.04	0.05	0.57	1,402
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.28	0.24	2.09	2.19	< 0.005	0.09	0.72	0.81	0.08	0.28	0.36	—	475	475	0.02	< 0.005	0.03	477
2027	0.33	0.28	2.34	3.27	0.01	0.09	0.39	0.49	0.08	0.14	0.23	—	610	610	0.02	0.01	0.15	614
2028	0.26	0.22	1.80	2.93	< 0.005	0.06	0.15	0.21	0.05	0.04	0.09	—	564	564	0.02	0.02	0.22	570
2029	1.22	1.21	0.64	1.10	< 0.005	0.02	0.07	0.09	0.02	0.02	0.03	—	229	229	0.01	0.01	0.09	232

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.71	3.13	27.3	28.7	0.06	1.12	2.65	3.78	1.03	1.01	2.04	—	6,861	6,861	0.27	0.06	0.98	6,887
2027	2.49	2.10	17.3	27.6	0.04	0.64	1.23	1.87	0.59	0.30	0.88	—	5,539	5,539	0.18	0.16	4.98	5,595
2028	2.34	2.00	16.5	27.3	0.04	0.56	1.23	1.79	0.52	0.30	0.81	—	5,506	5,506	0.18	0.15	4.48	5,561
2029	30.1	30.1	9.40	16.3	0.03	0.28	1.03	1.31	0.26	0.25	0.51	—	3,774	3,774	0.11	0.13	3.47	3,821
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.71	3.12	27.3	28.6	0.06	1.12	2.65	3.78	1.03	1.01	2.04	—	6,849	6,849	0.27	0.06	0.03	6,875
2027	4.54	3.82	32.7	39.0	0.07	1.34	2.85	4.19	1.23	1.06	2.29	—	8,540	8,540	0.34	0.16	0.13	8,573
2028	2.34	2.00	16.6	26.8	0.04	0.56	1.23	1.79	0.52	0.30	0.81	—	5,461	5,461	0.18	0.15	0.12	5,512
2029	30.1	30.1	9.49	16.0	0.03	0.28	1.03	1.31	0.26	0.25	0.51	—	3,739	3,739	0.12	0.13	0.09	3,782
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.56	1.31	11.4	12.0	0.03	0.47	1.11	1.58	0.43	0.42	0.86	—	2,869	2,869	0.11	0.03	0.18	2,880
2027	1.81	1.52	12.8	17.9	0.03	0.50	0.96	1.46	0.46	0.30	0.76	—	3,684	3,684	0.13	0.07	0.93	3,711
2028	1.41	1.21	9.85	16.1	0.03	0.32	0.81	1.14	0.30	0.19	0.49	—	3,409	3,409	0.11	0.10	1.31	3,444
2029	6.69	6.60	3.52	6.02	0.01	0.10	0.40	0.50	0.09	0.10	0.19	—	1,386	1,386	0.04	0.05	0.57	1,402

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.28	0.24	2.09	2.19	< 0.005	0.09	0.20	0.29	0.08	0.08	0.16	—	475	475	0.02	< 0.005	0.03	477
2027	0.33	0.28	2.34	3.27	0.01	0.09	0.18	0.27	0.08	0.05	0.14	—	610	610	0.02	0.01	0.15	614
2028	0.26	0.22	1.80	2.93	< 0.005	0.06	0.15	0.21	0.05	0.04	0.09	—	564	564	0.02	0.02	0.22	570
2029	1.22	1.21	0.64	1.10	< 0.005	0.02	0.07	0.09	0.02	0.02	0.03	—	229	229	0.01	0.01	0.09	232

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	17.0	16.3	7.19	59.4	0.14	0.25	11.8	12.1	0.24	3.00	3.24	93.0	16,317	16,410	10.2	0.57	40.8	16,875
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	15.9	15.3	7.69	48.5	0.13	0.25	11.8	12.1	0.24	3.00	3.24	93.0	15,868	15,961	10.2	0.60	3.56	16,400
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.3	15.7	7.62	52.8	0.13	0.25	11.7	11.9	0.24	2.96	3.20	93.0	15,947	16,040	10.2	0.60	19.1	16,492
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.98	2.86	1.39	9.63	0.02	0.05	2.13	2.17	0.04	0.54	0.58	15.4	2,640	2,656	1.69	0.10	3.16	2,730

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	7.48	6.97	5.08	48.1	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	12,404	12,404	0.51	0.52	38.3	12,609
Area	9.25	9.20	0.10	10.5	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.9	27.9	< 0.005	< 0.005	—	28.0
Energy	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	3,667	3,667	0.33	0.02	—	3,681
Water	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	17.0	16.3	7.19	59.4	0.14	0.25	11.8	12.1	0.24	3.00	3.24	93.0	16,317	16,410	10.2	0.57	40.8	16,875
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.41	6.88	5.67	47.6	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	11,982	11,982	0.55	0.55	0.99	12,162
Area	8.29	8.29	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
Energy	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	3,667	3,667	0.33	0.02	—	3,681
Water	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	15.9	15.3	7.69	48.5	0.13	0.25	11.8	12.1	0.24	3.00	3.24	93.0	15,868	15,961	10.2	0.60	3.56	16,400
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.34	6.82	5.56	46.8	0.12	0.08	11.7	11.7	0.08	2.96	3.03	—	12,048	12,048	0.54	0.54	16.5	12,240
Area	8.77	8.74	0.05	5.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	13.8	13.8	< 0.005	< 0.005	—	13.8
Energy	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	3,667	3,667	0.33	0.02	—	3,681
Water	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	16.3	15.7	7.62	52.8	0.13	0.25	11.7	11.9	0.24	2.96	3.20	93.0	15,947	16,040	10.2	0.60	19.1	16,492
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.34	1.25	1.01	8.53	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,995	1,995	0.09	0.09	2.74	2,026
Area	1.60	1.60	0.01	0.94	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.28	2.28	< 0.005	< 0.005	—	2.29

Energy	0.04	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	607	607	0.05	< 0.005	—	609
Water	—	—	—	—	—	—	—	—	—	—	—	2.21	36.1	38.3	0.23	0.01	—	45.8
Waste	—	—	—	—	—	—	—	—	—	—	—	13.2	0.00	13.2	1.32	0.00	—	46.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43
Total	2.98	2.86	1.39	9.63	0.02	0.05	2.13	2.17	0.04	0.54	0.58	15.4	2,640	2,656	1.69	0.10	3.16	2,730

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.48	6.97	5.08	48.1	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	12,404	12,404	0.51	0.52	38.3	12,609
Area	9.25	9.20	0.10	10.5	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.9	27.9	< 0.005	< 0.005	—	28.0
Energy	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	3,667	3,667	0.33	0.02	—	3,681
Water	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	17.0	16.3	7.19	59.4	0.14	0.25	11.8	12.1	0.24	3.00	3.24	93.0	16,317	16,410	10.2	0.57	40.8	16,875
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.41	6.88	5.67	47.6	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	11,982	11,982	0.55	0.55	0.99	12,162
Area	8.29	8.29	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
Energy	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	3,667	3,667	0.33	0.02	—	3,681
Water	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	15.9	15.3	7.69	48.5	0.13	0.25	11.8	12.1	0.24	3.00	3.24	93.0	15,868	15,961	10.2	0.60	3.56	16,400

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.34	6.82	5.56	46.8	0.12	0.08	11.7	11.7	0.08	2.96	3.03	—	12,048	12,048	0.54	0.54	16.5	12,240
Area	8.77	8.74	0.05	5.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	13.8	13.8	< 0.005	< 0.005	—	13.8
Energy	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	3,667	3,667	0.33	0.02	—	3,681
Water	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	16.3	15.7	7.62	52.8	0.13	0.25	11.7	11.9	0.24	2.96	3.20	93.0	15,947	16,040	10.2	0.60	19.1	16,492
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.34	1.25	1.01	8.53	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,995	1,995	0.09	0.09	2.74	2,026
Area	1.60	1.60	0.01	0.94	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.28	2.28	< 0.005	< 0.005	—	2.29
Energy	0.04	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	607	607	0.05	< 0.005	—	609
Water	—	—	—	—	—	—	—	—	—	—	—	2.21	36.1	38.3	0.23	0.01	—	45.8
Waste	—	—	—	—	—	—	—	—	—	—	—	13.2	0.00	13.2	1.32	0.00	—	46.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43
Total	2.98	2.86	1.39	9.63	0.02	0.05	2.13	2.17	0.04	0.54	0.58	15.4	2,640	2,656	1.69	0.10	3.16	2,730

3. Construction Emissions Details

3.1. Grading (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.52	1.27	11.4	11.5	0.03	0.47	—	0.47	0.43	—	0.43	—	2,763	2,763	0.11	0.02	—	2,773
Dust From Material Movement	—	—	—	—	—	—	3.85	3.85	—	1.53	1.53	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.28	0.23	2.08	2.11	< 0.005	0.09	—	0.09	0.08	—	0.08	—	458	458	0.02	< 0.005	—	459
Dust From Material Movement	—	—	—	—	—	—	0.70	0.70	—	0.28	0.28	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.17	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	262	262	< 0.005	0.01	0.98	266
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.06	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	0.01	0.03	254
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.45	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	106	106	< 0.005	< 0.005	0.18	107
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.5	17.5	< 0.005	< 0.005	0.03	17.7
Vendor	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	0.00
Hauling	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	0.00

3.2. Grading (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.52	1.27	11.4	11.5	0.03	0.47	—	0.47	0.43	—	0.43	—	2,763	2,763	0.11	0.02	—	2,773

Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.40	0.40	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.23	2.08	2.11	< 0.005	0.09	—	0.09	0.08	—	0.08	—	458	458	0.02	< 0.005	—	459
Dust From Material Movement	—	—	—	—	—	—	0.18	0.18	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.17	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	262	262	< 0.005	0.01	0.98	266
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.06	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	0.01	0.03	254
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.45	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	106	106	< 0.005	< 0.005	0.18	107
Vendor	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	0.00

Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.5	17.5	< 0.005	< 0.005	0.03	17.7
Vendor	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	0.00
Hauling	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	0.00

3.3. Grading (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.51	2.95	25.6	27.3	0.06	1.04	—	1.04	0.96	—	0.96	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	0.52	4.51	4.80	0.01	0.18	—	0.18	0.17	—	0.17	—	1,162	1,162	0.05	0.01	—	1,166

Dust From Material Movement	—	—	—	—	—	—	1.62	1.62	—	0.64	0.64	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.82	0.88	< 0.005	0.03	—	0.03	0.03	—	0.03	—	192	192	0.01	< 0.005	—	193
Dust From Material Movement	—	—	—	—	—	—	0.30	0.30	—	0.12	0.12	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	0.99	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	246	246	< 0.005	0.01	0.02	249
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.18	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	43.7	43.7	< 0.005	< 0.005	0.07	44.3
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.23	7.23	< 0.005	< 0.005	0.01	7.33

Vendor	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	0.00
Hauling	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	0.00

3.4. Grading (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.51	2.95	25.6	27.3	0.06	1.04	—	1.04	0.96	—	0.96	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	0.52	4.51	4.80	0.01	0.18	—	0.18	0.17	—	0.17	—	1,162	1,162	0.05	0.01	—	1,166
Dust From Material Movement	—	—	—	—	—	—	0.42	0.42	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	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	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.82	0.88	< 0.005	0.03	—	0.03	0.03	—	0.03	—	192	192	0.01	< 0.005	—	193
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	0.99	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	246	246	< 0.005	0.01	0.02	249
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.18	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	43.7	43.7	< 0.005	< 0.005	0.07	44.3
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.23	7.23	< 0.005	< 0.005	0.01	7.33
Vendor	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	0.00
Hauling	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	0.00

3.5. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	0.37	3.38	4.66	0.01	0.12	—	0.12	0.11	—	0.11	—	863	863	0.04	0.01	—	866
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.62	0.85	< 0.005	0.02	—	0.02	0.02	—	0.02	—	143	143	0.01	< 0.005	—	143
Onsite truck	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	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.26	0.26	3.64	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	853	853	0.01	0.03	2.96	866
Vendor	0.03	0.01	0.68	0.22	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	585	585	0.01	0.09	1.36	612
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.26	0.29	3.28	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	815	815	0.01	0.03	0.08	825
Vendor	0.02	0.01	0.71	0.22	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	585	585	0.01	0.09	0.04	611
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.10	1.19	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	296	296	< 0.005	0.01	0.46	300
Vendor	0.01	< 0.005	0.26	0.08	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	211	211	< 0.005	0.03	0.21	220
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	49.0	49.0	< 0.005	< 0.005	0.08	49.6
Vendor	< 0.005	< 0.005	0.05	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.9	34.9	< 0.005	0.01	0.04	36.4
Hauling	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	0.00

3.6. Building Construction (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	0.37	3.38	4.66	0.01	0.12	—	0.12	0.11	—	0.11	—	863	863	0.04	0.01	—	866
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.62	0.85	< 0.005	0.02	—	0.02	0.02	—	0.02	—	143	143	0.01	< 0.005	—	143
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.26	0.26	3.64	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	853	853	0.01	0.03	2.96	866
Vendor	0.03	0.01	0.68	0.22	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	585	585	0.01	0.09	1.36	612
Hauling	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.26	0.29	3.28	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	815	815	0.01	0.03	0.08	825
Vendor	0.02	0.01	0.71	0.22	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	585	585	0.01	0.09	0.04	611
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.10	1.19	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	296	296	< 0.005	0.01	0.46	300
Vendor	0.01	< 0.005	0.26	0.08	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	211	211	< 0.005	0.03	0.21	220
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	49.0	49.0	< 0.005	< 0.005	0.08	49.6
Vendor	< 0.005	< 0.005	0.05	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.9	34.9	< 0.005	0.01	0.04	36.4
Hauling	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	0.00

3.7. Building Construction (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	0.71	6.39	9.26	0.02	0.22	—	0.22	0.20	—	0.20	—	1,717	1,717	0.07	0.01	—	1,723
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	1.17	1.69	< 0.005	0.04	—	0.04	0.04	—	0.04	—	284	284	0.01	< 0.005	—	285
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.26	0.25	0.23	3.42	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	838	838	0.01	0.03	2.67	850
Vendor	0.03	0.01	0.65	0.21	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	570	570	0.01	0.08	1.21	596
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.26	0.25	0.26	3.08	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	801	801	0.01	0.03	0.07	811
Vendor	0.02	0.01	0.68	0.22	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	571	571	0.01	0.08	0.03	596
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.18	0.18	0.19	2.22	0.00	0.00	0.61	0.61	0.00	0.14	0.14	—	578	578	0.01	0.02	0.82	585
Vendor	0.02	0.01	0.48	0.15	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.04	—	409	409	0.01	0.06	0.37	427
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.40	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	95.6	95.6	< 0.005	< 0.005	0.14	96.9
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.7	67.7	< 0.005	0.01	0.06	70.7
Hauling	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	0.00

3.8. Building Construction (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.85	0.71	6.39	9.26	0.02	0.22	—	0.22	0.20	—	0.20	—	1,717	1,717	0.07	0.01	—	1,723
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	1.17	1.69	< 0.005	0.04	—	0.04	0.04	—	0.04	—	284	284	0.01	< 0.005	—	285
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.26	0.25	0.23	3.42	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	838	838	0.01	0.03	2.67	850
Vendor	0.03	0.01	0.65	0.21	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	570	570	0.01	0.08	1.21	596
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.26	0.25	0.26	3.08	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	801	801	0.01	0.03	0.07	811
Vendor	0.02	0.01	0.68	0.22	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	571	571	0.01	0.08	0.03	596
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.18	0.19	2.22	0.00	0.00	0.61	0.61	0.00	0.14	0.14	—	578	578	0.01	0.02	0.82	585
Vendor	0.02	0.01	0.48	0.15	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.04	—	409	409	0.01	0.06	0.37	427
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.40	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	95.6	95.6	< 0.005	< 0.005	0.14	96.9
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.7	67.7	< 0.005	0.01	0.06	70.7

Hauling	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	0.00

3.9. Building Construction (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	3.04	4.57	0.01	0.10	—	0.10	0.09	—	0.09	—	849	849	0.03	0.01	—	852
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.07	0.06	0.55	0.83	< 0.005	0.02	—	0.02	0.02	—	0.02	—	141	141	0.01	< 0.005	—	141
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.25	0.20	3.20	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	823	823	0.01	0.03	2.40	835
Vendor	0.03	0.01	0.61	0.20	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	555	555	0.01	0.08	1.07	581
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.22	0.26	2.88	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	787	787	0.01	0.03	0.06	797
Vendor	0.02	0.01	0.64	0.21	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	555	555	0.01	0.08	0.03	580
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.03	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	281	281	< 0.005	0.01	0.37	284
Vendor	0.01	< 0.005	0.23	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	197	197	< 0.005	0.03	0.16	206
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.19	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	46.5	46.5	< 0.005	< 0.005	0.06	47.1
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	32.5	32.5	< 0.005	< 0.005	0.03	34.0
Hauling	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	0.00

3.10. Building Construction (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	3.04	4.57	0.01	0.10	—	0.10	0.09	—	0.09	—	849	849	0.03	0.01	—	852
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.55	0.83	< 0.005	0.02	—	0.02	0.02	—	0.02	—	141	141	0.01	< 0.005	—	141
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.25	0.20	3.20	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	823	823	0.01	0.03	2.40	835
Vendor	0.03	0.01	0.61	0.20	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	555	555	0.01	0.08	1.07	581
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.22	0.26	2.88	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	787	787	0.01	0.03	0.06	797
Vendor	0.02	0.01	0.64	0.21	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	555	555	0.01	0.08	0.03	580
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.03	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	281	281	< 0.005	0.01	0.37	284
Vendor	0.01	< 0.005	0.23	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	197	197	< 0.005	0.03	0.16	206
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.19	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	46.5	46.5	< 0.005	< 0.005	0.06	47.1
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	32.5	32.5	< 0.005	< 0.005	0.03	34.0
Hauling	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	0.00

3.11. Paving (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57	0.48	4.54	6.51	0.01	0.19	—	0.19	0.18	—	0.18	—	988	988	0.04	0.01	—	991
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.83	1.19	< 0.005	0.04	—	0.04	0.03	—	0.03	—	164	164	0.01	< 0.005	—	164
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.82	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	193	193	< 0.005	0.01	0.67	196
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.74	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	185	185	< 0.005	0.01	0.02	187
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.49	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	122	122	< 0.005	< 0.005	0.19	123
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	20.1	20.1	< 0.005	< 0.005	0.03	20.4
Vendor	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	0.00
Hauling	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	0.00

3.12. Paving (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57	0.48	4.54	6.51	0.01	0.19	—	0.19	0.18	—	0.18	—	988	988	0.04	0.01	—	991
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.83	1.19	< 0.005	0.04	—	0.04	0.03	—	0.03	—	164	164	0.01	< 0.005	—	164
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.82	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	193	193	< 0.005	0.01	0.67	196
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.74	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	185	185	< 0.005	0.01	0.02	187
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.49	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	122	122	< 0.005	< 0.005	0.19	123
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	20.1	20.1	< 0.005	< 0.005	0.03	20.4
Vendor	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	0.00
Hauling	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	0.00

3.13. Paving (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34	0.29	2.76	4.13	0.01	0.11	—	0.11	0.10	—	0.10	—	630	630	0.03	0.01	—	632
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.50	0.75	< 0.005	0.02	—	0.02	0.02	—	0.02	—	104	104	< 0.005	< 0.005	—	105
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.77	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	190	190	< 0.005	0.01	0.60	192
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.70	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	181	181	< 0.005	0.01	0.02	184
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.29	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	76.1	76.1	< 0.005	< 0.005	0.11	77.1
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.6	12.6	< 0.005	< 0.005	0.02	12.8
Vendor	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	0.00
Hauling	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	0.00

3.14. Paving (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34	0.29	2.76	4.13	0.01	0.11	—	0.11	0.10	—	0.10	—	630	630	0.03	0.01	—	632
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.50	0.75	< 0.005	0.02	—	0.02	0.02	—	0.02	—	104	104	< 0.005	< 0.005	—	105
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.77	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	190	190	< 0.005	0.01	0.60	192
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.70	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	181	181	< 0.005	0.01	0.02	184
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.29	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	76.1	76.1	< 0.005	< 0.005	0.11	77.1
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.6	12.6	< 0.005	< 0.005	0.02	12.8
Vendor	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	0.00
Hauling	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	0.00

3.15. Architectural Coating (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	29.9	29.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	29.9	29.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.16	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.4	27.4	< 0.005	< 0.005	—	27.5
Architectural Coatings	6.15	6.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.54	4.54	< 0.005	< 0.005	—	4.56
Architectural Coatings	1.12	1.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.64	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	165	165	< 0.005	0.01	0.48	167
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.05	0.58	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	157	157	< 0.005	0.01	0.01	159
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	32.6	32.6	< 0.005	< 0.005	0.04	33.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.39	5.39	< 0.005	< 0.005	0.01	5.46
Vendor	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	0.00
Hauling	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	0.00

3.16. Architectural Coating (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	29.9	29.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	29.9	29.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.16	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.4	27.4	< 0.005	< 0.005	—	27.5

Architect Coatings	6.15	6.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.54	4.54	< 0.005	< 0.005	—	4.56
Architectural Coatings	1.12	1.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.64	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	165	165	< 0.005	0.01	0.48	167
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.05	0.58	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	157	157	< 0.005	0.01	0.01	159
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	32.6	32.6	< 0.005	< 0.005	0.04	33.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.39	5.39	< 0.005	< 0.005	0.01	5.46
Vendor	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	0.00
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.48	6.97	5.08	48.1	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	12,404	12,404	0.51	0.52	38.3	12,609
Total	7.48	6.97	5.08	48.1	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	12,404	12,404	0.51	0.52	38.3	12,609
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.41	6.88	5.67	47.6	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	11,982	11,982	0.55	0.55	0.99	12,162
Total	7.41	6.88	5.67	47.6	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	11,982	11,982	0.55	0.55	0.99	12,162
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.34	1.25	1.01	8.53	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,995	1,995	0.09	0.09	2.74	2,026
Total	1.34	1.25	1.01	8.53	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,995	1,995	0.09	0.09	2.74	2,026

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.48	6.97	5.08	48.1	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	12,404	12,404	0.51	0.52	38.3	12,609
Total	7.48	6.97	5.08	48.1	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	12,404	12,404	0.51	0.52	38.3	12,609
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.41	6.88	5.67	47.6	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	11,982	11,982	0.55	0.55	0.99	12,162
Total	7.41	6.88	5.67	47.6	0.12	0.08	11.8	11.9	0.08	3.00	3.08	—	11,982	11,982	0.55	0.55	0.99	12,162
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.34	1.25	1.01	8.53	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,995	1,995	0.09	0.09	2.74	2,026
Total	1.34	1.25	1.01	8.53	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,995	1,995	0.09	0.09	2.74	2,026

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	183	183	0.02	< 0.005	—	184
Total	—	—	—	—	—	—	—	—	—	—	—	—	183	183	0.02	< 0.005	—	184

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113

Total	—	—	—	—	—	—	—	—	—	—	—	—	1,107	1,107	0.11	0.01	—	1,113
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	183	183	0.02	< 0.005	—	184
Total	—	—	—	—	—	—	—	—	—	—	—	—	183	183	0.02	< 0.005	—	184

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Total	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Total	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.04	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	424	424	0.04	< 0.005	—	425
Total	0.04	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	424	424	0.04	< 0.005	—	425

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Total	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Total	0.24	0.12	2.02	0.86	0.01	0.16	—	0.16	0.16	—	0.16	—	2,561	2,561	0.23	< 0.005	—	2,568
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.04	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	424	424	0.04	< 0.005	—	425
Total	0.04	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	424	424	0.04	< 0.005	—	425

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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

Consumer Products	7.68	7.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.62	0.62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.96	0.91	0.10	10.5	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.9	27.9	< 0.005	< 0.005	—	28.0
Total	9.25	9.20	0.10	10.5	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.9	27.9	< 0.005	< 0.005	—	28.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	7.68	7.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.62	0.62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	8.29	8.29	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	1.40	1.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	0.09	0.08	0.01	0.94	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.28	2.28	< 0.005	< 0.005	—	2.29
Total	1.60	1.60	0.01	0.94	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.28	2.28	< 0.005	< 0.005	—	2.29

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	7.68	7.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.62	0.62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.96	0.91	0.10	10.5	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.9	27.9	< 0.005	< 0.005	—	28.0
Total	9.25	9.20	0.10	10.5	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	27.9	27.9	< 0.005	< 0.005	—	28.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	7.68	7.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.62	0.62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	8.29	8.29	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	1.40	1.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.09	0.08	0.01	0.94	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.28	2.28	< 0.005	< 0.005	—	2.29
Total	1.60	1.60	0.01	0.94	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.28	2.28	< 0.005	< 0.005	—	2.29

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Total	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Total	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.21	36.1	38.3	0.23	0.01	—	45.8
Total	—	—	—	—	—	—	—	—	—	—	—	2.21	36.1	38.3	0.23	0.01	—	45.8

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Total	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Total	—	—	—	—	—	—	—	—	—	—	—	13.4	218	231	1.39	0.04	—	276
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.21	36.1	38.3	0.23	0.01	—	45.8
Total	—	—	—	—	—	—	—	—	—	—	—	2.21	36.1	38.3	0.23	0.01	—	45.8

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Total	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Total	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.2	0.00	13.2	1.32	0.00	—	46.2
Total	—	—	—	—	—	—	—	—	—	—	—	13.2	0.00	13.2	1.32	0.00	—	46.2

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Total	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Total	—	—	—	—	—	—	—	—	—	—	—	79.7	0.00	79.7	7.96	0.00	—	279
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.2	0.00	13.2	1.32	0.00	—	46.2
Total	—	—	—	—	—	—	—	—	—	—	—	13.2	0.00	13.2	1.32	0.00	—	46.2

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.57	2.57
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	6/1/2026	3/31/2027	5.00	218	—
Building Construction	Building Construction	7/1/2027	6/30/2029	5.00	522	—
Paving	Paving	2/1/2027	7/31/2028	5.00	391	—
Architectural Coating	Architectural Coating	7/1/2029	10/12/2029	5.00	75.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20

Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	66.2	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	19.7	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

Architectural Coating	—	—	—	—
Architectural Coating	Worker	13.2	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	66.2	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	19.7	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	13.2	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	726,570	242,190	0.00	0.00	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	—	—	654	0.00	—
Paving	0.00	0.00	0.00	0.00	2.03

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	2.03	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	346	0.03	< 0.005
2027	0.00	346	0.03	< 0.005

2028	0.00	346	0.03	< 0.005
2029	0.00	346	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	1,766	1,766	1,766	644,736	16,747	16,747	16,747	6,112,772

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	1,766	1,766	1,766	644,736	16,747	16,747	16,747	6,112,772

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	184
Conventional Wood Stoves	0
Catalytic Wood Stoves	0

Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	184
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
726570	242,190	0.00	0.00	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,166,612	346	0.0330	0.0040	7,990,343

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,166,612	346	0.0330	0.0040	7,990,343

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	6,974,230	34,330,956

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	6,974,230	34,330,956

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	148	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	148	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	17.3	annual days of extreme heat
Extreme Precipitation	5.65	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	21.9	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2

Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	69.6
AQ-PM	38.3
AQ-DPM	13.9
Drinking Water	65.8
Lead Risk Housing	7.17
Pesticides	1.48
Toxic Releases	18.0
Traffic	81.4
Effect Indicators	—
CleanUp Sites	17.1
Groundwater	22.1

Haz Waste Facilities/Generators	84.0
Impaired Water Bodies	87.0
Solid Waste	81.3
Sensitive Population	—
Asthma	37.5
Cardio-vascular	40.2
Low Birth Weights	49.3
Socioeconomic Factor Indicators	—
Education	8.42
Housing	52.1
Linguistic	38.6
Poverty	19.4
Unemployment	25.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	92.71140767
Employed	84.60156551
Median HI	90.55562684
Education	—
Bachelor's or higher	63.68535866
High school enrollment	100
Preschool enrollment	16.27101245
Transportation	—
Auto Access	87.47593995
Active commuting	3.118182985

Social	—
2-parent households	57.5003208
Voting	86.14140896
Neighborhood	—
Alcohol availability	77.14615681
Park access	32.84999358
Retail density	16.1170281
Supermarket access	32.32388041
Tree canopy	45.01475683
Housing	—
Homeownership	76.19658668
Housing habitability	85.62812781
Low-inc homeowner severe housing cost burden	62.40215578
Low-inc renter severe housing cost burden	90.56845887
Uncrowded housing	83.16437829
Health Outcomes	—
Insured adults	66.66238932
Arthritis	45.8
Asthma ER Admissions	64.2
High Blood Pressure	31.6
Cancer (excluding skin)	25.9
Asthma	55.1
Coronary Heart Disease	61.0
Chronic Obstructive Pulmonary Disease	56.7
Diagnosed Diabetes	80.8
Life Expectancy at Birth	71.9
Cognitively Disabled	74.6
Physically Disabled	76.0

Heart Attack ER Admissions	26.9
Mental Health Not Good	67.2
Chronic Kidney Disease	73.0
Obesity	69.5
Pedestrian Injuries	56.1
Physical Health Not Good	72.6
Stroke	75.8
Health Risk Behaviors	—
Binge Drinking	14.4
Current Smoker	66.4
No Leisure Time for Physical Activity	76.1
Climate Change Exposures	—
Wildfire Risk	32.3
SLR Inundation Area	0.0
Children	87.0
Elderly	28.2
English Speaking	76.1
Foreign-born	24.9
Outdoor Workers	46.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	78.6
Traffic Density	78.9
Traffic Access	23.0
Other Indices	—
Hardship	14.0
Other Decision Support	—
2016 Voting	86.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	37.0
Healthy Places Index Score for Project Location (b)	79.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	As per the applicant
Operations: Vehicle Data	Based on Lost Canyons Traffic Analysis - 180 Lot Transfer, Michael Baker International. Trip credits from the existing golf course use has not been taken into consideration.

APPENDIX H

NOISE AND VIBRATION ASSESSMENT MEMORANDUM

Michael Baker INTERNATIONAL

We Make a Difference

MEMORANDUM

To: Rick Nelson, Newport Pacific Land Company

From: Winnie Woo, Michael Baker International

Date: November 12, 2025

Subject: Lost Canyons 180 Lots Transfer Project – Noise and Vibration Assessment

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PURPOSE AND BACKGROUND

The purpose of this technical memorandum is to evaluate potential short- and long-term noise and vibration impacts that would result from the construction and operation of the proposed Density Transfer of 180 lots for the Lost Canyons Project (project), located within the City of Simi Valley (City). The project is within the scope of buildout of the Whiteface Specific Plan (Specific Plan), which was analyzed in the *Whiteface Specific Plan Amendment 6* (approved project)*: Lost Canyons Final Environmental Impact Report*, dated November 2010 (2010 EIR). This memorandum compares the project's impacts with the impacts identified for the approved project in the 2010 EIR.

The City adopted the Specific Plan in 1992 for an approximately 1,770-acre project site consisting of two neighboring valleys (Dry and Tapo Canyons) located at the base of Big Mountain, and proposed sites for a residential community referred to as, "Lost Canyons". The2010 EIR evaluated the approved project which consisted of various land uses, including a mix of residential types, natural open space, a multi-purpose trail system, and an area for the development of a golf course and related commercial recreational amenities. Specifically, the approved project includes the following land uses:

- 364 single-family dwelling units (located within a private gated community)
- Private 18-hole golf course (located within a private gated community)
- Private neighborhood park (located within a private gated community)
- Private 25 Golf Course Member Suite (located within a private gated community)
- Private approximately 6,000 square-foot service-oriented commercial use (located within a private gated community)
- Public trail head with public parking lot

The proposed project would internally relocate 180 dwelling units from Dry Canyon and Tapo Canyon, south of Lost Canyons Drive, to the Clubcore area, north of Lost Canyons Drive that were included in the approved project. This reflects a zero-sum net change in the total number of dwelling units and is an equal transfer of units within the overall residential land uses evaluated in the 2010 EIR. While the 2010 EIR evaluated multiple components and various land uses, the overall total dwelling units remains at 364 single-family dwelling units. The proposed density transfer of 180 lots would occur internally within the

area evaluated in the 2010 EIR and would not result in an addition of land uses compared to what was previously analyzed in the 2010 EIR. Lots 363 and 364, located south of Lost Canyons Drive, was previously analyzed in the approved project; refer to Appendix A, *Concept Illustrative Exhibit Lots 363 & 364*. Implementation of the proposed project would relocate 180 dwelling units from Dry Canyon and Topo Canyon, south of Lost Canyons Drive, to the Clubcore area and would not impact or relocate these 2 lots. As such, the following technical memorandum would not evaluate impacts associated with these lots.

The proposed project would not include the development of a new private 18-hole golf course, a clubhouse, a private neighborhood park, or a public trail head with parking lot as was approved with the approved project. The proposed project proposes to provide private neighborhood parks within the new development, including a private recreation building for residents of the development. In addition, the existing public trailhead and parking lot located on the east side of the Lost Canyons Drive and Tapo Canyon Road intersection would remain and be dedicated to the Rancho Simi Recreation Park District (RSRPD). The project also proposes to construct a new trailhead off of Bennet Road.

PROJECT LOCATION

The City is roughly 42.25 square miles in the southeast portion of Ventura County (County), approximately 40 miles northwest of Downtown Los Angeles. The City borders the Santa Susana Mountains to the north, the Simi Hills to the east and south, and is adjacent to Thousand Oaks to the southwest and Moorpark to the west; refer to Exhibit 1, *Regional Vicinity Map.*

Dry Canyon and Tapo Canyon, two neighboring valleys located at the base of Big Mountain, consist of the proposed residential community named Lost Canyons; refer to Exhibit 2, *Site Vicinity*. Regional access to the project site is provided via State Route (SR) 118. Local access to the project site is provided via Lost Canyons Drive, Erringer Road, and Tapo Canyon Road.

EXISTING SITE CONDITIONS

The Specific Plan area is located north of Lost Canyons Drive in the City of Simi Valley. Existing uses on the site include two graded 18-hole golf courses, a clubhouse, and associated facilities such as a cart barn, driving range, parking lot, and open space, which is permanently closed.

According to the *Simi Valley General Plan* (General Plan), Land Use Map, the General Plan designates the residential community Residential Medium Density.[1] According to the City's Zoning Map, the proposed residential community is zoned Residential Medium Density.[2]

[1] City of Simi Vally, *City of Simi Valley General Plan, Land Use Map*, 2023, https://www.simivalley.org/home/showpublisheddocument/24714/638289835458270000, accessed September 1, 2024.

[2] City of Simi Valley, *Zoning Simi Valley*, https://www.arcgis.com/apps/mapviewer/index.html?webmap=b20ec935fa594a90a6e7128fd4f96268&extent=-118.859,34.2101,-118.6054,34.3319, accessed September 1, 2024.



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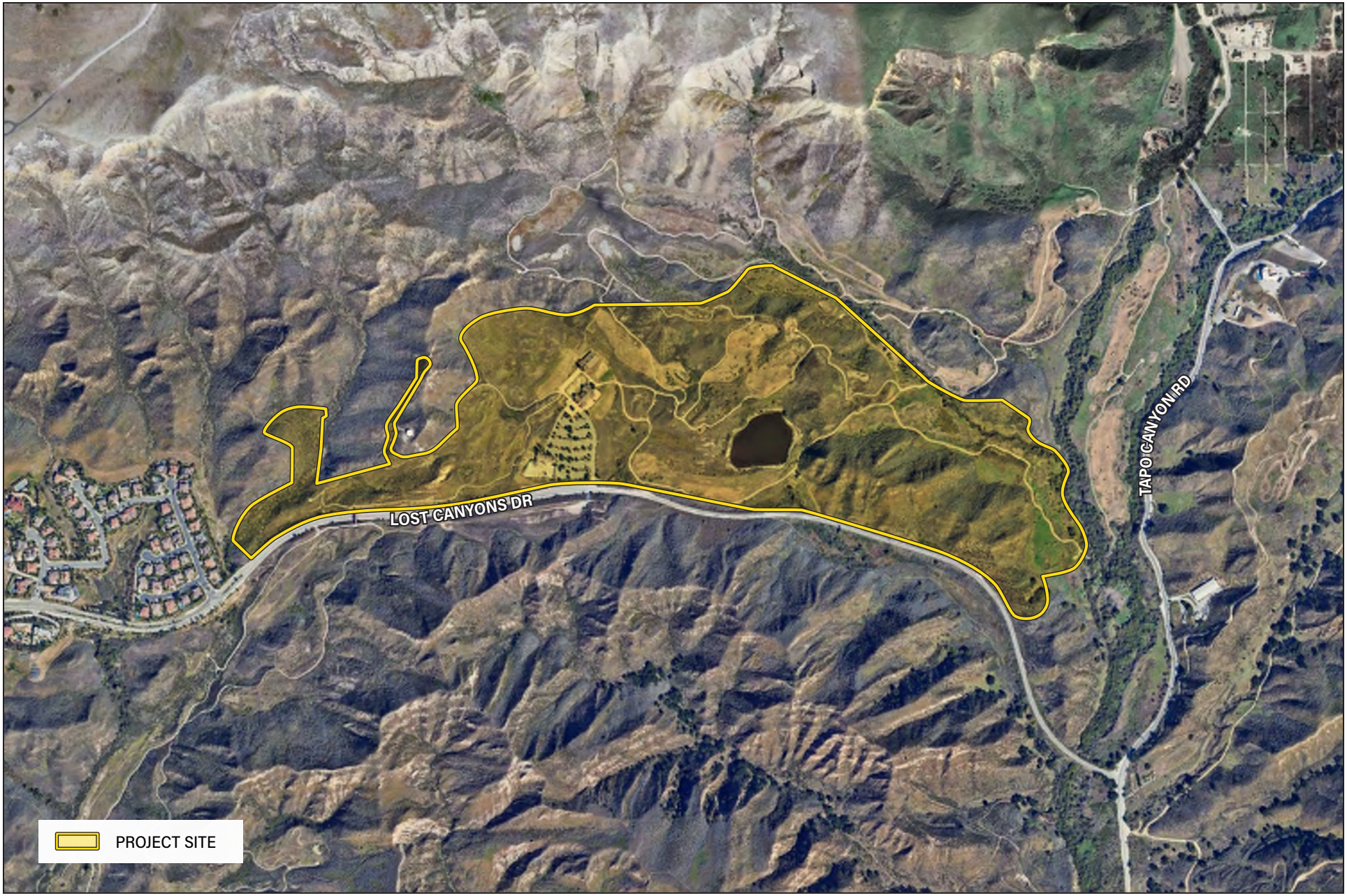
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LOST CANYONS 180 LOTS TRANSFER PROJECT
NOISE AND VIBRATION ASSESSMENT

Regional Vicinity

Exhibit 1



Source: Google Earth Pro, October 2025

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LOST CANYONS 180 LOTS TRANSFER PROJECT
NOISE AND VIBRATION ASSESSMENT

Site Vicinity Map

Exhibit 2

PROJECT DESCRIPTION

The proposed project would internally relocate 180 dwelling units from Dry Canyon and Topo Canyon, south of Lost Canyons Drive, to the Clubcore area (former golf course), north of Lost Canyons Drive; refer to Exhibit 3, *Conceptual Site Plan*. This reflects a zero-sum net change in the total number of dwelling units and is an equal transfer of units within the overall residential land uses proposed within the 2010 EIR. The overall total dwelling units remains at 364 single-family dwelling units for the Lost Canyons Project. Ultimately, 362 lots are planned north of Lost Canyons Drive and 2 lots south of Lost Canyons Drive, including one lot in Dry Canyon and another lot in Tapo Canyon South, both accessible on the southern property boundary from existing easements.

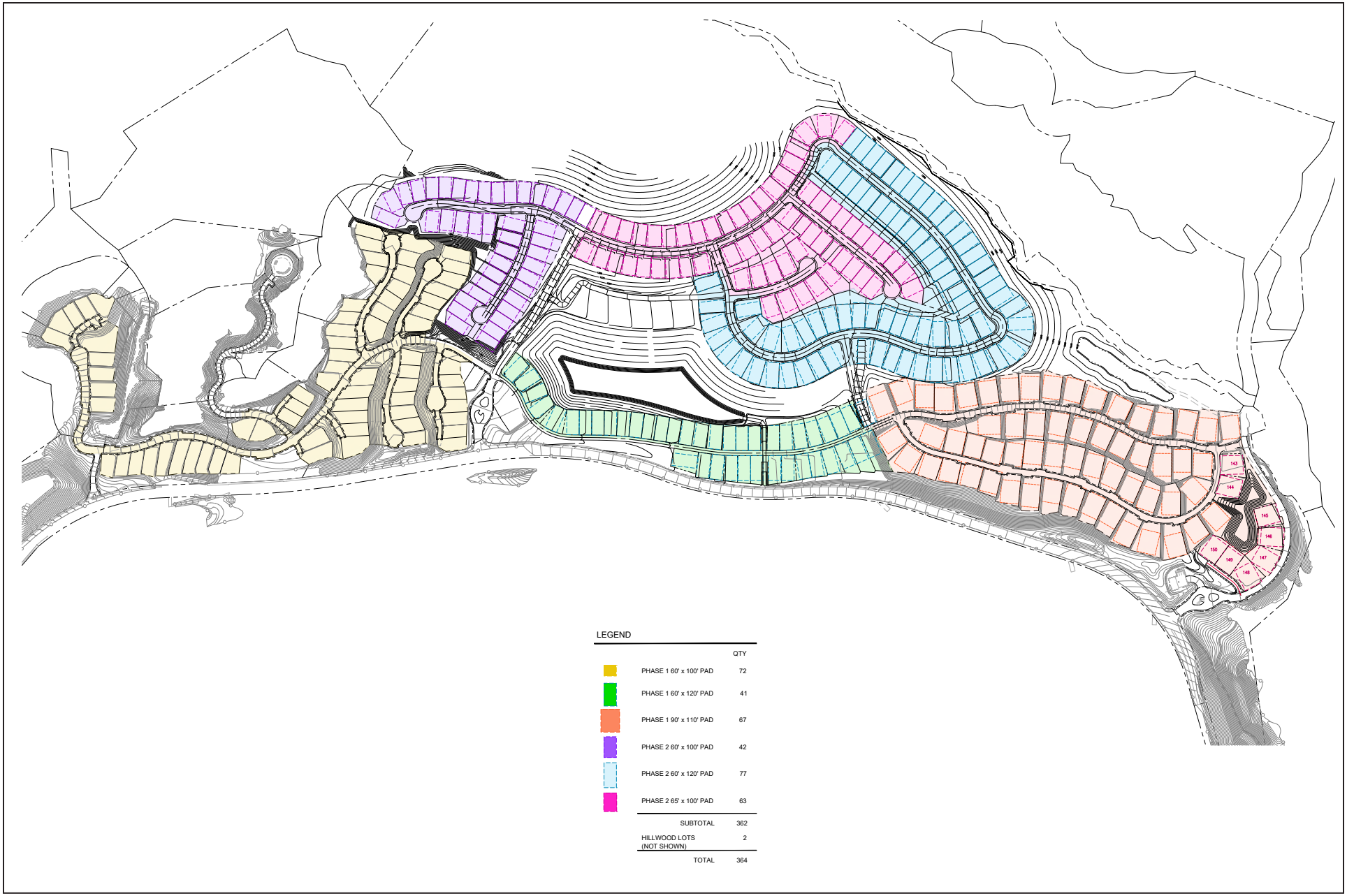
Construction of the proposed 364 single-family dwelling units would occur in two phases. Phase 1 would include construction of 180 residential lots and Phase 2 would include construction of 184 residential lots. For purposes of this analysis, the project is the transfer of 180 lots as part of the Phase 2 184-lot phase of the Lost Canyons Project.

Construction activities for Phase 1 is anticipated to begin in 2025 and would consist of demolition, grading, building construction, paving, and architectural coating. Construction activities for Phase 2 could begin in 2027 and would include grading, building construction, paving, and architectural coating. The project would demolish approximately 31,300 square feet of buildings during Phase 1 demolition. Earthwork would be balanced on-site.

FUNDAMENTALS OF SOUND AND ENVIRONMENTAL NOISE

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air and is characterized by both its amplitude and frequency (or pitch). The human ear does not hear all frequencies equally. In particular, the ear deemphasizes low and very high frequencies. To better approximate the sensitivity of human hearing, the A-weighted decibel scale (dBA) has been developed. Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner like the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dBA higher than another is perceived to be twice as loud and 20 dBA higher is perceived to be four times as loud, and so forth. Everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). On this scale, the human range of hearing extends from approximately 3 dBA to around 140 dBA.

Noise is generally defined as unwanted or excessive sound, which can vary in intensity by over one million times within the range of human hearing; therefore, a logarithmic scale, known as the decibel scale (dB), is used to quantify sound intensity. Noise can be generated by several sources, including mobile sources such as automobiles, trucks, and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Noise generated by mobile sources typically attenuates (is reduced) at a rate between 3 dBA and 4.5 dBA per doubling of distance. The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Hard and flat surfaces, such as concrete or asphalt, have an attenuation rate of 3 dBA per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of about 4.5 dBA per doubling of distance. Noise generated by stationary sources typically attenuates at a rate between 6 dBA and about 7.5 dBA per doubling of distance.



Source: RTM Engineering Consultants, October 2024

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LOST CANYONS 180 LOTS TRANSFER PROJECT
NOISE AND VIBRATION ASSESSMENT

Conceptual Site Plan

Exhibit 3

There are several metrics used to characterize community noise exposure, which fluctuate constantly over time. One such metric, the equivalent sound level (L_{eq}), represents a constant sound that, over the specified period, has the same sound energy as the time-varying sound. This is commonly used to describe the "average" noise levels within the environment. Noise exposure over a longer period is often evaluated based on the Day-Night Sound Level (L_{dn}). This is a measure of 24-hour noise levels that incorporates a 10-dBA penalty (or an additional 10 dBA) for sounds occurring between 10:00 PM and 7:00 AM when sounds seem to be louder. The penalty is intended to reflect the increased human sensitivity to noises occurring during nighttime hours, particularly at times when people are sleeping and there are lower ambient (background) noise conditions. Typical L_{dn} noise levels for light- and medium-density residential areas range from 55 dBA to 65 dBA. Similarly, Community Noise Equivalent Level (CNEL) is a measure of 24-hour noise levels, not an actual sound level heard at any time, that incorporates a 5-dBA penalty for sounds occurring between 7:00 PM. and 10:00 PM and a 10-dBA penalty for sounds occurring between 10:00 PM and 7:00 AM to account for noise sensitivity in the evening and nighttime, respectively.[3]

FUNDAMENTALS OF ENVIRONMENTAL GROUNDBORNE VIBRATION

Ground vibration consists of oscillatory (i.e., rapidly fluctuating) motions or waves with an average motion of zero (i.e., no net movement of the vibration element). Sources of earth-borne vibrations include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides, etc.) or man-made causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions). Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. Vibration decibels (VdB) is commonly used to measure the RMS vibration velocity level. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.[4]

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. Common sources for groundborne vibration are planes, trains, and construction activities such as pile driving and vibratory compacting activities which require the use of heavy-duty earth moving equipment. For the purposes of this analysis, a PPV descriptor with units of inches per second (in/sec) is used to evaluate construction-generated vibration for building damage and human complaints.

To assess the damage potential from ground vibration induced by construction equipment, a synthesis of various vibration criteria has been developed in the California Department of Transportation's (Caltrans') *Transportation and Construction Vibration Guidance Manual*; refer to Table 1, *Guideline Vibration Damage Potential Threshold Criteria*. This synthesis of criteria essentially assumes that the threshold for continuous sources is about half of the threshold for transient sources. Table 2, *Guideline Vibration Annoyance Potential Criteria*, displays a similar synthesis of criteria relating to human perception. Some individuals may be annoyed at barely perceptible levels of vibration, depending on the activities in which they are participating. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage.

[3] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

[4] Ibid.

Table 1
Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5
Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.		
Source: California Department of Transportation, *Transportation and Construction Vibration Guidance Manual, Table 19, Guideline Vibration Damage Potential Threshold Criteria*, April 2020.		

Table 2
Guideline Vibration Annoyance Potential Criteria

Human Response	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.1
Severe	2.0	0.4
Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.		
Source: California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, *Table 19, Guideline Vibration Damage Potential Threshold Criteria*, April 2020.		

EXISITNG SETTING

Roadway Noise

As with most urban and suburban environments, the primary noise sources in the Simi Valley Planning Area are mobile sources, which would include vehicles along roadways, train pass-bys, and other transportation-related noises. State Route 118 (SR-118) traverses the City in the east-west direction and is generally elevated with respect to adjacent areas. Most of the adjacent development along the freeway is residential land uses, with some areas protected by sound walls.

Specifically, most of the existing noise in the project area is generated from traffic along surrounding roadways including Lost Canyons Drive and Tapo Canyon Road.

In order to characterize the ambient roadway noise environment in the proposed project area, noise prediction modeling was conducted based on vehicular traffic volumes along nearby roadway segments; refer to Appendix B, *Noise Data*. Noise levels were modeled using the Federal Highway Administration Highway Noise Prediction Model (FHWA-RD-77-108). This model calculates the average noise level in dBA CNEL along a given roadway segment based on traffic volumes, vehicle mix, average speeds, roadway geometry, and site conditions.

The project would internally relocate 180 dwelling units from Dry Canyon and Topo Canyon. With the relocation of the new homes, it is likely that the corresponding redistribution of traffic would change, as well as the allocation of project related trips to SR-118 freeway via the Erringer Road interchange and the Tapo Canyon Road interchange, as compared to the trips associated with the approved project evaluated in the 2010 EIR. As part of this analysis, the baseline scenario "Existing (Without Project)" remains unchanged and therefore traffic volumes collected in 2008 for the 2010 EIR were used in this analysis to provide a comparison with the 2010 EIR traffic noise analysis.

The evaluation below does not analyze traffic noise impacts along Avenida Simi between Anderson Drive and Sycamore Drive, and segments along Sycamore Drive which were previously analyzed in the 2010 EIR. Per Exhibit 3, *Project Trip Distribution – Future Roadway Network* in Appendix B of the *Lost Canyons 180 Lots Transfer Project – Transportation* prepared by Michael Baker International (dated November 10, 2025), trips from the proposed project would not result in any traffic that travel along these roadways. Since the proposed project would not result in any new trips along these roadways, it is assumed that the project would not change conditions of these roadways.

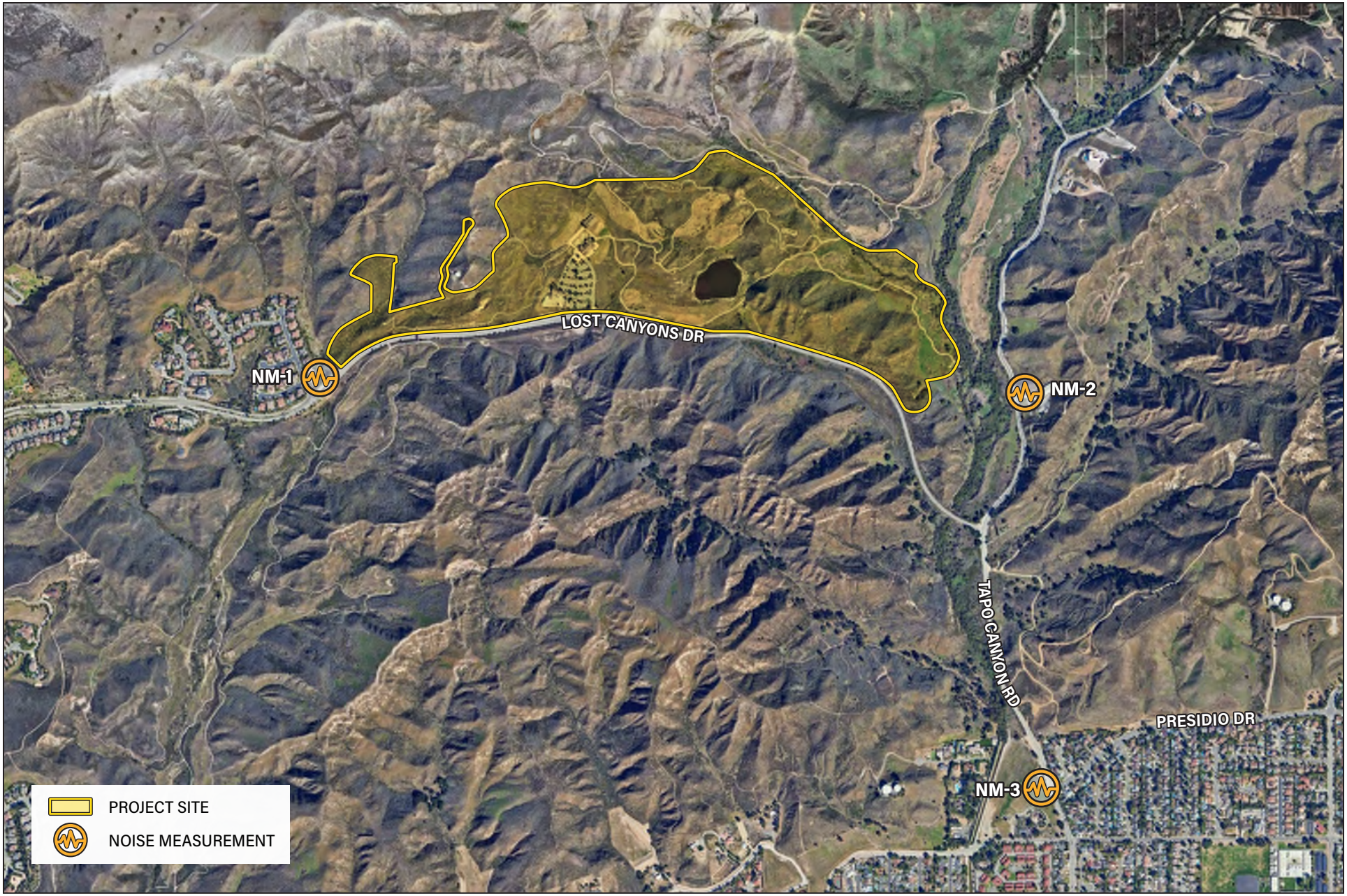
According to Table 3, *Existing Traffic Noise Levels*, under the "Existing" scenario, noise levels at 100 feet from the roadway centerline would range from 51.6 dBA to 68.8 dBA CNEL.

Table 3
Existing Traffic Noise Levels

Roadway Segment	Existing	
	ADT	dBA CNEL @ 100 Feet from Roadway Centerline
Erringer Road between Lost Canyons Drive and Falcon St	6,620	59.8
Erringer Road between Falcon Street and Alamo Street	10,350	61.7
Erringer Road between Alamo Street and Simi Town Center Way	17,860	62.9
Erringer Road between Simi Town Center Way and SR-118 EB Ramps	32,550	65.4
Erringer Road South of SR-118 EB Ramps	22,810	64.0
Lost Canyons Drive between Erringer Road and Lost Canyons Golf Club	1,590	53.4
Lost Canyons Drive between Los Canyons Golf Club and Tapo Canyon Road	1,900	51.6
Tapo Canyon Road between Lost Canyons Drive and Alamo Street	15,680	63.4
Tapo Canyon Road between Alamo Street and SR-118 WB Ramps	40,060	66.5
Tapo Canyon Road between SR-118 WB Ramps and SR-118 EB Ramps	69,080	68.8
Tapo Canyon Road South of SR-118 EB Ramps	28,060	64.9
Notes: ADT = average daily traffic; dBA = A-weighted decibels; CNEL = Community Noise Equivalent Level; SR = State Route; EB = eastbound; WB = westbound		
Source: Based on traffic data provided by the project traffic engineer.		

Existing Ambient Noise Levels

To quantify existing ambient noise levels in the project area, Michael Baker International conducted three short-term noise measurements in the project vicinity on October 10, 2024. The 10-minute measurements were taken between 11:00 AM and 12:00 PM. Refer to Exhibit 4, *Noise Measurement Locations* for measurement locations. Short-term (L_{eq}) measurements at these locations are considered representative of the noise levels in the project area throughout the day. The noise measurements were taken during "off-peak" (9:00 AM through 3:00 PM) traffic noise hours as this provides a more conservative baseline. The ambient noise levels measured are identified in Table 4, *Noise Measurements*.



Source: Google Earth Pro, October 2025

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LOST CANYONS 180 LOTS TRANSFER PROJECT
NOISE AND VIBRATION ASSESSMENT

Noise Measurement Locations

Exhibit 4

Table 4
Noise Measurements

Site No.	Location	L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)	Start Time
NM-1	Outside of 4224 N Copperstone Lane along Lost Canyons Drive	60.6	33.9	77.1	11:02 AM
NM-2	Across from 4110 Tapo Canyon Road	66.3	41.1	88.0	11:23 AM
NM-3	Northeast corner of the Tapo Canyon Road and Presidio Drive	67.4	37.2	87.8	11:42 AM
Source: Refer to Appendix B, *Noise Data*, for the results of the field measurement data.					

Meteorological conditions were clear, warm temperatures (77 degrees Fahrenheit [°F]), and wind speeds of approximately 4 miles per hour. Measured average ambient noise levels (L_{eq}, which represents a constant sound that, over the specified period, has the same sound energy as the time-varying sound; this is commonly used to describe the "average" noise levels within the environment) ranged from 60.6 to 67.4 dBA L_{eq}. The major sources of noise observed during the short-term noise measurements include traffic along the roadways and overhead airplane noise. Noise monitoring equipment used for the ambient noise survey consisted of a Brüel & Kjær Hand-held Analyzer Type 2250 equipped with a Type 4189 pre-polarized microphone. The monitoring equipment complies with applicable requirements of the American National Standards Institute (ANSI) for Type I (precision) sound level meters. Refer to Appendix B, *Noise Data*, for the results of the field measurements.

Stationary Noise Sources

Stationary noise sources near the proposed project site include noise associated with the existing residential communities (i.e., Glenmeadow neighborhood) that are located on the western edge and the single-family residence located at the eastern edge of the proposed project site. Activities associated with residential uses typically include heating, ventilation, and air-conditioning units (HVAC), pumps, loud talking, lawn and yard maintenance, music, domestic animal noise, and vehicles traveling along the residential streets.

Noise Sensitive Receptors

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, historic sites, cemeteries, and recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

The closest sensitive receptors to the Lost Canyons Project site that could experience some noise and vibration due to the construction and operation of the proposed project are the residential areas, known as the Glenmeadow neighborhood, located at the western edge of the site at approximately 150 feet from the Lost Canyons Project's boundary line.

REGULATORY SETTING

Environmental noise and vibration are controlled and regulated by federal, state, and local agencies. Federal agencies like the U.S. Environmental Protection Agency (USEPA) are responsible for managing major noise sources in commerce including transportation vehicles and equipment, machinery, appliances under the Noise Control Act of 1972.[5] However, the primary responsibility of addressing noise issues is with the State and local governments.[6]

State

State Office of Planning and Research

The State Office of Planning and Research's (OPR) *Noise Element Guidelines* include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The *Noise Element Guidelines* contain a land use compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the CNEL. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

Local

Simi Valley General Plan

The *Simi Valley General Plan* (General Plan) *Safety and Noise Element* identifies noise sources, noise sensitive land uses, and noise compatibility standards. The goals and policies in the Safety and Noise Element are designed to include noise control in the planning process to maintain compatible land uses with acceptable environmental noise levels to protect Simi Valley residents from excessive noise.

Policy N-1.1 Noise Standards. Require noise attenuation for all development where the projected exterior and interior noise levels exceed those shown in Table N-2 (Interior and Exterior Noise Standards), to the extent feasible.

Policy N-1.2 Noise between Adjacent Uses. Require that mixed-use and multi-family residential developments demonstrate that the design of the structure will adequately isolate noise between adjacent uses (orientation, window insulation, common wall separation, common floor/ceilings separation, etc.).

Policy N-1.3 Mixed-Use Development Standards. Require, whenever physically possible, new mixed-use developments to locate loading areas, parking lots, driveways, trash enclosures, mechanical equipment, and other noise sources away from the residential portion of the development, and apply physical construction standards (equipment, construction standards) to reduce noise between uses.

Policy N-1.4 Noise Attenuation Measures. Ensure that all new development provides adequate sound insulation or other protection from existing and anticipated noise sources.

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[5] USEPA, *Summary of the Noise Control Act: 42 USC Section 4901 et seq.,* 1972, https://www.epa.gov/laws-regulations/summary-noise-control-act, accessed October 3, 2024.

[6] USEPA, *Clean Air Act Title IV – Noise Pollution*, https://www.epa.gov/clean-air-act-overview/clean-air-act-title-iv-noise-pollution, accessed October 3, 2024.

Policy N-1.5 Sensitive Receptors. Incorporate ambient noise level considerations into land use decisions involving schools, hospitals, and similar noise-sensitive uses.

Policy N-2.1 State Motor Vehicle Noise Standards. Encourage the enforcement of state motor vehicle noise standards for cars, trucks, and motorcycles through coordination with the California Highway Patrol and Simi Valley Police Department.

Policy N-2.2 Roadway Noise Sensitivity Measures. Ensure the employment of noise attenuation measures in the design of roadway improvement projects consistent with funding capability. Support efforts by the California Department of Transportation and others to provide for acoustical protection of existing noise sensitive land uses affected by these projects.

Policy N-2.3 Noise Attenuation along Major Arterials and Railroad Tracks. Require the use of walls and berms in the design of residential and other noise-sensitive land uses that are adjacent to the 118 Freeway, major arterials, and railroad tracks.

Policy N-2.4 Noise Studies for New Development. Require the preparation of noise studies, as deemed necessary by the Department of Environmental Services, for new development (especially residential projects) along the freeway corridor, major thoroughfares, and railroad tracks to ensure that adequate sound attenuation from these noise sources is provided.

Policy N-3.1 Protection from Stationary Noise Sources. Continue to enforce interior and exterior noise standards to ensure that sensitive noise receptors are not exposed to excessive noise levels from stationary noise sources, such as machinery, equipment, fans, and air conditioning equipment.

Policy N-3.2 Regulation of Sound-Amplifying Equipment. Continue to regulate the use of sound-amplifying equipment.

Policy N-3.3 Enforcement of Hours of Construction Activity. Continue to enforce restrictions on hours of construction activity so as to minimize the impacts of noise and vibration from the use of trucks, heavy drilling equipment, and other heavy machinery to adjacent uses, particularly in residential areas.

The Safety and Noise Element also establishes land use compatibility criteria in terms of the 24-hour average sound level (L_{dn}). L_{dn} is the weighted average noise exposure for a typical (or annual average) day, determined by adding 10.0 dB to noise levels that occur at night between 10:00 PM and 7:00 AM For residential uses, the City's standards are L_{dn} values of 63.0 dB or less for exterior noise exposure in outdoor activity areas and 45.0 dB or less for interior noise exposure. The exterior standard is consistent with standards applied by the U.S. Department of Housing and Urban Development (HUD) and by many local jurisdictions within California. The interior standard is also consistent with standards applied by HUD and with the requirements of California Administrative Code Title 24 for the construction of new multi-family residential structures. The intent of the exterior and interior noise-level standards of the City is to provide an acceptable noise environment for outdoor activities and recreation, and for indoor communication and sleep. The City's interior and exterior noise standards are identified in Table 5, *General Plan Interior and Exterior Noise Standards*, which represents specific noise standards for interior and exterior noise areas that are considered acceptable based on noise levels generated by adjacent mobile sources, such as automobiles, trucks, and trains.

Table 5
General Plan Interior and Exterior Noise Standards

Land Use Categories		CNEL	
Categories	**Uses**	**Interior[1]**	**Exterior[2]**
Residential	Single Family, Duplex, Multi Family	45[3]	63
	Mobile Home	45[4]	63[4]
Commercial/Institutional	Hotel, Motel, Transient Lodging	45	--
	Hospitals, School Classroom	45	
	Church, Library	45	

Notes:
1. Includes bathrooms, toilets, closets, corridors
2. Limited to the following:
- Private yard of single-family residence
- Multi-family private patio or balcony that is served by a means of exit from inside the dwelling
- Mobile home park

3. Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided as of Chapter 12, Section 1205 of the Uniform Building Code (UBC).
4. Exterior noise level should be such that interior noise level will not exceed 45 CNEL.

Source: City of Simi Valley, *Simi Valley General Plan, Safety and Noise Element, Table N-2, Interior and Exterior Noise Standards*, 2021.

Simi Valley Municipal Code

The *Simi Valley Noise Ordinance* (as included in Title 5, Chapter 16, *Noise*, of *Simi Valley Municipal Code* [SVMC]) governs noise from non-transportation sources and does not specify maximum noise levels, but identifies various noise generators, such as construction equipment amplification and mechanical devices, and provides certain restrictions on these generators. Additionally, SVMC Title 5, Chapter 9-44, *Standards for Specific Land Uses*, provides site planning; development, and/or operating standards for certain land uses within individual or multiple zoning districts, and for activities that require special standards to mitigate their potential adverse impacts. Specific provisions relevant to the project are discussed below:

Section 5-16.02 - Unlawful acts: Public nuisances.

> The following acts are hereby expressly declared to be nuisances, and any person maintaining or permitting such nuisances, or any of them, to be maintained or to exist in or on his premises, whether as owner, lessee, or otherwise, shall be deemed guilty of a misdemeanor for each day during which such nuisance shall be permitted to be continued:
>
> > (d) *Engines, motors, and mechanical devices in and near residential districts*. The operation between the hours of 11:00 PM and 7:00 AM on Friday or Saturday and between the hours of 10:00 PM and 7:00 AM on Sunday through Thursday of any motor or engine or the use or operation of any automobile, motorcycle, machine, mechanical device, or other contrivance or facility, unless such motor, engine, automobile, motorcycle, machine, or mechanical device is enclosed within a sound-insulated structure so as to prevent noise and sounds from being plainly audible at a distance of fifty (50') feet from such structure or within ten (10') feet of any residence; provided, however, any such vehicle which is operated upon any public highway, street, or right-of-way shall be excluded from the provisions of this subsection;

(h) *Pile drivers, hammers, and the like*. The operation between the hours of 7:00 PM and 7:00 AM of any pile driver, steam shovel, pneumatic hammer, derrick, hoist, or other appliance, the use of which is attended by loud or unusual noise; and

(i) *Construction and repair of buildings*. The erection, excavation, demolition, alteration, construction, or repair of any structure or building, other than between the hours of 7:00 AM and 7:00 PM, except when the urgent necessity, in the interests of the public health and safety, requires and the City Engineer consents thereto. When substantial loss or inconvenience would result to any party denied permission to do so, the City Engineer may grant permission for such work on any day or at such times within such hours and on such conditions as he or she shall fix in accordance with his or her findings.

CALIFORNIA ENVIRONMENTAL QUALITY ACT THRESHOLDS

In accordance with the *California Environmental Quality Act* (CEQA Guidelines), project impacts are evaluated to determine whether significant adverse environmental impacts would occur. This analysis will focus on whether the proposed project would result in new significant impacts or in a substantial increase in the severity of prior impacts identified in the 2010 EIR for the approved project. If the proposed project results in new substantially greater impacts, the environmental analysis will identify mitigation measures, if required, to reduce or avoid any potentially significant impacts that are identified. According to Appendix G of the CEQA Guidelines, the proposed project would have a significant impact related to noise and vibration if it would:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies (refer to Impact Statement NOI-1);

- Generation of excessive groundborne vibration or groundborne noise levels (refer to Impact Statement NOI-2); and/or

- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels (refer to Impact Statement NOI-3).

SIGNIFICANCE CRITERIA AND METHODOLOGY

Based on the CEQA standards, adopted regulations, community response to changes in noise levels, and other related technical data, noise-level thresholds were developed by the Federal Highway Administration to assist in this analysis, consistent with thresholds utilized in the 2010 EIR. For the purposes of the analysis, the proposed project will have significant impacts related to noise increases if the project exceeds the following thresholds:

Construction Noise Significance Threshold

Although the City of Simi Valley does not have a quantitative threshold that applies to noise levels at active construction sites, the noise level increase is considered substantial if construction-related noise would

exceed the land use compatibility standards identified for the City of Simi Valley in Table 5 by 10.0 dBA or more, consistent with thresholds utilized in the 2010 EIR.

Noise levels from construction equipment and activities were modeled using the Federal Highway Administration's Roadway Construction Noise Model (RCNM). Construction equipment anticipated to be used for the project was provided by the project-specific air quality modeling as provided in *Lost Canyons 180 Lots Transfer Project – Air Quality Assessment*, prepared by Michael Baker International and dated November 5, 2025; refer to Appendix B, *Noise Data*.

Operational Noise Significance Threshold

The 2010 EIR utilized the following thresholds for operation noise consistent with the threshold established by the Federal Highway Administration; a project would result in significant noise impact on adjacent sensitive noise receptors if:

- implementation of the project would result in a 5.0 dBA[7] or greater increase in ambient noise levels, or;
- implementation of the project would result in a 3.0 dBA[8] or greater increase in ambient noise levels and exceed the land use compatibility standard for the location in which the land uses exists.

In regards to mobile noise sources, the City's residential exterior noise standards provided in Table 5 (63 dBA) would be applied when analyzing noise impacts for residential uses from mobile noise source. Changes from 3 to 5 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. An increase greater than 5 dBA is readily noticeable, while the human ear perceives a 10 dBA increase in sound level to be doubling of sound volume. A doubling of sound energy results in a 3 dBA increase in sound, which means that a doubling of sound wave energy (e.g., doubling the volume of traffic on a roadway) would result in a barely perceptible change in sound level.[9] Thus, the project would result in a significant noise impact if a permanent increase in ambient traffic noise levels of 5.0 dB occurs upon project implementation, consistent with the methodology used in the 2010 EIR. Additionally, a significant impact would also occur if the resulting noise level at the receiving sensitive receptor exceeds the applicable exterior standard at a noise sensitive use.

Construction and Operational Vibration Significance Thresholds

The Caltrans *Transportation and Construction Vibration Manual* identifies various vibration damage criteria for different building classes. This evaluation uses the Caltrans architectural damage criterion for vibrations from continuous/frequent intermittent sources at new residential and commercial structure buildings of 0.5 inch-per-second (inch/second) PPV; refer to Table 1.

[7] A 5.0 dB(A) increase in noise is readily noticeable by individuals. Source: Federal Highway Administration, *Highway Noise Fundamentals*, September 1980.

[8] A 3.0 dB(A) change is noise is not readily noticeable by most individuals. Federal Highway Administration, *Highway Noise Fundamentals*, September 1980.

[9] City of Simi Valley, *Whiteface Specific Plan Amendment 6: Lost Canyons Final Environmental Impact Report*, Volume II of V, Section 4.10, Noise, page 4.10-8, November 2010.

IMPACT ANALYSIS

NOI-1 WOULD THE PROJECT RESULT IN GENERATION OF A SUBSTANTIAL TEMPORARY OR PERMANENT INCREASE IN AMBIENT NOISE LEVELS IN THE VICINITY OF THE PROJECT IN EXCESS OF STANDARDS ESTABLISHED IN THE LOCAL GENERAL PLAN OR NOISE ORDINANCE, OR APPLICABLE STANDARDS OF OTHER AGENCIES?

Level of Significance: Less Than Significant Impact with Mitigation Incorporated.

As detailed in the 2010 EIR, approved project construction activities would primarily include grading the ground surface and building proposed uses. These activities typically involve the temporary use of heavy equipment, such as tractors, loaders, concrete mixers, and cranes. Construction activities would occasionally and intermittently expose the existing residential uses along the western, southwestern, and southeastern boundaries of the approved project site to noise levels of more than 5 dBA over existing conditions at nearby sensitive receptors. However, demolition, grading, and construction activities would be limited to the hours of 7:00 AM to 7:00 PM. Additionally, any demolition, grading, and construction activities would be short-term and intermittent. As such, the 2010 EIR determined that with implementation of 2010 EIR Mitigation Measures 4.10-3 through 4.10-9, construction noise impacts would be less than significant.

As detailed in the 2010 EIR, vehicular noise could potentially affect sensitive receptors within the approved project area, as well as sensitive receptors located along the surrounding roadway system. Noise increases resulting from the development of the approved project range from a low of 0.0 dB(A) (Erringer Road south of SR-118 eastbound [EB] Ramps, Avenida Simi between Anderson Drive and Sycamore Drive, Sycamore Drive south of SR-118 EB Ramp, and Tapo Canyon Road south of SR-118 EB Ramps) to a high of 5.0 dBA (Lost Canyons Drive between Lost Canyons Golf Club and Tapo Canyon Road). An increase in noise levels of 5.0 dBA or more is typically considered significant and can impact sensitive receptors. However, the location of the road segment between Lost Canyons Golf Club (Driveway) to Tapo Canyon Road along Lost Canyons Drive is not adjacent to sensitive receptors. Modeling results of the future noise level, which the internal circulation road system within the approved project is expected to create, would be below the City of Simi Valley's standard of 63.0 dBA CNEL. As such, impacts associated with the internal roadway system of the approved project would be less than significant. Therefore, the 2010 EIR determined that impacts associated with on-site and off-site roadway noise would be less than significant.

Regarding point source noise (referred to as stationary noise in this memorandum), the 2010 EIR notes that future residents of the approved project would generate and be exposed to point source noise, including people talking, doors slamming, street cleaning, air conditioning units, lawn care equipment, stereos, and domestic animals. Additionally, future residents of the approved project could be exposed to stationary noise coming from the retained Lost Canyons Golf Course, including golf course manicuring and maintenance. These noise sources would contribute to the ambient noise levels experienced in all similarly developed areas (e.g., those residential areas existing south of the proposed project) and typically do not exceed noise standards for the types of land uses proposed. As a result, the 2010 EIR concluded that the potential point source noise impacts are considered less than significant.

The 2010 EIR also determined that with implementation of 2010 EIR Mitigation Measures 4.10-1 and 4.10-3, potential noise impacts to residential development adjacent to existing or future oil wells in accordance with the approved project would be reduced to less than significance levels. As this project would not propose future oil drilling activities, this issue is not discussed in this analysis.

Short-Term Construction Noise Impacts

Typical activities associated with construction are a highly noticeable temporary noise source. Noise from construction activities is generated by two primary sources: (1) the transport of workers and equipment/materials to construction sites and (2) the noise related to active construction equipment. These noise sources can be a nuisance to local residents and businesses or, in some cases, unbearable to sensitive receptors (i.e., residences, hospitals, senior centers, schools, day care facilities, etc.)

Construction noise levels in the project vicinity would fluctuate depending on the type, number, and duration of usage for the varying equipment. The effects of construction noise largely depend on the type of construction activities occurring on any given day, noise levels generated by those activities, distances to noise-sensitive receptors, and the existing ambient noise environment in the receptor's vicinity. Construction generally occurs in several discrete phases, with each phase requiring different equipment with varying noise characteristics. These phases alter the characteristics of the noise environment generated on the proposed project site and in the surrounding community for the duration of the construction process.

The project proposes the density transfer of 180 dwelling units from Dry Canyon and Tapo Canyon, south of Lost Canyons Drive, to the Clubcore area (former golf course), north of Lost Canyons Drive. Construction of the Lost Canyons Project would occur in two phases. Phase 1 would include construction of 180 residential lots in the eastern, southern, and western portions of the site and would consist of the following activities: demolition, grading, building construction, paving, and architectural coating. Phase 2 would include construction of 184 residential lots, which includes the proposed project, in the northern portion of the site and would include grading, building construction, paving, and architectural coating. The Lost Canyons Project would demolish approximately 31,300 square feet of vacant structures associated with the on-site former gold course facilities. Earthwork would be balanced on-site.

Noise levels from construction equipment and activities were modeled using the Federal Highway Administration's RCNM; refer to Appendix B. Construction equipment list is based on the project's air emissions modeling defaults; refer to *Air Quality Data* of the *Lost Canyons 180 Lot Transfer Project – Air Quality Technical Memorandum*, prepared by Michael Baker International and dated November 5, 2025. The Lost Canyons Project is assumed to include the same type and amount of equipment during both construction phases. The estimated construction noise levels at the nearest noise-sensitive receptors are presented in Table 6, *Noise Levels Generated During Construction*.

Table 6
Noise Levels Generated During Construction

Phases	Estimated Exterior Construction Noise Level at 1,625 feet (Center of Lost Canyons Project Site to Western Receptors) (dBA CNEL and L_{eq})[1]
Noise Levels During Construction[2]	
Demolition	56.2
Grading, Building Construction and Paving[3]	61.4
Architectural Coating[3]	43.5

Notes:
1. The geographical center was calculated by obtaining the distance from the western and eastern boundaries of the nearest construction area that would occur adjacent to the nearest sensitive receptors (refer to Exhibit 3) divided by two and adding the 150 feet distance measured from the project boundary to the sensitive receptors.
2. Phase 1 construction involves disturbance of areas closes to the nearest sensitive receptors. As Phase 2 construction would be located further away from sensitive receptor, construction noise levels generated during Phase 2 construction is not estimated.
3. Phase 1 construction would include overlapping grading, building construction, and paving activities with Phase 2 construction grading, building construction, and paving. Therefore, the loudest equipment used during these phases were assumed to be used simultaneously for a conservative analysis.
4. CNEL was computed based on the hourly dBA L_{eq} between the permitted hours of construction (after 7:00 a.m. and before 7:00 p.m.) pursuant to SVMC Section 5-16.02. CNEL is a 24-hour, time-weighted average noise metric that reflects increased sensitivity to noise during evening and nighttime hours. It is calculated from hourly L_{eq} values, adding +5 dBA for evening (7:00 p.m.–10:00 p.m.) and +10 dBA for nighttime (10:00 p.m.–7:00 a.m.). Since the proposed project complies with SVMC Section 5-16.02(i), which allows construction between 7:00 a.m. and 7:00 p.m., no penalties would apply.

Source: Federal Highway Administration, *Roadway Construction Noise Model (RCNM)*, 2006; and NoiseMeters Inc., *L_{dn}*, *L_{den}*, *CNEL – Community Noise Calculators*, https://www.noisemeters.com/apps/ldn-calculator/?srsltid=AfmBOorlqR44gvAYH91g4MwXY4ble1f29tcVs5HE0jhi105mT5SXgxpl, accessed October 23, 2025; refer to Appendix B, *Noise Data*.

As detailed above, the nearest sensitive receptors to the Lost Canyons Project site are the residential uses of the Glenmeadow neighborhood, located approximately 150 feet from the project boundary. These receptors may be exposed to noise levels during construction and development activities. According to the General Noise Assessment methodology introduced by the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Manual*, published in September 2018, noise can be considered as concentrated at the center of the site. As such, the estimated noise levels were calculated from the geographic center of Phase 1 construction area where construction would occur adjacent to the nearest sensitive receptors (refer to the 72-unit Phase 1 pad shown on Exhibit 3). As such, the distance between the Lost Canyons Project and the closest sensitive receptors (residential uses) to the west considered in this analysis is approximately 1,625 feet.

To present a conservative impact analysis, the estimated noise levels were calculated for a scenario in which all heavy construction equipment were assumed to operate simultaneously; refer to Appendix B. Results from RCNM also assume a clear line-of-sight and no other machinery or equipment noise that would mask construction noise. The shielding of buildings and other barriers that interrupt line-of-sight conditions would help further reduce noise levels than what is shown in Table 6.

As shown in Table 6, the nearest receptors to the Lost Canyons Project site could be exposed to temporary and intermittent construction noise levels during overlapping construction activities ranging from approximately 43.5 to 56.2 dBA CNEL at the nearest residential use to the west. It should be noted that construction noise levels (dBA CNEL) was computed based on the hourly dBA L_{eq} from RCNM between the permitted hours of construction pursuant to SVMC Section 5-16.02. CNEL is calculated from hourly L_{eq} values, adding +5 dBA for evening (7:00 p.m.–10:00 p.m.) and +10 dBA for nighttime (10:00 p.m.–7:00 a.m.). Since the proposed project complies with SVMC Section 5-16.02(i), which allows construction

between 7:00 a.m. and 7:00 p.m., no penalties would apply. As such, construction noise would not have the potential to exceed the City's exterior land use compatibility standard of 63.0 dBA CNEL by 10.0 dBA or more at the nearest sensitive receptors. It should be noted that the proposed project's potential construction impact on Phase 1 developments is not analyzed, as according to the construction schedule provided by the project applicant, Phase 1 construction activities would not be completed and residential units would not be occupied when Phase 2 construction activities start. In addition, this analysis utilizes the distance between the nearest sensitive receptors and the Lost Canyons Project site, which is a shorter distance than measuring from the nearest sensitive receptors to the proposed project site. As such, this analysis is conservative and construction impacts of the proposed project is less than what was discussed above.

To further minimize impacts, the project would be required to comply with 2010 EIR Mitigation Measures 4.10-3 through 4.10-9. These mitigation measures lay out the required project compliance with the City's construction hours limitation as well as other best management practices regarding construction noise reduction. In addition, it is acknowledged that according to the SVMC Section 5-16.02 (i), *Construction and repair of buildings*, construction activities occurring between the hours of 7:00 AM and 7:00 PM, except when the urgent necessity, would not be declared to be nuisances by the City. Project construction activities would occur within the allowable hours specified by SVMC unless the City Engineer determines that limiting construction to these hours would create a health or safety issue or a substantial loss or inconvenience as described in the SVMC. Any demolition, grading, and construction activities would be short-term and intermittent and would be required to abide by the SVMC Noise Regulations as further described above. As such, less than significant impacts would result in this regard.

Long-Term Operational Noise Impacts

Off-Site Mobile Noise

Roadway segment noise levels for the "Existing" and "Existing with Project" scenarios were compared to evaluate project-related operational mobile noise impacts. According to Table 7, *Existing and Existing With Project Traffic Noise Levels*, under the "Existing" scenario, noise levels at 100 feet from the roadway centerline would range from 51.6 dBA to 68.8 dBA CNEL. Existing baseline traffic noise levels would be greater than 63 dBA CNEL at Erringer Road between Simi Town Center Way and SR-118 EB Ramps, Erringer Road South of SR-118 EB Ramps, Tapo Canyon Road between Lost Canyons Drive and Alamo Street, Tapo Canyon Road between Alamo Street and SR-118 WB Ramps, Tapo Canyon Road between SR-118 WB Ramps and SR-118 EB Ramps, and Tapo Canyon Road South of SR-118 EB Ramps.

Table 7
Existing and Existing With Project Traffic Noise Levels

Roadway Segment	Existing (2008)	Existing with Project					Difference in dBA CNEL @ 100 Feet from Roadway Centerline
	dBA CNEL @ 100 Feet from Roadway Centerline	ADT[1]	dBA CNEL @ 100 Feet from Roadway Centerline	70 CNEL Noise Contour	65 CNEL Noise Contour	60 CNEL Noise Contour	
Erringer Road between Lost Canyons Drive and Falcon St	59.8	7,700	60.4	-	-	107	0.6
Erringer Road between Falcon Street and Alamo Street	61.7	11,430	62.1	-	64	139	0.4
Erringer Road between Alamo Street and Simi Town Center Way	62.9	18,940	63.1	-	75	162	0.2
Erringer Road between Simi Town Center Way and SR-118 EB Ramps	65.4	33,530	65.5	50	108	233	0.1
Erringer Road South of SR-118 EB Ramps	64.0	22,840	64.0	-	85	184	0.0
Lost Canyons Drive between Erringer Road and Lost Canyons Golf Club	53.4	3,350	56.7	-	-	60	3.3
Lost Canyons Drive between Los Canyons Golf Club and Tapo Canyon Road	51.6	2,980	53.6	-	-	37	2.0
Tapo Canyon Road between Lost Canyons Drive and Alamo Street	63.4	17,440	63.9	-	84	181	0.5
Tapo Canyon Road between Alamo Street and SR-118 WB Ramps	66.5	41,535	66.9	-	133	286	0.4
Tapo Canyon Road between SR-118 WB Ramps and SR-118 EB Ramps	68.8	69,920	68.8	84	180	388	0.0
Tapo Canyon Road South of SR-118 EB Ramps	64.9	28,285	64.9	-	98	212	0.0

Notes: ADT = average daily traffic; dBA = A-weighted decibels; SR = State Route; EB = eastbound; WB = westbound
1. ADTs are based on the Transportation Memo prepared for the project and have taken the project distribution into consideration.
Source: Based on traffic data provided by project Applicant; refer to Appendix B.

Based on the *Lost Canyons 180 Lot Transfer Transportation Memo* (Transportation Memo) prepared by Michael Baker International, dated November 5, 2025, the Lost Canyons Project would generate 3,483 trips per day without taking any credits from the existing use. Under the "Existing with Project" scenario, noise levels at 100 feet from the roadway centerline would range from 53.6 dBA to 68.8 dBA CNEL. Table 7 compares the increase of noise levels between the "Existing" scenario to the "Existing With Project" scenario and increase in noise levels between the two scenarios would range from 0.0 dBA to 3.3 dBA CNEL.

As shown in Table 7, change in noise levels noise levels between the "Existing" scenario and the "Existing With Project" scenario would be less than 3 dBA for all roadway segments with the exception of the Lost Canyons Drive (between Erringer Road and Lost Canyons Golf Club) segment. Further, "Existing With Project" traffic noise levels would remain below the City's land use compatibility standards of 63 dBA CNEL at this roadway segment.

As previously stated, the project would result in a significant noise impact if a permanent increase in ambient traffic noise levels of 5.0 dB occurs upon project implementation and the resulting noise level at the receiving sensitive receptor exceeds the applicable exterior standard at a noise sensitive use. As such, the Lost Canyons Project would not result in a significant impact. As the proposed project is included in the Lost Canyons Project, the proposed project would also not result in a significant impact.

Cumulative Traffic Noise

Using the existing ADT along surrounding roadways and projects' ADT presented in Table 7, mobile noise was modeled under Existing, Cumulative (Future with Proposed Project) and Existing scenarios to evaluate long-term mobile source project impacts; refer to Table 8, *Future Traffic Noise Levels*.

Table 8
Future Traffic Noise Levels

Roadway Segment	Existing	Cumulative (Future with Project)	Cumulative - Existing
	dBA CNEL @ 100 Feet from Roadway Centerline	dBA CNEL @ 100 Feet from Roadway Centerline	Difference In dBA CNEL Between Cumulative and Existing @ 100 feet
Erringer Road between Lost Canyons Drive and Falcon St	59.8	65.5	5.7
Erringer Road between Falcon Street and Alamo Street	61.7	66.5	4.8
Erringer Road between Alamo Street and Simi Town Center Way	62.9	67.4	4.5
Erringer Road between Simi Town Center Way and SR-118 EB Ramps	65.4	67.7	2.3
Erringer Road South of SR-118 EB Ramps	64.0	65.2	1.2
Lost Canyons Drive between Erringer Road and Lost Canyons Golf Club	53.4	61.3	7.9
Lost Canyons Drive between Los Canyons Golf Club and Tapo Canyon Road	51.6	58.7	7.1
Tapo Canyon Road between Lost Canyons Drive and Alamo Street	63.4	66.3	2.9
Tapo Canyon Road between Alamo Street and SR-118 WB Ramps	66.5	68.1	1.6
Tapo Canyon Road between SR-118 WB Ramps and SR-118 EB Ramps	68.8	69.8	1.0
Tapo Canyon Road South of SR-118 EB Ramps	64.9	66.0	1.1

Notes:
1. ADTs are based on the Transportation Memo prepared for the project and have taken the project trip distribution into consideration.

Source: Based on traffic data provided by project Applicant.
Federal Highway Administration, *Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVNO) Emissions Levels* (see Appendix B).

Based on Table 8, traffic noise levels under the "Existing" scenario would range from 51.6 dBA to 68.8 dBA CNEL. Under the "Cumulative (Future with Project)" scenario, noise levels would range from 58.7 dBA to 69.8 dBA CNEL. The increase in existing traffic noise levels due to future projects (i.e., cumulative future with project) would range from 1.0 dBA CNEL to 7.9 dBA CNEL. As previously stated, the Lost Canyons Project would result in a significant noise impact if a permanent increase in ambient traffic noise levels of 5.0 dB occurs upon project implementation and the resulting noise level at the receiving sensitive receptor exceeds the applicable exterior standard at a noise sensitive use. According to Table 8, the implementation of future projects would result in significant traffic noise along Erringer Road between Lost Canyons Drive and Falcon St, Lost Canyons Drive between Erringer Road and Lost Canyons Golf Club, and Lost Canyons Drive between Los Canyons Golf Club and Tapo Canyon Road. However, as discussed in the 2010 EIR, cumulative traffic noise levels along these roadways were analyzed to be above the

applicable noise threshold (increase of 5 dBA CNEL). Nevertheless, the 2010 EIR concluded that implementation of applicable General Plan policies would reduce future cumulative traffic noise levels and impacts would be reduced to less than significant levels. Since the implementation of the proposed project would not result in a new cumulative significant impact along other roadways, the proposed project would not result in a cumulatively significant impact. As the proposed project is included in the Lost Canyons Project, the proposed project would also not result in a significant impact, and the project would not result in a new significant noise impact.

On-Site Operational Noise

Mechanical Equipment

Heating, ventilation, and air conditioning (HVAC) units would be included as part of the proposed project. Typically, mechanical equipment, such as HVAC units, generate noise levels of 60 dBA at 20 feet from the source.[10] Noise generated by stationary sources typically attenuates at a rate of 6 dBA per doubling of distance from the source. The nearest sensitive receptors are the residential areas, known as the Glenmeadow neighborhood, located at the western edge of the Lost Canyons Project site. Measured from the nearest residence to a HVAC unit on the nearest proposed dwelling unit, the distance is approximately 800 feet. At the distance of 800 feet, noise levels from a single HVAC units would be 28 dBA L_{eq} or approximately 34.8 CNEL.[11,12] Even with multiple HVAC units operating simultaneously, noise levels would be well below the City's noise standard due to attenuation of noise over the large distance (800 feet) and shielding from intervening buildings. As such, operation of the HVAC units would not have the potential to exceed the City's exterior land use compatibility standard for residential uses of 63.0 dBA CNEL or the existing ambient noise of 60.6 dBA L_{eq} (refer to Table 4) at the nearest sensitive receptors. Less than significant impacts would result in this regard.

Outdoor Open Space

The Lost Canyons Project would include outdoor open space on the western edge of the site, and a pool and outdoor area at the central portion of the site. The outdoor open space and pool have the potential to be accessed by groups of people intermittently. Noise generated by groups of people (i.e., crowds) is dependent on several factors including vocal effort, impulsiveness, and the random orientation of the crowd members. Crowd noise is estimated at 60 dBA L_{eq} at one meter (3.28 feet) away for raised normal speaking. This noise level would have a +5 dBA adjustment for the impulsiveness of the noise source, and a -3 dBA adjustment for the random orientation of the crowd members.[13] Therefore, crowd noise would be approximately 62 dBA L_{eq} at one meter from the source. As a conservative scenario, crowd noise would be analyzed as it has the potential to be accessed by the largest group of people.

The nearest sensitive receptors are the residential areas, known as the Glenmeadow neighborhood, located at the western edge of the Lost Canyons Project site. Measured from the nearest residence to the nearest outdoor open space, which is the outdoor open space on the western edge of the site, the

[10] Elliot H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, July 26, 2015.

[11] NoiseMeters Inc., *L_{dn}, L_{den}, CNEL – Community Noise Calculators*, https://www.noisemeters.com/apps/ldn-calculator/?srsltid=AfmBOorIqR44gvAYH91g4MwXY4ble1f29tcVs5HE0jhi105mT5SXgxpl, accessed October 23, 2025.

[12] CNEL was computed under the assumption that HVAC noise would be generate noise levels of 28 dBA L_{eq} for 24 hours in a day.

[13] M.J. Hayne, et al, *Prediction of Crowd Noise*, Acoustics, November 2006.

distance is approximately 150 feet. At the distance of 150 feet, crowd noise would be approximately 29 dBA L_{eq} or approximately 35.7 dBA CNEL, which would not exceed the City's exterior land use compatibility standard for residential uses of 63.0 dBA CNEL or the existing ambient noise of 60.6 dBA L_{eq} (refer to Table 4) at the nearest sensitive receptors.[14,15] It should be noted that this analysis utilizes the distance between the nearest sensitive receptors and the Lost Canyons Project site, which is a shorter distance than measuring from the nearest sensitive receptors to the proposed project site. As such, this analysis is conservative, and impacts of the proposed project is less than what was discussed above.

According to the Supreme Court of California ruling in the *Make UC a Good Neighbor v. the Regents of the University of California*, it was determined that "social noise" (noise created by humans) was not an environmental impact required by CEQA to be analyzed for residential projects. As such, Assembly Bill 1307 was signed into law in September 2023. Assembly Bill 1307 added Public Resources Code Section 21085 which states "For the purposes of this division, for residential projects, the effects of noise generated by the project occupants and their guest on human beings is not a significant effect on the environment". As such, the analysis shown above was only included for informational purposes. Less than significant impacts would result in this regard.

Conclusion

In conclusion, both construction and operational noise impacts resulting from the Lost Canyons Project and the proposed project would be less than significant. Specifically, construction of the proposed project would not exceed the City's noise significance threshold of 63.0 dBA CNEL by 10 dBA CNEL. Additionally, operational noise sources (i.e., mechanical equipment noise, traffic noise, and crowd noise) would be below the City's noise significance threshold of 63.0 dBA CNEL. The combined noise levels from operational noise sources would also be below the City's applicable noise significance threshold. The project would not result in new significant impacts and no substantial increase in the severity of previously identified impacts disclosed in the 2010 EIR would occur. Likewise, there are no changed circumstances involving new or more severe impacts and no new information of substantial importance requiring new analysis or project-specific mitigation measures.

Mitigation Measures:

The following 2010 EIR Mitigation Measures are applicable to the project:

4.10-3 The applicant shall limit all site demolition, preparation, and construction activities to between the hours of 7:00 AM to 7:00 PM seven days a week (Section 5-16.02(i)). Furthermore, construction equipment maintenance, diesel engine start-ups, the positioning, and movement of equipment, and similar preconstruction staging activities shall be limited to the same hours. Non-noise-generating construction activities such as interior painting shall not be subject to these restrictions. The City of Simi Valley building official or a designee shall spot check and respond to complaints.

[14] NoiseMeters Inc., *L_{dn}, L_{den}, CNEL – Community Noise Calculators*, https://www.noisemeters.com/apps/ldn-calculator/?srsltid=AfmBOorIqR44gvAYH91g4MwXY4ble1f29tcVs5HE0jhi105mT5SXgxpl, accessed October 23, 2025.

[15] Due to the varying hours of operations for parks within the City, CNEL was conservatively computed under the assumption that crowd noise would generate noise levels of 28 dBA L_{eq} for 24 hours in a day.

4.10-4 The applicant, as feasible, shall supply all construction equipment with improved noise muffling, and have the manufacturers' recommended noise-abatement measures, such as mufflers, engine covers, and engine vibration isolators in good working condition.

4.10-5 The applicant, as feasible, shall use hydraulic equipment instead of pneumatic impact tools and electric-powered equipment instead of diesel-powered equipment for all exterior construction work, unless the use of pneumatic impact tools and diesel powered equipment is specifically approved by the Deputy Director/City Planner. If use of these tools and equipment are allowed, the applicant shall specify the dates and times of use and shall notify the Deputy Director/City Planner when work involving this equipment is to take place.

4.10-6 The applicant shall turn off all equipment, such as construction equipment including heavy-duty equipment, motor vehicles, and portable equipment, if not in use.

4.10-7 The project applicant shall require by contract specifications that the following construction best management practices (BMPs) be implemented by the contractor to reduce construction noise levels:

- Two weeks prior to the commencement of construction, notification disclosing the construction schedule, including various types of activities that would be occurring throughout the duration of the construction period, must be provided to surrounding land uses (specifically the existing residential communities located along the western, southwestern and southeastern boundary of the proposed project) within 1,500 feet of the project site.
- Ensure that construction equipment is properly muffled according to industry standards and is in good working condition to reduce excess noise levels.
- Place noise-generating construction equipment and locate construction staging areas away from the sensitive uses (existing residential communities surrounding the proposed project) where feasible.
- As feasible, schedule high-noise-producing activities between the hours of 8:00 AM and 5:00 PM to minimize disruption to sensitive uses (existing residential communities surrounding the proposed project).
- Implement noise-attenuation measures to the extent feasible, which may include, but are not limited to, temporary noise barriers or noise blankets around stationary construction noise sources.
- Use electric air compressors and similar power tools rather than diesel equipment where feasible.
- Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances within the proposed project site to allow for surrounding residents and property owners to contact the job superintendent. If the City of Simi Valley or the job superintendent receives a complaint, the superintendent shall investigate, take appropriate corrective action, and report the action taken to the reporting party. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City of Simi Valley prior to the issuance of a grading permit.

4.10-8 The project applicant shall require by contract specifications that staging areas along with the operation of earthmoving and grading equipment within the proposed project areas be

located as far away from vibration- and noise-sensitive sites (residential communities located along the western, southwestern, and southeastern boundary of the proposed project site) as possible and where feasible.

4.10-9 The project applicant shall require by contract specifications that heavily loaded trucks used during construction be routed away from existing residential streets to the extent feasible by primarily and restricted to using Tapo Canyon Road and Lost Canyons Drive to access development areas within the proposed project site.

NOI-2 WOULD THE PROJECT RESULT IN EXPOSURE OF PERSONS TO OR GENERATION OF EXCESSIVE GROUNDBORNE VIBRATION OR GROUNDBORNE NOISE LEVELS?

Level of Significance: Less Than Significant Impact with Mitigation Incorporated.

As detailed in the 2010 EIR, approved project construction activities would primarily include grading the ground surface and building proposed uses in accordance with the approved project. These activities typically involve the temporary use of heavy equipment, such as tractors, loaders, concrete mixers, and cranes. Construction activities would occasionally and intermittently expose the existing residential uses along the western, southwestern, and southeastern boundaries of the approved project site to elevated vibration levels. However, demolition, grading, and construction activities would be limited to the hours of 7:00 AM to 7:00 PM. Additionally, any demolition, grading, and construction activities would be short-term and intermittent. As such, the 2010 EIR determined that with implementation of 2010 EIR Mitigation Measure 4.10-2, which would require the construction contractors to adjust vibration amplitudes of the construction equipment on-site such as by limiting the number of pieces concurrently operating in one location in areas where conditions would affect structures, sensitivity of vibration equipment, and/or human tolerance, vibration impacts would be reduced to less than significant levels.

Short-Term Construction Vibration Impacts

Project construction can generate varying degrees of groundborne vibration, depending on the construction procedure and the construction equipment used. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Groundborne vibrations from construction activities rarely reach levels that damage structures.

The Caltrans *Transportation and Construction Vibration Manual* identifies various vibration damage criteria for different building classes. This evaluation uses the Caltrans architectural damage criterion for vibrations from continuous/frequent intermittent sources at new residential and commercial structure buildings of 0.5 inch-per-second (inch/second) PPV; refer to Table 1.

The highest degree of groundborne vibration would be generated due to the operation of vibratory rollers during the paving phase. As previously mentioned, the nearest sensitive receptors are the residential areas, known as the Glenmeadow neighborhood, located at the western edge of the Lost Canyons Project site at approximately 150 feet from the closest project boundary. Vibration from construction equipment is calculated at 150 feet to evaluate the architectural building damage criterion. Typical vibration

produced by construction equipment is illustrated in Table 9, *Typical Vibration Levels for Construction Equipment*.

Table 9
Typical Vibration Levels for Construction Equipment

Equipment	Reference peak particle velocity at 25 feet (inch/second)	Approximate peak particle velocity at 150 feet (inch/ second)[1]
Large bulldozer	0.089	0.0061
Loaded trucks	0.076	0.0052
Small bulldozer	0.003	0.0002
Vibratory Rollers	0.210	0.0143

Notes:
1. Calculated using the following formula:
$PPV_{equip} = PPV_{ref} \times (25/D)^{1.1}$
where: PPV_{equip} = the peak particle velocity in in/sec of the equipment adjusted for the distance
PPV_{ref} = the reference vibration level in in/sec from Table 7-4 of the FTA *Transit Noise and Vibration Impact Assessment Guidelines*
D = the distance from the equipment to the receiver

Source: California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, April 2020.

As indicated in Table 9, the reference vibration velocities from typical heavy construction equipment operation would range from 0.003 to 0.210 inch/second PPV at 25 feet (reference) from the source of activity. At 150 feet, vibration velocities from typical heavy construction equipment, including vibratory rollers, would range from 0.002 to 0.0143 inch/second PPV which would not exceed Caltrans architectural damage criterion of 0.5 inch/second PPV; refer to Table 9. As a result, construction groundborne vibration would not be capable of exceeding the 0.5 inch/second PPV significance threshold for vibration to the nearest structures and a less than significant impact would occur in this regard. It should be noted that this analysis utilizes the distance between the nearest sensitive receptors and the Lost Canyons Project site, which is a shorter distance than measuring from the nearest sensitive receptors to the proposed project site. As such, this analysis is conservative, and vibration impacts of the proposed project is less than what was discussed above.

Additionally, it should be acknowledged that demolition, grading, and construction activities would be limited to operation during the hours of 7:00 AM to 7:00 PM seven days a week unless the City Engineer determines that limiting construction to these hours would create a health or safety issue or a substantial loss or inconvenience as described in the SVMC. Additionally, any demolition, grading, and construction activities would be short-term and intermittent and would be required to abide by the SVMC Noise Regulations as further described above.

Long-Term Operational Vibration Impacts

The project would involve the transfer of 180 residential units and residential uses do not involve any operational activities that would generate groundborne vibration. The project operation would not involve railroad operation and therefore would not result in vibration impacts at surrounding uses. Thus, no impacts would occur in this regard.

Conclusion

In conclusion, both construction and operational vibration impacts resulting from the Lost Canyons Project and the proposed project would be less than significant, and the project would not generate new or

substantially greater noise impacts when compared to the approved project noise impacts evaluated in the 2010 EIR. Additionally, the project would be required to comply with 2010 EIR Mitigation Measure 4.10-2, which would require the construction contractors to adjust vibration amplitudes of the construction equipment on-site, such as by limiting the number of pieces concurrently operating in one location in areas where conditions would affect structures, sensitivity of vibration equipment, and/or human tolerance, vibration impacts. The project would not result in new significant impacts and no substantial increase in the severity of previously identified impacts disclosed in the 2010 EIR would occur. Likewise, there are no changed circumstances involving new or more severe impacts and no new information of substantial importance requiring new analysis or project-specific mitigation measures.

Mitigation Measures:

The following 2010 EIR Mitigation Measure is applicable to the project:

4.10-2 The construction contractors during grading and earthmoving activities shall adjust vibration amplitudes of the construction equipment on site, such as by limiting the number of pieces concurrently operating in one location in areas where conditions would affect structures, sensitivity of vibration equipment, and/or human tolerance.

NOI-3 FOR A PROJECT LOCATED WITHIN THE VICINITY OF A PRIVATE AIRSTRIP OR AN AIRPORT LAND USE PLAN OR, WHERE SUCH A PLAN HAS NOT BEEN ADOPTED, WITHIN TWO MILES OF A PUBLIC AIRPORT OR PUBLIC USE AIRPORT, WOULD THE PROJECT EXPOSE PEOPLE RESIDING OR WORKING IN THE PROJECT AREA TO EXCESSIVE NOISE LEVELS?

Level of Significance: No Impact.

According to the 2010 EIR, the approved project site is not located within the boundaries of any airport land use compatibility plans or within 2 miles of an airport or airstrip. Therefore, there would be no impact.

The project site is not located within the boundaries of any airport land use compatibility plans or within 2 miles of an airport or airstrip. The closest airport is the Van Nuys Municipal Airport located approximately 15 miles to the southeast of the project site. Additionally, the project site is not located within the vicinity of a private airstrip or related facilities. There would be no impact.

Conclusion

In conclusion, no noise impacts in regards to airport noise would occur. The project would not result in new significant impacts and no substantial increase in the severity of previously identified impacts disclosed in the 2010 EIR would occur. Likewise, there are no changed circumstances involving new or more severe impacts and no new information of substantial importance requiring new analysis or project-specific mitigation measures.

Mitigation Measures: No new impacts related to Impact NOI-3 would occur compared to what was evaluated in the 2010 EIR. Therefore, no mitigation measures are required. No 2010 EIR mitigation measures apply to the proposed project.

REFERENCES

Documents

1. California Department of Transportation*, Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.

2. California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, April 2020.

3. California Department of Transportation, *Transportation Related Earthborne Vibrations,* 2002.

1. City of Simi Vally, *City of Simi Valley General Plan, Land Use Map*, 2023, https://www.simivalley.org/home/showpublisheddocument/24714/638289835458270000, accessed September 1, 2024.

2. City of Simi Valley, *Zoning Simi Valley*, https://www.arcgis.com/apps/mapviewer/index.html?webmap=b20ec935fa594a90a6e7128fd4f96268&extent=-118.859,34.2101,-118.6054,34.3319, accessed September 1, 2024.

4. Elliot H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, July 26, 2015.

5. Michael Baker International, *Lost Canyons 180 Lots Transfer Project – Air Quality Assessment*, November 5, 2025.

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9. Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

10. U.S. Environmental Protection Agency, *Clean Air Act Title IV – Noise Pollution*, https://www.epa.gov/clean-air-act-overview/clean-air-act-title-iv-noise-pollution, accessed April 29, 2024.

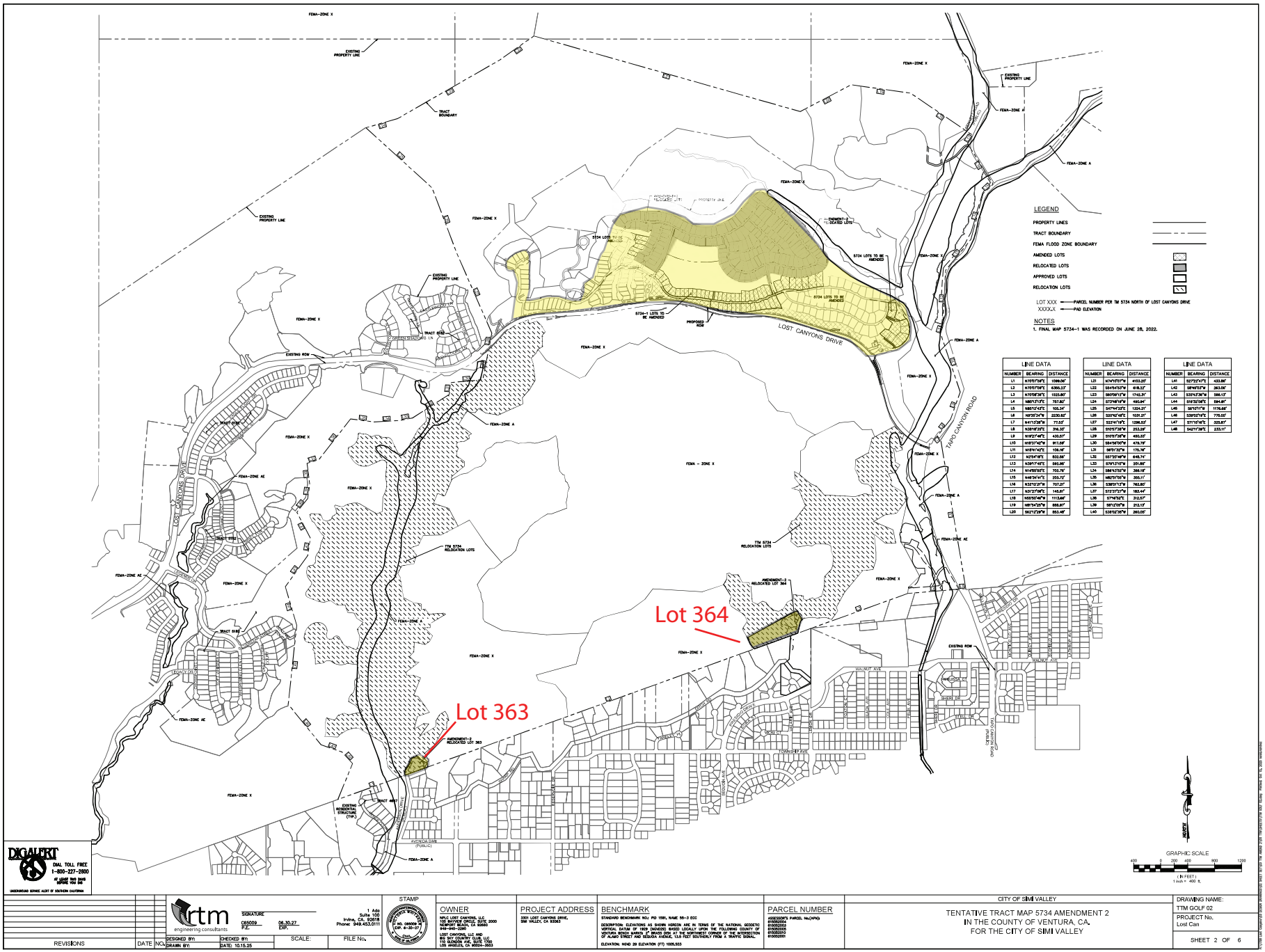
11. U.S. Environmental Protection Agency, *Summary of the Noise Control Act: 42 USC Section 4901 et seq.,* 1972, https://www.epa.gov/laws-regulations/summary-noise-control-act, accessed April 29, 2024.

Websites / Programs

1. Google Earth, 2024.

2. Federal Highway Administration, *Roadway Construction Noise Model (RCNM)*, 2006.

Appendix A
Concept Illustrative Exhibit
Lots 363 & 364



LINE DATA		
NUMBER	BEARING	DISTANCE
L1	N79°57'57"E	1096.06'
L2	N75°07'08"E	6305.33'
L3	N75°08'36"E	1525.80'
L4	N80°17'17"E	707.82'
L5	N85°12'43"E	105.34'
L6	N9°35'24"W	2230.82'
L7	N41°13'28"W	77.53'
L8	N38°18'39"E	316.70'
L9	N19°27'48"E	435.01'
L10	N19°37'42"W	917.99'
L11	N19°41'42"E	138.16'
L12	N75°41'8"E	833.56'
L13	N39°17'48"E	883.96'
L14	N14°55'52"E	702.70'
L15	N48°34'41"E	253.72'
L16	N32°12'27"W	707.21'
L17	N31°27'06"E	145.97'
L18	N69°07'46"W	1113.66'
L19	N89°54'25"W	888.97'
L20	S82°12'29"W	853.46'

LINE DATA		
NUMBER	BEARING	DISTANCE
L21	N74°07'07"W	6133.25'
L22	S84°04'03"W	418.33'
L23	S80°09'13"W	1742.31'
L24	S73°49'18"W	480.94'
L25	S47°44'33"E	1224.21'
L26	S20°52'48"E	1031.21'
L27	S33°41'19"E	1296.55'
L28	S15°57'38"W	253.29'
L29	S19°57'38"W	480.33'
L30	S84°58'00"W	476.76'
L31	N6°51'32"W	175.76'
L32	S57°35'48"W	648.74'
L33	S76°17'19"W	201.85'
L34	S86°43'32"W	366.18'
L35	N45°57'56"W	355.11'
L36	S38°01'13"W	763.80'
L37	S72°37'37"W	183.44'
L38	S7°49'52"E	312.57'
L39	S9°10'05"W	212.15'
L40	S38°02'36"W	260.05'

LINE DATA		
NUMBER	BEARING	DISTANCE
L41	S37°52'47"E	453.86'
L42	S8°46'57"W	263.06'
L43	S33°43'36"W	566.13'
L44	S15°30'08"E	594.87'
L45	S6°15'11"W	1176.65'
L46	S35°01'47"E	775.00'
L47	S71°16'45"E	225.87'
L48	S42°17'39"E	233.11'

DIGALERT
DIAL TOLL FREE
1-800-227-2600
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

rtm engineering consultants
1 Ada
Suite 100
Irvine, CA. 92618
Phone: (949) 453.0111

SIGNATURE
C65009 P.E.
06.30.27 EXP.

STAMP

OWNER
WILD LOST CANYONS, LLC
100 BAYVIEW CIRCLE, SUITE 2000
NEWPORT BEACH, CA 92660
949-719-2200
LOST CANYONS, LLC AND
SAP VENTURES CLINE, LLC
115 ELDRIDGE AVE, SUITE 1700
LOS ANGELES, CA 90004-3503

PROJECT ADDRESS
3301 LOST CANYONS DRIVE,
SIMI VALLEY, CA 93063

BENCHMARK
STANDARD BENCHMARK NO.: PID 1585, NAME 55-3 EOC
DESCRIPTION: ELEVATIONS AS SHOWN HEREON ARE IN TERMS OF THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29) WHICH APPLY UPON THE FOLLOWING COUNTY OF VENTURA BENCH MARKS (2 BRASS DISC AT NE QUADRANT CONCRETE INTERSECTION OF ALAMO STREET AND MCLEAN AVENUE, 13.5 FEET SOUTHERLY FROM A TRAFFIC SIGNAL.
ELEVATION: NGVD 29 ELEVATION (FT) 1005.533

PARCEL NUMBER
ASSESSOR'S PARCEL No.(APN):
619060204
619060304
619060305
619060306
619060307

CITY OF SIMI VALLEY
TENTATIVE TRACT MAP 5734 AMENDMENT 2
IN THE COUNTY OF VENTURA, CA.
FOR THE CITY OF SIMI VALLEY

DRAWING NAME:
TTM GOLF 02
PROJECT No.
Lost Can
SHEET 2 OF 6

REVISIONS	DATE	NO.	DESIGNED BY:	CHECKED BY:	SCALE:	FILE No.
			DRAWN BY:	DATE: 10.15.25		

Michael Baker INTERNATIONAL

Not to Scale

Concept Illustrative

November 2025

H:\PDATA\200855_Lost Canyon Traffic\Traffic AWR 180 Lots\9_ Exhibits

Appendix B
Noise Data

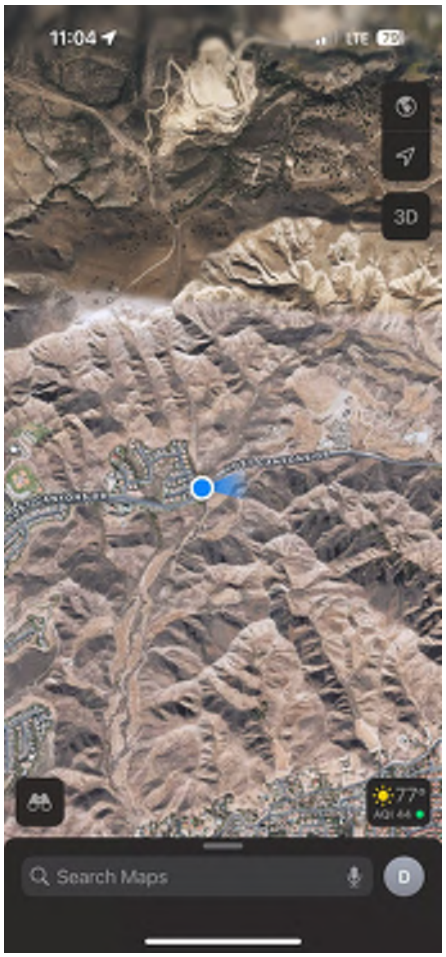
Site Number: NM-1	
Recorded By: Winnie Woo, Dennis Dinh	
Job Number: 200855	
Date: 10/10/2024	
Time: 11:02 A.M.	
Location: Outside of 4224 N Copperstone Lane along Lost Canyons Drive	
Source of Ambient Noise: Traffic along Lost Canyons Drive	

Noise Data		
L_{eq} (dB)	**L_{max}(dB)**	**L_{min} (dB)**
60.6	77.1	33.9

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Brüel & Kjær**	**2250**	**3011133**	**06/04/2023**	
	Microphone	**Brüel & Kjær**	**4189**	**3086765**	**06/04/2023**	
	Preamp	**Brüel & Kjær**	**ZC 0032**	**25380**	**06/04/2023**	
	Calibrator	**Brüel & Kjær**	**4231**	**2545667**	**06/04/2023**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Sunny
	Note: dBA Offset = 0.04		**Sensor Height (ft):** 5 ft
	Wind Ave Speed (mph / m/s)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (inches)**
	4 mph	77	29.99

Photo of Measurement Location





2250

Instrument:		2250
Application:		BZ7225 Version 4.7.6
Start Time:		10/10/2024 11:02:26
End Time:		10/10/2024 11:12:26
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		142.22

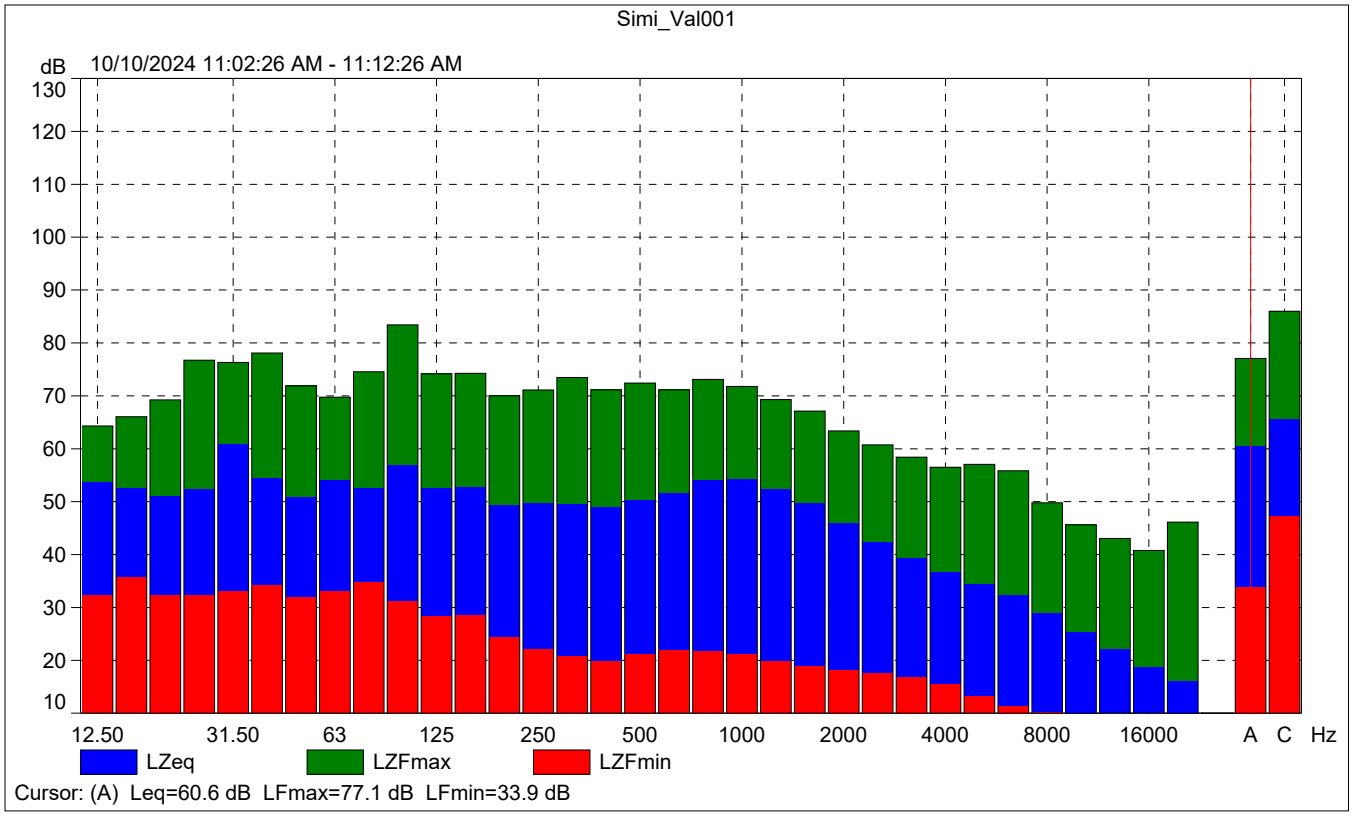
	Time	Frequency
Broadband (excl. Peak):	FSI	AC
Broadband Peak:		C
Spectrum:	FS	Z

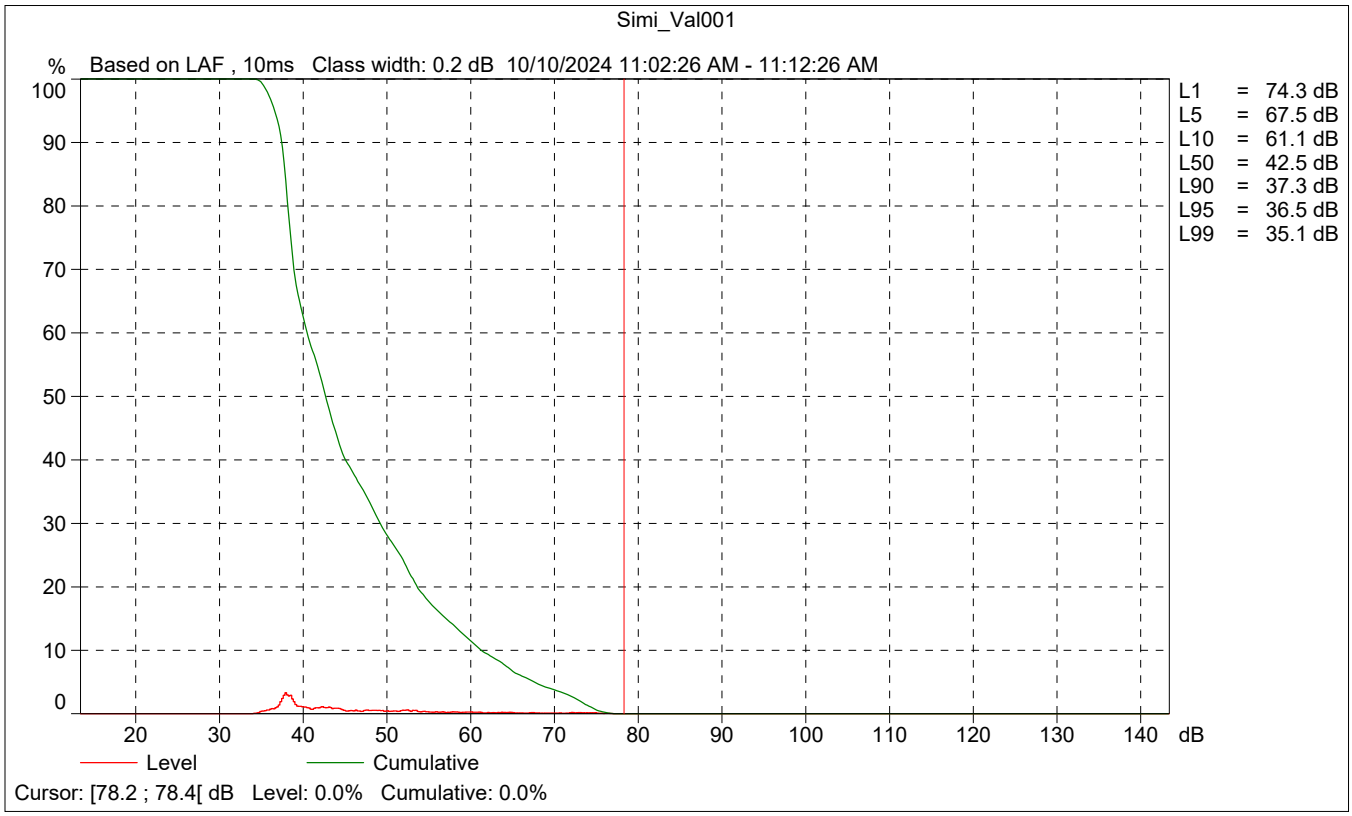
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		UA-1650
Sound Field Correction:		Free-field

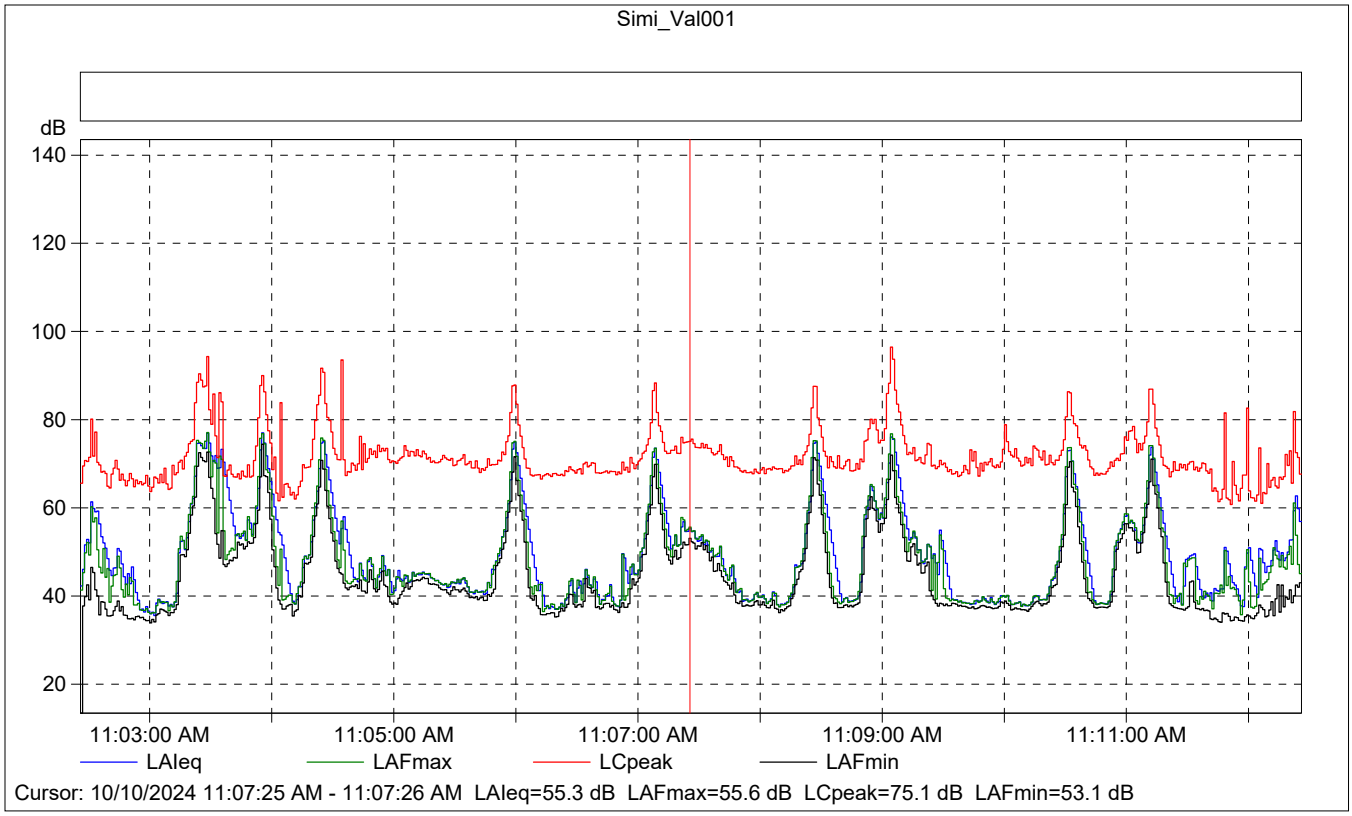
Calibration Time:		10/10/2024 10:59:35
Calibration Type:		External reference
Sensitivity:		43.1265793740749 mV/Pa

Simi_Val001

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	60.6	77.1	33.9
Time	11:02:26 AM	11:12:26 AM	0:10:00				
Date	10/10/2024	10/10/2024					

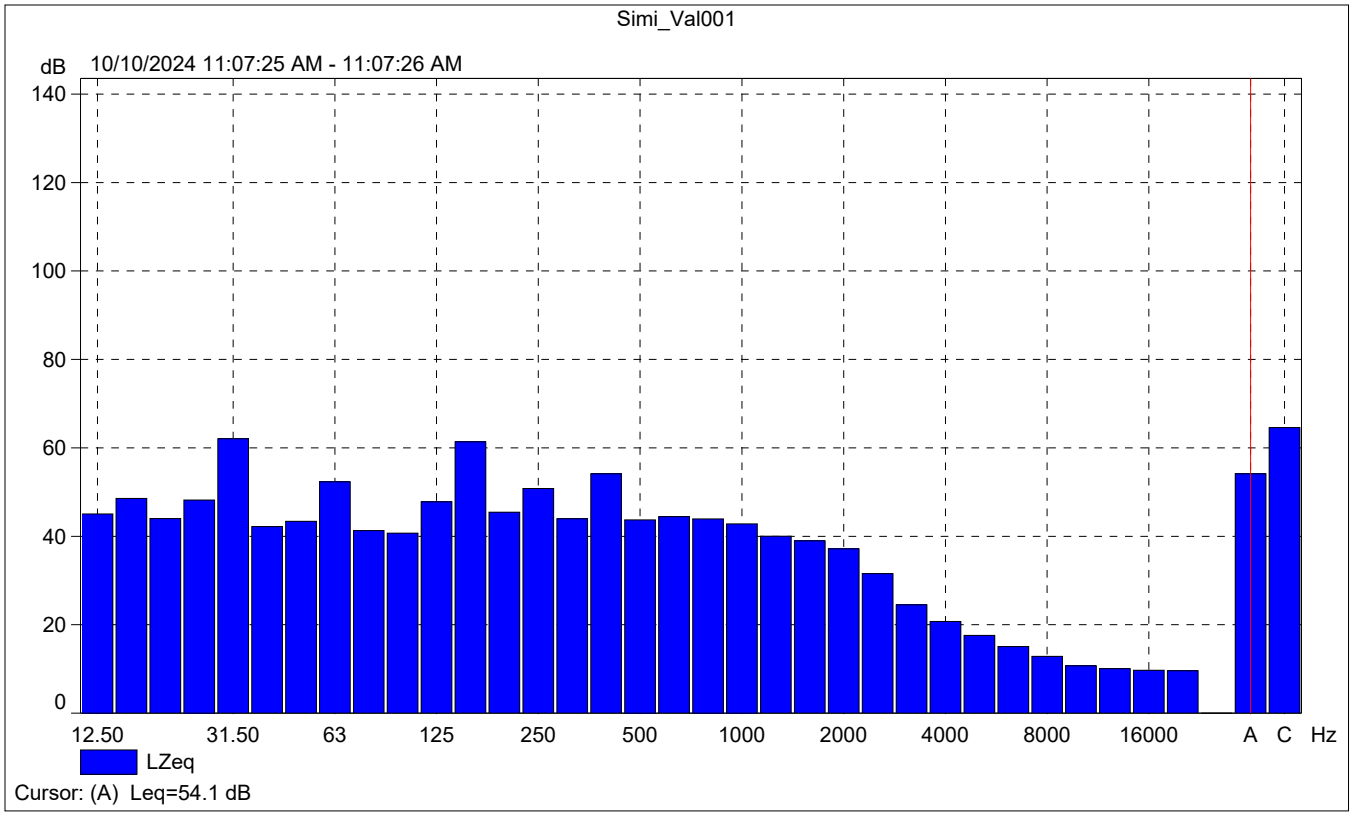

Simi_Val001
dB
10/10/2024 11:02:26 AM - 11:12:26 AM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=60.6 dB LFmax=77.1 dB LFmin=33.9 dB

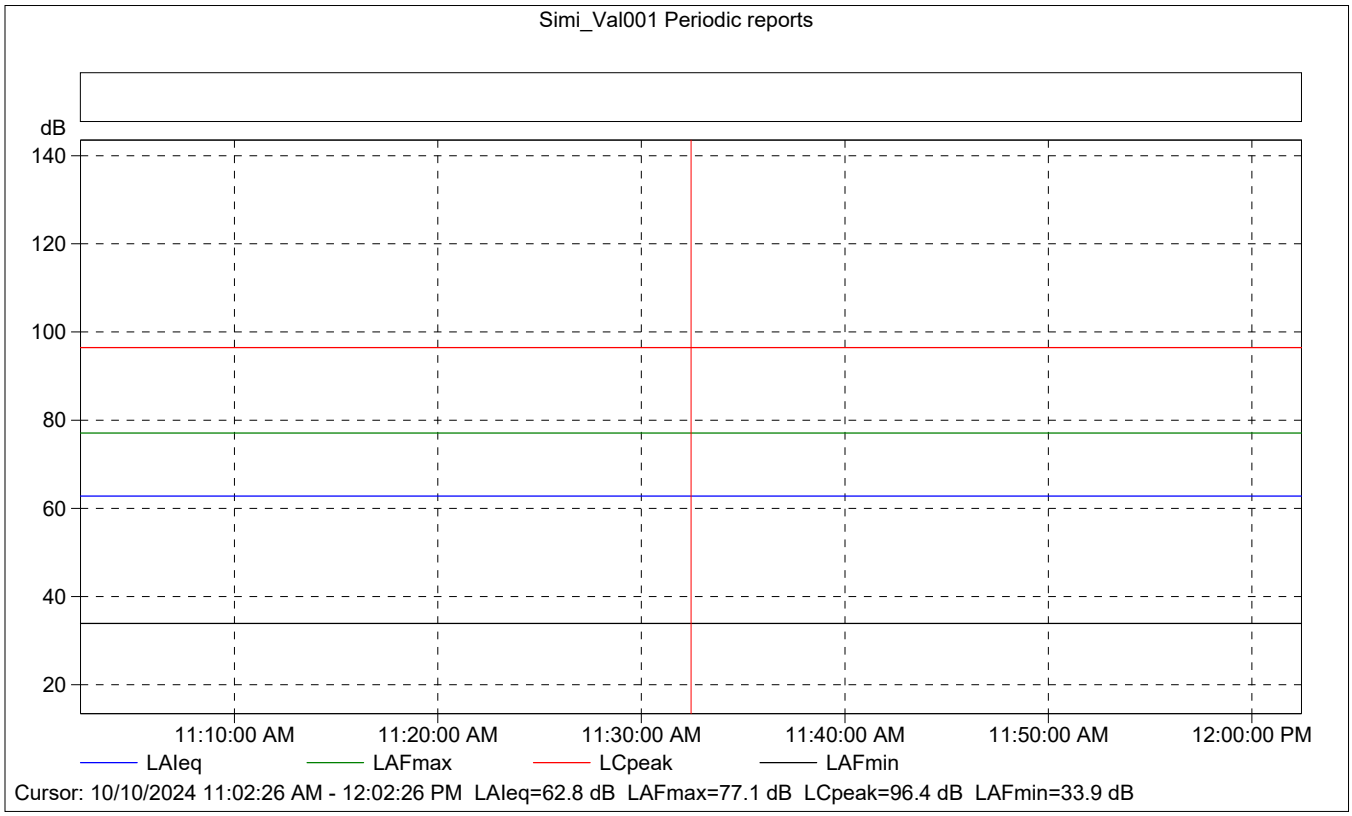

Simi_Val001
%
Based on LAF , 10ms Class width: 0.2 dB 10/10/2024 11:02:26 AM - 11:12:26 AM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 74.3 dB
L5 = 67.5 dB
L10 = 61.1 dB
L50 = 42.5 dB
L90 = 37.3 dB
L95 = 36.5 dB
L99 = 35.1 dB
Level
Cumulative
Cursor: [78.2 ; 78.4[dB Level: 0.0% Cumulative: 0.0%



Simi_Val001

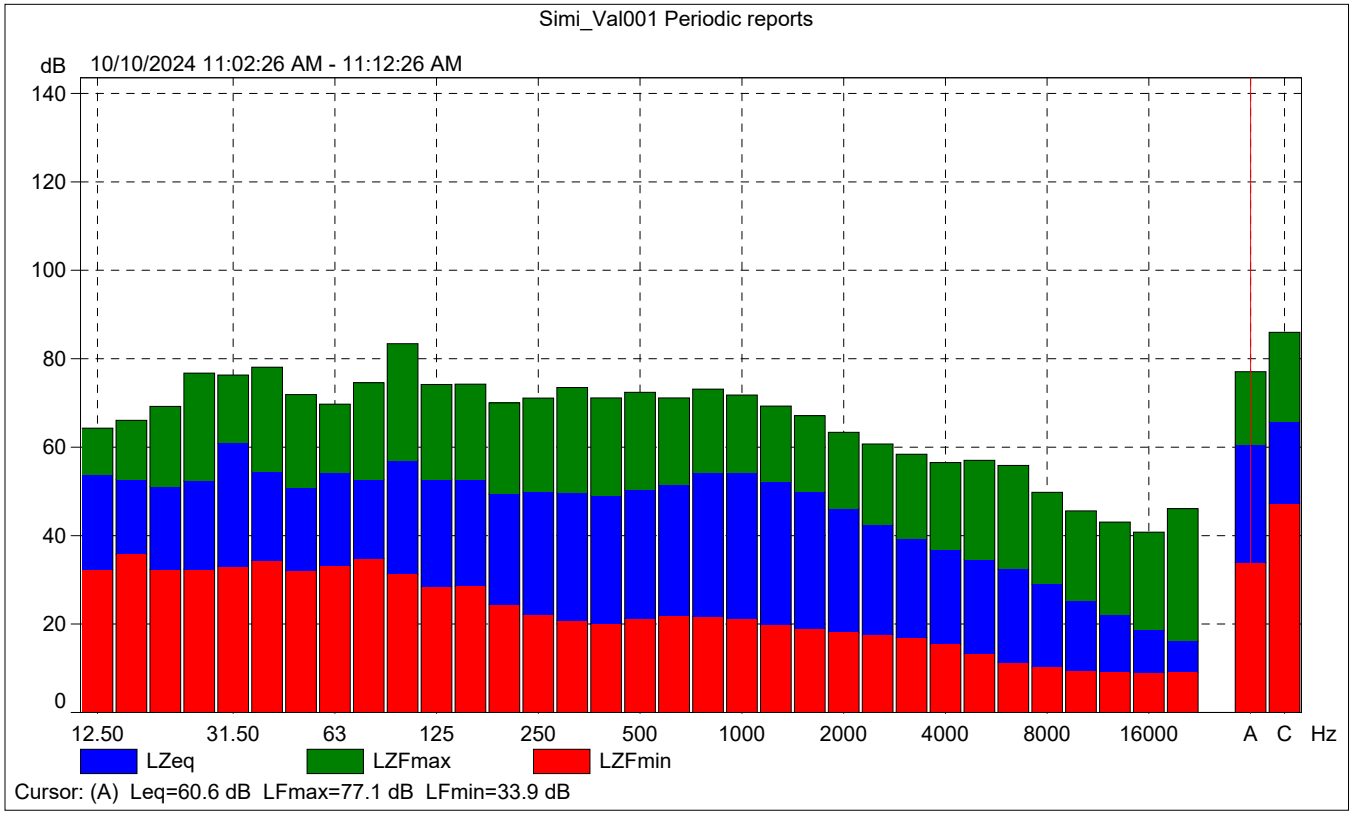
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Date	10/10/2024					

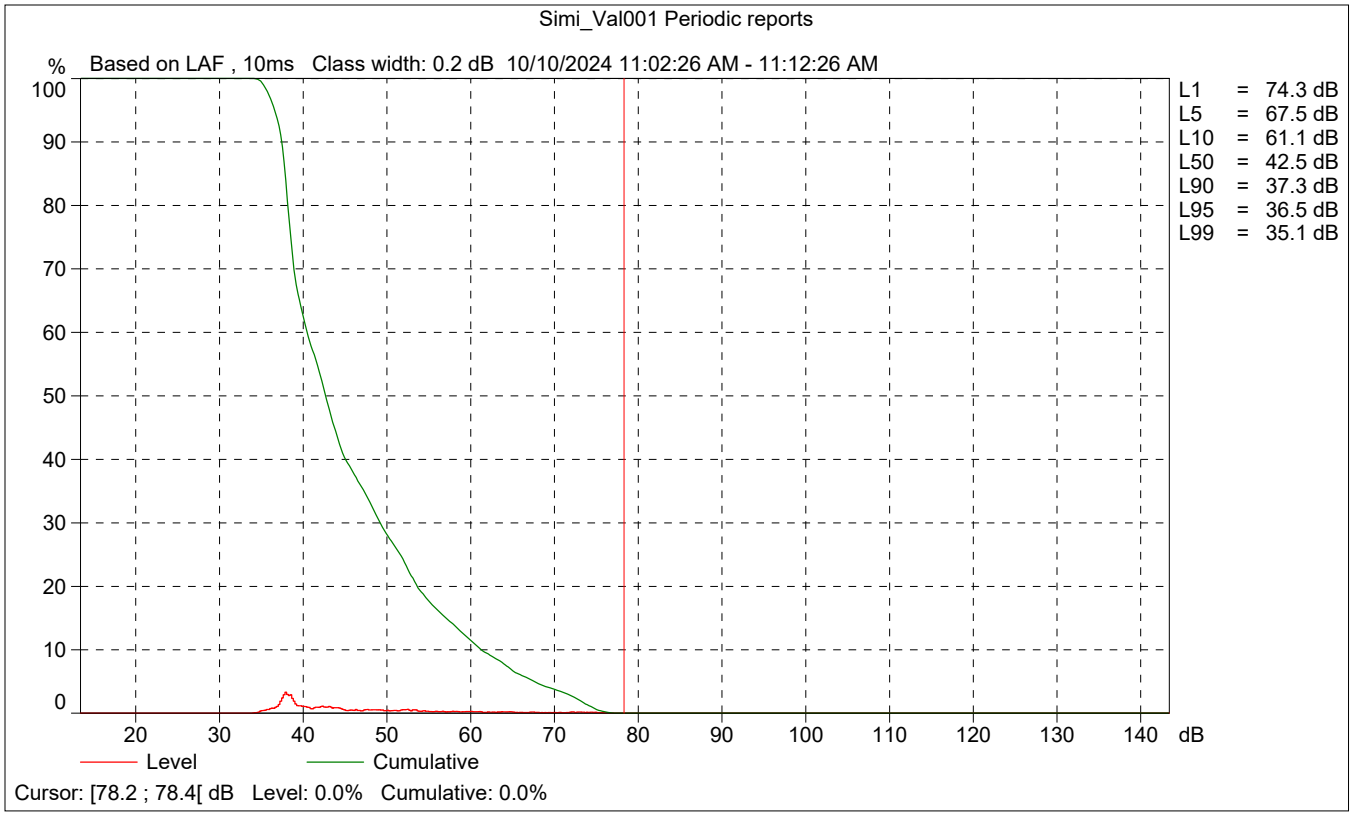

Simi_Val001
dB
10/10/2024 11:07:25 AM - 11:07:26 AM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
Cursor: (A) Leq=54.1 dB


Simi_Val001 Periodic reports
dB
140
120
100
80
60
40
20
11:10:00 AM
11:20:00 AM
11:30:00 AM
11:40:00 AM
11:50:00 AM
12:00:00 PM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 10/10/2024 11:02:26 AM - 12:02:26 PM LAIeq=62.8 dB LAFmax=77.1 dB LCpeak=96.4 dB LAFmin=33.9 dB

Simi_Val001 Periodic reports

	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	62.8	77.1	33.9
Time	11:02:26 AM	0:10:00				
Date	10/10/2024					



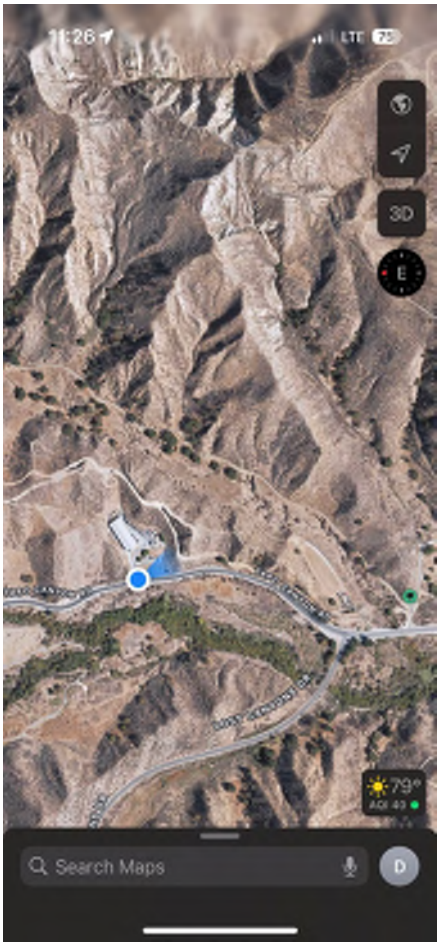

Simi_Val001 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 10/10/2024 11:02:26 AM - 11:12:26 AM
100
90
80
70
60
50
40
30
20
10
0
20 30 40 50 60 70 80 90 100 110 120 130 140 dB
L1 = 74.3 dB
L5 = 67.5 dB
L10 = 61.1 dB
L50 = 42.5 dB
L90 = 37.3 dB
L95 = 36.5 dB
L99 = 35.1 dB
Level
Cumulative
Cursor: [78.2 ; 78.4[dB Level: 0.0% Cumulative: 0.0%

Site Number: NM-2		
Recorded By: Winnie Woo, Dennis Dinh		
Job Number: 200855		
Date: 10/10/2024		
Time: 11:23 A.M.		
Location: Across from 4110 Tapo Canyon Road		
Source of Ambient Noise: Traffic along Tapo Canyon Road		
Noise Data		
L_{eq} (dB)	**L_{max}(dB)**	**L_{min} (dB)**
66.3	88.0	41.1

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Brüel & Kjær**	**2250**	**3011133**	**06/04/2023**	
	Microphone	**Brüel & Kjær**	**4189**	**3086765**	**06/04/2023**	
	Preamp	**Brüel & Kjær**	**ZC 0032**	**25380**	**06/04/2023**	
	Calibrator	**Brüel & Kjær**	**4231**	**2545667**	**06/04/2023**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Sunny
	Note: dBA Offset = 0.04		**Sensor Height (ft):** 5 ft
	Wind Ave Speed (mph / m/s)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (inches)**
	4 mph	79	29.99

Photo of Measurement Location





2250

Instrument:		2250
Application:		BZ7225 Version 4.7.6
Start Time:		10/10/2024 11:23:57
End Time:		10/10/2024 11:33:57
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		142.22

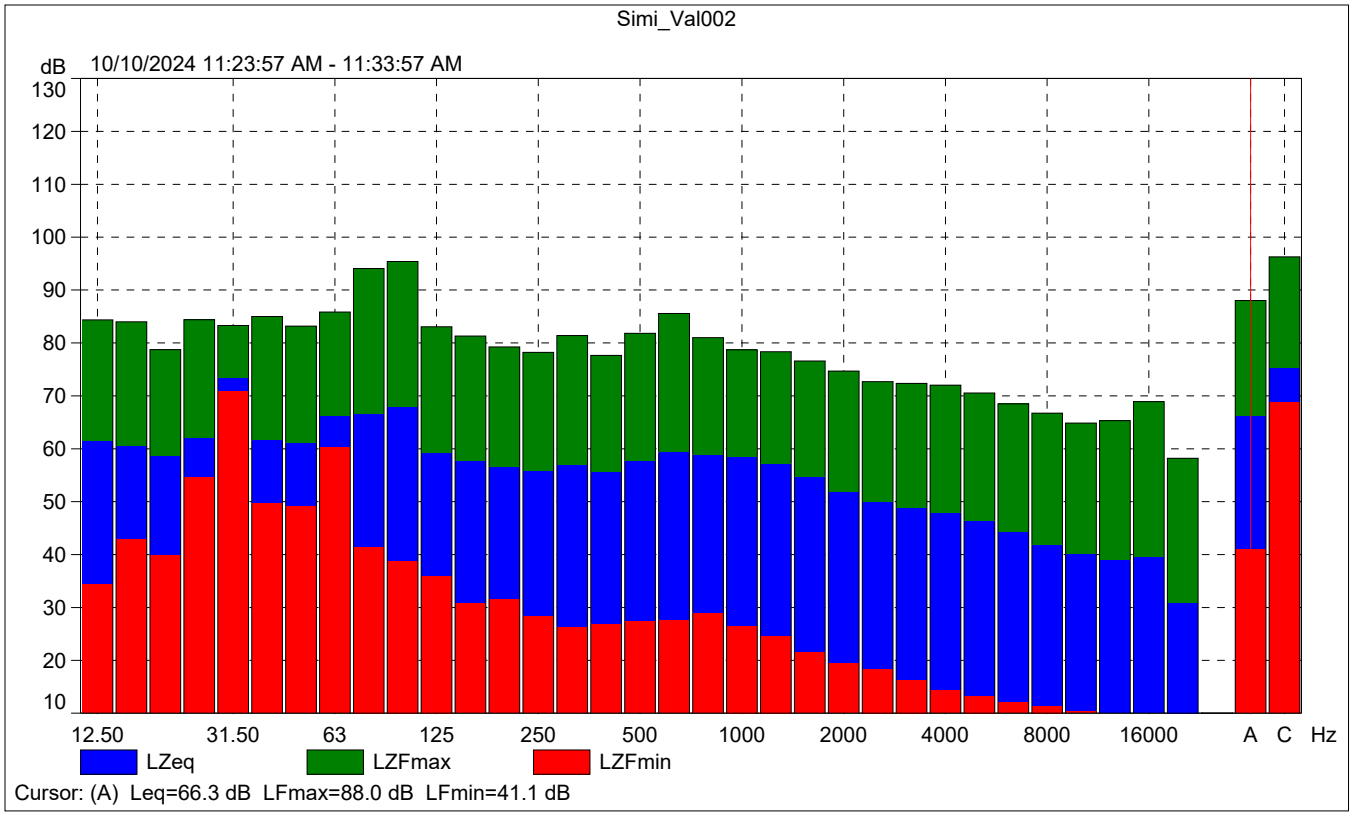
	Time	Frequency
Broadband (excl. Peak):	FSI	AC
Broadband Peak:		C
Spectrum:	FS	Z

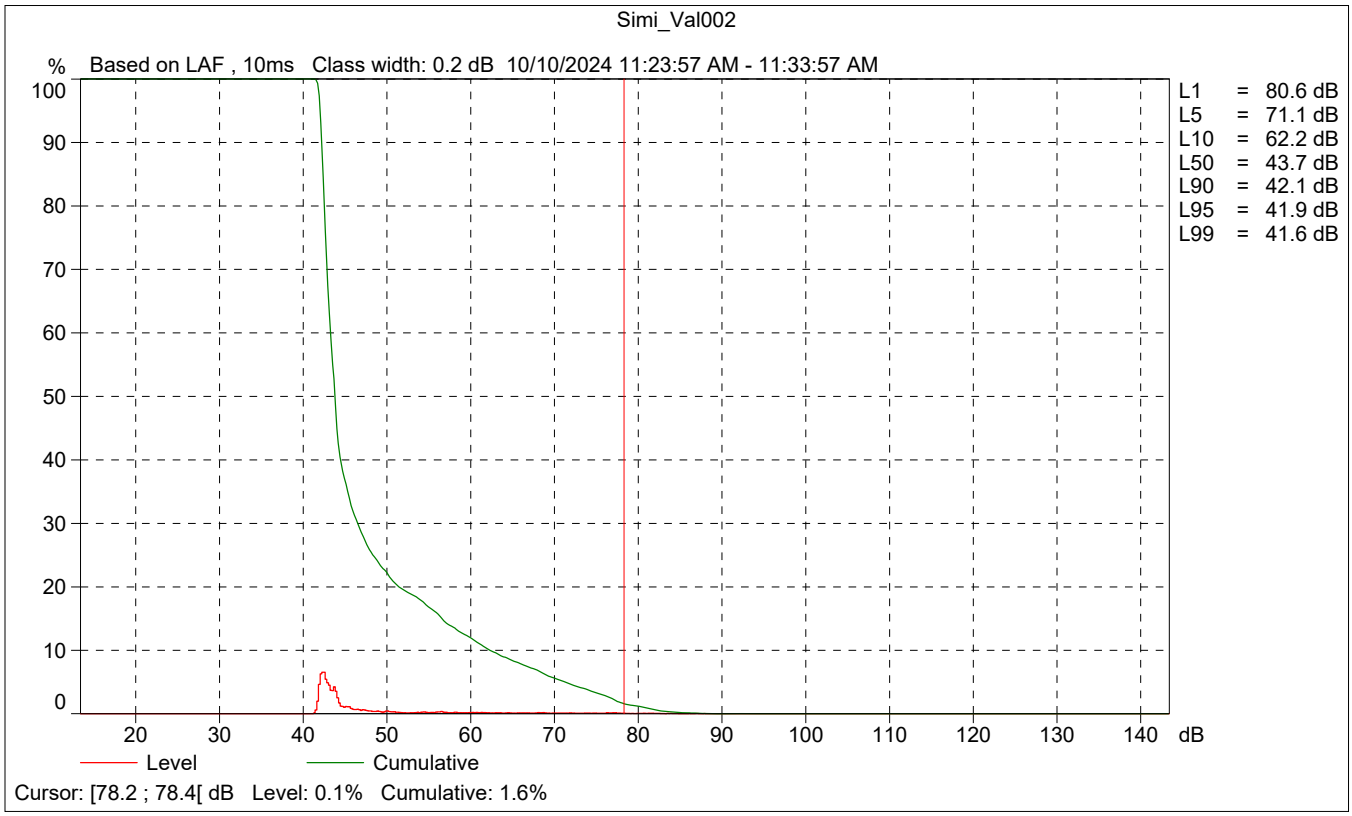
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		UA-1650
Sound Field Correction:		Free-field

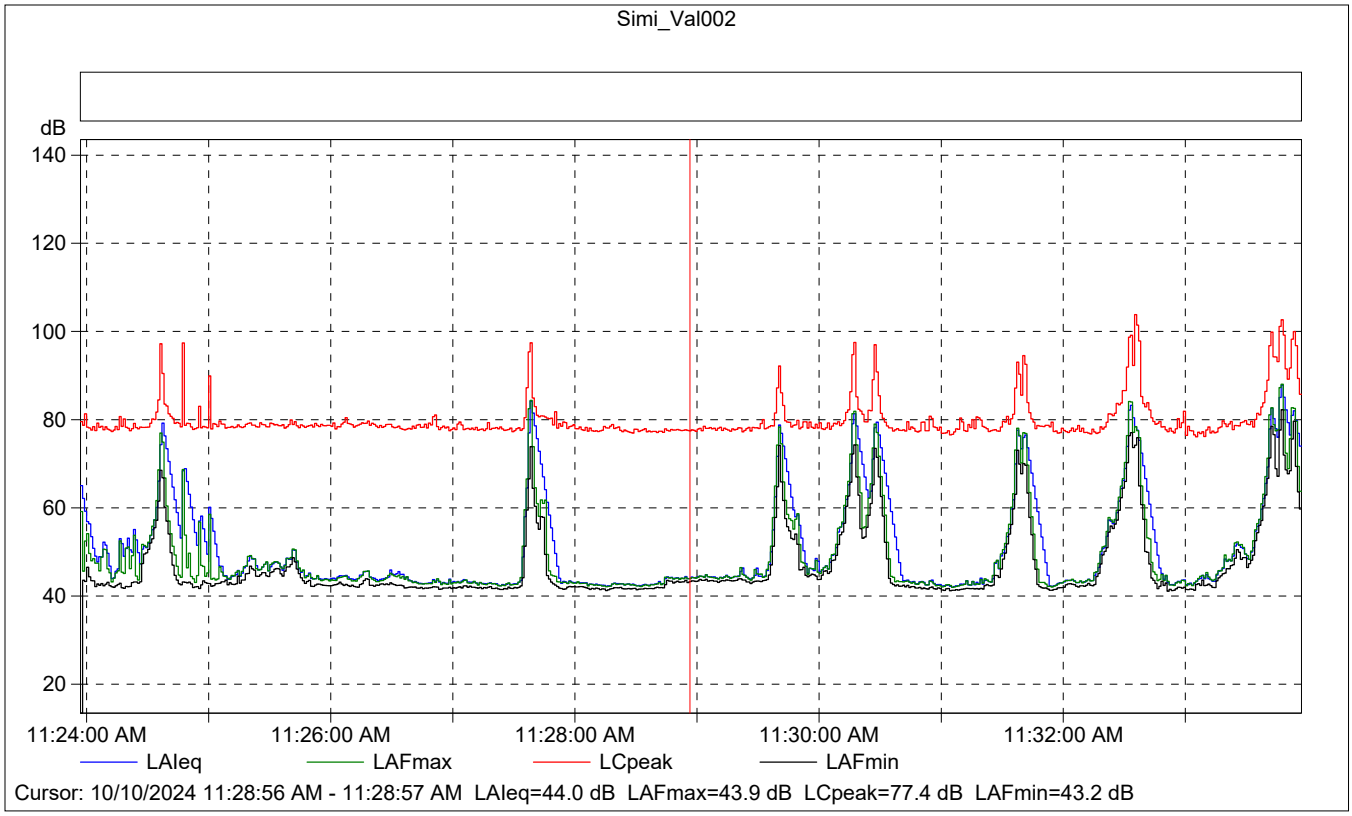
Calibration Time:		10/10/2024 10:59:35
Calibration Type:		External reference
Sensitivity:		43.1265793740749 mV/Pa

Simi_Val002

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	66.3	88.0	41.1
Time	11:23:57 AM	11:33:57 AM	0:10:00				
Date	10/10/2024	10/10/2024					

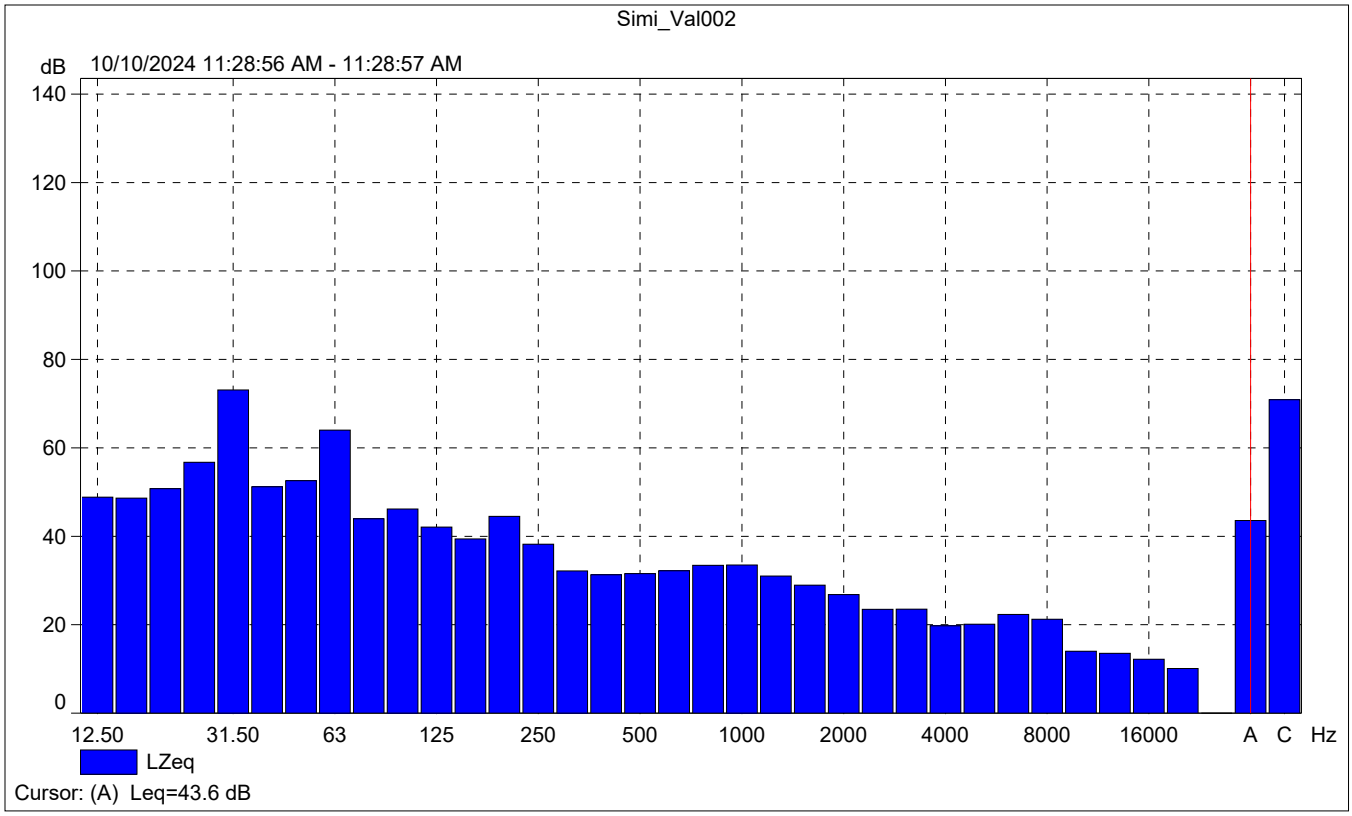

Simi_Val002
dB
10/10/2024 11:23:57 AM - 11:33:57 AM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=66.3 dB LFmax=88.0 dB LFmin=41.1 dB

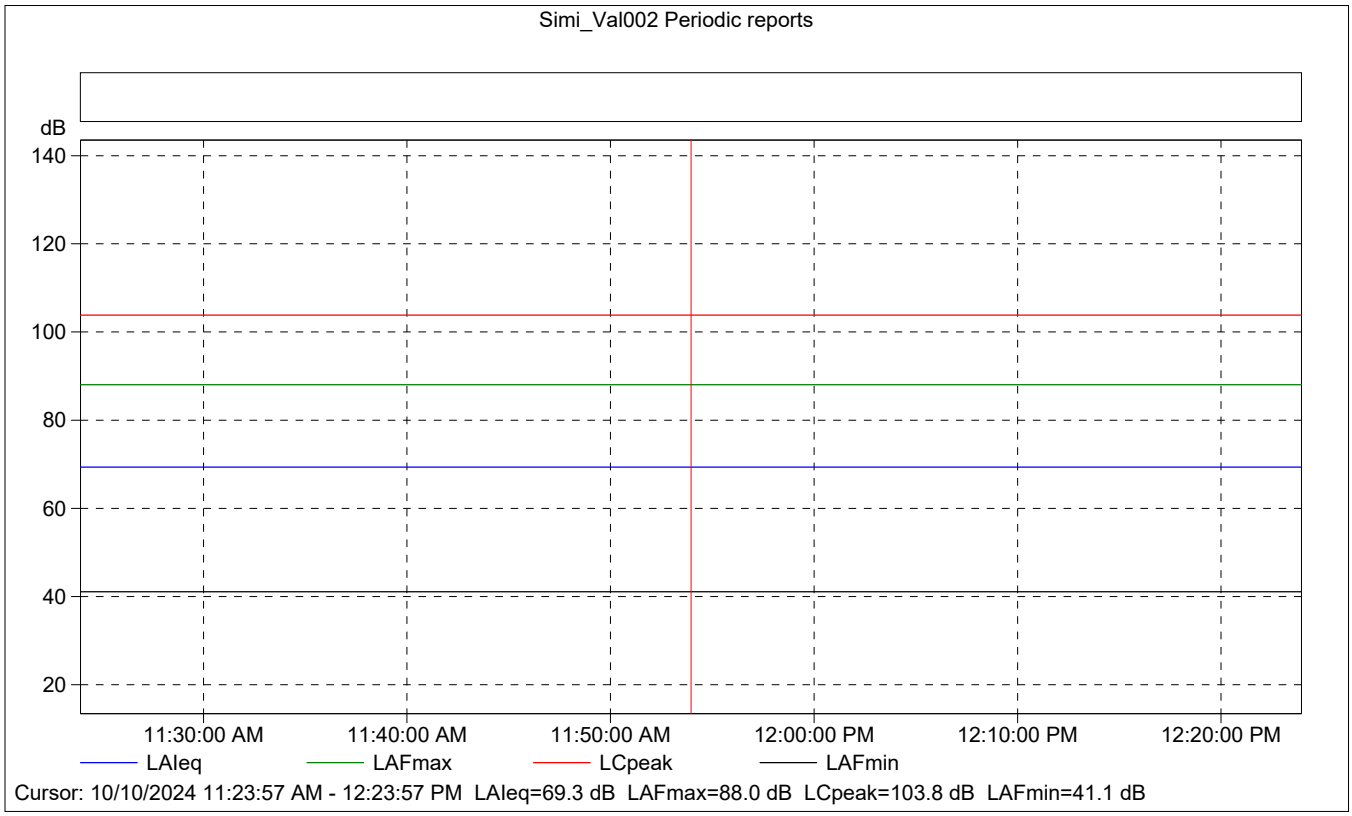

Simi_Val002
%
Based on LAF , 10ms Class width: 0.2 dB 10/10/2024 11:23:57 AM - 11:33:57 AM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 80.6 dB
L5 = 71.1 dB
L10 = 62.2 dB
L50 = 43.7 dB
L90 = 42.1 dB
L95 = 41.9 dB
L99 = 41.6 dB
Level
Cumulative
Cursor: [78.2 ; 78.4[dB Level: 0.1% Cumulative: 1.6%



Simi_Val002

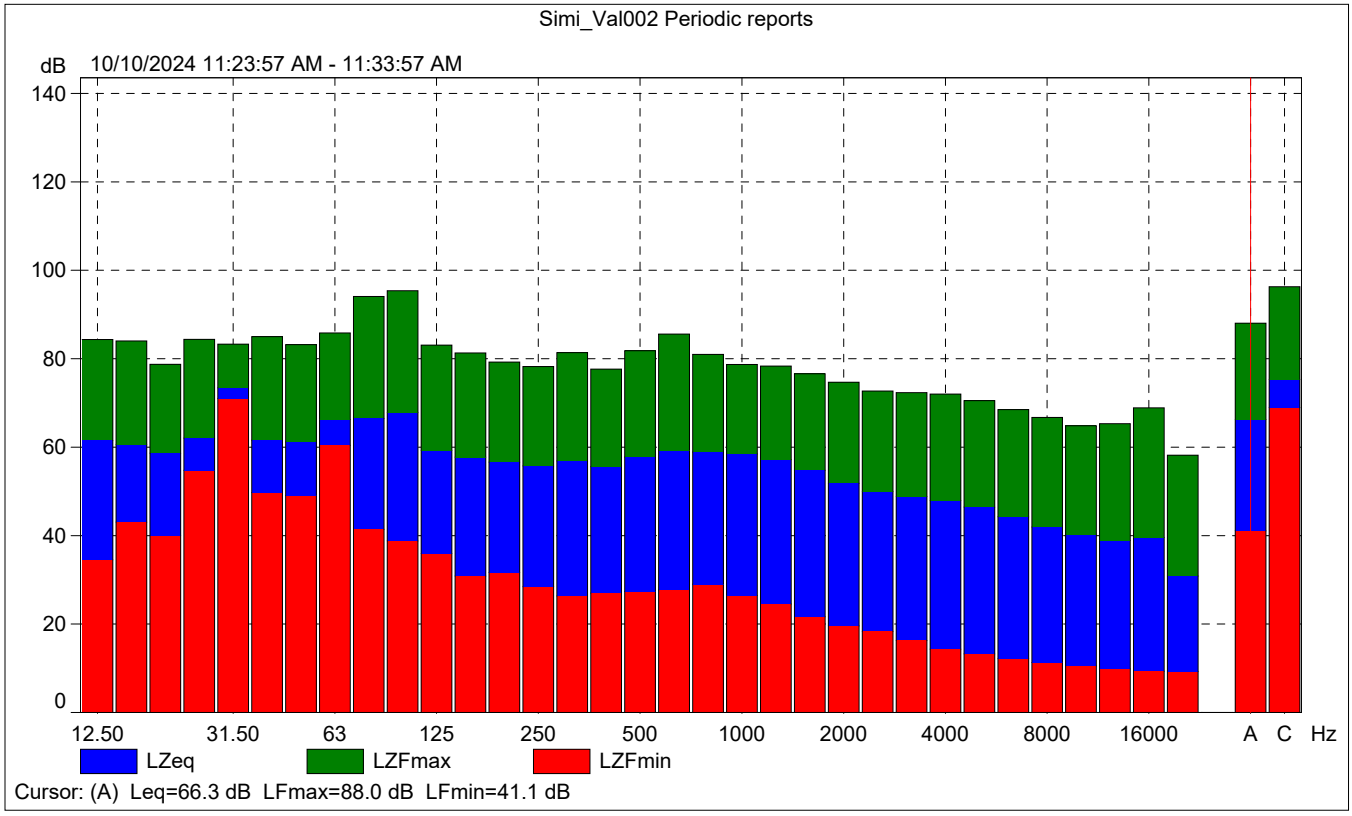
	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	44.0	43.9	43.2
Time	11:28:56 AM	0:00:01				
Date	10/10/2024					

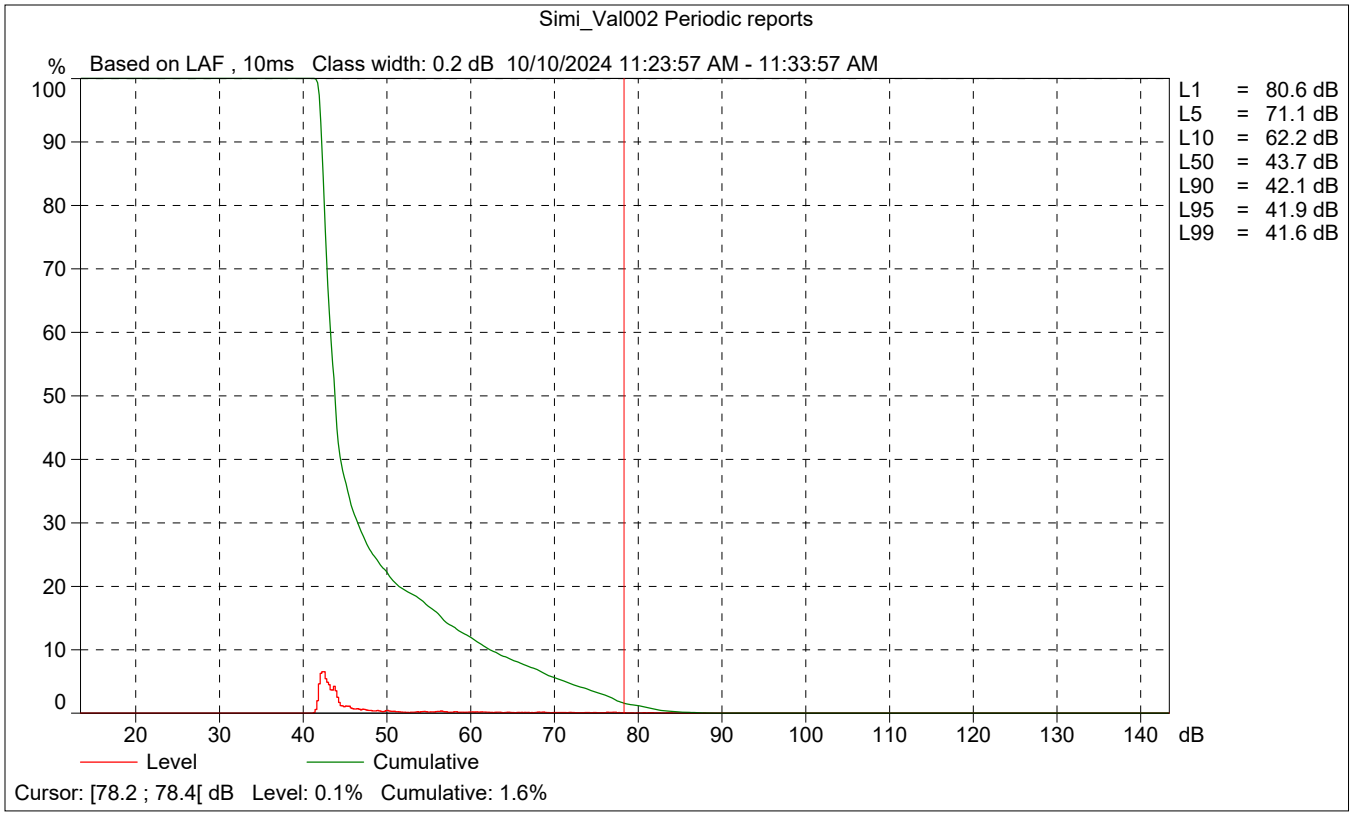

Simi_Val002
dB
10/10/2024 11:28:56 AM - 11:28:57 AM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
Cursor: (A) Leq=43.6 dB


Simi_Val002 Periodic reports
dB
140
120
100
80
60
40
20
11:30:00 AM
11:40:00 AM
11:50:00 AM
12:00:00 PM
12:10:00 PM
12:20:00 PM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 10/10/2024 11:23:57 AM - 12:23:57 PM LAIeq=69.3 dB LAFmax=88.0 dB LCpeak=103.8 dB LAFmin=41.1 dB

Simi_Val002 Periodic reports

	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	69.3	88.0	41.1
Time	11:23:57 AM	0:10:00				
Date	10/10/2024					




Simi_Val002 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 10/10/2024 11:23:57 AM - 11:33:57 AM
100
90
80
70
60
50
40
30
20
10
0
20 30 40 50 60 70 80 90 100 110 120 130 140 dB
L1 = 80.6 dB
L5 = 71.1 dB
L10 = 62.2 dB
L50 = 43.7 dB
L90 = 42.1 dB
L95 = 41.9 dB
L99 = 41.6 dB
Level
Cumulative
Cursor: [78.2 ; 78.4[dB Level: 0.1% Cumulative: 1.6%

Site Number: NM-3	
Recorded By: Winnie Woo, Dennis Dinh	
Job Number: 200855	
Date: 10/10/2024	
Time: 11:42 A.M.	
Location: Northeast corner of the Tapo Canyon Road and Presidio Drive	
Source of Ambient Noise: Traffic along Tapo Canyon Road and Presidio Drive	

Noise Data		
L_{eq} (dB)	**L_{max}(dB)**	**L_{min} (dB)**
67.4	87.8	37.2

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Brüel & Kjær**	**2250**	**3011133**	**06/04/2023**	
	Microphone	**Brüel & Kjær**	**4189**	**3086765**	**06/04/2023**	
	Preamp	**Brüel & Kjær**	**ZC 0032**	**25380**	**06/04/2023**	
	Calibrator	**Brüel & Kjær**	**4231**	**2545667**	**06/04/2023**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Sunny
	Note: dBA Offset = 0.04		**Sensor Height (ft):** 5 ft
	Wind Ave Speed (mph / m/s)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (inches)**
	4 mph	80	29.99

Photo of Measurement Location





2250

Instrument:		2250
Application:		BZ7225 Version 4.7.6
Start Time:		10/10/2024 11:42:25
End Time:		10/10/2024 11:52:25
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		142.22

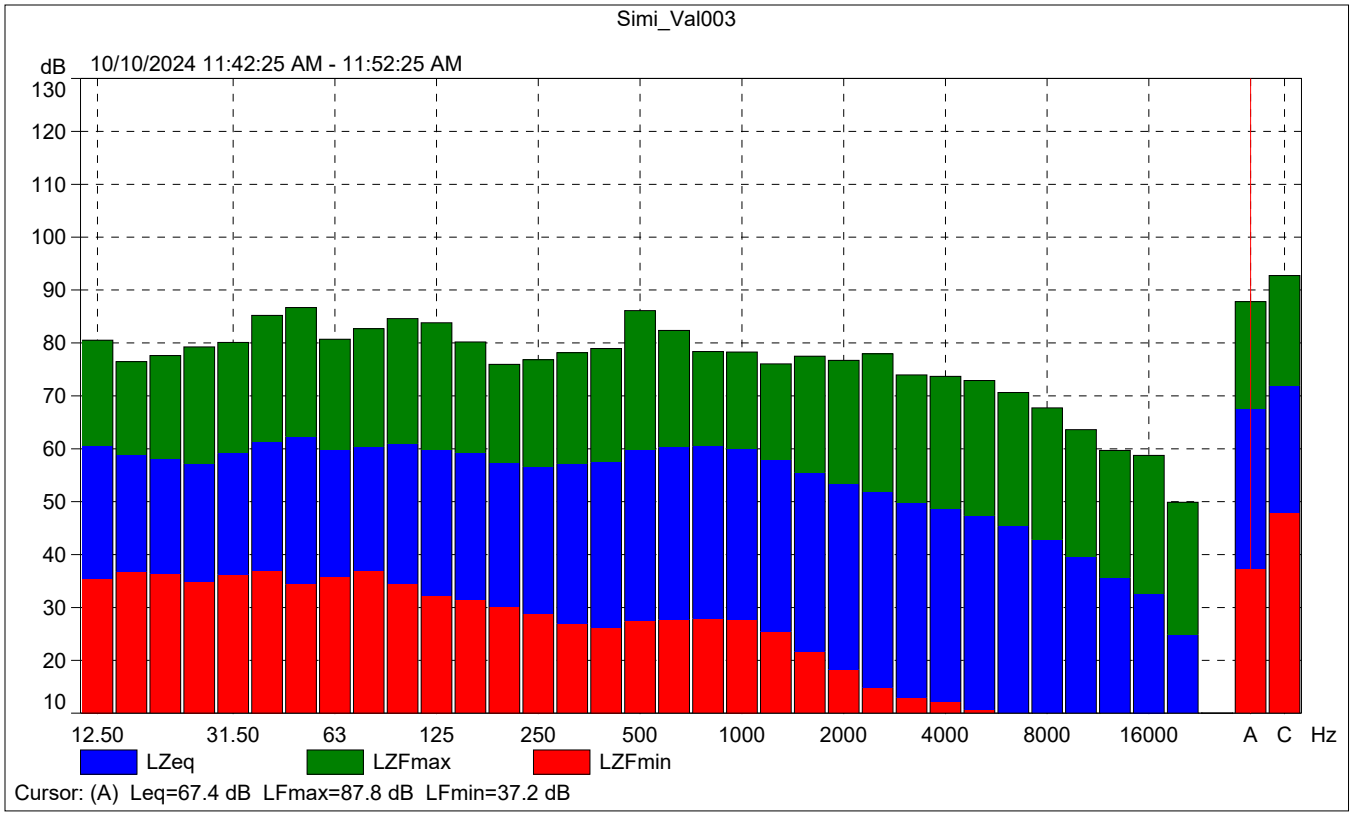
	Time	Frequency
Broadband (excl. Peak):	FSI	AC
Broadband Peak:		C
Spectrum:	FS	Z

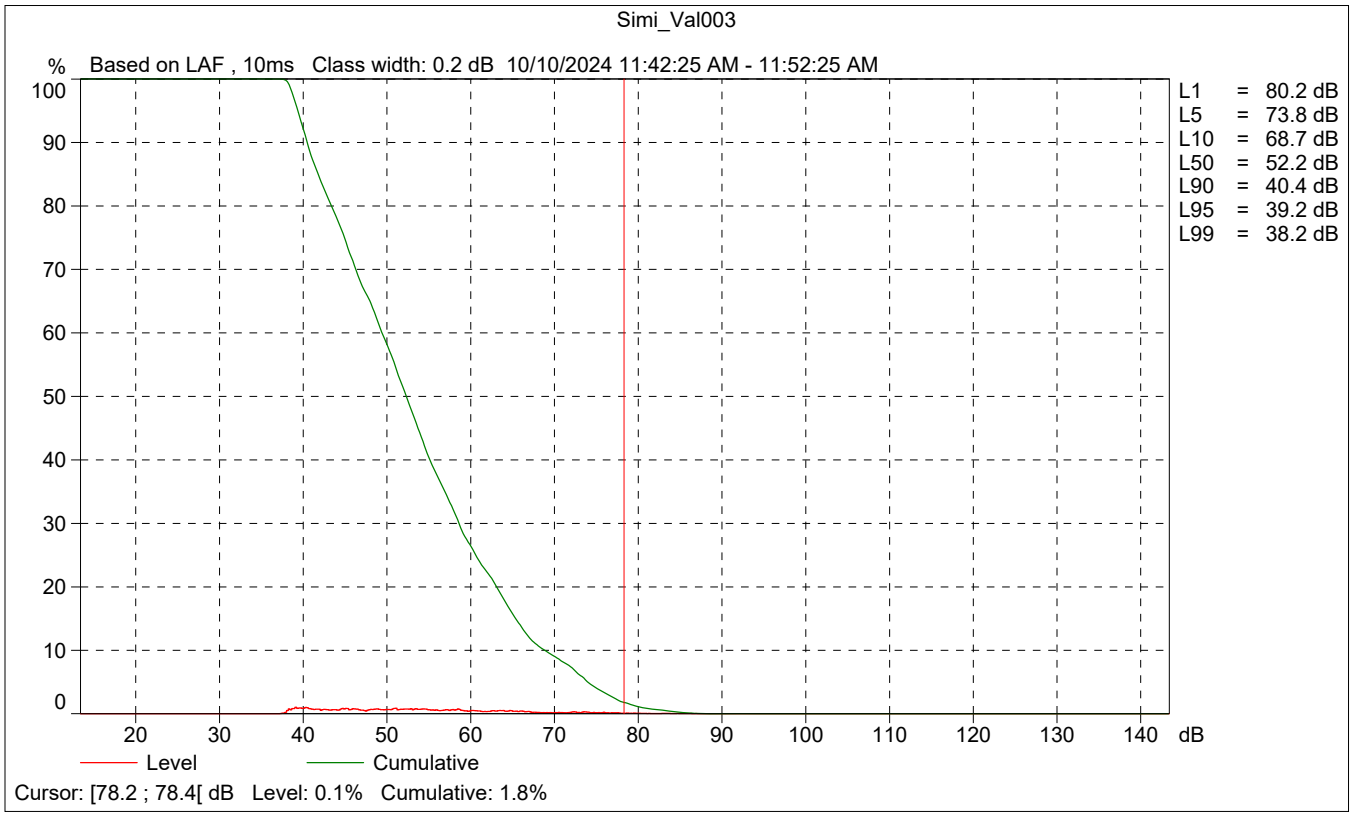
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		UA-1650
Sound Field Correction:		Free-field

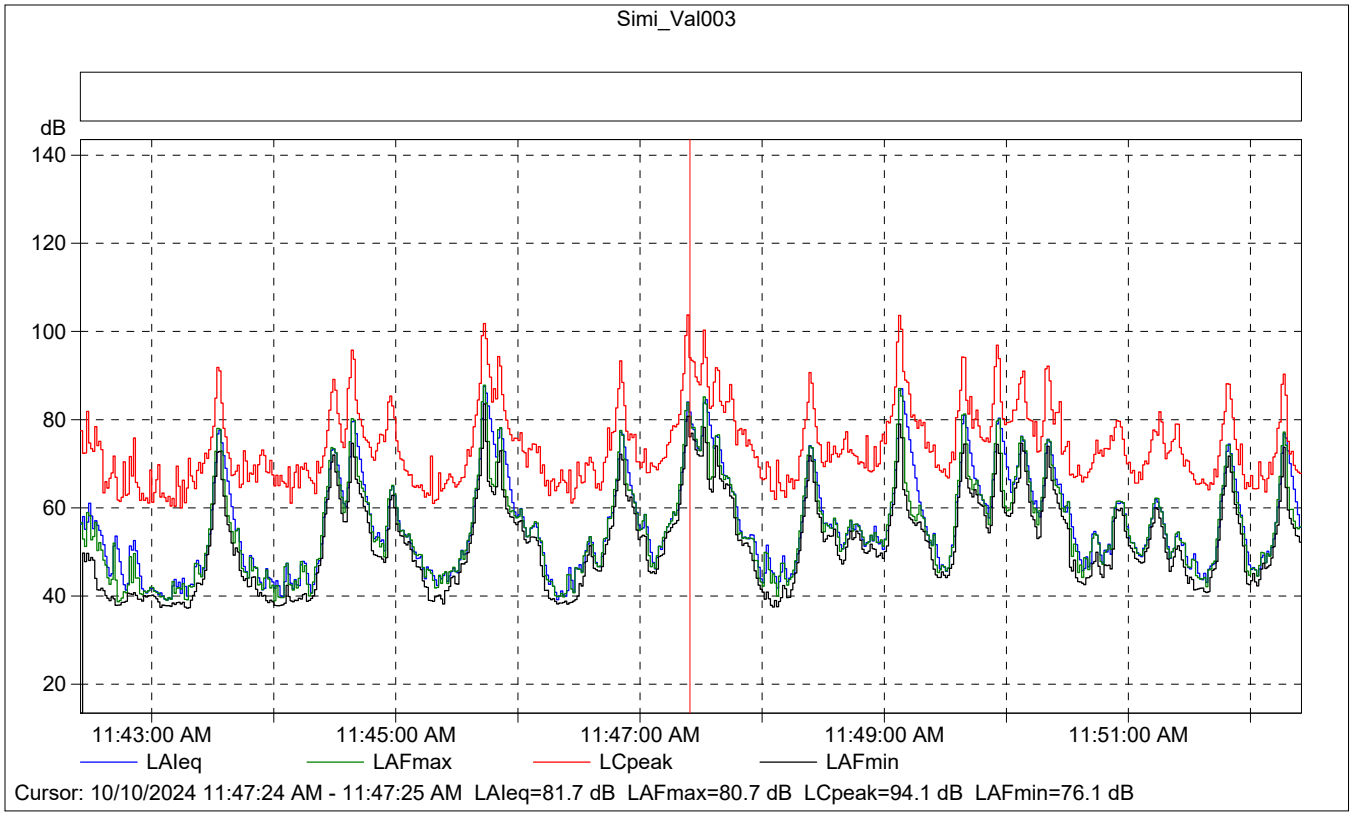
Calibration Time:		10/10/2024 10:59:35
Calibration Type:		External reference
Sensitivity:		43.1265793740749 mV/Pa

Simi_Val003

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	67.4	87.8	37.2
Time	11:42:25 AM	11:52:25 AM	0:10:00				
Date	10/10/2024	10/10/2024					

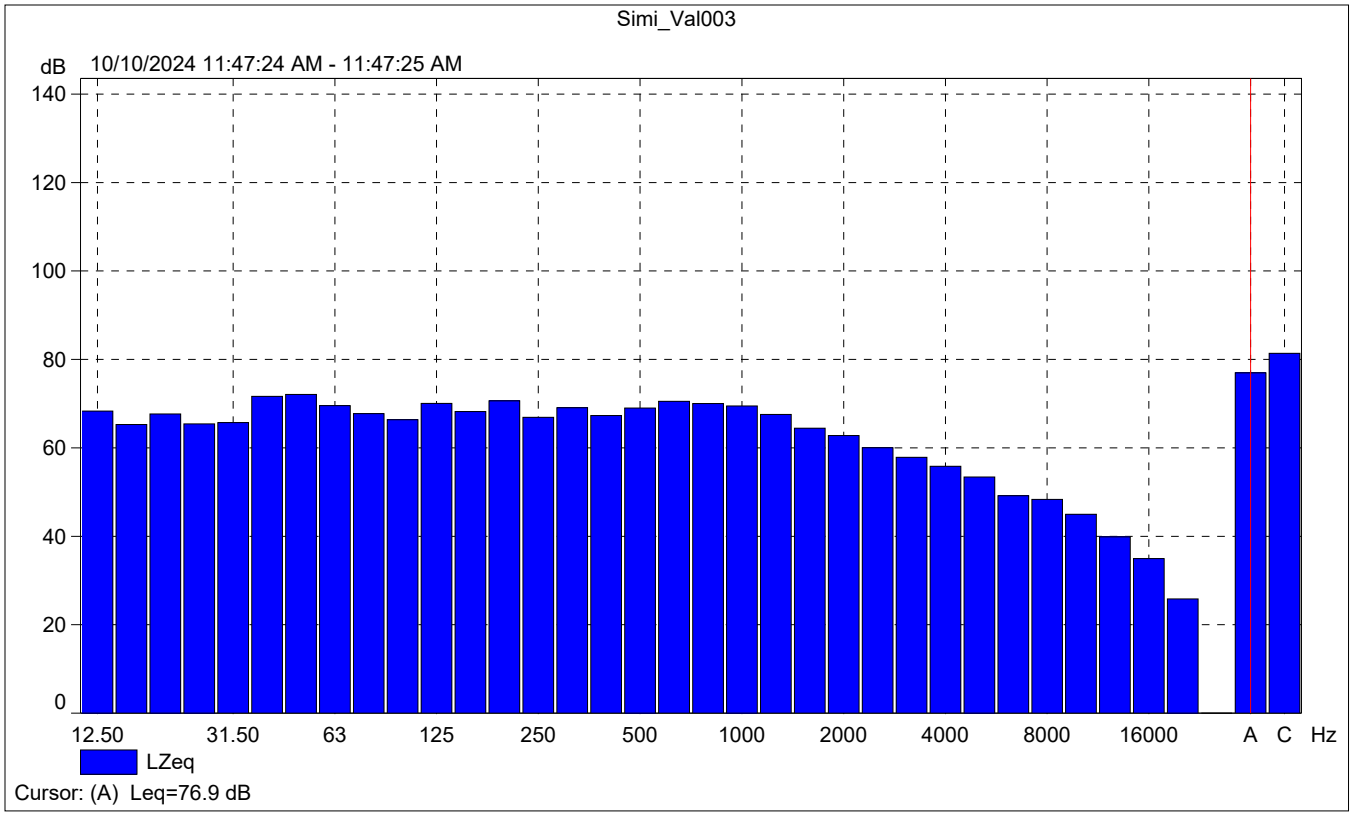

Simi_Val003
dB
10/10/2024 11:42:25 AM - 11:52:25 AM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=67.4 dB LFmax=87.8 dB LFmin=37.2 dB

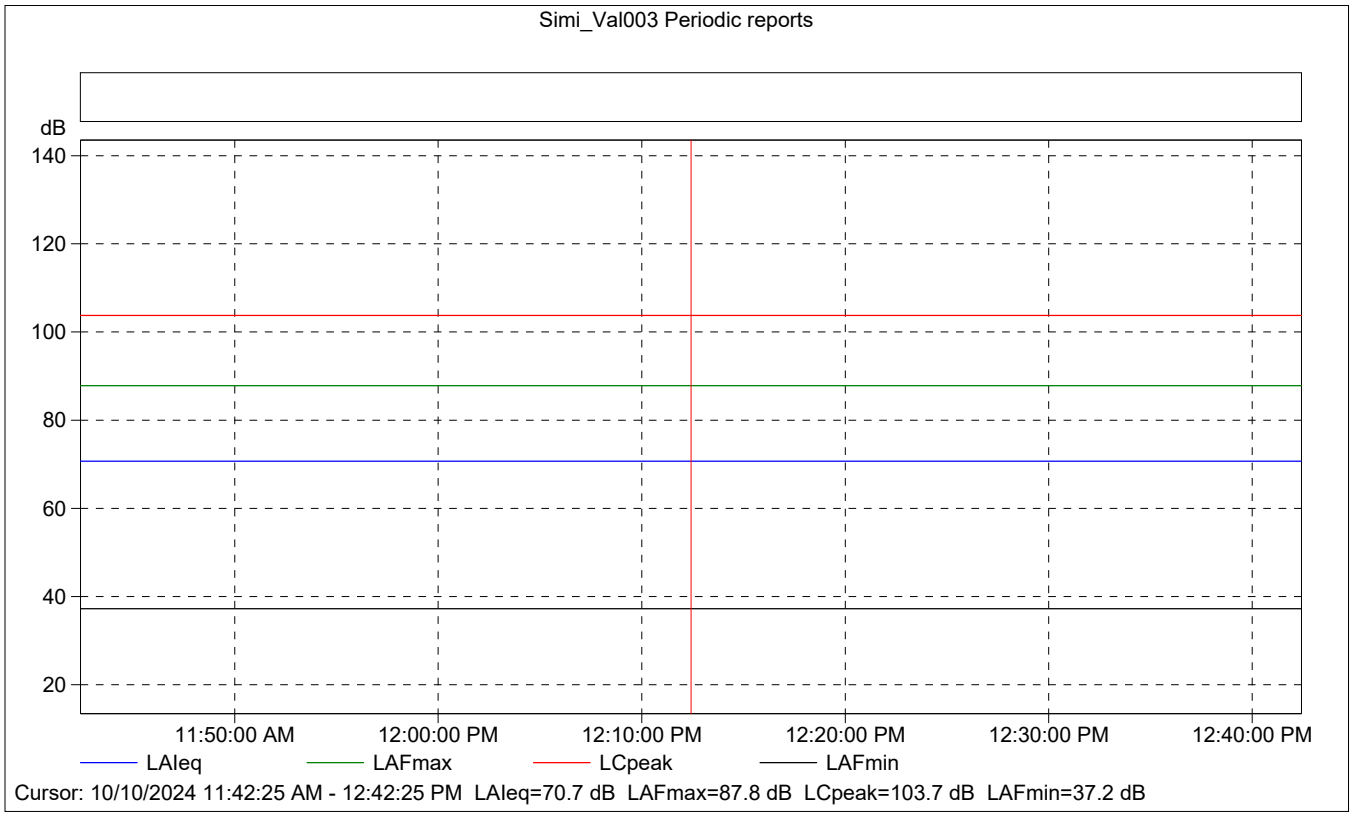

Simi_Val003
%
Based on LAF , 10ms Class width: 0.2 dB 10/10/2024 11:42:25 AM - 11:52:25 AM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 80.2 dB
L5 = 73.8 dB
L10 = 68.7 dB
L50 = 52.2 dB
L90 = 40.4 dB
L95 = 39.2 dB
L99 = 38.2 dB
Level
Cumulative
Cursor: [78.2 ; 78.4[dB Level: 0.1% Cumulative: 1.8%



Simi_Val003

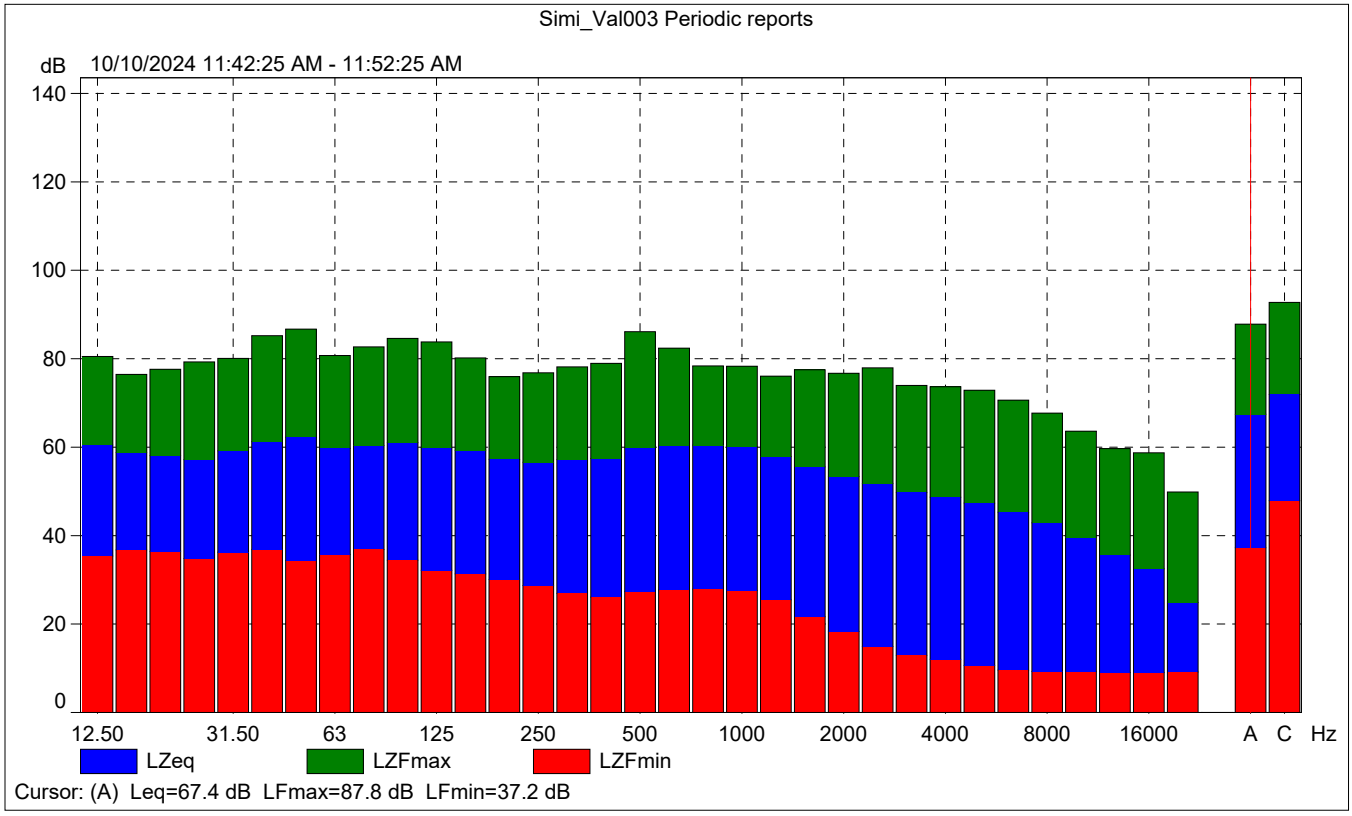
	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	81.7	80.7	76.1
Time	11:47:24 AM	0:00:01				
Date	10/10/2024					

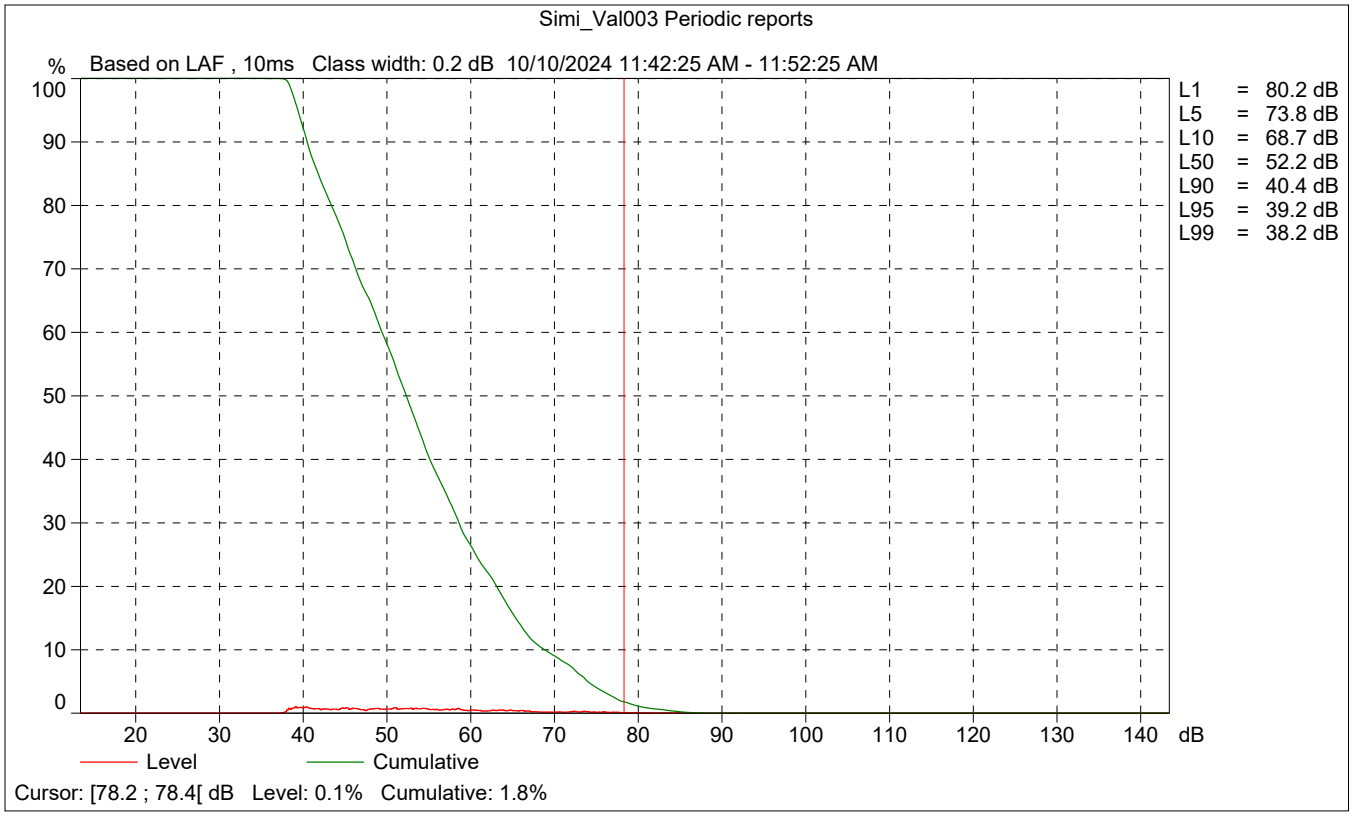

Simi_Val003
dB
10/10/2024 11:47:24 AM - 11:47:25 AM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
Cursor: (A) Leq=76.9 dB


Simi_Val003 Periodic reports
dB
140
120
100
80
60
40
20
11:50:00 AM
12:00:00 PM
12:10:00 PM
12:20:00 PM
12:30:00 PM
12:40:00 PM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 10/10/2024 11:42:25 AM - 12:42:25 PM LAIeq=70.7 dB LAFmax=87.8 dB LCpeak=103.7 dB LAFmin=37.2 dB

Simi_Val003 Periodic reports

	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	70.7	87.8	37.2
Time	11:42:25 AM	0:10:00				
Date	10/10/2024					




Simi_Val003 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 10/10/2024 11:42:25 AM - 11:52:25 AM
100
90
80
70
60
50
40
30
20
10
0
20 30 40 50 60 70 80 90 100 110 120 130 140 dB
L1 = 80.2 dB
L5 = 73.8 dB
L10 = 68.7 dB
L50 = 52.2 dB
L90 = 40.4 dB
L95 = 39.2 dB
L99 = 38.2 dB
Level
Cumulative
Cursor: [78.2 ; 78.4[dB Level: 0.1% Cumulative: 1.8%

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descr Lost Canyons_Phase-1_Demolition

		---- Receptor #1 ----		
	Baselines (dBA)			
Description	Land Use	Daytime	Evening	Night
Western R	Residential	1	1	1

			Equipment Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Dozer	No	40		81.7	1625	0
Dozer	No	40		81.7	1625	0
Excavator	No	40		80.7	1625	0
Excavator	No	40		80.7	1625	0
Excavator	No	40		80.7	1625	0
Concrete Saw	No	20		89.6	1625	0

			Results											
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	51.4	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
Dozer	51.4	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
Excavator	50.5	46.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	50.5	46.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	50.5	46.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Saw	59.3	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
Total	59.3	56.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Ldn, Lden, CNEL - Community Noise Calculators

Ldn and Lden Calculator

Start Time	Hourly Leq			
00:00		dB	x	
01:00		dB	x	Leq
02:00		dB	x	56.2 dB
03:00		dB	x	
04:00		dB	x	Ldn
05:00		dB	x	56.2 dB
06:00		dB	x	
07:00	56.2	dB	✓	Lden
08:00	56.2	dB	✓	56.2 dB
09:00	56.2	dB	✓	
10:00	56.2	dB	✓	
11:00	56.2	dB	✓	
12:00	56.2	dB	✓	
13:00	56.2	dB	✓	
14:00	56.2	dB	✓	
15:00	56.2	dB	✓	
16:00	56.2	dB	✓	
17:00	56.2	dB	✓	
18:00	56.2	dB	✓	
19:00		dB	x	
20:00		dB	x	
21:00		dB	x	
22:00		dB	x	
23:00		dB	x	

Calculate

Ldn and Lden Calculator

Calculation of the Ldn (day, night) and the Lden (day, evening, night) based on 1-hour Leq measurements.

Ldn - Day Night Average Sound Level

The Ldn is the average equivalent sound level over a 24 hour period, with a penalty added for noise during the nighttime hours of 22:00 to 07:00. During the nighttime period 10 dB is added to reflect the impact of the noise.

Ldn measurements are useful for assessing the impact that road, rail, air and general industry has on the local population.

The NoiseMeters Ldn calculator accepts hourly Leq measurements and calculates the Ldn accordingly.

Lden or CNEL

The Lden (Day Evening Night Sound Level) or CNEL (Community Noise Equivalent Level) is the average sound level over a 24 hour period, with a penalty of 5 dB added for the evening hours or 19:00 to 22:00, and a penalty of 10 dB added for the nighttime hours of 22:00 to 07:00.

It is very similar in nature (and in results) to the Ldn, but with the added penalty for the evening period.

Our Lden or CNEL calculator takes the hourly Leq measurements and calculates the Lden (which is the same as the CNEL).

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat: ########
Case Descr: Lost Canyons_Phase-1 and 2_Grading_Building Construction_Paving

			---- Receptor #1 ----		
	Baselines (dBA)				
Descriptior	Land Use	Daytime	Evening	Night	
Western Re	Residential	1	1	1	

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Grader	No	40	85		1625	0
Excavator	No	40		80.7	1625	0
Excavator	No	40		80.7	1625	0
Tractor	No	40	84		1625	0
Tractor	No	40	84		1625	0
Scraper	No	40		83.6	1625	0
Scraper	No	40		83.6	1625	0
Dozer	No	40		81.7	1625	0
Front End Loader	No	40		79.1	1625	0
Front End Loader	No	40		79.1	1625	0
Front End Loader	No	40		79.1	1625	0
Generator	No	50		80.6	1625	0
Crane	No	16		80.6	1625	0
Welder / Torch	No	40		74	1625	0
Tractor	No	40	84		1625	0
Tractor	No	40	84		1625	0
Paver	No	50		77.2	1625	0
Paver	No	50		77.2	1625	0
Pavement Scarafier	No	20		89.5	1625	0
Pavement Scarafier	No	20		89.5	1625	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	54.8	50.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	50.5	46.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	50.5	46.5	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	53.8	49.8	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	53.8	49.8	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	53.3	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
Scraper	53.3	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	51.4	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	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	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	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
Generator	50.4	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
Crane	50.3	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	43.8	39.8	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	53.8	49.8	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	53.8	49.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	47	44	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	47	44	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	59.3	52.3	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	59.3	52.3	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	59.3	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

*Calculated Lmax is the Loudest value.

Ldn, Lden, CNEL - Community Noise Calculators

Ldn and Lden Calculator

Start Time	Hourly Leq			
00:00		dB	x	
01:00		dB	x	Leq
02:00		dB	x	61.4 dB
03:00		dB	x	
04:00		dB	x	Ldn
05:00		dB	x	61.4 dB
06:00		dB	x	
07:00	61.4	dB	✓	Lden
08:00	61.4	dB	✓	61.4 dB
09:00	61.4	dB	✓	
10:00	61.4	dB	✓	
11:00	61.4	dB	✓	
12:00	61.4	dB	✓	
13:00	61.4	dB	✓	
14:00	61.4	dB	✓	
15:00	61.4	dB	✓	
16:00	61.4	dB	✓	
17:00	61.4	dB	✓	
18:00	61.4	dB	✓	
19:00		dB	x	
20:00		dB	x	
21:00		dB	x	
22:00		dB	x	
23:00		dB	x	

Calculate

Ldn and Lden Calculator

Calculation of the Ldn (day, night) and the Lden (day, evening, night) based on 1-hour Leq measurements.

Ldn - Day Night Average Sound Level

The Ldn is the average equivalent sound level over a 24 hour period, with a penalty added for noise during the nighttime hours of 22:00 to 07:00. During the nighttime period 10 dB is added to reflect the impact of the noise.

Ldn measurements are useful for assessing the impact that road, rail, air and general industry has on the local population.

The NoiseMeters Ldn calculator accepts hourly Leq measurements and calculates the Ldn accordingly.

Lden or CNEL

The Lden (Day Evening Night Sound Level) or CNEL (Community Noise Equivalent Level) is the average sound level over a 24 hour period, with a penalty of 5 dB added for the evening hours or 19:00 to 22:00, and a penalty of 10 dB added for the nighttime hours of 22:00 to 07:00.

It is very similar in nature (and in results) to the Ldn, but with the added penalty for the evening period.

Our Lden or CNEL calculator takes the hourly Leq measurements and calculates the Lden (which is the same as the CNEL).

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descr Lost Canyons_Phase-1_Coating

			---- Receptor #1 ----
	Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Western R	Residential	1	1	1

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	1625	0

			Results											
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	47.4	43.5	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	47.4	43.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Ldn, Lden, CNEL - Community Noise Calculators

Ldn and Lden Calculator

Start Time	Hourly Leq			
00:00		dB	x	
01:00		dB	x	Leq
02:00		dB	x	43.5 dB
03:00		dB	x	
04:00		dB	x	Ldn
05:00		dB	x	43.5 dB
06:00		dB	x	
07:00	43.5	dB	✓	Lden
08:00	43.5	dB	✓	43.5 dB
09:00	43.5	dB	✓	
10:00	43.5	dB	✓	
11:00	43.5	dB	✓	
12:00	43.5	dB	✓	
13:00	43.5	dB	✓	
14:00	43.5	dB	✓	
15:00	43.5	dB	✓	
16:00	43.5	dB	✓	
17:00	43.5	dB	✓	
18:00	43.5	dB	✓	
19:00		dB	x	
20:00		dB	x	
21:00		dB	x	
22:00		dB	x	
23:00		dB	x	

Calculate

Ldn and Lden Calculator

Calculation of the Ldn (day, night) and the Lden (day, evening, night) based on 1-hour Leq measurements.

Ldn - Day Night Average Sound Level

The Ldn is the average equivalent sound level over a 24 hour period, with a penalty added for noise during the nighttime hours of 22:00 to 07:00. During the nighttime period 10 dB is added to reflect the impact of the noise.

Ldn measurements are useful for assessing the impact that road, rail, air and general industry has on the local population.

The NoiseMeters Ldn calculator accepts hourly Leq measurements and calculates the Ldn accordingly.

Lden or CNEL

The Lden (Day Evening Night Sound Level) or CNEL (Community Noise Equivalent Level) is the average sound level over a 24 hour period, with a penalty of 5 dB added for the evening hours or 19:00 to 22:00, and a penalty of 10 dB added for the nighttime hours of 22:00 to 07:00.

It is very similar in nature (and in results) to the Ldn, but with the added penalty for the evening period.

Our Lden or CNEL calculator takes the hourly Leq measurements and calculates the Lden (which is the same as the CNEL).

Ldn, Lden, CNEL - Community Noise Calculators

Ldn and Lden Calculator

Start Time	Hourly Leq		
00:00	29	dB	✓
01:00	29	dB	✓
02:00	29	dB	✓
03:00	29	dB	✓
04:00	29	dB	✓
05:00	29	dB	✓
06:00	29	dB	✓
07:00	29	dB	✓
08:00	29	dB	✓
09:00	29	dB	✓
10:00	29	dB	✓
11:00	29	dB	✓
12:00	29	dB	✓
13:00	29	dB	✓
14:00	29	dB	✓
15:00	29	dB	✓
16:00	29	dB	✓
17:00	29	dB	✓
18:00	29	dB	✓
19:00	29	dB	✓
20:00	29	dB	✓
21:00	29	dB	✓
22:00	29	dB	✓
23:00	29	dB	✓

Leq
29.0 dB

Ldn
35.4 dB

Lden
35.7 dB

Calculate

Ldn and Lden Calculator

Calculation of the Ldn (day, night) and the Lden (day, evening, night) based on 1-hour Leq measurements.

Ldn - Day Night Average Sound Level

The Ldn is the average equivalent sound level over a 24 hour period, with a penalty added for noise during the nighttime hours of 22:00 to 07:00. During the nighttime period 10 dB is added to reflect the impact of the noise.

Ldn measurements are useful for assessing the impact that road, rail, air and general industry has on the local population.

The NoiseMeters Ldn calculator accepts hourly Leq measurements and calculates the Ldn accordingly.

Lden or CNEL

The Lden (Day Evening Night Sound Level) or CNEL (Community Noise Equivalent Level) is the average sound level over a 24 hour period, with a penalty of 5 dB added for the evening hours or 19:00 to 22:00, and a penalty of 10 dB added for the nighttime hours of 22:00 to 07:00.

It is very similar in nature (and in results) to the Ldn, but with the added penalty for the evening period.

Our Lden or CNEL calculator takes the hourly Leq measurements and calculates the Lden (which is the same as the CNEL).

Crowd Noise CNEL

Ldn, Lden, CNEL - Community Noise Calculators

Ldn and Lden Calculator

Start Time	Hourly Leq		
00:00	28	dB ✓	
01:00	28	dB ✓	Leq
02:00	29	dB ✓	28.0 dB
03:00	28	dB ✓	
04:00	28	dB ✓	Ldn
05:00	28	dB ✓	34.5 dB
06:00	28	dB ✓	
07:00	28	dB ✓	Lden
08:00	28	dB ✓	34.8 dB
09:00	28	dB ✓	
10:00	28	dB ✓	
11:00	28	dB ✓	
12:00	28	dB ✓	
13:00	28	dB ✓	
14:00	28	dB ✓	
15:00	28	dB ✓	
16:00	28	dB ✓	
17:00	28	dB ✓	
18:00	28	dB ✓	
19:00	28	dB ✓	
20:00	28	dB ✓	
21:00	28	dB ✓	
22:00	28	dB ✓	
23:00	28	dB ✓	

Calculate

Ldn and Lden Calculator

Calculation of the Ldn (day, night) and the Lden (day, evening, night) based on 1-hour Leq measurements.

Ldn - Day Night Average Sound Level

The Ldn is the average equivalent sound level over a 24 hour period, with a penalty added for noise during the nighttime hours of 22:00 to 07:00. During the nighttime period 10 dB is added to reflect the impact of the noise.

Ldn measurements are useful for assessing the impact that road, rail, air and general industry has on the local population.

The NoiseMeters Ldn calculator accepts hourly Leq measurements and calculates the Ldn accordingly.

Lden or CNEL

The Lden (Day Evening Night Sound Level) or CNEL (Community Noise Equivalent Level) is the average sound level over a 24 hour period, with a penalty of 5 dB added for the evening hours or 19:00 to 22:00, and a penalty of 10 dB added for the nighttime hours of 22:00 to 07:00.

It is very similar in nature (and in results) to the Ldn, but with the added penalty for the evening period.

Our Lden or CNEL calculator takes the hourly Leq measurements and calculates the Lden (which is the same as the CNEL).

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 200855
Project Name: Lost Canyons
Scenario: Existing

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Michael Baker International
Community Noise Descriptor: L_{dn}: _____ CNEL: X

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.50%	12.90%	9.60%
Medium-Duty Trucks	84.80%	4.90%	10.30%
Heavy-Duty Trucks	86.50%	2.70%	10.80%

	Analysis Condition				Design		Vehicle Mix		Distance from Centerline of Roadway				
	Roadway, Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Medium Trucks	Heavy Trucks	CNEL at 100 Feet	Distance to Contour 70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Erringer Road between Lost Canyons Drive and Falcon St	4	13	6,620	45	0.5	1.8%	0.7%	59.8	-	-	97	208
2	Erringer Road between Falcon Street and Alamo Street	4	13	10,350	45	0.5	1.8%	0.7%	61.7	-	60	130	280
3	Erringer Road between Alamo Street and Simi Town Center Way	4	14	17,860	40	0.5	1.8%	0.7%	62.9	-	72	156	336
4	Erringer Road between Simi Town Center Way and SR-118 EB Ramps	4	0	32,550	40	0.5	1.8%	0.7%	65.4	49	106	229	493
5	Erringer Road South of SR-118 EB Ramps	4	14	22,810	40	0.5	1.8%	0.7%	64.0	-	85	183	395
11	Lost Canyons Drive between Erringer Road and Lost Canyons Golf Club	2	13	1,590	45	0.5	1.8%	0.7%	53.4	-	-	-	79
12	Lost Canyons Drive between Los Canyons Golf Club and Tapo Canyon Road	2	0	1,900	35	0.5	1.8%	0.7%	51.6	-	-	-	60
13	Tapo Canyon Road between Lost Canyons Drive and Alamo Street	4	0	15,680	45	0.5	1.8%	0.7%	63.4	-	78	169	364
14	Tapo Canyon Road between Alamo Street and SR-118 WB Ramps	6	16	40,060	40	0.5	1.8%	0.7%	66.5	-	129	279	600
15	Tapo Canyon Road between SR-118 WB Ramps and SR-118 EB Ramps	4	16	69,080	40	0.5	1.8%	0.7%	68.8	83	179	385	829
16	Tapo Canyon Road South of SR-118 EB Ramps	4	15	28,060	40	0.5	1.8%	0.7%	64.9	-	98	211	454

"-" = contour is located within the roadway right-of-way.

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 200855
Project Name: Lost Canyons
Scenario: Existing+Project

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Michael Baker International
Community Noise Descriptor: L_{dn}: _____ CNEL: X

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.50%	12.90%	9.60%
Medium-Duty Trucks	84.80%	4.90%	10.30%
Heavy-Duty Trucks	86.50%	2.70%	10.80%

	Analysis Condition				Design		Vehicle Mix		Distance from Centerline of Roadway				
	Roadway, Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Medium Trucks	Heavy Trucks	CNEL at 100 Feet	Distance to Contour 70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Erringer Road between Lost Canyons Drive and Falcon St	4	13	7,700	45	0.5	1.8%	0.7%	60.4	-	-	107	230
2	Erringer Road between Falcon Street and Alamo Street	4	13	11,430	45	0.5	1.8%	0.7%	62.1	-	64	139	299
3	Erringer Road between Alamo Street and Simi Town Center Way	4	14	18,940	40	0.5	1.8%	0.7%	63.1	-	75	162	349
4	Erringer Road between Simi Town Center Way and SR-118 EB Ramps	4	0	33,530	40	0.5	1.8%	0.7%	65.5	50	108	233	503
5	Erringer Road South of SR-118 EB Ramps	4	14	22,840	40	0.5	1.8%	0.7%	64.0	-	85	184	395
11	Lost Canyons Drive between Erringer Road and Lost Canyons Golf Club	2	13	3,350	45	0.5	1.8%	0.7%	56.7	-	-	60	129
12	Lost Canyons Drive between Los Canyons Golf Club and Tapo Canyon Road	2	0	2,980	35	0.5	1.8%	0.7%	53.6	-	-	37	81
13	Tapo Canyon Road between Lost Canyons Drive and Alamo Street	4	0	17,440	45	0.5	1.8%	0.7%	63.9	-	84	181	391
14	Tapo Canyon Road between Alamo Street and SR-118 WB Ramps	6	16	41,535	40	0.5	1.8%	0.7%	66.9	-	133	286	617
15	Tapo Canyon Road between SR-118 WB Ramps and SR-118 EB Ramps	4	16	69,920	40	0.5	1.8%	0.7%	68.8	84	180	388	836
16	Tapo Canyon Road South of SR-118 EB Ramps	4	15	28,285	40	0.5	1.8%	0.7%	64.9	-	98	212	457

"-" = contour is located within the roadway right-of-way.

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 200855
Project Name: Lost Canyons
Scenario: Future 2050

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Michael Baker International
Community Noise Descriptor: L_{dn}: ____ CNEL: X

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.50%	12.90%	9.60%
Medium-Duty Trucks	84.80%	4.90%	10.30%
Heavy-Duty Trucks	86.50%	2.70%	10.80%

	Analysis Condition				Design		Vehicle Mix		Distance from Centerline of Roadway				
	Roadway, Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Medium Trucks	Heavy Trucks	CNEL at 100 Feet	Distance to Contour 70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Erringer Road between Lost Canyons Drive and Falcon St	4	13	24,090	45	0.5	1.8%	0.7%	65.4	-	106	228	492
2	Erringer Road between Falcon Street and Alamo Street	4	13	30,990	45	0.5	1.8%	0.7%	66.5	58	125	270	582
3	Erringer Road between Alamo Street and Simi Town Center Way	4	14	49,841	40	0.5	1.8%	0.7%	67.3	67	143	309	665
4	Erringer Road between Simi Town Center Way and SR-118 EB Ramps	4	0	55,700	40	0.5	1.8%	0.7%	67.7	71	152	327	705
5	Erringer Road South of SR-118 EB Ramps	4	14	30,670	40	0.5	1.8%	0.7%	65.2	-	104	223	481
11	Lost Canyons Drive between Erringer Road and Lost Canyons Golf Club	2	13	8,070	45	0.5	1.8%	0.7%	60.5	-	50	108	232
12	Lost Canyons Drive between Los Canyons Golf Club and Tapo Canyon Road	2	0	8,540	35	0.5	1.8%	0.7%	58.2	-	35	76	163
13	Tapo Canyon Road between Lost Canyons Drive and Alamo Street	4	0	28,400	45	0.5	1.8%	0.7%	66.0	54	117	251	541
14	Tapo Canyon Road between Alamo Street and SR-118 WB Ramps	6	16	53,800	40	0.5	1.8%	0.7%	68.0	73	158	340	733
15	Tapo Canyon Road between SR-118 WB Ramps and SR-118 EB Ramps	4	16	85,570	40	0.5	1.8%	0.7%	69.7	96	206	444	956
16	Tapo Canyon Road South of SR-118 EB Ramps	4	15	36,350	40	0.5	1.8%	0.7%	66.0	54	116	251	540

"-" = contour is located within the roadway right-of-way.

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 200855
Project Name: Lost Canyons
Scenario: Future with Project

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Michael Baker International
Community Noise Descriptor: L_{dn}: CNEL: X

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.50%	12.90%	9.60%
Medium-Duty Trucks	84.80%	4.90%	10.30%
Heavy-Duty Trucks	86.50%	2.70%	10.80%

	Analysis Condition				Design		Vehicle Mix		Distance from Centerline of Roadway				
	Roadway, Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Medium Trucks	Heavy Trucks	CNEL at 100 Feet	Distance to Contour 70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Erringer Road between Lost Canyons Drive and Falcon St	4	13	24,685	45	0.5	1.8%	0.7%	65.5	-	108	232	500
2	Erringer Road between Falcon Street and Alamo Street	4	13	31,245	45	0.5	1.8%	0.7%	66.5	59	126	272	585
3	Erringer Road between Alamo Street and Simi Town Center Way	4	14	50,096	40	0.5	1.8%	0.7%	67.4	67	144	310	668
4	Erringer Road between Simi Town Center Way and SR-118 EB Ramps	4	0	55,700	40	0.5	1.8%	0.7%	67.7	71	152	327	705
5	Erringer Road South of SR-118 EB Ramps	4	14	30,670	40	0.5	1.8%	0.7%	65.2	-	104	223	481
11	Lost Canyons Drive between Erringer Road and Lost Canyons Golf Club	2	13	9,830	45	0.5	1.8%	0.7%	61.3	-	57	123	264
12	Lost Canyons Drive between Los Canyons Golf Club and Tapo Canyon Road	2	0	9,620	35	0.5	1.8%	0.7%	58.7	-	38	82	176
13	Tapo Canyon Road between Lost Canyons Drive and Alamo Street	4	0	30,160	45	0.5	1.8%	0.7%	66.3	56	121	261	563
14	Tapo Canyon Road between Alamo Street and SR-118 WB Ramps	6	16	55,275	40	0.5	1.8%	0.7%	68.1	75	161	346	746
15	Tapo Canyon Road between SR-118 WB Ramps and SR-118 EB Ramps	4	16	86,410	40	0.5	1.8%	0.7%	69.8	96	207	447	963
16	Tapo Canyon Road South of SR-118 EB Ramps	4	15	36,575	40	0.5	1.8%	0.7%	66.0	54	117	252	542

"-" = contour is located within the roadway right-of-way.

	Roadway Segment	Existing	Existing + Project	Existing + Project - Existing	Cumulative (Future With Project)	Cumulative - Existing
		dBA @ 100 Feet from Roadway Centerline	dBA @ 100 Feet from Roadway Centerline	Difference In dBA Between Existing and Existing + Project	dBA @ 100 Feet from Roadway Centerline	Difference In dBA Between Cumulative and Existing
1	Erringer Road between Lost Canyons Drive and Falcon St	59.8	60.4	0.6	65.5	5.7
2	Erringer Road between Falcon Street and Alamo Street	61.7	62.1	0.4	66.5	4.8
3	Erringer Road between Alamo Street and Simi Town Center Way	62.9	63.1	0.2	67.4	4.5
4	Erringer Road between Simi Town Center Way and SR-118 EB Ramps	65.4	65.5	0.1	67.7	2.3
5	Erringer Road South of SR-118 EB Ramps	64.0	64.0	0.0	65.2	1.2
11	Lost Canyons Drive between Erringer Road and Lost Canyons Golf Club	53.4	56.7	3.3	61.3	7.9
12	Lost Canyons Drive between Los Canyons Golf Club and Tapo Canyon Road	51.6	53.6	2.0	58.7	7.1
13	Tapo Canyon Road between Lost Canyons Drive and Alamo Street	63.4	63.9	0.5	66.3	2.9
14	Tapo Canyon Road between Alamo Street and SR-118 WB Ramps	66.5	66.9	0.4	68.1	1.6

Table 2 - Forecast Net Trip Generation of Proposed Project						
ADT	AM Peak Hour			PM Peak Hour		
	Total	In	Out	Total	In	Out
2840	233	37	196	318	211	107

Segment	ADT					
	Existing (2008)[1]	Project Volumes (Existing Roadway Network)[2]	Existing With Project (Existing Roadway Network)	Cumulative[3]	Project Volumes (Future Roadway Network)[2]	Cumulative With Project (Future Roadway Network)
Erringer Road between Lost Canyons Drive and Falcon St	6,620	1,080	7,700	24,090	595	24,685
Erringer Road between Falcon Street and Alamo Street	10,350	1,080	11,430	30,990	255	31,245
Erringer Road between Alamo Street and Simi Town Center Way	17,860	1,080	18,940	49,841	255	50,096
Erringer Road between Simi Town Center Way and SR-118 EB Ramps	32,550	980	33,530	55,700	0	55,700
Erringer Road South of SR-118 EB Ramps	22,810	30	22,840	30,670	0	30,670
Lost Canyons Drive between Erringer Road and Lost Canyons Golf Club	1,590	1,760	3,350	8,070	1,760	9,830
Lost Canyons Drive between Los Canyons Golf Club and Tapo Canyon Road	1,900	1,080	2,980	8,540	1,080	9,620
Tapo Canyon Road between Lost Canyons Drive and Alamo Street	15,680	1,760	17,440	28,400	1,760	30,160
Tapo Canyon Road between Alamo Street and SR-118 WB Ramps	40,060	1,475	41,535	53,800	1,475	55,275
Tapo Canyon Road between SR-118 WB Ramps and SR-118 EB Ramps	69,080	840	69,920	85,570	840	86,410
Tapo Canyon Road South of SR-118 EB Ramps	28,060	225	28,285	36,350	225	36,575

Note: 1) Source: Lost Canyons EIR, Appendix 4.10.

2) Rounded to the nearest 5.

3) Source: Lost Canyons EIR, Appendix 4.10, "Existing+Project+Cumulative CNEL" subtracted from "Existing+Project CNEL" addded to "Existing CNEL."

APPENDIX I

TRANSPORTATION MEMORANDUM

Michael Baker INTERNATIONAL

We Make a Difference

MEMORANDUM

To: Rick Nelson, Newport Pacific Land Company

From: Jordan Gray, PE TE, Michael Baker International

Date: November 13, 2025

Subject: Lost Canyons 180 Lots Transfer Project – Transportation

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Michael Baker International (Michael Baker), formerly RBF Consulting, has completed the traffic analysis of the proposed density transfer of 180 dwelling units for the Lost Canyons Project (the proposed project) within the Whiteface Specific Plan in the City of Simi Valley (City). A similar assessment was conducted for the 32 lot transfer associated with FM 5734-1 in April of 2024. The next phase of the entitlement and the focus of this assessment would relocate the 180 dwelling units from the Dry and Tapo Canyon areas to the former golf course north of Lost Canyon Drive. The relocation of units results in a zero-sum net change and the total number of dwelling units within the Specific Plan area remains at 364 units under the proposed project.

The results of this review concluded that there are no new traffic related impacts associated with the proposed relocation of the 180 dwelling units.

As outlined in this memorandum, this traffic analysis tiers off the work done as part of the certified 2010 Environmental Impact Report (EIR) completed for the Whiteface Specific Plan Amendment 6: Lost Canyons. As such, a review of the transportation related impacts utilize the same Level-of-Service (LOS) based criteria as the 2010 EIR and is not required to consider Vehicle Miles Travelled (VMT). A VMT analysis is only applicable to projects evaluated under CEQA after July 1, 2020 (CEQA Guidelines, § 15064.3(c)). Moreover, if a document meets the content requirements in effect when released for public review, "the document shall not need to be revised to conform to any new content requirements." (CEQA Guidelines, § 15007(c).) This 180-unit transfer need only be reviewed under the LOS standard that applied at the time that the City certified the 2010 EIR.

BACKGROUND

In 2007, the original *Lost Canyons Project Traffic Impact Analysis* (TIA) was completed as part of the CEQA documentation for the proposed project. Subsequently, a *Traffic Impact Analysis Addendum* (Addendum) was conducted in 2010 to assess minor modifications to the project at that time.

The approved project analyzed in the 2010 EIR included various land uses, including a mix of residential types, natural open space, a multi-purpose trail system, and an area for the development of a golf course and related commercial recreational amenities. Specifically, the following land uses were approved:

- 364 single-family dwelling units (located within a private gated community)
- Private 18-hole golf course (located within a private gated community)

- Private neighborhood park (located within a private gated community)
- Private 25 Golf Course Member Suite (located within a private gated community)
- Private approximately 6,000 square-foot service-oriented commercial use (located within a private gated community)
- Public trail head with public parking lot

While the proposed Lost Canyons project consists of multiple components and various land uses, as documented in the 2007 TIA and referenced in the 2010 EIR , only the residential component of the project (364 single-family dwelling units) is forecast to generate net added project related trips.

The 2010 TIA Addendum updated the traffic analysis with updated traffic count data and updated intersection geometry which showed that intersection operations were forecast to result in similar acceptable level of service operations (LOS C or better) and no new traffic impacts would occur with the updated 2009 traffic count data. The 2010 TIA Addendum concluded that no traffic mitigation measures were required as a result of the updated counts and modified intersection geometry. These results were documented and incorporated into the certified 2010 EIR.

PROJECT DESCRIPTION

Recent modifications to the Lost Canyons development would internally relocate 180 dwelling units from Dry Canyon and Tapo Canyon, south of Lost Canyons Drive, to the Clubcore area, north of Lost Canyons Drive. This reflects a zero-sum net change in the total number of dwelling units and is an equal transfer of units within the overall tentative tract map area. The overall total dwelling units for the entire project remains at 364 single-family dwelling units for the Lost Canyons Project. Ultimately, 362 lots are planned north of Lost Canyons Drive and 2 lots south of Lost Canyons Drive. One lot in Dry Canyon and another lot is in Tapo Canyon South, both accessed on the southern property boundary from existing easements. **Attachment A** contains the conceptual site plan.

APPROACH & METHODOLOGY

With the relocation of the 180 residential units, it is likely that the corresponding redistribution of traffic would change as well as the allocation of project related trips to the east and west via Erringer Road and Tapo Canyon Road. This transportation assessment evaluates the overall trip redistribution compared to the previous traffic studies. In order to provide a direct comparison to the previous 2007 and 2010 analysis, this analysis considers the same total trip generation associated with all 364 dwelling units, however the project trip distribution has been modified and is discussed in subsequent sections.

As part of this updated analysis, the study intersection listed below were analyzed. The study intersection identification numbers below are consistent with the TIA and addendum. **Exhibit 1** shows the study intersections. All exhibits are included in **Attachment B** at the end of this document.

1. Erringer Road & Lost Canyons Drive
2. Erringer Road & Falcon Street
3. Erringer Road & Alamo Street
4. Erringer Road & SR-118 WB Ramps/Simi Town Center Way
5. Erringer Road & SR-118 EB Ramps
11. Lost Canyons Golf Club & Lost Canyons Drive
12. Tapo Canyon Road & Lost Canyons Drive
13. Tapo Canyon Road & Alamo Street
14. Tapo Canyon Road & SR-118 WB Ramps
15. Tapo Canyon Road & SR-118 EB Ramps
16. "A" Street & Lost Canyons Drive

It should be noted that, as part of this analysis, the baseline "Without Project" scenarios remain unchanged from the original 2007 TIA and 2010 Addendum. Also, consistent with the TIA and addendum, the analysis outlined in this memorandum focuses on the following two "With Project" study scenarios:

- Existing With Project Conditions (Condition 2)
- Cumulative With Project Conditions (Condition 4)

Similarly, consistent with previous analysis efforts, the assessment outline in this memorandum was conducted using the City of Simi Valley's *Guidelines for the Preparation of Traffic Impact Reports* dated July 2003. As outlined in the City's guidelines, Level of Service (LOS) analysis should be conducted using Intersection Capacity Utilization (ICU) methodology to calculate the volume-to-capacity ratio (V/C). This methodology describes the operation of an intersection using a range of LOS from LOS A to LOS F. **Table 1** summarizes the corresponding LOS thresholds. The City's goal for peak hour intersection operations is LOS C or better.

Table 1: LOS and V/C Thresholds

LOS	Volume to Capacity
A	0.00 to 0.60
B	0.61 to 0.70
C	0.71 to 0.80
D	0.81 to 0.90
E	0.91 to 1.00
F	Exceeds 1.00

Source: *Guidelines for the Preparation of Traffic Impact Reports (City of Simi Valley, July 2003)*

TRIP GENERATION

To maintain consistency with the TIA and addendum, the same project trip generation estimates were used for the revised analysis. **Table 2** summarizes the project trip generation documented in the 2007 TIA.

Table 2: Forecast Net Trip Generation of Proposed Project

Land Use	AM Peak Hour Trips			PM Peak Hour Trips			Daily Trips
	In	Out	Total	In	Out	Total	
Proposed Project (364 single-family dwelling units)	69	204	273	233	135	368	3,483
Displaced Existing Land Use (18-hole golf course)	-32	-8	-40	-22	-28	-50	-643
Total Net Project Trip Generation	**37**	**196**	**233**	**211**	**107**	**318**	**2,840**

Source: *Lost Canyons Project Traffic Impact Analysis (RBF, October 2007)*

TRIP DISTRIBUTION

As discussed previously, the relocation of the 180 lots changes the trip distribution assumed in the 2007 TIA and addendum analyses. Based on the new location of the 180 lots, the intersection of "B" Street and Lost Canyons Drive previously included in 2007 TIA and 2010 addendum would be eliminated. Primary access to the site would be provided by two driveways: Lost Canyons Golf Club & Lost Canyons Drive and

"A" Street & Lost Canyons Drive. It should be noted that the secondary driveway towards the western limits of the project site will serve as an emergency vehicle access driveway only. As such, all project traffic was assumed to enter and exit the site via the two primary driveways.

Additionally, two of the 364 dwelling units are proposed to be accessed on the southern property boundary with existing easements. However, the previous TIA assumed trips associated with these two remote lots were loaded to the main project driveway off Lost Canyons Drive, which provides a conservative worst-case conditions of the operations at the project driveways. This updated analysis follows this same assumption.

Revised trip distributions for the entire 364-dwelling units were developed based on the location of the relocated lots and assigned to the project driveways accordingly. Generally, the redistribution of trips associated with the relocated lots assigns more trips to the west. Therefore, more traffic is anticipated to use Erringer Road to access the site.

Exhibit 2 shows the revised trip distribution under the existing roadway network and **Exhibit 3** shows the revised trip distribution under the future roadway network. Under the future roadway condition, project trips were distributed west on Falcon Street and Lost Canyons Drive, following similar roadway extension assumptions used in the 2007 TIA. **Exhibits 4** and **5** show the project trip assignment for the existing and future roadway networks, respectively.

TRAFFIC VOLUMES

The Existing with Project (Condition 2) traffic volumes were developed by adding all project related trips to the existing traffic volumes, including the redistributed trips associated with the 180-lot transfer. The existing traffic volumes were sourced from Condition 1 of the 2010 addendum which included updated traffic count data. **Exhibit 6** shows the updated Condition 2 traffic volumes.

Similarly, the Cumulative With Project (Condition 4) traffic volumes were developed by adding all project related trips to the cumulative traffic volumes. The cumulative traffic volumes were sourced from Condition 3 of the 2007 TIA which contained the City Traffic Model Cumulative Traffic Without Proposed Project. According to the 2010 addendum, all of the cumulative buildout volume forecasts remained unchanged as part of that analysis, thus the 2007 TIA contains the latest applicable forecasts. **Exhibit 7** shows the updated Condition 4 traffic volumes with the future roadway network after adding project related trips to the cumulative traffic volumes (Condition 3). **Attachments C** and **D** contain volume excepts from the 2007 TIA and 2010 addendum.

ICU ANALYSIS

The ICU results of each condition with the revised trip distributions due to the proposed relocation are listed in **Tables 3** and **4**. As shown, under both the Existing With Project (Condition 2) and Cumulative With Project (Condition 4) study scenarios, all intersections are projected to operate at LOS C or better, in accordance with City's intersection LOS goal. **Tables 5** and **6** compare the traffic analysis results of each condition to the 2010 addendum results. As expected, the comparisons show a slight increase in utilization at locations along Erringer Road to the west due to the revised trip distributions. However, no new traffic impacts are identified due to the proposed dwelling unit relocation. As such, no new traffic mitigation measures are required. **Attachment E** contains the detailed analysis worksheets.

Table 3: AM/PM ICU Results – Condition 2

ID	Study Intersection	Existing With Project (Condition 2)			
		AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
1	Erringer Road & Lost Canyons Drive	0.13	A	0.18	A
2	Erringer Road & Falcon Street	0.16	A	0.13	A
3	Erringer Road & Alamo Street	0.41	A	0.43	A
4	Erringer Road & SR-118 WB Ramps/Simi Town Center Way	0.35	A	0.50	A
5	Erringer Road & SR-118 EB Ramps	0.32	A	0.50	A
11	Lost Canyons Golf Club & Lost Canyons Drive	0.16	A	0.16	A
12	Tapo Canyon Road & Lost Canyons Drive	0.15	A	0.19	A
13	Tapo Canyon Road & Alamo Street	0.47	A	0.45	A
14	Tapo Canyon Road & SR-118 WB Ramps	0.57	A	0.63	B
15	Tapo Canyon Road & SR-118 EB Ramps	0.46	A	0.54	A
16	"A" Street & Lost Canyons Drive	0.14	A	0.14	A

Table 4 : AM/PM ICU Results – Condition 4

ID	Study Intersection	Cumulative With Project (Condition 4)			
		AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
1	Erringer Road & Lost Canyons Drive	0.47	A	0.39	A
2	Erringer Road & Falcon Street	0.34	A	0.31	A
3	Erringer Road & Alamo Street	0.69	B	0.71	C
4	Erringer Road & SR-118 WB Ramps/Simi Town Center Way	0.60	A	0.65	B
5	Erringer Road & SR-118 EB Ramps	0.50	C	0.59	A
11	Lost Canyons Golf Club & Lost Canyons Drive	0.24	A	0.35	A
12	Tapo Canyon Road & Lost Canyons Drive	0.23	A	0.36	A
13	Tapo Canyon Road & Alamo Street	0.69	B	0.79	C
14	Tapo Canyon Road & SR-118 WB Ramps	0.67	B	0.80	C
15	Tapo Canyon Road & SR-118 EB Ramps	0.68	B	0.71	C
16	"A" Street & Lost Canyons Drive	0.18	A	0.32	A

Table 5: ICU Comparison – Condition 2

ID	Study Intersection	2010 Addendum Results				180 Lot Transfer Analysis Results					
		Existing With Project (Condition 2)				Existing With Project (Condition 2)					
		AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
		V/C	LOS	V/C	LOS	V/C	LOS	Δ V/C	V/C	LOS	Δ V/C
1	Erringer Road & Lost Canyons Drive	0.08	A	0.11	A	0.13	A	0.05	0.18	A	0.07
2	Erringer Road & Falcon Street	0.14	A	0.11	A	0.16	A	0.02	0.13	A	0.02
3	Erringer Road & Alamo Street	0.29	A	0.30	A	0.41	A	0.12	0.43	A	0.13
4	Erringer Road & SR-118 WB Ramps/Simi Town Center Way	0.32	A	0.42	A	0.35	A	0.03	0.50	A	0.08
5	Erringer Road & SR-118 EB Ramps	0.31	A	0.47	A	0.32	A	0.01	0.50	A	0.03
11	Lost Canyons Golf Club & Lost Canyons Drive	0.12	A	0.19	A	0.16	A	0.04	0.16	A	-0.03
12	Tapo Canyon Road & Lost Canyons Drive	0.14	A	0.17	A	0.15	A	0.01	0.19	A	0.02
13	Tapo Canyon Road & Alamo Street	0.41	A	0.45	A	0.47	A	0.06	0.45	A	0.00
14	Tapo Canyon Road & SR-118 WB Ramps	0.47	A	0.50	A	0.57	A	0.1	0.63	B	0.13
15	Tapo Canyon Road & SR-118 EB Ramps	0.47	A	0.57	A	0.46	A	-0.01	0.54	A	-0.03
16	"A" Street & Lost Canyons Drive	Intersection not assessed in 2010 Addendum				0.14	A	--	0.14	A	--

Table 6: ICU Comparison – Condition 4

ID	Study Intersection	2010 Addendum Results				180 Lot Transfer Analysis Results					
		Cumulative With Project (Condition 4)				Cumulative With Project (Condition 4)					
		AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
		V/C	LOS	V/C	LOS	V/C	LOS	Δ V/C	V/C	LOS	Δ V/C
1	Erringer Road & Lost Canyons Drive	0.46	A	0.28	A	0.47	A	0.01	0.39	A	0.11
2	Erringer Road & Falcon Street	0.34	A	0.30	A	0.34	A	0.00	0.31	A	0.01
3	Erringer Road & Alamo Street	0.49	A	0.53	A	0.69	B	0.20	0.71	C	0.18
4	Erringer Road & SR-118 WB Ramps/Simi Town Center Way	0.53	A	0.61	B	0.60	A	0.07	0.65	B	0.04
5	Erringer Road & SR-118 EB Ramps	0.48	A	0.59	A	0.50	C	0.02	0.59	A	0.00
11	Lost Canyons Golf Club & Lost Canyons Drive	0.18	A	0.24	A	0.24	A	0.06	0.35	A	0.11
12	Tapo Canyon Road & Lost Canyons Drive	0.23	A	0.31	A	0.23	A	0.00	0.36	A	0.05
13	Tapo Canyon Road & Alamo Street	0.64	B	0.67	B	0.69	B	0.05	0.79	C	0.12
14	Tapo Canyon Road & SR-118 WB Ramps	0.61	B	0.70	B	0.67	B	0.06	0.80	C	0.10
15	Tapo Canyon Road & SR-118 EB Ramps	0.68	B	0.75	C	0.68	B	0.00	0.71	C	-0.04
16	"A" Street & Lost Canyons Drive	Intersection not assessed in 2010 Addendum				0.18	A	--	0.32	A	--

CONCLUSION

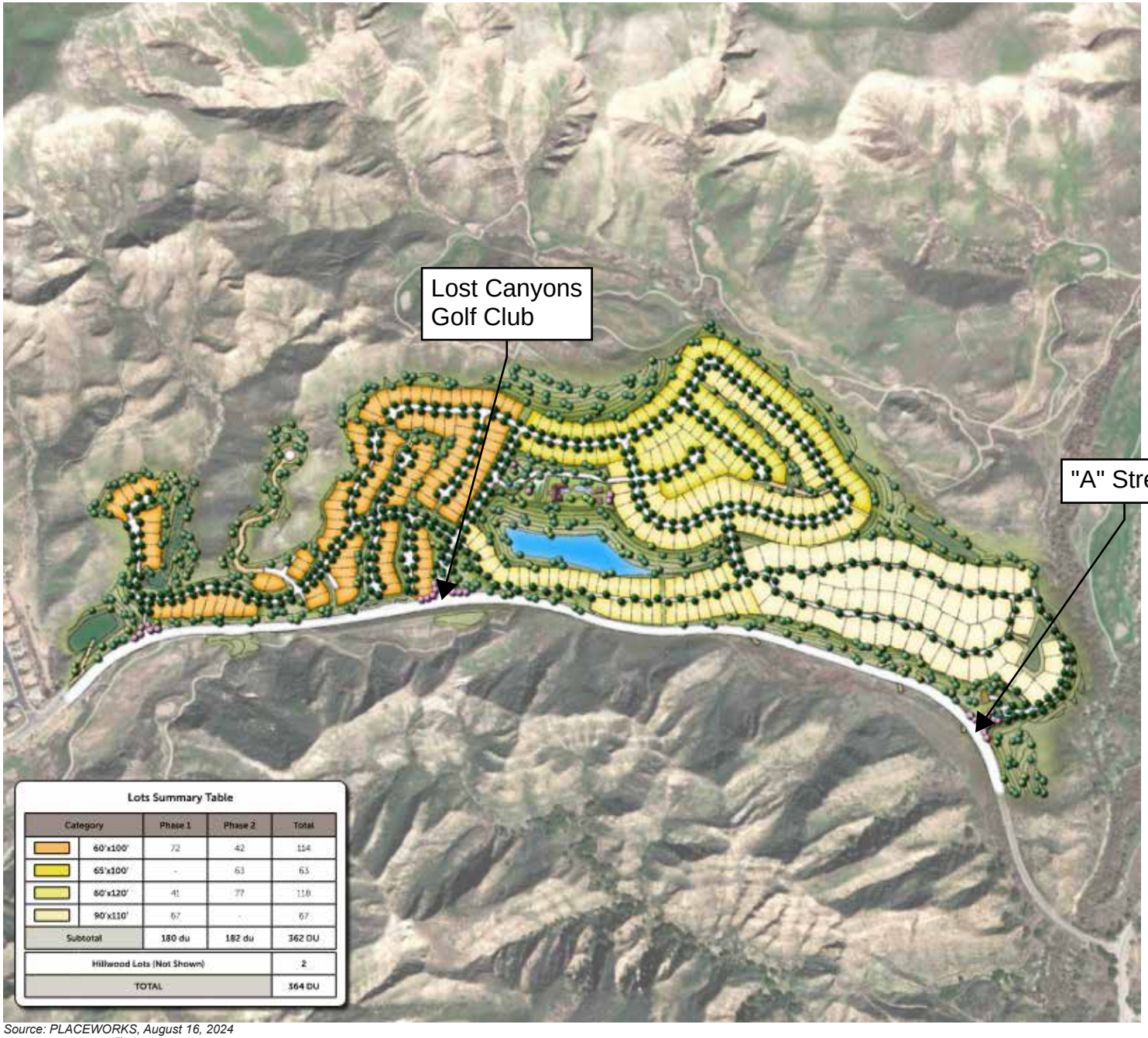
This traffic analysis considers the proposed density transfer of 180 dwelling units within the Whiteface Specific Plan Area. This assessment follows the same methodology as the original 2007 TIA as well as the 2010 Addendum. As discussed, the relocation of units results in a zero-sum net change and the total number of dwelling units within the Specific Plan area remains at 364 units.

As discussed previously, this analysis only need consider potential transportation related impacts under CEQA using LOS thresholds and is not required to evaluate VMT.

After reviewing these proposed modifications this analysis shows that there are no new transportation related impacts and no traffic mitigation measures are required.

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Attachment A - Conceptual Site Plan



Source: PLACEWORKS, August 16, 2024

Not to Scale

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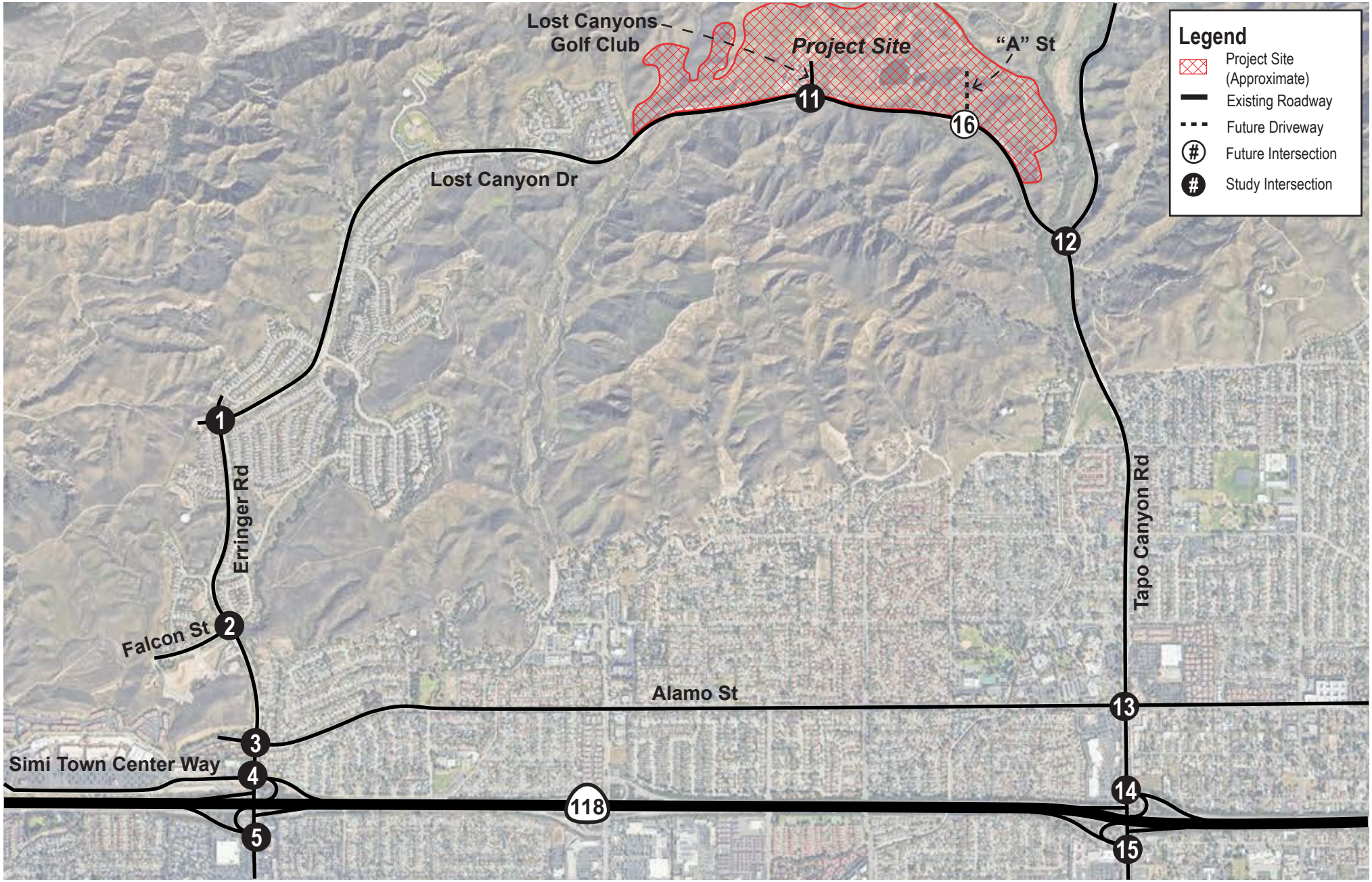
Concept Illustrative

October 2024

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Attachment B - Exhibits



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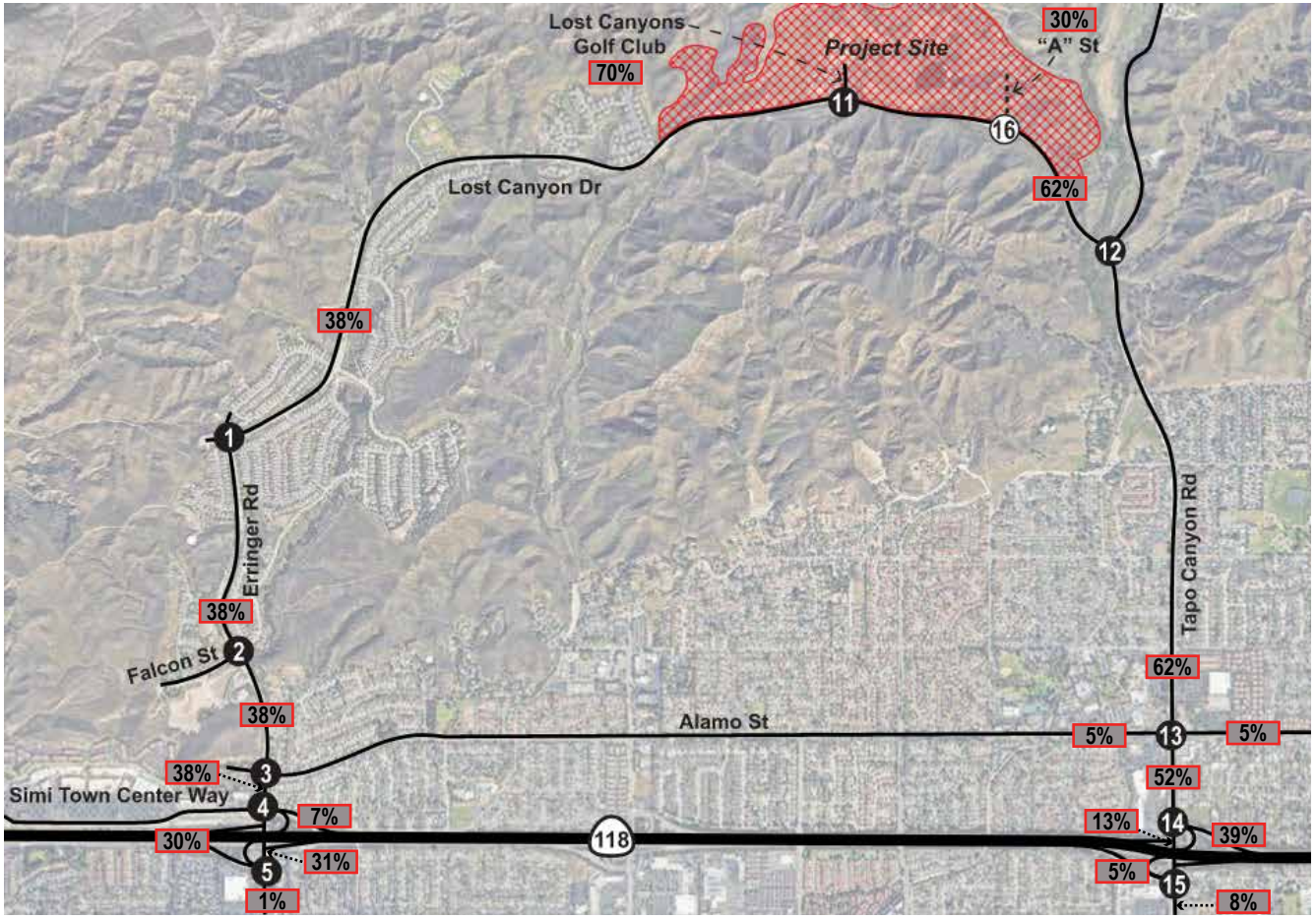
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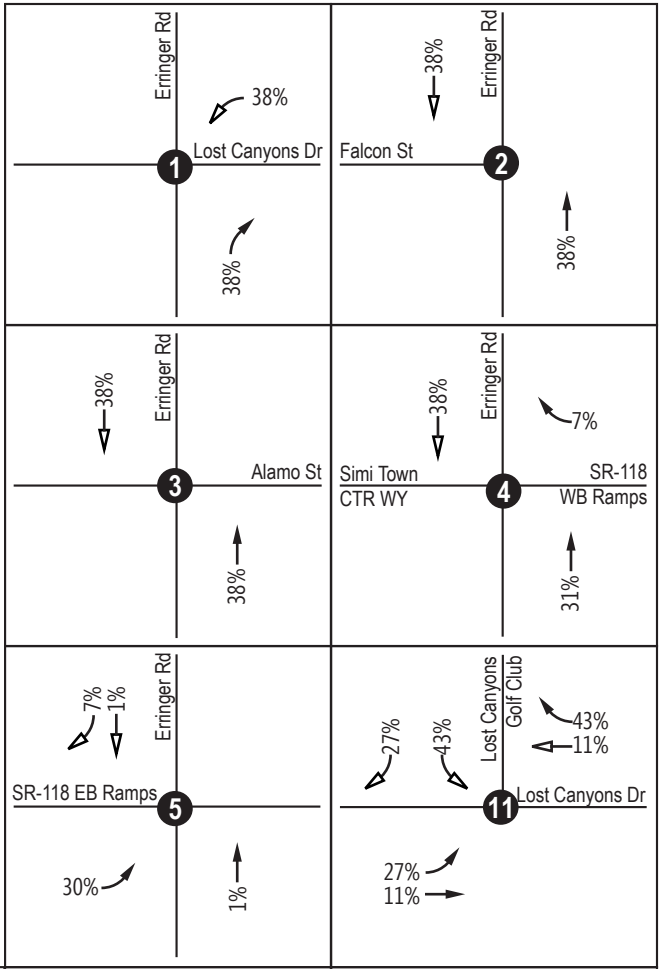
Study Intersection Locations

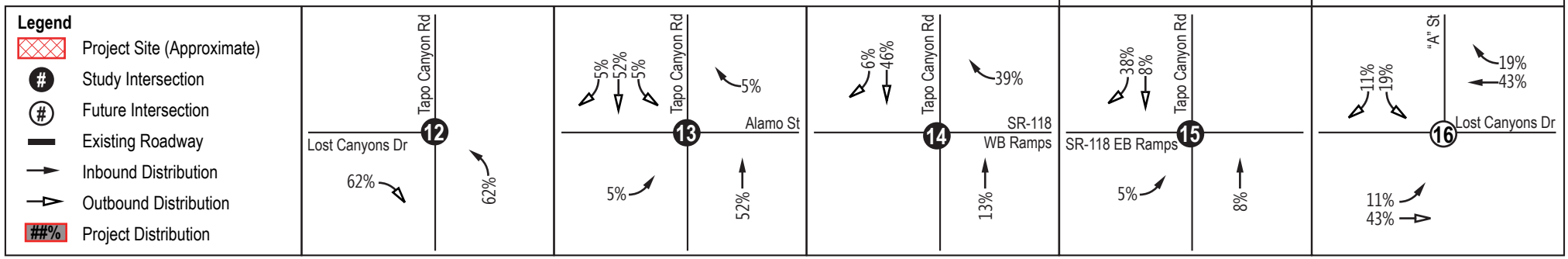
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Exhibit 1







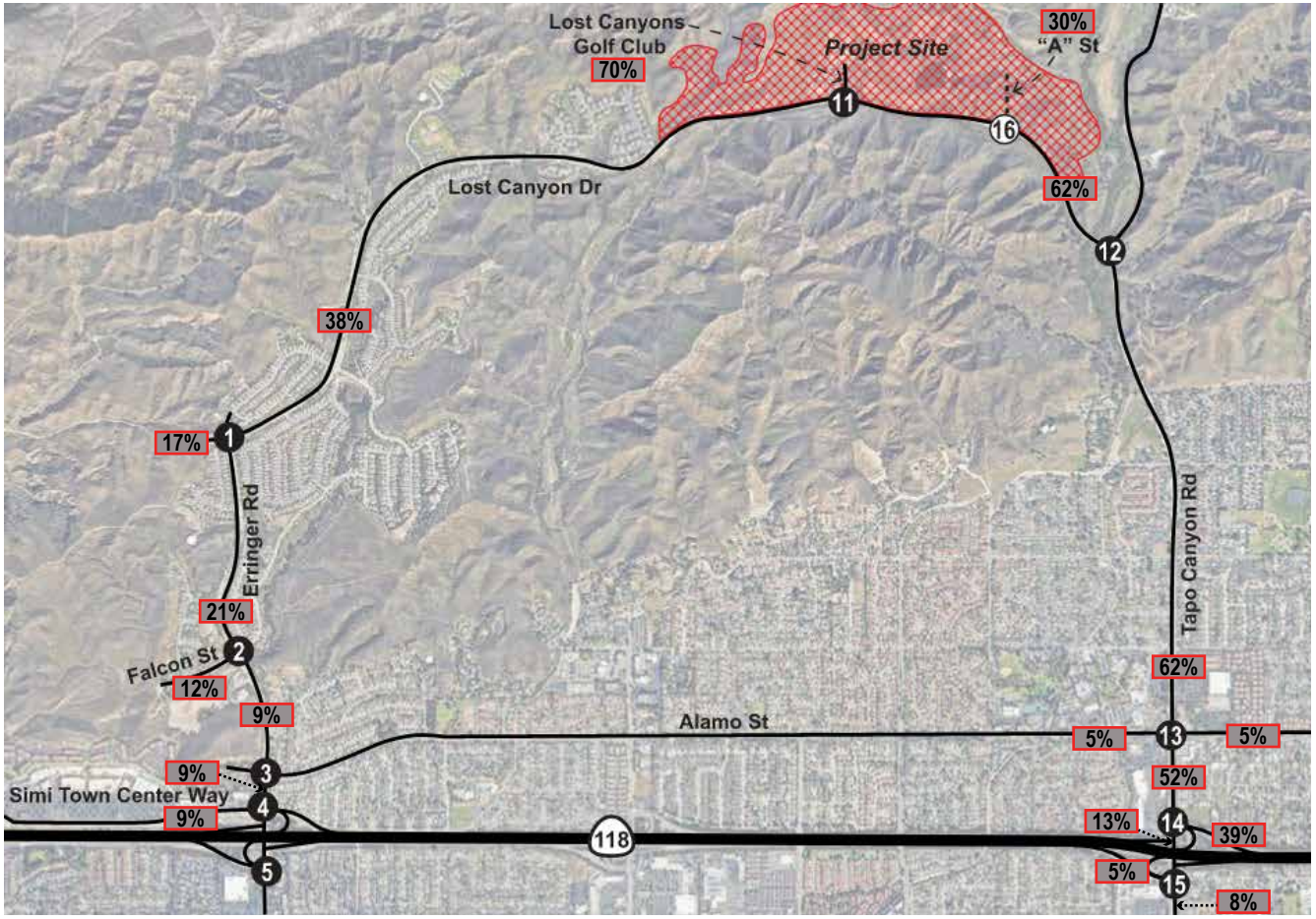
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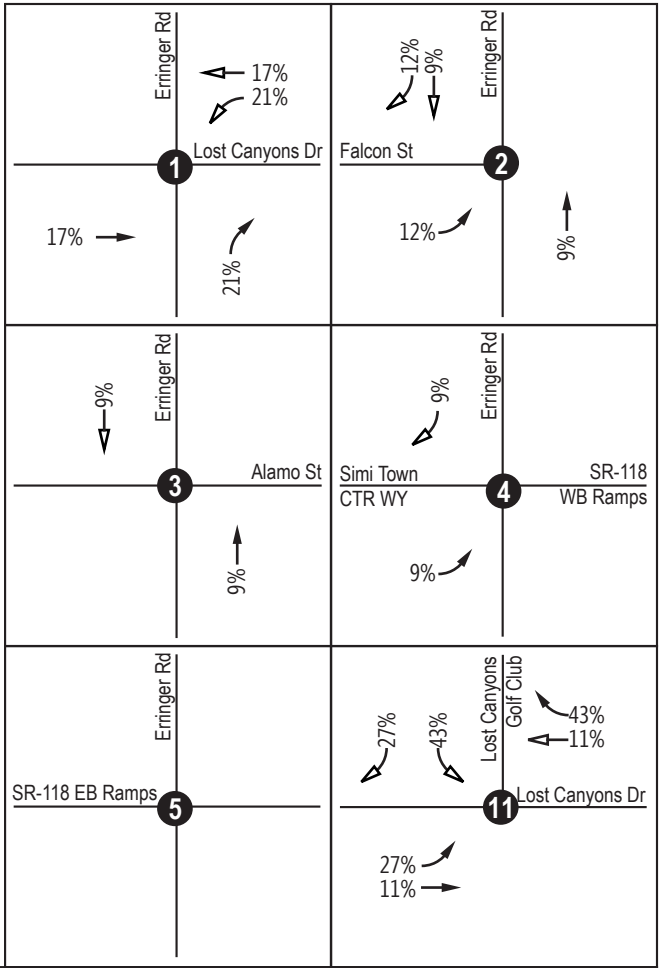
Project Trip Distribution - Existing Roadway Network

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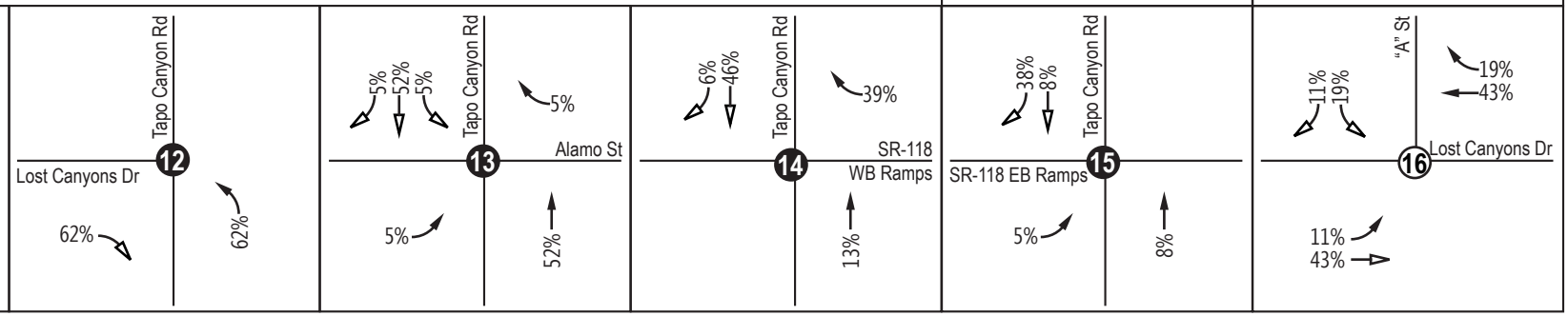
Exhibit 2





Legend

- Project Site (Approximate)
- # Study Intersection
- # Future Intersection
- Existing Roadway
- Inbound Distribution
- Outbound Distribution
- ##% Project Distribution



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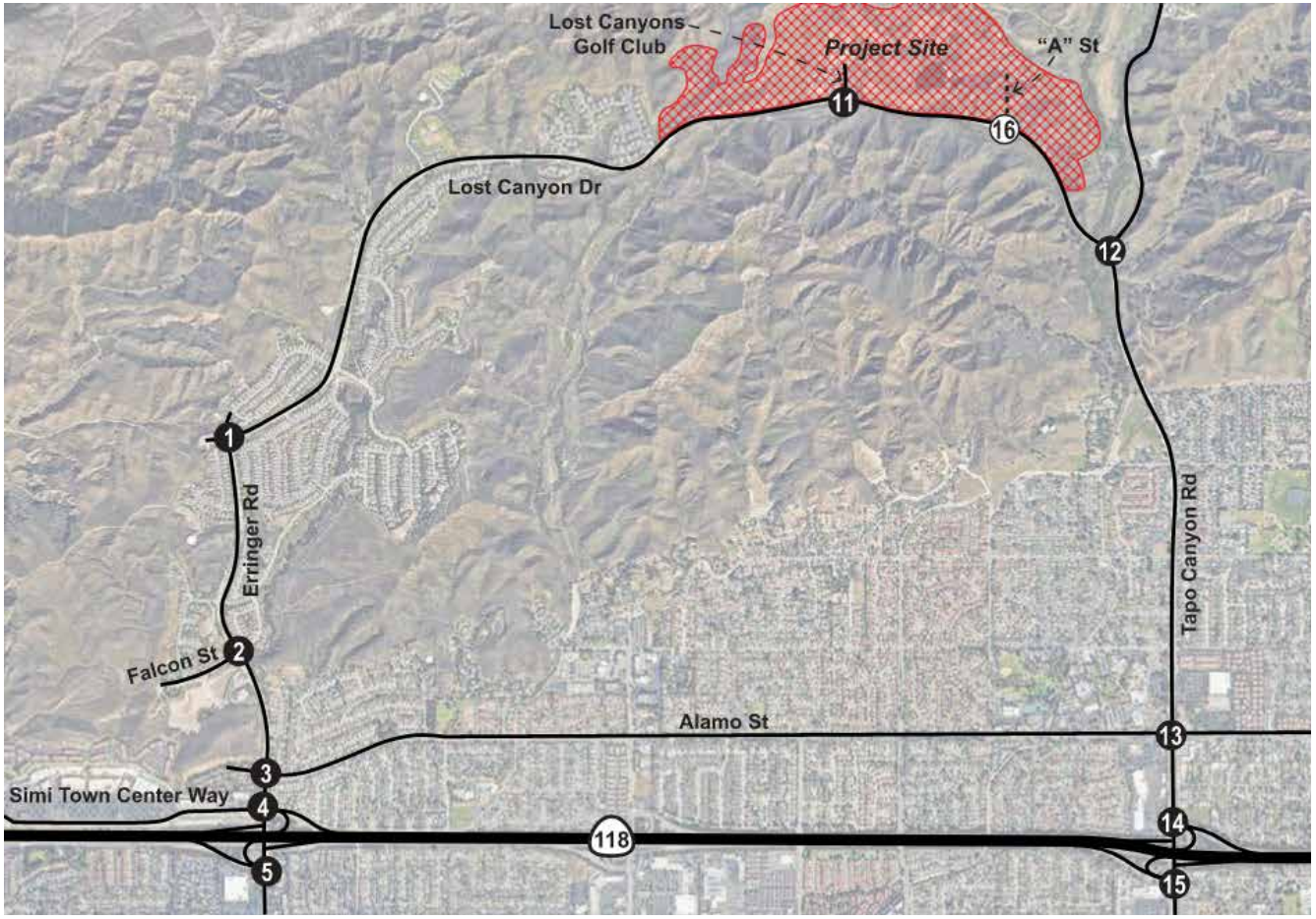
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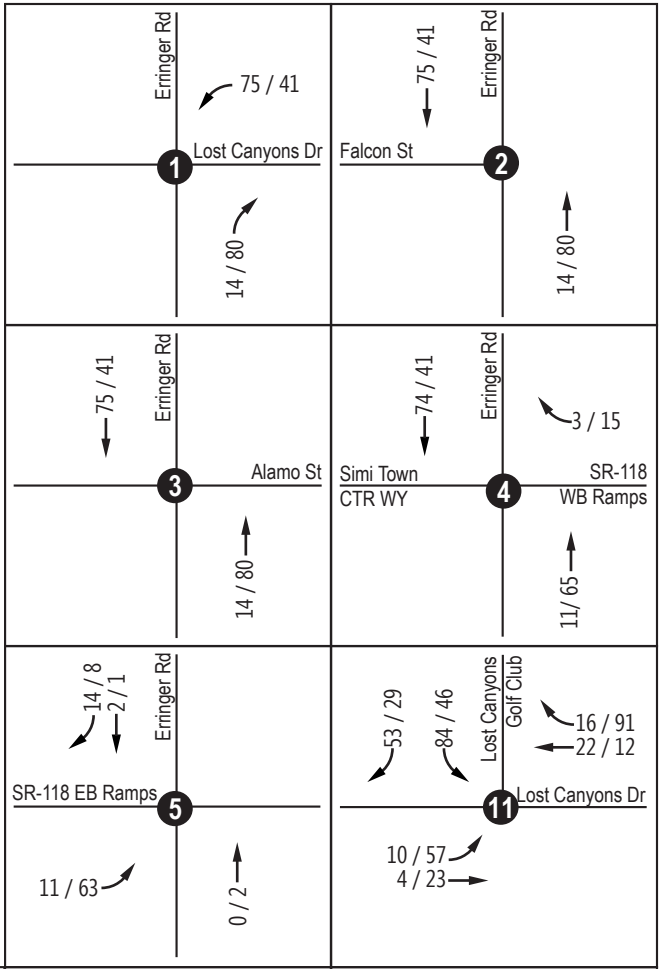
Project Trip Distribution - Future Roadway Network

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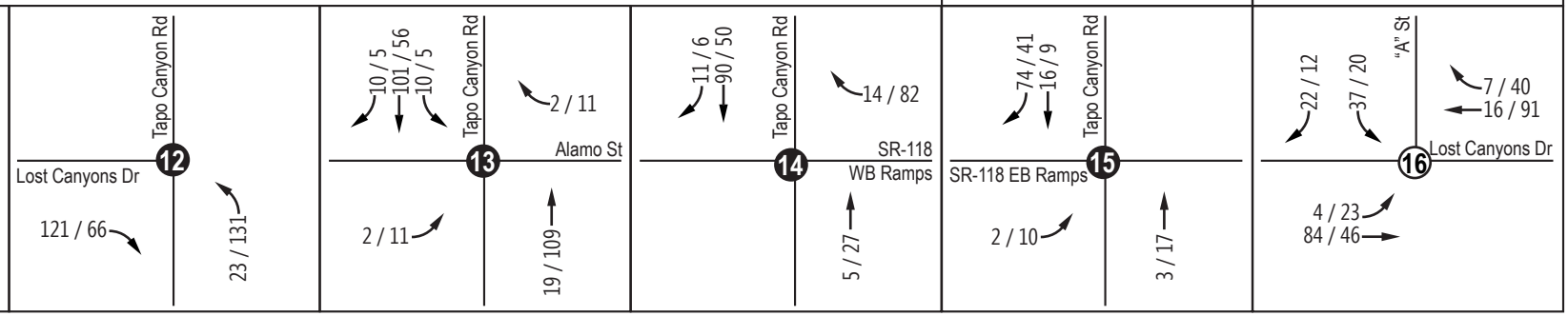
Exhibit 3





Legend

- Project Site (Approximate)
- # Study Intersection
- # Future Intersection
- Existing Roadway
- Future Project Driveway
- ## / ## AM/PM Peak Hour Volumes



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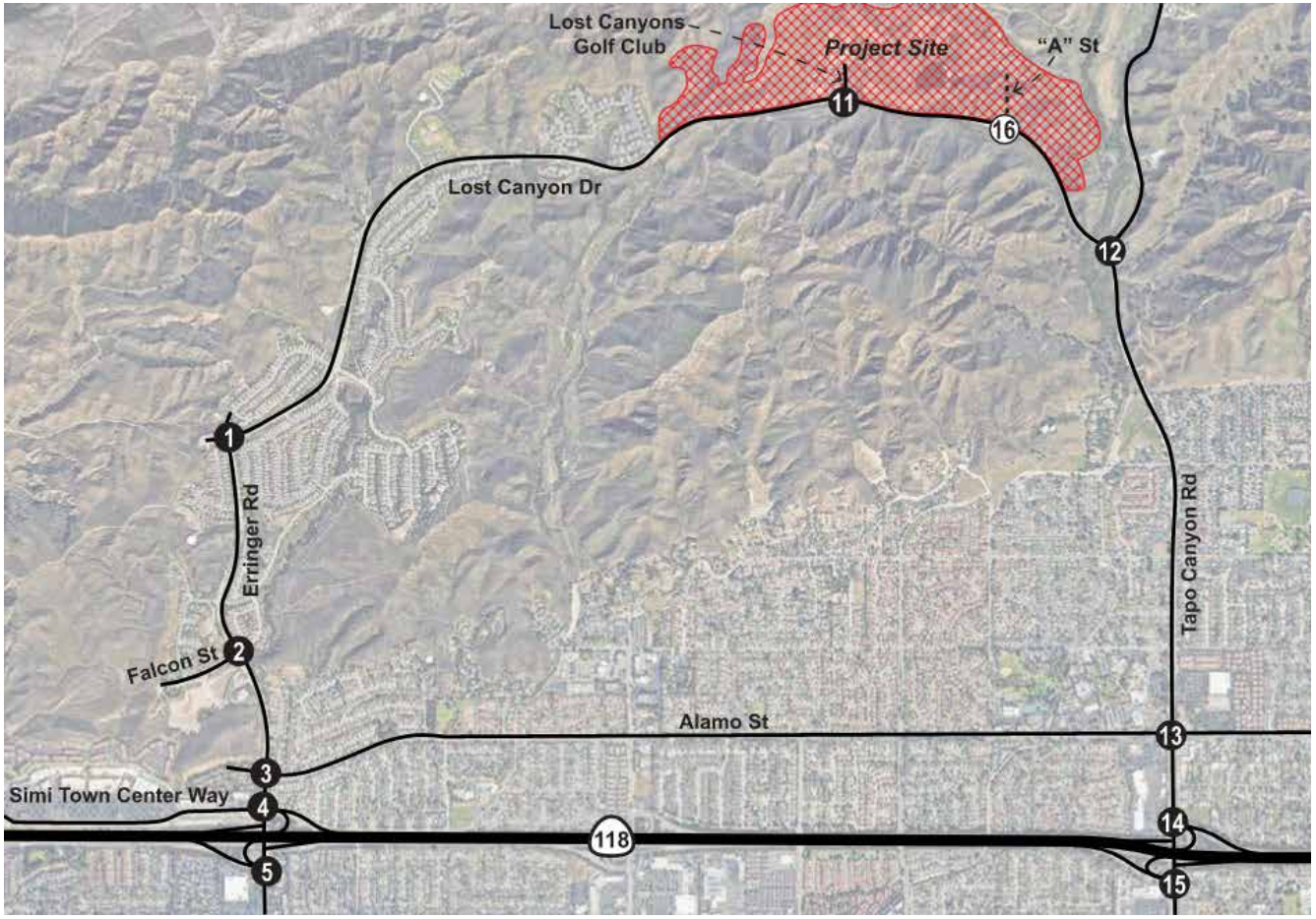
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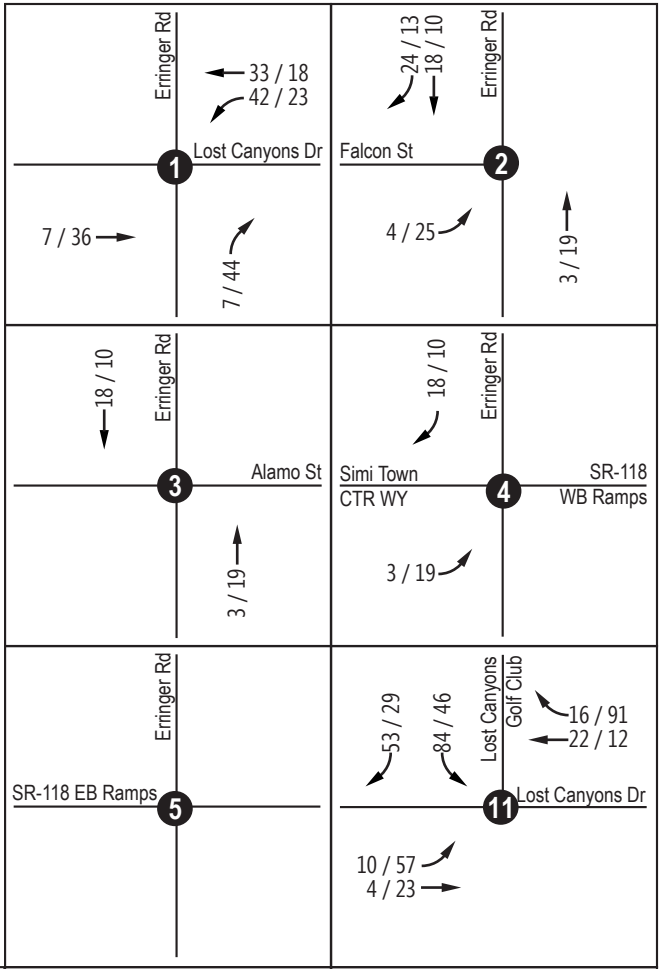
Project Trip Assignment - Existing Roadway Network

October 2024

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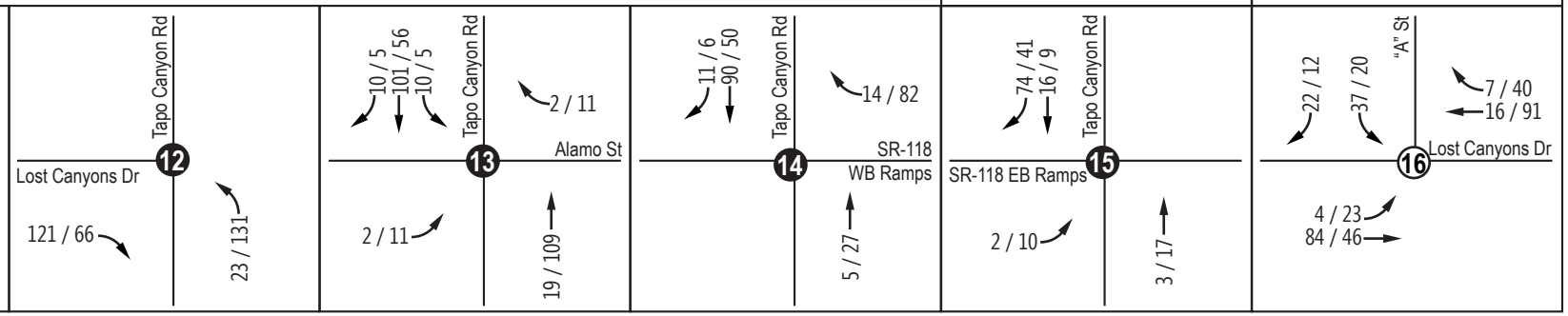
Exhibit 4





Legend

- Project Site (Approximate)
- # Study Intersection
- (#) Future Intersection
- Existing Roadway
- Future Project Driveway
- ## / ## AM/PM Peak Hour Volumes



Not to Scale

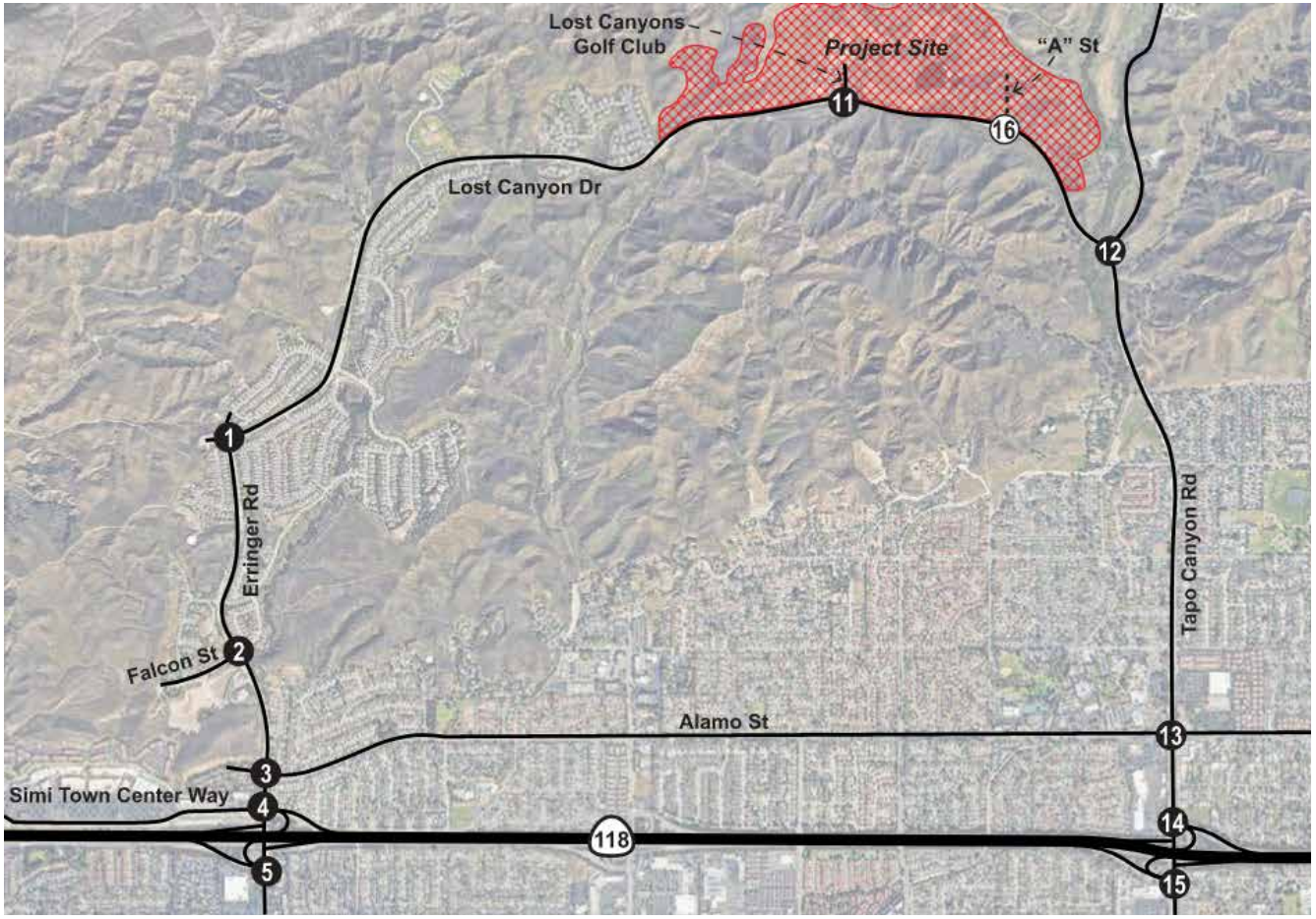
Project Trip Assignment - Future Roadway Network

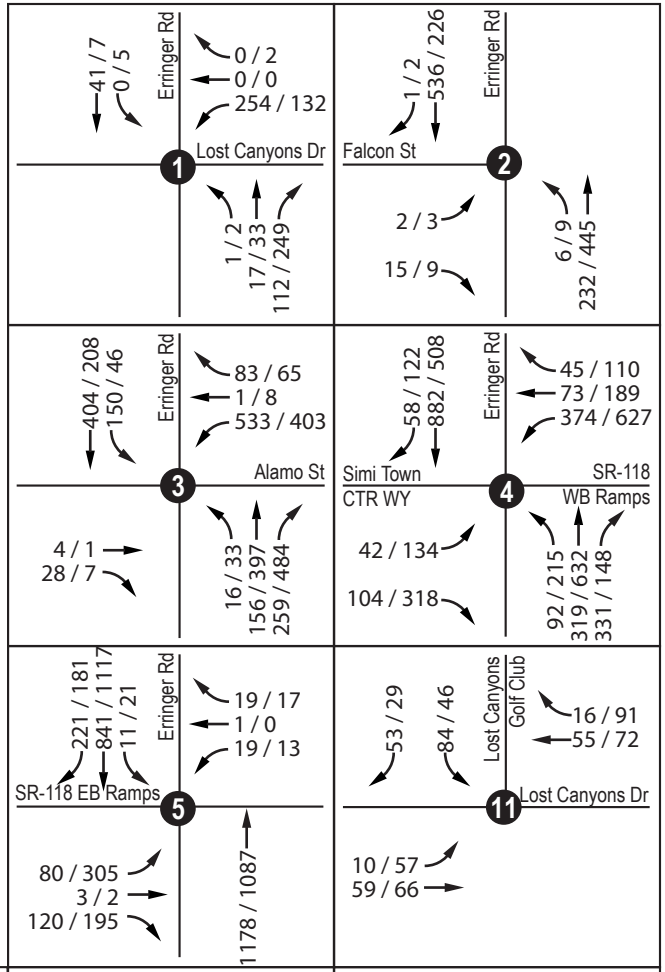
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Exhibit 5





Legend

- Project Site (Approximate)
- # Study Intersection
- (#) Future Intersection
- Existing Roadway
- Future Project Driveway
- ## / ## AM/PM Peak Hour Volumes

Not to Scale

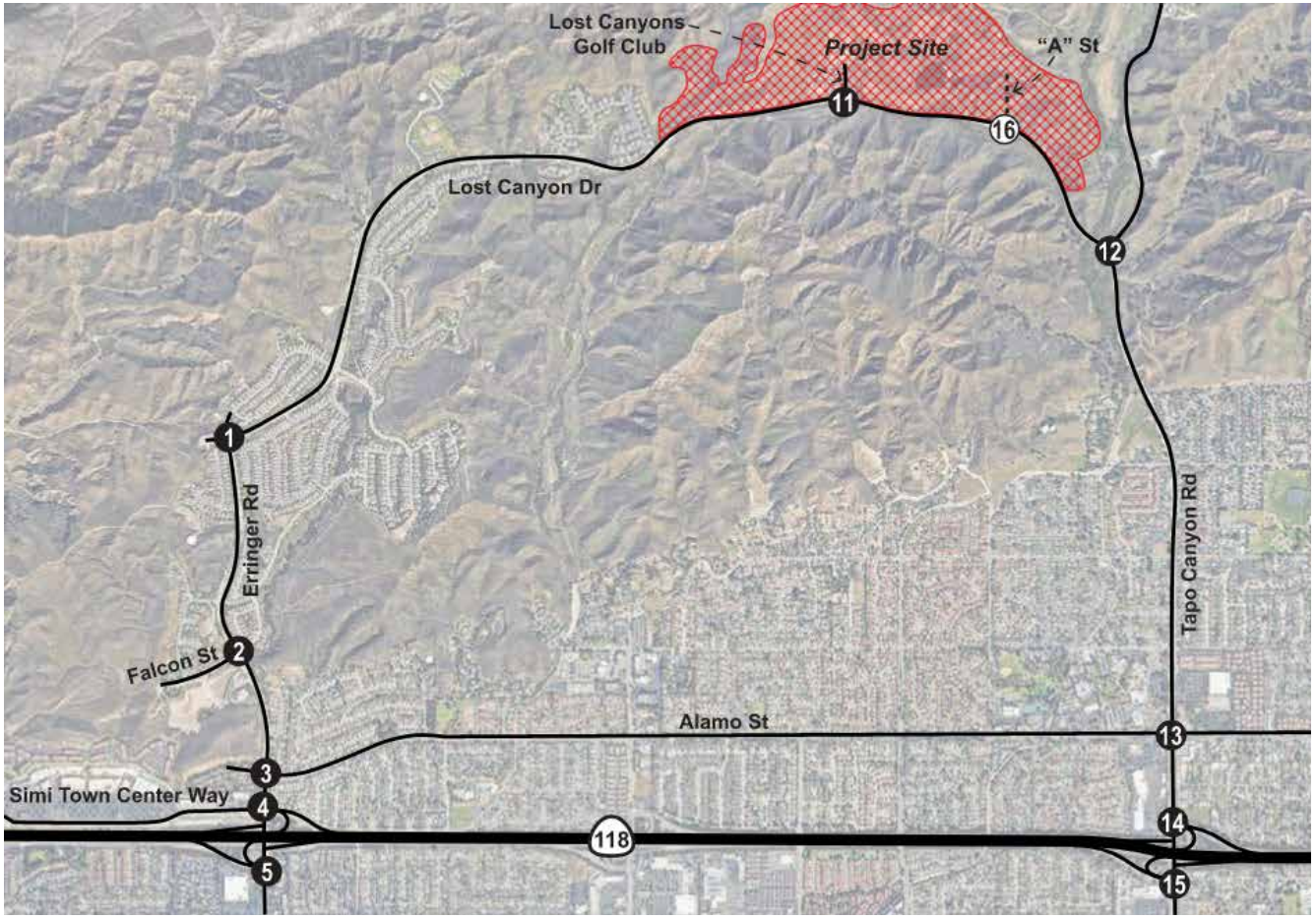
Condition 2 Peak Hour Volumes (Existing + Project)

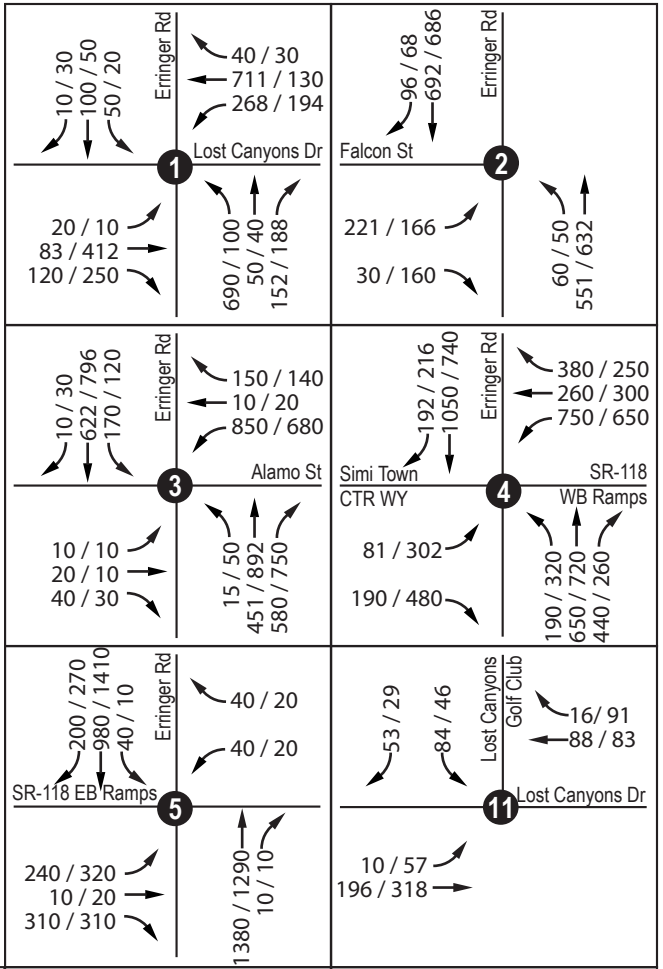
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November 2025

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Exhibit 6





Legend

- Project Site (Approximate)
- # Study Intersection
- # Future Intersection
- Existing Roadway
- Future Project Driveway
- ## / ## AM/PM Peak Hour Volumes

Not to Scale

Condition 4 Peak Hour Volumes (Cumulative + Project)

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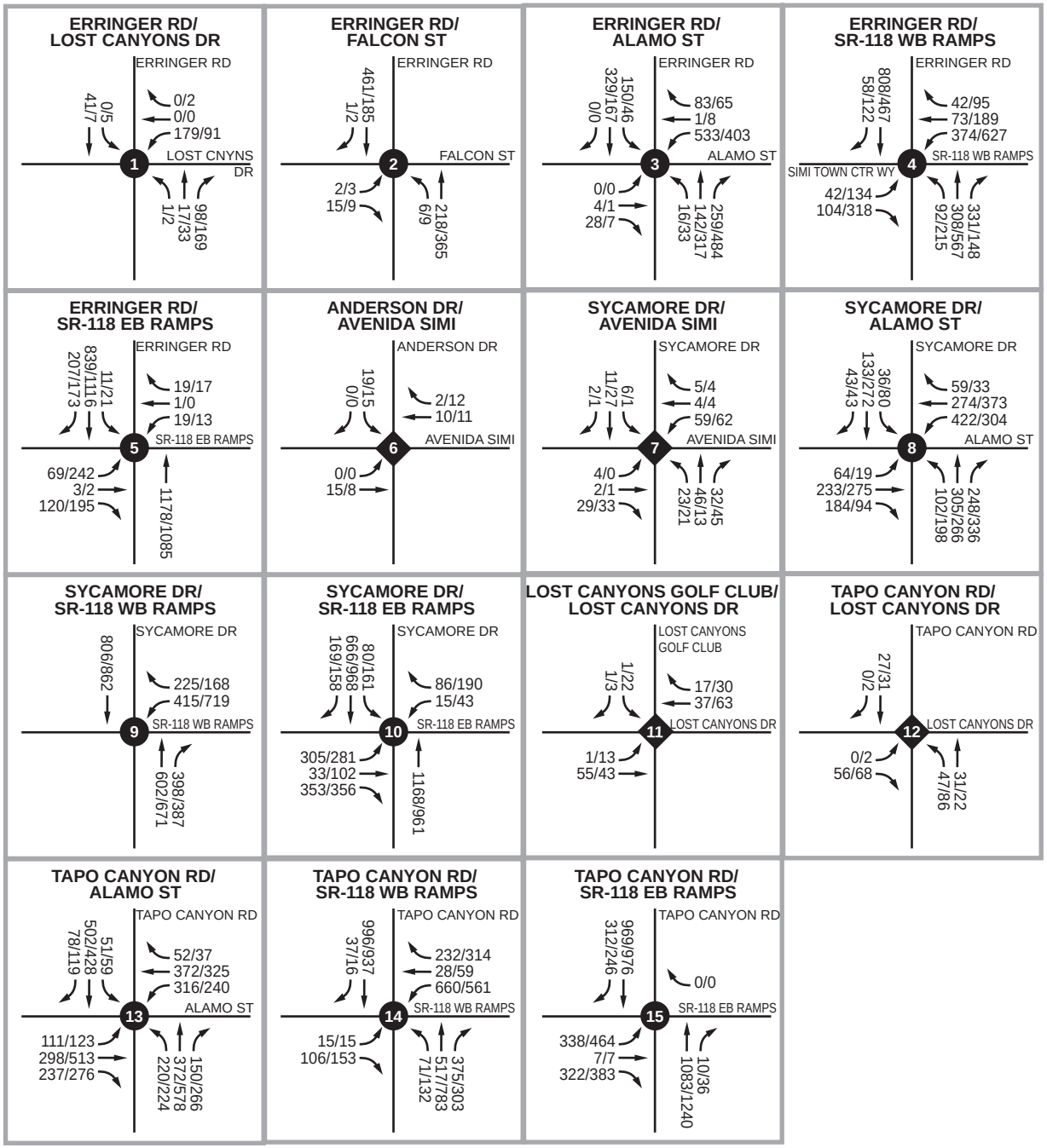
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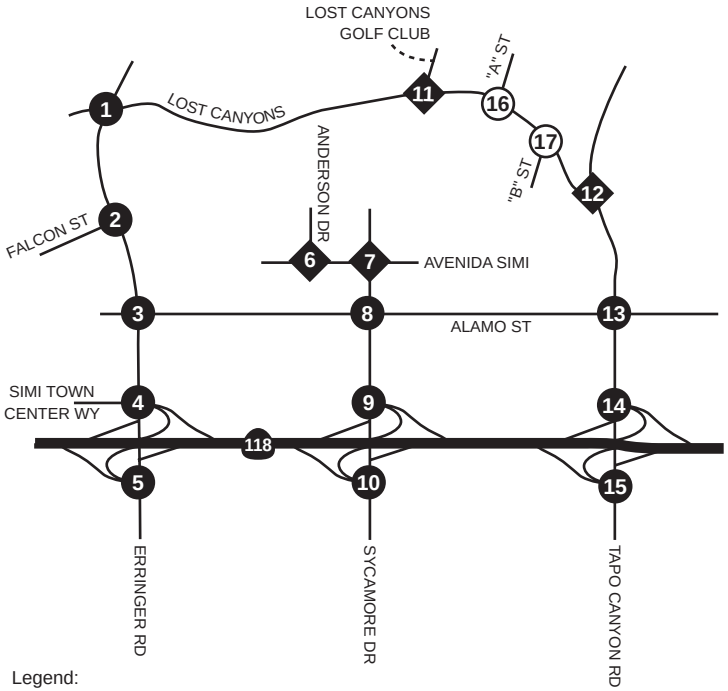
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Exhibit 7

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Attachment C - Condition 1 Volumes Excerpt from 2010 TIA





Legend:

XX/XX AM/PM Peak Hour Volumes

Signal-Controlled Study Intersection

Stop-Controlled Study Intersection

Future Study Intersection

Not to Scale

Condition 1 AM & PM Peak Hour Intersection Volumes

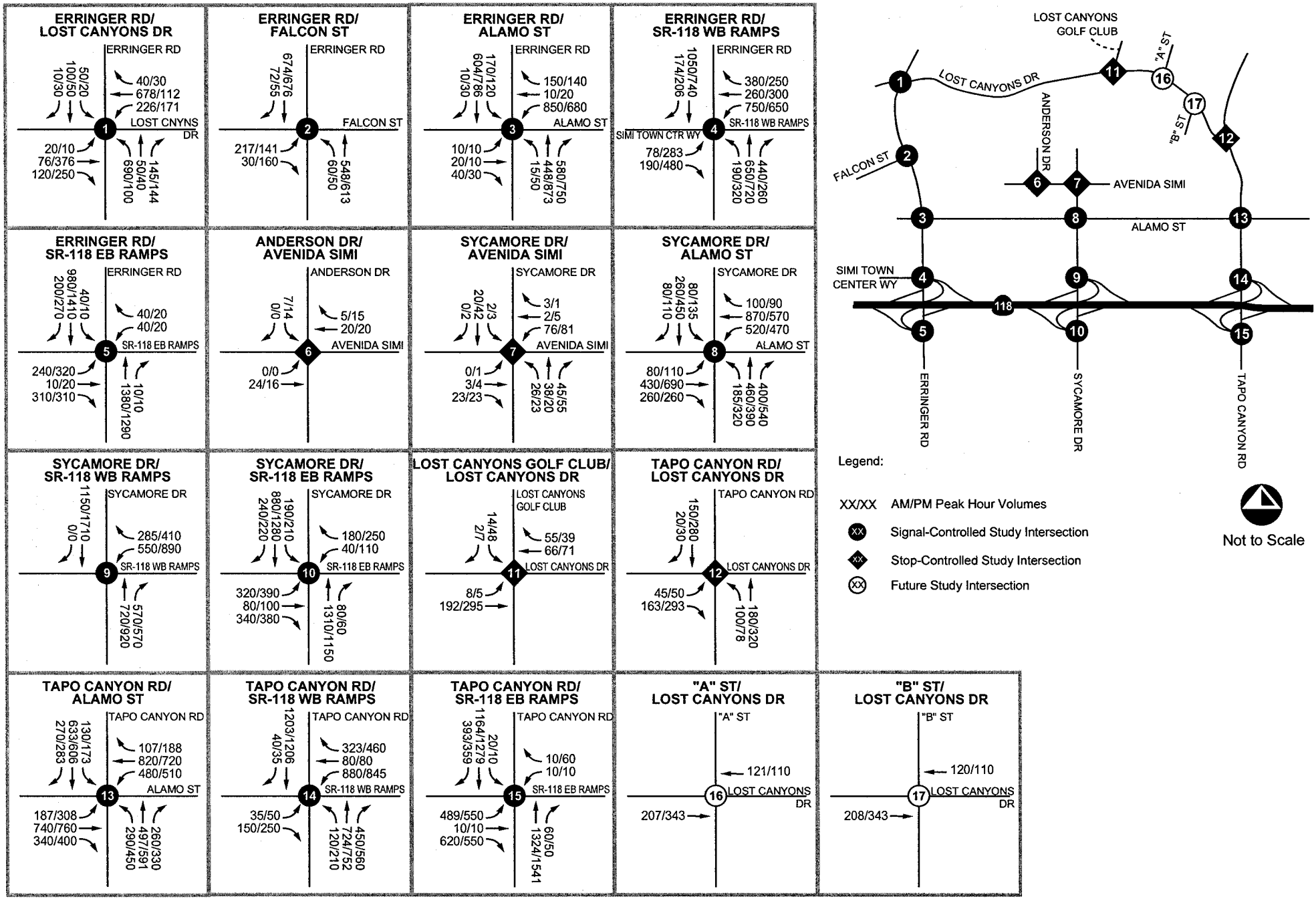
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OCT/2009

Exhibit 1

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Attachment D - Condition 3 Volumes Excerpt from 2007 TIA



Condition 3 AM & PM Peak Hour Intersection Volumes

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SEP/2007

Exhibit 11

Michael Baker
INTERNATIONAL

Attachment E - Analysis Worksheets

Existing + Project (Condition 2)

Int. 1 **Lost Canyon Drive at Erringer Rd**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	1			1						1		
	(left) 2		1			1					1		
	3			1									1
	4												
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		1	1	1	1	1	0	0	0	0	2	0	1
Capacity		1800	1800	1800	1800	1800	0	0	0	0	3600	0	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		1	17	112	0	41	0	0	0	0	254	0	0
Adjusted Hourly Volume		1	17	112	0	41	0	0	0	0	254	0	0
Utilization Factor		0.00	0.01	0.06	0.00	0.02	0.00	0.00	0.00	0.00	0.07	0.00	0.00
Critical Factors				0.06	0.00				0.00	0.00	0.07		

AM Peak Period
ICU Ratio = 0.13 LOS = A

Int. 1 **Lost Canyon Drive at Erringer Rd**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	1	0	0	1	0	0	0	0	0	1	0	0
	(left) 2	0	1	0	0	1	0	0	0	0	1	0	0
	3	0	0	1	0	0	0	0	0	0	0	0	1
	4	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		1	1	1	1	1	0	0	0	0	2	0	1
Capacity		1800	1800	1800	1800	1800	0	0	0	0	3600	0	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		2	33	249	5	7	0	0	0	0	132	0	2
Adjusted Hourly Volume		2	33	249	5	7	0	0	0	0	132	0	2
Utilization Factor		0.00	0.02	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00
Critical Factors				0.14	0.00				0.00	0.00	0.04		

PM Peak Period
ICU Ratio = 0.18 LOS = A

Opening Year + Project (Condition 4)

Int. 1 **Lost Canyon Drive at Erringer Rd**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	1			1			1			1		
	(left) 2	1				1	1		1			1	
	3		1	1					1			1	
	4									1			1
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		2	0	1	1	1	0	1	2	1	1	2	1
Capacity		3600	0	1800	1800	1800	0	1800	3600	1800	1800	3600	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		690	50	152	50	100	10	20	83	120	268	711	40
Adjusted Hourly Volume		690	0	202	50	110	0	20	83	120	268	711	40
Utilization Factor		0.19	0.00	0.11	0.03	0.06	0.00	0.01	0.02	0.07	0.15	0.20	0.02
Critical Factors		0.19				0.06				0.07	0.15		

AM Peak Period
ICU Ratio = 0.47 LOS = A

Int. 1 **Lost Canyon Drive at Erringer Rd**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	1	0	0	1	0	0	1	0	0	1	0	0
	(left) 2	1	0	0	0	1	1	0	1	0	0	1	0
	3	0	1	1	0	0	0	0	1	0	0	1	0
	4	0	0	0	0	0	0	0	0	1	0	0	1
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		2	0	1	1	1	0	1	2	1	1	2	1
Capacity		3600	0	1800	1800	1800	0	1800	3600	1800	1800	3600	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		100	40	188	20	50	30	10	412	250	194	130	30
Adjusted Hourly Volume		100	40	228	20	80	0	10	412	250	194	130	30
Utilization Factor		0.03	0.00	0.13	0.01	0.04	0.00	0.01	0.11	0.14	0.11	0.04	0.02
Critical Factors				0.13	0.01					0.14	0.11		

PM Peak Period
ICU Ratio = 0.39 LOS = A

Existing + Project (Condition 2)

Int. 2 **Erringer Rd at Falcon St**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside (left) 1	1				1		1					
	2		1			1				1			
	3		1				1						
	4												
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		1	2	0	0	2	1	1	0	1	0	0	0
Capacity		1800	3600	0	0	3600	1800	1800	0	1800	0	0	0
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				Y									
Hourly Volume		6	232	0	0	536	1	2	0	15	0	0	0
Adjusted Hourly Volume		6	232	0	0	536	1	2	0	15	0	0	0
Utilization Factor		0.00	0.06	0.00	0.00	0.15	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Critical Factors		0.00				0.15				0.01	0.00	0.00	0.00

AM Peak Period
ICU Ratio = 0.16 LOS = A

Int. 2 **Erringer Rd at Falcon St**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside (left) 1	1	0	0	0	1	0	1	0	0	0	0	0
	2	0	1	0	0	1	0	0	0	1	0	0	0
	3	0	1	0	0	0	1	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		1	2	0	0	2	1	1	0	1	0	0	0
Capacity		1800	3600	0	0	3600	1800	1800	0	1800	0	0	0
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				Y									
Hourly Volume		9	445	0	0	226	2	3	0	9	0	0	0
Adjusted Hourly Volume		9	445	0	0	226	2	3	0	9	0	0	0
Utilization Factor		0.01	0.12	0.00	0.00	0.06	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Critical Factors			0.12		0.00					0.01	0.00	0.00	0.00

PM Peak Period
ICU Ratio = 0.13 LOS = A

Opening Year + Project (Condition 4)

Int. 2 **Erringer Rd at Falcon St**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside (left) 1	1				1		1					
	2		1			1				1			
	3		1				1						
	4												
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		1	2	0	0	2	1	1	0	1	0	0	0
Capacity		1800	3600	0	0	3600	1800	1800	0	1800	0	0	0
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		60	551	0	0	692	96	221	0	30	0	0	0
Adjusted Hourly Volume		60	551	0	0	692	96	221	0	30	0	0	0
Utilization Factor		0.03	0.15	0.00	0.00	0.19	0.05	0.12	0.00	0.02	0.00	0.00	0.00
Critical Factors		0.03				0.19		0.12				0.00	0.00

AM Peak Period
ICU Ratio = 0.34 LOS = A

Int. 2 **Erringer Rd at Falcon St**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside (left) 1	1	0	0	0	1	0	1	0	0	0	0	0
	2	0	1	0	0	1	0	0	0	1	0	0	0
	3	0	1	0	0	0	1	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		1	2	0	0	2	1	1	0	1	0	0	0
Capacity		1800	3600	0	0	3600	1800	1800	0	1800	0	0	0
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		50	632	0	0	686	68	166	0	160	0	0	0
Adjusted Hourly Volume		50	632	0	0	686	68	166	0	160	0	0	0
Utilization Factor		0.03	0.18	0.00	0.00	0.19	0.04	0.09	0.00	0.09	0.00	0.00	0.00
Critical Factors		0.03				0.19		0.09				0.00	0.00

PM Peak Period
ICU Ratio = 0.31 LOS = A

Existing + Project (Condition 2)

Int. 3 **Erringer Rd at Alamo St**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside (left) 1	1			1			1	1	1	1		
	2		1			1					1	1	
	3		1			1	1						1
	4			1									
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		1	2	1	1	2	0	0	0	1	2	0	1
Capacity		1800	3600	1800	1800	3600	0	0	0	1800	3600	0	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		16	156	259	150	404	0	0	4	28	533	1	83
Adjusted Hourly Volume		16	156	259	150	404	0	0	4	32	617	0	83
Utilization Factor		0.01	0.04	0.14	0.08	0.11	0.00	0.00	0.00	0.02	0.17	0.00	0.05
Critical Factors				0.14	0.08					0.02	0.17		

AM Peak Period
ICU Ratio = 0.41 LOS = A

Int. 3 **Erringer Rd at Alamo St**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside (left) 1	1	0	0	1	0	0	1	1	1	1	0	0
	2	0	1	0	0	1	0	0	0	0	1	1	0
	3	0	1	0	0	1	1	0	0	0	0	0	1
	4	0	0	1	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		1	2	1	1	2	0	0	0	1	2	0	1
Capacity		1800	3600	1800	1800	3600	0	0	0	1800	3600	0	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		33	397	484	46	208	0	0	1	7	403	8	65
Adjusted Hourly Volume		33	397	484	46	208	0	0	1	8	476	0	65
Utilization Factor		0.02	0.11	0.27	0.03	0.06	0.00	0.00	0.00	0.00	0.13	0.00	0.04
Critical Factors				0.27	0.03					0.00	0.13		

PM Peak Period
ICU Ratio = 0.43 LOS = A

Opening Year + Project (Condition 4)

Int. 3 **Erringer Rd at Alamo St**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside (left) 1	1			1			1	1	1	1		
	2		1			1					1	1	
	3		1			1	1						1
	4			1									
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		1	2	1	1	2	0	0	0	1	2	0	1
Capacity		1800	3600	1800	1800	3600	0	0	0	1800	3600	0	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				Y									
Hourly Volume		15	451	580	170	622	10	10	20	40	850	10	150
Adjusted Hourly Volume		15	451	580	170	632	0	0	30	70	860	0	150
Utilization Factor		0.01	0.13	0.32	0.09	0.18	0.00	0.00	0.00	0.04	0.24	0.00	0.08
Critical Factors				0.32	0.09					0.04	0.24		

AM Peak Period
ICU Ratio = 0.69 LOS = B

Int. 3 **Erringer Rd at Alamo St**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside (left) 1	1	0	0	1	0	0	1	1	1	1	0	0
	2	0	1	0	0	1	0	0	0	0	1	1	0
	3	0	1	0	0	1	1	0	0	0	0	0	1
	4	0	0	1	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		1	2	1	1	2	0	0	0	1	2	0	1
Capacity		1800	3600	1800	1800	3600	0	0	0	1800	3600	0	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				Y									
Hourly Volume		50	892	750	120	796	30	10	10	30	680	20	140
Adjusted Hourly Volume		50	892	750	120	826	0	0	20	50	700	0	140
Utilization Factor		0.03	0.25	0.42	0.07	0.23	0.00	0.00	0.00	0.03	0.19	0.00	0.08
Critical Factors				0.42	0.07					0.03	0.19		

PM Peak Period
ICU Ratio = 0.71 LOS = C

Existing + Project (Condition 2)

Int. 4 **Erringer Rd at SR-118 Westbound Ramps**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	1				1		1			1		
	(left) 2		1			1				1	1	1	
	3		1			1	1			1		1	1
	4			1									1
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		1	2	1	0	3	0	1	0	2	2	1	1
Capacity		1800	3600	1800	0	5400	0	1800	0	3600	3600	1800	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				Y									
Hourly Volume		92	319	331	0	882	58	42	0	104	374	73	45
Adjusted Hourly Volume		92	319	331	0	940	0	42	0	104	374	118	0
Utilization Factor		0.05	0.09	0.18	0.00	0.17	0.00	0.02	0.00	0.03	0.10	0.07	0.00
Critical Factors		0.05				0.17				0.03	0.10		

AM Peak Period
ICU Ratio = 0.35 LOS = A

Int. 4 **Erringer Rd at SR-118 Westbound Ramps**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	1	0	0	0	1	0	1	0	0	1	0	0
	(left) 2	0	1	0	0	1	0	0	0	1	1	1	0
	3	0	1	0	0	1	1	0	0	1	0	1	1
	4	0	0	1	0	0	0	0	0	0	0	0	1
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		1	2	1	0	3	0	1	0	2	2	1	1
Capacity		1800	3600	1800	0	5400	0	1800	0	3600	3600	1800	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				Y									
Hourly Volume		215	632	148	0	508	122	134	0	318	627	189	110
Adjusted Hourly Volume		215	632	148	0	630	0	134	0	318	627	299	0
Utilization Factor		0.12	0.18	0.08	0.00	0.12	0.00	0.07	0.00	0.09	0.17	0.17	0.00
Critical Factors		0.12				0.12				0.09	0.17		

PM Peak Period
ICU Ratio = 0.50 LOS = A

Opening Year + Project (Condition 4)

Int. 4 **Erringer Rd at SR-118 Westbound Ramps**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	1				1		1			1		
	(left) 2	1				1				1	1	1	
	3		1				1			1		1	1
	4		1										1
	5			1									
	6												
	Outside 7												
	Free-flow												
Lane Settings		2	2	1	0	2	1	1	0	2	2	1	1
Capacity		3600	3600	1800	0	3600	1800	1800	0	3600	3600	1800	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		190	650	440	0	1050	192	81	0	190	750	260	380
Adjusted Hourly Volume		190	650	440	0	1050	192	81	0	190	750	260	380
Utilization Factor		0.05	0.18	0.24	0.00	0.29	0.11	0.05	0.00	0.05	0.21	0.14	0.21
Critical Factors		0.05				0.29				0.05	0.21		

AM Peak Period
ICU Ratio = 0.60 LOS = A

Int. 4 **Erringer Rd at SR-118 Westbound Ramps**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	1	0	0	0	1	0	1	0	0	1	0	0
	(left) 2	1	0	0	0	1	0	0	0	1	1	1	0
	3	0	1	0	0	0	1	0	0	1	0	1	1
	4	0	1	0	0	0	0	0	0	0	0	0	1
	5	0	0	1	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		2	2	1	0	2	1	1	0	2	2	1	1
Capacity		3600	3600	1800	0	3600	1800	1800	0	3600	3600	1800	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		320	720	260	0	740	216	302	0	480	650	300	250
Adjusted Hourly Volume		320	720	260	0	740	216	302	0	480	650	300	250
Utilization Factor		0.09	0.20	0.14	0.00	0.21	0.12	0.17	0.00	0.13	0.18	0.17	0.14
Critical Factors		0.09				0.21		0.17			0.18		

PM Peak Period
ICU Ratio = 0.65 LOS = B

Existing + Project (Condition 2)

Int. 5 **Erringer Rd at SR-118 Eastbound Ramps**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1		1		1			1			1	1	1
	(left) 2		1			1			1	1			
	3		1	1		1							
	4						1						
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		0	3	0	1	2	1	1	0	1	1	0	0
Capacity		0	5400	0	1800	3600	1800	1800	0	1800	1800	0	0
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		0	1178	0	11	841	221	80	3	120	19	1	19
Adjusted Hourly Volume		0	1178	0	11	841	221	80	0	123	39	0	0
Utilization Factor		0.00	0.22	0.00	0.01	0.23	0.12	0.04	0.00	0.07	0.02	0.00	0.00
Critical Factors		0.00				0.23				0.07	0.02		

AM Peak Period
ICU Ratio = 0.32 LOS = A

Int. 5 **Erringer Rd at SR-118 Eastbound Ramps**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	0	1	0	1	0	0	1	0	0	1	1	1
	(left) 2	0	1	0	0	1	0	0	1	1	0	0	0
	3	0	1	1	0	1	0	0	0	0	0	0	0
	4	0	0	0	0	0	1	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		0	3	0	1	2	1	1	0	1	0	0	1
Capacity		0	5400	0	1800	3600	1800	1800	0	1800	0	0	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		0	1087	0	21	1117	181	305	2	195	13	0	17
Adjusted Hourly Volume		0	1087	0	21	1117	181	305	0	197	0	0	30
Utilization Factor		0.00	0.20	0.00	0.01	0.31	0.10	0.17	0.00	0.11	0.00	0.00	0.02
Critical Factors		0.00				0.31		0.17					0.02

PM Peak Period
ICU Ratio = 0.50 LOS = A

Opening Year + Project (Condition 4)

Int. 5 **Erringer Rd at SR-118 Eastbound Ramps**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1		1		1			1			1	1	1
	(left) 2		1			1			1	1			
	3		1	1		1							
	4						1						
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		0	3	0	1	2	1	1	0	1	1	0	0
Capacity		0	5400	0	1800	3600	1800	1800	0	1800	1800	0	0
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		0	1380	10	40	980	200	240	10	310	40	0	40
Adjusted Hourly Volume		0	1390	0	40	980	200	240	0	320	80	0	0
Utilization Factor		0.00	0.26	0.00	0.02	0.27	0.11	0.13	0.00	0.18	0.04	0.00	0.00
Critical Factors			0.26		0.02					0.18	0.04		

AM Peak Period
ICU Ratio = 0.50 LOS = A

Int. 5 **Erringer Rd at SR-118 Eastbound Ramps**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	0	1	0	1	0	0	1	0	0	1	1	1
	(left) 2	0	1	0	0	1	0	0	1	1	0	0	0
	3	0	1	1	0	1	0	0	0	0	0	0	0
	4	0	0	0	0	0	1	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		0	3	0	1	2	1	1	0	1	1	0	0
Capacity		0	5400	0	1800	3600	1800	1800	0	1800	1800	0	0
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		0	1290	10	10	1410	270	320	20	310	20	0	20
Adjusted Hourly Volume		0	1300	0	10	1410	270	320	0	330	40	0	0
Utilization Factor		0.00	0.24	0.00	0.01	0.39	0.15	0.18	0.00	0.18	0.02	0.00	0.00
Critical Factors		0.00				0.39				0.18	0.02		

PM Peak Period
ICU Ratio = 0.59 LOS = A

Existing + Project (Condition 2)

Int. 11 **Lost Canyons Dr at Golf Club Dwy**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1				1		1	1				1	1
	(left) 2								1				
	3												
	4												
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		0	0	0	0	0	1	1	1	0	0	1	0
Capacity		0	0	0	0	0	1800	1800	1800	0	0	1800	0
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume					84	0	53	10	59	0	0	55	16
Adjusted Hourly Volume		0	0	0	0	0	137	69	59	0	0	71	0
Utilization Factor		0.00	0.00	0.00	0.00	0.00	0.08	0.04	0.03	0.00	0.00	0.04	0.00
Critical Factors		0.00					0.08	0.04				0.04	

AM Peak Period
ICU Ratio = 0.16 LOS = A

Int. 11 **Lost Canyons Dr at Golf Club Dwy**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	0	0	0	1	0	1	1	0	0	0	1	1
	(left) 2	0	0	0	0	0	0	0	1	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		0	0	0	0	0	1	1	1	0	0	0	1
Capacity		0	0	0	0	0	1800	1800	1800	0	0	0	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume					46	0	29	57	66	0	0	72	91
Adjusted Hourly Volume		0	0	0	0	0	75	57	66	0	0	0	163
Utilization Factor		0.00	0.00	0.00	0.00	0.00	0.04	0.03	0.04	0.00	0.00	0.00	0.09
Critical Factors		0.00					0.04	0.03					0.09

PM Peak Period
ICU Ratio = 0.16 LOS = A

Opening Year + Project (Condition 4)

Int. 11 **Lost Canyons Dr at Golf Club Dwy**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1				1		1	1				1	1
	(left) 2								1				
	3												
	4												
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		0	0	0	0	0	1	1	1	0	0	1	0
Capacity		0	0	0	0	0	1800	1800	1800	0	0	1800	0
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume					84	0	46	10	196	0	0	88	16
Adjusted Hourly Volume		0	0	0	0	0	130	10	196	0	0	104	0
Utilization Factor		0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.11	0.00	0.00	0.06	0.00
Critical Factors		0.00					0.07		0.11			0.06	

AM Peak Period
ICU Ratio = 0.24 LOS = A

Int. 11 **Lost Canyons Dr at Golf Club Dwy**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	0	0	0	1	0	1	1	0	0	0	1	1
	(left) 2	0	0	0	0	0	0	0	1	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		0	0	0	1	0	0	1	1	0	0	0	1
Capacity		0	0	0	1800	0	0	1800	1800	0	0	0	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume					46	0	29	57	318	0	0	83	91
Adjusted Hourly Volume		0	0	0	130	0	0	57	318	0	0	0	174
Utilization Factor		0.00	0.00	0.00	0.07	0.00	0.00	0.03	0.18	0.00	0.00	0.00	0.10
Critical Factors			0.00	0.00	0.07				0.18				0.10

PM Peak Period
ICU Ratio = 0.35 LOS = A

Existing + Project (Condition 2)

Int. 12 **Lost Canyons Dr at Tapo Canyon Rd**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside (left) 1	1				1		1					
	2		1				1			1			
	3												
	4												
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		1	1	0	0	1	1	1	0	1	0	0	0
Capacity		1800	1800	0	0	1800	1800	1800	0	1800	0	0	0
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		56	31	0	0	27	0	0	0	177			
Adjusted Hourly Volume		56	31	0	0	27	0	0	0	177	0	0	0
Utilization Factor		0.03	0.02	0.00	0.00	0.02	0.00	0.00	0.00	0.10	0.00	0.00	0.00
Critical Factors		0.03				0.02				0.10	0.00		

AM Peak Period
ICU Ratio = 0.15 LOS = A

Int. 12 **Lost Canyons Dr at Tapo Canyon Rd**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside (left) 1	1	0	0	0	1	0	1	0	0	0	0	0
	2	0	1	0	0	0	1	0	0	1	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		1	1	0	0	1	1	1	0	1	0	0	0
Capacity		1800	1800	0	0	1800	1800	1800	0	1800	0	0	0
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		189	22	0	0	31	2	2	0	107			
Adjusted Hourly Volume		189	22	0	0	31	2	2	0	107	0	0	0
Utilization Factor		0.11	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.06	0.00	0.00	0.00
Critical Factors		0.11				0.02				0.06	0.00		

PM Peak Period
ICU Ratio = 0.19 LOS = A

Opening Year + Project (Condition 4)

Int. 12 **Lost Canyons Dr at Tapo Canyon Rd**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside (left) 1	1				1		1					
	2		1			1				1			
	3		1				1						
	4												
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		1	2	0	0	2	1	1	0	1	0	0	0
Capacity		1800	3600	0	0	3600	1800	1800	0	1800	0	0	0
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		78	180	0	0	150	11	42	0	272			
Adjusted Hourly Volume		78	180	0	0	150	11	42	0	272	0	0	0
Utilization Factor		0.04	0.05	0.00	0.00	0.04	0.01	0.02	0.00	0.15	0.00	0.00	0.00
Critical Factors		0.04				0.04				0.15	0.00		

AM Peak Period
ICU Ratio = 0.23 LOS = A

Int. 12 **Lost Canyons Dr at Tapo Canyon Rd**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside (left) 1	1	0	0	0	1	0	1	0	0	0	0	0
	2	0	1	0	0	1	0	0	0	1	0	0	0
	3	0	1	0	0	0	1	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		1	2	0	0	2	1	1	0	1	0	0	0
Capacity		1800	3600	0	0	3600	1800	1800	0	1800	0	0	0
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		182	320	0	0	280	20	43	0	318			
Adjusted Hourly Volume		182	320	0	0	280	20	43	0	318	0	0	0
Utilization Factor		0.10	0.09	0.00	0.00	0.08	0.01	0.02	0.00	0.18	0.00	0.00	0.00
Critical Factors		0.10				0.08				0.18	0.00		

PM Peak Period
ICU Ratio = 0.36 LOS = A

Existing + Project (Condition 2)

Int. 13 **Tapo Canyon Dr at Alamo St**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	1			1			1			1		
	(left) 2		1			1		1			1		
	3		1			1			1			1	
	4		1	1		1	1		1			1	
	5									1			1
	6												
	Outside 7												
	Free-flow												
Lane Settings		1	3	0	1	3	0	2	2	1	2	2	1
Capacity		1800	5400	0	1800	5400	0	3600	3600	1800	3600	3600	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		220	391	150	61	603	88	113	298	237	316	372	54
Adjusted Hourly Volume		220	541	0	61	691	0	113	298	237	316	372	54
Utilization Factor		0.12	0.10	0.00	0.03	0.13	0.00	0.03	0.08	0.13	0.09	0.10	0.03
Critical Factors		0.12				0.13				0.13	0.09		

AM Peak Period
ICU Ratio = 0.47 LOS = A

Int. 13 **Tapo Canyon Dr at Alamo St**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	1	0	0	1	0	0	1	0	0	1	0	0
	(left) 2	0	1	0	0	1	0	1	0	0	1	0	0
	3	0	1	0	0	1	0	0	1	0	0	1	0
	4	0	1	1	0	1	1	0	1	0	0	1	0
	5	0	0	0	0	0	0	0	0	1	0	0	1
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		1	3	0	1	3	0	2	2	1	2	2	1
Capacity		1800	5400	0	1800	5400	0	3600	3600	1800	3600	3600	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		224	687	266	64	484	124	134	513	276	240	325	48
Adjusted Hourly Volume		224	953	0	64	608	0	134	513	276	240	325	48
Utilization Factor		0.12	0.18	0.00	0.04	0.11	0.00	0.04	0.14	0.15	0.07	0.09	0.03
Critical Factors		0.12				0.11				0.15	0.07		

PM Peak Period
ICU Ratio = 0.45 LOS = A

Opening Year + Project (Condition 4)

Int. 13 **Tapo Canyon Dr at Alamo St**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	1			1			1			1		
	(left) 2		1			1		1			1		
	3		1			1			1			1	
	4		1	1		1	1		1			1	
	5									1			1
	6												
	Outside 7												
	Free-flow												
Lane Settings		1	3	0	1	3	0	2	2	1	2	2	1
Capacity		1800	5400	0	1800	5400	0	3600	3600	1800	3600	3600	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		290	516	260	140	734	280	189	740	340	480	820	109
Adjusted Hourly Volume		290	776	0	140	1014	0	189	740	340	480	820	109
Utilization Factor		0.16	0.14	0.00	0.08	0.19	0.00	0.05	0.21	0.19	0.13	0.23	0.06
Critical Factors		0.16				0.19			0.21		0.13		

AM Peak Period
ICU Ratio = 0.69 LOS = B

Int. 13 **Tapo Canyon Dr at Alamo St**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	1	0	0	1	0	0	1	0	0	1	0	0
	(left) 2	0	1	0	0	1	0	1	0	0	1	0	0
	3	0	1	0	0	1	0	0	1	0	0	1	0
	4	0	1	1	0	1	1	0	1	0	0	1	0
	5	0	0	0	0	0	0	0	0	1	0	0	1
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		1	3	0	1	3	0	2	2	1	2	2	1
Capacity		1800	5400	0	1800	5400	0	3600	3600	1800	3600	3600	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		450	700	330	178	662	288	319	760	400	510	720	199
Adjusted Hourly Volume		450	1030	0	178	950	0	319	760	400	510	720	199
Utilization Factor		0.25	0.19	0.00	0.10	0.18	0.00	0.09	0.21	0.22	0.14	0.20	0.11
Critical Factors		0.25				0.18				0.22	0.14		

PM Peak Period
ICU Ratio = 0.79 LOS = C

Existing + Project (Condition 2)

Int. 14 **Tapo Canyon Dr at SR-118 Westbound Ramps**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	1				1		1			1		
	(left) 2		1			1				1	1	1	
	3		1			1	1						1
	4			1									
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		1	2	1	0	3	0	1	0	1	2	0	1
Capacity		1800	3600	1800	0	5400	0	1800	0	1800	3600	0	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				Y									
Hourly Volume		71	522	375	0	1086	48	15	0	106	660	28	246
Adjusted Hourly Volume		71	522	375	0	1134	0	15	0	106	934	0	246
Utilization Factor		0.04	0.15	0.21	0.00	0.21	0.00	0.01	0.00	0.06	0.26	0.00	0.14
Critical Factors		0.04				0.21				0.06	0.26		

AM Peak Period
ICU Ratio = 0.57 LOS = A

Int. 14 **Tapo Canyon Dr at SR-118 Westbound Ramps**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	1	0	0	0	1	0	1	0	0	1	0	0
	(left) 2	0	1	0	0	1	0	0	0	1	1	1	0
	3	0	1	0	0	1	1	0	0	0	0	0	1
	4	0	0	1	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		1	2	1	0	3	0	1	0	1	2	0	1
Capacity		1800	3600	1800	0	5400	0	1800	0	1800	3600	0	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				Y									
Hourly Volume		132	810	303	0	987	22	15	0	153	561	59	396
Adjusted Hourly Volume		132	810	303	0	1009	0	15	0	153	1016	0	396
Utilization Factor		0.07	0.23	0.17	0.00	0.19	0.00	0.01	0.00	0.09	0.28	0.00	0.22
Critical Factors		0.07				0.19				0.09	0.28		

PM Peak Period
ICU Ratio = 0.63 LOS = B

Opening Year + Project (Condition 4)

Int. 14 **Tapo Canyon Dr at SR-118 Westbound Ramps**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	1				1		1			1		
	(left) 2		1			1				1	1	1	
	3		1			1	1						1
	4			1									
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		1	2	1	0	3	0	1	0	1	2	0	1
Capacity		1800	3600	1800	0	5400	0	1800	0	1800	3600	0	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				Y									
Hourly Volume		120	729	450	0	1293	51	35	0	150	880	80	337
Adjusted Hourly Volume		120	729	450	0	1344	0	35	0	150	960	0	337
Utilization Factor		0.07	0.20	0.25	0.00	0.25	0.00	0.02	0.00	0.08	0.27	0.00	0.19
Critical Factors		0.07				0.25				0.08	0.27		

AM Peak Period
ICU Ratio = 0.67 LOS = B

Int. 14 **Tapo Canyon Dr at SR-118 Westbound Ramps**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	1	0	0	0	1	0	1	0	0	1	0	0
	(left) 2	0	1	0	0	1	0	0	0	1	1	1	0
	3	0	1	0	0	1	1	0	0	0	0	0	1
	4	0	0	1	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		1	2	1	0	3	0	1	0	1	2	0	1
Capacity		1800	3600	1800	0	5400	0	1800	0	1800	3600	0	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				Y									
Hourly Volume		210	779	560	0	1256	41	50	0	250	845	80	542
Adjusted Hourly Volume		210	779	560	0	1297	0	50	0	250	925	0	542
Utilization Factor		0.12	0.22	0.31	0.00	0.24	0.00	0.03	0.00	0.14	0.26	0.00	0.30
Critical Factors		0.12				0.24				0.14			0.30

PM Peak Period
ICU Ratio = 0.80 LOS = C

Existing + Project (Condition 2)

Int. 15 **Tapo Canyon Rd at SR-118 Eastbound Ramps**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1		1			1		1	1				1
	(left) 2		1			1				1			
	3		1	1			1						
	4												
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		0	3	0	0	2	1	1	0	1	0	0	1
Capacity		0	5400	0	0	3600	1800	1800	0	1800	0	0	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				Y									
Hourly Volume		0	1086	10	0	985	386	340	7	322	0	0	0
Adjusted Hourly Volume		0	1096	0	0	985	386	347	0	322	0	0	0
Utilization Factor		0.00	0.20	0.00	0.00	0.27	0.21	0.19	0.00	0.18	0.00	0.00	0.00
Critical Factors		0.00				0.27		0.19			0.00	0.00	0.00

AM Peak Period
ICU Ratio = 0.46 LOS = A

Int. 15 **Tapo Canyon Rd at SR-118 Eastbound Ramps**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	0	1	0	0	1	0	1	1	0	0	0	1
	(left) 2	0	1	0	0	1	0	0	0	1	0	0	0
	3	0	1	1	0	0	1	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		0	3	0	0	2	1	1	0	1	0	0	1
Capacity		0	5400	0	0	3600	1800	1800	0	1800	0	0	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				Y									
Hourly Volume		0	1257	36	0	985	287	474	7	383	0	0	0
Adjusted Hourly Volume		0	1293	0	0	985	287	481	0	383	0	0	0
Utilization Factor		0.00	0.24	0.00	0.00	0.27	0.16	0.27	0.00	0.21	0.00	0.00	0.00
Critical Factors		0.00				0.27		0.27			0.00	0.00	0.00

PM Peak Period
ICU Ratio = 0.54 LOS = A

Opening Year + Project (Condition 4)

Int. 15 **Tapo Canyon Rd at SR-118 Eastbound Ramps**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1		1		1			1			1		1
	(left) 2		1			1			1	1			
	3		1	1		1							
	4						1						
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		0	3	0	1	2	1	1	0	1	1	0	0
Capacity		0	5400	0	1800	3600	1800	1800	0	1800	1800	0	0
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		0	1327	60	20	1180	467	491	10	620	10	0	10
Adjusted Hourly Volume		0	1387	0	20	1180	467	501	0	620	20	0	0
Utilization Factor		0.00	0.26	0.00	0.01	0.33	0.26	0.28	0.00	0.34	0.01	0.00	0.00
Critical Factors		0.00				0.33				0.34	0.01		

AM Peak Period
ICU Ratio = 0.68 LOS = B

Int. 15 **Tapo Canyon Rd at SR-118 Eastbound Ramps**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	0	1	0	1	0	0	1	0	0	1	0	1
	(left) 2	0	1	0	0	1	0	0	1	1	0	0	0
	3	0	1	1	0	1	0	0	0	0	0	0	0
	4	0	0	0	0	0	1	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		0	3	0	1	2	1	1	0	1	1	0	1
Capacity		0	5400	0	1800	3600	1800	1800	0	1800	1800	0	1800
Are the North/South phases split (Y/N)?				N									
Are the East/West phases split (Y/N)?				N									
Hourly Volume		0	1558	50	10	1288	400	560	10	550	10	0	60
Adjusted Hourly Volume		0	1608	0	10	1288	400	570	0	550	10	0	60
Utilization Factor		0.00	0.30	0.00	0.01	0.36	0.22	0.32	0.00	0.31	0.01	0.00	0.03
Critical Factors		0.00				0.36		0.32					0.03

PM Peak Period
ICU Ratio = 0.71 LOS = C

Existing + Project (Condition 2)

Int. 16 **Lost Canyons Dr at "A" St**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1				1		1	1				1	1
	(left) 2								1				
	3												
	4												
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		0	0	0	1	0	0	1	1	0	0	1	0
Capacity		0	0	0	1800	0	0	1800	1800	0	0	1800	0
Are the North/South phases split (Y/N)?				Y									
Are the East/West phases split (Y/N)?				N									
Hourly Volume					37		22	4	139			49	7
Adjusted Hourly Volume		0	0	0	59	0	0	4	139	0	0	56	0
Utilization Factor		0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.08	0.00	0.00	0.03	0.00
Critical Factors		0.00	0.00	0.00	0.03				0.08			0.03	

AM Peak Period
ICU Ratio = 0.14 LOS = A

Int. 16 **Lost Canyons Dr at "A" St**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	0	0	0	1	0	1	1	0	0	0	1	1
	(left) 2	0	0	0	0	0	0	0	1	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		0	0	0	1	0	0	1	1	0	0	1	0
Capacity		0	0	0	1800	0	0	1800	1800	0	0	1800	0
Are the North/South phases split (Y/N)?				Y									
Are the East/West phases split (Y/N)?				N									
Hourly Volume					20		12	23	89			151	40
Adjusted Hourly Volume		0	0	0	32	0	0	23	89	0	191	191	0
Utilization Factor		0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.05	0.00	0.00	0.11	0.00
Critical Factors		0.00	0.00	0.00	0.02			0.01				0.11	

PM Peak Period
ICU Ratio = 0.14 LOS = A

Opening Year + Project (Condition 4)

Int. 16 **Lost Canyons Dr at "A" St**

AM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1				1		1	1				1	1
	(left) 2								1				
	3												
	4												
	5												
	6												
	Outside 7												
	Free-flow												
Lane Settings		0	0	0	1	0	0	1	1	0	0	1	0
Capacity		0	0	0	1800	0	0	1800	1800	0	0	1800	0
Are the North/South phases split (Y/N)?				Y									
Are the East/West phases split (Y/N)?				N									
Hourly Volume					37	0	22	4	276			82	7
Adjusted Hourly Volume		0	0	0	59	0	0	4	276	280	89	89	0
Utilization Factor		0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.15	0.00	0.00	0.05	0.00
Critical Factors		0.00	0.00	0.00	0.03				0.15		0.00		

AM Peak Period
ICU Ratio = 0.18 LOS = A

Int. 16 **Lost Canyons Dr at "A" St**

PM Peak Period Lane Configuration for Intersection Capacity Utilization

		South Leg (NB)			North Leg (SB)			West Leg (EB)			East Leg (WB)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Config - urations	Inside 1	0	0	0	1	0	1	1	0	0	0	1	1
	(left) 2	0	0	0	0	0	0	0	1	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Outside 7	0	0	0	0	0	0	0	0	0	0	0	0
	Free-flow	0	0	0	0	0	0	0	0	0	0	0	0
Lane Settings		0	0	0	1	0	0	1	1	0	0	1	0
Capacity		0	0	0	1800	0	0	1800	1800	0	0	1800	0
Are the North/South phases split (Y/N)?				Y									
Are the East/West phases split (Y/N)?				N									
Hourly Volume					20		12	23	341			162	40
Adjusted Hourly Volume		0	0	0	32	0	0	23	341	0	0	202	0
Utilization Factor		0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.19	0.00	0.00	0.11	0.00
Critical Factors		0.00	0.00	0.00	0.02				0.19			0.11	

PM Peak Period
ICU Ratio = 0.32 LOS = A

APPENDIX J

HYDROLOGY AND HYDRAULICS STUDY

HYDROLOGY & HYDRAULIC STUDY FOR AMENDMENT #2 FOR TTM 5734

CITY OF SIMI VALLEY
CALIFORNIA

PREPARED FOR:

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DATE PREPARED:
FEBRUARY 6, 2025

This report has been prepared by or under the direction of the following registered civil engineer who attests to the technical information contained herein. The registered civil engineer has also judged the qualifications of any technical specialists providing engineering data upon which recommendations, conclusions, and decisions are based.



	02/06/2025	
Joseph L. Castaneda RCE 59835 Registered Civil Engineer	Date	Seal

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I. INTRODUCTION

Tentative Tract Map (TTM) 5734 is an approved map which proposes a residential development in the City of Simi Valley. TTM 5734 will primarily consist of three land cover types: open space, 1/5 acre residential lots, and streets. Amendment# 1 for TTM 5734 was submitted in September 2024 and proposes the removal of previously proposed lots in the northeastern quadrant of the approved TTM. Amendment# 1 also proposes to shift 32 lots to the southeastern quadrant of the overall site. JLC Engineering has amended the existing hydrology report in support of TTM 5734 and its storm drain improvement plans which is called “Hydrology and Hydraulic Study For Storm Drain Improvement For Phase 1 Tentative Tract Map 5734”; the amended report was submitted for review in September 2024. TTM 5734 and Amendment# 1 for TTM 5734 have been evaluated for final engineering.

This report is written in support of proposed Amendment# 2 for TTM 5734. Amendment #2 proposes to shift 184 lots to the center of TTM 5734 where a golf course/club house was previously proposed. The shifted lots will result in 61 lots already defined in TTM 5734 and Amendment#1 to be modified in a manner that allows a layout that blends the 184 shifted units, see Excerpt B. Conditions of approval have been rendered for TTM 5734. Therefore, the scope of this report is to evaluate the following:

1. Watershed areas which have been altered by the 184 shifted lots to the center of the project site (these lots are listed on the TTM as 5734-2 since they are part of phase 2)
2. Watershed areas from phase 1 which have been amended (these lots are listed on the TTM as 5734-1 since they are part of phase 1)

The report will complete the following:

- Determine the peak discharge for subareas which have been amended by shifted and adjusted lots, streets, and basins using the Ventura County TC Calculator
- Develop a soils map using the Ventura County Hydrology Manual.
- Develop an impervious area map using the classifications defined in the Ventura County Hydrology Manual.
- Develop VCRat models using the Ventura County Hydrology Manual to demonstrate proposed onsite basins satisfy increased runoff mitigation measures outlined in the conditions of approval.

II. PROJECT SITE AND DRAINAGE OVERVIEW

The Amendment# 2 for TTM 5734 has been prepared for a residential development consisting of a total of 184 shifted single family lots (Phase 2), 61 amended single family lots and neighboring lots which have not been amended (Phase 1), exterior streets, landscape buffers, one additional detention basin, and adjustments to one proposed detention basin which is proposed to operate as a lake.

The effective watershed area for the project site overall is approximately 280 acres. The watershed area that is tributary to Tapo Canyon is approximately 200 acres and is the area that coincides with the amended Phase 1 and Phase 2 lots. The proposed project site is roughly bounded by an open space area to the north, Lost Canyons Drive to the south, Coppertone Lane to the west, and Tapo Canyon Road to the east, see Figure 1 "Vicinity Map. The project is located within both Section 25 and 26 of Township 3 North, Range 18 West.

The FEMA Federal Insurance Rate Maps dated January 20, 2010 were used to develop Figure 2 which identifies the existing FEMA Flood Hazards associated with project. The Phase 2 rough grading will not impact any of the Zone A Flood Hazard areas that have been identified by FEMA.

In the final development condition, the project site proposes to collect all onsite flows via subsurface storm drains which will convey the flows to one of five onsite detention basins that will treat the flows for water quality purposes and mitigate for increased runoff. The project will intercept approximately 155 acres of offsite area and convey the flows via subsurface storm drain to the project's downstream discharge points. This includes flows for TTM 5734 which are directed to Dry Canyon and Tapo Canyon. Approximately 75 acres of offsite area is captured and directed to Tapo Canyon. The project's downstream discharge points are Dry Canyon Creek and Tapo Canyon Creek. This report focuses on watershed areas which are tributary to Tapo Canyon Creek since watershed areas tributary to Dry Canyon a part of Phase 1 and have not been amended.

III. HYDROLOGY ANALYSIS

The Ventura County Public Works Agency Hydrology Manual (Reference 1) was used to develop the hydrologic parameters for the modified rational method which was used to compute the peak flowrates for each respective subarea. The method requires the delineation of soils on the project site, the imperviousness of each subarea, and the rainfall area (from updated NOAA Atlas 14 rainfall) associated with the project site. Further, the method requires the determination of a time of concentration, which is defined as the time it takes for flows in a basin to reach the outlet from the most remote point, for each subarea. This value, determined with the use of the Tc Calculator spreadsheet (downloaded from the VCPWA website), is subsequently used by the Tc Calculator to determine the rainfall intensity and Runoff Coefficient so that a flowrate can be found using the Rational Method Equation (Q= CIA). The Tc calculator utilized flow path data that was input by creating subareas so that various flow path types (e.g. overland flow, concentrated flow) could be considered. Intensity is a function of the time of concentration and the Runoff Coefficient is a function of an area's imperviousness and soil type. Exhibits A.1-A.2 show a total of five watershed areas that were studied as part of the Amendment# 2 for TTM 5734; they are designated as Area 20, Area 30, Area 40, Area 50 and Area 90.

The five regional watershed areas were decomposed into subareas based on common land uses and common surface flow endpoints. Each subarea is characterized by its own TC calculator sheet. Each subarea is therefore further decomposed into smaller segments for flow path decomposition in accordance with the TC calculator spreadsheet protocol. Composite watershed attributes like impervious percentage and soil type were aggregated based on the subarea level of the overall watershed decomposition.

The existing soil classification for the five watershed areas consists of soils 1,2,4,5,6, and 7 as defined by the VCPWA soils shapefile provided by VCPWA and have been illustrated on Exhibit B. The impervious percentage of the subareas of interest were determined by classifying various regions within each subarea by the relevant land use. The land use classification was derived from Exhibit 14, Appendix A of the VCPWA Hydrology Manual. The primary land use classifications used in this study were paved streets with curbs, open space, commercial, and 1/5 acre Residential lots (shown in Exhibit C).

Using GIS, polygons were defined for each watershed subarea, land use type, and soil type within the study area of interest. The intersection (implies use of "Intersect" geospatial tool) of the three GIS features over the study area resulted in a set of polygon features with a unique combination of subarea, land use, and soil type. The area for each subsequently generated unique polygon was computed. Each polygon was assigned an impervious percentage based on recommendations provided in the VCPWA Hydrology Manual, Exhibit 14. Using the built-in Python capabilities of ArcGIS Pro, the data table for the resulting intersection feature could be used to group data on subarea. The area for each feature was used to compute the weighted average of soil and impervious fraction for each subarea. For example, to compute composite soil type within ArcGIS Pro this can be completed by taking the dot product of the array of soil type values for a subarea with the array of corresponding area values and dividing by the cumulative area for the subarea. This can be written mathematically as shown below for a composite characteristic called "$\overline{X}$":

$$\overline{X} = \frac{\sum_{i=0}^{n} X_i A_i}{\sum_{i=0}^{n} A_i} = \frac{\vec{X} \cdot \vec{A}}{\sum_{i=0}^{n} A_i}$$

Explaining this calculation in terms of dot product is relevant because it a very convenient built in mathematics tool that can be used to easily retrieve composite values with the help of GIS from a GIS data table without needing to compute excessive amounts of intermediate calculations.

Table 1 provides a breakdown of the composite soil type and impervious percentage used for the TC calculator spreadsheet on each subarea. The hydrology maps used to complement the Tc Calculations are provided as part of Exhibits A1- A2.

Onsite Post-Project Hydrology

The post-project condition hydrology analysis was performed for five watershed areas, designated as areas “20”, “30”, “40”, “50”, and “90” using the Simi Valley Rainfall area. Areas “20” through “90” are tributary to Tapo Canyon. The areas “20” through “90” were subdivided further with the primary intention of defining nodes at points of interest for design based on coordination efforts with the design team. As a result, several of the subareas defined had net areas that were below the recommended range outlined in the VCPWA Hydrology Manual which specifies 20 to 80 acre areas for use with the TC calculator spreadsheet. Despite this fact, the majority of the subareas analyzed were still capable of achieving a time of concentration greater than or equal to five minutes. For those that were unable to achieve a time of concentration of five minutes or greater, five minutes was assumed as this is the lowest acceptable time of concentration. Peak flowrates were developed for each point of interest for the 100-year storm event based on a developed condition.

Table 1: *Composite Soil and Impervious % Calculation by Subarea*

Subarea Name	Actual Composite Soil	Actual Composite Impervious %	Composite Area (ac)	Rounded Composite Soil	Rounded Composite Impervious %
20.02A	3.99	0.31	33.81	4	31
20.03A	3.56	0.43	36.10	4	43
20.04B	4.12	0.39	2.95	4	39
20.06B	3.37	0.50	2.25	3	50
20.07B	2.69	0.10	30.15	3	10
20.08B	3.91	0.38	4.93	4	38
20.11A	3.97	0.52	9.43	4	52
20.12A	3.49	0.17	8.49	3	17
30.02A	3.83	0.51	24.83	4	51
40.02A	4.04	0.46	23.26	4	46
50.02A	4.37	0.00	11.20	4	0
90.02A	4.00	0.26	4.11	4	26
90.03A	4.00	0.32	7.82	4	32

The time of concentration developed with the Tc calculator for each subarea was subsequently utilized to create a VCRat model for each regional area in the project site. The VCRat model is developed in order to route runoff through the watershed area and detention basins. The modeled basins have defined stage-storage-outflow tables in Appendix D. The assumed outflow structures will be designed and further analyzed during final engineering. At this time, the outflow data assumes the same basin outlet structure

details provided in the Phase 1 Storm Drain Improvement Plans and conceptual function, see Excerpt A. The basin outflow will generally be governed by a series of low lying orifice holes to drain water quality volume within 48 hours while a rectangular weir is used to pass the remainder of runoff volume. The weir is defined above the depth water quality volume so that it can be detained. The VCRat output files can be found in Appendix B of this report. All supporting data for these models can also be found in this report. The reader should note that the VCRat model incorporated the use of the Fatten Method Runoff Factor to compute the hydrographs routed through the basins. The Fatten Method Runoff Factor calculations are included in Appendix E. using the soils data and impervious percentages that are tabulated in Table 1. The Tc calculator output files are located in Appendix A, and the supporting data for the stage-storage relationships input into VCRat are in Appendix B

The VCRat model output quantifies the attenuated peak flowrate that will be discharged into Tapo Canyon. This determination was necessary to demonstrate that the project would satisfy the expected conditions of approval.

The expected conditions of approval are:

- $Q_{POST-100}$ $Q_{POST-50}$, $Q_{POST-25}$, & $Q_{POST-10}$ must be less than or equal to $Q_{POST-10}$

At this time only the 100-year and 10-year events were studied since this is a preliminary analysis. The 50-year and 25-year events will be studied during final engineering. The 100-year and 10-year post project discharge were determined to meet the conditions of approval. To measure compliance, a critical point was designated at the southeastern edge of the project site within Tapo Canyon Creek. The critical point is where the discharged flows from the proposed development from all areas would ultimately pass through Tapo Canyon. The point can be described as follows:

- Flows are released from Basin B2, Basin C1, and Basin C2 into Tapo Canyon at the Southern edge of the project site; these flows confluence with the outflow from Basin D1 downstream of the project site near its southeastern boundary in Tapo Canyon Creek.

The outflow from each watershed area (Area 20, 30, 40, 90) which results the produced VCRat models, are tabulated in Table 2. The total discharge at the critical discharge point for the project site is tabulated in Table 3. By evaluating Table 3, it is evident that the expected Conditions of Approval are met for the post project 100-year and 10-year outflows at the critical discharge point. It should be noted that all regional areas have their peak flows attenuated by routing through detention basins prior to discharge into Tapo Canyon.

Table 2: *Discharge for each Area that outlets into Tapo Canyon*

Post-Project Discharge (CFS) by Watershed Area					
Condition	Storm Event (YR)	Watershed Areas			
		Area 20	Area 30	Area 40	Area(2) 90
w/ Basin Routing	100 YR	109	27	30	28
	10 YR	75	21	22	14
w/o Basin Routing	10 YR(1)	191	33	32	19

(1) Post-Project (unrouted) Q10 sets the allowable discharge threshold.
(2) Note that Area 90 insufficiently mitigates for 100YR stand alone; however, Table 3 demonstrates net mitigation is sufficient.

Table 3: Total *Site Discharge To Tapo Canyon*

Return Period	AREA 20, 30, 40 & 90, (Tapo Canyon)	Condition Met?
100 YR	194	YES
10 YR with Basins	132	YES
10 YR without Basins	275	-

IV. HYDRAULICS

STREET CAPACITY

The street capacity was determined for a 24'street width assuming that the proposed street cross section detail will be identical to the section proposed in the TTM 5734 Phase 1 Street Improvement Plans, see Excerpt A. FlowMaster was used to model the full street capacity and guide the placement of the current onsite catch basin configuration for subarea 20.02A, 20.03A, and 40.02A. Subareas 20.02A, 20.03A and Subarea 40.02A contain the 184 shifted lots which do not have improvement plans. Note that subarea 20.02A primarily characterizes unaffected lots from Phase 1; however, some of the shifted lots do coincide with subarea 20.02A.

The focus of the hydraulic analysis for this report is on the area containing the 184 shift lots. No evaluation is needed at this time for amendments to the existing Phase 1 area since the amendments will not have a material impact on the hydraulics.

New proposed streets are to be assessed which coincide with subareas 20.03A and 40.02A. Within these areas the minimum street slope is approximately 0.01 ft/ft (1.0%). The FlowMaster full street capacity with this minimum slope and a depth of 0.5 ft (equivalent to proposed curb height) is approximately 28.4 cfs, see Appendix C. Therefore, JLC located catch basins such that the full street conveyance would not exceed this flowrate. Please note that this is based on the minimum street slope and that the slope is much greater throughout the site which implies greater street capacity.

A flowrate yield per lot was approximated for subarea 20.03A since it resulted in the most conservative flowrate yield. The flowrate yield for 20.03A is 1.25 cfs/lot. This flowrate yield is based on the 100 year peak flowrate developed for subarea 20.03A using the TC calculator. The peak flowrate is reported as 97.2 cfs for 36.5 acres and coincides with approximately 78 lots. Therefore, approximately 22 lots can be allowed to drain to the street before catch basins are required to reduce the aggregate flow in the street (28.4 cfs / 1.25 cfs/lot = 22 lots). JLC conservatively placed catch basins every 10 to 20 lots to approximate the required catch basin layout to ensure the 100-year flowrate is contained below the top of curb. Please note cases where more than 10 lots of spacing was implemented tended to be for very steep reaches of street where the capacity increases significantly.

This analysis guided the placement of catch basins so that the depth of flow in the street would need exceed the top of curb and is approximate at this time. More refined calculations will be configured during final engineering.

CATCH BASIN HYDRAULICS

The catch basins have been approximately located based on the evaluation of expected street flow conveyance of the 100-year event using a flowrate yield per lot. The catch basins have been located as shown in the Drainage Facilities Map. The catch basins have not been analyzed for interception at this time since this is a preliminary report. The catch basins will be evaluated during final engineering. The catch basins are assumed to capture 100% of the flow. The specifications for the catch basins are expected to comply with the APWA Standard 300-4 (Curb Opening Catch Basin) since this was implemented in the Phase 1 improvement plans.

SPILLWAY AND V-DITCH HYDRAULICS

V-Ditches have been provided throughout the project to collect runoff from pockets of undeveloped areas to convey flows away from proposed lots to onsite storm drain,

directly to basins, or offsite open space areas. V-Ditches within subarea 20.02A have been assessed as a part of the Phase 1 Hydrology & Hydraulics report submitted in September 2024. Additional V-Ditches have been proposed at the northern boundary of the site to capture offsite runoff which is tributary to lots adjacent to the northern boundary of the site. The V-Ditches have been conceptually included at this time and will be assessed during final engineering. During final engineering these additional V-Ditches, in subarea 50.02A, will be shown to have adequate conveyance so that all offsite flows can be conveyed to the eastern edge of the site and into the existing creek. The V-Ditch is intended to prevent offsite runoff from crossing into proposed lots.

STORM DRAIN HYDRAULICS

The storm drain proposed in subareas 20.03A and 40.02A have been approximately sized such that normal depth is less than or equal to 75% of the pipe diameter assuming pipe slope is 1% (the minimum street slope) and the flowrate is the 100-year flow expected based on the flowrate yield defined for locating catch basins. The catch basins are assumed to have 100% interception at this time. The flowrate yield used is 1.25 cfs/lot. Exhibit D illustrates the number of lots tributary to every set of catch basins (placed on both sides of street) and approximates the tributary flowrate. It is shown that the flowrate tributary to each set is less than the allowable street capacity in the reach based upon the minimum street slope. The flowrate tributary to each catch basin set is cumulatively accounted for within the storm drain mainlines. The cumulative flowrate in each storm drain mainline is used to approximate the recommended storm drain diameter.

The flowrates used for the storm drain analysis were derived from the catch basin analysis. The storm drain analysis was completed for the 100-year flow condition.

V. CONCLUSIONS

This report is focused on developing flow rates for the 100 year storm event using the Tc Calculator and utilizing the VCRat program to assess the attenuation of peak flow rates through the proposed detention basins onsite. Furthermore, the report provides technical data supporting that the proposed storm drain system and associated inlets have been conceptually determined in a logically appropriate manner that is feasible. In order to meet the conditions of approval the project has met the following criteria:

1. The project has implemented the use of detention basins to mitigate increased runoff associated with the project. This has been accomplished by delivering runoff to five basins.
2. The project has mitigated stormwater flows according to the following criteria outlined in the Conditions of Approval:
    a. The 100 year developed condition peak flow rate must be equal to or less than the 10 year peak flow rate for the developed condition without basins.

b. The 10 year developed condition peak flow rate must be equal to or less than the 10 year developed condition peak flow rate without basins.

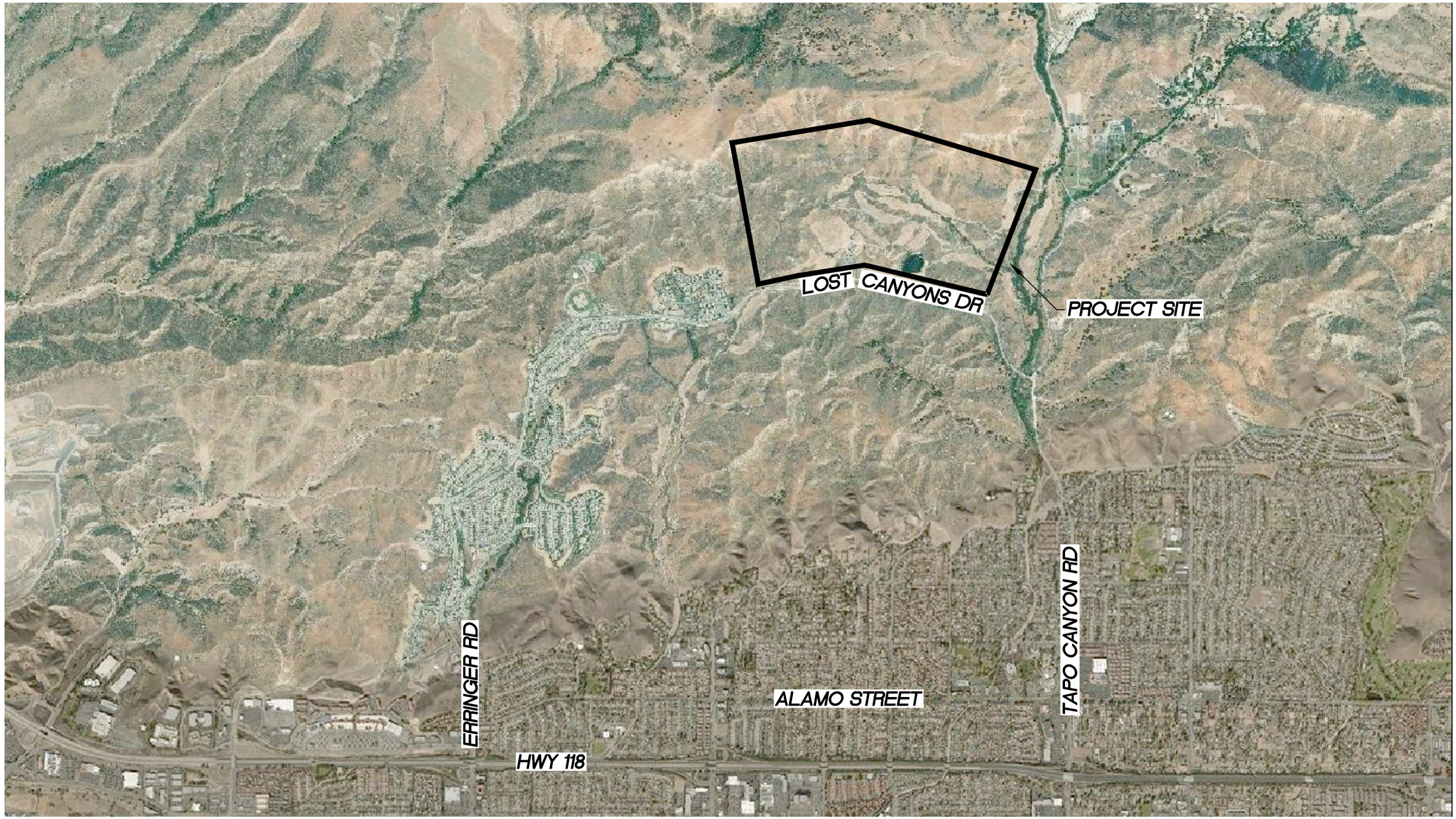
3. Flood protection for the project has been provided by recommending storm drain improvements based on analyses of street capacity.
4. Catch basins are approximately placed to demonstrate surface flows can be reliably intercepted and conveyed to a subsurface storm drain.
5. The project proposes concrete v-ditches to collect the offsite runoff from the existing open space areas in order to provide flood protection.

VI. REFERENCES

1. Ventura County Watershed Protection District Hydrology Manual, July 2017.
2. Lost Canyons Development, Hydrology & Water Quality Assessment, TTM 5734, April 2012 RBF Consulting
3. City of Simi Valley Master Drainage Plan, 2014, Kasraie Consulting

FIGURES

FIGURE 1: VICINITY MAP



LOST CANYONS - TRACT MAP 5734-1
VICINITY MAP

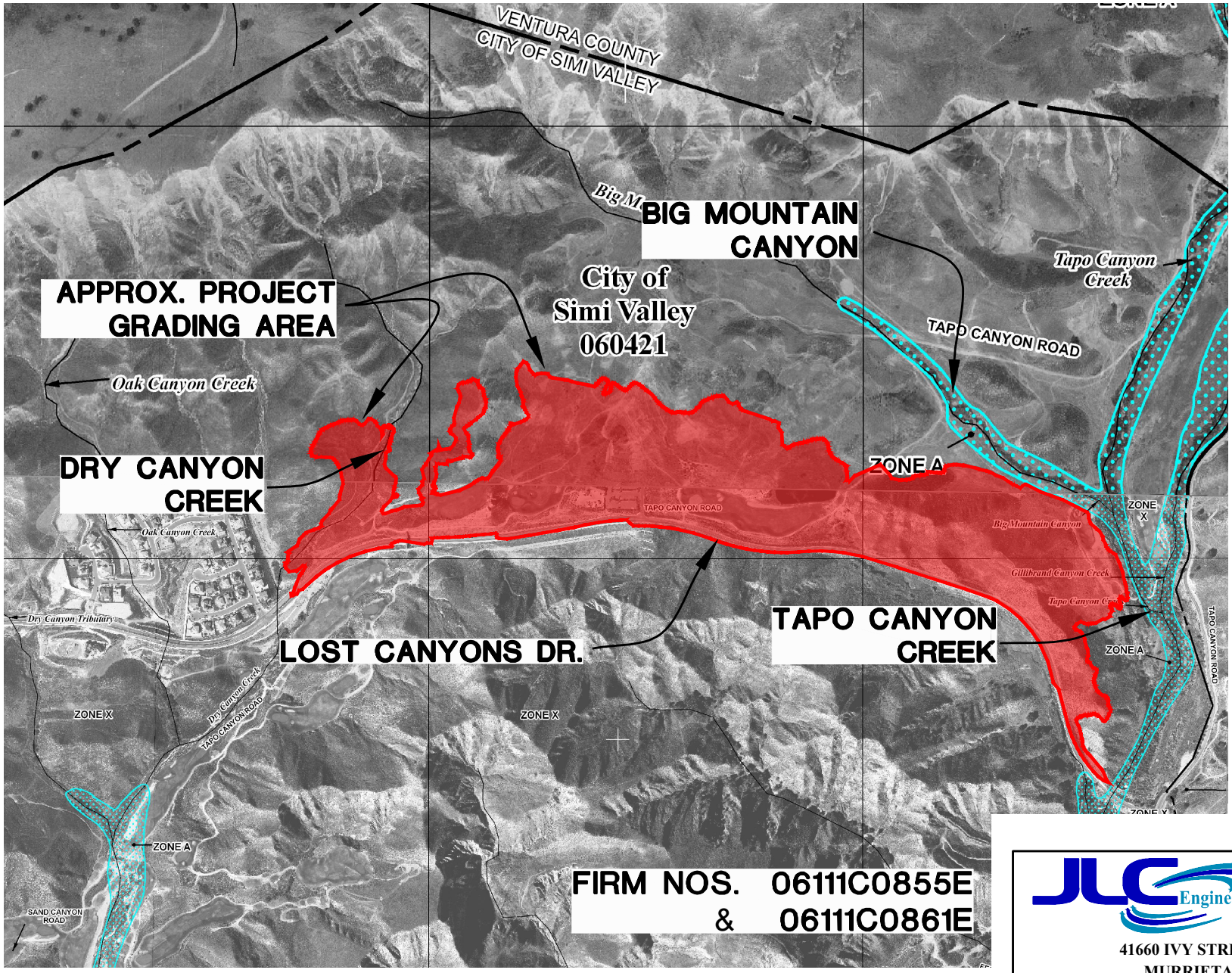
N

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FIGURE 1

Drawing Name: O:\177.06.24\Engineering\Hydrology_Plan\Exhibits\Figure1_VicinityMap.dwg
Last Opened: Sep 03, 2024 - 11:41am by jacob

FIGURE 2: FEMA FEDERAL INSURANCE RATE MAPS



FEMA FEDERAL RATE INSURANCE MAPS

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FIGURE 2

APPENDICES

APPENDIX A: POST-PROJECT MODIFIED RATIONAL METHOD TC CALCULATIONS

APPENDIX A.1: AREA "20"

10-YEAR STORM EVENT

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	20.02A	User Input
Watershed Area ac =	33.8	Calculated from flowpath data
% Imperviousness =	31	User Input
Land Use Description =	LowRes1/5	DropMenu
Storm Frequency	10	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_10	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**7.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	2.786	Calculated
C_undeveloped =	0.411	Calculated
C_composite =	0.578	Calculated
Peak cfs =	54.87	Calculated
Calculated Tc=	**6.72**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Undeveloped	1	0.04	1550	1538	66	0.182			0.045		0.1%	0.1	0.1
2	Natural Mountain Channel	4	0.19	1538	1512	132	0.197	0.157		0.045		0.6%	0.3	0.4
3	Street-32'Wide6"Curbs	5	33.58	1512	1344	2484	0.068			0.015		99.3%	54.5	54.9
4	None	0										0.0%	-	54.9
5	None	0										0.0%	-	54.9
6	None	0										0.0%	-	54.9
7	None	0										0.0%	-	54.9
8	None	0										0.0%	-	54.9
9	None	0										0.0%	-	54.9
10	None	0										0.0%	-	54.9
Sum			**33.8**									**100%**	**54.9**	

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	20.03A	User Input
Watershed Area ac =	36.5	Calculated from flowpath data
% Imperviousness =	43	User Input
Land Use Description =	LowRes1/5	DropMenu
Storm Frequency	10	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_10	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**13.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	2.062	Calculated
C_undeveloped =	0.376	Calculated
C_composite =	0.623	Calculated
Peak cfs =	47.24	Calculated
Calculated Tc=	**13.10**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Developed	2	0.37	1409	1408	200	0.005			0.025		1.0%	0.5	0.5
2	Street-32'Wide6"Curbs	5	36.10	1408	1352	1880	0.030			0.015		99.0%	46.8	47.2
3	None	0										0.0%	-	47.2
4	None	0										0.0%	-	47.2
5	None	0										0.0%	-	47.2
6	None	0										0.0%	-	47.2
7	None	0										0.0%	-	47.2
8	None	0										0.0%	-	47.2
9	None	0										0.0%	-	47.2
10	None	0										0.0%	-	47.2
Sum			**36.5**									**100%**	**47.2**	

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	20.04B	User Input
Watershed Area ac =	3.0	Calculated from flowpath data
% Imperviousness =	39	User Input
Land Use Description =	LowRes1/5	DropMenu
Storm Frequency	10	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_10	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**8.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	2.618	Calculated
C_undeveloped =	0.404	Calculated
C_composite =	0.617	Calculated
Peak cfs =	4.80	Calculated
Calculated Tc=	**8.44**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Developed	2	0.17	1364	1363	160	0.006			0.025		5.8%	0.3	0.3
2	Street-32'Wide6"Curbs	5	2.78	1363	1358	346	0.014			0.015		94.2%	4.5	4.8
3	None	0	0.00									0.0%	-	4.8
4	None	0										0.0%	-	4.8
5	None	0										0.0%	-	4.8
6	None	0										0.0%	-	4.8
7	None	0										0.0%	-	4.8
8	None	0										0.0%	-	4.8
9	None	0										0.0%	-	4.8
10	None	0										0.0%	-	4.8
Sum			**3.0**									**100%**	**4.8**	

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	20.06B	User Input
Watershed Area ac =	2.3	Calculated from flowpath data
% Imperviousness =	50	User Input
Land Use Description =	LowRes1/5	DropMenu
Storm Frequency	10	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_10	Calculated
District Soil Number (1-7) =	3Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**8.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	2.618	Calculated
C_undeveloped =	0.434	Calculated
C_composite =	0.692	Calculated
Peak cfs =	4.11	Calculated
Calculated Tc=	**8.44**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Developed	2	0.15	1342	1341	165	0.006			0.025		6.7%	0.3	0.3
2	Street-32'Wide6"Curbs	5	2.10	1341	1340	200	0.005			0.015		93.3%	3.8	4.1
3	None	0										0.0%	-	4.1
4	None	0										0.0%	-	4.1
5	None	0										0.0%	-	4.1
6	None	0										0.0%	-	4.1
7	None	0										0.0%	-	4.1
8	None	0										0.0%	-	4.1
9	None	0										0.0%	-	4.1
10	None	0										0.0%	-	4.1
Sum			**2.3**									**100%**	**4.1**	

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	20.07B	User Input
Watershed Area ac =	30.2	Calculated from flowpath data
% Imperviousness =	10	User Input
Land Use Description =	Open	DropMenu
Storm Frequency	10	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_10	Calculated
District Soil Number (1-7) =	3Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**8.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	2.618	Calculated
C_undeveloped =	0.434	Calculated
C_composite =	0.486	Calculated
Peak cfs =	38.66	Calculated
Calculated Tc=	**8.20**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Undeveloped	1	0.03	1628	1616	56	0.214			0.045		0.1%	0.0	0.0
2	Natural Mountain Channel	4	3.54	1616	1370	869	0.283	0.191		0.045		11.7%	4.5	4.6
3	Street-32'Wide6"Curbs	5	26.58	1370	1294	1816	0.042			0.015		88.2%	34.1	38.7
4	None	0										0.0%	-	38.7
5	None	0										0.0%	-	38.7
6	None	0										0.0%	-	38.7
7	None	0										0.0%	-	38.7
8	None	0										0.0%	-	38.7
9	None	0										0.0%	-	38.7
10	None	0										0.0%	-	38.7
Sum			**30.2**									**100%**	**38.7**	

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	20.08B	User Input
Watershed Area ac =	4.9	Calculated from flowpath data
% Imperviousness =	38	User Input
Land Use Description =	LowRes1/5	DropMenu
Storm Frequency	10	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_10	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**8.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	2.618	Calculated
C_undeveloped =	0.404	Calculated
C_composite =	0.611	Calculated
Peak cfs =	7.95	Calculated
Calculated Tc=	**8.50**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Developed	2	0.23	1344.5	1341	149	0.023			0.025		4.7%	0.4	0.4
2	Street-32'Wide6"Curbs	5	4.70	1341	1300	861	0.048			0.015		95.3%	7.6	8.0
3	None	0										0.0%	-	8.0
4	None	0										0.0%	-	8.0
5	None	0										0.0%	-	8.0
6	None	0										0.0%	-	8.0
7	None	0										0.0%	-	8.0
8	None	0										0.0%	-	8.0
9	None	0										0.0%	-	8.0
10	None	0										0.0%	-	8.0
Sum			**4.9**									**100%**	**8.0**	

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	20.11A	User Input
Watershed Area ac =	9.4	Calculated from flowpath data
% Imperviousness =	52	User Input
Land Use Description =	LowRes1/5	DropMenu
Storm Frequency	10	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_10	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**9.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	2.487	Calculated
C_undeveloped =	0.398	Calculated
C_composite =	0.685	Calculated
Peak cfs =	16.22	Calculated
Calculated Tc=	**8.86**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Developed	2	0.17	1300.5	1299.5	180	0.006			0.025		1.8%	0.3	0.3
2	Street-32'Wide6"Curbs	5	9.27	1299.5	1286	442	0.031			0.015		98.2%	15.9	16.2
3	None	0										0.0%	-	16.2
4	None	0										0.0%	-	16.2
5	None	0										0.0%	-	16.2
6	None	0										0.0%	-	16.2
7	None	0										0.0%	-	16.2
8	None	0										0.0%	-	16.2
9	None	0										0.0%	-	16.2
10	None	0										0.0%	-	16.2
Sum			**9.4**									**100%**	**16.2**	

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	20.12A	User Input
Watershed Area ac =	8.5	Calculated from flowpath data
% Imperviousness =	17	User Input
Land Use Description =	Open	DropMenu
Storm Frequency	10	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_10	Calculated
District Soil Number (1-7) =	3Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**7.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	2.786	Calculated
C_undeveloped =	0.440	Calculated
C_composite =	0.527	Calculated
Peak cfs =	12.58	Calculated
Calculated Tc=	**6.84**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Undeveloped	1	0.02	1524	1522	50	0.040			0.045		0.2%	0.0	0.0
2	Natural Mountain Channel	4	1.50	1522	1280	650	0.372	0.211		0.045		17.6%	2.2	2.3
3	Street-32'Wide6"Curbs	5	6.98	1280	1255	610	0.041			0.015		82.1%	10.3	12.6
4	None	0										0.0%	-	12.6
5	None	0										0.0%	-	12.6
6	None	0										0.0%	-	12.6
7	None	0										0.0%	-	12.6
8	None	0										0.0%	-	12.6
9	None	0										0.0%	-	12.6
10	None	0										0.0%	-	12.6
Sum			**8.5**									**100%**	**12.6**	

100-YEAR STORM EVENT

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	20.02A	User Input
Watershed Area ac =	33.8	Calculated from flowpath data
% Imperviousness =	31	User Input
Land Use Description =	LowRes1/5	DropMenu
Storm Frequency	100	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_100	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**6.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	4.596	Calculated
C_undeveloped =	0.454	Calculated
C_composite =	0.608	Calculated
Peak cfs =	95.22	Calculated
Calculated Tc=	**5.68**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Undeveloped	1	0.04	1550	1538	66	0.182			0.045		0.1%	0.1	0.1
2	Natural Mountain Channel	4	0.19	1538	1512	132	0.197	0.157		0.045		0.6%	0.5	0.6
3	Street-32'Wide6"Curbs	5	33.58	1512	1344	2484	0.068			0.015		99.3%	94.6	95.2
4	None	0										0.0%	-	95.2
5	None	0										0.0%	-	95.2
6	None	0										0.0%	-	95.2
7	None	0										0.0%	-	95.2
8	None	0										0.0%	-	95.2
9	None	0										0.0%	-	95.2
10	None	0										0.0%	-	95.2
Sum			**33.8**									**100%**	**95.2**	

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	20.03A	User Input
Watershed Area ac =	36.5	Calculated from flowpath data
% Imperviousness =	43	User Input
Land Use Description =	LowRes1/5	DropMenu
Storm Frequency	100	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_100	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**8.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	3.996	Calculated
C_undeveloped =	0.444	Calculated
C_composite =	0.662	Calculated
Peak cfs =	97.21	Calculated
Calculated Tc=	**8.22**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Developed	2	0.37	1409	1408	200	0.005			0.025		1.0%	1.0	1.0
2	Street-32'Wide6"Curbs	5	36.10	1408	1352	1880	0.030			0.015		99.0%	96.2	97.2
3	None	0										0.0%	-	97.2
4	None	0										0.0%	-	97.2
5	None	0										0.0%	-	97.2
6	None	0										0.0%	-	97.2
7	None	0										0.0%	-	97.2
8	None	0										0.0%	-	97.2
9	None	0										0.0%	-	97.2
10	None	0										0.0%	-	97.2
Sum			**36.5**									**100%**	**97.2**	

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	20.04B	User Input
Watershed Area ac =	3.0	Calculated from flowpath data
% Imperviousness =	39	User Input
Land Use Description =	LowRes1/5	DropMenu
Storm Frequency	100	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_100	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**5.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	5.076	Calculated
C_undeveloped =	0.459	Calculated
C_composite =	0.651	Calculated
Peak cfs =	9.82	Calculated
Calculated Tc=	**5.13**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Developed	2	0.17	1364	1363	160	0.006			0.025		5.8%	0.6	0.6
2	Street-32'Wide6"Curbs	5	2.78	1363	1358	346	0.014			0.015		94.2%	9.3	9.8
3	None	0	0.00									0.0%	-	9.8
4	None	0										0.0%	-	9.8
5	None	0										0.0%	-	9.8
6	None	0										0.0%	-	9.8
7	None	0										0.0%	-	9.8
8	None	0										0.0%	-	9.8
9	None	0										0.0%	-	9.8
10	None	0										0.0%	-	9.8
Sum			**3.0**									**100%**	**9.8**	

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	20.06B	User Input
Watershed Area ac =	2.3	Calculated from flowpath data
% Imperviousness =	50	User Input
Land Use Description =	LowRes1/5	DropMenu
Storm Frequency	100	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_100	Calculated
District Soil Number (1-7) =	3Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**5.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	5.076	Calculated
C_undeveloped =	0.485	Calculated
C_composite =	0.717	Calculated
Peak cfs =	8.26	Calculated
Calculated Tc=	**5.03**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Developed	2	0.15	1342	1341	165	0.006			0.025		6.7%	0.6	0.6
2	Street-32'Wide6"Curbs	5	2.10	1341	1340	200	0.005			0.015		93.3%	7.7	8.3
3	None	0										0.0%	-	8.3
4	None	0										0.0%	-	8.3
5	None	0										0.0%	-	8.3
6	None	0										0.0%	-	8.3
7	None	0										0.0%	-	8.3
8	None	0										0.0%	-	8.3
9	None	0										0.0%	-	8.3
10	None	0										0.0%	-	8.3
Sum			**2.3**									**100%**	**8.3**	

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	20.07B	User Input
Watershed Area ac =	30.2	Calculated from flowpath data
% Imperviousness =	10	User Input
Land Use Description =	Open	DropMenu
Storm Frequency	100	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_100	Calculated
District Soil Number (1-7) =	3Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**7.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	4.253	Calculated
C_undeveloped =	0.474	Calculated
C_composite =	0.522	Calculated
Peak cfs =	67.46	Calculated
Calculated Tc=	**6.91**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Undeveloped	1	0.03	1628	1616	56	0.214			0.045		0.1%	0.1	0.1
2	Natural Mountain Channel	4	3.54	1616	1370	869	0.283	0.191		0.045		11.7%	7.9	8.0
3	Street-32'Wide6"Curbs	5	26.58	1370	1294	1816	0.042			0.015		88.2%	59.5	67.5
4	None	0										0.0%	-	67.5
5	None	0										0.0%	-	67.5
6	None	0										0.0%	-	67.5
7	None	0										0.0%	-	67.5
8	None	0										0.0%	-	67.5
9	None	0										0.0%	-	67.5
10	None	0										0.0%	-	67.5
Sum			**30.2**									**100%**	**67.5**	

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	20.08B	User Input
Watershed Area ac =	4.9	Calculated from flowpath data
% Imperviousness =	38	User Input
Land Use Description =	LowRes1/5	DropMenu
Storm Frequency	100	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_100	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**5.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	5.076	Calculated
C_undeveloped =	0.459	Calculated
C_composite =	0.646	Calculated
Peak cfs =	16.29	Calculated
Calculated Tc=	**5.19**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Developed	2	0.23	1344.5	1341	149	0.023			0.025		4.7%	0.8	0.8
2	Street-32'Wide6"Curbs	5	4.70	1341	1300	861	0.048			0.015		95.3%	15.5	16.3
3	None	0										0.0%	-	16.3
4	None	0										0.0%	-	16.3
5	None	0										0.0%	-	16.3
6	None	0										0.0%	-	16.3
7	None	0										0.0%	-	16.3
8	None	0										0.0%	-	16.3
9	None	0										0.0%	-	16.3
10	None	0										0.0%	-	16.3
Sum			**4.9**									**100%**	**16.3**	

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	20.11A	User Input
Watershed Area ac =	9.4	Calculated from flowpath data
% Imperviousness =	52	User Input
Land Use Description =	LowRes1/5	DropMenu
Storm Frequency	100	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_100	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**15.00**	**Tc Outside of Range, Reset to 15**
Intensity in/hr =	2.932	Calculated
C_undeveloped =	0.417	Calculated
C_composite =	0.694	Calculated
Peak cfs =	19.37	Calculated
Calculated Tc=	**5.13**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Developed	2	0.17	1300.5	1299.5	180	0.006			0.025		1.8%	0.3	0.3
2	Street-32'Wide6"Curbs	5	9.27	1299.5	1286	442	0.031			0.015		98.2%	19.0	19.4
3	None	0										0.0%	-	19.4
4	None	0										0.0%	-	19.4
5	None	0										0.0%	-	19.4
6	None	0										0.0%	-	19.4
7	None	0										0.0%	-	19.4
8	None	0										0.0%	-	19.4
9	None	0										0.0%	-	19.4
10	None	0										0.0%	-	19.4
Sum			**9.4**									**100%**	**19.4**	

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	20.12A	User Input
Watershed Area ac =	8.5	Calculated from flowpath data
% Imperviousness =	17	User Input
Land Use Description =	Open	DropMenu
Storm Frequency	100	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_100	Calculated
District Soil Number (1-7) =	3Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**5.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	5.076	Calculated
C_undeveloped =	0.485	Calculated
C_composite =	0.564	Calculated
Peak cfs =	24.54	Calculated
Calculated Tc=	**5.04**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Undeveloped	1	0.02	1524	1522	50	0.040			0.045		0.2%	0.1	0.1
2	Natural Mountain Channel	4	1.50	1522	1280	650	0.372	0.211		0.045		17.6%	4.3	4.4
3	Street-32'Wide6"Curbs	5	6.98	1280	1255	610	0.041			0.015		82.1%	20.1	24.5
4	None	0										0.0%	-	24.5
5	None	0										0.0%	-	24.5
6	None	0										0.0%	-	24.5
7	None	0										0.0%	-	24.5
8	None	0										0.0%	-	24.5
9	None	0										0.0%	-	24.5
10	None	0										0.0%	-	24.5
Sum			**8.5**									**100%**	**24.5**	

APPENDIX A.2: AREA "30"

10-YEAR STORM EVENT

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	30.02A	User Input
Watershed Area ac =	24.8	Calculated from flowpath data
% Imperviousness =	51	User Input
Land Use Description =	LowRes1/5	DropMenu
Storm Frequency	10	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_10	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**14.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	1.986	Calculated
C_undeveloped =	0.371	Calculated
C_composite =	0.666	Calculated
Peak cfs =	33.15	Calculated
Calculated Tc=	**13.62**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Developed	2	0.42	1309.5	1306	200	0.018			0.025		1.7%	0.6	0.6
2	Natural Mountain Channel	4	24.42	1306	1210	1453	0.066	0.066		0.015		98.3%	32.6	33.2
3	None	0										0.0%	-	33.2
4	None	0										0.0%	-	33.2
5	None	0										0.0%	-	33.2
6	None	0										0.0%	-	33.2
7	None	0										0.0%	-	33.2
8	None	0										0.0%	-	33.2
9	None	0										0.0%	-	33.2
10	None	0										0.0%	-	33.2
Sum			**24.8**									**100%**	**33.2**	

100-YEAR STORM EVENT

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	30.02A	User Input
Watershed Area ac =	24.8	Calculated from flowpath data
% Imperviousness =	51	User Input
Land Use Description =	LowRes1/5	DropMenu
Storm Frequency	100	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_100	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**9.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	3.796	Calculated
C_undeveloped =	0.440	Calculated
C_composite =	0.700	Calculated
Peak cfs =	66.55	Calculated
Calculated Tc=	**8.43**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Developed	2	0.42	1309.5	1306	200	0.018			0.025		1.7%	1.1	1.1
2	Natural Mountain Channel	4	24.42	1306	1210	1453	0.066	0.066		0.015		98.3%	65.4	66.6
3	None	0										0.0%	-	66.6
4	None	0										0.0%	-	66.6
5	None	0										0.0%	-	66.6
6	None	0										0.0%	-	66.6
7	None	0										0.0%	-	66.6
8	None	0										0.0%	-	66.6
9	None	0										0.0%	-	66.6
10	None	0										0.0%	-	66.6
Sum			**24.8**									**100%**	**66.6**	

APPENDIX A.3: AREA "40"

10-YEAR STORM EVENT

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	40.02A	User Input
Watershed Area ac =	23.3	Calculated from flowpath data
% Imperviousness =	46	User Input
Land Use Description =	LowRes1/5	DropMenu
Storm Frequency	10	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_10	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**12.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	2.151	Calculated
C_undeveloped =	0.381	Calculated
C_composite =	0.643	Calculated
Peak cfs =	32.42	Calculated
Calculated Tc=	**12.00**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Developed	2	0.25	1353.5	1350	187	0.019			0.025		1.1%	0.3	0.3
2	Street-32'Wide6"Curbs	5	23.01	1350	1309	1529	0.027			0.015		98.9%	32.1	32.4
3	None	0										0.0%	-	32.4
4	None	0										0.0%	-	32.4
5	None	0										0.0%	-	32.4
6	None	0										0.0%	-	32.4
7	None	0										0.0%	-	32.4
8	None	0										0.0%	-	32.4
9	None	0										0.0%	-	32.4
10	None	0										0.0%	-	32.4
Sum			**23.3**									**100%**	**32.4**	

100-YEAR STORM EVENT

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	40.02A	User Input
Watershed Area ac =	23.3	Calculated from flowpath data
% Imperviousness =	46	User Input
Land Use Description =	LowRes1/5	DropMenu
Storm Frequency	100	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_100	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**8.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	3.996	Calculated
C_undeveloped =	0.444	Calculated
C_composite =	0.677	Calculated
Peak cfs =	63.42	Calculated
Calculated Tc=	**7.60**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Developed	2	0.25	1353.5	1350	187	0.019			0.025		1.1%	0.7	0.7
2	Street-32'Wide6"Curbs	5	23.01	1350	1309	1529	0.027			0.015		98.9%	62.7	63.4
3	None	0										0.0%	-	63.4
4	None	0										0.0%	-	63.4
5	None	0										0.0%	-	63.4
6	None	0										0.0%	-	63.4
7	None	0										0.0%	-	63.4
8	None	0										0.0%	-	63.4
9	None	0										0.0%	-	63.4
10	None	0										0.0%	-	63.4
Sum			**23.3**									**100%**	**63.4**	

APPENDIX A.4: AREA "50"

10-YEAR STORM EVENT

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	50.02A	User Input
Watershed Area ac =	11.2	Calculated from flowpath data
% Imperviousness =	0	User Input
Land Use Description =	Graded	DropMenu
Storm Frequency	10	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_10	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**10.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	2.382	Calculated
C_undeveloped =	0.393	Calculated
C_composite =	0.393	Calculated
Peak cfs =	10.57	Calculated
Calculated Tc=	**9.62**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Undeveloped	1	0.35	1409	1407.5	220	0.007			0.045		3.1%	0.3	0.3
2	Trapezoid-Channel	11	10.85	1407.5	1303	2252	0.046		1.0	0.025	2.0	96.9%	10.2	10.6
3	None	0										0.0%	-	10.6
4	None	0										0.0%	-	10.6
5	None	0										0.0%	-	10.6
6	None	0										0.0%	-	10.6
7	None	0										0.0%	-	10.6
8	None	0										0.0%	-	10.6
9	None	0										0.0%	-	10.6
10	None	0										0.0%	-	10.6
Sum			**11.2**									**100%**	**10.6**	

100-YEAR STORM EVENT

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	50.02A	User Input
Watershed Area ac =	11.2	Calculated from flowpath data
% Imperviousness =	0	User Input
Land Use Description =	Graded	DropMenu
Storm Frequency	100	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_100	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**5.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	5.076	Calculated
C_undeveloped =	0.459	Calculated
C_composite =	0.459	Calculated
Peak cfs =	26.32	Calculated
Calculated Tc=	**5.03**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Undeveloped	1	0.35	1409	1407.5	220	0.007			0.045		3.1%	0.8	0.8
2	Trapezoid-Channel	11	10.85	1407.5	1303	2252	0.046		1.0	0.025	2.0	96.9%	25.5	26.3
3	None	0										0.0%	-	26.3
4	None	0										0.0%	-	26.3
5	None	0										0.0%	-	26.3
6	None	0										0.0%	-	26.3
7	None	0										0.0%	-	26.3
8	None	0										0.0%	-	26.3
9	None	0										0.0%	-	26.3
10	None	0										0.0%	-	26.3
Sum			**11.2**									**100%**	**26.3**	

APPENDIX A.5: AREA "90"

10-YEAR STORM EVENT

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	90.02A	User Input
Watershed Area ac =	4.1	Calculated from flowpath data
% Imperviousness =	26	User Input
Land Use Description =	Graded	DropMenu
Storm Frequency	10	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_10	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**8.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	2.618	Calculated
C_undeveloped =	0.404	Calculated
C_composite =	0.546	Calculated
Peak cfs =	5.93	Calculated
Calculated Tc=	**8.43**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Developed	2	0.35	1255	1252	150	0.020			0.015		8.5%	0.5	0.5
2	Street-32'Wide6"Curbs	5	3.77	1252	1233	653	0.029			0.015		91.5%	5.4	5.9
3	None	0										0.0%	-	5.9
4	None	0										0.0%	-	5.9
5	None	0										0.0%	-	5.9
6	None	0										0.0%	-	5.9
7	None	0										0.0%	-	5.9
8	None	0										0.0%	-	5.9
9	None	0										0.0%	-	5.9
10	None	0										0.0%	-	5.9
Sum			**4.1**									**100%**	**5.9**	

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	90.03A	User Input
Watershed Area ac =	7.8	Calculated from flowpath data
% Imperviousness =	32	User Input
Land Use Description =	LowRes1/5	DropMenu
Storm Frequency	10	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_10	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**8.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	2.618	Calculated
C_undeveloped =	0.404	Calculated
C_composite =	0.578	Calculated
Peak cfs =	11.94	Calculated
Calculated Tc=	**8.20**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Developed	2	0.21	1220	1219	150	0.007			0.025		2.7%	0.3	0.3
2	Street-32'Wide6"Curbs	5	7.61	1219	1210	491	0.018			0.015		97.3%	11.6	11.9
3	None	0										0.0%	-	11.9
4	None	0										0.0%	-	11.9
5	None	0										0.0%	-	11.9
6	None	0										0.0%	-	11.9
7	None	0										0.0%	-	11.9
8	None	0										0.0%	-	11.9
9	None	0										0.0%	-	11.9
10	None	0										0.0%	-	11.9
Sum			**7.8**									**100%**	**11.9**	

100-YEAR STORM EVENT

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	90.02A	User Input
Watershed Area ac =	4.1	Calculated from flowpath data
% Imperviousness =	26	User Input
Land Use Description =	Graded	DropMenu
Storm Frequency	100	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_100	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**5.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	5.076	Calculated
C_undeveloped =	0.459	Calculated
C_composite =	0.587	Calculated
Peak cfs =	12.37	Calculated
Calculated Tc=	**5.08**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Developed	2	0.35	1255	1252	150	0.020			0.015		8.5%	1.1	1.1
2	Street-32'Wide6"Curbs	5	3.77	1252	1233	653	0.029			0.015		91.5%	11.3	12.4
3	None	0										0.0%	-	12.4
4	None	0										0.0%	-	12.4
5	None	0										0.0%	-	12.4
6	None	0										0.0%	-	12.4
7	None	0										0.0%	-	12.4
8	None	0										0.0%	-	12.4
9	None	0										0.0%	-	12.4
10	None	0										0.0%	-	12.4
Sum			**4.1**									**100%**	**12.4**	

Tc Calculator Data Sheet V6.1

Project Name and Number: Tc Calculator V6

USER INPUT IN BLUE FIELDS:		
Subarea Name =	90.03A	User Input
Watershed Area ac =	7.8	Calculated from flowpath data
% Imperviousness =	32	User Input
Land Use Description =	LowRes1/5	DropMenu
Storm Frequency	100	DropMenu
Storm Zone =	Simi Valley	DropMenu
Zone ID =	Simi2_100	Calculated
District Soil Number (1-7) =	4Rev	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**5.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	5.076	Calculated
C_undeveloped =	0.459	Calculated
C_composite =	0.616	Calculated
Peak cfs =	24.66	Calculated
Calculated Tc=	**5.09**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Developed	2	0.21	1220	1219	150	0.007			0.025		2.7%	0.7	0.7
2	Street-32'Wide6"Curbs	5	7.61	1219	1210	491	0.018			0.015		97.3%	24.0	24.7
3	None	0										0.0%	-	24.7
4	None	0										0.0%	-	24.7
5	None	0										0.0%	-	24.7
6	None	0										0.0%	-	24.7
7	None	0										0.0%	-	24.7
8	None	0										0.0%	-	24.7
9	None	0										0.0%	-	24.7
10	None	0										0.0%	-	24.7
Sum			**7.8**									**100%**	**24.7**	

APPENDIX B: POST-PROJECT MODIFIED RATIONAL METHOD VCRAT CALCULATIONS

APPENDIX B.1: AREA "20"

10-YEAR STORM EVENT WITHOUT BASINS

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Modified Rational Model Results Report

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 20

Project Description

VCRat version: 2.64.0.37
VCRain version: 201801
DOS EXE version: PC 2.64-201605
VCRain Curve Set: VCWPD 2016 Revised Curve Set
Curve A: SIM2: Simi Valley
Curve B: None
Curve C: None
Curve D: None

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 20

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	AREA (AC)	FLOW (CFS)	AREA (AC)	FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES CHNL	N VALUES SIDES	VEL (FT/S)	DEPTH (FT)
1A	---	---	--	--	---	---	0	0	----	-------	----	-------	---	----	-----	-----	--	--
2A : Begin Stream A - Line B																		
2A	040	A10	7	31	34	55	34	55	1154	-------	----	-------	---	----	-----	-----	--	--

3A	040	A10	13	43	36	46	70	101	1154	-------	----	-------	---	----	-----	-----	--	--
4B : Begin Stream B - Lost Canyons Back Bone Line C																		
4B	040	A10	8	39	5	8	5	8	1153	-------	----	-------	---	----	-----	-----	--	--
5B : Report Results of Routing in Basin																		
5B	---	---	--	--	---	---	5	8	1153	-------	----	-------	---	----	-----	-----	--	--
6B	030	A10	8	50	5	9	10	17	1153	-------	----	-------	---	----	-----	-----	--	--
7B	030	A10	8	10	30	38	40	55	1153	-------	----	-------	---	----	-----	-----	--	--
8B	040	A10	8	38	5	8	45	63	1153	-------	----	-------	---	----	-----	-----	--	--
9AB: Confluence Line B & BB Line C in Lake																		
9AB	---	---	--	--	45	63	115	164	1154	-------	----	-------	---	----	-----	-----	--	--
10A : Report Results of Routing in Lake																		
10A	---	---	--	--	---	---	115	164	1154	-------	----	-------	---	----	-----	-----	--	--
11A	040	A10	9	52	9	15	124	180	1154	-------	----	-------	---	----	-----	-----	--	--
12A	030	A10	7	17	8	12	132	191	1154	-------	----	-------	---	----	-----	-----	--	--

Issue/Warning Messages

TYPE	ERR NO	PROCEDURE	LOCATION	MESSAGE

NO ISSUES OR WARNINGS DETECTED

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 12A

TOTAL AREA TO HYDROGRAPH: 132 acres
HYDROGRAPH PEAK: 191 cfs
TIME OF PEAK: 1154 minutes
HYDROGRAPH VOLUME: 16.70 acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	3.74	200	3.72	300	3.72	400	3.74
500	3.72	600	4.38	700	6.35	800	6.38	900	8.03
1000	11.04	1050	13.98	1100	17.87	1110	26.96	1120	36.24
1130	37.96	1131	38.30	1132	38.65	1133	38.99	1134	39.31
1135	39.63	1136	39.95	1137	40.28	1138	40.47	1139	41.20
1140	41.26	1141	43.25	1142	45.87	1143	47.86	1144	50.43
1145	57.48	1146	64.14	1147	70.80	1148	76.87	1149	101.20
1150	125.19	1151	148.42	1152	170.39	1153	190.57	1154	191.49
1155	188.09	1156	175.28	1157	155.88	1158	134.39	1159	111.97
1160	88.91	1161	73.83	1162	62.94	1163	55.82	1164	50.51

1165	42.07	1166	33.29	1167	29.57	1168	26.91	1169	24.37
1170	22.59	1171	20.85	1172	20.08	1173	19.49	1174	19.22
1175	18.98	1176	18.80	1177	18.01	1178	17.51	1179	17.05
1180	16.63	1181	16.17	1182	15.74	1183	15.48	1184	15.15
1185	14.96	1186	14.89	1187	14.75	1188	14.62	1189	14.22
1190	13.86	1191	13.27	1192	12.98	1193	12.45	1194	12.19
1195	11.93	1196	11.43	1197	11.33	1198	11.36	1199	11.10
1200	11.16	1201	11.16	1202	10.93	1203	11.02	1204	11.16
1205	10.93	1206	11.09	1207	11.16	1208	10.93	1209	11.09
1210	11.16	1211	10.93	1212	11.09	1213	11.16	1214	10.93
1215	11.09	1216	11.16	1217	10.93	1218	11.09	1219	11.16
1220	10.93	1221	11.09	1222	10.90	1223	10.93	1224	11.09
1225	10.37	1226	9.88	1227	9.52	1228	9.06	1229	8.40
1230	8.01	1231	7.52	1232	7.02	1233	6.96	1234	6.86
1235	6.53	1236	6.49	1237	6.42	1238	6.25	1239	6.35
1240	6.42	1241	6.19	1242	6.35	1243	6.42	1244	6.45
1245	6.35	1246	6.42	1247	6.45	1248	6.35	1249	6.42
1250	6.45	1251	6.25	1252	6.35	1253	6.42	1254	6.25
1255	6.35	1256	6.42	1257	6.19	1258	6.35	1259	6.42
1260	6.45	1261	6.35	1262	6.42	1263	6.45	1264	6.35
1265	6.42	1266	6.45	1267	6.25	1268	6.35	1269	6.42
1270	6.25	1271	6.35	1272	6.42	1273	6.19	1274	6.35
1275	6.42	1276	6.19	1277	6.35	1278	6.42	1279	6.45
1280	6.35	1281	6.42	1282	6.45	1283	6.35	1284	6.42
1285	6.45	1286	6.25	1287	6.35	1288	6.42	1289	6.25
1290	6.35	1291	6.42	1292	6.19	1293	6.35	1294	6.42
1295	6.45	1296	6.35	1297	6.16	1298	5.66	1299	5.57
1300	5.11	1310	3.74	1320	3.79	1330	3.79	1340	3.79
1350	3.58	1360	3.77	1370	3.79	1380	3.58	1390	3.77
1400	3.79	1420	3.79	1440	3.67	1460	0.00	1500	0.00

VCRat Model Input

Model Lines

```
005     1  001A Header place holder
005     1  012A Header place holder
999
999
006     1  001A 010      099A97                                G1
006     1  002A 040031003407A97
006     1  003A 040043003613A97
006     1  004B 040039000508A97
006     1  005B 010      099A97
```

```
006     1  006B 030050000508A97
006     1  007B 030010003008A97
006     1  008B 040038000508A97
006     1  009AB010         A97
006     1  010A 010      099A97
006     1  011A 040052000909A97
006     1  012A 030017000807A97                          1  2
999
```

10-YEAR STORM EVENT WITH BASINS

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Modified Rational Model Results Report

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 20

Project Description

VCRat version: 2.64.0.37
VCRain version: 201801
DOS EXE version: PC 2.64-201605
VCRain Curve Set: VCWPD 2016 Revised Curve Set
Curve A: SIM2: Simi Valley
Curve B: None
Curve C: None
Curve D: None

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 20

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	AREA (AC)	FLOW (CFS)	AREA (AC)	FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES CHNL	N VALUES SIDES	VEL (FT/S)	DEPTH (FT)
1A	---	---	--	--	---	---	0	0	----	-------	----	-------	---	----	-----	-----	--	--
2A : Begin Stream A - Line B																		
2A	040	A10	7	31	34	55	34	55	1154	-------	----	-------	---	----	-----	-----	--	--

```
 3A   040   A10    13   43     36     46       70     101   1154    -------    ----  -------    ---     ----    -----  -----    --      --
 4B :  Begin Stream B - Lost Canyons Back Bone Line C
 4B   040   A10     8   39      5      8        5       8   1153    -------    ----  -------    ---     ----    -----  -----    --      --
  4B :  Detention Basin
      ********************************************************************************************
      *      INCOMING HYDROGRAPH  PEAK (cfs):      8.08         VOLUME (acre-ft):      0.75      *
      *      NO HYDROGRAPH ADJUSTMENT                                                             *
      *      RUNOFF FACTOR(in):   4.14                                                            *
      *      FATTENED HYDROGRAPH  PEAK (cfs):      8.08         VOLUME (acre-ft):      1.73      *
      *      RESERVOIR INFLOW:    PEAK (cfs):      8.08 @ 1153  VOLUME (acre-ft):      1.73      *
      *      MAXIMUM ELEVATION:   STAGE (ft):   1356.51 @ 1160  VOLUME (acre-ft):      0.27      *
      *      EMERGENCY SPILLWAY:   ELEV (ft):   1357.99         VOLUME (acre-ft):      0.52      *
      *          DIFFERENCE:   IN STAGE (ft):     -1.48      IN VOLUME (acre-ft):      0.25      *
      *          NO SPILL EXPECTED.       PERCNT OF VOLUME REMAINING TO SPILLWAY:     48.5%      *
      *      TOP OF DAM:           ELEV (ft):   1358.00         VOLUME (acre-ft):      0.52      *
      *          DIFFERENCE    IN STAGE (ft):     -1.49      IN VOLUME (acre-ft):      0.25      *
      *          NO OVERTOP EXPECTED.   PERCNT OF VOLUME REMAINING TO TOP OF DAM:     48.7%      *
      *      RESERVOIR OUTFLOW:   PEAK (cfs):      5.22 @ 1160  VOLUME (acre-ft):      1.54      *
      ********************************************************************************************
 4B   ---   ---    --   --    ---    ---        5       5   1160    -------    ----  -------    ---     ----    -----  -----    --      --
 5B :  Report Results of Routing in Basin
 5B   ---   ---    --   --    ---    ---        5       5   1160    -------    ----  -------    ---     ----    -----  -----    --      --
 6B   030   A10     8   50     5      9       10      14   1154    -------    ----  -------    ---     ----    -----  -----    --      --
 7B   030   A10     8   10    30     38       40      52   1154    -------    ----  -------    ---     ----    -----  -----    --      --
 8B   040   A10     8   38     5      8       45      60   1154    -------    ----  -------    ---     ----    -----  -----    --      --
 9AB:  Confluence Line B & BB Line C in Lake
 9AB  ---   ---    --   --    45     60      115     161   1154    -------    ----  -------    ---     ----    -----  -----    --      --
  9A :  Detention Basin
      ********************************************************************************************
      *      INCOMING HYDROGRAPH  PEAK (cfs):    160.95         VOLUME (acre-ft):     15.09      *
      *      NO HYDROGRAPH ADJUSTMENT                                                             *
      *      RUNOFF FACTOR(in):   3.84                                                            *
      *      FATTENED HYDROGRAPH  PEAK (cfs):    160.95         VOLUME (acre-ft):     36.79      *
      *      RESERVOIR INFLOW:    PEAK (cfs):    160.95 @ 1154  VOLUME (acre-ft):     36.79      *
      *      MAXIMUM ELEVATION:   STAGE (ft):   1288.16 @ 1196  VOLUME (acre-ft):     13.68      *
      *      EMERGENCY SPILLWAY:   ELEV (ft):   1289.00         VOLUME (acre-ft):     16.73      *
      *          DIFFERENCE:   IN STAGE (ft):     -0.84      IN VOLUME (acre-ft):      3.05      *
      *          NO SPILL EXPECTED.       PERCNT OF VOLUME REMAINING TO SPILLWAY:     18.2%      *
      *      TOP OF DAM:           ELEV (ft):   1290.00         VOLUME (acre-ft):     20.51      *
      *          DIFFERENCE    IN STAGE (ft):     -1.84      IN VOLUME (acre-ft):      6.83      *
      *          NO OVERTOP EXPECTED.   PERCNT OF VOLUME REMAINING TO TOP OF DAM:     33.3%      *
      *      RESERVOIR OUTFLOW:   PEAK (cfs):     59.05 @ 1196  VOLUME (acre-ft):     28.14      *
      ********************************************************************************************
  9A   ---   ---    --   --    ---    ---      115      59   1196    -------    ----  -------    ---     ----    -----  -----    --      --
 10A :  Report Results of Routing in Lake
 10A   ---   ---    --   --    ---    ---      115      59   1196    -------    ----  -------    ---     ----    -----  -----    --      --
 11A   040   A10     9   52     9     15       124      64   1157    -------    ----  -------    ---     ----    -----  -----    --      --
 12A   030   A10     7   17     8     12       132      75   1155    -------    ----  -------    ---     ----    -----  -----    --      --
```

Issue/Warning Messages

TYPE	ERR NO	PROCEDURE	LOCATION	MESSAGE

NO ISSUES OR WARNINGS DETECTED

Hydrograph Printouts

RESERVOIR ROUTING AT 4B

DESCRIPTION: Detention Basin

INCOMING HYDROGRAPH PEAK (cfs):	8.08	VOLUME (acre-ft):	0.75
NO HYDROGRAPH ADJUSTMENT			
RUNOFF FACTOR(in):	4.14		
FATTENED HYDROGRAPH PEAK (cfs):	8.08	VOLUME (acre-ft):	1.73
RESERVOIR INFLOW: PEAK (cfs):	8.08 @ 1153	VOLUME (acre-ft):	1.73
MAXIMUM ELEVATION: STAGE (ft):	1356.51 @ 1160	VOLUME (acre-ft):	0.27
EMERGENCY SPILLWAY: ELEV (ft):	1357.99	VOLUME (acre-ft):	0.52
DIFFERENCE: IN STAGE (ft):	-1.48	IN VOLUME (acre-ft):	0.25
NO SPILL EXPECTED.	PERCNT OF VOLUME REMAINING TO SPILLWAY:		48.5%
TOP OF DAM: ELEV (ft):	1358.00	VOLUME (acre-ft):	0.52
DIFFERENCE IN STAGE (ft):	-1.49	IN VOLUME (acre-ft):	0.25
NO OVERTOP EXPECTED.	PERCNT OF VOLUME REMAINING TO TOP OF DAM:		48.7%
RESERVOIR OUTFLOW: PEAK (cfs):	5.22 @ 1160	VOLUME (acre-ft):	1.54

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
0	0.00	0.00	0.00	0.00	1354.00
100	0.18	0.18	0.19	0.00	1354.07
200	0.17	0.17	0.22	0.01	1354.37
300	0.17	0.17	0.23	0.02	1354.68
400	0.18	0.18	0.24	0.03	1355.00
500	0.17	0.17	0.26	0.21	1355.26
600	0.21	0.21	0.32	0.28	1355.29
700	0.30	0.30	0.46	0.37	1355.32
800	0.30	0.30	0.53	0.49	1355.36
900	0.38	0.38	0.76	0.62	1355.41
1000	0.52	0.52	1.23	0.94	1355.53

1050	0.66	0.66	1.71	1.33	1355.68
1100	0.84	0.84	2.56	1.91	1355.89
1110	1.17	1.17	3.01	2.17	1355.99
1120	1.53	1.53	3.51	2.55	1356.06
1130	1.58	1.58	3.81	2.95	1356.13
1131	1.59	1.59	3.85	2.99	1356.13
1132	1.60	1.60	3.88	3.03	1356.14
1133	1.62	1.62	3.92	3.07	1356.15
1134	1.63	1.63	3.96	3.11	1356.15
1135	1.64	1.64	4.00	3.16	1356.16
1136	1.66	1.66	4.04	3.20	1356.17
1137	1.67	1.67	4.09	3.24	1356.17
1138	1.68	1.68	4.13	3.28	1356.18
1139	1.71	1.71	4.18	3.32	1356.19
1140	1.71	1.71	4.21	3.36	1356.19
1141	1.79	1.79	4.30	3.40	1356.20
1142	1.90	1.90	4.40	3.45	1356.21
1143	1.99	1.99	4.48	3.50	1356.22
1144	2.09	2.09	4.58	3.54	1356.23
1145	2.40	2.40	4.79	3.60	1356.23
1146	2.69	2.69	4.99	3.66	1356.24
1147	2.96	2.96	5.18	3.73	1356.26
1148	3.26	3.26	5.38	3.80	1356.27
1149	4.31	4.31	5.99	3.89	1356.28
1150	5.30	5.30	6.56	4.00	1356.30
1151	6.29	6.29	7.11	4.13	1356.32
1152	7.28	7.28	7.65	4.29	1356.35
1153	8.08	8.08	8.08	4.46	1356.38
1154	8.08	8.08	8.08	4.63	1356.41
1155	7.90	7.90	7.98	4.79	1356.43
1156	7.61	7.61	7.82	4.94	1356.46
1157	6.55	6.55	7.23	5.06	1356.48
1158	5.45	5.45	6.61	5.15	1356.49
1159	4.36	4.36	5.98	5.20	1356.50
1160	3.18	3.18	5.28	5.22	1356.51
1161	2.04	2.04	4.60	5.21	1356.50
1162	1.71	1.71	4.37	5.17	1356.50
1163	1.58	1.58	4.26	5.13	1356.49
1164	1.58	1.58	4.22	5.09	1356.48
1165	1.44	1.44	4.10	5.05	1356.48
1166	1.27	1.27	3.97	5.00	1356.47

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1167	1.18	1.18	3.88	4.95	1356.46
1168	1.13	1.13	3.81	4.90	1356.45
1169	1.04	1.04	3.72	4.84	1356.44
1170	0.99	0.99	3.66	4.79	1356.43
1171	0.93	0.93	3.59	4.73	1356.42
1172	0.86	0.86	3.51	4.68	1356.41
1173	0.85	0.85	3.47	4.62	1356.41
1174	0.86	0.86	3.44	4.57	1356.40
1175	0.86	0.86	3.41	4.51	1356.39
1176	0.86	0.86	3.38	4.46	1356.38
1177	0.85	0.85	3.34	4.41	1356.37
1178	0.82	0.82	3.29	4.36	1356.36
1179	0.79	0.79	3.24	4.30	1356.35
1180	0.77	0.77	3.19	4.25	1356.34
1181	0.75	0.75	3.15	4.20	1356.34
1182	0.72	0.72	3.11	4.15	1356.33
1183	0.71	0.71	3.07	4.10	1356.32
1184	0.68	0.68	3.02	4.05	1356.31
1185	0.68	0.68	2.99	4.00	1356.30
1186	0.68	0.68	2.97	3.95	1356.29
1187	0.68	0.68	2.94	3.91	1356.29
1188	0.68	0.68	2.91	3.86	1356.28
1189	0.67	0.67	2.88	3.81	1356.27
1190	0.65	0.65	2.84	3.77	1356.26
1191	0.61	0.61	2.79	3.72	1356.26
1192	0.60	0.60	2.75	3.68	1356.25
1193	0.57	0.57	2.71	3.63	1356.24
1194	0.56	0.56	2.67	3.59	1356.23
1195	0.54	0.54	2.64	3.55	1356.23
1196	0.52	0.52	2.60	3.50	1356.22
1197	0.52	0.52	2.57	3.46	1356.21
1198	0.52	0.52	2.55	3.42	1356.20
1199	0.52	0.52	2.53	3.37	1356.20
1200	0.52	0.52	2.51	3.33	1356.19
1201	0.53	0.53	2.49	3.29	1356.18
1202	0.52	0.52	2.46	3.26	1356.18
1203	0.52	0.52	2.44	3.22	1356.17
1204	0.53	0.53	2.43	3.18	1356.16
1205	0.52	0.52	2.40	3.15	1356.16
1206	0.52	0.52	2.38	3.11	1356.15
1207	0.53	0.53	2.37	3.07	1356.15
1208	0.52	0.52	2.34	3.04	1356.14
1209	0.52	0.52	2.32	3.01	1356.14
1210	0.53	0.53	2.31	2.97	1356.13
1211	0.52	0.52	2.28	2.94	1356.12
1212	0.52	0.52	2.27	2.91	1356.12

1213	0.53	0.53	2.26	2.88	1356.11
1214	0.52	0.52	2.23	2.85	1356.11
1215	0.52	0.52	2.21	2.82	1356.10
1216	0.53	0.53	2.21	2.79	1356.10
1217	0.52	0.52	2.18	2.76	1356.09
1218	0.52	0.52	2.16	2.74	1356.09
1219	0.53	0.53	2.16	2.71	1356.09
1220	0.52	0.52	2.13	2.68	1356.08
1221	0.52	0.52	2.11	2.66	1356.08
1222	0.52	0.52	2.10	2.63	1356.07
1223	0.52	0.52	2.08	2.60	1356.07
1224	0.52	0.52	2.07	2.58	1356.06
1225	0.49	0.49	2.03	2.55	1356.06
1226	0.46	0.46	1.99	2.53	1356.06
1227	0.43	0.43	1.96	2.50	1356.05
1228	0.42	0.42	1.93	2.48	1356.05
1229	0.38	0.38	1.88	2.45	1356.04
1230	0.36	0.36	1.86	2.42	1356.04
1231	0.33	0.33	1.82	2.39	1356.03
1232	0.29	0.29	1.77	2.37	1356.03
1233	0.31	0.31	1.77	2.34	1356.02
1234	0.31	0.31	1.76	2.31	1356.02
1235	0.29	0.29	1.73	2.28	1356.01
1236	0.29	0.29	1.72	2.26	1356.01
1237	0.31	0.31	1.72	2.23	1356.01

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1238	0.29	0.29	1.69	2.21	1356.00
1239	0.29	0.29	1.68	2.19	1355.99
1240	0.31	0.31	1.68	2.17	1355.99
1241	0.29	0.29	1.66	2.14	1355.98
1242	0.29	0.29	1.64	2.12	1355.97
1243	0.31	0.31	1.64	2.11	1355.96
1244	0.31	0.31	1.63	2.09	1355.96
1245	0.29	0.29	1.61	2.07	1355.95
1246	0.31	0.31	1.61	2.05	1355.94
1247	0.31	0.31	1.60	2.03	1355.94
1248	0.29	0.29	1.57	2.01	1355.93
1249	0.31	0.31	1.58	2.00	1355.92
1250	0.31	0.31	1.56	1.98	1355.92

1251	0.29	0.29	1.54	1.96	1355.91
1252	0.29	0.29	1.53	1.94	1355.91
1253	0.31	0.31	1.53	1.93	1355.90
1254	0.29	0.29	1.51	1.91	1355.89
1255	0.29	0.29	1.50	1.89	1355.89
1256	0.31	0.31	1.50	1.88	1355.88
1257	0.29	0.29	1.48	1.86	1355.88
1258	0.29	0.29	1.47	1.85	1355.87
1259	0.31	0.31	1.47	1.83	1355.86
1260	0.31	0.31	1.46	1.82	1355.86
1261	0.29	0.29	1.44	1.80	1355.85
1262	0.31	0.31	1.44	1.79	1355.85
1263	0.31	0.31	1.44	1.77	1355.84
1264	0.29	0.29	1.41	1.76	1355.84
1265	0.31	0.31	1.42	1.75	1355.83
1266	0.31	0.31	1.41	1.73	1355.83
1267	0.29	0.29	1.39	1.72	1355.82
1268	0.29	0.29	1.38	1.71	1355.82
1269	0.31	0.31	1.38	1.69	1355.81
1270	0.29	0.29	1.36	1.68	1355.81
1271	0.29	0.29	1.35	1.67	1355.80
1272	0.31	0.31	1.36	1.65	1355.80
1273	0.29	0.29	1.34	1.64	1355.79
1274	0.29	0.29	1.33	1.63	1355.79
1275	0.31	0.31	1.33	1.62	1355.78
1276	0.29	0.29	1.31	1.60	1355.78
1277	0.29	0.29	1.31	1.59	1355.78
1278	0.31	0.31	1.31	1.58	1355.77
1279	0.31	0.31	1.30	1.57	1355.77
1280	0.29	0.29	1.28	1.56	1355.76
1281	0.31	0.31	1.29	1.55	1355.76
1282	0.31	0.31	1.28	1.54	1355.75
1283	0.29	0.29	1.26	1.53	1355.75
1284	0.31	0.31	1.27	1.52	1355.75
1285	0.31	0.31	1.26	1.51	1355.74
1286	0.29	0.29	1.24	1.50	1355.74
1287	0.29	0.29	1.23	1.48	1355.73
1288	0.31	0.31	1.24	1.47	1355.73
1289	0.29	0.29	1.22	1.46	1355.73
1290	0.29	0.29	1.21	1.45	1355.72
1291	0.31	0.31	1.22	1.44	1355.72
1292	0.29	0.29	1.20	1.44	1355.72
1293	0.29	0.29	1.19	1.43	1355.71
1294	0.31	0.31	1.20	1.42	1355.71
1295	0.31	0.31	1.19	1.41	1355.71
1296	0.29	0.29	1.17	1.40	1355.70
1297	0.29	0.29	1.17	1.39	1355.70
1298	0.26	0.26	1.14	1.38	1355.70
1299	0.25	0.25	1.12	1.37	1355.69

1300	0.24	0.24	1.10	1.36	1355.69
1310	0.18	0.18	0.99	1.26	1355.65
1320	0.18	0.18	0.94	1.16	1355.62
1330	0.18	0.18	0.89	1.08	1355.59
1340	0.18	0.18	0.85	1.01	1355.56
1350	0.17	0.17	0.80	0.95	1355.54
1360	0.18	0.18	0.78	0.90	1355.52
1370	0.18	0.18	0.75	0.86	1355.50
1380	0.17	0.17	0.71	0.81	1355.49

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1390	0.18	0.18	0.69	0.78	1355.47
1400	0.18	0.18	0.66	0.74	1355.46
1420	0.18	0.18	0.62	0.69	1355.44
1440	0.17	0.17	0.58	0.64	1355.42
1460	0.00	0.00	0.38	0.57	1355.40
1500	0.00	0.00	0.32	0.40	1355.33

Stage - Storage - Discharge Curve for Reservoir at 4B

STAGE (ft)	STORAGE (ac-ft)	DISCHARGE (cfs)
1,354.00	0.000	0.00
1,355.20	0.108	0.04
1,356.00	0.180	2.20
1,358.00	0.520	14.14

RESERVOIR ROUTING AT 9A

DESCRIPTION: Detention Basin

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**********************************************************************************************
*      INCOMING HYDROGRAPH  PEAK (cfs):    160.95         VOLUME (acre-ft):     15.09      *
*      NO HYDROGRAPH ADJUSTMENT                                                              *
*      RUNOFF FACTOR(in):   3.84                                                             *
*      FATTENED HYDROGRAPH  PEAK (cfs):    160.95         VOLUME (acre-ft):     36.79      *
*      RESERVOIR INFLOW:    PEAK (cfs):    160.95 @ 1154  VOLUME (acre-ft):     36.79      *
*      MAXIMUM ELEVATION:   STAGE (ft):   1288.16 @ 1196  VOLUME (acre-ft):     13.68      *
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*      EMERGENCY SPILLWAY:   ELEV (ft):   1289.00         VOLUME (acre-ft):     16.73      *
*          DIFFERENCE:   IN STAGE (ft):     -0.84      IN VOLUME (acre-ft):      3.05      *
*          NO SPILL EXPECTED.       PERCNT OF VOLUME REMAINING TO SPILLWAY:     18.2%      *
*      TOP OF DAM:           ELEV (ft):   1290.00         VOLUME (acre-ft):     20.51      *
*          DIFFERENCE    IN STAGE (ft):     -1.84      IN VOLUME (acre-ft):      6.83      *
*          NO OVERTOP EXPECTED.   PERCNT OF VOLUME REMAINING TO TOP OF DAM:     33.3%      *
*      RESERVOIR OUTFLOW:   PEAK (cfs):     59.05 @ 1196  VOLUME (acre-ft):     28.14      *
*********************************************************************************************
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TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
0	0.00	0.00	0.00	0.00	1284.00
100	3.02	3.02	3.45	0.06	1284.04
200	3.02	3.02	4.04	0.32	1284.19
300	3.03	3.03	4.27	0.59	1284.35
400	3.06	3.06	4.61	0.87	1284.52
500	3.21	3.21	5.20	1.15	1284.69
600	3.82	3.82	6.45	1.71	1284.87
700	5.50	5.50	9.11	3.32	1285.08
800	5.63	5.63	10.97	5.82	1285.30
900	7.10	7.10	15.71	8.38	1285.51
1000	9.85	9.85	25.86	12.39	1285.85
1050	12.62	12.62	36.29	16.85	1286.15
1100	16.33	16.33	54.46	24.42	1286.57
1110	23.84	23.84	64.37	26.78	1286.70
1120	31.88	31.88	74.88	29.69	1286.86
1130	33.81	33.81	81.79	33.24	1287.05
1131	34.14	34.14	82.61	33.68	1287.07
1132	34.46	34.46	83.44	34.12	1287.09
1133	34.79	34.79	84.27	34.56	1287.10
1134	35.09	35.09	85.10	35.01	1287.12
1135	35.40	35.40	85.93	35.45	1287.14
1136	35.70	35.70	86.77	35.91	1287.16
1137	36.00	36.00	87.62	36.36	1287.18
1138	36.20	36.20	88.42	36.82	1287.20
1139	36.83	36.83	89.48	37.29	1287.23
1140	36.93	36.93	90.23	37.75	1287.25
1141	38.60	38.60	91.89	38.23	1287.27
1142	40.80	40.80	93.83	38.71	1287.29
1143	42.48	42.48	95.48	39.21	1287.31
1144	44.62	44.62	97.36	39.72	1287.33
1145	50.43	50.43	101.21	40.25	1287.36
1146	55.93	55.93	104.84	40.81	1287.38

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1147	61.42	61.42	108.40	41.39	1287.41
1148	66.47	66.47	111.68	42.00	1287.43
1149	86.35	86.35	122.54	42.67	1287.46
1150	106.08	106.08	133.06	43.43	1287.50
1151	125.22	125.22	143.03	44.27	1287.53
1152	143.27	143.27	152.21	45.19	1287.57
1153	159.86	159.86	160.42	46.18	1287.62
1154	160.95	160.95	160.95	47.19	1287.66
1155	158.49	158.49	159.75	48.20	1287.71
1156	148.34	148.34	154.72	49.17	1287.75
1157	132.38	132.38	146.65	50.07	1287.79
1158	115.60	115.60	137.96	50.89	1287.83
1159	98.06	98.06	128.66	51.63	1287.86
1160	79.96	79.96	118.86	52.27	1287.89
1161	68.47	68.47	112.32	52.83	1287.91
1162	60.09	60.09	107.30	53.34	1287.94
1163	53.66	53.66	103.24	53.80	1287.96
1164	48.50	48.50	99.81	54.22	1287.97
1165	40.61	40.61	94.82	54.61	1287.99
1166	32.44	32.44	89.60	54.96	1288.01
1167	29.17	29.17	87.05	55.29	1288.02
1168	26.84	26.84	85.01	55.59	1288.03
1169	24.70	24.70	83.06	55.88	1288.04
1170	23.24	23.24	81.49	56.14	1288.05
1171	21.70	21.70	79.88	56.38	1288.06
1172	21.06	21.06	78.79	56.61	1288.07
1173	20.61	20.61	77.81	56.83	1288.08
1174	20.27	20.27	76.91	57.03	1288.08
1175	19.94	19.94	76.03	57.23	1288.09
1176	19.71	19.71	75.21	57.41	1288.10
1177	18.95	18.95	74.08	57.58	1288.11
1178	18.49	18.49	73.13	57.74	1288.11
1179	18.09	18.09	72.23	57.89	1288.12
1180	17.71	17.71	71.35	58.03	1288.12
1181	17.29	17.29	70.46	58.15	1288.13
1182	16.90	16.90	69.58	58.27	1288.13
1183	16.64	16.64	68.80	58.38	1288.14
1184	16.35	16.35	68.01	58.48	1288.14
1185	16.16	16.16	67.29	58.57	1288.14
1186	16.05	16.05	66.62	58.66	1288.15
1187	15.86	15.86	65.92	58.73	1288.15
1188	15.68	15.68	65.23	58.80	1288.15
1189	15.29	15.29	64.41	58.86	1288.15

1190	14.95	14.95	63.63	58.91	1288.16
1191	14.44	14.44	62.74	58.95	1288.16
1192	14.19	14.19	62.03	58.99	1288.16
1193	13.73	13.73	61.18	59.01	1288.16
1194	13.48	13.48	60.48	59.03	1288.16
1195	13.22	13.22	59.79	59.04	1288.16
1196	12.78	12.78	58.98	59.05	1288.16
1197	12.67	12.67	58.40	59.04	1288.16
1198	12.65	12.65	57.88	59.03	1288.16
1199	12.38	12.38	57.21	59.02	1288.16
1200	12.36	12.36	56.71	59.00	1288.16
1201	12.31	12.31	56.19	58.97	1288.16
1202	12.06	12.06	55.55	58.94	1288.16
1203	12.11	12.11	55.12	58.91	1288.16
1204	12.19	12.19	54.73	58.87	1288.15
1205	11.95	11.95	54.11	58.82	1288.15
1206	12.07	12.07	53.75	58.77	1288.15
1207	12.09	12.09	53.33	58.72	1288.15
1208	11.85	11.85	52.73	58.66	1288.15
1209	11.97	11.97	52.40	58.60	1288.14
1210	11.99	11.99	52.00	58.54	1288.14
1211	11.75	11.75	51.41	58.47	1288.14
1212	11.87	11.87	51.10	58.40	1288.14
1213	11.89	11.89	50.72	58.33	1288.13
1214	11.66	11.66	50.15	58.25	1288.13
1215	11.78	11.78	49.86	58.17	1288.13
1216	11.81	11.81	49.50	58.08	1288.12
1217	11.57	11.57	48.95	57.99	1288.12

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1218	11.70	11.70	48.67	57.90	1288.12
1219	11.72	11.72	48.33	57.81	1288.11
1220	11.49	11.49	47.79	57.71	1288.11
1221	11.62	11.62	47.54	57.61	1288.11
1222	11.44	11.44	47.05	57.51	1288.10
1223	11.41	11.41	46.69	57.40	1288.10
1224	11.54	11.54	46.45	57.30	1288.09
1225	10.95	10.95	45.66	57.18	1288.09
1226	10.51	10.51	44.99	57.07	1288.09
1227	10.22	10.22	44.44	56.94	1288.08

1228	9.83	9.83	43.82	56.82	1288.08
1229	9.27	9.27	43.07	56.68	1288.07
1230	8.95	8.95	42.50	56.54	1288.07
1231	8.50	8.50	41.84	56.40	1288.06
1232	8.11	8.11	41.23	56.25	1288.06
1233	8.07	8.07	40.89	56.10	1288.05
1234	7.91	7.91	40.46	55.95	1288.04
1235	7.60	7.60	39.93	55.79	1288.04
1236	7.53	7.53	39.57	55.63	1288.03
1237	7.42	7.42	39.20	55.47	1288.03
1238	7.26	7.26	38.78	55.31	1288.02
1239	7.32	7.32	38.55	55.14	1288.01
1240	7.35	7.35	38.30	54.98	1288.01
1241	7.13	7.13	37.85	54.81	1288.00
1242	7.26	7.26	37.68	54.65	1287.99
1243	7.29	7.29	37.44	54.50	1287.99
1244	7.27	7.27	37.16	54.35	1287.98
1245	7.20	7.20	36.85	54.20	1287.97
1246	7.24	7.24	36.62	54.04	1287.97
1247	7.22	7.22	36.35	53.88	1287.96
1248	7.15	7.15	36.04	53.73	1287.95
1249	7.18	7.18	35.82	53.57	1287.95
1250	7.17	7.17	35.57	53.41	1287.94
1251	7.01	7.01	35.20	53.25	1287.93
1252	7.08	7.08	35.02	53.09	1287.92
1253	7.11	7.11	34.81	52.93	1287.92
1254	6.96	6.96	34.45	52.76	1287.91
1255	7.03	7.03	34.28	52.60	1287.90
1256	7.07	7.07	34.09	52.44	1287.90
1257	6.84	6.84	33.68	52.27	1287.89
1258	6.98	6.98	33.58	52.11	1287.88
1259	7.02	7.02	33.39	51.94	1287.87
1260	7.00	7.00	33.16	51.77	1287.87
1261	6.94	6.94	32.89	51.61	1287.86
1262	6.98	6.98	32.72	51.44	1287.85
1263	6.96	6.96	32.50	51.27	1287.84
1264	6.89	6.89	32.24	51.11	1287.84
1265	6.93	6.93	32.07	50.94	1287.83
1266	6.92	6.92	31.86	50.77	1287.82
1267	6.77	6.77	31.54	50.60	1287.81
1268	6.84	6.84	31.40	50.43	1287.81
1269	6.88	6.88	31.24	50.26	1287.80
1270	6.73	6.73	30.93	50.09	1287.79
1271	6.80	6.80	30.80	49.92	1287.78
1272	6.84	6.84	30.65	49.75	1287.78
1273	6.62	6.62	30.28	49.57	1287.77
1274	6.76	6.76	30.22	49.40	1287.76
1275	6.80	6.80	30.07	49.23	1287.75
1276	6.59	6.59	29.71	49.06	1287.75

1277	6.73	6.73	29.66	48.89	1287.74
1278	6.77	6.77	29.52	48.72	1287.73
1279	6.76	6.76	29.34	48.54	1287.72
1280	6.69	6.69	29.12	48.37	1287.72
1281	6.74	6.74	28.99	48.20	1287.71
1282	6.72	6.72	28.81	48.03	1287.70
1283	6.66	6.66	28.59	47.86	1287.69
1284	6.70	6.70	28.47	47.69	1287.69
1285	6.69	6.69	28.30	47.51	1287.68
1286	6.54	6.54	28.02	47.34	1287.67
1287	6.62	6.62	27.93	47.17	1287.66
1288	6.66	6.66	27.81	47.00	1287.65

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1289	6.51	6.51	27.53	46.83	1287.65
1290	6.59	6.59	27.44	46.65	1287.64
1291	6.63	6.63	27.33	46.48	1287.63
1292	6.42	6.42	27.00	46.31	1287.62
1293	6.56	6.56	26.98	46.14	1287.62
1294	6.60	6.60	26.87	45.97	1287.61
1295	6.60	6.60	26.72	45.80	1287.60
1296	6.53	6.53	26.52	45.63	1287.59
1297	6.37	6.37	26.24	45.46	1287.59
1298	5.95	5.95	25.74	45.28	1287.58
1299	5.88	5.88	25.54	45.11	1287.57
1300	5.51	5.51	25.08	44.93	1287.56
1310	4.27	4.27	22.71	43.18	1287.49
1320	4.22	4.22	21.51	41.40	1287.41
1330	4.14	4.14	20.38	39.68	1287.33
1340	4.08	4.08	19.37	38.00	1287.26
1350	3.84	3.84	18.29	36.38	1287.19
1360	3.94	3.94	17.58	34.82	1287.12
1370	3.92	3.92	16.84	33.33	1287.05
1380	3.70	3.70	15.98	31.95	1286.99
1390	3.82	3.82	15.47	30.79	1286.92
1400	3.81	3.81	14.89	29.68	1286.86
1420	3.75	3.75	13.84	27.59	1286.75
1440	3.61	3.61	12.84	25.65	1286.64
1460	0.57	0.57	9.22	23.74	1286.53
1500	0.40	0.40	7.80	19.90	1286.32

Stage - Storage - Discharge Curve for Reservoir at 9A

STAGE (ft)	STORAGE (ac-ft)	DISCHARGE (cfs)
1,284.00	0.000	0.00
1,284.80	2.452	1.34
1,285.00	3.065	2.34
1,286.00	6.269	14.10
1,287.00	9.613	32.19
1,288.00	13.100	54.80
1,289.00	16.731	81.15
1,290.00	20.507	110.77

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 12A

TOTAL AREA TO HYDROGRAPH: 132 acres
HYDROGRAPH PEAK: 75 cfs
TIME OF PEAK: 1155 minutes
HYDROGRAPH VOLUME: 30.55 acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	0.61	200	0.86	300	1.14	400	1.41
500	1.69	600	2.35	700	4.25	800	6.75	900	9.55
1000	14.00	1050	18.89	1100	27.03	1110	30.90	1120	35.07
1130	38.77	1131	39.25	1132	39.73	1133	40.22	1134	40.71
1135	41.20	1136	41.70	1137	42.20	1138	42.69	1139	43.26
1140	43.73	1141	44.48	1142	45.33	1143	46.10	1144	46.97
1145	48.50	1146	49.99	1147	51.54	1148	52.94	1149	57.10
1150	61.24	1151	65.31	1152	69.31	1153	73.27	1154	74.29
1155	74.69	1156	73.44	1157	72.09	1158	69.37	1159	66.37
1160	63.26	1161	61.36	1162	59.65	1163	59.51	1164	59.75
1165	59.68	1166	59.53	1167	59.46	1168	59.43	1169	59.35
1170	59.29	1171	59.33	1172	59.44	1173	59.48	1174	59.68
1175	59.91	1176	60.10	1177	60.19	1178	60.30	1179	60.37
1180	60.43	1181	60.48	1182	60.55	1183	60.61	1184	60.65
1185	60.69	1186	60.77	1187	60.84	1188	60.91	1189	60.93
1190	60.93	1191	60.89	1192	60.86	1193	60.80	1194	60.78
1195	60.75	1196	60.68	1197	60.65	1198	60.65	1199	60.59

1200	60.61	1201	60.59	1202	60.55	1203	60.52	1204	60.48
1205	60.43	1206	60.39	1207	60.34	1208	60.27	1209	60.22
1210	60.16	1211	60.08	1212	60.02	1213	59.94	1214	59.85
1215	59.78	1216	59.70	1217	59.60	1218	59.52	1219	59.42
1220	59.32	1221	59.23	1222	59.08	1223	59.01	1224	58.91
1225	58.68	1226	58.51	1227	58.31	1228	58.10	1229	57.89
1230	57.67	1231	57.47	1232	57.24	1233	57.03	1234	56.90
1235	56.71	1236	56.56	1237	56.40	1238	56.22	1239	56.07
1240	55.90	1241	55.72	1242	55.58	1243	55.43	1244	55.30
1245	55.12	1246	54.97	1247	54.84	1248	54.65	1249	54.49
1250	54.36	1251	54.16	1252	54.01	1253	53.85	1254	53.68
1255	53.53	1256	53.36	1257	53.19	1258	53.03	1259	52.87
1260	52.73	1261	52.53	1262	52.37	1263	52.23	1264	52.03
1265	51.86	1266	51.72	1267	51.51	1268	51.35	1269	51.18
1270	51.00	1271	50.84	1272	50.67	1273	50.49	1274	50.33
1275	50.16	1276	49.97	1277	49.81	1278	49.64	1279	49.50
1280	49.30	1281	49.13	1282	48.98	1283	48.78	1284	48.61
1285	48.47	1286	48.26	1287	48.09	1288	47.92	1289	47.74
1290	47.58	1291	47.41	1292	47.22	1293	47.06	1294	46.89
1295	46.75	1296	46.55	1297	46.34	1298	46.12	1299	45.91
1300	45.65	1310	43.73	1320	41.95	1330	40.23	1340	38.56
1350	36.90	1360	35.37	1370	33.88	1380	32.47	1390	31.34
1400	30.23	1420	28.15	1440	26.19	1460	23.74	1500	19.90

VCRat Model Input

Model Lines

```
005     1  001A Header place holder
005     1  004B Header place holder
005     1  009ABHeader place holder
005     1  012A Header place holder
999
999
006     1  001A 010      099A97                                G1
006     1  002A 040031003407A97
006     1  003A 040043003613A97
006     1  004B 040039000508A97                              1
110
111 1357.99    1.00000    4.14
112 1354.00 1355.20 1356.00 1358.00
113   0.000   0.108   0.180   0.520
114    0.00    0.04    2.20   14.14
110
```

```
006     1  005B 010      099A97
006     1  006B 030050000508A97
006     1  007B 030010003008A97
006     1  008B 040038000508A97
006     1  009AB010         A97                              1
110
111 1289.00    1.00000    3.84
112 1284.00 1284.80 1285.00 1286.00 1287.00 1288.00 1289.00 1290.00
113   0.000   2.452   3.065   6.269   9.613  13.100  16.731  20.507
114    0.00    1.34    2.34   14.10   32.19   54.80   81.15  110.77
110
006     1  010A 010      099A97
006     1  011A 040052000909A97
006     1  012A 030017000807A97                             1  2
999
```

100-YEAR STORM EVENT WITHOUT BASINS

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Modified Rational Model Results Report

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 20

Project Description

VCRat version: 2.64.0.37
VCRain version: 201801
DOS EXE version: PC 2.64-201605
VCRain Curve Set: VCWPD 2016 Revised Curve Set
Curve A: SIM2: Simi Valley
Curve B: None
Curve C: None
Curve D: None

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 20

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	SUBAREA AREA (AC)	SUBAREA FLOW (CFS)	ACCUMULATED AREA (AC)	ACCUMULATED FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES CHNL	N VALUES SIDES	VEL (FT/S)	DEPTH (FT)
1A	---	---	--	--	---	---	0	0	----	-------	----	-------	---	----	-----	-----	--	--
2A : Begin Stream A - Line B																		
2A	040	A100	6	31	34	95	34	95	1153	-------	----	-------	---	----	-----	-----	--	--

3A	040	A100	8	43	36	95	70	190	1153	-------	----	-------	---	----	-----	-----	--	--
4B : Begin Stream B - Lost Canyons Back Bone Line C																		
4B	040	A100	5	39	5	17	5	17	1153	-------	----	-------	---	----	-----	-----	--	--
5B : Report Results of Routing in Basin																		
5B	---	---	--	--	---	---	5	17	1153	-------	----	-------	---	----	-----	-----	--	--
6B	030	A100	5	50	5	18	10	35	1153	-------	----	-------	---	----	-----	-----	--	--
7B	030	A100	7	10	30	67	40	102	1153	-------	----	-------	---	----	-----	-----	--	--
8B	040	A100	5	38	5	16	45	118	1153	-------	----	-------	---	----	-----	-----	--	--
9AB: Confluence Line B & BB Line C in Lake																		
9AB	---	---	--	--	45	118	115	308	1153	-------	----	-------	---	----	-----	-----	--	--
10A : Report Results of Routing in Lake																		
10A	---	---	--	--	---	---	115	308	1153	-------	----	-------	---	----	-----	-----	--	--
11A	040	A100	5	52	9	33	124	341	1153	-------	----	-------	---	----	-----	-----	--	--
12A	030	A100	5	17	8	23	132	364	1153	-------	----	-------	---	----	-----	-----	--	--

Issue/Warning Messages

TYPE	ERR NO	PROCEDURE	LOCATION	MESSAGE
Caution	Err1008	SUBAREA	4B	TC and Area are set to minimum values(5). May be an attempt to run the model on a smaller area than acceptable to VCRat.
Caution	Err1008	SUBAREA	6B	TC and Area are set to minimum values(5). May be an attempt to run the model on a smaller area than acceptable to VCRat.
Caution	Err1008	SUBAREA	8B	TC and Area are set to minimum values(5). May be an attempt to run the model on a smaller area than acceptable to VCRat.

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 12A

TOTAL AREA TO HYDROGRAPH: 132 acres
HYDROGRAPH PEAK: 364 cfs
TIME OF PEAK: 1153 minutes
HYDROGRAPH VOLUME: 27.25 acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	5.90	200	5.92	300	5.90	400	5.90
500	5.92	600	6.83	700	9.74	800	9.76	900	12.25
1000	16.71	1050	21.72	1100	31.79	1110	56.89	1120	72.65
1130	73.73	1131	74.58	1132	75.44	1133	76.29	1134	77.14
1135	78.00	1136	78.58	1137	78.93	1138	79.12	1139	79.12

1140	79.12	1141	83.39	1142	87.64	1143	92.75	1144	97.00
1145	111.18	1146	122.83	1147	134.20	1148	144.61	1149	192.49
1150	238.72	1151	281.83	1152	324.03	1153	363.81	1154	350.74
1155	318.39	1156	274.26	1157	220.07	1158	166.87	1159	125.75
1160	98.02	1161	80.96	1162	76.32	1163	73.66	1164	73.22
1165	67.10	1166	60.90	1167	53.91	1168	48.04	1169	42.14
1170	37.21	1171	34.91	1172	33.77	1173	33.13	1174	33.29
1175	33.77	1176	33.13	1177	30.65	1178	29.38	1179	27.55
1180	25.99	1181	24.59	1182	24.16	1183	23.31	1184	22.99
1185	22.83	1186	23.30	1187	23.09	1188	22.99	1189	21.69
1190	20.44	1191	19.30	1192	18.44	1193	17.66	1194	17.08
1195	16.81	1196	16.59	1197	16.59	1198	16.59	1199	16.97
1200	16.97	1201	16.97	1202	16.97	1203	16.97	1204	16.82
1205	16.72	1206	16.70	1207	16.59	1208	16.59	1209	16.59
1210	16.59	1211	16.59	1212	16.59	1213	16.59	1214	16.59
1215	16.59	1216	16.59	1217	16.59	1218	16.59	1219	16.97
1220	16.97	1221	16.97	1222	16.97	1223	16.97	1224	16.82
1225	15.59	1226	14.43	1227	13.19	1228	12.06	1229	10.92
1230	10.22	1231	10.19	1232	9.86	1233	9.86	1234	9.86
1235	9.86	1236	9.71	1237	9.61	1238	9.59	1239	9.86
1240	9.86	1241	9.86	1242	9.86	1243	9.86	1244	9.71
1245	9.61	1246	9.59	1247	9.48	1248	9.86	1249	9.86
1250	9.86	1251	9.86	1252	9.86	1253	9.71	1254	9.61
1255	9.59	1256	9.48	1257	9.86	1258	9.86	1259	9.86
1260	9.86	1261	9.86	1262	9.71	1263	9.61	1264	9.59
1265	9.48	1266	9.86	1267	9.86	1268	9.86	1269	9.86
1270	9.86	1271	9.71	1272	9.61	1273	9.59	1274	9.48
1275	9.86	1276	9.86	1277	9.86	1278	9.86	1279	9.86
1280	9.71	1281	9.61	1282	9.59	1283	9.86	1284	9.86
1285	9.86	1286	9.86	1287	9.86	1288	9.71	1289	9.61
1290	9.59	1291	9.48	1292	9.86	1293	9.86	1294	9.86
1295	9.86	1296	9.86	1297	8.96	1298	8.48	1299	7.70
1300	7.21	1310	5.92	1320	5.92	1330	5.92	1340	5.92
1350	5.92	1360	5.92	1370	5.69	1380	5.92	1390	5.92
1400	5.92	1420	5.92	1440	5.92	1460	0.00	1500	0.00

VCRat Model Input

Model Lines

```
005     1  001A Header place holder
005     1  012A Header place holder
999
999
```

```
006     1  001A 010      099A97                              G1
006     1  002A 040031003406A97
006     1  003A 040043003608A97
006     1  004B 040039000505A97
006     1  005B 010      099A97
006     1  006B 030050000505A97
006     1  007B 030010003007A97
006     1  008B 040038000505A97
006     1  009AB010         A97
006     1  010A 010      099A97
006     1  011A 040052000905A97
006     1  012A 030017000805A97                           1  2
999
```

100-YEAR STORM EVENT WITH BASINS

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Modified Rational Model Results Report

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 20

Project Description

VCRat version: 2.64.0.37
VCRain version: 201801
DOS EXE version: PC 2.64-201605
VCRain Curve Set: VCWPD 2016 Revised Curve Set
Curve A: SIM2: Simi Valley
Curve B: None
Curve C: None
Curve D: None

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 20

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	SUBAREA AREA (AC)	SUBAREA FLOW (CFS)	ACCUMULATED AREA (AC)	ACCUMULATED FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES CHNL	N VALUES SIDES	VEL (FT/S)	DEPTH (FT)
1A	---	---	--	--	---	---	0	0	----	-------	----	-------	---	----	-----	-----	--	--
2A : Begin Stream A - Line B																		
2A	040	A100	6	31	34	95	34	95	1153	-------	----	-------	---	----	-----	-----	--	--

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 3A   040   A100    8   43     36     95       70     190   1153    -------    ----  -------    ---     ----    -----  -----    --      --
 4B :  Begin Stream B - Lost Canyons Back Bone Line C
 4B   040   A100    5   39      5     17        5      17   1153    -------    ----  -------    ---     ----    -----  -----    --      --
  4B :  Detention Basin
      ********************************************************************************************
      *      INCOMING HYDROGRAPH  PEAK (cfs):     16.52         VOLUME (acre-ft):      1.20      *
      *      NO HYDROGRAPH ADJUSTMENT                                                             *
      *      RUNOFF FACTOR(in):   4.14                                                            *
      *      FATTENED HYDROGRAPH  PEAK (cfs):     16.52         VOLUME (acre-ft):      1.73      *
      *      RESERVOIR INFLOW:    PEAK (cfs):     16.52 @ 1153  VOLUME (acre-ft):      1.73      *
      *      MAXIMUM ELEVATION:   STAGE (ft):   1356.84 @ 1157  VOLUME (acre-ft):      0.32      *
      *      EMERGENCY SPILLWAY:   ELEV (ft):   1357.99         VOLUME (acre-ft):      0.52      *
      *          DIFFERENCE:   IN STAGE (ft):     -1.15      IN VOLUME (acre-ft):      0.20      *
      *          NO SPILL EXPECTED.       PERCNT OF VOLUME REMAINING TO SPILLWAY:     37.7%      *
      *      TOP OF DAM:           ELEV (ft):   1358.00         VOLUME (acre-ft):      0.52      *
      *          DIFFERENCE    IN STAGE (ft):     -1.16      IN VOLUME (acre-ft):      0.20      *
      *          NO OVERTOP EXPECTED.   PERCNT OF VOLUME REMAINING TO TOP OF DAM:     37.9%      *
      *      RESERVOIR OUTFLOW:   PEAK (cfs):      7.23 @ 1157  VOLUME (acre-ft):      1.55      *
      ********************************************************************************************
 4B   ---   ---    --   --    ---    ---        5       7   1157    -------    ----  -------    ---     ----    -----  -----    --      --
 5B :  Report Results of Routing in Basin
 5B   ---   ---    --   --    ---    ---        5       7   1157    -------    ----  -------    ---     ----    -----  -----    --      --
 6B   030   A100    5   50     5     18       10      24   1153    -------    ----  -------    ---     ----    -----  -----    --      --
 7B   030   A100    7   10    30     67       40      91   1153    -------    ----  -------    ---     ----    -----  -----    --      --
 8B   040   A100    5   38     5     16       45     108   1153    -------    ----  -------    ---     ----    -----  -----    --      --
 9AB:  Confluence Line B & BB Line C in Lake
 9AB  ---   ---    --   --    45    108      115     298   1153    -------    ----  -------    ---     ----    -----  -----    --      --
  9A :  Detention Basin
      ********************************************************************************************
      *      INCOMING HYDROGRAPH  PEAK (cfs):    297.84         VOLUME (acre-ft):     23.72      *
      *      NO HYDROGRAPH ADJUSTMENT                                                             *
      *      RUNOFF FACTOR(in):   3.84                                                            *
      *      FATTENED HYDROGRAPH  PEAK (cfs):    297.84         VOLUME (acre-ft):     36.82      *
      *      RESERVOIR INFLOW:    PEAK (cfs):    297.84 @ 1153  VOLUME (acre-ft):     36.82      *
      *      MAXIMUM ELEVATION:   STAGE (ft):   1288.51 @ 1176  VOLUME (acre-ft):     14.95      *
      *      EMERGENCY SPILLWAY:   ELEV (ft):   1289.00         VOLUME (acre-ft):     16.73      *
      *          DIFFERENCE:   IN STAGE (ft):     -0.49      IN VOLUME (acre-ft):      1.78      *
      *          NO SPILL EXPECTED.       PERCNT OF VOLUME REMAINING TO SPILLWAY:     10.6%      *
      *      TOP OF DAM:           ELEV (ft):   1290.00         VOLUME (acre-ft):     20.51      *
      *          DIFFERENCE    IN STAGE (ft):     -1.49      IN VOLUME (acre-ft):      5.56      *
      *          NO OVERTOP EXPECTED.   PERCNT OF VOLUME REMAINING TO TOP OF DAM:     27.1%      *
      *      RESERVOIR OUTFLOW:   PEAK (cfs):     68.11 @ 1176  VOLUME (acre-ft):     28.83      *
      ********************************************************************************************
 9A   ---   ---    --   --    ---    ---      115      68   1176    -------    ----  -------    ---     ----    -----  -----    --      --
10A :  Report Results of Routing in Lake
10A   ---   ---    --   --    ---    ---      115      68   1176    -------    ----  -------    ---     ----    -----  -----    --      --
11A   040   A100    5   52     9     33      124      86   1153    -------    ----  -------    ---     ----    -----  -----    --      --
12A   030   A100    5   17     8     23      132     109   1153    -------    ----  -------    ---     ----    -----  -----    --      --
```

Issue/Warning Messages

TYPE	ERR NO	PROCEDURE	LOCATION	MESSAGE
Caution	Err1008	SUBAREA	4B	TC and Area are set to minimum values(5). May be an attempt to run the model on a smaller area than acceptable to VCRat.
Caution	Err1008	SUBAREA	6B	TC and Area are set to minimum values(5). May be an attempt to run the model on a smaller area than acceptable to VCRat.
Caution	Err1008	SUBAREA	8B	TC and Area are set to minimum values(5). May be an attempt to run the model on a smaller area than acceptable to VCRat.

Hydrograph Printouts

RESERVOIR ROUTING AT 4B

DESCRIPTION: Detention Basin

INCOMING HYDROGRAPH PEAK (cfs):	16.52	VOLUME (acre-ft):	1.20
NO HYDROGRAPH ADJUSTMENT			
RUNOFF FACTOR(in):	4.14		
FATTENED HYDROGRAPH PEAK (cfs):	16.52	VOLUME (acre-ft):	1.73
RESERVOIR INFLOW: PEAK (cfs):	16.52 @ 1153	VOLUME (acre-ft):	1.73
MAXIMUM ELEVATION: STAGE (ft):	1356.84 @ 1157	VOLUME (acre-ft):	0.32
EMERGENCY SPILLWAY: ELEV (ft):	1357.99	VOLUME (acre-ft):	0.52
DIFFERENCE: IN STAGE (ft):	-1.15	IN VOLUME (acre-ft):	0.20
NO SPILL EXPECTED.	PERCNT OF VOLUME REMAINING TO SPILLWAY:		37.7%
TOP OF DAM: ELEV (ft):	1358.00	VOLUME (acre-ft):	0.52
DIFFERENCE IN STAGE (ft):	-1.16	IN VOLUME (acre-ft):	0.20
NO OVERTOP EXPECTED.	PERCNT OF VOLUME REMAINING TO TOP OF DAM:		37.9%
RESERVOIR OUTFLOW: PEAK (cfs):	7.23 @ 1157	VOLUME (acre-ft):	1.55

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
0	0.00	0.00	0.00	0.00	1354.00
100	0.28	0.28	0.29	0.00	1354.11
200	0.28	0.28	0.30	0.02	1354.54
300	0.28	0.28	0.30	0.03	1354.96
400	0.28	0.28	0.31	0.26	1355.28
500	0.28	0.28	0.32	0.31	1355.30

600	0.32	0.32	0.38	0.34	1355.31
700	0.46	0.46	0.54	0.44	1355.35
800	0.46	0.46	0.58	0.55	1355.39
900	0.58	0.58	0.77	0.65	1355.43
1000	0.79	0.79	1.15	0.91	1355.52
1050	0.99	0.99	1.54	1.23	1355.64
1100	1.33	1.33	2.27	1.72	1355.82
1110	2.32	2.32	3.32	2.01	1355.93
1120	2.95	2.95	4.05	2.57	1356.06
1130	2.99	2.99	4.26	3.16	1356.16
1131	3.03	3.03	4.32	3.22	1356.17
1132	3.08	3.08	4.38	3.27	1356.18
1133	3.12	3.12	4.44	3.32	1356.19
1134	3.16	3.16	4.50	3.38	1356.20
1135	3.21	3.21	4.56	3.43	1356.21
1136	3.21	3.21	4.59	3.49	1356.22
1137	3.21	3.21	4.61	3.54	1356.22
1138	3.21	3.21	4.63	3.59	1356.23
1139	3.21	3.21	4.65	3.64	1356.24
1140	3.21	3.21	4.68	3.69	1356.25
1141	3.42	3.42	4.90	3.74	1356.26
1142	3.64	3.64	5.11	3.80	1356.27
1143	3.89	3.89	5.37	3.87	1356.28
1144	4.11	4.11	5.58	3.94	1356.29
1145	4.81	4.81	6.22	4.04	1356.31
1146	5.26	5.26	6.64	4.15	1356.33
1147	5.75	5.75	7.09	4.28	1356.35
1148	6.20	6.20	7.51	4.42	1356.37
1149	8.61	8.61	9.63	4.62	1356.40
1150	10.59	10.59	11.37	4.89	1356.45
1151	12.57	12.57	13.10	5.24	1356.51
1152	14.56	14.56	14.82	5.65	1356.58
1153	16.52	16.52	16.52	6.13	1356.66
1154	14.56	14.56	14.82	6.58	1356.73
1155	12.12	12.12	12.71	6.92	1356.79
1156	9.47	9.47	10.40	7.14	1356.83
1157	6.77	6.77	8.03	7.23	1356.84
1158	4.11	4.11	5.69	7.22	1356.84
1159	3.38	3.38	5.03	7.13	1356.83
1160	3.08	3.08	4.73	7.02	1356.81
1161	3.03	3.03	4.67	6.91	1356.79
1162	3.03	3.03	4.64	6.81	1356.77
1163	2.95	2.95	4.54	6.70	1356.75
1164	2.95	2.95	4.51	6.60	1356.74
1165	2.64	2.64	4.22	6.49	1356.72
1166	2.34	2.34	3.93	6.38	1356.70

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1167	1.99	1.99	3.59	6.26	1356.68
1168	1.73	1.73	3.33	6.12	1356.66
1169	1.42	1.42	3.03	5.98	1356.63
1170	1.38	1.38	2.97	5.84	1356.61
1171	1.38	1.38	2.94	5.71	1356.59
1172	1.42	1.42	2.96	5.58	1356.57
1173	1.38	1.38	2.90	5.45	1356.54
1174	1.38	1.38	2.87	5.33	1356.52
1175	1.42	1.42	2.89	5.22	1356.51
1176	1.38	1.38	2.83	5.10	1356.49
1177	1.24	1.24	2.69	4.99	1356.47
1178	1.20	1.20	2.63	4.88	1356.45
1179	1.14	1.14	2.55	4.78	1356.43
1180	1.07	1.07	2.47	4.67	1356.41
1181	1.03	1.03	2.41	4.56	1356.40
1182	1.05	1.05	2.41	4.46	1356.38
1183	1.03	1.03	2.37	4.36	1356.36
1184	1.03	1.03	2.35	4.27	1356.35
1185	1.03	1.03	2.33	4.18	1356.33
1186	1.05	1.05	2.34	4.09	1356.32
1187	1.03	1.03	2.30	4.01	1356.30
1188	1.03	1.03	2.28	3.93	1356.29
1189	0.98	0.98	2.22	3.85	1356.28
1190	0.94	0.94	2.17	3.77	1356.26
1191	0.87	0.87	2.09	3.69	1356.25
1192	0.82	0.82	2.03	3.61	1356.24
1193	0.78	0.78	1.98	3.54	1356.22
1194	0.78	0.78	1.96	3.46	1356.21
1195	0.78	0.78	1.95	3.39	1356.20
1196	0.78	0.78	1.93	3.32	1356.19
1197	0.78	0.78	1.92	3.26	1356.18
1198	0.78	0.78	1.90	3.19	1356.17
1199	0.80	0.80	1.91	3.13	1356.16
1200	0.80	0.80	1.90	3.08	1356.15
1201	0.80	0.80	1.88	3.02	1356.14
1202	0.80	0.80	1.87	2.97	1356.13
1203	0.80	0.80	1.86	2.91	1356.12
1204	0.78	0.78	1.82	2.86	1356.11
1205	0.78	0.78	1.81	2.81	1356.10
1206	0.78	0.78	1.80	2.77	1356.09
1207	0.78	0.78	1.79	2.72	1356.09

1208	0.78	0.78	1.77	2.68	1356.08
1209	0.78	0.78	1.76	2.63	1356.07
1210	0.78	0.78	1.75	2.59	1356.07
1211	0.78	0.78	1.74	2.55	1356.06
1212	0.78	0.78	1.73	2.51	1356.05
1213	0.78	0.78	1.72	2.48	1356.05
1214	0.78	0.78	1.71	2.44	1356.04
1215	0.78	0.78	1.70	2.40	1356.03
1216	0.78	0.78	1.69	2.37	1356.03
1217	0.78	0.78	1.68	2.34	1356.02
1218	0.78	0.78	1.67	2.31	1356.02
1219	0.80	0.80	1.68	2.28	1356.01
1220	0.80	0.80	1.67	2.25	1356.01
1221	0.80	0.80	1.66	2.22	1356.00
1222	0.80	0.80	1.65	2.20	1356.00
1223	0.80	0.80	1.64	2.17	1355.99
1224	0.78	0.78	1.61	2.15	1355.98
1225	0.71	0.71	1.54	2.13	1355.97
1226	0.65	0.65	1.47	2.10	1355.96
1227	0.58	0.58	1.40	2.08	1355.95
1228	0.51	0.51	1.32	2.05	1355.94
1229	0.45	0.45	1.25	2.02	1355.93
1230	0.45	0.45	1.24	1.98	1355.92
1231	0.47	0.47	1.26	1.95	1355.91
1232	0.47	0.47	1.25	1.93	1355.90
1233	0.47	0.47	1.24	1.90	1355.89
1234	0.47	0.47	1.23	1.87	1355.88
1235	0.47	0.47	1.23	1.85	1355.87
1236	0.45	0.45	1.20	1.82	1355.86
1237	0.45	0.45	1.19	1.79	1355.85

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1238	0.45	0.45	1.18	1.77	1355.84
1239	0.47	0.47	1.20	1.75	1355.83
1240	0.47	0.47	1.19	1.72	1355.82
1241	0.47	0.47	1.18	1.70	1355.82
1242	0.47	0.47	1.18	1.68	1355.81
1243	0.47	0.47	1.17	1.66	1355.80
1244	0.45	0.45	1.14	1.64	1355.79
1245	0.45	0.45	1.13	1.62	1355.79

1246	0.45	0.45	1.13	1.60	1355.78
1247	0.45	0.45	1.12	1.58	1355.77
1248	0.47	0.47	1.14	1.56	1355.76
1249	0.47	0.47	1.13	1.55	1355.76
1250	0.47	0.47	1.12	1.53	1355.75
1251	0.47	0.47	1.12	1.51	1355.75
1252	0.47	0.47	1.11	1.50	1355.74
1253	0.45	0.45	1.09	1.48	1355.73
1254	0.45	0.45	1.08	1.46	1355.73
1255	0.45	0.45	1.07	1.45	1355.72
1256	0.45	0.45	1.07	1.43	1355.72
1257	0.47	0.47	1.08	1.42	1355.71
1258	0.47	0.47	1.08	1.40	1355.71
1259	0.47	0.47	1.07	1.39	1355.70
1260	0.47	0.47	1.07	1.38	1355.70
1261	0.47	0.47	1.06	1.37	1355.69
1262	0.45	0.45	1.04	1.35	1355.69
1263	0.45	0.45	1.03	1.34	1355.68
1264	0.45	0.45	1.03	1.33	1355.68
1265	0.45	0.45	1.02	1.32	1355.67
1266	0.47	0.47	1.04	1.30	1355.67
1267	0.47	0.47	1.03	1.29	1355.66
1268	0.47	0.47	1.03	1.28	1355.66
1269	0.47	0.47	1.02	1.27	1355.66
1270	0.47	0.47	1.02	1.26	1355.65
1271	0.45	0.45	0.99	1.25	1355.65
1272	0.45	0.45	0.99	1.24	1355.64
1273	0.45	0.45	0.98	1.23	1355.64
1274	0.45	0.45	0.98	1.22	1355.64
1275	0.47	0.47	1.00	1.21	1355.63
1276	0.47	0.47	0.99	1.20	1355.63
1277	0.47	0.47	0.99	1.19	1355.63
1278	0.47	0.47	0.98	1.19	1355.62
1279	0.47	0.47	0.98	1.18	1355.62
1280	0.45	0.45	0.96	1.17	1355.62
1281	0.45	0.45	0.95	1.16	1355.61
1282	0.45	0.45	0.95	1.15	1355.61
1283	0.47	0.47	0.96	1.14	1355.61
1284	0.47	0.47	0.96	1.14	1355.61
1285	0.47	0.47	0.96	1.13	1355.60
1286	0.47	0.47	0.95	1.12	1355.60
1287	0.47	0.47	0.95	1.12	1355.60
1288	0.45	0.45	0.92	1.11	1355.60
1289	0.45	0.45	0.92	1.10	1355.59
1290	0.45	0.45	0.92	1.09	1355.59
1291	0.45	0.45	0.91	1.09	1355.59
1292	0.47	0.47	0.93	1.08	1355.58
1293	0.47	0.47	0.93	1.07	1355.58
1294	0.47	0.47	0.93	1.07	1355.58

1295	0.47	0.47	0.92	1.06	1355.58
1296	0.47	0.47	0.92	1.06	1355.58
1297	0.40	0.40	0.85	1.05	1355.57
1298	0.38	0.38	0.83	1.04	1355.57
1299	0.33	0.33	0.78	1.03	1355.57
1300	0.31	0.31	0.75	1.02	1355.56
1310	0.28	0.28	0.69	0.92	1355.53
1320	0.28	0.28	0.66	0.84	1355.50
1330	0.28	0.28	0.64	0.78	1355.47
1340	0.28	0.28	0.62	0.73	1355.46
1350	0.28	0.28	0.60	0.69	1355.44
1360	0.28	0.28	0.58	0.66	1355.43
1370	0.27	0.27	0.55	0.63	1355.42
1380	0.28	0.28	0.55	0.60	1355.41

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1390	0.28	0.28	0.53	0.58	1355.40
1400	0.28	0.28	0.52	0.56	1355.39
1420	0.28	0.28	0.50	0.54	1355.38
1440	0.28	0.28	0.48	0.51	1355.37
1460	0.00	0.00	0.19	0.45	1355.35
1500	0.00	0.00	0.16	0.23	1355.27

Stage - Storage - Discharge Curve for Reservoir at 4B

STAGE (ft)	STORAGE (ac-ft)	DISCHARGE (cfs)
1,354.00	0.000	0.00
1,355.20	0.108	0.04
1,356.00	0.180	2.20
1,358.00	0.520	14.14

RESERVOIR ROUTING AT 9A

DESCRIPTION: Detention Basin

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* INCOMING HYDROGRAPH PEAK (cfs): 297.84 VOLUME (acre-ft): 23.72 *

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*      NO HYDROGRAPH ADJUSTMENT                                                          *
*      RUNOFF FACTOR(in):   3.84                                                         *
*      FATTENED HYDROGRAPH  PEAK (cfs):    297.84         VOLUME (acre-ft):     36.82    *
*      RESERVOIR INFLOW:    PEAK (cfs):    297.84 @ 1153  VOLUME (acre-ft):     36.82    *
*      MAXIMUM ELEVATION:   STAGE (ft):   1288.51 @ 1176  VOLUME (acre-ft):     14.95    *
*      EMERGENCY SPILLWAY:   ELEV (ft):   1289.00         VOLUME (acre-ft):     16.73    *
*          DIFFERENCE:   IN STAGE (ft):     -0.49      IN VOLUME (acre-ft):      1.78    *
*          NO SPILL EXPECTED.       PERCNT OF VOLUME REMAINING TO SPILLWAY:     10.6%    *
*      TOP OF DAM:           ELEV (ft):   1290.00         VOLUME (acre-ft):     20.51    *
*          DIFFERENCE    IN STAGE (ft):     -1.49      IN VOLUME (acre-ft):      5.56    *
*          NO OVERTOP EXPECTED.   PERCNT OF VOLUME REMAINING TO TOP OF DAM:     27.1%    *
*      RESERVOIR OUTFLOW:   PEAK (cfs):     68.11 @ 1176  VOLUME (acre-ft):     28.83    *
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TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
0	0.00	0.00	0.00	0.00	1284.00
100	4.77	4.77	5.00	0.09	1284.06
200	4.80	4.80	5.36	0.46	1284.27
300	4.80	4.80	5.48	0.81	1284.49
400	5.02	5.02	5.88	1.16	1284.69
500	5.09	5.09	6.20	1.82	1284.90
600	5.85	5.85	7.31	3.23	1285.08
700	8.30	8.30	10.32	5.18	1285.24
800	8.43	8.43	11.43	7.34	1285.42
900	10.53	10.53	15.42	9.39	1285.60
1000	14.40	14.40	23.70	12.68	1285.88
1050	18.77	18.77	32.89	16.38	1286.13
1100	27.48	27.48	51.11	23.04	1286.49
1110	48.58	48.58	73.36	25.50	1286.63
1120	62.21	62.21	89.09	29.25	1286.84
1130	63.69	63.69	94.63	33.95	1287.08
1131	64.41	64.41	95.73	34.49	1287.10
1132	65.14	65.14	96.83	35.04	1287.13
1133	65.86	65.86	97.95	35.60	1287.15
1134	66.58	66.58	99.08	36.16	1287.18
1135	67.30	67.30	100.21	36.72	1287.20
1136	67.94	67.94	101.28	37.29	1287.23
1137	68.34	68.34	102.15	37.86	1287.25
1138	68.59	68.59	102.91	38.44	1287.28
1139	68.64	68.64	103.51	39.01	1287.30
1140	68.69	68.69	104.12	39.59	1287.33
1141	72.08	72.08	107.57	40.18	1287.35
1142	75.48	75.48	111.02	40.79	1287.38
1143	79.55	79.55	115.02	41.44	1287.41
1144	82.96	82.96	118.46	42.11	1287.44
1145	94.20	94.20	128.42	42.83	1287.47
1146	104.03	104.03	137.16	43.63	1287.51

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1147	113.41	113.41	145.48	44.50	1287.54
1148	122.02	122.02	153.13	45.43	1287.59
1149	159.56	159.56	184.46	46.53	1287.63
1150	197.41	197.41	215.81	47.89	1287.69
1151	232.25	232.25	244.48	49.51	1287.77
1152	266.19	266.19	272.20	51.37	1287.85
1153	297.84	297.84	297.84	53.45	1287.94
1154	293.83	293.83	294.59	55.70	1288.03
1155	272.45	272.45	277.19	57.99	1288.12
1156	240.07	240.07	250.68	60.04	1288.20
1157	197.80	197.80	215.87	61.76	1288.26
1158	156.10	156.10	181.28	63.12	1288.32
1159	118.02	118.02	149.43	64.14	1288.35
1160	91.48	91.48	126.95	64.88	1288.38
1161	74.49	74.49	112.26	65.42	1288.40
1162	69.74	69.74	107.70	65.86	1288.42
1163	67.34	67.34	105.09	66.27	1288.44
1164	66.81	66.81	104.05	66.65	1288.45
1165	61.87	61.87	99.32	67.00	1288.46
1166	56.86	56.86	94.52	67.29	1288.47
1167	51.26	51.26	89.20	67.54	1288.48
1168	46.40	46.40	84.50	67.73	1288.49
1169	41.69	41.69	79.91	67.87	1288.50
1170	36.81	36.81	75.18	67.97	1288.50
1171	34.37	34.37	72.52	68.03	1288.50
1172	32.91	32.91	70.71	68.06	1288.50
1173	32.34	32.34	69.66	68.09	1288.50
1174	32.37	32.37	69.15	68.10	1288.50
1175	32.55	32.55	68.77	68.11	1288.51
1176	31.99	31.99	67.77	68.11	1288.51
1177	29.97	29.97	65.50	68.09	1288.50
1178	28.77	28.77	63.96	68.06	1288.50
1179	27.24	27.24	62.14	68.01	1288.50
1180	25.99	25.99	60.56	67.94	1288.50
1181	24.76	24.76	59.00	67.86	1288.50
1182	24.09	24.09	57.94	67.77	1288.49
1183	23.28	23.28	56.77	67.67	1288.49
1184	22.86	22.86	55.95	67.55	1288.48

1185	22.61	22.61	55.29	67.44	1288.48
1186	22.85	22.85	55.06	67.31	1288.47
1187	22.70	22.70	54.50	67.19	1288.47
1188	22.52	22.52	53.93	67.06	1288.47
1189	21.41	21.41	52.53	66.92	1288.46
1190	20.35	20.35	51.19	66.77	1288.45
1191	19.43	19.43	49.97	66.61	1288.45
1192	18.68	18.68	48.91	66.44	1288.44
1193	18.00	18.00	47.92	66.26	1288.43
1194	17.35	17.35	46.96	66.07	1288.43
1195	17.00	17.00	46.28	65.88	1288.42
1196	16.71	16.71	45.66	65.68	1288.41
1197	16.65	16.65	45.24	65.48	1288.41
1198	16.58	16.58	44.83	65.28	1288.40
1199	16.81	16.81	44.69	65.07	1288.39
1200	16.75	16.75	44.30	64.87	1288.38
1201	16.70	16.70	43.92	64.66	1288.37
1202	16.64	16.64	43.54	64.45	1288.37
1203	16.59	16.59	43.17	64.24	1288.36
1204	16.49	16.49	42.77	64.03	1288.35
1205	16.34	16.34	42.32	63.82	1288.34
1206	16.27	16.27	41.96	63.60	1288.33
1207	16.11	16.11	41.52	63.39	1288.33
1208	16.06	16.06	41.18	63.17	1288.32
1209	16.02	16.02	40.86	62.95	1288.31
1210	15.98	15.98	40.54	62.73	1288.30
1211	15.94	15.94	40.22	62.50	1288.29
1212	15.90	15.90	39.91	62.28	1288.28
1213	15.87	15.87	39.61	62.06	1288.28
1214	15.83	15.83	39.31	61.83	1288.27
1215	15.79	15.79	39.02	61.61	1288.26
1216	15.76	15.76	38.74	61.38	1288.25
1217	15.73	15.73	38.46	61.15	1288.24

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1218	15.70	15.70	38.18	60.93	1288.23
1219	15.95	15.95	38.18	60.70	1288.22
1220	15.92	15.92	37.91	60.47	1288.22
1221	15.90	15.90	37.65	60.25	1288.21
1222	15.87	15.87	37.40	60.02	1288.20

1223	15.85	15.85	37.15	59.80	1288.19
1224	15.78	15.78	36.86	59.57	1288.18
1225	14.79	14.79	35.73	59.34	1288.17
1226	13.89	13.89	34.67	59.10	1288.16
1227	12.89	12.89	33.54	58.85	1288.15
1228	12.00	12.00	32.50	58.59	1288.14
1229	11.11	11.11	31.47	58.33	1288.13
1230	10.37	10.37	30.57	58.06	1288.12
1231	10.22	10.22	30.23	57.78	1288.11
1232	9.86	9.86	29.70	57.50	1288.10
1233	9.84	9.84	29.47	57.23	1288.09
1234	9.81	9.81	29.26	56.95	1288.08
1235	9.78	9.78	29.04	56.67	1288.07
1236	9.71	9.71	28.78	56.40	1288.06
1237	9.58	9.58	28.48	56.12	1288.05
1238	9.53	9.53	28.25	55.85	1288.04
1239	9.68	9.68	28.21	55.57	1288.03
1240	9.66	9.66	28.01	55.30	1288.02
1241	9.64	9.64	27.82	55.03	1288.01
1242	9.62	9.62	27.63	54.76	1288.00
1243	9.60	9.60	27.44	54.52	1287.99
1244	9.53	9.53	27.20	54.27	1287.98
1245	9.41	9.41	26.93	54.03	1287.97
1246	9.36	9.36	26.72	53.79	1287.96
1247	9.23	9.23	26.44	53.55	1287.94
1248	9.50	9.50	26.53	53.31	1287.93
1249	9.48	9.48	26.36	53.07	1287.92
1250	9.47	9.47	26.19	52.83	1287.91
1251	9.45	9.45	26.03	52.59	1287.90
1252	9.43	9.43	25.86	52.36	1287.89
1253	9.37	9.37	25.65	52.12	1287.88
1254	9.25	9.25	25.40	51.88	1287.87
1255	9.21	9.21	25.22	51.65	1287.86
1256	9.08	9.08	24.96	51.41	1287.85
1257	9.36	9.36	25.08	51.18	1287.84
1258	9.34	9.34	24.93	50.94	1287.83
1259	9.33	9.33	24.78	50.71	1287.82
1260	9.32	9.32	24.63	50.48	1287.81
1261	9.30	9.30	24.49	50.25	1287.80
1262	9.24	9.24	24.30	50.02	1287.79
1263	9.13	9.13	24.06	49.79	1287.78
1264	9.09	9.09	23.90	49.56	1287.77
1265	8.97	8.97	23.66	49.33	1287.76
1266	9.24	9.24	23.80	49.10	1287.75
1267	9.23	9.23	23.67	48.88	1287.74
1268	9.22	9.22	23.54	48.65	1287.73
1269	9.21	9.21	23.41	48.43	1287.72
1270	9.20	9.20	23.28	48.21	1287.71
1271	9.14	9.14	23.11	47.98	1287.70

1272	9.03	9.03	22.89	47.76	1287.69
1273	8.99	8.99	22.75	47.54	1287.68
1274	8.87	8.87	22.52	47.32	1287.67
1275	9.15	9.15	22.67	47.10	1287.66
1276	9.14	9.14	22.56	46.88	1287.65
1277	9.13	9.13	22.44	46.66	1287.64
1278	9.12	9.12	22.33	46.45	1287.63
1279	9.11	9.11	22.22	46.23	1287.62
1280	9.06	9.06	22.06	46.02	1287.61
1281	8.95	8.95	21.85	45.81	1287.60
1282	8.91	8.91	21.72	45.59	1287.59
1283	9.08	9.08	21.78	45.38	1287.58
1284	9.07	9.07	21.68	45.17	1287.57
1285	9.07	9.07	21.57	44.96	1287.56
1286	9.06	9.06	21.47	44.75	1287.56
1287	9.05	9.05	21.37	44.54	1287.55
1288	9.00	9.00	21.22	44.34	1287.54

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1289	8.89	8.89	21.03	44.13	1287.53
1290	8.86	8.86	20.90	43.93	1287.52
1291	8.74	8.74	20.70	43.72	1287.51
1292	9.02	9.02	20.88	43.52	1287.50
1293	9.01	9.01	20.79	43.31	1287.49
1294	9.00	9.00	20.69	43.11	1287.48
1295	9.00	9.00	20.60	42.91	1287.47
1296	8.99	8.99	20.51	42.72	1287.47
1297	8.36	8.36	19.82	42.51	1287.46
1298	7.97	7.97	19.36	42.31	1287.45
1299	7.36	7.36	18.70	42.10	1287.44
1300	6.95	6.95	18.22	41.89	1287.43
1310	5.71	5.71	16.25	39.82	1287.34
1320	5.62	5.62	15.49	37.79	1287.25
1330	5.56	5.56	14.80	35.87	1287.16
1340	5.51	5.51	14.20	34.06	1287.08
1350	5.47	5.47	13.65	32.35	1287.01
1360	5.44	5.44	13.16	30.97	1286.93
1370	5.22	5.22	12.52	29.68	1286.86
1380	5.38	5.38	12.30	28.44	1286.79
1390	5.36	5.36	11.92	27.27	1286.73

1400	5.35	5.35	11.58	26.17	1286.67
1420	5.32	5.32	10.98	24.12	1286.55
1440	5.29	5.29	10.46	22.28	1286.45
1460	0.45	0.45	5.26	20.45	1286.35
1500	0.23	0.23	4.34	16.48	1286.13

Stage - Storage - Discharge Curve for Reservoir at 9A

STAGE (ft)	STORAGE (ac-ft)	DISCHARGE (cfs)
1,284.00	0.000	0.00
1,284.80	2.452	1.34
1,285.00	3.065	2.34
1,286.00	6.269	14.10
1,287.00	9.613	32.19
1,288.00	13.100	54.80
1,289.00	16.731	81.15
1,290.00	20.507	110.77

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 12A

TOTAL AREA TO HYDROGRAPH: 132 acres
HYDROGRAPH PEAK: 109 cfs
TIME OF PEAK: 1153 minutes
HYDROGRAPH VOLUME: 32.71 acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	0.95	200	1.32	300	1.67	400	2.02
500	2.69	600	4.23	700	6.60	800	8.76	900	11.18
1000	15.12	1050	19.57	1100	27.75	1110	33.51	1120	39.33
1130	44.16	1131	44.85	1132	45.54	1133	46.23	1134	46.93
1135	47.64	1136	48.21	1137	48.78	1138	49.36	1139	49.93
1140	50.51	1141	51.81	1142	53.12	1143	54.61	1144	55.98
1145	59.03	1146	61.32	1147	63.82	1148	66.25	1149	75.46
1150	83.51	1151	91.77	1152	100.30	1153	109.01	1154	104.64
1155	98.73	1156	91.89	1157	84.50	1158	77.00	1159	75.62
1160	75.37	1161	75.77	1162	76.22	1163	76.34	1164	76.72
1165	76.08	1166	75.37	1167	74.45	1168	73.76	1169	72.89
1170	72.84	1171	72.90	1172	73.08	1173	72.95	1174	72.97

1175	73.12	1176	72.98	1177	72.53	1178	72.35	1179	71.96
1180	71.55	1181	71.24	1182	71.26	1183	71.04	1184	70.93
1185	70.81	1186	70.80	1187	70.56	1188	70.43	1189	70.07
1190	69.69	1191	69.31	1192	69.00	1193	68.68	1194	68.49
1195	68.30	1196	68.10	1197	67.90	1198	67.70	1199	67.56
1200	67.36	1201	67.15	1202	66.94	1203	66.73	1204	66.45
1205	66.24	1206	66.02	1207	65.80	1208	65.59	1209	65.36
1210	65.14	1211	64.92	1212	64.70	1213	64.47	1214	64.25
1215	64.02	1216	63.80	1217	63.57	1218	63.34	1219	63.19
1220	62.96	1221	62.74	1222	62.51	1223	62.28	1224	61.99
1225	61.55	1226	61.10	1227	60.65	1228	60.18	1229	59.71
1230	59.44	1231	59.23	1232	58.96	1233	58.68	1234	58.40
1235	58.12	1236	57.78	1237	57.50	1238	57.23	1239	57.02
1240	56.75	1241	56.48	1242	56.21	1243	55.97	1244	55.66
1245	55.41	1246	55.17	1247	54.93	1248	54.76	1249	54.52
1250	54.28	1251	54.04	1252	53.81	1253	53.50	1254	53.27
1255	53.03	1256	52.79	1257	52.63	1258	52.39	1259	52.16
1260	51.93	1261	51.70	1262	51.40	1263	51.17	1264	50.94
1265	50.71	1266	50.56	1267	50.33	1268	50.10	1269	49.88
1270	49.66	1271	49.37	1272	49.14	1273	48.92	1274	48.70
1275	48.55	1276	48.33	1277	48.12	1278	47.90	1279	47.68
1280	47.40	1281	47.19	1282	46.97	1283	46.83	1284	46.62
1285	46.41	1286	46.20	1287	46.00	1288	45.72	1289	45.51
1290	45.31	1291	45.10	1292	44.97	1293	44.77	1294	44.56
1295	44.36	1296	44.17	1297	43.76	1298	43.49	1299	43.14
1300	42.86	1310	40.69	1320	38.66	1330	36.73	1340	34.92
1350	33.21	1360	31.83	1370	30.51	1380	29.30	1390	28.14
1400	27.03	1420	24.99	1440	23.15	1460	20.45	1500	16.48

VCRat Model Input

Model Lines

```
005     1  001A Header place holder
005     1  004B Header place holder
005     1  009ABHeader place holder
005     1  012A Header place holder
999
999
006     1  001A 010      099A97                                G1
006     1  002A 040031003406A97
006     1  003A 040043003608A97
006     1  004B 040039000505A97                             1
110
```

```
111 1357.99    1.00000    4.14
112 1354.00 1355.20 1356.00 1358.00
113   0.000   0.108   0.180   0.520
114    0.00    0.04    2.20   14.14
110
006     1  005B 010      099A97
006     1  006B 030050000505A97
006     1  007B 030010003007A97
006     1  008B 040038000505A97
006     1  009AB010         A97                              1
110
111 1289.00    1.00000    3.84
112 1284.00 1284.80 1285.00 1286.00 1287.00 1288.00 1289.00 1290.00
113   0.000   2.452   3.065   6.269   9.613  13.100  16.731  20.507
114    0.00    1.34    2.34   14.10   32.19   54.80   81.15  110.77
110
006     1  010A 010      099A97
006     1  011A 040052000905A97
006     1  012A 030017000805A97                             1  2
999
```

APPENDIX B.2: AREA "30"

10-YEAR STORM EVENT WITHOUT BASINS

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Modified Rational Model Results Report

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 30

Project Description

VCRat version: 2.64.0.37
VCRain version: 201801
DOS EXE version: PC 2.64-201605
VCRain Curve Set: VCWPD 2016 Revised Curve Set
Curve A: SIM2: Simi Valley
Curve B: None
Curve C: None
Curve D: None

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 30

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	AREA (AC)	FLOW (CFS)	AREA (AC)	FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES CHNL	N VALUES SIDES	VEL (FT/S)	DEPTH (FT)
1A	---	---	--	--	---	---	0	0	----	-------	----	-------	---	----	-----	-----	--	--
2A : Begin Stream A - Line C																		
2A	040	A10	14	51	25	33	25	33	1155	-------	----	-------	---	----	-----	-----	--	--

```
  3A :  Report Results of Routing in Basin
  3A   ---   ---    --   --    ---    ---       25      33   1155    -------    ----  -------    ---     ----    -----  -----    --     --


                                      Issue/Warning Messages
   TYPE      ERR NO   PROCEDURE    LOCATION   MESSAGE
  ------------------------------------------------------------------------------------------------------------------------------------------
---
    NO ISSUES OR WARNINGS DETECTED
-------------------------------------------------------------------------------------------------
          HYDROGRAPH PRINTOUT AT:    3A
-------------------------------------------------------------------------------------------------
          DESCRIPTION: Report Results of Routing in Basin
          TOTAL AREA TO HYDROGRAPH:      25    acres
          HYDROGRAPH PEAK:               33    cfs
          TIME OF PEAK:                1155    minutes
          HYDROGRAPH VOLUME:             4.79 acre-ft
```

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	1.15	200	1.14	300	1.14	400	1.15
500	1.14	600	1.35	700	1.95	800	1.96	900	2.47
1000	3.39	1050	4.29	1100	5.49	1110	7.03	1120	9.00
1130	9.76	1131	9.82	1132	9.88	1133	9.94	1134	10.00
1135	10.04	1136	10.08	1137	10.12	1138	10.16	1139	10.29
1140	10.33	1141	10.62	1142	10.99	1143	11.28	1144	11.65
1145	12.56	1146	13.47	1147	14.38	1148	15.29	1149	18.73
1150	22.24	1151	25.62	1152	29.00	1153	32.21	1154	33.08
1155	33.15	1156	32.84	1157	32.60	1158	32.29	1159	31.35
1160	30.41	1161	29.54	1162	28.60	1163	25.23	1164	21.75
1165	17.91	1166	13.89	1167	10.00	1168	8.66	1169	7.85
1170	7.59	1171	7.33	1172	7.07	1173	6.81	1174	6.60
1175	6.34	1176	6.13	1177	5.82	1178	5.46	1179	5.36
1180	5.30	1181	5.20	1182	5.10	1183	5.10	1184	4.99
1185	4.89	1186	4.78	1187	4.73	1188	4.63	1189	4.47
1190	4.32	1191	4.21	1192	4.16	1193	4.06	1194	4.00
1195	3.95	1196	3.85	1197	3.74	1198	3.69	1199	3.59
1200	3.54	1201	3.48	1202	3.38	1203	3.38	1204	3.38
1205	3.38	1206	3.38	1207	3.43	1208	3.38	1209	3.38
1210	3.43	1211	3.38	1212	3.38	1213	3.43	1214	3.38
1215	3.38	1216	3.43	1217	3.38	1218	3.38	1219	3.43
1220	3.38	1221	3.38	1222	3.38	1223	3.38	1224	3.38
1225	3.28	1226	3.17	1227	3.07	1228	3.02	1229	2.86
1230	2.76	1231	2.70	1232	2.55	1233	2.44	1234	2.39
1235	2.24	1236	2.18	1237	2.08	1238	1.92	1239	1.98
1240	1.98	1241	1.92	1242	1.92	1243	1.98	1244	1.98
1245	1.92	1246	1.98	1247	1.98	1248	1.92	1249	1.98
1250	1.98	1251	1.92	1252	1.98	1253	1.98	1254	1.92

1255	1.98	1256	1.98	1257	1.92	1258	1.92	1259	1.98
1260	1.98	1261	1.92	1262	1.98	1263	1.98	1264	1.92
1265	1.98	1266	1.98	1267	1.92	1268	1.98	1269	1.98
1270	1.92	1271	1.98	1272	1.98	1273	1.92	1274	1.92
1275	1.98	1276	1.92	1277	1.92	1278	1.98	1279	1.98
1280	1.92	1281	1.98	1282	1.98	1283	1.92	1284	1.98
1285	1.98	1286	1.92	1287	1.98	1288	1.98	1289	1.92
1290	1.98	1291	1.98	1292	1.92	1293	1.92	1294	1.98
1295	1.98	1296	1.92	1297	1.92	1298	1.82	1299	1.77
1300	1.72	1310	1.14	1320	1.16	1330	1.16	1340	1.16
1350	1.11	1360	1.14	1370	1.16	1380	1.11	1390	1.14
1400	1.16	1420	1.16	1440	1.13	1460	0.00	1500	0.00

VCRat Model Input

Model Lines

```
005     1  001A Header place holder
005     1  003A Header place holder
999
999
006     1  001A 010      099A97                                G1
006     1  002A 040051002514A97
006     1  003A 010      099A97                              1  2
999
```

10-YEAR STORM EVENT WITH BASINS

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Modified Rational Model Results Report

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 30

Project Description

VCRat version: 2.64.0.37
VCRain version: 201801
DOS EXE version: PC 2.64-201605
VCRain Curve Set: VCWPD 2016 Revised Curve Set
Curve A: SIM2: Simi Valley
Curve B: None
Curve C: None
Curve D: None

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 30

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	AREA (AC)	FLOW (CFS)	AREA (AC)	FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES CHNL	N VALUES SIDES	VEL (FT/S)	DEPTH (FT)
1A	---	---	--	--	---	---	0	0	----	-------	----	-------	---	----	-----	-----	--	--
2A : Begin Stream A - Line C																		
2A	040	A10	14	51	25	33	25	33	1155	-------	----	-------	---	----	-----	-----	--	--

```
 2A :  Detention Basin
      ********************************************************************************************
      *      INCOMING HYDROGRAPH  PEAK (cfs):     33.15         VOLUME (acre-ft):      4.79      *
      *      NO HYDROGRAPH ADJUSTMENT                                                             *
      *      RUNOFF FACTOR(in):   5.19                                                            *
      *      FATTENED HYDROGRAPH  PEAK (cfs):     33.15         VOLUME (acre-ft):     10.81      *
      *      RESERVOIR INFLOW:    PEAK (cfs):     33.15 @ 1155  VOLUME (acre-ft):     10.81      *
      *      MAXIMUM ELEVATION:   STAGE (ft):   1209.54 @ 1174  VOLUME (acre-ft):      2.52      *
      *      EMERGENCY SPILLWAY:   ELEV (ft):   1211.99         VOLUME (acre-ft):      4.15      *
      *          DIFFERENCE:   IN STAGE (ft):     -2.45      IN VOLUME (acre-ft):      1.63      *
      *          NO SPILL EXPECTED.       PERCNT OF VOLUME REMAINING TO SPILLWAY:     39.2%      *
      *      TOP OF DAM:           ELEV (ft):   1212.00         VOLUME (acre-ft):      4.16      *
      *          DIFFERENCE    IN STAGE (ft):     -2.46      IN VOLUME (acre-ft):      1.63      *
      *          NO OVERTOP EXPECTED.   PERCNT OF VOLUME REMAINING TO TOP OF DAM:     39.3%      *
      *      RESERVOIR OUTFLOW:   PEAK (cfs):     21.04 @ 1174  VOLUME (acre-ft):      9.24      *
      ********************************************************************************************
   2A   ---   ---    --   --    ---    ---       25      21   1174    -------    ----  -------    ---     ----    -----  -----    --     --
   3A :  Report Results of Routing in Basin
   3A   ---   ---    --   --    ---    ---       25      21   1174    -------    ----  -------    ---     ----    -----  -----    --     --


                                    Issue/Warning Messages
    TYPE      ERR NO   PROCEDURE    LOCATION   MESSAGE
   ------------------------------------------------------------------------------------------------------------------------------------------------
---
     NO ISSUES OR WARNINGS DETECTED
------------------------------------------------------------------------------------------------------------------------------------------------
---
          RESERVOIR ROUTING AT      2A
------------------------------------------------------------------------------------------------------------------------------------------------
---
          DESCRIPTION: Detention Basin
          ********************************************************************************************
          *      INCOMING HYDROGRAPH  PEAK (cfs):     33.15         VOLUME (acre-ft):      4.79      *
          *      NO HYDROGRAPH ADJUSTMENT                                                             *
          *      RUNOFF FACTOR(in):   5.19                                                            *
          *      FATTENED HYDROGRAPH  PEAK (cfs):     33.15         VOLUME (acre-ft):     10.81      *
          *      RESERVOIR INFLOW:    PEAK (cfs):     33.15 @ 1155  VOLUME (acre-ft):     10.81      *
          *      MAXIMUM ELEVATION:   STAGE (ft):   1209.54 @ 1174  VOLUME (acre-ft):      2.52      *
          *      EMERGENCY SPILLWAY:   ELEV (ft):   1211.99         VOLUME (acre-ft):      4.15      *
          *          DIFFERENCE:   IN STAGE (ft):     -2.45      IN VOLUME (acre-ft):      1.63      *
          *          NO SPILL EXPECTED.       PERCNT OF VOLUME REMAINING TO SPILLWAY:     39.2%      *
          *      TOP OF DAM:           ELEV (ft):   1212.00         VOLUME (acre-ft):      4.16      *
          *          DIFFERENCE    IN STAGE (ft):     -2.46      IN VOLUME (acre-ft):      1.63      *
          *          NO OVERTOP EXPECTED.   PERCNT OF VOLUME REMAINING TO TOP OF DAM:     39.3%      *
          *      RESERVOIR OUTFLOW:   PEAK (cfs):     21.04 @ 1174  VOLUME (acre-ft):      9.24      *
          ********************************************************************************************

          TIME   PRE-ADJ   PRE-FAT   INFLOW   OUTFLOW  ELEVATION
```

(min)	(cfs)	(cfs)	(cfs)	(cfs)	(feet)
0	0.00	0.00	0.00	0.00	1203.40
100	1.15	1.15	1.28	0.04	1203.56
200	1.14	1.14	1.45	0.18	1204.16
300	1.14	1.14	1.52	0.23	1204.70
400	1.15	1.15	1.62	0.29	1205.24
500	1.14	1.14	1.75	0.35	1205.80
600	1.35	1.35	2.14	1.28	1206.21
700	1.95	1.95	3.03	2.13	1206.41
800	1.96	1.96	3.55	2.92	1206.59
900	2.47	2.47	5.00	3.72	1206.78
1000	3.39	3.39	7.98	5.36	1207.16
1050	4.29	4.29	10.88	7.07	1207.55
1100	5.49	5.49	15.61	9.86	1208.11
1110	7.03	7.03	17.63	10.98	1208.25
1120	9.00	9.00	19.92	12.27	1208.42
1130	9.76	9.76	21.58	13.70	1208.60
1131	9.82	9.82	21.74	13.86	1208.62
1132	9.88	9.88	21.90	14.01	1208.64
1133	9.94	9.94	22.07	14.16	1208.66
1134	10.00	10.00	22.23	14.32	1208.68
1135	10.04	10.04	22.39	14.47	1208.70

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1136	10.08	10.08	22.55	14.63	1208.72
1137	10.12	10.12	22.71	14.78	1208.74
1138	10.16	10.16	22.87	14.93	1208.76
1139	10.29	10.29	23.07	15.09	1208.78
1140	10.33	10.33	23.23	15.24	1208.80
1141	10.62	10.62	23.50	15.40	1208.82
1142	10.99	10.99	23.81	15.56	1208.84
1143	11.28	11.28	24.08	15.72	1208.86
1144	11.65	11.65	24.37	15.88	1208.88
1145	12.56	12.56	24.88	16.05	1208.90
1146	13.47	13.47	25.38	16.23	1208.93
1147	14.38	14.38	25.87	16.41	1208.95
1148	15.29	15.29	26.35	16.60	1208.97
1149	18.73	18.73	27.76	16.80	1209.00
1150	22.24	22.24	29.15	17.02	1209.03

1151	25.62	25.62	30.45	17.27	1209.06
1152	29.00	29.00	31.69	17.53	1209.09
1153	32.21	32.21	32.83	17.82	1209.13
1154	33.08	33.08	33.13	18.11	1209.17
1155	33.15	33.15	33.15	18.40	1209.21
1156	32.84	32.84	33.05	18.68	1209.24
1157	32.60	32.60	32.97	18.96	1209.28
1158	32.29	32.29	32.85	19.23	1209.31
1159	31.35	31.35	32.51	19.48	1209.34
1160	30.41	30.41	32.15	19.73	1209.38
1161	29.54	29.54	31.81	19.97	1209.41
1162	28.60	28.60	31.43	20.19	1209.44
1163	25.23	25.23	30.10	20.40	1209.46
1164	21.75	21.75	28.69	20.57	1209.48
1165	17.91	17.91	27.08	20.71	1209.50
1166	13.89	13.89	25.35	20.82	1209.52
1167	10.00	10.00	23.63	20.89	1209.52
1168	8.66	8.66	22.93	20.93	1209.53
1169	7.85	7.85	22.43	20.97	1209.53
1170	7.59	7.59	22.17	20.99	1209.54
1171	7.33	7.33	21.90	21.01	1209.54
1172	7.07	7.07	21.63	21.03	1209.54
1173	6.81	6.81	21.36	21.04	1209.54
1174	6.60	6.60	21.11	21.04	1209.54
1175	6.34	6.34	20.83	21.04	1209.54
1176	6.13	6.13	20.59	21.03	1209.54
1177	5.82	5.82	20.29	21.02	1209.54
1178	5.46	5.46	19.96	21.00	1209.54
1179	5.36	5.36	19.76	20.98	1209.54
1180	5.30	5.30	19.58	20.96	1209.53
1181	5.20	5.20	19.38	20.93	1209.53
1182	5.10	5.10	19.18	20.90	1209.53
1183	5.10	5.10	19.04	20.86	1209.52
1184	4.99	4.99	18.84	20.82	1209.52
1185	4.89	4.89	18.64	20.78	1209.51
1186	4.78	4.78	18.45	20.74	1209.51
1187	4.73	4.73	18.28	20.69	1209.50
1188	4.63	4.63	18.09	20.65	1209.49
1189	4.47	4.47	17.87	20.60	1209.49
1190	4.32	4.32	17.65	20.54	1209.48
1191	4.21	4.21	17.45	20.48	1209.47
1192	4.16	4.16	17.29	20.42	1209.46
1193	4.06	4.06	17.10	20.36	1209.46
1194	4.00	4.00	16.94	20.30	1209.45
1195	3.95	3.95	16.78	20.23	1209.44
1196	3.85	3.85	16.60	20.16	1209.43
1197	3.74	3.74	16.41	20.09	1209.42
1198	3.69	3.69	16.25	20.02	1209.41
1199	3.59	3.59	16.07	19.95	1209.40

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1200	3.54	3.54	15.92	19.87	1209.39
1201	3.48	3.48	15.77	19.79	1209.38
1202	3.38	3.38	15.58	19.71	1209.37
1203	3.38	3.38	15.47	19.63	1209.36
1204	3.38	3.38	15.35	19.55	1209.35
1205	3.38	3.38	15.23	19.47	1209.34
1206	3.38	3.38	15.12	19.39	1209.33

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1207	3.43	3.43	15.04	19.30	1209.32
1208	3.38	3.38	14.89	19.22	1209.31
1209	3.38	3.38	14.78	19.13	1209.30
1210	3.43	3.43	14.71	19.05	1209.29
1211	3.38	3.38	14.57	18.97	1209.28
1212	3.38	3.38	14.46	18.88	1209.27
1213	3.43	3.43	14.39	18.79	1209.26
1214	3.38	3.38	14.26	18.71	1209.25
1215	3.38	3.38	14.16	18.62	1209.23
1216	3.43	3.43	14.09	18.53	1209.22
1217	3.38	3.38	13.96	18.45	1209.21
1218	3.38	3.38	13.86	18.36	1209.20
1219	3.43	3.43	13.80	18.27	1209.19
1220	3.38	3.38	13.67	18.19	1209.18
1221	3.38	3.38	13.58	18.10	1209.17
1222	3.38	3.38	13.48	18.01	1209.16
1223	3.38	3.38	13.39	17.92	1209.14
1224	3.38	3.38	13.30	17.83	1209.13
1225	3.28	3.28	13.14	17.75	1209.12
1226	3.17	3.17	12.99	17.66	1209.11
1227	3.07	3.07	12.83	17.56	1209.10
1228	3.02	3.02	12.71	17.47	1209.09
1229	2.86	2.86	12.52	17.38	1209.07
1230	2.76	2.76	12.36	17.28	1209.06
1231	2.70	2.70	12.24	17.19	1209.05
1232	2.55	2.55	12.05	17.09	1209.04
1233	2.44	2.44	11.90	16.99	1209.03
1234	2.39	2.39	11.78	16.89	1209.01
1235	2.24	2.24	11.59	16.79	1209.00
1236	2.18	2.18	11.47	16.69	1208.99
1237	2.08	2.08	11.32	16.59	1208.97

1238	1.92	1.92	11.13	16.49	1208.96
1239	1.98	1.98	11.09	16.38	1208.95
1240	1.98	1.98	11.01	16.28	1208.93
1241	1.92	1.92	10.90	16.18	1208.92
1242	1.92	1.92	10.82	16.07	1208.91
1243	1.98	1.98	10.79	15.97	1208.89
1244	1.98	1.98	10.71	15.87	1208.88
1245	1.92	1.92	10.61	15.77	1208.87
1246	1.98	1.98	10.57	15.67	1208.86
1247	1.98	1.98	10.50	15.57	1208.84
1248	1.92	1.92	10.39	15.47	1208.83
1249	1.98	1.98	10.36	15.38	1208.82
1250	1.98	1.98	10.29	15.28	1208.81
1251	1.92	1.92	10.19	15.18	1208.79
1252	1.98	1.98	10.16	15.09	1208.78
1253	1.98	1.98	10.10	14.99	1208.77
1254	1.92	1.92	9.99	14.90	1208.76
1255	1.98	1.98	9.97	14.80	1208.74
1256	1.98	1.98	9.90	14.71	1208.73
1257	1.92	1.92	9.80	14.61	1208.72
1258	1.92	1.92	9.74	14.52	1208.71
1259	1.98	1.98	9.72	14.43	1208.70
1260	1.98	1.98	9.66	14.34	1208.69
1261	1.92	1.92	9.56	14.25	1208.67
1262	1.98	1.98	9.54	14.16	1208.66
1263	1.98	1.98	9.48	14.07	1208.65
1264	1.92	1.92	9.38	13.98	1208.64
1265	1.98	1.98	9.37	13.89	1208.63
1266	1.98	1.98	9.31	13.80	1208.62
1267	1.92	1.92	9.22	13.71	1208.61
1268	1.98	1.98	9.20	13.63	1208.59
1269	1.98	1.98	9.15	13.54	1208.58
1270	1.92	1.92	9.05	13.46	1208.57
1271	1.98	1.98	9.04	13.37	1208.56
1272	1.98	1.98	8.99	13.29	1208.55
1273	1.92	1.92	8.89	13.20	1208.54
1274	1.92	1.92	8.84	13.12	1208.53
1275	1.98	1.98	8.83	13.04	1208.52
1276	1.92	1.92	8.74	12.96	1208.51
1277	1.92	1.92	8.69	12.87	1208.50

Hydrograph Printouts

TIME	PRE-ADJ	PRE-FAT	INFLOW	OUTFLOW	ELEVATION

(min)	(cfs)	(cfs)	(cfs)	(cfs)	(feet)
1278	1.98	1.98	8.68	12.79	1208.49
1279	1.98	1.98	8.64	12.71	1208.48
1280	1.92	1.92	8.55	12.63	1208.47
1281	1.98	1.98	8.54	12.56	1208.46
1282	1.98	1.98	8.49	12.48	1208.45
1283	1.92	1.92	8.41	12.40	1208.44
1284	1.98	1.98	8.40	12.32	1208.43
1285	1.98	1.98	8.36	12.25	1208.42
1286	1.92	1.92	8.27	12.17	1208.41
1287	1.98	1.98	8.27	12.10	1208.40
1288	1.98	1.98	8.22	12.02	1208.39
1289	1.92	1.92	8.14	11.95	1208.38
1290	1.98	1.98	8.14	11.87	1208.37
1291	1.98	1.98	8.09	11.80	1208.36
1292	1.92	1.92	8.01	11.73	1208.35
1293	1.92	1.92	7.97	11.66	1208.34
1294	1.98	1.98	7.97	11.59	1208.33
1295	1.98	1.98	7.93	11.52	1208.32
1296	1.92	1.92	7.85	11.45	1208.31
1297	1.92	1.92	7.81	11.38	1208.31
1298	1.82	1.82	7.68	11.31	1208.30
1299	1.77	1.77	7.60	11.24	1208.29
1300	1.72	1.72	7.52	11.17	1208.28
1310	1.14	1.14	6.68	10.48	1208.19
1320	1.16	1.16	6.35	9.79	1208.10
1330	1.16	1.16	6.05	9.17	1208.02
1340	1.16	1.16	5.77	8.71	1207.94
1350	1.11	1.11	5.46	8.32	1207.85
1360	1.14	1.14	5.26	7.95	1207.76
1370	1.16	1.16	5.06	7.60	1207.68
1380	1.11	1.11	4.82	7.26	1207.60
1390	1.14	1.14	4.66	6.94	1207.53
1400	1.16	1.16	4.51	6.65	1207.46
1420	1.16	1.16	4.21	6.11	1207.33
1440	1.13	1.13	3.92	5.64	1207.22
1460	0.00	0.00	2.66	5.14	1207.11
1500	0.00	0.00	2.28	4.05	1206.85

Stage - Storage - Discharge Curve for Reservoir at 2A

STAGE (ft)	STORAGE (ac-ft)	DISCHARGE (cfs)
1,203.40	0.000	0.00
1,204.00	0.155	0.16
1,206.00	0.808	0.37
1,208.00	1.673	8.99
1,210.00	2.779	24.60
1,212.00	4.159	44.78

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 3A

DESCRIPTION: Report Results of Routing in Basin
TOTAL AREA TO HYDROGRAPH: 25 acres
HYDROGRAPH PEAK: 21 cfs
TIME OF PEAK: 1173 minutes
HYDROGRAPH VOLUME: 9.24 acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	0.04	200	0.18	300	0.23	400	0.29
500	0.35	600	1.28	700	2.13	800	2.92	900	3.72
1000	5.36	1050	7.07	1100	9.86	1110	10.98	1120	12.27
1130	13.70	1131	13.86	1132	14.01	1133	14.16	1134	14.32
1135	14.47	1136	14.63	1137	14.78	1138	14.93	1139	15.09
1140	15.24	1141	15.40	1142	15.56	1143	15.72	1144	15.88
1145	16.05	1146	16.23	1147	16.41	1148	16.60	1149	16.80
1150	17.02	1151	17.27	1152	17.53	1153	17.82	1154	18.11
1155	18.40	1156	18.68	1157	18.96	1158	19.23	1159	19.48
1160	19.73	1161	19.97	1162	20.19	1163	20.40	1164	20.57
1165	20.71	1166	20.82	1167	20.89	1168	20.93	1169	20.97
1170	20.99	1171	21.01	1172	21.03	1173	21.04	1174	21.04
1175	21.04	1176	21.03	1177	21.02	1178	21.00	1179	20.98
1180	20.96	1181	20.93	1182	20.90	1183	20.86	1184	20.82
1185	20.78	1186	20.74	1187	20.69	1188	20.65	1189	20.60
1190	20.54	1191	20.48	1192	20.42	1193	20.36	1194	20.30
1195	20.23	1196	20.16	1197	20.09	1198	20.02	1199	19.95
1200	19.87	1201	19.79	1202	19.71	1203	19.63	1204	19.55
1205	19.47	1206	19.39	1207	19.30	1208	19.22	1209	19.13
1210	19.05	1211	18.97	1212	18.88	1213	18.79	1214	18.71
1215	18.62	1216	18.53	1217	18.45	1218	18.36	1219	18.27
1220	18.19	1221	18.10	1222	18.01	1223	17.92	1224	17.83
1225	17.75	1226	17.66	1227	17.56	1228	17.47	1229	17.38
1230	17.28	1231	17.19	1232	17.09	1233	16.99	1234	16.89
1235	16.79	1236	16.69	1237	16.59	1238	16.49	1239	16.38
1240	16.28	1241	16.18	1242	16.07	1243	15.97	1244	15.87
1245	15.77	1246	15.67	1247	15.57	1248	15.47	1249	15.38
1250	15.28	1251	15.18	1252	15.09	1253	14.99	1254	14.90

1255	14.80	1256	14.71	1257	14.61	1258	14.52	1259	14.43
1260	14.34	1261	14.25	1262	14.16	1263	14.07	1264	13.98
1265	13.89	1266	13.80	1267	13.71	1268	13.63	1269	13.54
1270	13.46	1271	13.37	1272	13.29	1273	13.20	1274	13.12
1275	13.04	1276	12.96	1277	12.87	1278	12.79	1279	12.71
1280	12.63	1281	12.56	1282	12.48	1283	12.40	1284	12.32
1285	12.25	1286	12.17	1287	12.10	1288	12.02	1289	11.95
1290	11.87	1291	11.80	1292	11.73	1293	11.66	1294	11.59
1295	11.52	1296	11.45	1297	11.38	1298	11.31	1299	11.24
1300	11.17	1310	10.48	1320	9.79	1330	9.17	1340	8.71
1350	8.32	1360	7.95	1370	7.60	1380	7.26	1390	6.94
1400	6.65	1420	6.11	1440	5.64	1460	5.14	1500	4.05

VCRat Model Input

Model Lines

```
005     1  001A Header place holder
005     1  002A Header place holder
005     1  003A Header place holder
999
999
006     1  001A 010      099A97                                 G1
006     1  002A 040051002514A97                               1
110
111 1211.99    1.00000    5.19
112 1203.40 1204.00 1206.00 1208.00 1210.00 1212.00
113   0.000   0.155   0.808   1.673   2.779   4.159
114    0.00    0.16    0.37    8.99   24.60   44.78
110
006     1  003A 010      099A97                               1  2
999
```

100-YEAR STORM EVENT WITHOUT BASINS

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Modified Rational Model Results Report

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 30

Project Description

VCRat version: 2.64.0.37
VCRain version: 201801
DOS EXE version: PC 2.64-201605
VCRain Curve Set: VCWPD 2016 Revised Curve Set
Curve A: SIM2: Simi Valley
Curve B: None
Curve C: None
Curve D: None

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 30

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	AREA (AC)	FLOW (CFS)	AREA (AC)	FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES CHNL	N VALUES SIDES	VEL (FT/S)	DEPTH (FT)
1A	---	---	--	--	---	---	0	0	----	-------	----	-------	---	----	-----	-----	--	--
2A : Begin Stream A - Line C																		
2A	040	A100	8	51	25	70	25	70	1153	-------	----	-------	---	----	-----	-----	--	--

```
  3A :  Report Results of Routing in Basin
  3A   ---   ---    --   --    ---    ---       25      70   1153    -------    ----  -------    ---     ----    -----  -----    --     --


                                      Issue/Warning Messages
   TYPE      ERR NO   PROCEDURE    LOCATION   MESSAGE
  ------------------------------------------------------------------------------------------------------------------------------------------
---
   NO ISSUES OR WARNINGS DETECTED
-------------------------------------------------------------------------------------------------
         HYDROGRAPH PRINTOUT AT:    3A
-------------------------------------------------------------------------------------------------
         DESCRIPTION: Report Results of Routing in Basin
         TOTAL AREA TO HYDROGRAPH:      25    acres
         HYDROGRAPH PEAK:               70    cfs
         TIME OF PEAK:                1153    minutes
         HYDROGRAPH VOLUME:             7.55 acre-ft
```

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	1.81	200	1.82	300	1.81	400	1.81
500	1.82	600	2.10	700	2.99	800	3.00	900	3.76
1000	5.13	1050	6.46	1100	8.52	1110	13.77	1120	17.10
1130	17.33	1131	17.48	1132	17.62	1133	17.76	1134	17.91
1135	18.05	1136	18.19	1137	18.34	1138	18.48	1139	18.48
1140	18.48	1141	19.20	1142	19.91	1143	20.77	1144	21.49
1145	23.92	1146	26.13	1147	28.47	1148	30.80	1149	38.89
1150	47.16	1151	55.21	1152	63.53	1153	70.16	1154	70.16
1155	68.64	1156	66.29	1157	57.30	1158	48.27	1159	39.30
1160	30.25	1161	21.06	1162	18.62	1163	17.48	1164	17.33
1165	16.33	1166	15.19	1167	14.03	1168	13.02	1169	12.00
1170	10.85	1171	9.98	1172	8.96	1173	8.81	1174	8.81
1175	8.96	1176	8.81	1177	8.37	1178	8.23	1179	7.82
1180	7.55	1181	7.37	1182	7.19	1183	6.91	1184	6.73
1185	6.73	1186	6.73	1187	6.73	1188	6.73	1189	6.55
1190	6.28	1191	6.10	1192	5.91	1193	5.73	1194	5.46
1195	5.28	1196	5.10	1197	5.10	1198	5.10	1199	5.19
1200	5.19	1201	5.19	1202	5.19	1203	5.19	1204	5.19
1205	5.19	1206	5.19	1207	5.10	1208	5.10	1209	5.10
1210	5.10	1211	5.10	1212	5.10	1213	5.10	1214	5.10
1215	5.10	1216	5.10	1217	5.10	1218	5.10	1219	5.19
1220	5.19	1221	5.19	1222	5.19	1223	5.19	1224	5.19
1225	4.91	1226	4.64	1227	4.28	1228	4.00	1229	3.73
1230	3.46	1231	3.28	1232	3.00	1233	3.00	1234	3.00
1235	3.00	1236	3.00	1237	3.00	1238	3.00	1239	3.00
1240	3.00	1241	3.00	1242	3.00	1243	3.00	1244	3.00
1245	3.00	1246	3.00	1247	2.91	1248	3.00	1249	3.00
1250	3.00	1251	3.00	1252	3.00	1253	3.00	1254	3.00

1255	3.00	1256	2.91	1257	3.00	1258	3.00	1259	3.00
1260	3.00	1261	3.00	1262	3.00	1263	3.00	1264	3.00
1265	2.91	1266	3.00	1267	3.00	1268	3.00	1269	3.00
1270	3.00	1271	3.00	1272	3.00	1273	3.00	1274	2.91
1275	3.00	1276	3.00	1277	3.00	1278	3.00	1279	3.00
1280	3.00	1281	3.00	1282	3.00	1283	3.00	1284	3.00
1285	3.00	1286	3.00	1287	3.00	1288	3.00	1289	3.00
1290	3.00	1291	2.91	1292	3.00	1293	3.00	1294	3.00
1295	3.00	1296	3.00	1297	2.82	1298	2.73	1299	2.55
1300	2.37	1310	1.82	1320	1.82	1330	1.82	1340	1.82
1350	1.82	1360	1.82	1370	1.75	1380	1.82	1390	1.82
1400	1.82	1420	1.82	1440	1.82	1460	0.00	1500	0.00

VCRat Model Input

Model Lines

```
005     1  001A Header place holder
005     1  003A Header place holder
999
999
006     1  001A 010      099A97                                G1
006     1  002A 040051002508A97
006     1  003A 010      099A97                              1  2
999
```

100-YEAR STORM EVENT WITH BASINS

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Modified Rational Model Results Report

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 30

Project Description

VCRat version: 2.64.0.37
VCRain version: 201801
DOS EXE version: PC 2.64-201605
VCRain Curve Set: VCWPD 2016 Revised Curve Set
Curve A: SIM2: Simi Valley
Curve B: None
Curve C: None
Curve D: None

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 30

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	AREA (AC)	FLOW (CFS)	AREA (AC)	FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES CHNL	N VALUES SIDES	VEL (FT/S)	DEPTH (FT)
1A	---	---	--	--	---	---	0	0	----	-------	----	-------	---	----	-----	-----	--	--
2A : Begin Stream A - Line C																		
2A	040	A100	8	51	25	70	25	70	1153	-------	----	-------	---	----	-----	-----	--	--

```
 2A :  Detention Basin
      ********************************************************************************************
      *      INCOMING HYDROGRAPH  PEAK (cfs):     70.16         VOLUME (acre-ft):      7.55      *
      *      NO HYDROGRAPH ADJUSTMENT                                                             *
      *      RUNOFF FACTOR(in):   5.19                                                            *
      *      FATTENED HYDROGRAPH  PEAK (cfs):     70.16         VOLUME (acre-ft):     10.83      *
      *      RESERVOIR INFLOW:    PEAK (cfs):     70.16 @ 1153  VOLUME (acre-ft):     10.83      *
      *      MAXIMUM ELEVATION:   STAGE (ft):   1210.23 @ 1163  VOLUME (acre-ft):      2.94      *
      *      EMERGENCY SPILLWAY:   ELEV (ft):   1211.99         VOLUME (acre-ft):      4.15      *
      *          DIFFERENCE:   IN STAGE (ft):     -1.76      IN VOLUME (acre-ft):      1.21      *
      *          NO SPILL EXPECTED.       PERCNT OF VOLUME REMAINING TO SPILLWAY:     29.2%      *
      *      TOP OF DAM:           ELEV (ft):   1212.00         VOLUME (acre-ft):      4.16      *
      *          DIFFERENCE    IN STAGE (ft):     -1.77      IN VOLUME (acre-ft):      1.22      *
      *          NO OVERTOP EXPECTED.   PERCNT OF VOLUME REMAINING TO TOP OF DAM:     29.4%      *
      *      RESERVOIR OUTFLOW:   PEAK (cfs):     26.93 @ 1163  VOLUME (acre-ft):      9.38      *
      ********************************************************************************************
   2A   ---   ---    --   --    ---    ---       25      27   1163    -------    ----  -------    ---     ----    -----  -----    --     --
   3A :  Report Results of Routing in Basin
   3A   ---   ---    --   --    ---    ---       25      27   1163    -------    ----  -------    ---     ----    -----  -----    --     --


                                    Issue/Warning Messages
    TYPE      ERR NO   PROCEDURE    LOCATION   MESSAGE
   ------------------------------------------------------------------------------------------------------------------------------------------------
---
     NO ISSUES OR WARNINGS DETECTED
------------------------------------------------------------------------------------------------------------------------------------------------
---
          RESERVOIR ROUTING AT      2A
------------------------------------------------------------------------------------------------------------------------------------------------
---
          DESCRIPTION: Detention Basin
          ********************************************************************************************
          *      INCOMING HYDROGRAPH  PEAK (cfs):     70.16         VOLUME (acre-ft):      7.55      *
          *      NO HYDROGRAPH ADJUSTMENT                                                             *
          *      RUNOFF FACTOR(in):   5.19                                                            *
          *      FATTENED HYDROGRAPH  PEAK (cfs):     70.16         VOLUME (acre-ft):     10.83      *
          *      RESERVOIR INFLOW:    PEAK (cfs):     70.16 @ 1153  VOLUME (acre-ft):     10.83      *
          *      MAXIMUM ELEVATION:   STAGE (ft):   1210.23 @ 1163  VOLUME (acre-ft):      2.94      *
          *      EMERGENCY SPILLWAY:   ELEV (ft):   1211.99         VOLUME (acre-ft):      4.15      *
          *          DIFFERENCE:   IN STAGE (ft):     -1.76      IN VOLUME (acre-ft):      1.21      *
          *          NO SPILL EXPECTED.       PERCNT OF VOLUME REMAINING TO SPILLWAY:     29.2%      *
          *      TOP OF DAM:           ELEV (ft):   1212.00         VOLUME (acre-ft):      4.16      *
          *          DIFFERENCE    IN STAGE (ft):     -1.77      IN VOLUME (acre-ft):      1.22      *
          *          NO OVERTOP EXPECTED.   PERCNT OF VOLUME REMAINING TO TOP OF DAM:     29.4%      *
          *      RESERVOIR OUTFLOW:   PEAK (cfs):     26.93 @ 1163  VOLUME (acre-ft):      9.38      *
          ********************************************************************************************

          TIME   PRE-ADJ   PRE-FAT   INFLOW   OUTFLOW  ELEVATION
```

(min)	(cfs)	(cfs)	(cfs)	(cfs)	(feet)
0	0.00	0.00	0.00	0.00	1203.40
100	1.81	1.81	1.87	0.06	1203.64
200	1.82	1.82	1.96	0.21	1204.45
300	1.81	1.81	1.99	0.28	1205.18
400	1.81	1.81	2.03	0.36	1205.88
500	1.82	1.82	2.10	1.52	1206.27
600	2.10	2.10	2.47	2.04	1206.39
700	2.99	2.99	3.50	2.60	1206.52
800	3.00	3.00	3.76	3.33	1206.69
900	3.76	3.76	5.00	3.94	1206.83
1000	5.13	5.13	7.46	5.30	1207.14
1050	6.46	6.46	9.98	6.73	1207.47
1100	8.52	8.52	14.39	8.96	1207.99
1110	13.77	13.77	19.88	10.19	1208.15
1120	17.10	17.10	23.69	12.09	1208.40
1130	17.33	17.33	24.92	14.20	1208.67
1131	17.48	17.48	25.16	14.41	1208.69
1132	17.62	17.62	25.40	14.62	1208.72
1133	17.76	17.76	25.64	14.83	1208.75
1134	17.91	17.91	25.89	15.04	1208.78
1135	18.05	18.05	26.13	15.25	1208.80

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1136	18.19	18.19	26.38	15.46	1208.83
1137	18.34	18.34	26.63	15.68	1208.86
1138	18.48	18.48	26.89	15.89	1208.88
1139	18.48	18.48	27.02	16.10	1208.91
1140	18.48	18.48	27.16	16.31	1208.94
1141	19.20	19.20	27.90	16.53	1208.97
1142	19.91	19.91	28.63	16.76	1208.99
1143	20.77	20.77	29.48	16.99	1209.03
1144	21.49	21.49	30.22	17.24	1209.06
1145	23.92	23.92	32.36	17.51	1209.09
1146	26.13	26.13	34.30	17.82	1209.13
1147	28.47	28.47	36.33	18.15	1209.17
1148	30.80	30.80	38.35	18.52	1209.22
1149	38.89	38.89	44.99	18.97	1209.28
1150	47.16	47.16	51.73	19.53	1209.35

1151	55.21	55.21	58.23	20.22	1209.44
1152	63.53	63.53	64.90	21.01	1209.54
1153	70.16	70.16	70.16	21.91	1209.66
1154	70.16	70.16	70.16	22.84	1209.77
1155	68.64	68.64	68.95	23.74	1209.89
1156	66.29	66.29	67.06	24.59	1210.00
1157	57.30	57.30	59.82	25.36	1210.08
1158	48.27	48.27	52.49	25.98	1210.14
1159	39.30	39.30	45.15	26.43	1210.18
1160	30.25	30.25	37.69	26.73	1210.21
1161	21.06	21.06	30.07	26.87	1210.23
1162	18.62	18.62	27.93	26.92	1210.23
1163	17.48	17.48	26.84	26.93	1210.23
1164	17.33	17.33	26.58	26.92	1210.23
1165	16.33	16.33	25.61	26.90	1210.23
1166	15.19	15.19	24.51	26.87	1210.22
1167	14.03	14.03	23.41	26.81	1210.22
1168	13.02	13.02	22.42	26.73	1210.21
1169	12.00	12.00	21.43	26.64	1210.20
1170	10.85	10.85	20.32	26.52	1210.19
1171	9.98	9.98	19.45	26.39	1210.18
1172	8.96	8.96	18.45	26.24	1210.16
1173	8.81	8.81	18.18	26.08	1210.15
1174	8.81	8.81	18.05	25.92	1210.13
1175	8.96	8.96	18.04	25.77	1210.12
1176	8.81	8.81	17.79	25.61	1210.10
1177	8.37	8.37	17.28	25.45	1210.08
1178	8.23	8.23	17.03	25.28	1210.07
1179	7.82	7.82	16.57	25.11	1210.05
1180	7.55	7.55	16.21	24.94	1210.03
1181	7.37	7.37	15.93	24.76	1210.02
1182	7.19	7.19	15.66	24.59	1210.00
1183	6.91	6.91	15.31	24.41	1209.98
1184	6.73	6.73	15.04	24.23	1209.95
1185	6.73	6.73	14.93	24.05	1209.93
1186	6.73	6.73	14.82	23.88	1209.91
1187	6.73	6.73	14.71	23.70	1209.89
1188	6.73	6.73	14.61	23.53	1209.86
1189	6.55	6.55	14.35	23.35	1209.84
1190	6.28	6.28	14.01	23.18	1209.82
1191	6.10	6.10	13.75	23.00	1209.79
1192	5.91	5.91	13.49	22.82	1209.77
1193	5.73	5.73	13.23	22.64	1209.75
1194	5.46	5.46	12.90	22.45	1209.72
1195	5.28	5.28	12.64	22.26	1209.70
1196	5.10	5.10	12.39	22.08	1209.68
1197	5.10	5.10	12.30	21.89	1209.65
1198	5.10	5.10	12.21	21.70	1209.63
1199	5.19	5.19	12.21	21.52	1209.61

1200	5.19	5.19	12.12	21.34	1209.58
1201	5.19	5.19	12.04	21.16	1209.56
1202	5.19	5.19	11.96	20.99	1209.54
1203	5.19	5.19	11.88	20.81	1209.51
1204	5.19	5.19	11.80	20.64	1209.49
1205	5.19	5.19	11.72	20.47	1209.47
1206	5.19	5.19	11.65	20.30	1209.45

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1207	5.10	5.10	11.49	20.13	1209.43
1208	5.10	5.10	11.42	19.96	1209.41
1209	5.10	5.10	11.34	19.80	1209.38
1210	5.10	5.10	11.27	19.64	1209.36
1211	5.10	5.10	11.20	19.47	1209.34
1212	5.10	5.10	11.13	19.31	1209.32
1213	5.10	5.10	11.07	19.16	1209.30
1214	5.10	5.10	11.00	19.00	1209.28
1215	5.10	5.10	10.94	18.84	1209.26
1216	5.10	5.10	10.87	18.69	1209.24
1217	5.10	5.10	10.81	18.54	1209.22
1218	5.10	5.10	10.75	18.39	1209.20
1219	5.19	5.19	10.77	18.24	1209.19
1220	5.19	5.19	10.71	18.10	1209.17
1221	5.19	5.19	10.65	17.96	1209.15
1222	5.19	5.19	10.59	17.82	1209.13
1223	5.19	5.19	10.54	17.68	1209.11
1224	5.19	5.19	10.48	17.54	1209.10
1225	4.91	4.91	10.18	17.40	1209.08
1226	4.64	4.64	9.87	17.26	1209.06
1227	4.28	4.28	9.48	17.11	1209.04
1228	4.00	4.00	9.18	16.96	1209.02
1229	3.73	3.73	8.87	16.81	1209.00
1230	3.46	3.46	8.57	16.65	1208.98
1231	3.28	3.28	8.35	16.50	1208.96
1232	3.00	3.00	8.05	16.34	1208.94
1233	3.00	3.00	8.00	16.18	1208.92
1234	3.00	3.00	7.95	16.02	1208.90
1235	3.00	3.00	7.90	15.86	1208.88
1236	3.00	3.00	7.85	15.71	1208.86
1237	3.00	3.00	7.81	15.56	1208.84

1238	3.00	3.00	7.76	15.41	1208.82
1239	3.00	3.00	7.71	15.26	1208.80
1240	3.00	3.00	7.67	15.11	1208.78
1241	3.00	3.00	7.62	14.97	1208.77
1242	3.00	3.00	7.58	14.83	1208.75
1243	3.00	3.00	7.54	14.69	1208.73
1244	3.00	3.00	7.50	14.55	1208.71
1245	3.00	3.00	7.45	14.41	1208.69
1246	3.00	3.00	7.41	14.28	1208.68
1247	2.91	2.91	7.29	14.15	1208.66
1248	3.00	3.00	7.33	14.01	1208.64
1249	3.00	3.00	7.29	13.88	1208.63
1250	3.00	3.00	7.25	13.76	1208.61
1251	3.00	3.00	7.22	13.63	1208.59
1252	3.00	3.00	7.18	13.51	1208.58
1253	3.00	3.00	7.14	13.39	1208.56
1254	3.00	3.00	7.10	13.27	1208.55
1255	3.00	3.00	7.07	13.15	1208.53
1256	2.91	2.91	6.95	13.03	1208.52
1257	3.00	3.00	7.00	12.91	1208.50
1258	3.00	3.00	6.96	12.80	1208.49
1259	3.00	3.00	6.93	12.68	1208.47
1260	3.00	3.00	6.89	12.57	1208.46
1261	3.00	3.00	6.86	12.46	1208.45
1262	3.00	3.00	6.83	12.36	1208.43
1263	3.00	3.00	6.80	12.25	1208.42
1264	3.00	3.00	6.76	12.14	1208.40
1265	2.91	2.91	6.65	12.04	1208.39
1266	3.00	3.00	6.70	11.94	1208.38
1267	3.00	3.00	6.67	11.83	1208.36
1268	3.00	3.00	6.64	11.73	1208.35
1269	3.00	3.00	6.61	11.64	1208.34
1270	3.00	3.00	6.58	11.54	1208.33
1271	3.00	3.00	6.55	11.44	1208.31
1272	3.00	3.00	6.52	11.35	1208.30
1273	3.00	3.00	6.49	11.26	1208.29
1274	2.91	2.91	6.38	11.16	1208.28
1275	3.00	3.00	6.44	11.07	1208.27
1276	3.00	3.00	6.41	10.98	1208.26
1277	3.00	3.00	6.38	10.89	1208.24

Hydrograph Printouts

TIME	PRE-ADJ	PRE-FAT	INFLOW	OUTFLOW	ELEVATION

(min)	(cfs)	(cfs)	(cfs)	(cfs)	(feet)
1278	3.00	3.00	6.36	10.81	1208.23
1279	3.00	3.00	6.33	10.72	1208.22
1280	3.00	3.00	6.30	10.64	1208.21
1281	3.00	3.00	6.28	10.55	1208.20
1282	3.00	3.00	6.25	10.47	1208.19
1283	3.00	3.00	6.23	10.39	1208.18
1284	3.00	3.00	6.20	10.31	1208.17
1285	3.00	3.00	6.18	10.23	1208.16
1286	3.00	3.00	6.15	10.15	1208.15
1287	3.00	3.00	6.13	10.07	1208.14
1288	3.00	3.00	6.11	10.00	1208.13
1289	3.00	3.00	6.08	9.92	1208.12
1290	3.00	3.00	6.06	9.85	1208.11
1291	2.91	2.91	5.95	9.77	1208.10
1292	3.00	3.00	6.02	9.70	1208.09
1293	3.00	3.00	5.99	9.63	1208.08
1294	3.00	3.00	5.97	9.56	1208.07
1295	3.00	3.00	5.95	9.49	1208.06
1296	3.00	3.00	5.93	9.42	1208.06
1297	2.82	2.82	5.73	9.35	1208.05
1298	2.73	2.73	5.62	9.28	1208.04
1299	2.55	2.55	5.43	9.21	1208.03
1300	2.37	2.37	5.23	9.14	1208.02
1310	1.82	1.82	4.52	8.57	1207.90
1320	1.82	1.82	4.34	8.04	1207.78
1330	1.82	1.82	4.18	7.56	1207.67
1340	1.82	1.82	4.04	7.12	1207.57
1350	1.82	1.82	3.91	6.72	1207.47
1360	1.82	1.82	3.79	6.36	1207.39
1370	1.75	1.75	3.61	6.02	1207.31
1380	1.82	1.82	3.59	5.71	1207.24
1390	1.82	1.82	3.50	5.44	1207.18
1400	1.82	1.82	3.41	5.18	1207.12
1420	1.82	1.82	3.27	4.75	1207.02
1440	1.82	1.82	3.14	4.39	1206.93
1460	0.00	0.00	1.24	3.96	1206.83
1500	0.00	0.00	1.06	2.79	1206.56

Stage - Storage - Discharge Curve for Reservoir at 2A

STAGE (ft)	STORAGE (ac-ft)	DISCHARGE (cfs)
1,203.40	0.000	0.00
1,204.00	0.155	0.16
1,206.00	0.808	0.37
1,208.00	1.673	8.99
1,210.00	2.779	24.60
1,212.00	4.159	44.78

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 3A

DESCRIPTION: Report Results of Routing in Basin
TOTAL AREA TO HYDROGRAPH: 25 acres
HYDROGRAPH PEAK: 27 cfs
TIME OF PEAK: 1163 minutes
HYDROGRAPH VOLUME: 9.38 acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	0.06	200	0.21	300	0.28	400	0.36
500	1.52	600	2.04	700	2.60	800	3.33	900	3.94
1000	5.30	1050	6.73	1100	8.96	1110	10.19	1120	12.09
1130	14.20	1131	14.41	1132	14.62	1133	14.83	1134	15.04
1135	15.25	1136	15.46	1137	15.68	1138	15.89	1139	16.10
1140	16.31	1141	16.53	1142	16.76	1143	16.99	1144	17.24
1145	17.51	1146	17.82	1147	18.15	1148	18.52	1149	18.97
1150	19.53	1151	20.22	1152	21.01	1153	21.91	1154	22.84
1155	23.74	1156	24.59	1157	25.36	1158	25.98	1159	26.43
1160	26.73	1161	26.87	1162	26.92	1163	26.93	1164	26.92
1165	26.90	1166	26.87	1167	26.81	1168	26.73	1169	26.64
1170	26.52	1171	26.39	1172	26.24	1173	26.08	1174	25.92
1175	25.77	1176	25.61	1177	25.45	1178	25.28	1179	25.11
1180	24.94	1181	24.76	1182	24.59	1183	24.41	1184	24.23
1185	24.05	1186	23.88	1187	23.70	1188	23.53	1189	23.35
1190	23.18	1191	23.00	1192	22.82	1193	22.64	1194	22.45
1195	22.26	1196	22.08	1197	21.89	1198	21.70	1199	21.52
1200	21.34	1201	21.16	1202	20.99	1203	20.81	1204	20.64
1205	20.47	1206	20.30	1207	20.13	1208	19.96	1209	19.80
1210	19.64	1211	19.47	1212	19.31	1213	19.16	1214	19.00
1215	18.84	1216	18.69	1217	18.54	1218	18.39	1219	18.24
1220	18.10	1221	17.96	1222	17.82	1223	17.68	1224	17.54
1225	17.40	1226	17.26	1227	17.11	1228	16.96	1229	16.81
1230	16.65	1231	16.50	1232	16.34	1233	16.18	1234	16.02
1235	15.86	1236	15.71	1237	15.56	1238	15.41	1239	15.26
1240	15.11	1241	14.97	1242	14.83	1243	14.69	1244	14.55
1245	14.41	1246	14.28	1247	14.15	1248	14.01	1249	13.88
1250	13.76	1251	13.63	1252	13.51	1253	13.39	1254	13.27

1255	13.15	1256	13.03	1257	12.91	1258	12.80	1259	12.68
1260	12.57	1261	12.46	1262	12.36	1263	12.25	1264	12.14
1265	12.04	1266	11.94	1267	11.83	1268	11.73	1269	11.64
1270	11.54	1271	11.44	1272	11.35	1273	11.26	1274	11.16
1275	11.07	1276	10.98	1277	10.89	1278	10.81	1279	10.72
1280	10.64	1281	10.55	1282	10.47	1283	10.39	1284	10.31
1285	10.23	1286	10.15	1287	10.07	1288	10.00	1289	9.92
1290	9.85	1291	9.77	1292	9.70	1293	9.63	1294	9.56
1295	9.49	1296	9.42	1297	9.35	1298	9.28	1299	9.21
1300	9.14	1310	8.57	1320	8.04	1330	7.56	1340	7.12
1350	6.72	1360	6.36	1370	6.02	1380	5.71	1390	5.44
1400	5.18	1420	4.75	1440	4.39	1460	3.96	1500	2.79

VCRat Model Input

Model Lines

```
005     1  001A Header place holder
005     1  002A Header place holder
005     1  003A Header place holder
999
999
006     1  001A 010      099A97                                G1
006     1  002A 040051002508A97                              1
110
111 1211.99    1.00000    5.19
112 1203.40 1204.00 1206.00 1208.00 1210.00 1212.00
113   0.000   0.155   0.808   1.673   2.779   4.159
114    0.00    0.16    0.37    8.99   24.60   44.78
110
006     1  003A 010      099A97                              1  2
999
```

APPENDIX B.3: AREA "40"

10-YEAR STORM EVENT WITHOUT BASINS

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Modified Rational Model Results Report

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 40

Project Description

VCRat version: 2.64.0.37
VCRain version: 201801
DOS EXE version: PC 2.64-201605
VCRain Curve Set: VCWPD 2016 Revised Curve Set
Curve A: SIM2: Simi Valley
Curve B: None
Curve C: None
Curve D: None

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 40

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	AREA (AC)	FLOW (CFS)	AREA (AC)	FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES CHNL	N VALUES SIDES	VEL (FT/S)	DEPTH (FT)
1A	---	---	--	--	---	---	0	0	----	-------	----	-------	---	----	-----	-----	--	--
2A : Begin Stream A																		
2A	040	A10	12	46	23	32	23	32	1155	-------	----	-------	---	----	-----	-----	--	--

```
  3A :  Report Results of Routing in Basin
  3A   ---   ---    --   --    ---    ---       23      32   1155    -------    ----  -------    ---     ----    -----  -----    --     --


                                      Issue/Warning Messages
   TYPE      ERR NO   PROCEDURE    LOCATION   MESSAGE
  ------------------------------------------------------------------------------------------------------------------------------------------
---
    NO ISSUES OR WARNINGS DETECTED
-------------------------------------------------------------------------------------------------
          HYDROGRAPH PRINTOUT AT:    3A
-------------------------------------------------------------------------------------------------
          DESCRIPTION: Report Results of Routing in Basin
          TOTAL AREA TO HYDROGRAPH:      23    acres
          HYDROGRAPH PEAK:               32    cfs
          TIME OF PEAK:                1155    minutes
          HYDROGRAPH VOLUME:             4.02 acre-ft
```

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	0.95	200	0.95	300	0.95	400	0.95
500	0.95	600	1.12	700	1.62	800	1.63	900	2.05
1000	2.82	1050	3.57	1100	4.56	1110	6.05	1120	7.77
1130	8.26	1131	8.32	1132	8.38	1133	8.43	1134	8.47
1135	8.51	1136	8.56	1137	8.60	1138	8.64	1139	8.77
1140	8.82	1141	9.12	1142	9.51	1143	9.77	1144	10.12
1145	11.07	1146	12.03	1147	12.98	1148	13.92	1149	17.52
1150	21.20	1151	24.55	1152	28.06	1153	31.24	1154	31.81
1155	31.89	1156	31.57	1157	30.67	1158	29.77	1159	28.80
1160	27.82	1161	24.38	1162	20.77	1163	17.09	1164	13.41
1165	9.34	1166	7.86	1167	7.07	1168	6.63	1169	6.29
1170	6.04	1171	5.84	1172	5.64	1173	5.34	1174	5.14
1175	4.93	1176	4.68	1177	4.58	1178	4.53	1179	4.43
1180	4.33	1181	4.28	1182	4.18	1183	4.13	1184	4.03
1185	3.98	1186	3.88	1187	3.78	1188	3.68	1189	3.63
1190	3.57	1191	3.47	1192	3.42	1193	3.32	1194	3.27
1195	3.17	1196	3.07	1197	3.02	1198	2.97	1199	2.87
1200	2.82	1201	2.82	1202	2.77	1203	2.82	1204	2.82
1205	2.82	1206	2.82	1207	2.82	1208	2.82	1209	2.82
1210	2.82	1211	2.82	1212	2.82	1213	2.82	1214	2.82
1215	2.82	1216	2.82	1217	2.82	1218	2.82	1219	2.82
1220	2.82	1221	2.82	1222	2.77	1223	2.82	1224	2.82
1225	2.67	1226	2.62	1227	2.52	1228	2.42	1229	2.32
1230	2.22	1231	2.11	1232	2.01	1233	1.91	1234	1.86
1235	1.71	1236	1.61	1237	1.66	1238	1.61	1239	1.61
1240	1.61	1241	1.61	1242	1.61	1243	1.61	1244	1.66
1245	1.61	1246	1.61	1247	1.66	1248	1.61	1249	1.61
1250	1.66	1251	1.61	1252	1.61	1253	1.66	1254	1.61

1255	1.61	1256	1.61	1257	1.61	1258	1.61	1259	1.61
1260	1.66	1261	1.61	1262	1.61	1263	1.66	1264	1.61
1265	1.61	1266	1.66	1267	1.61	1268	1.61	1269	1.66
1270	1.61	1271	1.61	1272	1.61	1273	1.61	1274	1.61
1275	1.61	1276	1.61	1277	1.61	1278	1.61	1279	1.66
1280	1.61	1281	1.61	1282	1.66	1283	1.61	1284	1.61
1285	1.66	1286	1.61	1287	1.61	1288	1.66	1289	1.61
1290	1.61	1291	1.61	1292	1.61	1293	1.61	1294	1.61
1295	1.66	1296	1.61	1297	1.56	1298	1.51	1299	1.46
1300	1.36	1310	0.96	1320	0.97	1330	0.97	1340	0.97
1350	0.92	1360	0.96	1370	0.97	1380	0.92	1390	0.96
1400	0.97	1420	0.97	1440	0.94	1460	0.00	1500	0.00

VCRat Model Input

Model Lines

```
005     1  001A Header place holder
005     1  003A Header place holder
999
999
006     1  001A 010      099A97                                G1
006     1  002A 040046002312A97
006     1  003A 010      099A97                              1  2
999
```

10-YEAR STORM EVENT WITH BASINS

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Modified Rational Model Results Report

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 40

Project Description

VCRat version: 2.64.0.37
VCRain version: 201801
DOS EXE version: PC 2.64-201605
VCRain Curve Set: VCWPD 2016 Revised Curve Set
Curve A: SIM2: Simi Valley
Curve B: None
Curve C: None
Curve D: None

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 40

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	AREA (AC)	FLOW (CFS)	AREA (AC)	FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES CHNL	N VALUES SIDES	VEL (FT/S)	DEPTH (FT)
1A	---	---	--	--	---	---	0	0	----	-------	----	-------	---	----	-----	-----	--	--
2A : Begin Stream A																		
2A	040	A10	12	46	23	32	23	32	1155	-------	----	-------	---	----	-----	-----	--	--

```
 2A :  Detention Basin
      ********************************************************************************************
      *      INCOMING HYDROGRAPH  PEAK (cfs):     31.89         VOLUME (acre-ft):      4.02      *
      *      NO HYDROGRAPH ADJUSTMENT                                                             *
      *      RUNOFF FACTOR(in):   4.89                                                            *
      *      FATTENED HYDROGRAPH  PEAK (cfs):     31.89         VOLUME (acre-ft):      9.37      *
      *      RESERVOIR INFLOW:    PEAK (cfs):     31.89 @ 1155  VOLUME (acre-ft):      9.37      *
      *      MAXIMUM ELEVATION:   STAGE (ft):   1228.65 @ 1165  VOLUME (acre-ft):      1.76      *
      *      EMERGENCY SPILLWAY:   ELEV (ft):   1229.99         VOLUME (acre-ft):      2.69      *
      *          DIFFERENCE:   IN STAGE (ft):     -1.34      IN VOLUME (acre-ft):      0.94      *
      *          NO SPILL EXPECTED.       PERCNT OF VOLUME REMAINING TO SPILLWAY:     34.8%      *
      *      TOP OF DAM:           ELEV (ft):   1230.00         VOLUME (acre-ft):      2.70      *
      *          DIFFERENCE    IN STAGE (ft):     -1.35      IN VOLUME (acre-ft):      0.94      *
      *          NO OVERTOP EXPECTED.   PERCNT OF VOLUME REMAINING TO TOP OF DAM:     34.9%      *
      *      RESERVOIR OUTFLOW:   PEAK (cfs):     21.82 @ 1165  VOLUME (acre-ft):      8.21      *
      ********************************************************************************************
   2A   ---   ---    --   --    ---    ---       23      22   1165    -------    ----  -------    ---     ----    -----  -----    --     --
   3A :  Report Results of Routing in Basin
   3A   ---   ---    --   --    ---    ---       23      22   1165    -------    ----  -------    ---     ----    -----  -----    --     --


                                    Issue/Warning Messages
    TYPE      ERR NO   PROCEDURE    LOCATION   MESSAGE
   ------------------------------------------------------------------------------------------------------------------------------------------
---
     NO ISSUES OR WARNINGS DETECTED
------------------------------------------------------------------------------------------------------------------------------------------
---
          RESERVOIR ROUTING AT      2A
------------------------------------------------------------------------------------------------------------------------------------------
---
          DESCRIPTION: Detention Basin
          ********************************************************************************************
          *      INCOMING HYDROGRAPH  PEAK (cfs):     31.89         VOLUME (acre-ft):      4.02      *
          *      NO HYDROGRAPH ADJUSTMENT                                                             *
          *      RUNOFF FACTOR(in):   4.89                                                            *
          *      FATTENED HYDROGRAPH  PEAK (cfs):     31.89         VOLUME (acre-ft):      9.37      *
          *      RESERVOIR INFLOW:    PEAK (cfs):     31.89 @ 1155  VOLUME (acre-ft):      9.37      *
          *      MAXIMUM ELEVATION:   STAGE (ft):   1228.65 @ 1165  VOLUME (acre-ft):      1.76      *
          *      EMERGENCY SPILLWAY:   ELEV (ft):   1229.99         VOLUME (acre-ft):      2.69      *
          *          DIFFERENCE:   IN STAGE (ft):     -1.34      IN VOLUME (acre-ft):      0.94      *
          *          NO SPILL EXPECTED.       PERCNT OF VOLUME REMAINING TO SPILLWAY:     34.8%      *
          *      TOP OF DAM:           ELEV (ft):   1230.00         VOLUME (acre-ft):      2.70      *
          *          DIFFERENCE    IN STAGE (ft):     -1.35      IN VOLUME (acre-ft):      0.94      *
          *          NO OVERTOP EXPECTED.   PERCNT OF VOLUME REMAINING TO TOP OF DAM:     34.9%      *
          *      RESERVOIR OUTFLOW:   PEAK (cfs):     21.82 @ 1165  VOLUME (acre-ft):      8.21      *
          ********************************************************************************************

          TIME   PRE-ADJ   PRE-FAT   INFLOW   OUTFLOW  ELEVATION
```

(min)	(cfs)	(cfs)	(cfs)	(cfs)	(feet)
0	0.00	0.00	0.00	0.00	1224.00
100	0.95	0.95	1.07	0.10	1224.23
200	0.95	0.95	1.22	0.44	1225.01
300	0.95	0.95	1.27	0.53	1225.42
400	0.95	0.95	1.36	0.61	1225.82
500	0.95	0.95	1.47	0.67	1226.15
600	1.12	1.12	1.80	0.72	1226.45
700	1.62	1.62	2.55	1.39	1226.85
800	1.63	1.63	3.00	2.54	1227.05
900	2.05	2.05	4.25	3.36	1227.13
1000	2.82	2.82	6.83	5.00	1227.30
1050	3.57	3.57	9.39	6.87	1227.48
1100	4.56	4.56	13.64	9.60	1227.76
1110	6.05	6.05	15.61	10.62	1227.86
1120	7.77	7.77	17.75	11.86	1227.98
1130	8.26	8.26	19.23	13.54	1228.10
1131	8.32	8.32	19.39	13.72	1228.11
1132	8.38	8.38	19.56	13.90	1228.12
1133	8.43	8.43	19.71	14.07	1228.13
1134	8.47	8.47	19.87	14.25	1228.15
1135	8.51	8.51	20.02	14.43	1228.16

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1136	8.56	8.56	20.18	14.61	1228.17
1137	8.60	8.60	20.34	14.78	1228.18
1138	8.64	8.64	20.50	14.96	1228.19
1139	8.77	8.77	20.71	15.13	1228.20
1140	8.82	8.82	20.87	15.31	1228.22
1141	9.12	9.12	21.16	15.49	1228.23
1142	9.51	9.51	21.49	15.67	1228.24
1143	9.77	9.77	21.75	15.85	1228.25
1144	10.12	10.12	22.05	16.04	1228.26
1145	11.07	11.07	22.62	16.24	1228.28
1146	12.03	12.03	23.18	16.44	1228.29
1147	12.98	12.98	23.73	16.66	1228.30
1148	13.92	13.92	24.26	16.89	1228.32
1149	17.52	17.52	25.88	17.14	1228.34
1150	21.20	21.20	27.50	17.44	1228.36

1151	24.55	24.55	28.93	17.77	1228.38
1152	28.06	28.06	30.37	18.14	1228.40
1153	31.24	31.24	31.64	18.54	1228.43
1154	31.81	31.81	31.86	18.95	1228.46
1155	31.89	31.89	31.89	19.36	1228.48
1156	31.57	31.57	31.77	19.74	1228.51
1157	30.67	30.67	31.42	20.11	1228.53
1158	29.77	29.77	31.05	20.46	1228.55
1159	28.80	28.80	30.65	20.78	1228.58
1160	27.82	27.82	30.22	21.08	1228.60
1161	24.38	24.38	28.77	21.34	1228.61
1162	20.77	20.77	27.19	21.55	1228.63
1163	17.09	17.09	25.54	21.70	1228.64
1164	13.41	13.41	23.84	21.79	1228.64
1165	9.34	9.34	21.92	21.82	1228.65
1166	7.86	7.86	21.11	21.81	1228.64
1167	7.07	7.07	20.61	21.79	1228.64
1168	6.63	6.63	20.25	21.74	1228.64
1169	6.29	6.29	19.94	21.69	1228.64
1170	6.04	6.04	19.67	21.63	1228.63
1171	5.84	5.84	19.42	21.57	1228.63
1172	5.64	5.64	19.17	21.50	1228.62
1173	5.34	5.34	18.87	21.42	1228.62
1174	5.14	5.14	18.62	21.34	1228.61
1175	4.93	4.93	18.37	21.25	1228.61
1176	4.68	4.68	18.09	21.16	1228.60
1177	4.58	4.58	17.89	21.06	1228.59
1178	4.53	4.53	17.72	20.96	1228.59
1179	4.43	4.43	17.52	20.85	1228.58
1180	4.33	4.33	17.33	20.75	1228.57
1181	4.28	4.28	17.16	20.64	1228.57
1182	4.18	4.18	16.96	20.53	1228.56
1183	4.13	4.13	16.80	20.41	1228.55
1184	4.03	4.03	16.61	20.30	1228.54
1185	3.98	3.98	16.44	20.18	1228.54
1186	3.88	3.88	16.25	20.06	1228.53
1187	3.78	3.78	16.06	19.94	1228.52
1188	3.68	3.68	15.88	19.82	1228.51
1189	3.63	3.63	15.72	19.69	1228.50
1190	3.57	3.57	15.56	19.57	1228.50
1191	3.47	3.47	15.38	19.44	1228.49
1192	3.42	3.42	15.22	19.31	1228.48
1193	3.32	3.32	15.04	19.18	1228.47
1194	3.27	3.27	14.89	19.05	1228.46
1195	3.17	3.17	14.71	18.92	1228.45
1196	3.07	3.07	14.53	18.78	1228.44
1197	3.02	3.02	14.38	18.65	1228.44
1198	2.97	2.97	14.23	18.51	1228.43
1199	2.87	2.87	14.06	18.38	1228.42

1200	2.82	2.82	13.91	18.24	1228.41
1201	2.82	2.82	13.80	18.10	1228.40
1202	2.77	2.77	13.66	17.97	1228.39
1203	2.82	2.82	13.58	17.83	1228.38
1204	2.82	2.82	13.47	17.70	1228.37
1205	2.82	2.82	13.36	17.57	1228.36
1206	2.82	2.82	13.26	17.43	1228.36

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1207	2.82	2.82	13.16	17.30	1228.35
1208	2.82	2.82	13.05	17.17	1228.34
1209	2.82	2.82	12.95	17.04	1228.33
1210	2.82	2.82	12.86	16.91	1228.32
1211	2.82	2.82	12.76	16.79	1228.31
1212	2.82	2.82	12.66	16.66	1228.30
1213	2.82	2.82	12.57	16.53	1228.30
1214	2.82	2.82	12.47	16.41	1228.29
1215	2.82	2.82	12.38	16.29	1228.28
1216	2.82	2.82	12.29	16.16	1228.27
1217	2.82	2.82	12.20	16.04	1228.26
1218	2.82	2.82	12.11	15.92	1228.26
1219	2.82	2.82	12.02	15.80	1228.25
1220	2.82	2.82	11.94	15.68	1228.24
1221	2.82	2.82	11.85	15.56	1228.23
1222	2.77	2.77	11.73	15.45	1228.22
1223	2.82	2.82	11.69	15.33	1228.22
1224	2.82	2.82	11.61	15.22	1228.21
1225	2.67	2.67	11.42	15.10	1228.20
1226	2.62	2.62	11.30	14.99	1228.19
1227	2.52	2.52	11.15	14.87	1228.19
1228	2.42	2.42	11.00	14.75	1228.18
1229	2.32	2.32	10.86	14.63	1228.17
1230	2.22	2.22	10.71	14.51	1228.16
1231	2.11	2.11	10.56	14.39	1228.15
1232	2.01	2.01	10.41	14.27	1228.15
1233	1.91	1.91	10.26	14.15	1228.14
1234	1.86	1.86	10.15	14.03	1228.13
1235	1.71	1.71	9.97	13.90	1228.12
1236	1.61	1.61	9.83	13.78	1228.11
1237	1.66	1.66	9.79	13.65	1228.11

1238	1.61	1.61	9.68	13.53	1228.10
1239	1.61	1.61	9.61	13.41	1228.09
1240	1.61	1.61	9.55	13.29	1228.08
1241	1.61	1.61	9.48	13.18	1228.07
1242	1.61	1.61	9.41	13.06	1228.07
1243	1.61	1.61	9.34	12.95	1228.06
1244	1.66	1.66	9.32	12.83	1228.05
1245	1.61	1.61	9.21	12.72	1228.04
1246	1.61	1.61	9.15	12.61	1228.04
1247	1.66	1.66	9.13	12.50	1228.03
1248	1.61	1.61	9.03	12.40	1228.02
1249	1.61	1.61	8.96	12.29	1228.02
1250	1.66	1.66	8.94	12.19	1228.01
1251	1.61	1.61	8.84	12.09	1228.00
1252	1.61	1.61	8.78	12.00	1227.99
1253	1.66	1.66	8.76	11.92	1227.99
1254	1.61	1.61	8.67	11.84	1227.98
1255	1.61	1.61	8.61	11.76	1227.97
1256	1.61	1.61	8.56	11.68	1227.96
1257	1.61	1.61	8.50	11.60	1227.96
1258	1.61	1.61	8.44	11.52	1227.95
1259	1.61	1.61	8.39	11.45	1227.94
1260	1.66	1.66	8.38	11.37	1227.93
1261	1.61	1.61	8.28	11.30	1227.92
1262	1.61	1.61	8.23	11.22	1227.92
1263	1.66	1.66	8.22	11.15	1227.91
1264	1.61	1.61	8.13	11.07	1227.90
1265	1.61	1.61	8.08	11.00	1227.90
1266	1.66	1.66	8.07	10.93	1227.89
1267	1.61	1.61	7.98	10.85	1227.88
1268	1.61	1.61	7.93	10.78	1227.87
1269	1.66	1.66	7.92	10.71	1227.87
1270	1.61	1.61	7.83	10.64	1227.86
1271	1.61	1.61	7.79	10.57	1227.85
1272	1.61	1.61	7.74	10.50	1227.85
1273	1.61	1.61	7.69	10.43	1227.84
1274	1.61	1.61	7.65	10.36	1227.83
1275	1.61	1.61	7.60	10.30	1227.83
1276	1.61	1.61	7.56	10.23	1227.82
1277	1.61	1.61	7.52	10.16	1227.81

Hydrograph Printouts

TIME	PRE-ADJ	PRE-FAT	INFLOW	OUTFLOW	ELEVATION

(min)	(cfs)	(cfs)	(cfs)	(cfs)	(feet)
1278	1.61	1.61	7.47	10.10	1227.81
1279	1.66	1.66	7.47	10.03	1227.80
1280	1.61	1.61	7.39	9.97	1227.79
1281	1.61	1.61	7.34	9.90	1227.79
1282	1.66	1.66	7.34	9.84	1227.78
1283	1.61	1.61	7.26	9.78	1227.77
1284	1.61	1.61	7.22	9.71	1227.77
1285	1.66	1.66	7.22	9.65	1227.76
1286	1.61	1.61	7.14	9.59	1227.75
1287	1.61	1.61	7.10	9.53	1227.75
1288	1.66	1.66	7.10	9.47	1227.74
1289	1.61	1.61	7.03	9.41	1227.74
1290	1.61	1.61	6.99	9.35	1227.73
1291	1.61	1.61	6.95	9.29	1227.72
1292	1.61	1.61	6.91	9.23	1227.72
1293	1.61	1.61	6.88	9.17	1227.71
1294	1.61	1.61	6.84	9.12	1227.71
1295	1.66	1.66	6.84	9.06	1227.70
1296	1.61	1.61	6.77	9.00	1227.70
1297	1.56	1.56	6.69	8.95	1227.69
1298	1.51	1.51	6.61	8.89	1227.68
1299	1.46	1.46	6.54	8.83	1227.68
1300	1.36	1.36	6.42	8.78	1227.67
1310	0.96	0.96	5.75	8.21	1227.62
1320	0.97	0.97	5.46	7.65	1227.56
1330	0.97	0.97	5.19	7.15	1227.51
1340	0.97	0.97	4.95	6.70	1227.47
1350	0.92	0.92	4.68	6.29	1227.43
1360	0.96	0.96	4.51	5.92	1227.39
1370	0.97	0.97	4.34	5.60	1227.36
1380	0.92	0.92	4.12	5.31	1227.33
1390	0.96	0.96	4.00	5.03	1227.30
1400	0.97	0.97	3.86	4.80	1227.28
1420	0.97	0.97	3.60	4.40	1227.24
1440	0.94	0.94	3.35	4.05	1227.20
1460	0.00	0.00	2.28	3.66	1227.16
1500	0.00	0.00	1.95	2.72	1227.07

Stage - Storage - Discharge Curve for Reservoir at 2A

STAGE (ft)	STORAGE (ac-ft)	DISCHARGE (cfs)
1,224.00	0.000	0.00
1,225.00	0.142	0.44
1,226.00	0.391	0.65
1,226.70	0.661	0.76
1,227.00	0.776	2.03
1,228.00	1.326	12.05

1,229.00	1.987	27.20
1,230.00	2.698	46.11

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 3A

DESCRIPTION: Report Results of Routing in Basin
TOTAL AREA TO HYDROGRAPH: 23 acres
HYDROGRAPH PEAK: 22 cfs
TIME OF PEAK: 1165 minutes
HYDROGRAPH VOLUME: 8.20 acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	0.10	200	0.44	300	0.53	400	0.61
500	0.67	600	0.72	700	1.39	800	2.54	900	3.36
1000	5.00	1050	6.87	1100	9.60	1110	10.62	1120	11.86
1130	13.54	1131	13.72	1132	13.90	1133	14.07	1134	14.25
1135	14.43	1136	14.61	1137	14.78	1138	14.96	1139	15.13
1140	15.31	1141	15.49	1142	15.67	1143	15.85	1144	16.04
1145	16.24	1146	16.44	1147	16.66	1148	16.89	1149	17.14
1150	17.44	1151	17.77	1152	18.14	1153	18.54	1154	18.95
1155	19.36	1156	19.74	1157	20.11	1158	20.46	1159	20.78
1160	21.08	1161	21.34	1162	21.55	1163	21.70	1164	21.79
1165	21.82	1166	21.81	1167	21.79	1168	21.74	1169	21.69
1170	21.63	1171	21.57	1172	21.50	1173	21.42	1174	21.34
1175	21.25	1176	21.16	1177	21.06	1178	20.96	1179	20.85
1180	20.75	1181	20.64	1182	20.53	1183	20.41	1184	20.30
1185	20.18	1186	20.06	1187	19.94	1188	19.82	1189	19.69
1190	19.57	1191	19.44	1192	19.31	1193	19.18	1194	19.05
1195	18.92	1196	18.78	1197	18.65	1198	18.51	1199	18.38
1200	18.24	1201	18.10	1202	17.97	1203	17.83	1204	17.70
1205	17.57	1206	17.43	1207	17.30	1208	17.17	1209	17.04
1210	16.91	1211	16.79	1212	16.66	1213	16.53	1214	16.41
1215	16.29	1216	16.16	1217	16.04	1218	15.92	1219	15.80
1220	15.68	1221	15.56	1222	15.45	1223	15.33	1224	15.22
1225	15.10	1226	14.99	1227	14.87	1228	14.75	1229	14.63
1230	14.51	1231	14.39	1232	14.27	1233	14.15	1234	14.03
1235	13.90	1236	13.78	1237	13.65	1238	13.53	1239	13.41
1240	13.29	1241	13.18	1242	13.06	1243	12.95	1244	12.83

1245	12.72	1246	12.61	1247	12.50	1248	12.40	1249	12.29
1250	12.19	1251	12.09	1252	12.00	1253	11.92	1254	11.84
1255	11.76	1256	11.68	1257	11.60	1258	11.52	1259	11.45
1260	11.37	1261	11.30	1262	11.22	1263	11.15	1264	11.07
1265	11.00	1266	10.93	1267	10.85	1268	10.78	1269	10.71
1270	10.64	1271	10.57	1272	10.50	1273	10.43	1274	10.36
1275	10.30	1276	10.23	1277	10.16	1278	10.10	1279	10.03
1280	9.97	1281	9.90	1282	9.84	1283	9.78	1284	9.71
1285	9.65	1286	9.59	1287	9.53	1288	9.47	1289	9.41
1290	9.35	1291	9.29	1292	9.23	1293	9.17	1294	9.12
1295	9.06	1296	9.00	1297	8.95	1298	8.89	1299	8.83
1300	8.78	1310	8.21	1320	7.65	1330	7.15	1340	6.70
1350	6.29	1360	5.92	1370	5.60	1380	5.31	1390	5.03
1400	4.80	1420	4.40	1440	4.05	1460	3.66	1500	2.72

VCRat Model Input

Model Lines

```
005     1  001A Header place holder
005     1  002A Header place holder
005     1  003A Header place holder
999
999
006     1  001A 010      099A97                                 G1
006     1  002A 040046002312A97                               1
110
111 1229.99    1.00000    4.89
112 1224.00 1225.00 1226.00 1226.70 1227.00 1228.00 1229.00 1230.00
113   0.000   0.142   0.391   0.661   0.776   1.326   1.987   2.698
114    0.00    0.44    0.65    0.76    2.03   12.05   27.20   46.11
110
006     1  003A 010      099A97                               1  2
999
```

100-YEAR STORM EVENT WITHOUT BASINS

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Modified Rational Model Results Report

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 40

Project Description

VCRat version: 2.64.0.37
VCRain version: 201801
DOS EXE version: PC 2.64-201605
VCRain Curve Set: VCWPD 2016 Revised Curve Set
Curve A: SIM2: Simi Valley
Curve B: None
Curve C: None
Curve D: None

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 40

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	AREA (AC)	FLOW (CFS)	ACCUMULATED AREA (AC)	ACCUMULATED FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES CHNL	N VALUES SIDES	VEL (FT/S)	DEPTH (FT)
1A	---	---	--	--	---	---	0	0	----	-------	----	-------	---	----	-----	-----	--	--
2A : Begin Stream A																		
2A	040	A100	8	46	23	62	23	62	1153	-------	----	-------	---	----	-----	-----	--	--

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  3A :  Report Results of Routing in Basin
  3A   ---   ---    --   --    ---    ---       23      62   1153    -------    ----  -------    ---     ----    -----  -----    --     --


                                      Issue/Warning Messages
   TYPE      ERR NO   PROCEDURE    LOCATION   MESSAGE
  ------------------------------------------------------------------------------------------------------------------------------------------
---
    NO ISSUES OR WARNINGS DETECTED
-------------------------------------------------------------------------------------------------
          HYDROGRAPH PRINTOUT AT:    3A
-------------------------------------------------------------------------------------------------
          DESCRIPTION: Report Results of Routing in Basin
          TOTAL AREA TO HYDROGRAPH:      23    acres
          HYDROGRAPH PEAK:               62    cfs
          TIME OF PEAK:                1153    minutes
          HYDROGRAPH VOLUME:             6.36 acre-ft
```

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	1.50	200	1.51	300	1.50	400	1.50
500	1.51	600	1.74	700	2.48	800	2.49	900	3.12
1000	4.26	1050	5.37	1100	7.12	1110	11.84	1120	14.83
1130	15.03	1131	15.16	1132	15.29	1133	15.42	1134	15.55
1135	15.67	1136	15.80	1137	15.93	1138	16.06	1139	16.06
1140	16.06	1141	16.70	1142	17.35	1143	18.12	1144	18.76
1145	20.94	1146	22.91	1147	25.00	1148	27.08	1149	34.29
1150	41.68	1151	48.87	1152	56.30	1153	62.22	1154	62.22
1155	60.86	1156	58.77	1157	50.73	1158	42.67	1159	34.66
1160	26.59	1161	18.37	1162	16.19	1163	15.16	1164	15.03
1165	14.13	1166	13.11	1167	12.07	1168	11.16	1169	10.25
1170	9.21	1171	8.43	1172	7.51	1173	7.38	1174	7.38
1175	7.51	1176	7.38	1177	6.98	1178	6.85	1179	6.50
1180	6.27	1181	6.12	1182	5.97	1183	5.74	1184	5.59
1185	5.59	1186	5.59	1187	5.59	1188	5.59	1189	5.44
1190	5.21	1191	5.06	1192	4.91	1193	4.76	1194	4.53
1195	4.38	1196	4.23	1197	4.23	1198	4.23	1199	4.30
1200	4.30	1201	4.30	1202	4.30	1203	4.30	1204	4.30
1205	4.30	1206	4.30	1207	4.23	1208	4.23	1209	4.23
1210	4.23	1211	4.23	1212	4.23	1213	4.23	1214	4.23
1215	4.23	1216	4.23	1217	4.23	1218	4.23	1219	4.30
1220	4.30	1221	4.30	1222	4.30	1223	4.30	1224	4.30
1225	4.08	1226	3.85	1227	3.55	1228	3.32	1229	3.10
1230	2.87	1231	2.72	1232	2.49	1233	2.49	1234	2.49
1235	2.49	1236	2.49	1237	2.49	1238	2.49	1239	2.49
1240	2.49	1241	2.49	1242	2.49	1243	2.49	1244	2.49
1245	2.49	1246	2.49	1247	2.42	1248	2.49	1249	2.49
1250	2.49	1251	2.49	1252	2.49	1253	2.49	1254	2.49

1255	2.49	1256	2.42	1257	2.49	1258	2.49	1259	2.49
1260	2.49	1261	2.49	1262	2.49	1263	2.49	1264	2.49
1265	2.42	1266	2.49	1267	2.49	1268	2.49	1269	2.49
1270	2.49	1271	2.49	1272	2.49	1273	2.49	1274	2.42
1275	2.49	1276	2.49	1277	2.49	1278	2.49	1279	2.49
1280	2.49	1281	2.49	1282	2.49	1283	2.49	1284	2.49
1285	2.49	1286	2.49	1287	2.49	1288	2.49	1289	2.49
1290	2.49	1291	2.42	1292	2.49	1293	2.49	1294	2.49
1295	2.49	1296	2.49	1297	2.34	1298	2.27	1299	2.11
1300	1.96	1310	1.51	1320	1.51	1330	1.51	1340	1.51
1350	1.51	1360	1.51	1370	1.45	1380	1.51	1390	1.51
1400	1.51	1420	1.51	1440	1.51	1460	0.00	1500	0.00

VCRat Model Input

Model Lines

```
005     1  001A Header place holder
005     1  003A Header place holder
999
999
006     1  001A 010      099A97                                G1
006     1  002A 040046002308A97
006     1  003A 010      099A97                              1  2
999
```

100-YEAR STORM EVENT WITH BASINS

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Modified Rational Model Results Report

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 40

Project Description

VCRat version: 2.64.0.37
VCRain version: 201801
DOS EXE version: PC 2.64-201605
VCRain Curve Set: VCWPD 2016 Revised Curve Set
Curve A: SIM2: Simi Valley
Curve B: None
Curve C: None
Curve D: None

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Job: 1 Project: Lost Canyons Phase 1 Amend - Area 40

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	AREA (AC)	FLOW (CFS)	ACCUMULATED AREA (AC)	ACCUMULATED FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES CHNL	N VALUES SIDES	VEL (FT/S)	DEPTH (FT)
1A	---	---	--	--	---	---	0	0	----	-------	----	-------	---	----	-----	-----	--	--
2A : Begin Stream A - Line C																		
2A	040	A100	8	46	23	62	23	62	1153	-------	----	-------	---	----	-----	-----	--	--

```
 2A :  Detention Basin
      ********************************************************************************************
      *      INCOMING HYDROGRAPH  PEAK (cfs):     62.22         VOLUME (acre-ft):      6.37      *
      *      NO HYDROGRAPH ADJUSTMENT                                                             *
      *      RUNOFF FACTOR(in):   4.89                                                            *
      *      FATTENED HYDROGRAPH  PEAK (cfs):     62.22         VOLUME (acre-ft):      9.39      *
      *      RESERVOIR INFLOW:    PEAK (cfs):     62.22 @ 1153  VOLUME (acre-ft):      9.39      *
      *      MAXIMUM ELEVATION:   STAGE (ft):   1229.13 @ 1161  VOLUME (acre-ft):      2.08      *
      *      EMERGENCY SPILLWAY:   ELEV (ft):   1229.99         VOLUME (acre-ft):      2.69      *
      *          DIFFERENCE:   IN STAGE (ft):     -0.86      IN VOLUME (acre-ft):      0.61      *
      *          NO SPILL EXPECTED.       PERCNT OF VOLUME REMAINING TO SPILLWAY:     22.7%      *
      *      TOP OF DAM:           ELEV (ft):   1230.00         VOLUME (acre-ft):      2.70      *
      *          DIFFERENCE    IN STAGE (ft):     -0.87      IN VOLUME (acre-ft):      0.62      *
      *          NO OVERTOP EXPECTED.   PERCNT OF VOLUME REMAINING TO TOP OF DAM:     22.9%      *
      *      RESERVOIR OUTFLOW:   PEAK (cfs):     29.65 @ 1161  VOLUME (acre-ft):      8.27      *
      ********************************************************************************************
     2A   ---   ---    --   --    ---    ---       23      30   1161    -------    ----  -------    ---     ----    -----  -----    --     --
     3A :  Report Results of Routing in Basin
     3A   ---   ---    --   --    ---    ---       23      30   1161    -------    ----  -------    ---     ----    -----  -----    --     --


                                    Issue/Warning Messages
     TYPE      ERR NO   PROCEDURE    LOCATION   MESSAGE
    ------------------------------------------------------------------------------------------------------------------------------------------------
---
      NO ISSUES OR WARNINGS DETECTED
------------------------------------------------------------------------------------------------------------------------------------------------
---
           RESERVOIR ROUTING AT      2A
------------------------------------------------------------------------------------------------------------------------------------------------
---
           DESCRIPTION: Detention Basin
           ********************************************************************************************
           *      INCOMING HYDROGRAPH  PEAK (cfs):     62.22         VOLUME (acre-ft):      6.37      *
           *      NO HYDROGRAPH ADJUSTMENT                                                             *
           *      RUNOFF FACTOR(in):   4.89                                                            *
           *      FATTENED HYDROGRAPH  PEAK (cfs):     62.22         VOLUME (acre-ft):      9.39      *
           *      RESERVOIR INFLOW:    PEAK (cfs):     62.22 @ 1153  VOLUME (acre-ft):      9.39      *
           *      MAXIMUM ELEVATION:   STAGE (ft):   1229.13 @ 1161  VOLUME (acre-ft):      2.08      *
           *      EMERGENCY SPILLWAY:   ELEV (ft):   1229.99         VOLUME (acre-ft):      2.69      *
           *          DIFFERENCE:   IN STAGE (ft):     -0.86      IN VOLUME (acre-ft):      0.61      *
           *          NO SPILL EXPECTED.       PERCNT OF VOLUME REMAINING TO SPILLWAY:     22.7%      *
           *      TOP OF DAM:           ELEV (ft):   1230.00         VOLUME (acre-ft):      2.70      *
           *          DIFFERENCE    IN STAGE (ft):     -0.87      IN VOLUME (acre-ft):      0.62      *
           *          NO OVERTOP EXPECTED.   PERCNT OF VOLUME REMAINING TO TOP OF DAM:     22.9%      *
           *      RESERVOIR OUTFLOW:   PEAK (cfs):     29.65 @ 1161  VOLUME (acre-ft):      8.27      *
           ********************************************************************************************

           TIME   PRE-ADJ   PRE-FAT   INFLOW   OUTFLOW  ELEVATION
```

(min)	(cfs)	(cfs)	(cfs)	(cfs)	(feet)
0	0.00	0.00	0.00	0.00	1224.00
100	1.50	1.50	1.56	0.15	1224.33
200	1.51	1.51	1.64	0.50	1225.29
300	1.50	1.50	1.67	0.63	1225.89
400	1.50	1.50	1.71	0.70	1226.29
500	1.51	1.51	1.77	0.75	1226.64
600	1.74	1.74	2.08	1.57	1226.89
700	2.48	2.48	2.95	2.25	1227.02
800	2.49	2.49	3.19	2.97	1227.09
900	3.12	3.12	4.26	3.51	1227.15
1000	4.26	4.26	6.41	4.89	1227.29
1050	5.37	5.37	8.61	6.46	1227.44
1100	7.12	7.12	12.54	8.86	1227.68
1110	11.84	11.84	17.47	9.99	1227.79
1120	14.83	14.83	20.90	11.87	1227.98
1130	15.03	15.03	22.03	14.37	1228.15
1131	15.16	15.16	22.25	14.61	1228.17
1132	15.29	15.29	22.46	14.85	1228.18
1133	15.42	15.42	22.68	15.09	1228.20
1134	15.55	15.55	22.90	15.33	1228.22
1135	15.67	15.67	23.13	15.57	1228.23

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1136	15.80	15.80	23.35	15.81	1228.25
1137	15.93	15.93	23.58	16.04	1228.26
1138	16.06	16.06	23.81	16.28	1228.28
1139	16.06	16.06	23.93	16.52	1228.29
1140	16.06	16.06	24.06	16.75	1228.31
1141	16.70	16.70	24.72	16.99	1228.33
1142	17.35	17.35	25.38	17.24	1228.34
1143	18.12	18.12	26.14	17.50	1228.36
1144	18.76	18.76	26.80	17.78	1228.38
1145	20.94	20.94	28.71	18.09	1228.40
1146	22.91	22.91	30.44	18.45	1228.42
1147	25.00	25.00	32.24	18.85	1228.45
1148	27.08	27.08	34.04	19.29	1228.48
1149	34.29	34.29	39.92	19.84	1228.51
1150	41.68	41.68	45.89	20.56	1228.56

1151	48.87	48.87	51.65	21.44	1228.62
1152	56.30	56.30	57.56	22.47	1228.69
1153	62.22	62.22	62.22	23.63	1228.76
1154	62.22	62.22	62.22	24.83	1228.84
1155	60.86	60.86	61.15	25.98	1228.92
1156	58.77	58.77	59.48	27.04	1228.99
1157	50.73	50.73	53.05	28.07	1229.05
1158	42.67	42.67	46.56	28.85	1229.09
1159	34.66	34.66	40.05	29.37	1229.11
1160	26.59	26.59	33.45	29.64	1229.13
1161	18.37	18.37	26.68	29.65	1229.13
1162	16.19	16.19	24.77	29.51	1229.12
1163	15.16	15.16	23.80	29.32	1229.11
1164	15.03	15.03	23.56	29.12	1229.10
1165	14.13	14.13	22.69	28.90	1229.09
1166	13.11	13.11	21.71	28.66	1229.08
1167	12.07	12.07	20.72	28.39	1229.06
1168	11.16	11.16	19.83	28.10	1229.05
1169	10.25	10.25	18.94	27.79	1229.03
1170	9.21	9.21	17.95	27.45	1229.01
1171	8.43	8.43	17.16	27.11	1228.99
1172	7.51	7.51	16.26	26.79	1228.97
1173	7.38	7.38	16.03	26.46	1228.95
1174	7.38	7.38	15.90	26.13	1228.93
1175	7.51	7.51	15.89	25.81	1228.91
1176	7.38	7.38	15.66	25.50	1228.89
1177	6.98	6.98	15.21	25.19	1228.87
1178	6.85	6.85	14.98	24.87	1228.85
1179	6.50	6.50	14.56	24.56	1228.83
1180	6.27	6.27	14.26	24.24	1228.80
1181	6.12	6.12	14.02	23.93	1228.78
1182	5.97	5.97	13.78	23.62	1228.76
1183	5.74	5.74	13.48	23.31	1228.74
1184	5.59	5.59	13.25	23.00	1228.72
1185	5.59	5.59	13.14	22.69	1228.70
1186	5.59	5.59	13.04	22.40	1228.68
1187	5.59	5.59	12.95	22.10	1228.66
1188	5.59	5.59	12.85	21.82	1228.64
1189	5.44	5.44	12.63	21.54	1228.63
1190	5.21	5.21	12.33	21.25	1228.61
1191	5.06	5.06	12.11	20.97	1228.59
1192	4.91	4.91	11.89	20.69	1228.57
1193	4.76	4.76	11.67	20.42	1228.55
1194	4.53	4.53	11.38	20.14	1228.53
1195	4.38	4.38	11.16	19.87	1228.52
1196	4.23	4.23	10.95	19.59	1228.50
1197	4.23	4.23	10.86	19.32	1228.48
1198	4.23	4.23	10.78	19.06	1228.46
1199	4.30	4.30	10.77	18.80	1228.45

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1200	4.30	4.30	10.69	18.55	1228.43
1201	4.30	4.30	10.62	18.30	1228.41
1202	4.30	4.30	10.54	18.06	1228.40
1203	4.30	4.30	10.47	17.83	1228.38
1204	4.30	4.30	10.39	17.60	1228.37
1205	4.30	4.30	10.32	17.37	1228.35
1206	4.30	4.30	10.25	17.15	1228.34

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1207	4.23	4.23	10.12	16.94	1228.32
1208	4.23	4.23	10.05	16.72	1228.31
1209	4.23	4.23	9.98	16.52	1228.29
1210	4.23	4.23	9.92	16.31	1228.28
1211	4.23	4.23	9.85	16.11	1228.27
1212	4.23	4.23	9.79	15.92	1228.26
1213	4.23	4.23	9.73	15.73	1228.24
1214	4.23	4.23	9.67	15.54	1228.23
1215	4.23	4.23	9.61	15.35	1228.22
1216	4.23	4.23	9.55	15.18	1228.21
1217	4.23	4.23	9.49	15.00	1228.19
1218	4.23	4.23	9.44	14.83	1228.18
1219	4.30	4.30	9.45	14.66	1228.17
1220	4.30	4.30	9.39	14.50	1228.16
1221	4.30	4.30	9.34	14.34	1228.15
1222	4.30	4.30	9.29	14.18	1228.14
1223	4.30	4.30	9.24	14.03	1228.13
1224	4.30	4.30	9.18	13.88	1228.12
1225	4.08	4.08	8.93	13.73	1228.11
1226	3.85	3.85	8.67	13.58	1228.10
1227	3.55	3.55	8.34	13.42	1228.09
1228	3.32	3.32	8.09	13.26	1228.08
1229	3.10	3.10	7.83	13.09	1228.07
1230	2.87	2.87	7.57	12.92	1228.06
1231	2.72	2.72	7.39	12.76	1228.05
1232	2.49	2.49	7.13	12.58	1228.04
1233	2.49	2.49	7.08	12.41	1228.02
1234	2.49	2.49	7.04	12.25	1228.01
1235	2.49	2.49	6.99	12.09	1228.00
1236	2.49	2.49	6.95	11.95	1227.99
1237	2.49	2.49	6.91	11.83	1227.98

1238	2.49	2.49	6.87	11.70	1227.97
1239	2.49	2.49	6.82	11.58	1227.95
1240	2.49	2.49	6.78	11.47	1227.94
1241	2.49	2.49	6.74	11.35	1227.93
1242	2.49	2.49	6.70	11.23	1227.92
1243	2.49	2.49	6.66	11.12	1227.91
1244	2.49	2.49	6.62	11.01	1227.90
1245	2.49	2.49	6.59	10.90	1227.89
1246	2.49	2.49	6.55	10.79	1227.87
1247	2.42	2.42	6.44	10.69	1227.86
1248	2.49	2.49	6.47	10.58	1227.85
1249	2.49	2.49	6.44	10.48	1227.84
1250	2.49	2.49	6.40	10.38	1227.83
1251	2.49	2.49	6.37	10.28	1227.82
1252	2.49	2.49	6.33	10.18	1227.81
1253	2.49	2.49	6.30	10.09	1227.80
1254	2.49	2.49	6.26	9.99	1227.79
1255	2.49	2.49	6.23	9.90	1227.79
1256	2.42	2.42	6.13	9.81	1227.78
1257	2.49	2.49	6.17	9.72	1227.77
1258	2.49	2.49	6.13	9.63	1227.76
1259	2.49	2.49	6.10	9.54	1227.75
1260	2.49	2.49	6.07	9.46	1227.74
1261	2.49	2.49	6.04	9.37	1227.73
1262	2.49	2.49	6.01	9.29	1227.72
1263	2.49	2.49	5.98	9.21	1227.72
1264	2.49	2.49	5.95	9.13	1227.71
1265	2.42	2.42	5.85	9.05	1227.70
1266	2.49	2.49	5.89	8.97	1227.69
1267	2.49	2.49	5.87	8.89	1227.68
1268	2.49	2.49	5.84	8.82	1227.68
1269	2.49	2.49	5.81	8.74	1227.67
1270	2.49	2.49	5.78	8.67	1227.66
1271	2.49	2.49	5.76	8.60	1227.66
1272	2.49	2.49	5.73	8.53	1227.65
1273	2.49	2.49	5.70	8.46	1227.64
1274	2.42	2.42	5.61	8.39	1227.63
1275	2.49	2.49	5.65	8.32	1227.63
1276	2.49	2.49	5.63	8.25	1227.62
1277	2.49	2.49	5.60	8.19	1227.61

Hydrograph Printouts

TIME	PRE-ADJ	PRE-FAT	INFLOW	OUTFLOW	ELEVATION

(min)	(cfs)	(cfs)	(cfs)	(cfs)	(feet)
1278	2.49	2.49	5.58	8.12	1227.61
1279	2.49	2.49	5.55	8.06	1227.60
1280	2.49	2.49	5.53	8.00	1227.60
1281	2.49	2.49	5.51	7.94	1227.59
1282	2.49	2.49	5.48	7.88	1227.58
1283	2.49	2.49	5.46	7.82	1227.58
1284	2.49	2.49	5.44	7.76	1227.57
1285	2.49	2.49	5.41	7.70	1227.57
1286	2.49	2.49	5.39	7.64	1227.56
1287	2.49	2.49	5.37	7.59	1227.55
1288	2.49	2.49	5.35	7.53	1227.55
1289	2.49	2.49	5.33	7.48	1227.54
1290	2.49	2.49	5.31	7.42	1227.54
1291	2.42	2.42	5.21	7.37	1227.53
1292	2.49	2.49	5.26	7.32	1227.53
1293	2.49	2.49	5.24	7.27	1227.52
1294	2.49	2.49	5.22	7.22	1227.52
1295	2.49	2.49	5.20	7.17	1227.51
1296	2.49	2.49	5.18	7.12	1227.51
1297	2.34	2.34	5.02	7.07	1227.50
1298	2.27	2.27	4.93	7.01	1227.50
1299	2.11	2.11	4.76	6.96	1227.49
1300	1.96	1.96	4.60	6.90	1227.49
1310	1.51	1.51	3.99	6.35	1227.43
1320	1.51	1.51	3.83	5.82	1227.38
1330	1.51	1.51	3.68	5.37	1227.33
1340	1.51	1.51	3.55	4.98	1227.29
1350	1.51	1.51	3.43	4.66	1227.26
1360	1.51	1.51	3.32	4.38	1227.23
1370	1.45	1.45	3.16	4.13	1227.21
1380	1.51	1.51	3.13	3.92	1227.19
1390	1.51	1.51	3.05	3.74	1227.17
1400	1.51	1.51	2.97	3.58	1227.15
1420	1.51	1.51	2.84	3.33	1227.13
1440	1.51	1.51	2.72	3.12	1227.11
1460	0.00	0.00	1.14	2.79	1227.08
1500	0.00	0.00	0.97	1.82	1226.95

Stage - Storage - Discharge Curve for Reservoir at 2A

STAGE (ft)	STORAGE (ac-ft)	DISCHARGE (cfs)
1,224.00	0.000	0.00
1,225.00	0.142	0.44
1,226.00	0.391	0.65
1,226.70	0.661	0.76
1,227.00	0.776	2.03
1,228.00	1.326	12.05

1,229.00	1.987	27.20
1,230.00	2.698	46.11

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 3A

DESCRIPTION: Report Results of Routing in Basin
TOTAL AREA TO HYDROGRAPH: 23 acres
HYDROGRAPH PEAK: 30 cfs
TIME OF PEAK: 1161 minutes
HYDROGRAPH VOLUME: 8.27 acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	0.15	200	0.50	300	0.63	400	0.70
500	0.75	600	1.57	700	2.25	800	2.97	900	3.51
1000	4.89	1050	6.46	1100	8.86	1110	9.99	1120	11.87
1130	14.37	1131	14.61	1132	14.85	1133	15.09	1134	15.33
1135	15.57	1136	15.81	1137	16.04	1138	16.28	1139	16.52
1140	16.75	1141	16.99	1142	17.24	1143	17.50	1144	17.78
1145	18.09	1146	18.45	1147	18.85	1148	19.29	1149	19.84
1150	20.56	1151	21.44	1152	22.47	1153	23.63	1154	24.83
1155	25.98	1156	27.04	1157	28.07	1158	28.85	1159	29.37
1160	29.64	1161	29.65	1162	29.51	1163	29.32	1164	29.12
1165	28.90	1166	28.66	1167	28.39	1168	28.10	1169	27.79
1170	27.45	1171	27.11	1172	26.79	1173	26.46	1174	26.13
1175	25.81	1176	25.50	1177	25.19	1178	24.87	1179	24.56
1180	24.24	1181	23.93	1182	23.62	1183	23.31	1184	23.00
1185	22.69	1186	22.40	1187	22.10	1188	21.82	1189	21.54
1190	21.25	1191	20.97	1192	20.69	1193	20.42	1194	20.14
1195	19.87	1196	19.59	1197	19.32	1198	19.06	1199	18.80
1200	18.55	1201	18.30	1202	18.06	1203	17.83	1204	17.60
1205	17.37	1206	17.15	1207	16.94	1208	16.72	1209	16.52
1210	16.31	1211	16.11	1212	15.92	1213	15.73	1214	15.54
1215	15.35	1216	15.18	1217	15.00	1218	14.83	1219	14.66
1220	14.50	1221	14.34	1222	14.18	1223	14.03	1224	13.88
1225	13.73	1226	13.58	1227	13.42	1228	13.26	1229	13.09
1230	12.92	1231	12.76	1232	12.58	1233	12.41	1234	12.25
1235	12.09	1236	11.95	1237	11.83	1238	11.70	1239	11.58
1240	11.47	1241	11.35	1242	11.23	1243	11.12	1244	11.01

1245	10.90	1246	10.79	1247	10.69	1248	10.58	1249	10.48
1250	10.38	1251	10.28	1252	10.18	1253	10.09	1254	9.99
1255	9.90	1256	9.81	1257	9.72	1258	9.63	1259	9.54
1260	9.46	1261	9.37	1262	9.29	1263	9.21	1264	9.13
1265	9.05	1266	8.97	1267	8.89	1268	8.82	1269	8.74
1270	8.67	1271	8.60	1272	8.53	1273	8.46	1274	8.39
1275	8.32	1276	8.25	1277	8.19	1278	8.12	1279	8.06
1280	8.00	1281	7.94	1282	7.88	1283	7.82	1284	7.76
1285	7.70	1286	7.64	1287	7.59	1288	7.53	1289	7.48
1290	7.42	1291	7.37	1292	7.32	1293	7.27	1294	7.22
1295	7.17	1296	7.12	1297	7.07	1298	7.01	1299	6.96
1300	6.90	1310	6.35	1320	5.82	1330	5.37	1340	4.98
1350	4.66	1360	4.38	1370	4.13	1380	3.92	1390	3.74
1400	3.58	1420	3.33	1440	3.12	1460	2.79	1500	1.82

VCRat Model Input

Model Lines

```
005     1  001A Header place holder
005     1  002A Header place holder
005     1  003A Header place holder
999
999
006     1  001A 010      099A97                                 G1
006     1  002A 040046002308A97                               1
110
111 1229.99    1.00000    4.89
112 1224.00 1225.00 1226.00 1226.70 1227.00 1228.00 1229.00 1230.00
113   0.000   0.142   0.391   0.661   0.776   1.326   1.987   2.698
114    0.00    0.44    0.65    0.76    2.03   12.05   27.20   46.11
110
006     1  003A 010      099A97                               1  2
999
```

APPENDIX B.4: AREA "90"

10-YEAR STORM EVENT WITHOUT BASINS

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Modified Rational Model Results Report

Job: 1 Project: Lost Canyons Phase 1 - Area 90

Project Description

VCRat version: 2.64.0.37
VCRain version: 201801
DOS EXE version: PC 2.64-201605
VCRain Curve Set: VCWPD 2016 Revised Curve Set
Curve A: SIM2: Simi Valley
Curve B: None
Curve C: None
Curve D: None

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Job: 1 Project: Lost Canyons Phase 1 - Area 90

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	AREA (AC)	FLOW (CFS)	AREA (AC)	FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES CHNL	N VALUES SIDES	VEL (FT/S)	DEPTH (FT)
1A	---	---	--	--	---	---	0	0	----	-------	----	-------	---	----	-----	-----	--	--
2A : Begin Stream A - LC BB Line #																		
2A	040	A10	8	26	5	7	5	7	1153	-------	----	-------	---	----	-----	-----	--	--

```
  3A :  Report Results of Routing in Basin
  3A   ---   ---     --   --     ---     ---        5       7   1153    -------    ----  -------    ---     ----    -----  -----    --      --
  4A   040   A10      8   32       8      12       13      19   1153    -------    ----  -------    ---     ----    -----  -----    --      --


                                        Issue/Warning Messages
   TYPE      ERR NO   PROCEDURE    LOCATION   MESSAGE
  ------------------------------------------------------------------------------------------------------------------------------------------------
---
    NO ISSUES OR WARNINGS DETECTED
-------------------------------------------------------------------------------------------------------
          HYDROGRAPH PRINTOUT AT:    4A
-------------------------------------------------------------------------------------------------------
          TOTAL AREA TO HYDROGRAPH:      13    acres
          HYDROGRAPH PEAK:               19    cfs
          TIME OF PEAK:                1153    minutes
          HYDROGRAPH VOLUME:             1.55 acre-ft

   TIME     FLOW    TIME     FLOW    TIME     FLOW    TIME     FLOW    TIME     FLOW
   (min)    (cfs)   (min)    (cfs)   (min)    (cfs)   (min)    (cfs)   (min)    (cfs)
   ---------------------------------------------------------------------------------
     0       0.00   100       0.35   200       0.35   300       0.35   400       0.35
   500       0.35   600       0.41   700       0.59   800       0.59   900       0.75
  1000       1.03  1050       1.30  1100       1.67  1110       2.32  1120       3.20
  1130       3.31  1131       3.34  1132       3.38  1133       3.41  1134       3.44
  1135       3.48  1136       3.51  1137       3.55  1138       3.58  1139       3.65
  1140       3.65  1141       3.85  1142       4.12  1143       4.32  1144       4.60
  1145       5.34  1146       6.08  1147       6.74  1148       7.48  1149      10.07
  1150      12.49  1151      14.92  1152      17.33  1153      19.27  1154      19.27
  1155      18.83  1156      18.14  1157      15.54  1158      12.87  1159      10.19
  1160       7.28  1161       4.46  1162       3.65  1163       3.31  1164       3.31
  1165       2.96  1166       2.55  1167       2.35  1168       2.24  1169       2.07
  1170       1.96  1171       1.85  1172       1.71  1173       1.68  1174       1.71
  1175       1.71  1176       1.71  1177       1.68  1178       1.63  1179       1.57
  1180       1.52  1181       1.49  1182       1.44  1183       1.41  1184       1.35
  1185       1.35  1186       1.35  1187       1.35  1188       1.35  1189       1.33
  1190       1.30  1191       1.21  1192       1.19  1193       1.13  1194       1.10
  1195       1.08  1196       1.02  1197       1.02  1198       1.02  1199       1.02
  1200       1.02  1201       1.05  1202       1.02  1203       1.02  1204       1.05
  1205       1.02  1206       1.02  1207       1.05  1208       1.02  1209       1.02
  1210       1.05  1211       1.02  1212       1.02  1213       1.05  1214       1.02
  1215       1.02  1216       1.05  1217       1.02  1218       1.02  1219       1.05
  1220       1.02  1221       1.02  1222       1.02  1223       1.02  1224       1.02
  1225       0.97  1226       0.91  1227       0.86  1228       0.83  1229       0.75
  1230       0.72  1231       0.66  1232       0.58  1233       0.61  1234       0.61
  1235       0.58  1236       0.58  1237       0.61  1238       0.58  1239       0.58
  1240       0.61  1241       0.58  1242       0.58  1243       0.61  1244       0.61
  1245       0.58  1246       0.61  1247       0.61  1248       0.58  1249       0.61
  1250       0.61  1251       0.58  1252       0.58  1253       0.61  1254       0.58
```

1255	0.58	1256	0.61	1257	0.58	1258	0.58	1259	0.61
1260	0.61	1261	0.58	1262	0.61	1263	0.61	1264	0.58
1265	0.61	1266	0.61	1267	0.58	1268	0.58	1269	0.61
1270	0.58	1271	0.58	1272	0.61	1273	0.58	1274	0.58
1275	0.61	1276	0.58	1277	0.58	1278	0.61	1279	0.61
1280	0.58	1281	0.61	1282	0.61	1283	0.58	1284	0.61
1285	0.61	1286	0.58	1287	0.58	1288	0.61	1289	0.58
1290	0.58	1291	0.61	1292	0.58	1293	0.58	1294	0.61
1295	0.61	1296	0.58	1297	0.58	1298	0.52	1299	0.50
1300	0.47	1310	0.35	1320	0.35	1330	0.35	1340	0.35
1350	0.33	1360	0.35	1370	0.35	1380	0.33	1390	0.35
1400	0.35	1420	0.35	1440	0.34	1460	0.00	1500	0.00

VCRat Model Input

Model Lines

```
005     1  001A Header place holder
005     1  004A Header place holder
999
999
006     1  001A 010      099A97                                G1
006     1  002A 040026000508A97
006     1  003A 010      099A97
006     1  004A 040032000808A97                             1  2
999
```

10-YEAR STORM EVENT WITH BASINS

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Modified Rational Model Results Report

Job: 1 Project: Lost Canyons Phase 1 - Area 90

Project Description

VCRat version: 2.64.0.37
VCRain version: 201801
DOS EXE version: PC 2.64-201605
VCRain Curve Set: VCWPD 2016 Revised Curve Set
Curve A: SIM2: Simi Valley
Curve B: None
Curve C: None
Curve D: None

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Job: 1 Project: Lost Canyons Phase 1 - Area 90

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	AREA (AC)	FLOW (CFS)	AREA (AC)	FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES CHNL	N VALUES SIDES	VEL (FT/S)	DEPTH (FT)
1A	---	---	--	--	---	---	0	0	----	-------	----	-------	---	----	-----	-----	--	--
2A : Begin Stream A - LC BB Line #																		
2A	040	A10	8	26	5	7	5	7	1153	-------	----	-------	---	----	-----	-----	--	--

```
 2A :  Detention Basin
      ********************************************************************************************
      *      INCOMING HYDROGRAPH  PEAK (cfs):      7.15         VOLUME (acre-ft):      0.53      *
      *      NO HYDROGRAPH ADJUSTMENT                                                             *
      *      RUNOFF FACTOR(in):   3.08                                                            *
      *      FATTENED HYDROGRAPH  PEAK (cfs):      7.15         VOLUME (acre-ft):      1.28      *
      *      RESERVOIR INFLOW:    PEAK (cfs):      7.15 @ 1153  VOLUME (acre-ft):      1.28      *
      *      MAXIMUM ELEVATION:   STAGE (ft):   1225.66 @ 1171  VOLUME (acre-ft):      0.37      *
      *      EMERGENCY SPILLWAY:   ELEV (ft):   1229.99         VOLUME (acre-ft):      1.40      *
      *          DIFFERENCE:   IN STAGE (ft):     -4.33      IN VOLUME (acre-ft):      1.03      *
      *          NO SPILL EXPECTED.       PERCNT OF VOLUME REMAINING TO SPILLWAY:     73.8%      *
      *      TOP OF DAM:           ELEV (ft):   1230.00         VOLUME (acre-ft):      1.40      *
      *          DIFFERENCE    IN STAGE (ft):     -4.34      IN VOLUME (acre-ft):      1.03      *
      *          NO OVERTOP EXPECTED.   PERCNT OF VOLUME REMAINING TO TOP OF DAM:     73.8%      *
      *      RESERVOIR OUTFLOW:   PEAK (cfs):      2.75 @ 1171  VOLUME (acre-ft):      1.09      *
      ********************************************************************************************
2A    ---   ---    --   --    ---    ---        5       3   1171    -------    ----  -------    ---     ----    -----  -----    --     --
3A :  Report Results of Routing in Basin
3A    ---   ---    --   --    ---    ---        5       3   1171    -------    ----  -------    ---     ----    -----  -----    --     --
4A    040   A10     8   32      8     12       13      14   1154    -------    ----  -------    ---     ----    -----  -----    --     --


                                    Issue/Warning Messages
     TYPE      ERR NO   PROCEDURE    LOCATION   MESSAGE
    ------------------------------------------------------------------------------------------------------------------------------------------------
---
      NO ISSUES OR WARNINGS DETECTED
------------------------------------------------------------------------------------------------------------------------------------------------
---
           RESERVOIR ROUTING AT      2A
------------------------------------------------------------------------------------------------------------------------------------------------
---
           DESCRIPTION: Detention Basin
           ********************************************************************************************
           *      INCOMING HYDROGRAPH  PEAK (cfs):      7.15         VOLUME (acre-ft):      0.53      *
           *      NO HYDROGRAPH ADJUSTMENT                                                             *
           *      RUNOFF FACTOR(in):   3.08                                                            *
           *      FATTENED HYDROGRAPH  PEAK (cfs):      7.15         VOLUME (acre-ft):      1.28      *
           *      RESERVOIR INFLOW:    PEAK (cfs):      7.15 @ 1153  VOLUME (acre-ft):      1.28      *
           *      MAXIMUM ELEVATION:   STAGE (ft):   1225.66 @ 1171  VOLUME (acre-ft):      0.37      *
           *      EMERGENCY SPILLWAY:   ELEV (ft):   1229.99         VOLUME (acre-ft):      1.40      *
           *          DIFFERENCE:   IN STAGE (ft):     -4.33      IN VOLUME (acre-ft):      1.03      *
           *          NO SPILL EXPECTED.       PERCNT OF VOLUME REMAINING TO SPILLWAY:     73.8%      *
           *      TOP OF DAM:           ELEV (ft):   1230.00         VOLUME (acre-ft):      1.40      *
           *          DIFFERENCE    IN STAGE (ft):     -4.34      IN VOLUME (acre-ft):      1.03      *
           *          NO OVERTOP EXPECTED.   PERCNT OF VOLUME REMAINING TO TOP OF DAM:     73.8%      *
           *      RESERVOIR OUTFLOW:   PEAK (cfs):      2.75 @ 1171  VOLUME (acre-ft):      1.09      *
           ********************************************************************************************
```

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
0	0.00	0.00	0.00	0.00	1222.00
100	0.12	0.12	0.13	0.00	1222.06
200	0.12	0.12	0.15	0.01	1222.30
300	0.12	0.12	0.16	0.02	1222.56
400	0.12	0.12	0.17	0.03	1222.81
500	0.12	0.12	0.18	0.04	1223.07
600	0.14	0.14	0.22	0.05	1223.34
700	0.20	0.20	0.32	0.18	1223.61
800	0.20	0.20	0.38	0.28	1223.79
900	0.25	0.25	0.54	0.38	1223.95
1000	0.35	0.35	0.89	0.59	1224.12
1050	0.44	0.44	1.25	0.80	1224.28
1100	0.56	0.56	1.91	1.13	1224.51
1110	0.78	0.78	2.25	1.25	1224.60
1120	1.11	1.11	2.69	1.40	1224.71
1130	1.15	1.15	2.94	1.59	1224.84
1131	1.16	1.16	2.97	1.61	1224.85
1132	1.18	1.18	3.01	1.63	1224.87
1133	1.19	1.19	3.04	1.65	1224.88
1134	1.20	1.20	3.08	1.67	1224.89

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1135	1.22	1.22	3.11	1.69	1224.91
1136	1.23	1.23	3.15	1.71	1224.92
1137	1.24	1.24	3.18	1.73	1224.94
1138	1.25	1.25	3.22	1.76	1224.95
1139	1.28	1.28	3.27	1.78	1224.97
1140	1.28	1.28	3.29	1.80	1224.99
1141	1.36	1.36	3.37	1.82	1225.00
1142	1.46	1.46	3.47	1.84	1225.02
1143	1.54	1.54	3.55	1.87	1225.03
1144	1.64	1.64	3.64	1.89	1225.05
1145	1.92	1.92	3.85	1.92	1225.07
1146	2.20	2.20	4.05	1.95	1225.09
1147	2.45	2.45	4.24	1.98	1225.12
1148	2.72	2.72	4.43	2.02	1225.14
1149	3.70	3.70	5.05	2.06	1225.17

1150	4.61	4.61	5.62	2.10	1225.20
1151	5.52	5.52	6.18	2.16	1225.24
1152	6.42	6.42	6.72	2.22	1225.29
1153	7.15	7.15	7.15	2.29	1225.33
1154	7.15	7.15	7.15	2.36	1225.38
1155	6.98	6.98	7.05	2.43	1225.43
1156	6.72	6.72	6.89	2.50	1225.48
1157	5.75	5.75	6.30	2.56	1225.52
1158	4.75	4.75	5.68	2.61	1225.56
1159	3.75	3.75	5.05	2.65	1225.59
1160	2.65	2.65	4.34	2.68	1225.61
1161	1.59	1.59	3.65	2.70	1225.62
1162	1.28	1.28	3.43	2.71	1225.63
1163	1.15	1.15	3.32	2.72	1225.64
1164	1.15	1.15	3.29	2.73	1225.64
1165	1.02	1.02	3.17	2.74	1225.65
1166	0.87	0.87	3.04	2.74	1225.65
1167	0.79	0.79	2.96	2.74	1225.66
1168	0.75	0.75	2.91	2.75	1225.66
1169	0.70	0.70	2.84	2.75	1225.66
1170	0.66	0.66	2.79	2.75	1225.66
1171	0.62	0.62	2.74	2.75	1225.66
1172	0.58	0.58	2.68	2.75	1225.66
1173	0.57	0.57	2.64	2.75	1225.66
1174	0.58	0.58	2.62	2.75	1225.66
1175	0.58	0.58	2.60	2.74	1225.66
1176	0.58	0.58	2.57	2.74	1225.65
1177	0.57	0.57	2.54	2.74	1225.65
1178	0.55	0.55	2.50	2.74	1225.65
1179	0.53	0.53	2.46	2.73	1225.65
1180	0.51	0.51	2.42	2.73	1225.64
1181	0.50	0.50	2.39	2.72	1225.64
1182	0.48	0.48	2.36	2.72	1225.64
1183	0.47	0.47	2.33	2.71	1225.63
1184	0.46	0.46	2.29	2.71	1225.63
1185	0.46	0.46	2.27	2.70	1225.62
1186	0.46	0.46	2.25	2.69	1225.62
1187	0.46	0.46	2.23	2.69	1225.62
1188	0.46	0.46	2.20	2.68	1225.61
1189	0.45	0.45	2.18	2.67	1225.61
1190	0.44	0.44	2.15	2.67	1225.60
1191	0.41	0.41	2.11	2.66	1225.59
1192	0.40	0.40	2.08	2.65	1225.59
1193	0.38	0.38	2.05	2.64	1225.58
1194	0.37	0.37	2.02	2.63	1225.58
1195	0.36	0.36	1.99	2.62	1225.57
1196	0.34	0.34	1.96	2.61	1225.56
1197	0.34	0.34	1.94	2.60	1225.56
1198	0.34	0.34	1.92	2.59	1225.55

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1199	0.34	0.34	1.91	2.58	1225.54
1200	0.34	0.34	1.89	2.57	1225.54
1201	0.35	0.35	1.88	2.56	1225.53
1202	0.34	0.34	1.86	2.55	1225.52
1203	0.34	0.34	1.84	2.54	1225.51
1204	0.35	0.35	1.83	2.53	1225.51
1205	0.34	0.34	1.81	2.52	1225.50

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1206	0.34	0.34	1.79	2.51	1225.49
1207	0.35	0.35	1.78	2.50	1225.48
1208	0.34	0.34	1.76	2.49	1225.48
1209	0.34	0.34	1.74	2.48	1225.47
1210	0.35	0.35	1.74	2.47	1225.46
1211	0.34	0.34	1.71	2.46	1225.45
1212	0.34	0.34	1.70	2.45	1225.45
1213	0.35	0.35	1.69	2.44	1225.44
1214	0.34	0.34	1.67	2.43	1225.43
1215	0.34	0.34	1.66	2.41	1225.42
1216	0.35	0.35	1.65	2.40	1225.41
1217	0.34	0.34	1.63	2.39	1225.41
1218	0.34	0.34	1.62	2.38	1225.40
1219	0.35	0.35	1.61	2.37	1225.39
1220	0.34	0.34	1.59	2.36	1225.38
1221	0.34	0.34	1.58	2.35	1225.37
1222	0.34	0.34	1.57	2.34	1225.37
1223	0.34	0.34	1.56	2.33	1225.36
1224	0.34	0.34	1.54	2.31	1225.35
1225	0.33	0.33	1.52	2.30	1225.34
1226	0.31	0.31	1.49	2.29	1225.33
1227	0.29	0.29	1.46	2.28	1225.33
1228	0.28	0.28	1.44	2.27	1225.32
1229	0.25	0.25	1.41	2.25	1225.31
1230	0.24	0.24	1.39	2.24	1225.30
1231	0.22	0.22	1.36	2.23	1225.29
1232	0.20	0.20	1.33	2.22	1225.28
1233	0.20	0.20	1.33	2.20	1225.27
1234	0.20	0.20	1.32	2.19	1225.26
1235	0.20	0.20	1.30	2.18	1225.25
1236	0.20	0.20	1.29	2.16	1225.24

1237	0.20	0.20	1.28	2.15	1225.24
1238	0.20	0.20	1.27	2.14	1225.23
1239	0.20	0.20	1.26	2.13	1225.22
1240	0.20	0.20	1.26	2.11	1225.21
1241	0.20	0.20	1.24	2.10	1225.20
1242	0.20	0.20	1.23	2.09	1225.19
1243	0.20	0.20	1.23	2.08	1225.18
1244	0.20	0.20	1.22	2.06	1225.17
1245	0.20	0.20	1.20	2.05	1225.16
1246	0.20	0.20	1.20	2.04	1225.15
1247	0.20	0.20	1.19	2.03	1225.15
1248	0.20	0.20	1.17	2.01	1225.14
1249	0.20	0.20	1.17	2.00	1225.13
1250	0.20	0.20	1.17	1.99	1225.12
1251	0.20	0.20	1.15	1.98	1225.11
1252	0.20	0.20	1.14	1.96	1225.10
1253	0.20	0.20	1.14	1.95	1225.09
1254	0.20	0.20	1.13	1.94	1225.09
1255	0.20	0.20	1.12	1.93	1225.08
1256	0.20	0.20	1.12	1.92	1225.07
1257	0.20	0.20	1.10	1.91	1225.06
1258	0.20	0.20	1.09	1.89	1225.05
1259	0.20	0.20	1.09	1.88	1225.04
1260	0.20	0.20	1.09	1.87	1225.04
1261	0.20	0.20	1.07	1.86	1225.03
1262	0.20	0.20	1.07	1.85	1225.02
1263	0.20	0.20	1.07	1.84	1225.01
1264	0.20	0.20	1.05	1.82	1225.00
1265	0.20	0.20	1.05	1.81	1225.00
1266	0.20	0.20	1.05	1.80	1224.99
1267	0.20	0.20	1.03	1.79	1224.98
1268	0.20	0.20	1.02	1.78	1224.97
1269	0.20	0.20	1.03	1.77	1224.96
1270	0.20	0.20	1.01	1.76	1224.96
1271	0.20	0.20	1.00	1.75	1224.95
1272	0.20	0.20	1.01	1.74	1224.94
1273	0.20	0.20	0.99	1.73	1224.93
1274	0.20	0.20	0.99	1.71	1224.93
1275	0.20	0.20	0.99	1.70	1224.92
1276	0.20	0.20	0.97	1.69	1224.91

Hydrograph Printouts

TIME	PRE-ADJ	PRE-FAT	INFLOW	OUTFLOW	ELEVATION

(min)	(cfs)	(cfs)	(cfs)	(cfs)	(feet)
1277	0.20	0.20	0.97	1.68	1224.90
1278	0.20	0.20	0.97	1.67	1224.90
1279	0.20	0.20	0.96	1.66	1224.89
1280	0.20	0.20	0.95	1.65	1224.88
1281	0.20	0.20	0.95	1.64	1224.87
1282	0.20	0.20	0.95	1.63	1224.87
1283	0.20	0.20	0.93	1.62	1224.86
1284	0.20	0.20	0.94	1.61	1224.85
1285	0.20	0.20	0.93	1.60	1224.84
1286	0.20	0.20	0.92	1.59	1224.84
1287	0.20	0.20	0.91	1.58	1224.83
1288	0.20	0.20	0.91	1.57	1224.82
1289	0.20	0.20	0.90	1.56	1224.82
1290	0.20	0.20	0.90	1.55	1224.81
1291	0.20	0.20	0.90	1.54	1224.80
1292	0.20	0.20	0.89	1.53	1224.80
1293	0.20	0.20	0.88	1.52	1224.79
1294	0.20	0.20	0.88	1.51	1224.78
1295	0.20	0.20	0.88	1.51	1224.78
1296	0.20	0.20	0.87	1.50	1224.77
1297	0.20	0.20	0.86	1.49	1224.76
1298	0.18	0.18	0.84	1.48	1224.76
1299	0.17	0.17	0.83	1.47	1224.75
1300	0.16	0.16	0.81	1.46	1224.74
1310	0.12	0.12	0.73	1.37	1224.68
1320	0.12	0.12	0.70	1.28	1224.62
1330	0.12	0.12	0.66	1.20	1224.56
1340	0.12	0.12	0.63	1.12	1224.51
1350	0.11	0.11	0.59	1.05	1224.46
1360	0.12	0.12	0.57	0.99	1224.41
1370	0.12	0.12	0.55	0.93	1224.37
1380	0.11	0.11	0.52	0.88	1224.33
1390	0.12	0.12	0.51	0.83	1224.30
1400	0.12	0.12	0.49	0.78	1224.26
1420	0.12	0.12	0.45	0.71	1224.21
1440	0.12	0.12	0.42	0.64	1224.16
1460	0.00	0.00	0.28	0.57	1224.12
1500	0.00	0.00	0.24	0.44	1224.02

Stage - Storage - Discharge Curve for Reservoir at 2A

STAGE (ft)	STORAGE (ac-ft)	DISCHARGE (cfs)
1,222.00	0.000	0.00
1,223.40	0.104	0.05
1,224.00	0.148	0.41
1,226.00	0.412	3.23
1,228.00	0.823	7.50

1,230.00 1.402 12.83

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Job: 1 Project: Lost Canyons Phase 1 - Area 90

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 4A

TOTAL AREA TO HYDROGRAPH: 13 acres
HYDROGRAPH PEAK: 14 cfs
TIME OF PEAK: 1154 minutes
HYDROGRAPH VOLUME: 2.10 acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	0.23	200	0.24	300	0.25	400	0.26
500	0.27	600	0.32	700	0.57	800	0.68	900	0.88
1000	1.27	1050	1.66	1100	2.24	1110	2.79	1120	3.49
1130	3.75	1131	3.79	1132	3.83	1133	3.87	1134	3.91
1135	3.95	1136	4.00	1137	4.04	1138	4.08	1139	4.14
1140	4.17	1141	4.32	1142	4.51	1143	4.66	1144	4.85
1145	5.34	1146	5.83	1147	6.28	1148	6.77	1149	8.43
1150	9.99	1151	11.56	1152	13.13	1153	14.41	1154	14.48
1155	14.28	1156	13.91	1157	12.34	1158	10.73	1159	9.09
1160	7.31	1161	5.57	1162	5.08	1163	4.88	1164	4.88
1165	4.68	1166	4.43	1167	4.30	1168	4.23	1169	4.12
1170	4.05	1171	3.98	1172	3.88	1173	3.86	1174	3.88
1175	3.88	1176	3.88	1177	3.86	1178	3.82	1179	3.78
1180	3.74	1181	3.71	1182	3.67	1183	3.65	1184	3.60
1185	3.60	1186	3.59	1187	3.58	1188	3.58	1189	3.55
1190	3.53	1191	3.46	1192	3.44	1193	3.39	1194	3.36
1195	3.34	1196	3.29	1197	3.28	1198	3.27	1199	3.26
1200	3.25	1201	3.26	1202	3.23	1203	3.22	1204	3.23
1205	3.20	1206	3.19	1207	3.20	1208	3.17	1209	3.16
1210	3.17	1211	3.14	1212	3.13	1213	3.13	1214	3.10
1215	3.09	1216	3.10	1217	3.07	1218	3.06	1219	3.07
1220	3.04	1221	3.02	1222	3.01	1223	3.00	1224	2.99
1225	2.94	1226	2.89	1227	2.85	1228	2.82	1229	2.75
1230	2.72	1231	2.67	1232	2.60	1233	2.61	1234	2.59
1235	2.56	1236	2.55	1237	2.55	1238	2.52	1239	2.51
1240	2.52	1241	2.49	1242	2.47	1243	2.48	1244	2.47
1245	2.44	1246	2.44	1247	2.43	1248	2.40	1249	2.40
1250	2.39	1251	2.36	1252	2.35	1253	2.36	1254	2.33

1255	2.31	1256	2.32	1257	2.29	1258	2.28	1259	2.28
1260	2.27	1261	2.24	1262	2.25	1263	2.24	1264	2.21
1265	2.22	1266	2.20	1267	2.18	1268	2.16	1269	2.17
1270	2.14	1271	2.13	1272	2.14	1273	2.11	1274	2.10
1275	2.11	1276	2.08	1277	2.07	1278	2.07	1279	2.06
1280	2.04	1281	2.04	1282	2.03	1283	2.01	1284	2.01
1285	2.00	1286	1.98	1287	1.97	1288	1.97	1289	1.95
1290	1.94	1291	1.95	1292	1.92	1293	1.91	1294	1.92
1295	1.91	1296	1.88	1297	1.87	1298	1.83	1299	1.80
1300	1.77	1310	1.60	1320	1.51	1330	1.43	1340	1.36
1350	1.27	1360	1.22	1370	1.17	1380	1.10	1390	1.06
1400	1.02	1420	0.94	1440	0.87	1460	0.57	1500	0.44

VCRat Model Input

Model Lines

```
005     1  001A Header place holder
005     1  002A Header place holder
005     1  004A Header place holder
999
999
006     1  001A 010      099A97                                G1
006     1  002A 040026000508A97                              1
110
111 1229.99    1.00000    3.08
112 1222.00 1223.40 1224.00 1226.00 1228.00 1230.00
113   0.000   0.104   0.148   0.412   0.823   1.402
114    0.00    0.05    0.41    3.23    7.50   12.83
110
006     1  003A 010      099A97
006     1  004A 040032000808A97                              1  2
999
```

100-YEAR STORM EVENT WITHOUT BASINS

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Modified Rational Model Results Report

Job: 1 Project: Lost Canyons Phase 1 - Area 90

Project Description

VCRat version: 2.64.0.37
VCRain version: 201801
DOS EXE version: PC 2.64-201605
VCRain Curve Set: VCWPD 2016 Revised Curve Set
Curve A: SIM2: Simi Valley
Curve B: None
Curve C: None
Curve D: None

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Job: 1 Project: Lost Canyons Phase 1 - Area 90

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	AREA (AC)	FLOW (CFS)	AREA (AC)	FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES CHNL	N VALUES SIDES	VEL (FT/S)	DEPTH (FT)
1A	---	---	--	--	---	---	0	0	----	-------	----	-------	---	----	-----	-----	--	--
2A : Begin Stream A - LC BB Line #																		
2A	040	A100	5	26	5	15	5	15	1153	-------	----	-------	---	----	-----	-----	--	--

```
  3A :  Report Results of Routing in Basin
  3A   ---   ---    --   --    ---    ---        5      15   1153    -------    ----  -------    ---     ----    -----  -----    --     --
  4A   040   A100    5   32      8     25       13      40   1153    -------    ----  -------    ---     ----    -----  -----    --     --


                                      Issue/Warning Messages
   TYPE      ERR NO   PROCEDURE    LOCATION   MESSAGE
  ------------------------------------------------------------------------------------------------------------------------------------------
---
   Caution    Err1008  SUBAREA         2A   TC and Area are set to minimum values(5).  May be an attempt
                                           to run the model on a smaller area than acceptable to VCRat.
-------------------------------------------------------------------------------------------------------
          HYDROGRAPH PRINTOUT AT:    4A
-------------------------------------------------------------------------------------------------------
          TOTAL AREA TO HYDROGRAPH:      13    acres
          HYDROGRAPH PEAK:               40    cfs
          TIME OF PEAK:                1153    minutes
          HYDROGRAPH VOLUME:             2.52 acre-ft

   TIME     FLOW    TIME     FLOW    TIME     FLOW    TIME     FLOW    TIME     FLOW
   (min)    (cfs)   (min)    (cfs)   (min)    (cfs)   (min)    (cfs)   (min)    (cfs)
   ---------------------------------------------------------------------------------
      0       0.00   100       0.55   200       0.55   300       0.55   400       0.55
    500       0.55   600       0.64   700       0.91   800       0.91   900       1.14
   1000       1.56  1050       1.96  1100       2.69  1110       5.15  1120       6.70
   1130       6.81  1131       6.92  1132       7.02  1133       7.13  1134       7.24
   1135       7.34  1136       7.34  1137       7.34  1138       7.34  1139       7.34
   1140       7.34  1141       7.88  1142       8.41  1143       9.05  1144       9.58
   1145      11.30  1146      12.39  1147      13.59  1148      14.68  1149      20.57
   1150      25.43  1151      30.26  1152      35.14  1153      39.94  1154      35.14
   1155      29.16  1156      22.69  1157      16.07  1158       9.58  1159       7.77
   1160       7.02  1161       6.92  1162       6.92  1163       6.70  1164       6.70
   1165       5.96  1166       5.21  1167       4.34  1168       3.69  1169       2.92
   1170       2.81  1171       2.81  1172       2.92  1173       2.81  1174       2.81
   1175       2.92  1176       2.81  1177       2.48  1178       2.39  1179       2.25
   1180       2.12  1181       2.03  1182       2.08  1183       2.03  1184       2.03
   1185       2.03  1186       2.08  1187       2.03  1188       2.03  1189       1.94
   1190       1.86  1191       1.72  1192       1.63  1193       1.55  1194       1.55
   1195       1.55  1196       1.55  1197       1.55  1198       1.55  1199       1.59
   1200       1.59  1201       1.59  1202       1.59  1203       1.59  1204       1.55
   1205       1.55  1206       1.55  1207       1.55  1208       1.55  1209       1.55
   1210       1.55  1211       1.55  1212       1.55  1213       1.55  1214       1.55
   1215       1.55  1216       1.55  1217       1.55  1218       1.55  1219       1.59
   1220       1.59  1221       1.59  1222       1.59  1223       1.59  1224       1.55
   1225       1.41  1226       1.28  1227       1.15  1228       1.02  1229       0.88
   1230       0.88  1231       0.93  1232       0.93  1233       0.93  1234       0.93
   1235       0.93  1236       0.88  1237       0.88  1238       0.88  1239       0.93
   1240       0.93  1241       0.93  1242       0.93  1243       0.93  1244       0.88
   1245       0.88  1246       0.88  1247       0.88  1248       0.93  1249       0.93
```

1250	0.93	1251	0.93	1252	0.93	1253	0.88	1254	0.88
1255	0.88	1256	0.88	1257	0.93	1258	0.93	1259	0.93
1260	0.93	1261	0.93	1262	0.88	1263	0.88	1264	0.88
1265	0.88	1266	0.93	1267	0.93	1268	0.93	1269	0.93
1270	0.93	1271	0.88	1272	0.88	1273	0.88	1274	0.88
1275	0.93	1276	0.93	1277	0.93	1278	0.93	1279	0.93
1280	0.88	1281	0.88	1282	0.88	1283	0.93	1284	0.93
1285	0.93	1286	0.93	1287	0.93	1288	0.88	1289	0.88
1290	0.88	1291	0.88	1292	0.93	1293	0.93	1294	0.93
1295	0.93	1296	0.93	1297	0.80	1298	0.75	1299	0.66
1300	0.62	1310	0.55	1320	0.55	1330	0.55	1340	0.55
1350	0.55	1360	0.55	1370	0.53	1380	0.55	1390	0.55
1400	0.55	1420	0.55	1440	0.55	1460	0.00	1500	0.00

VCRat Model Input

Model Lines

```
005     1  001A Header place holder
005     1  004A Header place holder
999
999
006     1  001A 010      099A97                                G1
006     1  002A 040026000505A97
006     1  003A 010      099A97
006     1  004A 040032000805A97                              1  2
999
```

100-YEAR STORM EVENT WITH BASINS

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Modified Rational Model Results Report

Job: 1 Project: Lost Canyons Phase 1 - Area 90

Project Description

VCRat version: 2.64.0.37
VCRain version: 201801
DOS EXE version: PC 2.64-201605
VCRain Curve Set: VCWPD 2016 Revised Curve Set
Curve A: SIM2: Simi Valley
Curve B: None
Curve C: None
Curve D: None

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.64)

Job: 1 Project: Lost Canyons Phase 1 - Area 90

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	AREA (AC)	FLOW (CFS)	AREA (AC)	FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES CHNL	N VALUES SIDES	VEL (FT/S)	DEPTH (FT)
1A	---	---	--	--	---	---	0	0	----	-------	----	-------	---	----	-----	-----	--	--
2A : Begin Stream A - LC BB Line #																		
2A	040	A100	5	26	5	15	5	15	1153	-------	----	-------	---	----	-----	-----	--	--

2A : Detention Basin

```
**********************************************************************************************
*      INCOMING HYDROGRAPH  PEAK (cfs):     14.90         VOLUME (acre-ft):      0.88      *
*      NO HYDROGRAPH ADJUSTMENT                                                             *
*      RUNOFF FACTOR(in):   3.08                                                            *
*      FATTENED HYDROGRAPH  PEAK (cfs):     14.90         VOLUME (acre-ft):      1.28      *
*      RESERVOIR INFLOW:    PEAK (cfs):     14.90 @ 1153  VOLUME (acre-ft):      1.28      *
*      MAXIMUM ELEVATION:   STAGE (ft):   1226.09 @ 1165  VOLUME (acre-ft):      0.43      *
*      EMERGENCY SPILLWAY:   ELEV (ft):   1229.99         VOLUME (acre-ft):      1.40      *
*          DIFFERENCE:   IN STAGE (ft):     -3.90      IN VOLUME (acre-ft):      0.97      *
*          NO SPILL EXPECTED.       PERCNT OF VOLUME REMAINING TO SPILLWAY:     69.2%      *
*      TOP OF DAM:           ELEV (ft):   1230.00         VOLUME (acre-ft):      1.40      *
*          DIFFERENCE    IN STAGE (ft):     -3.91      IN VOLUME (acre-ft):      0.97      *
*          NO OVERTOP EXPECTED.   PERCNT OF VOLUME REMAINING TO TOP OF DAM:     69.3%      *
*      RESERVOIR OUTFLOW:   PEAK (cfs):      3.42 @ 1165  VOLUME (acre-ft):      1.10      *
**********************************************************************************************
```

2A	---	---	--	--	---	---	5	3	1165	-------	----	-------	---	----	-----	-----	--	--
3A : Report Results of Routing in Basin																		
3A	---	---	--	--	---	---	5	3	1165	-------	----	-------	---	----	-----	-----	--	--
4A	040	A100	5	32	8	25	13	28	1153	-------	----	-------	---	----	-----	-----	--	--

Issue/Warning Messages

TYPE	ERR NO	PROCEDURE	LOCATION	MESSAGE
Caution	Err1008	SUBAREA	2A	TC and Area are set to minimum values(5). May be an attempt to run the model on a smaller area than acceptable to VCRat.

RESERVOIR ROUTING AT 2A

DESCRIPTION: Detention Basin

```
**********************************************************************************************
*      INCOMING HYDROGRAPH  PEAK (cfs):     14.90         VOLUME (acre-ft):      0.88      *
*      NO HYDROGRAPH ADJUSTMENT                                                             *
*      RUNOFF FACTOR(in):   3.08                                                            *
*      FATTENED HYDROGRAPH  PEAK (cfs):     14.90         VOLUME (acre-ft):      1.28      *
*      RESERVOIR INFLOW:    PEAK (cfs):     14.90 @ 1153  VOLUME (acre-ft):      1.28      *
*      MAXIMUM ELEVATION:   STAGE (ft):   1226.09 @ 1165  VOLUME (acre-ft):      0.43      *
*      EMERGENCY SPILLWAY:   ELEV (ft):   1229.99         VOLUME (acre-ft):      1.40      *
*          DIFFERENCE:   IN STAGE (ft):     -3.90      IN VOLUME (acre-ft):      0.97      *
*          NO SPILL EXPECTED.       PERCNT OF VOLUME REMAINING TO SPILLWAY:     69.2%      *
*      TOP OF DAM:           ELEV (ft):   1230.00         VOLUME (acre-ft):      1.40      *
*          DIFFERENCE    IN STAGE (ft):     -3.91      IN VOLUME (acre-ft):      0.97      *
*          NO OVERTOP EXPECTED.   PERCNT OF VOLUME REMAINING TO TOP OF DAM:     69.3%      *
*      RESERVOIR OUTFLOW:   PEAK (cfs):      3.42 @ 1165  VOLUME (acre-ft):      1.10      *
**********************************************************************************************
```

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
0	0.00	0.00	0.00	0.00	1222.00
100	0.19	0.19	0.19	0.00	1222.09
200	0.19	0.19	0.20	0.02	1222.43
300	0.19	0.19	0.21	0.03	1222.77
400	0.19	0.19	0.21	0.04	1223.09
500	0.19	0.19	0.22	0.05	1223.41
600	0.21	0.21	0.26	0.17	1223.61
700	0.31	0.31	0.37	0.25	1223.74
800	0.31	0.31	0.40	0.34	1223.88
900	0.38	0.38	0.53	0.40	1223.99
1000	0.52	0.52	0.81	0.57	1224.11
1050	0.66	0.66	1.09	0.74	1224.23
1100	0.92	0.92	1.66	1.01	1224.42
1110	1.85	1.85	2.64	1.13	1224.51
1120	2.43	2.43	3.30	1.36	1224.68
1130	2.47	2.47	3.48	1.64	1224.87
1131	2.51	2.51	3.53	1.66	1224.89
1132	2.55	2.55	3.58	1.69	1224.91
1133	2.59	2.59	3.64	1.72	1224.93

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1134	2.63	2.63	3.69	1.75	1224.95
1135	2.67	2.67	3.74	1.78	1224.97
1136	2.67	2.67	3.76	1.80	1224.99
1137	2.67	2.67	3.78	1.83	1225.01
1138	2.67	2.67	3.80	1.86	1225.03
1139	2.67	2.67	3.82	1.89	1225.05
1140	2.67	2.67	3.83	1.92	1225.07
1141	2.87	2.87	4.04	1.95	1225.09
1142	3.07	3.07	4.24	1.98	1225.11
1143	3.32	3.32	4.47	2.01	1225.14
1144	3.52	3.52	4.67	2.05	1225.16
1145	4.16	4.16	5.27	2.09	1225.19
1146	4.57	4.57	5.66	2.14	1225.23
1147	5.02	5.02	6.08	2.20	1225.27
1148	5.43	5.43	6.46	2.26	1225.31

1149	7.64	7.64	8.44	2.33	1225.36
1150	9.46	9.46	10.08	2.43	1225.44
1151	11.27	11.27	11.69	2.56	1225.52
1152	13.10	13.10	13.31	2.70	1225.63
1153	14.90	14.90	14.90	2.87	1225.74
1154	13.10	13.10	13.31	3.03	1225.86
1155	10.86	10.86	11.33	3.17	1225.96
1156	8.43	8.43	9.17	3.27	1226.02
1157	5.95	5.95	6.95	3.34	1226.05
1158	3.52	3.52	4.76	3.38	1226.07
1159	2.83	2.83	4.13	3.39	1226.08
1160	2.55	2.55	3.86	3.40	1226.08
1161	2.51	2.51	3.80	3.41	1226.08
1162	2.51	2.51	3.78	3.41	1226.08
1163	2.43	2.43	3.69	3.42	1226.09
1164	2.43	2.43	3.67	3.42	1226.09
1165	2.15	2.15	3.40	3.42	1226.09
1166	1.87	1.87	3.12	3.42	1226.09
1167	1.54	1.54	2.80	3.41	1226.09
1168	1.30	1.30	2.56	3.40	1226.08
1169	1.01	1.01	2.28	3.39	1226.07
1170	0.97	0.97	2.22	3.37	1226.07
1171	0.97	0.97	2.20	3.36	1226.06
1172	1.01	1.01	2.22	3.34	1226.05
1173	0.97	0.97	2.16	3.32	1226.04
1174	0.97	0.97	2.15	3.31	1226.04
1175	1.01	1.01	2.17	3.29	1226.03
1176	0.97	0.97	2.11	3.27	1226.02
1177	0.84	0.84	1.98	3.26	1226.01
1178	0.80	0.80	1.93	3.24	1226.00
1179	0.76	0.76	1.87	3.22	1225.99
1180	0.71	0.71	1.82	3.20	1225.98
1181	0.68	0.68	1.77	3.18	1225.96
1182	0.70	0.70	1.77	3.16	1225.95
1183	0.68	0.68	1.74	3.14	1225.93
1184	0.68	0.68	1.73	3.12	1225.92
1185	0.68	0.68	1.71	3.10	1225.91
1186	0.70	0.70	1.71	3.08	1225.89
1187	0.68	0.68	1.69	3.06	1225.88
1188	0.68	0.68	1.67	3.04	1225.86
1189	0.66	0.66	1.63	3.02	1225.85
1190	0.63	0.63	1.59	2.99	1225.83
1191	0.58	0.58	1.54	2.97	1225.82
1192	0.55	0.55	1.50	2.95	1225.80
1193	0.52	0.52	1.46	2.93	1225.79
1194	0.52	0.52	1.44	2.91	1225.77
1195	0.52	0.52	1.43	2.89	1225.76
1196	0.52	0.52	1.42	2.87	1225.74
1197	0.52	0.52	1.41	2.85	1225.73

1198	0.52	0.52	1.40	2.82	1225.71
1199	0.54	0.54	1.40	2.80	1225.70
1200	0.54	0.54	1.39	2.78	1225.68
1201	0.54	0.54	1.38	2.76	1225.67
1202	0.54	0.54	1.37	2.74	1225.65
1203	0.54	0.54	1.36	2.72	1225.64
1204	0.52	0.52	1.34	2.70	1225.63

Hydrograph Printouts

TIME (min)	PRE-ADJ (cfs)	PRE-FAT (cfs)	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION (feet)
1205	0.52	0.52	1.33	2.68	1225.61
1206	0.52	0.52	1.32	2.66	1225.60
1207	0.52	0.52	1.31	2.64	1225.58
1208	0.52	0.52	1.30	2.62	1225.57
1209	0.52	0.52	1.29	2.60	1225.56
1210	0.52	0.52	1.28	2.58	1225.54
1211	0.52	0.52	1.27	2.57	1225.53
1212	0.52	0.52	1.26	2.55	1225.52
1213	0.52	0.52	1.25	2.53	1225.50
1214	0.52	0.52	1.25	2.51	1225.49
1215	0.52	0.52	1.24	2.49	1225.48
1216	0.52	0.52	1.23	2.47	1225.46
1217	0.52	0.52	1.22	2.45	1225.45
1218	0.52	0.52	1.21	2.44	1225.44
1219	0.54	0.54	1.22	2.42	1225.42
1220	0.54	0.54	1.21	2.40	1225.41
1221	0.54	0.54	1.21	2.38	1225.40
1222	0.54	0.54	1.20	2.37	1225.39
1223	0.54	0.54	1.19	2.35	1225.37
1224	0.52	0.52	1.17	2.33	1225.36
1225	0.48	0.48	1.12	2.31	1225.35
1226	0.43	0.43	1.07	2.30	1225.34
1227	0.39	0.39	1.02	2.28	1225.32
1228	0.34	0.34	0.97	2.26	1225.31
1229	0.30	0.30	0.92	2.24	1225.30
1230	0.30	0.30	0.92	2.22	1225.28
1231	0.31	0.31	0.92	2.20	1225.27
1232	0.31	0.31	0.92	2.18	1225.26
1233	0.31	0.31	0.91	2.16	1225.24
1234	0.31	0.31	0.91	2.15	1225.23
1235	0.31	0.31	0.90	2.13	1225.22

1236	0.30	0.30	0.88	2.11	1225.21
1237	0.30	0.30	0.87	2.09	1225.19
1238	0.30	0.30	0.87	2.07	1225.18
1239	0.31	0.31	0.88	2.06	1225.17
1240	0.31	0.31	0.87	2.04	1225.16
1241	0.31	0.31	0.87	2.02	1225.14
1242	0.31	0.31	0.86	2.01	1225.13
1243	0.31	0.31	0.86	1.99	1225.12
1244	0.30	0.30	0.84	1.97	1225.11
1245	0.30	0.30	0.83	1.96	1225.10
1246	0.30	0.30	0.83	1.94	1225.08
1247	0.30	0.30	0.82	1.92	1225.07
1248	0.31	0.31	0.83	1.91	1225.06
1249	0.31	0.31	0.83	1.89	1225.05
1250	0.31	0.31	0.82	1.88	1225.04
1251	0.31	0.31	0.82	1.86	1225.03
1252	0.31	0.31	0.81	1.84	1225.02
1253	0.30	0.30	0.79	1.83	1225.01
1254	0.30	0.30	0.79	1.81	1225.00
1255	0.30	0.30	0.78	1.80	1224.99
1256	0.30	0.30	0.78	1.78	1224.97
1257	0.31	0.31	0.79	1.77	1224.96
1258	0.31	0.31	0.79	1.76	1224.95
1259	0.31	0.31	0.78	1.74	1224.94
1260	0.31	0.31	0.78	1.73	1224.93
1261	0.31	0.31	0.77	1.71	1224.92
1262	0.30	0.30	0.76	1.70	1224.91
1263	0.30	0.30	0.75	1.69	1224.90
1264	0.30	0.30	0.75	1.67	1224.90
1265	0.30	0.30	0.74	1.66	1224.89
1266	0.31	0.31	0.75	1.65	1224.88
1267	0.31	0.31	0.75	1.63	1224.87
1268	0.31	0.31	0.75	1.62	1224.86
1269	0.31	0.31	0.74	1.61	1224.85
1270	0.31	0.31	0.74	1.59	1224.84
1271	0.30	0.30	0.72	1.58	1224.83
1272	0.30	0.30	0.72	1.57	1224.82
1273	0.30	0.30	0.72	1.56	1224.81
1274	0.30	0.30	0.71	1.54	1224.80
1275	0.31	0.31	0.72	1.53	1224.80

Hydrograph Printouts

TIME	PRE-ADJ	PRE-FAT	INFLOW	OUTFLOW	ELEVATION

(min)	(cfs)	(cfs)	(cfs)	(cfs)	(feet)
1276	0.31	0.31	0.72	1.52	1224.79
1277	0.31	0.31	0.72	1.51	1224.78
1278	0.31	0.31	0.71	1.50	1224.77
1279	0.31	0.31	0.71	1.49	1224.76
1280	0.30	0.30	0.69	1.47	1224.75
1281	0.30	0.30	0.69	1.46	1224.75
1282	0.30	0.30	0.69	1.45	1224.74
1283	0.31	0.31	0.70	1.44	1224.73
1284	0.31	0.31	0.69	1.43	1224.72
1285	0.31	0.31	0.69	1.42	1224.72
1286	0.31	0.31	0.69	1.41	1224.71
1287	0.31	0.31	0.69	1.40	1224.70
1288	0.30	0.30	0.67	1.39	1224.69
1289	0.30	0.30	0.67	1.38	1224.69
1290	0.30	0.30	0.66	1.37	1224.68
1291	0.30	0.30	0.66	1.36	1224.67
1292	0.31	0.31	0.67	1.35	1224.66
1293	0.31	0.31	0.67	1.34	1224.66
1294	0.31	0.31	0.67	1.33	1224.65
1295	0.31	0.31	0.66	1.32	1224.64
1296	0.31	0.31	0.66	1.31	1224.64
1297	0.27	0.27	0.62	1.30	1224.63
1298	0.25	0.25	0.60	1.29	1224.62
1299	0.22	0.22	0.57	1.28	1224.61
1300	0.21	0.21	0.55	1.27	1224.61
1310	0.19	0.19	0.50	1.17	1224.54
1320	0.19	0.19	0.48	1.08	1224.47
1330	0.19	0.19	0.46	0.99	1224.41
1340	0.19	0.19	0.45	0.92	1224.36
1350	0.19	0.19	0.43	0.86	1224.32
1360	0.19	0.19	0.42	0.80	1224.27
1370	0.18	0.18	0.40	0.74	1224.24
1380	0.19	0.19	0.39	0.70	1224.20
1390	0.19	0.19	0.38	0.65	1224.17
1400	0.19	0.19	0.37	0.62	1224.15
1420	0.19	0.19	0.36	0.55	1224.10
1440	0.19	0.19	0.34	0.50	1224.07
1460	0.00	0.00	0.14	0.45	1224.03
1500	0.00	0.00	0.12	0.33	1223.87

Stage - Storage - Discharge Curve for Reservoir at 2A

STAGE (ft)	STORAGE (ac-ft)	DISCHARGE (cfs)
1,222.00	0.000	0.00
1,223.40	0.104	0.05
1,224.00	0.148	0.41
1,226.00	0.412	3.23

1,228.00	0.823	7.50
1,230.00	1.402	12.83

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 4A

TOTAL AREA TO HYDROGRAPH: 13 acres
HYDROGRAPH PEAK: 28 cfs
TIME OF PEAK: 1153 minutes
HYDROGRAPH VOLUME: 2.74 acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	0.37	200	0.38	300	0.39	400	0.40
500	0.42	600	0.59	700	0.85	800	0.94	900	1.16
1000	1.60	1050	2.04	1100	2.78	1110	4.44	1120	5.64
1130	5.97	1131	6.07	1132	6.16	1133	6.26	1134	6.35
1135	6.45	1136	6.47	1137	6.50	1138	6.53	1139	6.56
1140	6.59	1141	6.95	1142	7.31	1143	7.75	1144	8.12
1145	9.23	1146	9.97	1147	10.77	1148	11.51	1149	15.27
1150	18.41	1151	21.55	1152	24.74	1153	27.91	1154	25.07
1155	21.47	1156	17.53	1157	13.46	1158	9.44	1159	8.33
1160	7.87	1161	7.81	1162	7.82	1163	7.69	1164	7.69
1165	7.23	1166	6.76	1167	6.21	1168	5.79	1169	5.30
1170	5.22	1171	5.20	1172	5.26	1173	5.17	1174	5.15
1175	5.21	1176	5.12	1177	4.90	1178	4.82	1179	4.71
1180	4.60	1181	4.52	1182	4.53	1183	4.48	1184	4.46
1185	4.44	1186	4.45	1187	4.40	1188	4.38	1189	4.30
1190	4.22	1191	4.12	1192	4.04	1193	3.96	1194	3.93
1195	3.91	1196	3.89	1197	3.87	1198	3.85	1199	3.86
1200	3.84	1201	3.82	1202	3.80	1203	3.78	1204	3.73
1205	3.71	1206	3.69	1207	3.67	1208	3.65	1209	3.63
1210	3.61	1211	3.59	1212	3.57	1213	3.55	1214	3.53
1215	3.52	1216	3.50	1217	3.48	1218	3.46	1219	3.47
1220	3.45	1221	3.44	1222	3.42	1223	3.40	1224	3.36
1225	3.25	1226	3.15	1227	3.04	1228	2.93	1229	2.83
1230	2.81	1231	2.82	1232	2.80	1233	2.78	1234	2.76
1235	2.74	1236	2.70	1237	2.68	1238	2.66	1239	2.67
1240	2.65	1241	2.64	1242	2.62	1243	2.60	1244	2.56
1245	2.54	1246	2.52	1247	2.51	1248	2.52	1249	2.51

1250	2.49	1251	2.47	1252	2.46	1253	2.42	1254	2.40
1255	2.39	1256	2.37	1257	2.38	1258	2.37	1259	2.36
1260	2.34	1261	2.33	1262	2.29	1263	2.27	1264	2.26
1265	2.24	1266	2.26	1267	2.25	1268	2.23	1269	2.22
1270	2.21	1271	2.17	1272	2.15	1273	2.14	1274	2.13
1275	2.15	1276	2.14	1277	2.12	1278	2.11	1279	2.10
1280	2.06	1281	2.05	1282	2.04	1283	2.06	1284	2.04
1285	2.03	1286	2.02	1287	2.01	1288	1.97	1289	1.96
1290	1.95	1291	1.94	1292	1.96	1293	1.95	1294	1.94
1295	1.93	1296	1.92	1297	1.82	1298	1.78	1299	1.72
1300	1.68	1310	1.53	1320	1.44	1330	1.36	1340	1.29
1350	1.22	1360	1.16	1370	1.10	1380	1.06	1390	1.02
1400	0.98	1420	0.92	1440	0.87	1460	0.45	1500	0.33

VCRat Model Input

Model Lines

```
005     1  001A Header place holder
005     1  002A Header place holder
005     1  004A Header place holder
999
999
006     1  001A 010      099A97                                G1
006     1  002A 040026000505A97                              1
110
111 1229.99    1.00000    3.08
112 1222.00 1223.40 1224.00 1226.00 1228.00 1230.00
113   0.000   0.104   0.148   0.412   0.823   1.402
114    0.00    0.05    0.41    3.23    7.50   12.83
110
006     1  003A 010      099A97
006     1  004A 040032000805A97                              1  2
999
```

APPENDIX C: STREET CAPACITY AND STORM DRAIN NORMAL DEPTH CALCULATIONS

Rating Table for 24' Street FULL

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Channel Slope	0.014 ft/ft
Normal Depth	0.50 ft

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.61
0+05.00	0.51
0+05.50	0.50
0+05.50	0.00
0+07.00	0.13
0+17.00	0.33
0+27.00	0.13
0+28.50	0.00
0+28.50	0.50
0+29.00	0.51
0+34.00	0.61

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.61)	(0+34.00, 0.61)	0.015

Channel Slope (ft/ft)	Discharge (cfs)	Velocity (ft/s)	Flow Area (ft²)	Wetted Perimeter (ft)	Top Width (ft)
0.000	(N/A)	0.00	6.7	24.02	23.00
0.001	8.97	1.34	6.7	24.02	23.00
0.002	12.69	1.89	6.7	24.02	23.00
0.003	15.54	2.32	6.7	24.02	23.00
0.004	17.94	2.68	6.7	24.02	23.00
0.005	20.06	2.99	6.7	24.02	23.00
0.006	21.98	3.28	6.7	24.02	23.00
0.007	23.74	3.54	6.7	24.02	23.00
0.008	25.38	3.78	6.7	24.02	23.00
0.009	26.92	4.01	6.7	24.02	23.00
0.010	28.37	4.23	6.7	24.02	23.00
0.011	29.76	4.44	6.7	24.02	23.00
0.012	31.08	4.64	6.7	24.02	23.00
0.013	32.35	4.82	6.7	24.02	23.00
0.014	33.57	5.01	6.7	24.02	23.00
0.015	34.75	5.18	6.7	24.02	23.00
0.016	35.89	5.35	6.7	24.02	23.00
0.017	36.99	5.52	6.7	24.02	23.00
0.018	38.07	5.68	6.7	24.02	23.00

Rating Table for 24' Street FULL

Channel Slope (ft/ft)	Discharge (cfs)	Velocity (ft/s)	Flow Area (ft^2)	Wetted Perimeter (ft)	Top Width (ft)
0.019	39.11	5.83	6.7	24.02	23.00
0.020	40.13	5.98	6.7	24.02	23.00
0.021	41.12	6.13	6.7	24.02	23.00
0.022	42.08	6.28	6.7	24.02	23.00
0.023	43.03	6.42	6.7	24.02	23.00
0.024	43.96	6.56	6.7	24.02	23.00
0.025	44.86	6.69	6.7	24.02	23.00
0.026	45.75	6.82	6.7	24.02	23.00
0.027	46.62	6.95	6.7	24.02	23.00
0.028	47.48	7.08	6.7	24.02	23.00
0.029	48.32	7.21	6.7	24.02	23.00
0.030	49.14	7.33	6.7	24.02	23.00
0.031	49.96	7.45	6.7	24.02	23.00
0.032	50.76	7.57	6.7	24.02	23.00
0.033	51.54	7.69	6.7	24.02	23.00
0.034	52.32	7.80	6.7	24.02	23.00
0.035	53.08	7.92	6.7	24.02	23.00
0.036	53.83	8.03	6.7	24.02	23.00
0.037	54.58	8.14	6.7	24.02	23.00
0.038	55.31	8.25	6.7	24.02	23.00
0.039	56.03	8.36	6.7	24.02	23.00
0.040	56.75	8.46	6.7	24.02	23.00
0.041	57.45	8.57	6.7	24.02	23.00
0.042	58.15	8.67	6.7	24.02	23.00
0.043	58.84	8.77	6.7	24.02	23.00
0.044	59.52	8.88	6.7	24.02	23.00
0.045	60.19	8.98	6.7	24.02	23.00
0.046	60.85	9.08	6.7	24.02	23.00
0.047	61.51	9.17	6.7	24.02	23.00
0.048	62.16	9.27	6.7	24.02	23.00
0.049	62.81	9.37	6.7	24.02	23.00
0.050	63.44	9.46	6.7	24.02	23.00
0.051	64.08	9.56	6.7	24.02	23.00
0.052	64.70	9.65	6.7	24.02	23.00
0.053	65.32	9.74	6.7	24.02	23.00
0.054	65.93	9.83	6.7	24.02	23.00
0.055	66.54	9.92	6.7	24.02	23.00
0.056	67.14	10.01	6.7	24.02	23.00
0.057	67.74	10.10	6.7	24.02	23.00
0.058	68.33	10.19	6.7	24.02	23.00
0.059	68.92	10.28	6.7	24.02	23.00
0.060	69.50	10.37	6.7	24.02	23.00
0.061	70.08	10.45	6.7	24.02	23.00
0.062	70.65	10.54	6.7	24.02	23.00
0.063	71.22	10.62	6.7	24.02	23.00
0.064	71.78	10.71	6.7	24.02	23.00
0.065	72.34	10.79	6.7	24.02	23.00
0.066	72.89	10.87	6.7	24.02	23.00
0.067	73.44	10.95	6.7	24.02	23.00

Rating Table for 24' Street FULL

Channel Slope (ft/ft)	Discharge (cfs)	Velocity (ft/s)	Flow Area (ft^2)	Wetted Perimeter (ft)	Top Width (ft)
0.068	73.99	11.03	6.7	24.02	23.00
0.069	74.53	11.12	6.7	24.02	23.00
0.070	75.07	11.20	6.7	24.02	23.00
0.071	75.60	11.28	6.7	24.02	23.00
0.072	76.13	11.35	6.7	24.02	23.00
0.073	76.66	11.43	6.7	24.02	23.00
0.074	77.18	11.51	6.7	24.02	23.00
0.075	77.70	11.59	6.7	24.02	23.00
0.076	78.22	11.67	6.7	24.02	23.00
0.077	78.73	11.74	6.7	24.02	23.00
0.078	79.24	11.82	6.7	24.02	23.00
0.079	79.75	11.89	6.7	24.02	23.00
0.080	80.25	11.97	6.7	24.02	23.00
0.081	80.75	12.04	6.7	24.02	23.00
0.082	81.25	12.12	6.7	24.02	23.00
0.083	81.74	12.19	6.7	24.02	23.00
0.084	82.23	12.26	6.7	24.02	23.00
0.085	82.72	12.34	6.7	24.02	23.00
0.086	83.21	12.41	6.7	24.02	23.00
0.087	83.69	12.48	6.7	24.02	23.00
0.088	84.17	12.55	6.7	24.02	23.00
0.089	84.65	12.62	6.7	24.02	23.00
0.090	85.12	12.70	6.7	24.02	23.00
0.091	85.59	12.77	6.7	24.02	23.00
0.092	86.06	12.84	6.7	24.02	23.00
0.093	86.53	12.90	6.7	24.02	23.00
0.094	86.99	12.97	6.7	24.02	23.00
0.095	87.45	13.04	6.7	24.02	23.00
0.096	87.91	13.11	6.7	24.02	23.00
0.097	88.37	13.18	6.7	24.02	23.00
0.098	88.82	13.25	6.7	24.02	23.00
0.099	89.27	13.31	6.7	24.02	23.00
0.100	89.72	13.38	6.7	24.02	23.00

Storm Drain Sizing Summary Table				
Dia. (FT)	Dia. (IN)	Q (CFS)	Slope (ft/ft)	Percent Full
1.5	18	9.58	0.010	75%
2.0	24	20.63	0.010	75%
2.5	30	37.40	0.010	75%
3.0	36	60.82	0.010	75%
3.5	42	91.94	0.010	75%
4.0	48	130.98	0.010	75%

Worksheet for 18" DIA.

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.010 ft/ft
Normal Depth	1.13 ft
Diameter	1.50 ft

Results	
Discharge	9.58 cfs
Flow Area	1.4 ft²
Wetted Perimeter	3.1 ft
Hydraulic Radius	0.45 ft
Top Width	1.30 ft
Critical Depth	1.20 ft
Percent Full	75.0 %
Critical Slope	0.009 ft/ft
Velocity	6.74 ft/s
Velocity Head	0.71 ft
Specific Energy	1.83 ft
Froude Number	1.135
Maximum Discharge	11.30 cfs
Discharge Full	10.50 cfs
Slope Full	0.008 ft/ft
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.00 ft
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	75.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.13 ft
Critical Depth	1.20 ft
Channel Slope	0.010 ft/ft
Critical Slope	0.009 ft/ft

Worksheet for 24" DIA.

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.010 ft/ft
Normal Depth	1.50 ft
Diameter	2.00 ft

Results	
Discharge	20.63 cfs
Flow Area	2.5 ft²
Wetted Perimeter	4.2 ft
Hydraulic Radius	0.60 ft
Top Width	1.73 ft
Critical Depth	1.63 ft
Percent Full	75.0 %
Critical Slope	0.008 ft/ft
Velocity	8.16 ft/s
Velocity Head	1.04 ft
Specific Energy	2.54 ft
Froude Number	1.191
Maximum Discharge	24.33 cfs
Discharge Full	22.62 cfs
Slope Full	0.008 ft/ft
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.00 ft
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	75.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.50 ft
Critical Depth	1.63 ft
Channel Slope	0.010 ft/ft
Critical Slope	0.008 ft/ft

Worksheet for 30" DIA.

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.010 ft/ft
Normal Depth	1.88 ft
Diameter	2.50 ft

Results	
Discharge	37.40 cfs
Flow Area	3.9 ft²
Wetted Perimeter	5.2 ft
Hydraulic Radius	0.75 ft
Top Width	2.17 ft
Critical Depth	2.07 ft
Percent Full	75.0 %
Critical Slope	0.008 ft/ft
Velocity	9.47 ft/s
Velocity Head	1.39 ft
Specific Energy	3.27 ft
Froude Number	1.236
Maximum Discharge	44.12 cfs
Discharge Full	41.01 cfs
Slope Full	0.008 ft/ft
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.00 ft
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	75.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.88 ft
Critical Depth	2.07 ft
Channel Slope	0.010 ft/ft
Critical Slope	0.008 ft/ft

Worksheet for 36" DIA.

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.010 ft/ft
Normal Depth	2.25 ft
Diameter	3.00 ft

Results	
Discharge	60.82 cfs
Flow Area	5.7 ft²
Wetted Perimeter	6.3 ft
Hydraulic Radius	0.91 ft
Top Width	2.60 ft
Critical Depth	2.52 ft
Percent Full	75.0 %
Critical Slope	0.008 ft/ft
Velocity	10.69 ft/s
Velocity Head	1.78 ft
Specific Energy	4.03 ft
Froude Number	1.274
Maximum Discharge	71.74 cfs
Discharge Full	66.69 cfs
Slope Full	0.008 ft/ft
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.00 ft
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	75.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.25 ft
Critical Depth	2.52 ft
Channel Slope	0.010 ft/ft
Critical Slope	0.008 ft/ft

Worksheet for 42" DIA.

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.010 ft/ft
Normal Depth	2.63 ft
Diameter	3.50 ft

Results	
Discharge	91.74 cfs
Flow Area	7.7 ft²
Wetted Perimeter	7.3 ft
Hydraulic Radius	1.06 ft
Top Width	3.03 ft
Critical Depth	2.97 ft
Percent Full	75.0 %
Critical Slope	0.008 ft/ft
Velocity	11.85 ft/s
Velocity Head	2.18 ft
Specific Energy	4.81 ft
Froude Number	1.308
Maximum Discharge	108.22 cfs
Discharge Full	100.60 cfs
Slope Full	0.008 ft/ft
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.00 ft
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	75.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.63 ft
Critical Depth	2.97 ft
Channel Slope	0.010 ft/ft
Critical Slope	0.008 ft/ft

Worksheet for 48" DIA.

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.010 ft/ft
Normal Depth	3.00 ft
Diameter	4.00 ft

Results	
Discharge	130.98 cfs
Flow Area	10.1 ft²
Wetted Perimeter	8.4 ft
Hydraulic Radius	1.21 ft
Top Width	3.46 ft
Critical Depth	3.42 ft
Percent Full	75.0 %
Critical Slope	0.008 ft/ft
Velocity	12.96 ft/s
Velocity Head	2.61 ft
Specific Energy	5.61 ft
Froude Number	1.337
Maximum Discharge	154.51 cfs
Discharge Full	143.64 cfs
Slope Full	0.008 ft/ft
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.00 ft
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	75.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	3.00 ft
Critical Depth	3.42 ft
Channel Slope	0.010 ft/ft
Critical Slope	0.008 ft/ft

APPENDIX D: BASIN STORAGE AND OUTFLOW TABLES

Stage-Storage-Outflow Calculations Combined - BASIN B1

Weir Design Parameters

Weir Invert (ft)	1355.2
Weir Coeff	3
Weir Length (ft)	1

Orifice Design Parameters

Orifice Invert (ft)	1354
Orifice Diameter (ft)	0.104
Orifice Centroid (ft)	1354.052
Orifice Coeff	0.6
Num Orifice	1
Net Orifice Area (ft^2)	0.008
Gravity (ft/s^2)	32.2

Stage (ft)	Depth (ft)	Weir Head (ft)	Weir Flow (ft^3/s)	Orifice Head (ft)	Orifice Flow (ft^3/s)	Total Flow (Weir + Orifice) (ft^3/s)	Total Storage (ac-ft)	Effective Storage (ac-ft)
1354	0	0	0.00	0.00	0.00	0.00	0	0
1355.2	1.2	0	0.00	1.15	0.04	0.04	0.108	0.108
1356	2	0.8	2.15	1.95	0.06	2.20	0.18	0.18
1358	4	2.8	14.06	3.95	0.08	14.14	0.52	0.52

> WQ volume ponds to this point. Per SQUIMP WQV=0.10 ac-ft. WQ Storage Elevation 1355.2 ft

Stage-Storage-Outflow Calculations Combined - BASIN B2

Weir Design Parameters

Weir Invert (ft)	1284.8
Weir Coeff	3
Weir Length (ft)	3

Orifice Design Parameters

Orifice Invert (ft)	1284
Orifice Diameter (ft)	0.333
Orifice Centroid (ft)	1284.167
Orifice Coeff	0.6
Num Orifice	4
Net Orifice Area (ft^2)	0.348
Gravity (ft/s^2)	32.2

Stage (ft)	Depth (ft)	Weir Head (ft)	Weir Flow (ft^3/s)	Orifice Head (ft)	Orifice Flow (ft^3/s)	Total Flow (Weir + Orifice) (ft^3/s)	Total Storage (ac-ft)	Effective Storage (ac-ft)
1284	0	0	0.00	0.00	0.00	0.00	0	0
1284.8	0.8	0	0.00	0.63	1.34	1.34	2.452	2.452
1285	1	0.2	0.80	0.83	1.53	2.34	3.0645	3.0645
1286	2	1.2	11.83	1.83	2.27	14.10	6.2685	6.2685
1287	3	2.2	29.37	2.83	2.82	32.19	9.613	9.613
1288	4	3.2	51.52	3.83	3.28	54.80	13.1	13.1
1289	5	4.2	77.47	4.83	3.69	81.15	16.731	16.731
1290	6	5.2	106.72	5.83	4.05	110.77	20.507	20.507

> WQ volume ponds to this point. Per SQUIMP WQV~2.4 ac-ft. WQ Storage Elevation 1284.8 ft

Stage-Storage-Outflow Calculations Combined - BASIN C1

Weir Design Parameters

Weir Invert (ft)	1206
Weir Coeff	3
Weir Length (ft)	1

Orifice Design Parameters

Orifice Invert (ft)	1203.4
Orifice Diameter (ft)	0.25
Orifice Centroid (ft)	1203.525
Orifice Coeff	0.6
Num Orifice	1
Net Orifice Area (ft^2)	0.049
Gravity (ft/s^2)	32.2

Stage (ft)	Depth (ft)	Weir Head (ft)	Weir Flow (ft^3/s)	Orifice Head (ft)	Orifice Flow (ft^3/s)	Total Flow (Weir + Orifice) (ft^3/s)	Total Storage (ac-ft)	Effective Storage (ac-ft)
1203.4	0	0	0.00	0.00	0.00	0.00	0	0
1204	0.6	0	0.00	0.47	0.16	0.16	0.1548	0.1548
1206	2.6	0	0.00	2.47	0.37	0.37	0.8078	0.8078
1208	4.6	2	8.49	4.47	0.50	8.99	1.6728	1.6728
1210	6.6	4	24.00	6.47	0.60	24.60	2.7788	2.7788
1212	8.6	6	44.09	8.47	0.69	44.78	4.1588	4.1588

> WQ volume ponds to this point. Per SQUIMP WQV=0.80 ac-ft. WQ Storage Elevation 1206.0 ft

Stage-Storage-Outflow Calculations Combined - BASIN C2

Weir Design Parameters

Weir Invert (ft)	1223.4
Weir Coeff	3
Weir Length (ft)	0.25

Orifice Design Parameters

Orifice Invert (ft)	1222
Orifice Diameter (ft)	0.104
Orifice Centroid (ft)	1222.052
Orifice Coeff	0.6
Num Orifice	1
Net Orifice Area (ft^2)	0.008
Gravity (ft/s^2)	32.2

Stage (ft)	Depth (ft)	Weir Head (ft)	Weir Flow (ft^3/s)	Orifice Head (ft)	Orifice Flow (ft^3/s)	Total Flow (Weir + Orifice) (ft^3/s)	Total Storage (ac-ft)	Effective Storage (ac-ft)
1222	0	0	0.00	0.00	0.00	0.00	0	0
1223.4	1.4	0	0.00	1.35	0.05	0.05	0.104	0.104
1224	2	0.6	0.35	1.95	0.06	0.41	0.148	0.148
1226	4	2.6	3.14	3.95	0.08	3.23	0.412	0.412
1228	6	4.6	7.40	5.95	0.10	7.50	0.823	0.823
1230	8	6.6	12.72	7.95	0.12	12.83	1.402	1.402

> WQ volume ponds to this point. Per SQUIMP WQV=0.10 ac-ft. WQ Storage Elevation 1223.4 ft

Stage-Storage-Outflow Calculations Combined - BASIN D1

Weir Design Parameters

Weir Invert (ft)	1226.7
Weir Coeff	3
Weir Length (ft)	2.5

Orifice Design Parameters

Orifice Invert (ft)	1224
Orifice Diameter (ft)	0.25
Orifice Centroid (ft)	1224.125
Orifice Coeff	0.6
Num Orifice	2
Net Orifice Area (ft^2)	0.098
Gravity (ft/s^2)	32.2

* note want basin bottom to slope at 1%, ca
if the orifice drops. Assess for the lower outl

Stage (ft)	Depth (ft)	Weir Head (ft)	Weir Flow (ft^3/s)	Orifice Head (ft)	Orifice Flow (ft^3/s)	Total Flow (Weir + Orifice) (ft^3/s)	Total Storage (ac-ft)	Effective Storage (ac-ft)
1224	0	0	0.00	0.00	0.00	0.00	0	0
1225	1	0	0.00	0.88	0.44	0.44	0.142	0.142
1226	2	0	0.00	1.88	0.65	0.65	0.391	0.391
1226.7	2.7	0	0.00	2.58	0.76	0.76	0.661	0.661
1227	3	0.3	1.23	2.88	0.80	2.03	0.776	0.776
1228	4	1.3	11.12	3.88	0.93	12.05	1.326	1.326
1229	5	2.3	26.16	4.88	1.04	27.20	1.987	1.987
1230	6	3.3	44.96	5.88	1.15	46.11	2.698	2.698

> WQ volume ponds to this point. ~~Per SQUIMP~~ WQV~0.64 ac-ft. WQ Storage Elevation 1226.7 ft

APPENDIX E: FATTENING METHOD RUNOFF FACTOR CALCULATIONS

wshed_parameter_analysis_GOLF

February 5, 2025

0.1 Assess Landuse/Soil/Watershed Matrix & Compute Fattening Factor

- analysis broke down wshed area to flowpath subareas. Smaller than needed. Build it back up by aggregating on the subarea level and return required metrics such as composite impervious %, composite soil, total area

[1]:
```
import pandas as pd
import numpy as np
```

[2]:
```
# using GIS, intersection of watershed, soil, and impervious area features was␣
↪developed
fp = r'./data/wshed-soil-impervious-matrix.xls'
```

[3]:
```
# impervious fraction information
impf_map = {
    'OpenSpace': 0,
    'Graded': 0,
    'Residential': .47,
    'Street': 1.00,
    'Commercial': 1.00
}
```

[4]:
```
df = pd.read_excel(fp)
df.drop(labels=['OBJECTID', 'Shape_Length', 'Shape_Area'], axis=1, inplace=True)
df['IMP_FRAC'] = df['LANDUSE'].apply(lambda x: impf_map[x])

# re-order
df = df.loc[:, ['NAME_FL', 'NAME_SUB', 'AREA_ID', 'SUBAREA_ID', 'STREAM_ID',␣
↪'FPAREA_ID', 'AREA', 'SOILNO', 'LANDUSE', 'IMP_FRAC']].copy(deep=True)
```

[5]:
```
comp = {'name': [], 'compSoil': [], 'compImp': [], 'compArea': []}
for _, group in df.groupby(['NAME_SUB']):
    comp['name'].append(group.NAME_SUB.iloc[0])
    comp['compSoil'].append(group.AREA.dot(group.SOILNO) / group.AREA.sum())
    comp['compImp'].append(group.AREA.dot(group.IMP_FRAC) / group.AREA.sum())
    comp['compArea'].append(group.AREA.sum())

dfcomp = pd.DataFrame(comp)
```

```
dfcomp
```

[5]:

	name	compSoil	compImp	compArea
0	10.02A	1.884534	0.000007	79.314453
1	10.04A	4.082960	0.255393	12.696563
2	10.05A	4.390703	0.180490	10.221487
3	20.02A	3.988637	0.308415	33.806917
4	20.03A	3.563389	0.426047	36.095988
5	20.04B	4.124513	0.385167	2.952669
6	20.06B	3.371159	0.499321	2.250090
7	20.07B	2.687695	0.101932	30.150289
8	20.08B	3.914455	0.382202	4.931398
9	20.11A	3.969420	0.515839	9.431030
10	20.12A	3.493454	0.168513	8.493490
11	30.02A	3.831471	0.515000	24.831558
12	40.02A	4.041111	0.457991	23.261086
13	50.02A	4.373421	0.001027	11.197524
14	90.02A	4.000000	0.260447	4.114532
15	90.03A	4.000000	0.317925	7.817347

[6]:
```
# round as desired, convert fraction to percent
dfcomp['compSoilRnd'] = dfcomp.compSoil.round(decimals=0)
dfcomp['compImpRnd'] = dfcomp.compImp.round(decimals=2)*100 # convert to percent
dfcomp['compAreaRnd'] = dfcomp.compArea.round(decimals=2) # convert to percent
```

[7]:
```
dfcomp
#dfcomp.to_csv(r'./output/GolfTTM_hydro_param_composite_25-0125.csv')
```

[7]:

	name	compSoil	compImp	compArea	compSoilRnd	compImpRnd	\
0	10.02A	1.884534	0.000007	79.314453	2.0	0.0	
1	10.04A	4.082960	0.255393	12.696563	4.0	26.0	
2	10.05A	4.390703	0.180490	10.221487	4.0	18.0	
3	20.02A	3.988637	0.308415	33.806917	4.0	31.0	
4	20.03A	3.563389	0.426047	36.095988	4.0	43.0	
5	20.04B	4.124513	0.385167	2.952669	4.0	39.0	
6	20.06B	3.371159	0.499321	2.250090	3.0	50.0	
7	20.07B	2.687695	0.101932	30.150289	3.0	10.0	
8	20.08B	3.914455	0.382202	4.931398	4.0	38.0	
9	20.11A	3.969420	0.515839	9.431030	4.0	52.0	
10	20.12A	3.493454	0.168513	8.493490	3.0	17.0	
11	30.02A	3.831471	0.515000	24.831558	4.0	51.0	
12	40.02A	4.041111	0.457991	23.261086	4.0	46.0	
13	50.02A	4.373421	0.001027	11.197524	4.0	0.0	
14	90.02A	4.000000	0.260447	4.114532	4.0	26.0	
15	90.03A	4.000000	0.317925	7.817347	4.0	32.0	

compAreaRnd

```
0         79.31
1         12.70
2         10.22
3         33.81
4         36.10
5          2.95
6          2.25
7         30.15
8          4.93
9          9.43
10         8.49
11        24.83
12        23.26
13        11.20
14         4.11
15         7.82
```

[8]:
```
# EXPORT:  get areas
#df.groupby('NAME_FL')['AREA'].sum().to_csv(r'./output/subarea-size.csv')
```

0.1.1 Complete Fattening

Algorithm:

1. For Area of interest compute composite curve number
   - Ventura Manual Ex/ does:
     - get composite soil for overall area
     - get CN for composite soil of overall area (through interpolation) of each landuse type in overall area
     - perform areal average of CNs defined as function of overall area composite soil, individual landuse type within area
   - Another way might be:
     - get every unique combination of soil/landuse then perform areal average of all combinations to get average CN
2. Need p24 from centroid of the area

Area 10, Area 20, Area 30, Area 40, Area 90 Rain = 7.6", 7.5", 7.5", 7.4", 7.4" (Note assumed Area 40 based on Area 20) CN from Exhibit 14 (written down)

[9]:
```
# overall data

# Curve Number Map via Exhibit 14 of Ventura Hydrology Manual cn_dict={landuse:␣
 ↪soil_dict={soil num: CN}}
cn_map = {
            # Open Brush - Fair
            'OpenSpace': {
                            1:61,
                            2:58,
```

```
                        3:54,
                        4:49,
                        5:44,
                        6:40,
                        7:22
            },
            # Open Brush - Fair
            'Graded': {
                        1:94,
                        2:92,
                        3:90,
                        4:88,
                        5:85,
                        6:83,
                        7:71
            },
            'Street': {
                        1:98,
                        2:98,
                        3:98,
                        4:98,
                        5:98,
                        6:98,
                        7:98
            },
            'Commercial': {
                        1:98,
                        2:98,
                        3:98,
                        4:98,
                        5:98,
                        6:98,
                        7:98
            },
            # Res 1/5
            'Residential': {
                        1:89,
                        2:86,
                        3:84,
                        4:80,
                        5:77,
                        6:74,
                        7:59
            },
        }

# functions for fattening
```

```
def compositeCN(dff, areas):
    """
    compute areal weighted average of curve number for areas in designated␣
 ↪areas of interest
    This should be areas tributary to basin with hydrograph being fattened
    """
    df_rel = dff.loc[df.NAME_SUB.isin(areas)].copy(deep=True)
    return df_rel.AREA.dot(df_rel.CN) / df_rel.AREA.sum(), df_rel

def fattenFactor(comp_CN, p24):
    """
    NRCS yield computed and used as fatten factor per Hydrology Manual
    """
    s = lambda cnx: (1000/cnx) - 10 # potential abstraction
    ia = lambda sx: 0.2*sx # initial abstraction
    yld = lambda px, sx: ( (px-0.2*sx)**2 ) / (px+0.8*sx) # yield

    return yld(p24, s(comp_CN))
```

[10]:
```
# Add CN to the dataframe
dfCN = []
for _, row in df.iterrows():
    dfCN.append(cn_map[row['LANDUSE']][row['SOILNO']])

df['CN'] = dfCN
```

[11]:
```
df.head()
```

[11]:

	NAME_FL	NAME_SUB	AREA_ID	SUBAREA_ID	STREAM_ID	FPAREA_ID	AREA	SOILNO	LANDUSE	IMP_FRAC	CN
0	10.02A-2	10.02A	10	2	A	2	33.007523	1	OpenSpace	0.0	61
1	10.02A-2	10.02A	10	2	A	2	0.416134	4	OpenSpace	0.0	49
2	10.02A-3	10.02A	10	2	A	3	26.458172	1	OpenSpace	0.0	61
3	10.02A-3	10.02A	10	2	A	3	8.799019	4	OpenSpace	0.0	49
4	10.02A-3	10.02A	10	2	A	3	10.608803	5	OpenSpace	0.0	44

0.1.2 Area 10 Fattening

Basin A1

[12]:
```
p24 = 7.6 # inches (from noaa100yr24hr contours via Ventura PW website)
areas = ['10.02A'] # areas tributary to basin and to be fattened
```

[13]:
```
comp_CN10, df10 = compositeCN(df, areas)
ff10 = fattenFactor(comp_CN10, p24)

print(f'Precip = {p24:.1f} inches, Composite CN = {comp_CN10:.2f}, Fattening␣
 ↪Factor = {ff10: .2f} inches')
```

```
Precip = 7.6 inches, Composite CN = 57.33, Fattening Factor =  2.76 inches
```

Basin A2

[14]:
```
p24 = 7.6 # inches (from noaa100yr24hr contours via Ventura PW website)
areas = ['10.02A', '10.04A', '10.05A'] # areas tributary to basin and to be␣
 ↪fattened
```

[15]:
```
comp_CN10_, df10_ = compositeCN(df, areas)
ff10_ = fattenFactor(comp_CN10_, p24)

print(f'Precip = {p24:.1f} inches, Composite CN = {comp_CN10_:.2f}, Fattening␣
 ↪Factor = {ff10_: .2f} inches')
```

```
Precip = 7.6 inches, Composite CN = 57.93, Fattening Factor =  2.82 inches
```

0.1.3 Area 20 Fattening

Basin B-1

[16]:
```
p24 = 7.5 # inches (from noaa100yr24hr contours via Ventura PW website)
areas = ['20.04B'] # areas tributary to basin and to be fattened
```

[17]:
```
comp_CN20, df20 = compositeCN(df, areas)
ff20 = fattenFactor(comp_CN20, p24)

print(f'Precip = {p24:.1f} inches, Composite CN = {comp_CN20:.2f}, Fattening␣
 ↪Factor = {ff20: .2f} inches')
```

```
Precip = 7.5 inches, Composite CN = 70.91, Fattening Factor =  4.14 inches
```

Basin B-2

[18]:
```
p24 = 7.5 # inches (from noaa100yr24hr contours via Ventura PW website)
areas = ['20.02A', '20.03A', '20.04B', '20.06B', '20.07B', '20.08B'] # areas␣
 ↪tributary to basin and to be fattened
```

[19]:
```
comp_CN20_, df20_ = compositeCN(df, areas)
ff20_ = fattenFactor(comp_CN20_, p24)

print(f'Precip = {p24:.1f} inches, Composite CN = {comp_CN20_:.2f}, Fattening␣
 ↪Factor = {ff20_: .2f} inches')
```

```
Precip = 7.5 inches, Composite CN = 68.16, Fattening Factor =  3.84 inches
```

0.1.4 Area 30 Fattening

[20]:
```
p24 = 7.4 # inches (from noaa100yr24hr contours via Ventura PW website)
areas = ['30.02A'] # areas tributary to basin and to be fattened
```

[21]:
```
comp_CN30, df30 = compositeCN(df, areas)
ff30 = fattenFactor(comp_CN30, p24)

print(f'Precip = {p24:.1f} inches, Composite CN = {comp_CN30:.2f}, Fattening␣
 ↪Factor = {ff30: .2f} inches')
```

```
Precip = 7.4 inches, Composite CN = 81.13, Fattening Factor =  5.19 inches
```

0.1.5 Area 40 Fattening

[22]:
```
p24 = 7.5 # inches (from noaa100yr24hr contours via Ventura PW website)
areas = ['40.02A'] # areas tributary to basin and to be fattened
```

[23]:
```
comp_CN40, df40 = compositeCN(df, areas)
ff40 = fattenFactor(comp_CN40, p24)

print(f'Precip = {p24:.1f} inches, Composite CN = {comp_CN40:.2f}, Fattening␣
 ↪Factor = {ff40: .2f} inches')
```

```
Precip = 7.5 inches, Composite CN = 77.61, Fattening Factor =  4.89 inches
```

0.1.6 Area 90 Fattening

[24]:
```
p24 = 7.4 # inches (from noaa100yr24hr contours via Ventura PW website)
areas = ['90.02A'] # areas tributary to basin and to be fattened
```

[25]:
```
comp_CN90, df90 = compositeCN(df, areas)
ff90 = fattenFactor(comp_CN90, p24)

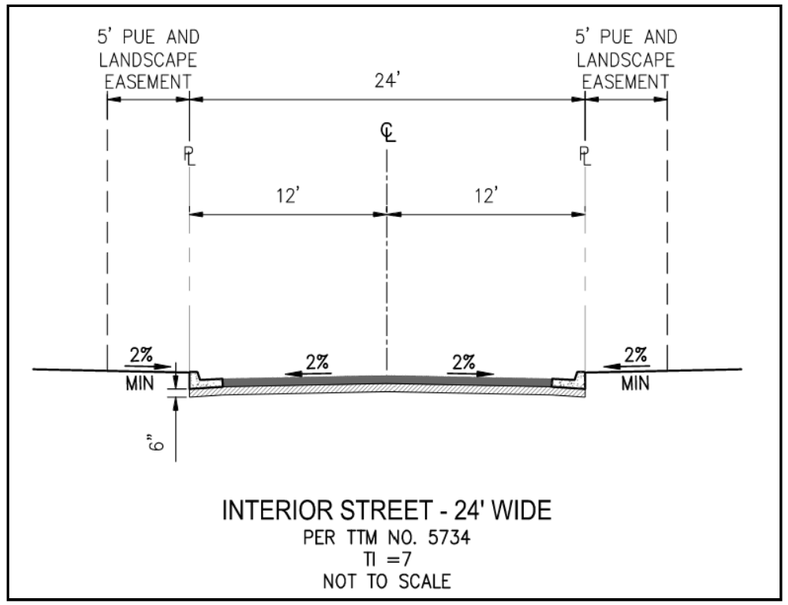
print(f'Precip = {p24:.1f} inches, Composite CN = {comp_CN90:.2f}, Fattening␣
 ↪Factor = {ff90: .2f} inches')
```

```
Precip = 7.4 inches, Composite CN = 61.77, Fattening Factor =  3.07 inches
```

EXCERPTS

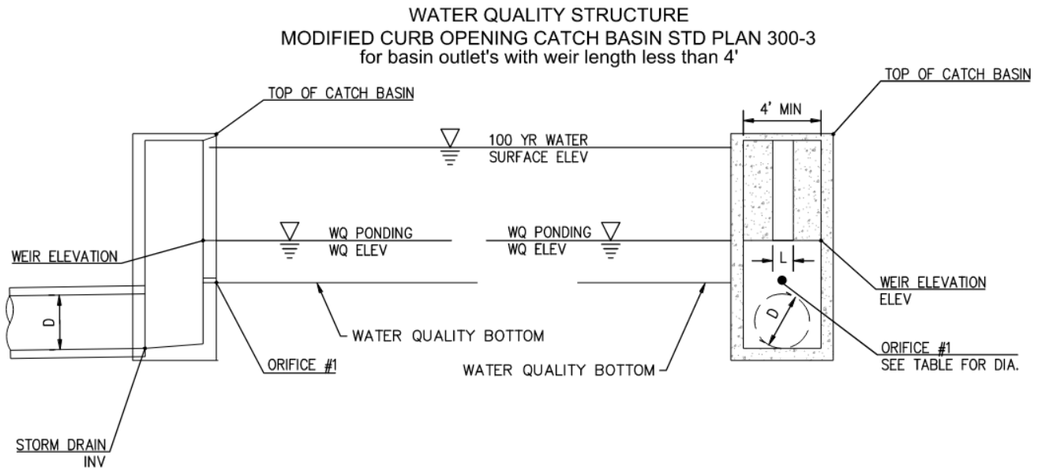
EXCERPT A: PHASE 1 IMPROVEMENT PLAN STREET DETAIL AND BASIN OUTLET STRUCTURE DETAIL

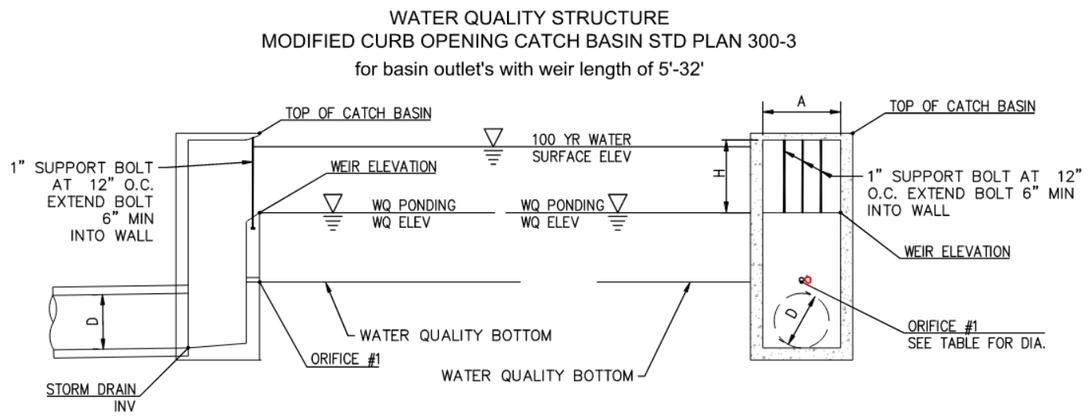
EXCERPT A: PHASE 1 IMPROVEMENT PLAN STREET DETAIL AND BASIN OUTLET STRUCTURE DETAIL



INTERIOR STREET - 24' WIDE
PER TTM NO. 5734
TI =7
NOT TO SCALE

PHASE 1 STREET DETAIL - 24' WIDE

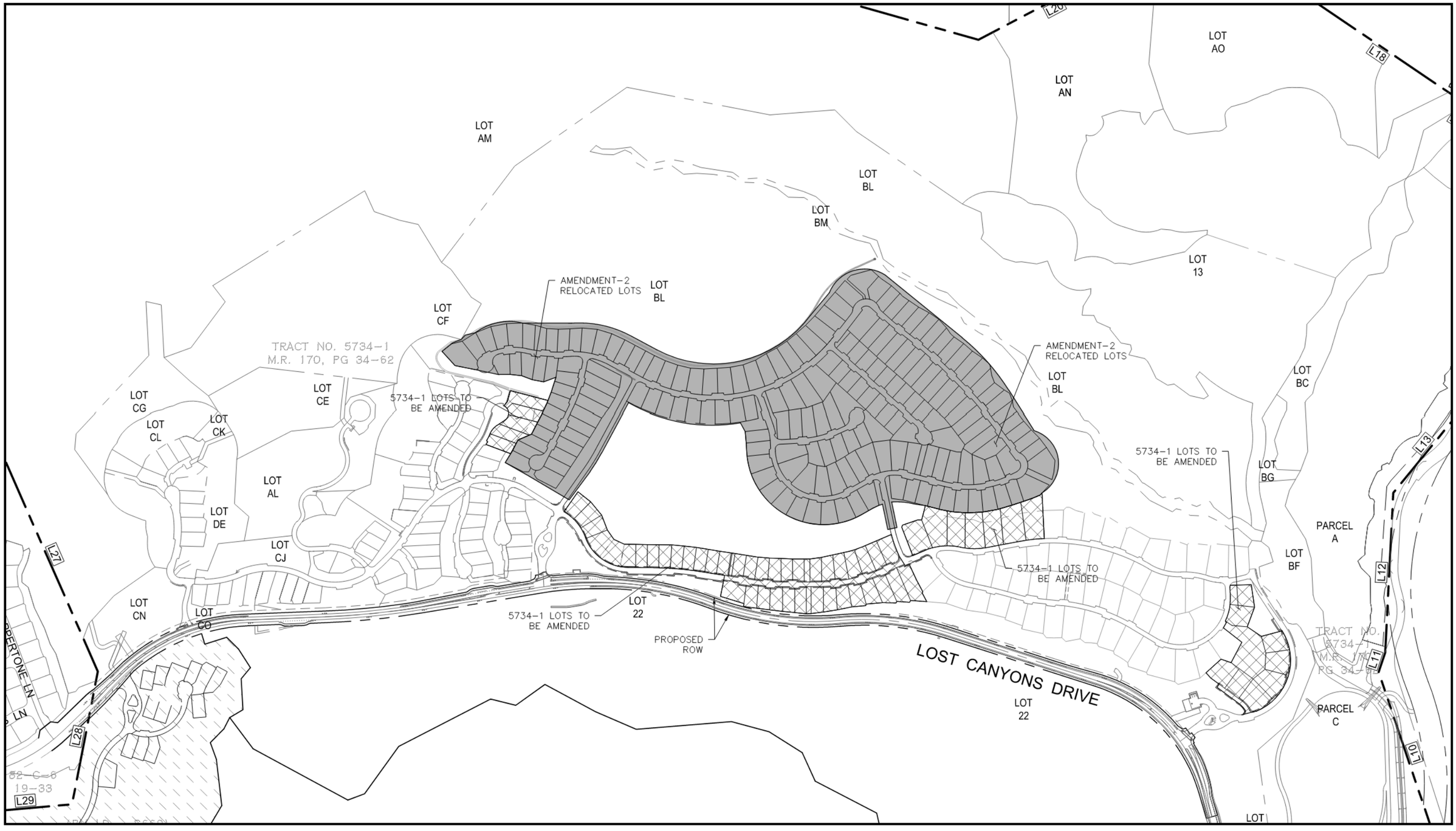




PHASE 1 BASIN OUTLET DETAIL

EXCERPT B: PHASE 1 AMENDED AND PHASE 2 LOT IDENTIFICATION MAP

EXCERPT B: PHASE 1 AMENDED AND PHASE 2 LOT IDENTIFICATION MAP



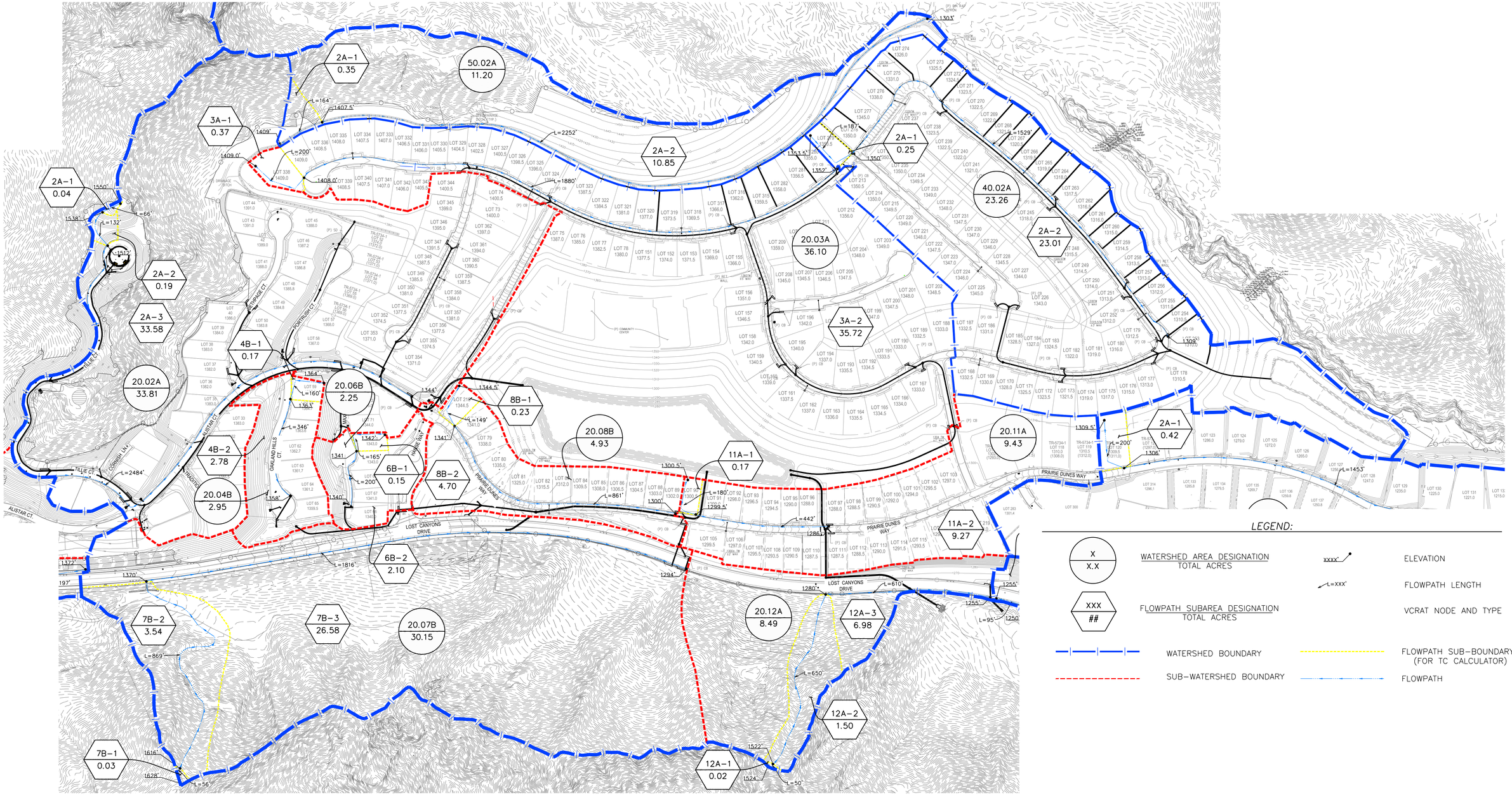
EXHIBITS

EXHIBIT A.1: POST-PROJECT CONDITION HYDROLOGY AREA 20, 40, AND 50

LOST CANYONS

IN THE CITY OF SIMI VALLEY, COUNTY OF VENTURA, STATE OF CALIFORNIA

AREA 20, 40, AND 50 HYDROLOGY MAP



LEGEND:

X / X.X — WATERSHED AREA DESIGNATION / TOTAL ACRES	xxxx' — ELEVATION
	L=xxx' — FLOWPATH LENGTH
XXX / ## — FLOWPATH SUBAREA DESIGNATION / TOTAL ACRES	VCRAT NODE AND TYPE
WATERSHED BOUNDARY	FLOWPATH SUB-BOUNDARY (FOR TC CALCULATOR)
SUB-WATERSHED BOUNDARY	FLOWPATH

EXHIBIT "A.1"

LOST CANYONS

AREA 20, 40, AND 50 HYDROLOGY MAP

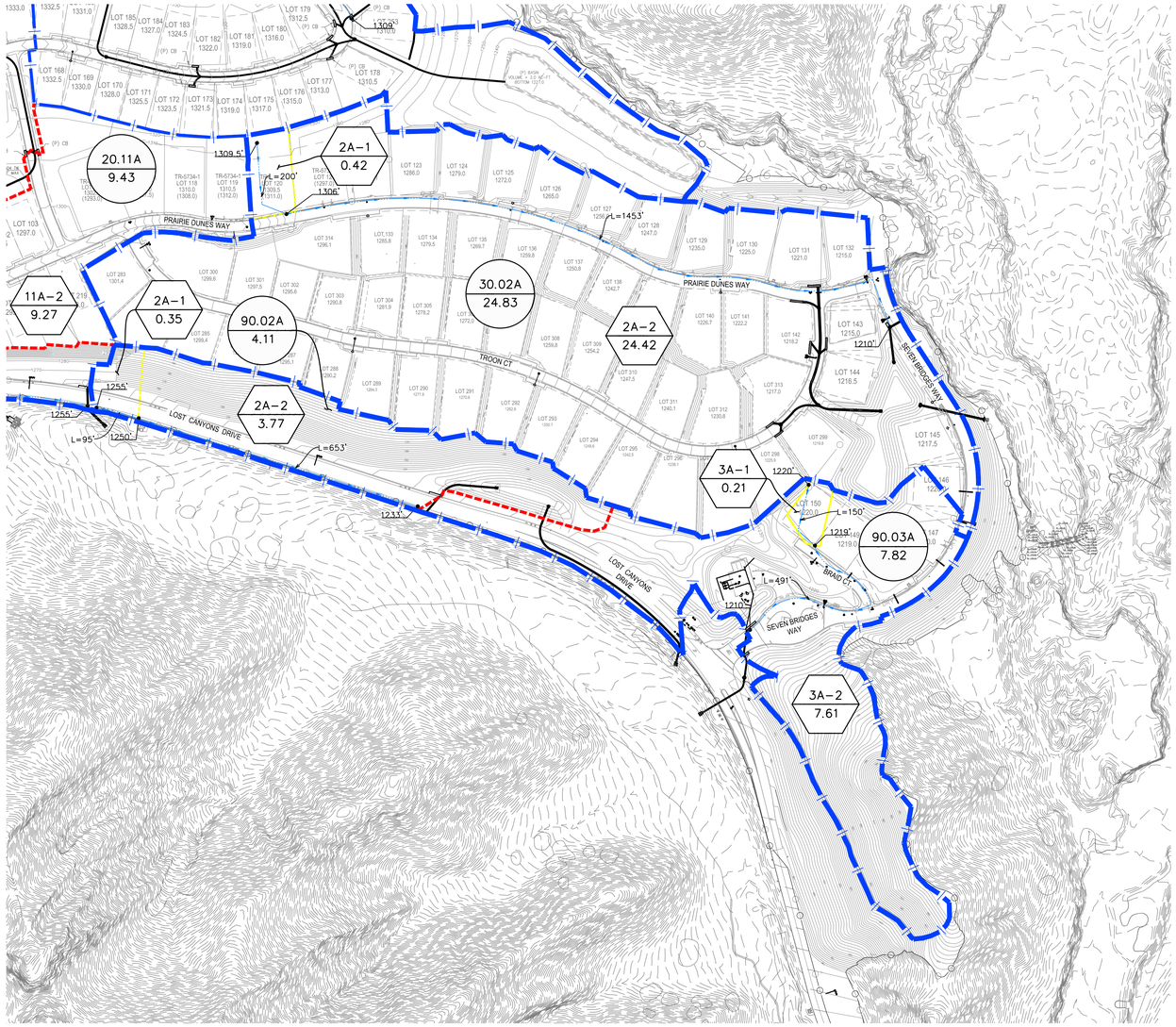
JLC Engineering & Consulting, Inc.
41660 IVY STREET, SUITE A
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PH. 951.304.9552 FAX 951.304.3568

EXHIBIT A.2: POST-PROJECT CONDITION HYDROLOGY AREA 30 AND 90

LOST CANYONS

IN THE CITY OF SIMI VALLEY, COUNTY OF VENTURA, STATE OF CALIFORNIA

AREA 30 AND 90 HYDROLOGY MAP



LEGEND:

X / X.X — WATERSHED AREA DESIGNATION, TOTAL ACRES	xxxx' — ELEVATION
	L=xxx' — FLOWPATH LENGTH
XXX / ## — FLOWPATH SUBAREA DESIGNATION, TOTAL ACRES	VCRAT NODE AND TYPE
WATERSHED BOUNDARY	FLOWPATH SUB–BOUNDARY (FOR TC CALCULATOR)
SUB–WATERSHED BOUNDARY	FLOWPATH

N

GRAPHIC SCALE
150' 0 75' 150' 300'
1" = 150'

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EXHIBIT "A.2"

LOST CANYONS

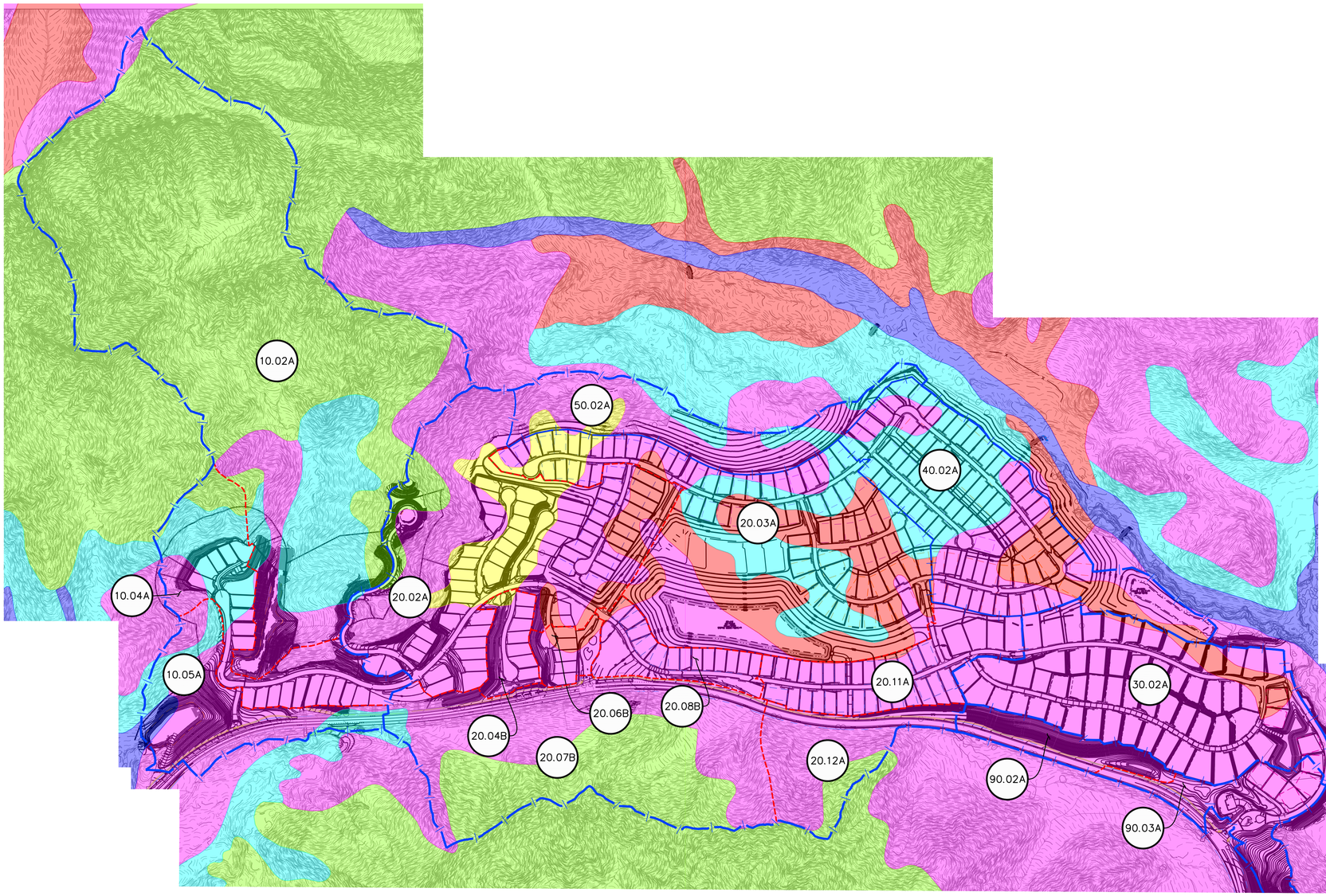
AREA 30 AND 90 HYDROLOGY MAP

EXHIBIT B: HYDROLOGIC SOILS MAP

LOST CANYONS

IN THE CITY OF SIMI VALLEY, COUNTY OF VENTURA, STATE OF CALIFORNIA

SOIL MAP



LEGEND:

X — WATERSHED AREA DESIGNATION

WATERSHED BOUNDARY

SUB-WATERSHED BOUNDARY

SOIL DESIGNATION	SOIL TYPE DESIGNATION
	SOIL 1
	SOIL 2
	SOIL 3
	SOIL 4
	SOIL 5
	SOIL 6
	SOIL 7

N

GRAPHIC SCALE

300' 0 150' 300' 600'

1" = 300'

EXHIBIT "B"

LOST CANYONS

SOIL MAP

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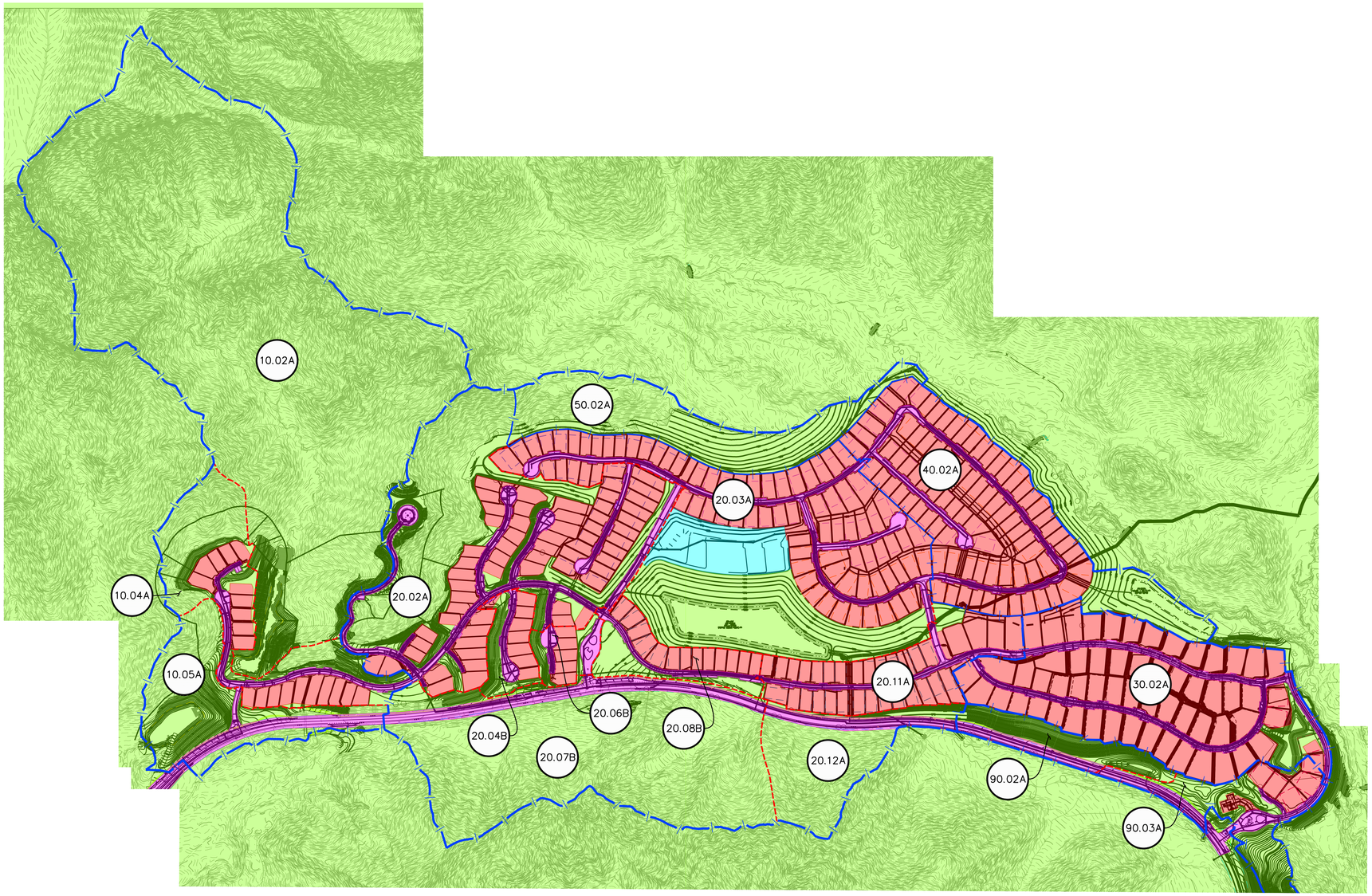
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Last Opened: Feb 05, 2025 - 5:23pm by jacob

EXHIBIT C: IMPERVIOUS AREA MAP

LOST CANYONS

IN THE CITY OF SIMI VALLEY, COUNTY OF VENTURA, STATE OF CALIFORNIA

IMPERVIOUS PERCENTAGE MAP



LEGEND:

- X — WATERSHED AREA DESIGNATION
- WATERSHED BOUNDARY
- SUB-WATERSHED BOUNDARY

LAND USE DESIGNATION	LAND USE DESIGNATION
	OPEN SPACE
	STREET
	1/5 AC RESIDENTIAL
	COMMERCIAL

N

GRAPHIC SCALE
300' 0 150' 300' 600'
1" = 300'

EXHIBIT "C"

LOST CANYONS

IMPERVIOUS PERCENTAGE MAP

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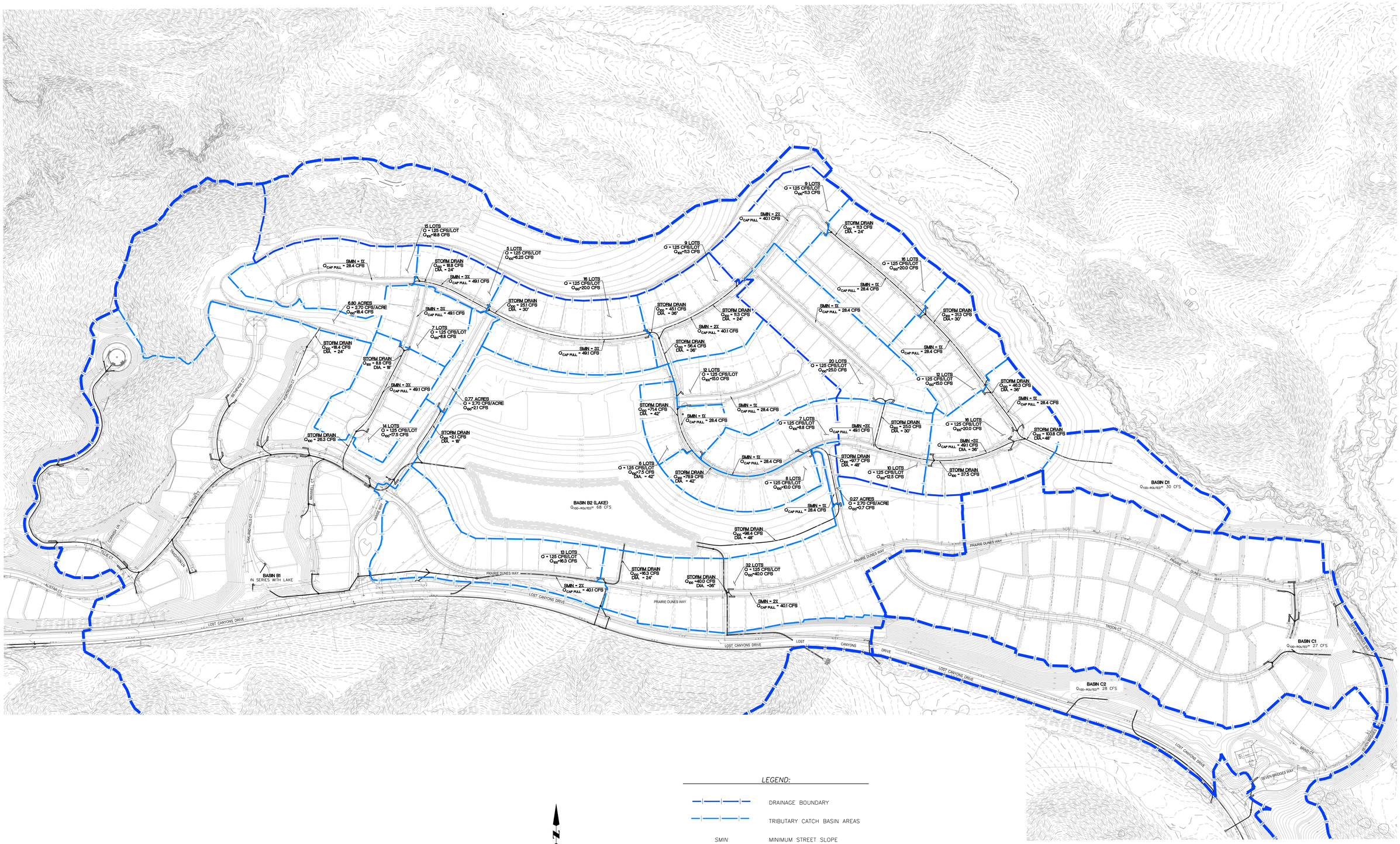
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Last Opened: Feb 05, 2025 - 5:26pm by jacob

EXHIBIT D: DRAINAGE FACILITIES MAP AREA 20 AND 40

LOST CANYONS

IN THE CITY OF SIMI VALLEY, COUNTY OF VENTURA, STATE OF CALIFORNIA

DRAINAGE FACILITIES MAP



LEGEND:

	DRAINAGE BOUNDARY
	TRIBUTARY CATCH BASIN AREAS
SMIN	MINIMUM STREET SLOPE
$Q_{CAP\ FULL}$	STREET CAPACITY AT MINIMUM SLOPE
Q_{100}	FLOW RATE FOR 100 YR STORM EVENT
Q	FLOW RATE

GRAPHIC SCALE
90' 0 45' 90' 180'
1" = 90'

EXHIBIT "D"

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LOST CANYONS

DRAINAGE FACILITIES MAP

Drawing Name: G:\177.06.24.00\CIVIL\Engineering\Hydrology_Plan\Exhibits\Exhibit0_Drainage_Facilities_Map.dwg
Last Opened: Feb 06, 2025 - 3:32pm by ejperez

APPENDIX K

WATER SYSTEM MASTER PLAN

Lost Canyons Residential Development

Water System Master Plan

Prepared for:

Newport Pacific Land Company

100 Bayview Circle, Suite 2200,
Newport Beach, CA 92660

Prepared by:

RTM Engineering Consultants

1 Ada, Suite 100
Irvine, CA 92618

January 21, 2025

General

The Lost Canyons Development is a part of the Whiteface Specific Plan Area, which is located within the City of Simi Valley. The Whiteface Specific Plan Area includes Big Sky Ranch (Sand Canyon), Dry Canyon and Tapo Canyon. The Lost Canyons Development falls within portions of Dry Canyon and Tapo Canyon. The Whiteface Specific Plan Area includes approximately 2,686 acres, while Lost Canyons Development is approximately 1,770 acres of the total area. This study includes only the Lost Canyons Residential Development which amounts to approximately 200 acres.

Existing Condition

The current site is characterized by rolling to semi-steep hills with the majority of those lined up in a series running northwest to southeast looking like a ridgeline with intermittent drainage courses, generally running north to south. Elevations on site range from approximately 1225 near the southeast to approximately 1500 near the northwest with slopes ranging on average from approximately 15% to 40%. A dormant golf course, once known as Shadow Canyon Golf Course, occupies much of the site with greens, cart paths and a (dry) pond still visible. Structures and amenities, including parking lot, from the golf club are found near the southwest of the site.

Existing Water System

Ventura County Waterworks District No.8 (VCWWD No. 8) is the water purveyor for the area and will serve the Lost Canyons Development with two sources of water availability. To the west, water supply originates from Calleguas Municipal Water District and is conveyed through the 1355 Pressure Zone (PZ) through 8-inch, 12-inch, and 16-inch water transmission mains. There is also an existing 1470 Pressure Zone constructed by the Big Sky Development adjacent to the Lost Canyons Development to the west. The existing 1470 Pressure Zone is supplied by a Calleguas turnout located at the intersection of Erringer and Cochran and then boosted by the 1248 Pressure Zone and 1470 Pressure Zone pump stations.

To the east, water supply is found in Tapo Canyon Road, which originates at the Calleguas Municipal Water District and is conveyed through a 12-inch water line ending at the Tapo Canyon Water Treatment Plant, northeast of the proposed Lost Canyons Development. A second water line of 16-inch size branches off at Presidio Drive and parallels the 12”Ø line, reducing to 12”Ø south of Lost Canyons Drive and then again to 8”Ø north of Lost Canyon Drive before ultimately ending at Tapo Canyon Water Treatment Plant.

Proposed Development

The Lost Canyons Development proposes 364 residential lots, recreation center with lake amenities, drainage basins and associated infrastructure. The service pad elevations range in elevation from 1215 to 1416 feet. The recreation center and 140 lots will be served by the 1470 Pressure Zone by connecting to the existing 16"Ø waterline in Lost Canyons Drive. 222 lots will be served by a new 1537 pressure zone. During final design, the delineation between the 1470 and 1537 pressure zones may be refined to optimize water system performance and residential lot pressures. Two lots located on the south boundary line will be serviced by joining existing City owned water pipes. The first lot will connect to an existing 8"Ø waterline in Anderson Drive in the existing 1248 pressure zone. The second lot will connect to an existing 8"Ø waterline in Ditch Road in the existing 1355 pressure zone. Please refer to Exhibits 1,6 and 7 for the proposed project site, phasing and pressure zone maps.

Water Demand

Water demand estimates are based on design criteria provided by Ventura County Waterworks District No.8 (VC "Water Design and Construction Standards," adopted July 26, 2021, Section 3.2 Water Demand Estimates). The proposed water system is analyzed and sized to supply the various water demands on the system and provide the required residual pressure. Tables 1 and 2 show the water demand and peaking factors used for the design of the domestic water system.

TABLE 1
VCWWD NO.8 WATER DEMAND FACTORS

Type/Land Use	Average Daily Demand (ADD)
Detached Residential	420 gpd/lot
Public/Semi-Public Community Services	1,944 gpd (1.35 gpm)/acre

TABLE 2
VCWWD NO.8 PEAKING FACTORS

Demand	Peaking Factor*
Maximum Day Demand (MDD)	2.15
Peak Hour Demand (PHD)	4.50

*Peaking factors are multiplied by the ADD (per Table 1)

The following table shows the calculated water demand for the development.

TABLE 3
WATER DEMANDS

Land Use	No. of Units/Area	Demand Factor (GPD/unit)	ADD (GPD)	ADD (GPM)	MDD (GPD)	MDD (GPM)	PHD (GPM)
New 1537 Zone							
Residential*	222	420	93,240	65	200,466	139	291
New 1470 Zone							
Clubhouse	3.7 Acres	1,944 GPD/Acre	7,193	5	15,465	11	22
Residential*	140	420	58,800	41	126,420	88	184
Total 1537 & 1470			**159,233**	**111**	**342,351**	**238**	**497**
Existing Zones							
1357 Zone Residential*	1	420	420	0.3	903	0.6	1.3
1248 Zone Residential*	1	420	420	0.3	903	0.6	1.3

*One residential unit per lot

Water demand for the Homeowner's Association (HOA) community landscape will be supplied from the proposed potable water system via an air-gapped connection to the existing 200,000-gallon tank. The HOA demand is the estimated daily usage for irrigation as provided by the landscape engineer and was calculated to be 300gpm over an 8 hour watering period for the driest period of the year. This equates to 100gpm over a 24-hour period during summer. The actual average demand over a typical year is expected to be considerably less.

The proposed lake will also have a connection to the domestic water system which will be used to offset evaporation loss when the non-potable supply is not available. A demand of 25 gpm was calculated using an evaporation loss factor of 0.5 inches of lake depth per day.

Fire Demand

The Ventura County Fire Protection District (VCFPD) directed that the residential fire flow requirements for the Lost Canyons Development be determined using the California Fire Code. Fire Code tables can be found in Appendix B. Additionally, NFPA 13 was used to calculate the fire sprinkler system demand.

The hydraulic model simulations assume that both the fire hydrant and fire sprinkler demands are applied simultaneously. Fire storage volume has also been calculated and is used to determine the proposed reservoir size and pump station flow rate in the following sections.

Per the fire code, the required 2,750 gpm commercial fire flow rate can be reduced by 50% to 1,375 gpm, as is customary for sprinklered buildings. An additional sprinkler flow of 1500 gpm for 90 minutes was determined using NFPA 13 Standard for Installation of Sprinkler Systems (See Appendix B for Guidelines). Sprinkler flows to be confirmed by a Fire Sprinkler engineer during final design and should be adjusted if necessary.

TABLE 4
FIRE DEMAND

Demand	Calculation	Volume (Gallons)	Flow Rate (gpm)
Residential Fire Flow	500 gpm for 30 minutes* + 40 gpm for 30 minutes	16,200	540
Commercial Fire Flow (1470 Zone)	1,375 gpm for 2 hrs* + 1500 gpm for 90 minutes	300,000	2,875

*After 50% reduction per code

Reservoir

The water storage requirement for the proposed development will be met by the new 1537 reservoir as well the existing Big Sky 1470 tank. The 1537 reservoir will be supplied by the new 1537 Lost Canyons Booster Pump Station. The sizing of the 1537 reservoir is determined by the VCWWD No. 8 storage requirements shown in Table 5.

TABLE 5
RESERVOIR STORAGE COMPONENTS

Storage Component	Value
Operational Storage	25% MDD for a 24-hour period
Emergency Storage	100% MDD for a 24-hour period
Fire Storage Volume	300,000 gallons (see Table 4 above)

The volume for the reservoir is calculated per Tables 6 and 7 below.

TABLE 6
RESERVOIR VOLUME REQUIREMENTS
OVERALL PROJECT

Storage Component	Calculation	Value (gallons)
Operational Storage	25% x 342,351 gallons	85,588
Emergency Storage	100% x 342,351 gallons	342,351
Fire Storage Volume	1,375gpm for 2 hrs plus 1,500 gpm for 90 minutes	300,000
	Subtotal	727,939
	Existing Storage in the Big Sky 1470 Tank	(360,000)
	1537 Tank Required Storage	367,939

Whereas 367,939 gallons is the required storage volume for the overall project, the new 1537 pressure zone must be analyzed in isolation, to ensure the proposed tank is sized correctly for this

zone alone (as the existing storage of 360,000 gallons in the 1470 zone tank is not available to the 1537 zone). The following Table 7 shows the calculation for the 1537 zone:

TABLE 7
RESERVOIR VOLUME REQUIREMENTS
1537 ZONE ONLY

Storage Component	Calculation	Value (gallons)
Operational Storage	25% x 200,466 gallons	50,117
Emergency Storage	100% x 200,466 gallons	200,466
Fire Storage Volume	500 gpm for 30 minutes plus 40 gpm for 30 minutes	16,200
	Total	266,783

A new 580,000 gallon Reservoir has been designed and approved by the city with a water height of 24 feet and a diameter of 64 feet at a pad elevation of 1,513 feet. The effective high water level will be at elevation 1,537 feet.

See Exhibit 1 for location of the proposed 1537 Reservoir.

On-Site Pump Station

A new 1537 Pump Station has been designed and approved by the city. The pump station was designed to deliver the MDD volume for the 1537 and 1470 zones within 12 hours to incorporate Southern California Edison (SCE) off peak pumping guidelines. The pump station was also designed to replace the required fire storage volume (FSV) within 72 hours. The new 1537 Pump Station will be constructed at the southeast corner of the project at the intersection with Lost Canyons Drive. The pump station was designed to have a minimum capacity according to the calculations in Table 8.

TABLE 8
PUMP STATION DESIGN FLOW RATE

Flow Rate Component	Calculation	Value (gpm)
MDD in 12 Hours for 1537 & 1470 Zones per Table 3	342,351 gallons / (12 hours x 60 min/hour)	475
FSV in 72 Hours per Table 4	300,000 gallons / (72 hours x 60 min/hour)	69

As the flowrate related to the requirement to replace the Fire Storage Volume in 72 hours is minimal compared to the flowrate related to the requirement to pump the MDD in 12 hours, the latter flowrate (475 gpm) becomes the design flowrate for the booster pump station.

The City has also requested that this new pump station be sized so that it can provide fire flow when the proposed 1537 tank is offline for maintenance. Therefore, the pump station includes three vertical turbine pumps (VTP) (alternating for even wear), each rated for 800 gpm. In the case of fire, when the 1537 tank is offline, one pump will have the capability of providing the fire flow (540 gpm) plus maximum day demand (139 gpm) in the 1537 zone.

See Exhibit 1 for the location of the required pump station.

Existing 1715 Booster Pump Station

It was previously thought that when the new Lost Canyons Booster Pump Station becomes operational, it may cause a reduced suction pressure at the existing 1715 pump station on Tapo Canyon Road (north of the proposed Lost Canyon Pump Station). However, now that the new Walnut Ave pump station (see below) has been designed and will be constructed to replace the existing Tapo St. pump station, the low pressure issue at the 1715 pump station should be mitigated when the new Walnut Ave. pump station becomes operational. An alternate solution, if the low pressure issue persists after the Walnut Ave. pump station is operational, would be to run the existing 1715 pump station during the 12 hours each day when the new Lost Canyons pump station is shut down, so these two booster pump stations have no effect on each other.

Tapo Street Pump Station / New Walnut Avenue Pump Station

Based on the assumption of 1337' of head available at the intersection of Lost Canyons Drive and Tapo Canyon Road (provided by the City), it was found that the activation of one pump at the new Lost Canyons Booster Pump Station will cause a drop in the HGL of 4.4' (1.9 psi). At the worst case, when all three pumps are operating (1,600 gpm), the HGL at this node only drops by 10' (4.3 psi). Our analysis shows that the Tapo Street Booster Pump Station, which pumps 1450 gpm from the 1248 zone to the 1355 zone, has minimal effect on the suction pressure at the Lost Canyons Booster Pump Station. Therefore, the Tapo Street Booster Pump Station will not be required to be operating when the Lost Canyon Booster Pump Station is pumping from the 1355 zone tank to the 1537 zone tank.

However, the Tapo Street Pump Station will be required to pump the additional *volume* of water required by the Lost Canyons Development each day. This can be achieved in one of two ways: the existing Tapo Street Booster Pump Station could pump for a longer period of time each day or the existing pump station could be upgraded to pump at a higher flow rate. The City proposes to relocate the pump station rather than upgrade the pumps at the existing site. To date, the design of the new Tapo Street Booster Pump Station, now called the Walnut Ave. Pump Station, is 95% complete. Construction of the Walnut Ave. Pump Station is expected to be complete by the end of 2025. The first model homes of the Lost Canyons development should be complete in a similar timeline. If, however, the new Walnut Ave. Pump station is not operational by the time the Lost Canyons Development needs water, the existing Tapo St. pump station would be required to pump the additional volume of water needed for the new development by operating its pumps for a longer period each day. The additional volume would depend on the homes completed before the Walnut Ave pump station becomes operational. As an example, if 50 homes were completed, the additional volume associated with MDD for 50 homes is 50x420gpdx2.15 = 45,150 gallons per day. This equates to approximately 31 minutes of additional pumping time (based on 1,450 gpm flow rate of the existing Tapo St. pump station).

The Lost Canyons Development will consume a portion of the flow rate from the new Walnut Ave. pump station. Per Appendix C of Technical Memorandum entitled "City of Simi Valley – Waterworks District No. 8 | Walnut Avenue Pump Station – Draft Preliminary Design Technical Memorandum" dated February 22, 2022, by Wood Rodgers (included as Appendix E to this Master Plan), the Lost Canyons development was attributed 242gpm of the total of 1352gpm flow rate for the new Walnut Ave. pump station. This equates to 18% of the new pump station's capacity. The updated Maximum Day Demand for the Lost Canyons project is 239 gpm per Table 3 above, thus, the attributable portion has not changed.

A discharge pipe will be required to connect the new Walnut Ave. pump station to the existing 1355 zone pipe in Tapo Canyon Road. This new pipe will be installed in Walnut Avenue from the corner of Lightning Ridge Way to Tapo Canyon Road, approximately 1,200 linear feet. A short portion of suction pipe will also be required to connect the new pump station to the 1248 zone. The length of this portion of pipe is anticipated to be approximately 200 linear feet.

Based on the above proportional usage of the new Walnut Ave. pump station, the Lost Canyons Development will contribute a portion of the construction costs for the new pump station and associated pipelines. The actual contribution will be negotiated directly with the City based on the information in this report.

Pipelines

The Lost Canyons development will install a new looped water supply system for reliability of service. The developer will construct a 12" Ø pipeline connecting the existing 1355 zone at the intersection of Tapo Canyon Road and Lost Canyons Drive to the proposed Lost Canyons 1537 Reservoir. The final alignment and design are currently under discussion and may vary from the alignment shown on Exhibits 3 and 4. There will also be a connection to the existing 16-inch pipeline in Lost Canyons Drive, constructed by the Big Sky development, thereby creating a looped system. The two individual lots at the southern end of the project will be served by the existing 1248 and 1357 zones by connecting to existing water pipes in Anderson Drive and Ditch Road.

The hydraulic simulations show that pipes immediately downstream of the new Lost Canyons pump station have operational pressures in excess of 150 psi. Therefore, the PVC pipe will be pressure class 305 (AWWA C900 DR 14 CL 305).

See Exhibits 2-5 for locations of all proposed transmission mains.

Pressure Regulating Stations

The Lost Canyons Development will construct a pressure regulating station for reliability of the overall water system. The pressure regulating station will connect the 1537 Pressure Zone to the 1470 Pressure Zone and will be located within the Lost Canyons Development, near the main entrance.

See Exhibit 1 for the location of the proposed pressure regulating station.

Service Pressures

The Lost Canyons residential lot elevations range from a low of 1215 feet to a high of 1416 feet. Table 9 shows the minimum and maximum pressure in each Pressure Zone.

TABLE 9
LOST CANYONS SERVICE PRESSURES

Pressure Zone	Number of Units	Upper Pad Elevation	Lower Pad Elevation	Minimum Service Pressure under Peak Hour Condition (psi)	Maximum Service Pressure under Static Condition (psi)
1537	222	1416	1310	43	98
1470	140	1350.5	1215	41	110
	Clubhouse	1352		41	50

See Appendix C for all pad elevations and resulting pressures.

Hydraulic Model

The following scenarios were modeled. All pressures shown in the hydraulic model output data are pressures at the street level.

Maximum Day Demand Plus Fire-Flow, HOA Tank Fill & Lake Fill

The specific attributes of this scenario are as follows:

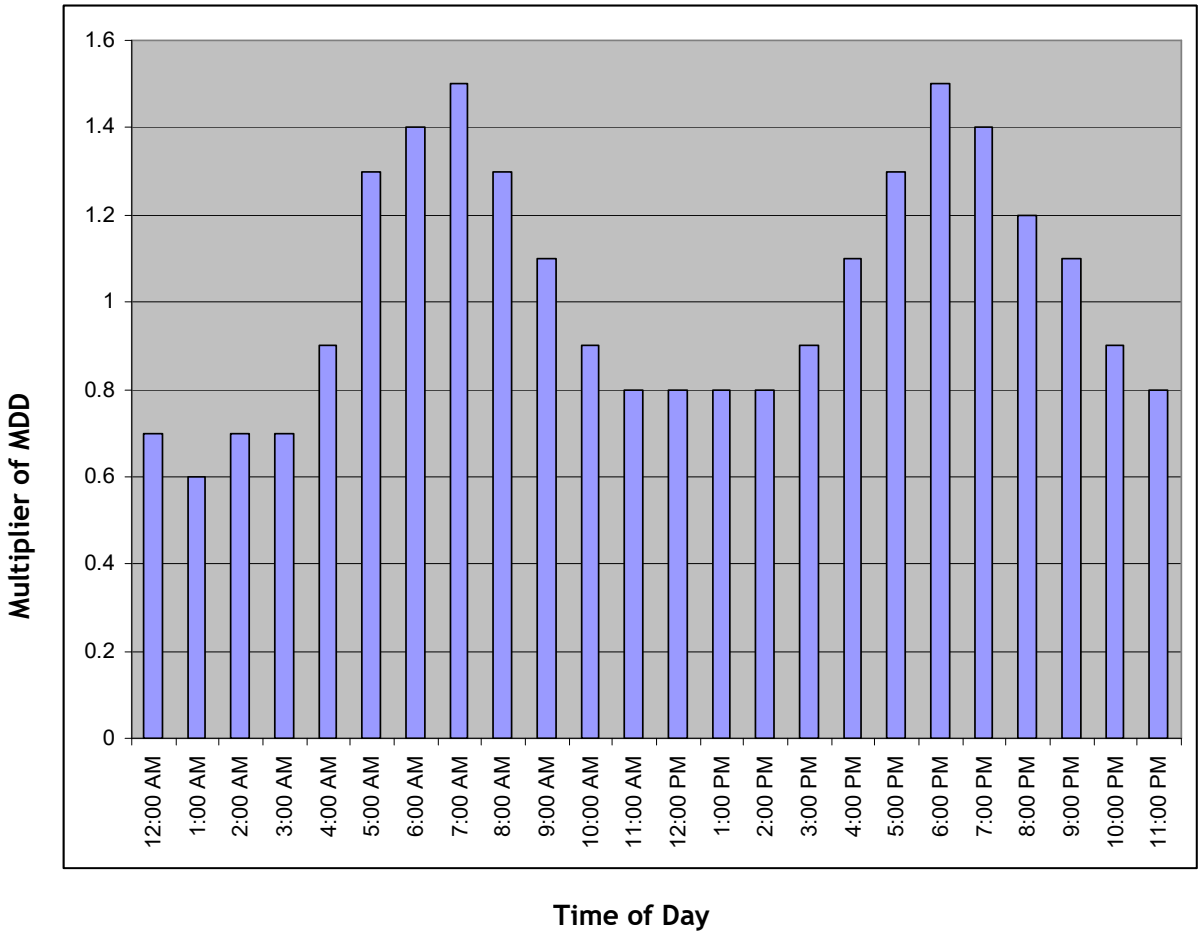
- The Maximum Day Domestic Water Demand is modeled at all network nodes.
- Fire Flow is modeled at a single node at the extremity of the network. Each remote node is analyzed separately.
- Booster Pump Station is OFF during all runs.
- The 1537 Reservoir water level is at elevation 1513' for all runs. This corresponds to an empty reservoir, which provides minimum static pressure in the system - a conservative approach.
- A demand of 150 gallons per minute (gpm) was added at Node 111 to simulate the filling of the HOA irrigation tank. This is a conservative modeling scenario as this connection could be shut-off during a Maximum-Day-Demand-plus-Fire-Flow event.
- A demand of 25 gpm was added at Node 83 to simulate the filling of the Lake. Another conservative assumption as this is only required in the event that the raw water lake-fill line is out of service.

Extended Period Analysis

An extended period analysis was performed on the proposed water system for a 72-hour period (3 days) under the conditions of:

- HOA tank being continuously filled at the rate of 150 gpm (conservative assumption).
- Golf Course Lake being continuously filled at the rate of 25 gpm (conservative assumption).
- A single pump operating between the hours of 7:00 PM and 7:00 AM.
- The 1537 reservoir is full at the start of this analysis.
- Daily domestic water demand throughout the system based on the following graph (Figure 1) showing the diurnal curve applied to the MDD for each 24-hour cycle. Per the City's request, a peak factor of 1.5 was used at the hours 7:00 AM and 6:00 PM

Figure 1: Diurnal Curve



Results

Exhibits 2 through 5 and Appendix D, show the conditions at each junction (node) and link (pipe) for each steady state scenario.

For Maximum Day Demand plus: Fire Flow, HOA Tank & Lake Fill:

- The maximum velocity in the water system is under 10 feet per second (fps).
- The minimum residual pressure in the system is over 20 pounds per square inch (psi).
- The maximum pressure at a service node is under 150 psi

Extended Period Analysis

The results of this analysis are shown at the end of Appendix D. This extended period simulation shows that the water surface elevation in the 1537 tank drops by a maximum of 11' during the 3-day period of analysis, but the tank is refilled to capacity when the pump turns on each night at 7pm. This result shows that both the HOA Tank and the lake can be filled simultaneously without

depleting the available storage volume in the 1537 tank. One pump is required to operate to achieve this, for up to 12 hours per day.

Recommendation

As can be seen from these results, the Lost Canyons Domestic Water infrastructure, including the Reservoir, Pump Station and Pipelines, complies with the requirements of the Ventura County Water Works District # 8, the City of Simi Valley and the Ventura County Fire Department.

Based on this, we recommend that the City of Simi Valley accept this revised Domestic Water System Master Plan and issue a letter of approval.

List of Exhibits

The following figures are attached to this report.

Exhibit 1 - Site Exhibit

Exhibits 2 through 5 - Node and Link Exhibits: MDD + HOA Tank Fill + Golf Lake Fill, Pump Off. Also showing particular node results for MDD + FF + HOA Tank Fill, Pumps Off

Exhibit 6 - Proposed Phasing Map

Exhibit 7 - Pressure Zone Map

List of Appendices

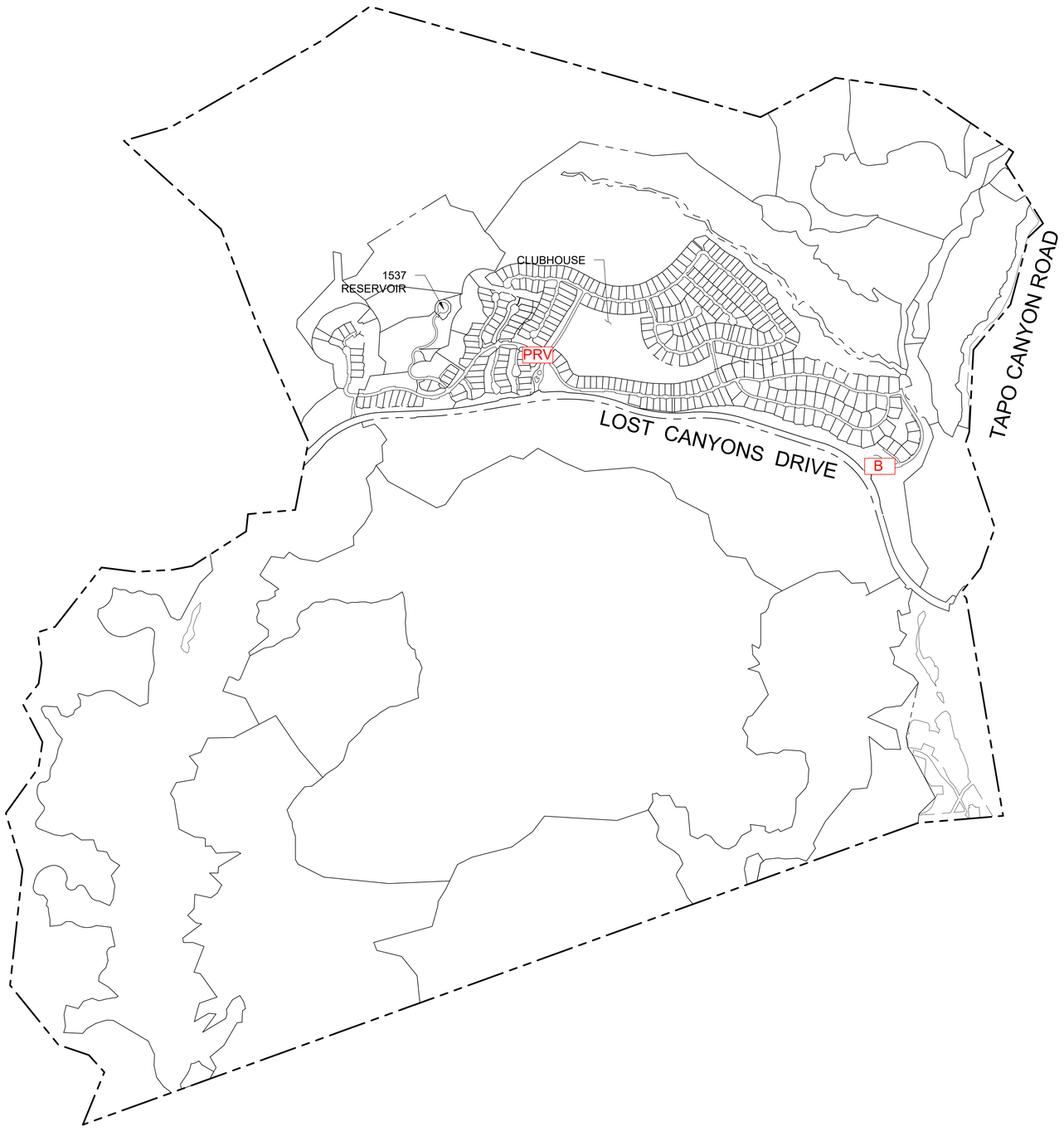
Appendix A – District Approvals

Appendix B – Standards

Appendix C – Pad Elevations and Resulting Service Pressures

Appendix D – Hydraulic Model Results

Appendix E – Walnut Avenue Pump Station Draft Preliminary Design Technical Memorandum February 22, 2022, by Wood Rodgers



LEGEND

SYMBOL	
LOST CANYONS DEVELOPMENT PRESSURE REDUCING STATION	PRV
LOST CANYONS DEVELOPMENT PROPOSED WATER BOOSTER STATION	B

600 300 0 600 1200

1 INCH = 600 FEET

OVERALL SITE

LOST CANYONS DEVELOPMENT

SIMI VALLEY, CA

EXHIBIT 1

PREPARED BY:

rtm engineering consultants

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Irvine, CA. 92618

Document Set ID: 20240220-0000-0000-0000-000000000000
Version: 1 Comment: Lost Canyons Development Water and Sewer Improvements

MATCHLINE
SEE EXHIBIT 3

ANDERSON ROAD

LEGEND

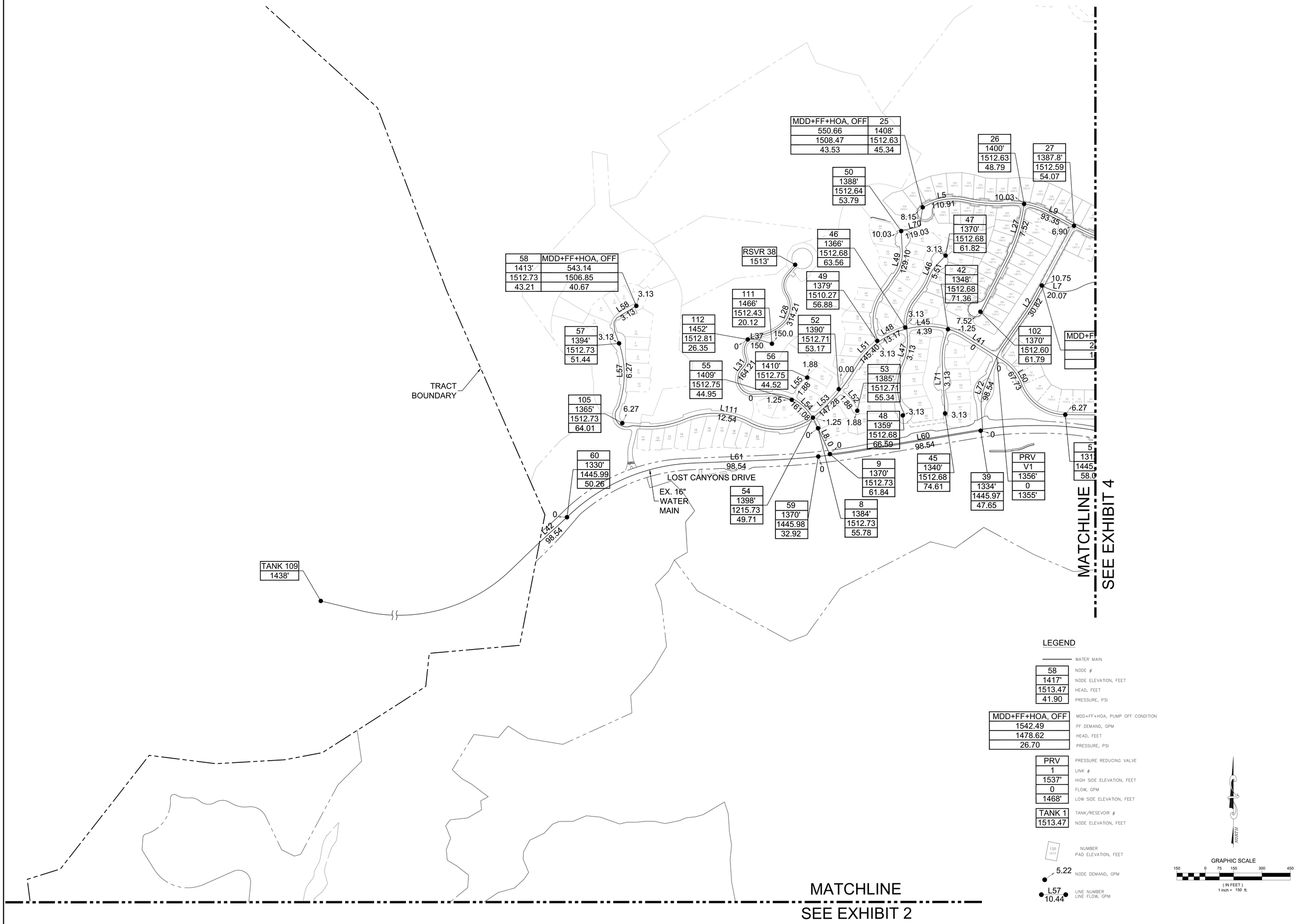
	WATER MAIN
58	NODE #
1417'	NODE ELEVATION, FEET
1513.47	HEAD, FEET
41.90	PRESSURE, PSI
MDD+FF+HOA, OFF	MDD+FF+HOA, PUMP OFF CONDITION
1542.49	FF DEMAND, GPM
1478.62	HEAD, FEET
26.70	PRESSURE, PSI
PRV	PRESSURE REDUCING VALVE
1	LINK #
1537'	HIGH SIDE ELEVATION, FEET
0	FLOW, GPM
1468'	LOW SIDE ELEVATION, FEET
TANK 1	TANK/RESEVOIR #
1513.47	NODE ELEVATION, FEET
138 / 1417	NUMBER / PAD ELEVATION, FEET
5.22	NODE DEMAND, GPM
L57 / 10.44	LINE NUMBER / LINE FLOW, GPM

NORTH

GRAPHIC SCALE
150 0 75 150 300 450
(IN FEET)
1 inch = 150 ft.

LOST CANYONS NODE EXHIBIT
MDD + HOA TANK FILL + LAKE FILL, PUMP OFF
(ALSO SHOWING LOCATIONS OF MDD + FF + HOA TANK FILL, PUMP OFF)
EXHIBIT 2

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LEGEND

	WATER MAIN
58	NODE #
1417'	NODE ELEVATION, FEET
1513.47	HEAD, FEET
41.90	PRESSURE, PSI
MDD+FF+HOA, OFF	MDD+FF+HOA, PUMP OFF CONDITION
1542.49	FF DEMAND, GPM
1478.62	HEAD, FEET
26.70	PRESSURE, PSI
PRV	PRESSURE REDUCING VALVE
1	LINK #
1537'	HIGH SIDE ELEVATION, FEET
0	FLOW, GPM
1468'	LOW SIDE ELEVATION, FEET
TANK 1	TANK/RESEVOIR #
1513.47	NODE ELEVATION, FEET
138 / 1413	NUMBER / PAD ELEVATION, FEET
5.22	NODE DEMAND, GPM
L57 / 10.44	LINE NUMBER / LINE FLOW, GPM

NORTH

GRAPHIC SCALE

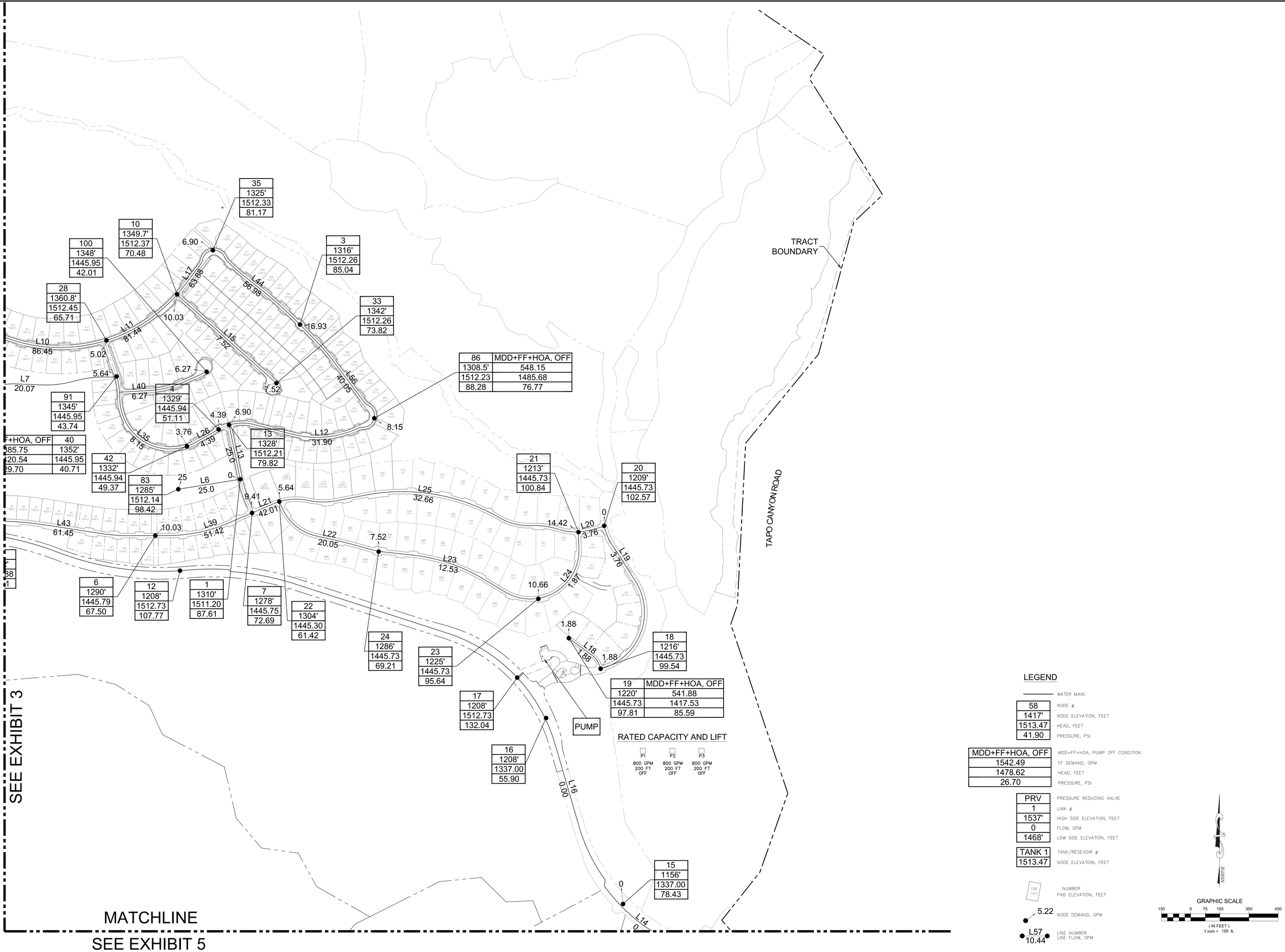
150 0 75 150 300 450

(IN FEET)

1 inch = 150 ft.

LOST CANYONS NODE EXHIBIT
MDD + HOA TANK FILL + LAKE FILL, PUMP OFF
(ALSO SHOWING LOCATIONS OF MDD + FF + HOA TANK FILL, PUMP OFF)
EXHIBIT 3

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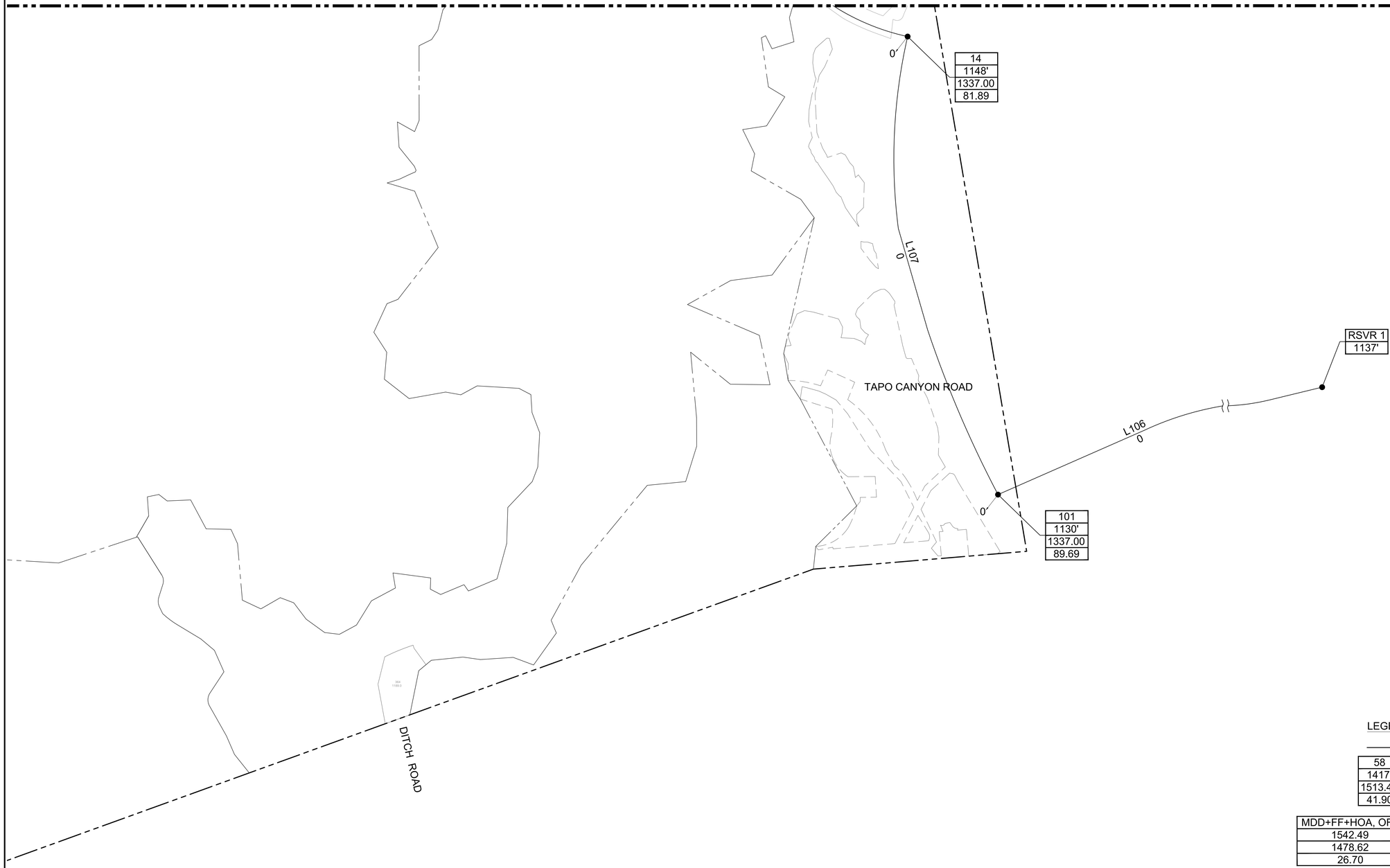
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LOST CANYONS NODE EXHIBIT
MDD + HOA TANK FILL + LAKE FILL, PUMP OFF
(ALSO SHOWING LOCATIONS OF MDD + FF + HOA TANK FILL, PUMP OFF)
EXHIBIT 4

MATCHLINE
SEE EXHIBIT 4



LEGEND

- WATER MAIN
- 58 / 1417' — NODE #, NODE ELEVATION, FEET
- 1513.47 / 41.90 — HEAD, FEET / PRESSURE, PSI
- MDD+FF+HOA, OFF / 1542.49 / 1478.62 / 26.70 — MDD+FF+HOA, PUMP OFF CONDITION / FF DEMAND, GPM / HEAD, FEET / PRESSURE, PSI
- PRV / 1 / 1537' / 0 / 1468' — PRESSURE REDUCING VALVE / LINK # / HIGH SIDE ELEVATION, FEET / FLOW, GPM / LOW SIDE ELEVATION, FEET
- TANK 1 / 1513.47 — TANK/RESEVOIR #, NODE ELEVATION, FEET
- 138 / 1417 — NUMBER, PAD ELEVATION, FEET
- 5.22 — NODE DEMAND, GPM
- L57 / 10.44 — LINE NUMBER, LINE FLOW, GPM

NORTH

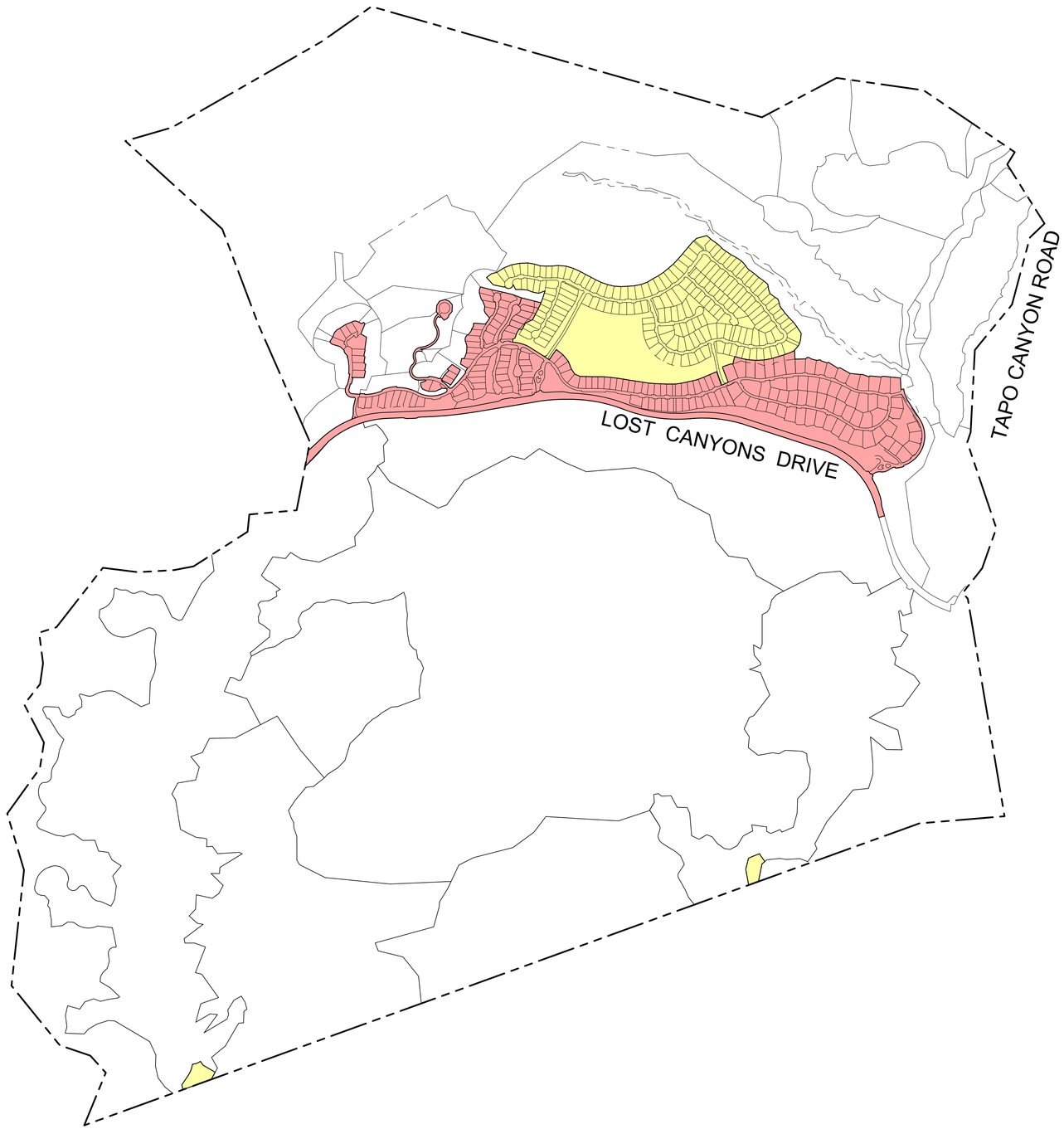
GRAPHIC SCALE
150 0 75 150 300 450
(IN FEET)
1 inch = 150 ft.

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LOST CANYONS NODE EXHIBIT
MDD + HOA TANK FILL + LAKE FILL, PUMP OFF
(ALSO SHOWING LOCATIONS OF MDD + FF + HOA TANK FILL, PUMP OFF)
EXHIBIT 5

This drawing and design is the property of rtm engineering consultants and is not to be used in whole or part for any other project without written authorization from rtm engineering consultants.



LEGEND

SYMBOL	PHASE	
	PHASE 1	180 LOTS
	PHASE 2	184 LOTS
	TOTAL	364 LOTS

600 300 0 600 1200

1 INCH = 600 FEET

PHASING EXHIBIT

LOST CANYONS DEVELOPMENT

SIMI VALLEY, CA

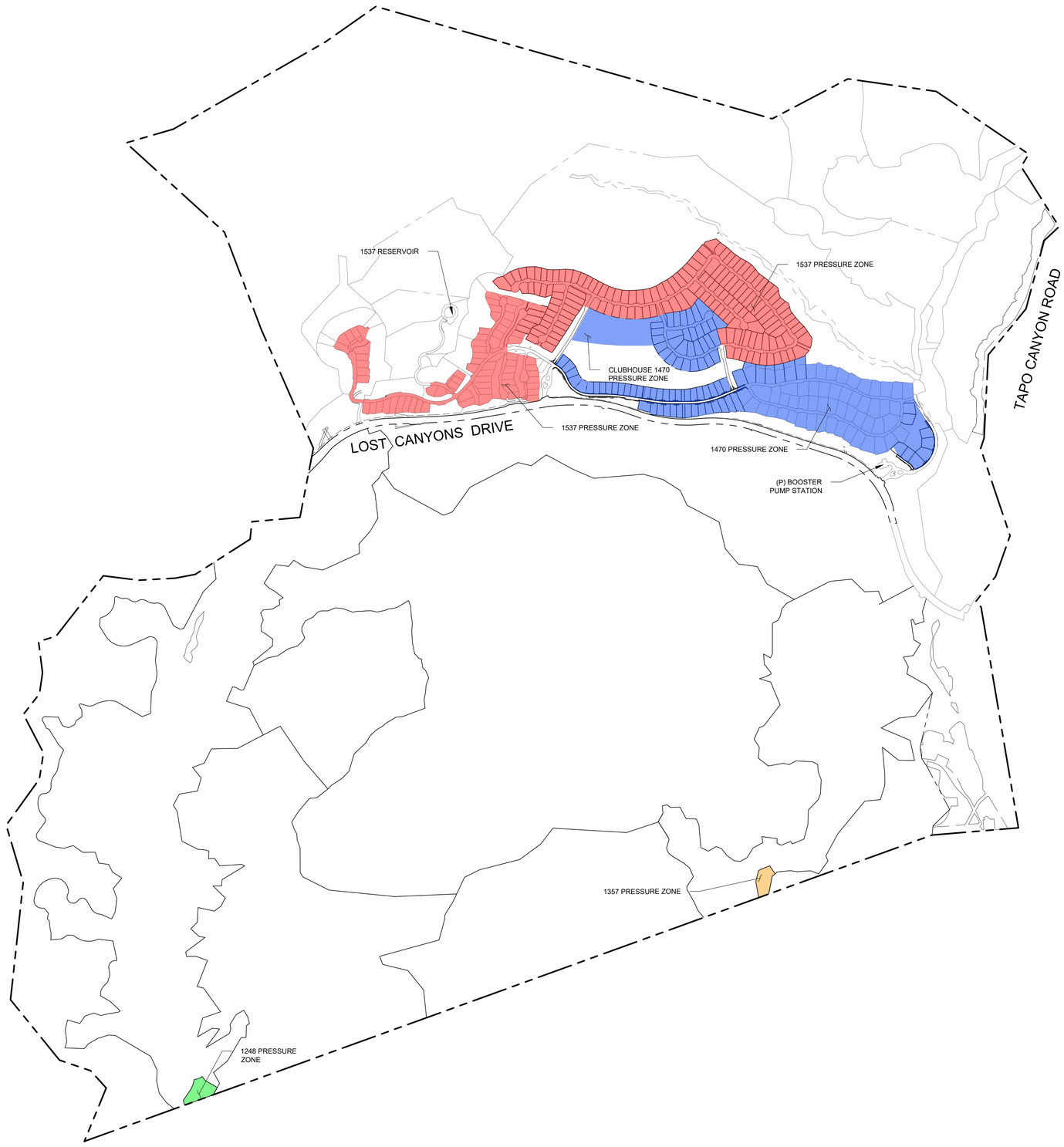
EXHIBIT 6

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LEGEND

SYMBOL	DESCRIPTION
	1470 PRESSURE ZONE
	1537 PRESSURE ZONE
	1248 PRESSURE ZONE
	1357 PRESSURE ZONE

NTS

PRESSURE ZONE EXHIBIT

LOST CANYONS DEVELOPMENT

SIMI VALLEY, CA

EXHIBIT 7

PREPARED BY:

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Attachment 2 to Item 10 - Page 4 of 4 - Public Hearing Document for Water and Sanitation District Board Meeting of October 23, 2024

Appendix A

District Approvals

Victoria Whitaker

From: Frank Cahill

Sent: Wednesday, January 18, 2012 1:48 PM

To: Rich Clark; Victoria Whitaker

Subject: FW: Summary of Meeting with City staff to discuss the proposed Lost Canyon's Water System on Tuesday, January 10th, 2012

FYI

From: Grover Townsend [mailto:CTOWNSEN@simivalley.org]
Sent: Wednesday, January 18, 2012 11:21 AM
To: Ernest Wong; Frank Cahill
Cc: Dale Reynolds
Subject: Re: Summary of Meeting with City staff to discuss the proposed LostCanyon's Water System on Tuesday, January 10th, 2012

Good morning Ernie. In the drawing it does not show the connection to the existing systems on the South end of the project. The 1248 at Anderson and 1355 at Ditch Road. I just what to make sure that they plan on installing the connections from the Lost Canyon side also (North side). This will make the 1355 and the 1248 sections looped.

Chip

>>> "Frank Cahill" <fcahill@rceconsult.com> 1/17/2012 18:12 >>>
Ernie,

To recap our meeting last Tuesday, these are the agreed upon points as I see them:

- RCE confirmed that the golf course and the large Home Owner's Association common areas would be irrigated using the City's raw water supply. Individual residential irrigation will be supplied via the potable system.
- The Mine Road Tank is no longer feasible as a source of water storage for the Lost Canyons project as a significant length of the pipeline feeding this tank is 6" in diameter, thus only allowing a maximum flow rate of 300 gpm (using an allowable head loss of 10' per 1,000').
- The proposed on-site 1540 Tank will therefore need to have a capacity of 570,000 gallons.
- The Lost Canyon's Development would therefore not be required to upgrade the Mine Road Pump Station.
- There is an existing 8" water line at the end of Anderson Road (1248 Zone), to which the Lost Canyon's Water system will connect.
- There is an existing 8" water line in Ditch Road (1355 Zone), to which the Lost Canyon's Water system will connect.
- There is enough water storage in the 1248 zone to provide for the 20 to 40 additional homes that will be added to that zone by the Lost Canyon's development (at the south end of Dry Canyon).
- There is enough water storage in the 1355 zone to provide for the 51 additional homes that will be added to that zone by the Lost Canyon's development (South Canyon).
- The concept proposed at the meeting (see attachment) looks acceptable to the City but hydraulic analysis is required to size the elements and refine the model.
- The City requested a copy of the geotechnical report for the proposed 1540 tank. RCE will coordinate providing an excerpt from the overall geotechnical report for the project which has been submitted to the City.
- The City will provide hydraulic data for the existing 1355, 1248 and 1470 zones so we can start the hydraulic analysis for the project.
- The Mine Road Pump Station is currently operating with low suction pressure. The Lost Canyon's

Project will ultimately draw approximately 2,500 gpm from the 1355 zone. To simulate this effect on the 1355 zone system, the City will open a fire hydrant close to the location where the Lost Canyon's water system will connect to the 1355 zone water system, while the Mine Road Pump Station is operating. The pressure reading at the pump station, hydrant flow rate and residual pressure will be noted and forwarded to RCE.

- The City expressed an interest in acquiring a site of approximately 50' x 50' on Bennett Road for the relocation of the Mine Road Pump Station.
- The City recommended not installing a separate fire pump at the proposed Lost Canyon's Pump Station (1355 to 1540), but to instead try to select an arrangement of pumps which would provide additional flow when operating in parallel, to allow the proposed 1540 tank to be taken off line for maintenance.
- The City currently has a budget of $295,000 for the upgrade of the Tapo Street Pump Station. The City may want to relocate instead of upgrade the existing pump station.
- The City will provide to RCE the as-built plans for the Mar Ranch Pump Station to be used as an example of the City's requirements for the new Lost Canyon's Pump Station. (Post Meeting Note: City provided to RCE the drawings for the Chumash "Pump Station Capacity Expansion").
- With regard to project phasing, the first phase would consist of approximately thirty eight (38) units within the Club Core area of the project. These would be connected directly to the Big Sky Tank (1470) via the existing 16" water main in Lost Canyons Drive. The Maximum Day Demand (MDD) for these first phase units would be 24 gpm. The City suggested that the Lost Canyons Project reimburse the City for the additional pumping costs associated with these first phase units until the new Lost Canyons Pump Station comes on-line.
- The 20 to 40 units within the 1248 zone at the south end of Dry Canyon are also being considered as an early phase.
- The pumps that supply the Big Sky tank (1470) are currently running about 19 hours per day but this may be reduced as the landscape grow-in for the Big Sky development is completed.
- The next phase of development would probably be the 81 units in the Club Core which would require the new tank at 1540 to be constructed.

Please let me know if I missed anything or misrepresented any of the above points.

Thanks You

Regards,

Frank.

From: Ernest Wong [mailto:EWong@simivalley.org]
Sent: Thursday, December 22, 2011 8:45 AM
To: Frank Cahill; Zastrow, Robert
Cc: Rich Clark; McClure, John; Townsend, Grover; Victoria Whitaker
Subject: Re: Summary of Meeting with City staff to discuss the proposed LostCanyon's Water System

Hi Frank,

Please see our comments, which incorporate those of Waterworks Services, in red.

Thanks.

Ernie

>>> "Frank Cahill" <fcahill@rceconsult.com> 12/20/2011 6:28 PM >>>
Gentlemen,

Just to recap last week's meeting, please note the following agreements:

- There is 360,000 gallons of water storage available in the Big Sky tank for the Lost Canyons

Development.

- Yes, this storage is available for the Dry Canyon (144 units), the Club Core (38 units) to be served in the 1470 Zone.
- There is 180,000 gallons of water storage available in the Mine Road tank for the Lost Canyons Development
- Yes, this storage is available based on the ability to supply 750 gpm for 4 hours from Mine Road Tank to the Lost Canyons Development (LCD).
- Therefore, the new tank at the Lost Canyons Development will be required to store approximately 400,000 gallons.
- Yes, based on the ability to deliver 750 gpm for 4 hours from Mine Road Tank to the LCD and South Canyon (51 units) being served from the 1355 Zone.
- This new tank could be at a high water elevation of 1470' (exactly the same as the Big Sky tank) or at a higher elevation of 1,540'
- Since the 1540 Water Tank site is available, the District will require the 1540 Tank to be constructed as such. The use of a hydropneumatic pump station is an option of last resort, only.
- If the new tank is constructed at high water elevation of 1,470', a hydro-pneumatic tank and pump system with a fire pump would be required to feed the higher lots.
- See answer above. Again, with a 1540 Water Tank site available, there is no need for a hydropneumatic pump station.
- The existing Mine Road pump station is not operating efficiently due to low suction pressure.
- Yes, the Mine Road Pump Station has a capacity of 200 gpm and pumps from the 1355 Zone to the 1713 Zone with Mine Road Tank. This pump station takes suction supply from an existing 8-inch watermain (1355 Zone) in Tapo Canyon Road north of Bennett Road. The demand increase of the LCD will increase pressure losses in the 1355 Zone watermain and exacerbate the low suction pressure problem for Mine Road Pump Station.
- A new pump station will be required to replace the existing Mine road pump Station, to pump 750 gpm from the 1,355' zone to the 1,715' zone. 750 gpm is the capacity of the 8" pipe that feeds the Mine Road tank.
- Upon further review of the 1713 Zone facilities, we found a 2,300 foot section of 6-inch pipe (the rest is 8-inch) in between the Mine Road Pump Station and Mine Road Tank that limits the flow available from the tank to the LCD. This undersized watermain is a hydraulic constraint to flowing 750 gpm to the LCD from the tank and to supplying the tank from the pump station. The storage credit from the Mine Road Tank is based on the flow available for four hours. A shortfall of storage credit in Mine Road Tank would need to be added into the new 1540 Tank.
- A new pump station will be required to pump the required flow for the Lost Canyons project from the 1,355' zone to the new tank (at either 1,470' or 1,540' elevation)
- The new pump station will pump to a new 1540 Tank.
- If the new tank is placed at a high water elevation of 1,540', the new pump station would be required to pump fire flow in the event that the 1,540' tank is out of service for maintenance.
- Yes, amount to be determined with hydraulic analyses.
- If the new tank is placed at a high water elevation of 1,470', the new pump station wouldn't be required to pump at fire flow rate because when the new tank is out of service for maintenance, the existing Big Sky tank can operate as a back up.
- No, the 360,000 gallons storage credit is less than the required fire storage of 555,000 gallons for the Club House. The new pump station will need to supply the balance in the event that the new tank is down for maintenance.
- RCE will develop the phasing of the build-out of the water system and present this to the City
- Yes.
- The phasing of the development may have an impact on the decision to put the new tank at a high water elevation of 1,470' (and construct a hydro-pneumatic tank and pump station) or put the new tank at a high water elevation of 1,470'
- Upon further review, the District will require the 1540 Tank since the site is available.
- After the meeting the City stated that the existing Tapo Street pump station which pumps to the 1,355'

zone is also required to be upsized for the Lost Canyons Project. RCE will analyze the extent of the upgrades required and present the results to the City.

- Yes, we should discuss further some possible options.

NOTE: THE AFOREMENTIONED CONCEPTUAL PLAN IS SUBJECT TO SUBMITTAL AND DISTRICT ACCEPTANCE OF A GEOTECHNICAL REPORT DETERMINING THAT AN APPROPRIATELY SIZED PROPOSED 1540 TANK SITE IS AVAILABLE. AS WE HAVE INDICATED, HYDRAULIC ANALYSES MAY REVEAL SIGNIFICANT OFFSITE WATERMAIN IMPROVEMENTS BEING REQUIRED TO ENSURE THAT THE 1355 ZONE AND 1713 ZONE SUPPLY ARE NOT ADVERSELY AFFECTED.

Please let me know if I missed anything of if I misrepresented any of the above points.

Thanks as always for your continued cooperation and attention to this project.

Regards,

Frank.

Frank Cahill, P.E.

RCE Consultants, Inc.

WE'VE MOVED
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Laguna Hills, CA 92653
949.453.0111 Extension 104
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FCahill@rceconsult.com

Email secured by Check Point

Victoria Whitaker

From: Frank Cahill

Sent: Monday, January 30, 2012 2:51 PM

To: Rich Clark; Victoria Whitaker

Subject: FW: Lost Canyons Water System Master Plan - Scope Question

FYI

From: Ernest Wong [mailto:EWong@simivalley.org]
Sent: Monday, January 30, 2012 2:23 PM
To: Frank Cahill
Cc: Grover Townsend
Subject: Re: Lost Canyons Water System Master Plan - Scope Question

Hi Frank,

Our data from our system does not track flow, so we do not have hourly flow data of the system to derive a diurnal demand curve. Since we pump on a time-of-day basis to secure the best power rates from SCE, our pumping records do not reflect hourly demands.

I would suggest that you try using a generic diurnal curve with hourly peaking factors with a maximum factor of 1.5 at 7 am and at 6 pm for morning and afternoon peak demand.

I hope this helps, but call and we can discuss if you want.

Thanks.

Ernie
805-583-6896

>>> "Frank Cahill" <fcahill@rceconsult.com> 1/24/2012 4:37 PM >>>

Ernie,

When we prepare the Lost Canyons Water System Master Plan, we will obviously model the proposed water distribution system and perform several *static* simulations such as Max Day Demand plus Fire Flow, Peak Hour Demand etc. Would the City require us to perform an Extended Period Simulation also? This would require a diurnal demand curve. The previous report (by Brockmeier, dated January 2008) states that a diurnal demand curve was not available and therefore an extended period simulation was not performed. Do you currently have diurnal demand information and if so, will you require us to provide an Extended Period Simulation in the Water System Master Plan?

Regards,

Frank.

Email secured by Check Point

Appendix B

Standards

California Fire Code 2022

B105.1 One- And Two-Family Dwellings, Group R-3 and R-4 Buildings and Townhouses

The minimum fire-flow and flow duration requirements for one- and two-family dwellings, Group R-3 and R-4 buildings and townhouses shall be as specified in Tables B105.1(1) and B105.1(2).

TABLE B105.1(1)

REQUIRED FIRE FLOW FOR ONE- AND TWO-FAMILY DWELLINGS, GROUP R-3 AND R-4 BUILDINGS AND TOWNHOUSES

FIRE-FLOW CALCULATION AREA (square feet)	AUTOMATIC SPRINKLER SYSTEM (Design Standard)	MINIMUM FIRE FLOW (gallons per minute)	FLOW DURATION (hours)
0—3,600	No automatic sprinkler system	1,000	1
3,601 and greater	No automatic sprinkler system	Value in Table B105.1(2)	Duration in Table B105.1(2) at the required fire-flow rate
0—3,600	Section 903.3.1.3 of the *California Fire Code* or Section 313.3 of the *California Residential Code*	500	1/2
3,601 and greater	Section 903.3.1.3 of the *California Fire Code* or Section 313.3 of the *California Residential Code*	1/2 value in Table B105.1(2)	1

For SI: 1 square foot = 0.0929 m^2, 1 gallon per minute = 3.785 L/m.

TABLE B105.1(2)

REFERENCE TABLE FOR TABLES B105.1(1) AND B105.2

FIRE-FLOW CALCULATION AREA (square feet)					FIRE FLOW (gallons per minute)[b]	FLOW DURATION (hours)
Type IA and IB[a]	Type IIA and IIIA[a]	Type IV and V-A[a]	Type IIB and IIIB[a]	Type V-B[a]		
0—22,700	0—12,700	0—8,200	0—5,900	0—3,600	1,500	2
22,701—30,200	12,701—17,000	8,201—10,900	5,901—7,900	3,601—4,800	1,750	
30,201—38,700	17,001—21,800	10,901—12,900	7,901—9,800	4,801—6,200	2,000	
38,701—48,300	21,801—24,200	12,901—17,400	9,801—12,600	6,201—7,700	2,250	
48,301—59,000	24,201—33,200	17,401—21,300	12,601—15,400	7,701—9,400	2,500	
59,001—70,900	33,201—39,700	21,301—25,500	15,401—18,400	9,401—11,300	2,750	
70,901—83,700	39,701—47,100	25,501—30,100	18,401—21,800	11,301—13,400	3,000	3
83,701—97,700	47,101—54,900	30,101—35,200	21,801—25,900	13,401—15,600	3,250	
97,701—112,700	54,901—63,400	35,201—40,600	25,901—29,300	15,601—18,000	3,500	
112,701—128,700	63,401—72,400	40,601—46,400	29,301—33,500	18,001—20,600	3,750	
128,701—145,900	72,401—82,100	46,401—52,500	33,501—37,900	20,601—23,300	4,000	4

145,901—164,200	82,101—92,400	52,501—59,100	37,901—42,700	23,301—26,300	4,250	
164,201—183,400	92,401—103,100	59,101—66,000	42,701—47,700	26,301—29,300	4,500	
183,401—203,700	103,101—114,600	66,001—73,300	47,701—53,000	29,301—32,600	4,750	
203,701—225,200	114,601—126,700	73,301—81,100	53,001—58,600	32,601—36,000	5,000	
225,201—247,700	126,701—139,400	81,101—89,200	58,601—65,400	36,001—39,600	5,250	
247,701—271,200	139,401—152,600	89,201—97,700	65,401—70,600	39,601—43,400	5,500	
271,201—295,900	152,601—166,500	97,701—106,500	70,601—77,000	43,401—47,400	5,750	
295,901—Greater	166,501—Greater	106,501—115,800	77,001—83,700	47,401—51,500	6,000	
—	—	115,801—125,500	83,701—90,600	51,501—55,700	6,250	
—	—	125,501—135,500	90,601—97,900	55,701—60,200	6,500	
—	—	135,501—145,800	97,901—106,800	60,201—64,800	6,750	
—	—	145,801—156,700	106,801—113,200	64,801—69,600	7,000	
—	—	156,701—167,900	113,201—121,300	69,601—74,600	7,250	
—	—	167,901—179,400	121,301—129,600	74,601—79,800	7,500	
—	—	179,401—191,400	129,601—138,300	79,801—85,100	7,750	
—	—	191,401—Greater	138,301—Greater	85,101—Greater	8,000	

For SI: 1 square foot = 0.0929 m^2, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. Types of construction are based on the *California Building Code*.

b. Measured at 20 psi residual pressure.

TABLE 3-1 Residential Water Demand – Duties for Undeveloped Property		
Density	Average Daily Demand	
	gpm/acre*	gpd/acre*
Low Density (0 - 3 dwelling units [DU] per acre)	1.10	1,584
Medium Density (3.1 - 10 DU per acre)	1.40	2,016
High Density (10.1 - 18+ DU per acre	5.70	8,208

* Factor shall be applied to raw acreage with no deduction for opens space, roads, easements, etc.

For a residential property where the number and type of dwelling units to be constructed are known, the ADD shall be estimated by using the criteria shown in Table 3-1A.

TABLE 3-1A Residential Water Demand – Duties for Dwelling Unit Types	
Housing Type	Average Daily Demand (gpd/unit, lot, or room as noted)
Detached Residential (per Lot)	
Small Lot, up to 9,999 SF	420
Medium Lot, 10,000 - 22,000 SF	840
Large Lot, 22,001 SF - 1 acre	1,680
Condominium (per unit)	259
Multi-Family Apartment (per unit)	222
Retirement Facility (per room)	92
Senior Apartment (per room)	111

3.2.2 Commercial and Industrial Water Demand

For properties zoned for commercial and industrial use, including greenbelt areas, the estimated ADD shall be determined through fixture counts for each existing/proposed building where the demand for each fixture is based on the California Plumbing Code. For such properties where the land use is not defined,

the estimated ADD shall be determined by using the criteria shown in Table 3-2 with prior approval from the District Engineer.

TABLE 3-2
Commercial and Industrial Water Demand Based on Land Use

Land Use	Average Daily Demand (ADD)	
	gpm/acre	gpd/acre
COMMERCIAL:		
Light	1.75	2,520
Heavy	2.35	3,384
Office	2.00	2,880
INDUSTRIAL:		
Light	1.95	2,808
Heavy	9.20	13,248
Business Park	2.00	2,880
PUBLIC / SEMI-PUBLIC:		
Parks	1.10	1,584
Hospitals	1.85	2,664
Schools	1.20	1,728
Community Services	1.35	1,944

3.2.3 Peaking Factors

The peaking factors in Table 3-3 shall be multiplied by the ADD to determine MDD and PHD flows.

TABLE 3-3 - Peaking Factors

Demand	Peaking Factor [1]
Maximum Day Demand (MDD) [2]	2.15
Peak Hour Demand (PHD) [3]	4.50

ance with the requirements of *NFPA 72* or other approved fire alarm code.

19.2 Occupancy Hazard Fire Control Approach for Spray Sprinklers.

19.2.1 General.

19.2.1.1* The water demand requirements shall be determined by either the pipe schedule method in accordance with 19.2.2 or the hydraulic calculation method in accordance with 19.2.3.

19.2.1.2 Occupancy Classifications.

19.2.1.2.1 Occupancy classifications for this standard shall relate to sprinkler installations and their water supplies only.

19.2.1.2.2 Occupancy classifications shall not be used as a general classification of occupancy hazards.

19.2.1.2.3 Occupancies or portions of occupancies shall be classified according to the quantity and combustibility of contents, the expected rates of heat release, the total potential for energy release, the heights of stockpiles, and the presence of flammable and combustible liquids, using the definitions contained in 4.3.2 through 4.3.6.

19.2.1.2.4 Classifications shall be as follows:

(1) Light hazard
(2) Ordinary hazard (Groups 1 and 2)
(3) Extra hazard (Groups 1 and 2)
(4) Special occupancy hazard *(see Chapter 27)*

19.2.2 Water Demand Requirements — Pipe Schedule Method.

19.2.2.1 Table 19.2.2.1 shall be used in determining the minimum water supply requirements for light and ordinary hazard occupancies protected by systems with pipe sized according to the pipe schedules of Section 28.5.

19.2.2.2 Pressure and flow requirements for extra hazard occupancies shall be based on the hydraulic calculation methods of 19.2.3, except as permitted by 19.2.2.3(2).

19.2.2.3 The pipe schedule method shall be permitted as follows:

(1) Additions or modifications to existing pipe schedule systems sized according to the pipe schedules of Section 28.5
(2) Additions or modifications to existing extra hazard pipe schedule systems
(3) New systems of 5000 ft² (465 m²) or less
(4) New systems exceeding 5000 ft² (465 m²) where the flows required in Table 19.2.2.1 are available at a minimum residual pressure of 50 psi (3.4 bar) at the highest elevation of sprinkler

19.2.2.4 The lower duration value of Table 19.2.2.1 shall be acceptable only where the sprinkler system waterflow alarm device(s) and supervisory device(s) are electrically supervised and such supervision is monitored at an approved, constantly attended location.

19.2.2.5* Residual Pressure.

19.2.2.5.1 The residual pressure requirement of Table 19.2.2.1 shall be met at the elevation of the highest sprinkler.

19.2.2.5.2 Friction Loss Due to Backflow Prevention Valves.

19.2.2.5.2.1 When backflow prevention valves are installed on pipe schedule systems, the friction losses of the device shall be accounted for when determining acceptable residual pressure at the top level of sprinklers.

19.2.2.5.2.2 The friction loss of this device [in psi (bar)] shall be added to the elevation loss and the residual pressure at the top row of sprinklers to determine the total pressure needed at the water supply.

19.2.2.6 The lower flow figure of Table 19.2.2.1 shall be permitted only where the building is of noncombustible construction or the potential areas of fire are limited by building size or compartmentation such that no open areas exceed 3000 ft² (280 m²) for light hazard or 4000 ft² (370 m²) for ordinary hazard.

19.2.3 Water Demand Requirements — Hydraulic Calculation Methods.

19.2.3.1 General.

19.2.3.1.1 The water demand for sprinklers shall be determined only from one of the following, at the discretion of the designer:

(1) For new systems, the density/area selected from Table 19.2.3.1.1 in accordance with the density/area method of 19.2.3.2
(2) For the evaluation or modification of existing systems, the density/area curves of Figure 19.2.3.1.1 in accordance with the density/area method of 19.2.3.2
(3) The room that creates the greatest demand in accordance with the room design method of 19.2.3.3
(4) Special design areas in accordance with 19.2.3.4

Δ Table 19.2.2.1 Water Supply Requirements for Pipe Schedule Sprinkler Systems

Occupancy Classification	Minimum Residual Pressure Required		Acceptable Flow at Base of Riser (Including Hose Stream Allowance)		Duration (minutes)
	psi	bar	gpm	L/min	
Light hazard	15	1	500–750	1900–2850	30 or 60
Ordinary hazard	20	1.4	850–1500	3200–5700	60 or 90

N Table 19.2.3.1.1 Density/Area

Hazard	Density/Area [gpm/ft²/ft² (mm/min/m²)]
Light	0.1/1500 or 0.07/3000* (4.1/140 or 2.9/280)
Ordinary Group 1	0.15/1500 or 0.12/3000* (6.1/140 or 4.9/280)
Ordinary Group 2	0.2/1500 or 0.17/3000* (8.1/140 or 6.9/280)
Extra Group 1	0.3/2500 or 0.28/3000* (12.2/230 or 11.4/280)
Extra Group 2	0.4/2500 or 0.38/3000* (16.3/230 or 15.5/280)

*When required by 19.2.3.1.5.

Appendix C

Pad Elevations and Resulting Service Pressures

Lost Canyons Lot Pressures By Planning Area					
Lot Number	Pad Elev. (feet)	Low Dynamic Pressure, PHD (psi)	Low Pressure Mitigation	High Static Pressure (psi)	High Pressure Mitigation
LOST CANYON					
1537 Zone					
Hydraulic Grade Line in 1537 Zone varies between a High of 1537 and a Low of 1513					
1	1416	43	OK	52	OK
2	1413	43	OK	54	OK
3	1409	43	OK	55	OK
4	1407	43	OK	56	OK
5	1405	43	OK	57	OK
6	1399	51	OK	60	OK
7	1396	51	OK	61	OK
8	1391	51	OK	63	OK
9	1384	51	OK	66	OK
10	1380	51	OK	68	OK
11	1365	64	OK	74	OK
12	1368.5	64	OK	73	OK
13	1371	64	OK	72	OK
14	1373	64	OK	71	OK
15	1377	64	OK	69	OK
16	1383	64	OK	67	OK
17	1385	64	OK	66	OK
18	1387	64	OK	65	OK
19	1391	64	OK	63	OK
20	1393	64	OK	62	OK
21	1415	44	OK	53	OK
22	1412	44	OK	54	OK
23	1410	44	OK	55	OK
24	1409	44	OK	55	OK
25	1408	44	OK	56	OK
26	1398	49	OK	60	OK
27	1395	49	OK	61	OK
28	1385	55	OK	66	OK
29	1385	55	OK	66	OK
30	1385.5	55	OK	66	OK
31	1385	57	OK	66	OK
32	1384	57	OK	66	OK
33	1383	57	OK	67	OK
34	1385.5	57	OK	66	OK
35	1383	57	OK	67	OK
36	1382	53	OK	67	OK
37	1382	53	OK	67	OK
38	1383	53	OK	67	OK
39	1384	53	OK	66	OK
40	1386	53	OK	65	OK
41	1388	53	OK	65	OK
42	1389	53	OK	64	OK

Lost Canyons Lot Pressures By Planning Area					
Lot Number	Pad Elev. (feet)	Low Dynamic Pressure, PHD (psi)	Low Pressure Mitigation	High Static Pressure (psi)	High Pressure Mitigation
43	1391	53	OK	63	OK
44	1391	53	OK	63	OK
45	1388	53	OK	65	OK
46	1387.2	53	OK	65	OK
47	1386.8	53	OK	65	OK
48	1385.8	53	OK	65	OK
49	1384.8	53	OK	66	OK
50	1383.8	53	OK	66	OK
51	1382.8	53	OK	67	OK
52	1372	61	OK	71	OK
53	1371	61	OK	72	OK
54	1371	61	OK	72	OK
55	1369	61	OK	73	OK
56	1369	63	OK	73	OK
57	1368	63	OK	73	OK
58	1367	63	OK	74	OK
59	1364.5	63	OK	75	OK
60	1364	63	OK	75	OK
61	1363	66	OK	75	OK
62	1362	66	OK	76	OK
63	1361	66	OK	76	OK
64	1360	66	OK	77	OK
65	1359	66	OK	77	OK
66	1340	74	OK	85	Pressure Regulator
67	1341	74	OK	85	Pressure Regulator
68	1342	74	OK	84	Pressure Regulator
69	1343	74	OK	84	Pressure Regulator
70	1343	74	OK	84	Pressure Regulator
71	1344	71	OK	84	Pressure Regulator
72	1345	71	OK	83	Pressure Regulator
73	1400	49	OK	59	OK
74	1400.5	49	OK	59	OK
75	1387	54	OK	65	OK
76	1385	54	OK	66	OK
77	1382.5	54	OK	67	OK
78	1380	54	OK	68	OK
151	1377.5	54	OK	69	OK
152	1374	54	OK	71	OK
153	1371.5	65	OK	72	OK
153	1369	65	OK	73	OK
154	1369	65	OK	73	OK
155	1366	65	OK	74	OK
168	1332.5	79	OK	89	Pressure Regulator
169	1330	79	OK	90	Pressure Regulator
170	1328	79	OK	90	Pressure Regulator

Lost Canyons Lot Pressures By Planning Area					
Lot Number	Pad Elev. (feet)	Low Dynamic Pressure, PHD (psi)	Low Pressure Mitigation	High Static Pressure (psi)	High Pressure Mitigation
171	1325.5	79	OK	92	Pressure Regulator
172	1323.5	79	OK	92	Pressure Regulator
173	1321.5	88	OK	93	Pressure Regulator
174	1319	88	OK	94	Pressure Regulator
175	1317	88	OK	95	Pressure Regulator
176	1315	88	OK	96	Pressure Regulator
177	1313	88	OK	97	Pressure Regulator
178	1310.5	88	OK	98	Pressure Regulator
179	1312.5	88	OK	97	Pressure Regulator
180	1316	88	OK	96	Pressure Regulator
181	1319	88	OK	94	Pressure Regulator
182	1322	88	OK	93	Pressure Regulator
183	1324.5	79	OK	92	Pressure Regulator
184	1327	79	OK	91	Pressure Regulator
185	1328.5	79	OK	90	Pressure Regulator
186	1331	79	OK	89	Pressure Regulator
187	1332.5	79	OK	89	Pressure Regulator
188	1333	79	OK	88	Pressure Regulator
209	1359	65	OK	77	OK
210	1357.5	70	OK	78	OK
211	1357.5	70	OK	78	OK
212	1356	70	OK	78	OK
213	1350.5	70	OK	81	Pressure Regulator
214	1350	70	OK	81	Pressure Regulator
215	1349.5	70	OK	81	Pressure Regulator
220	1349	70	OK	81	Pressure Regulator
221	1348	73	OK	82	Pressure Regulator
222	1347.5	73	OK	82	Pressure Regulator
223	1347	73	OK	82	Pressure Regulator
224	1346	73	OK	83	Pressure Regulator
225	1345	73	OK	83	Pressure Regulator
226	1343	73	OK	84	Pressure Regulator
227	1344	73	OK	84	Pressure Regulator
228	1345.5	73	OK	83	Pressure Regulator
229	1346	73	OK	83	Pressure Regulator
230	1347	73	OK	82	Pressure Regulator
231	1347.5	73	OK	82	Pressure Regulator
232	1348	73	OK	82	Pressure Regulator
233	1349	70	OK	81	Pressure Regulator
234	1349.5	70	OK	81	Pressure Regulator
235	1350	70	OK	81	Pressure Regulator
236	1350.5	70	OK	81	Pressure Regulator
237	1324.5	81	OK	92	Pressure Regulator
238	1323.5	81	OK	92	Pressure Regulator
239	1322.5	81	OK	93	Pressure Regulator

Lost Canyons Lot Pressures By Planning Area					
Lot Number	Pad Elev. (feet)	Low Dynamic Pressure, PHD (psi)	Low Pressure Mitigation	High Static Pressure (psi)	High Pressure Mitigation
240	1322	85	OK	93	Pressure Regulator
241	1321	85	OK	94	Pressure Regulator
242	1320.5	85	OK	94	Pressure Regulator
243	1319.5	85	OK	94	Pressure Regulator
244	1319	85	OK	94	Pressure Regulator
245	1318	85	OK	95	Pressure Regulator
246	1317.5	85	OK	95	Pressure Regulator
247	1316.5	85	OK	95	Pressure Regulator
248	1315.5	85	OK	96	Pressure Regulator
249	1314.5	85	OK	96	Pressure Regulator
250	1314	85	OK	97	Pressure Regulator
251	1313	85	OK	97	Pressure Regulator
252	1312	85	OK	97	Pressure Regulator
253	1310	88	OK	98	Pressure Regulator
254	1310.5	88	OK	98	Pressure Regulator
255	1311	88	OK	98	Pressure Regulator
256	1312	85	OK	97	Pressure Regulator
257	1313	85	OK	97	Pressure Regulator
258	1313.5	85	OK	97	Pressure Regulator
259	1314.5	85	OK	96	Pressure Regulator
260	1315	85	OK	96	Pressure Regulator
261	1316	85	OK	96	Pressure Regulator
262	1316.5	85	OK	95	Pressure Regulator
263	1317.5	85	OK	95	Pressure Regulator
264	1318	85	OK	95	Pressure Regulator
265	1319	85	OK	94	Pressure Regulator
266	1319.5	85	OK	94	Pressure Regulator
267	1320.5	85	OK	94	Pressure Regulator
268	1321.5	85	OK	93	Pressure Regulator
269	1322	85	OK	93	Pressure Regulator
270	1322.5	81	OK	93	Pressure Regulator
271	1326.5	81	OK	91	Pressure Regulator
272	1324.5	81	OK	92	Pressure Regulator
273	1325.5	81	OK	92	Pressure Regulator
274	1326	81	OK	91	Pressure Regulator
275	1331	81	OK	89	Pressure Regulator
276	1338	81	OK	86	Pressure Regulator
277	1345	81	OK	83	Pressure Regulator
278	1350	70	OK	81	Pressure Regulator
279	1353.5	70	OK	79	OK
280	1355	70	OK	79	OK
281	1356.5	70	OK	78	OK
282	1358	70	OK	77	OK
315	1359.5	65	OK	77	OK
316	1362	65	OK	76	OK

Lost Canyons Lot Pressures By Planning Area					
Lot Number	Pad Elev. (feet)	Low Dynamic Pressure, PHD (psi)	Low Pressure Mitigation	High Static Pressure (psi)	High Pressure Mitigation
317	1366	65	OK	74	OK
318	1369.5	65	OK	73	OK
319	1373.5	54	OK	71	OK
320	1377	54	OK	69	OK
321	1381	54	OK	68	OK
322	1384.5	54	OK	66	OK
323	1387.5	54	OK	65	OK
324	1394	49	OK	62	OK
325	1396	49	OK	61	OK
326	1398.5	49	OK	60	OK
327	1340.5	49	OK	85	Pressure Regulator
328	1402.5	49	OK	58	OK
329	1404.5	49	OK	57	OK
330	1405.5	49	OK	57	OK
331	1406	45	OK	57	OK
332	1406.5	45	OK	56	OK
333	1407	45	OK	56	OK
334	1407.5	45	OK	56	OK
335	1408	45	OK	56	OK
336	1408.5	45	OK	56	OK
337	1409	45	OK	55	OK
338	1409	45	OK	55	OK
339	1408.5	45	OK	56	OK
340	1407.5	45	OK	56	OK
341	1407	45	OK	56	OK
342	1406	45	OK	57	OK
343	1405.5	45	OK	57	OK
344	1400.5	49	OK	59	OK
345	1399	49	OK	60	OK
346	1395	49	OK	61	OK
347	1391.5	49	OK	63	OK
348	1387.5	61	OK	65	OK
349	1385.5	61	OK	66	OK
350	1381	61	OK	68	OK
351	1377.5	61	OK	69	OK
352	1374.5	61	OK	70	OK
353	1371	61	OK	72	OK
354	1371	61	OK	72	OK
355	1374.5	61	OK	70	OK
356	1377.5	61	OK	69	OK
357	1381	61	OK	68	OK
358	1384	61	OK	66	OK
359	1387.5	61	OK	65	OK
360	1390.5	49	OK	63	OK
361	1397	49	OK	61	OK

Lost Canyons Lot Pressures By Planning Area					
Lot Number	Pad Elev. (feet)	Low Dynamic Pressure, PHD (psi)	Low Pressure Mitigation	High Static Pressure (psi)	High Pressure Mitigation
362	1397	49	OK	61	OK

Lost Canyons Lot Pressures By Planning Area					
Lot Number	Pad Elev. (feet)	Low Dynamic Pressure, PHD (psi)	Low Pressure Mitigation	High Static Pressure (psi)	High Pressure Mitigation
1470 Zone					
Hydraulic Grade Line in 1470 Zone varies between a High of 1468 and a Low of 1446					
CLUBHOUSE	1352	41	OK	50	OK
79	1338	58	OK	56	OK
80	1335	58	OK	58	OK
81	1325	58	OK	62	OK
82	1315.5	58	OK	66	OK
83	1312	58	OK	68	OK
84	1309.5	58	OK	69	OK
85	1308	58	OK	69	OK
86	1306.5	58	OK	70	OK
87	1304.5	67	OK	71	OK
88	1303	67	OK	71	OK
89	1302	67	OK	72	OK
90	1300.5	67	OK	73	OK
91	1299	67	OK	73	OK
92	1298	67	OK	74	OK
93	1296.5	67	OK	74	OK
94	1294.5	67	OK	75	OK
95	1290.5	67	OK	77	OK
96	1288	67	OK	78	OK
97	1287.5	72	OK	78	OK
98	1288.5	72	OK	78	OK
99	1290.5	72	OK	77	OK
100	1290	72	OK	77	OK
101	1294	72	OK	75	OK
102	1295.5	72	OK	75	OK
103	1297	72	OK	74	OK
104	1302	61	OK	72	OK
105	1299.5	67	OK	73	OK
106	1297	67	OK	74	OK
107	1295.5	67	OK	75	OK
108	1293.5	67	OK	76	OK
109	1290.5	67	OK	77	OK
110	1287.5	67	OK	78	OK
111	1287.5	72	OK	78	OK
112	1288.5	72	OK	78	OK
113	1290	72	OK	77	OK
114	1291.5	72	OK	76	OK
115	1293.5	72	OK	76	OK
116	1295	72	OK	75	OK
117	1307.5	61	OK	69	OK
118	1308	61	OK	69	OK
119	1312	61	OK	68	OK
120	1311	61	OK	68	OK

Lost Canyons Lot Pressures By Planning Area					
Lot Number	Pad Elev. (feet)	Low Dynamic Pressure, PHD (psi)	Low Pressure Mitigation	High Static Pressure (psi)	High Pressure Mitigation
121	1297	61	OK	74	OK
122	1288	101	OK	78	OK
123	1286	101	OK	79	OK
124	1279	101	OK	82	Pressure Regulator
125	1272	101	OK	85	Pressure Regulator
126	1265	101	OK	88	Pressure Regulator
127	1256	101	OK	92	Pressure Regulator
128	1247	101	OK	96	Pressure Regulator
129	1235	101	OK	101	Pressure Regulator
130	1225	101	OK	105	Pressure Regulator
131	1221	101	OK	107	Pressure Regulator
132	1215	101	OK	110	Pressure Regulator
133	1285.8	101	OK	79	OK
134	1279.5	101	OK	82	Pressure Regulator
135	1269.7	101	OK	86	Pressure Regulator
136	1259.8	101	OK	90	Pressure Regulator
137	1250.8	101	OK	94	Pressure Regulator
138	1242.7	101	OK	98	Pressure Regulator
139	1234.8	101	OK	101	Pressure Regulator
140	1226.7	101	OK	104	Pressure Regulator
141	1222.2	101	OK	106	Pressure Regulator
142	1218.2	101	OK	108	Pressure Regulator
143	1215	101	OK	110	Pressure Regulator
144	1216.5	101	OK	109	Pressure Regulator
145	1217.5	99	OK	108	Pressure Regulator
146	1218	99	OK	108	Pressure Regulator
147	1220	99	OK	107	Pressure Regulator
148	1219	98	OK	108	Pressure Regulator
149	1219	98	OK	108	Pressure Regulator
150	1220	98	OK	107	Pressure Regulator
156	1351	44	OK	51	OK
157	1346.5	44	OK	53	OK
158	1342	44	OK	55	OK
159	1340.5	44	OK	55	OK
160	1339	44	OK	56	OK
161	1337.5	49	OK	56	OK
162	1370	49	OK	42	OK
163	1336	49	OK	57	OK
164	1335.5	49	OK	57	OK
165	1334.5	51	OK	58	OK
166	1334	51	OK	58	OK
167	1333	51	OK	58	OK
189	1332.5	51	OK	59	OK
190	1333	51	OK	58	OK
191	1333.5	51	OK	58	OK

Lost Canyons Lot Pressures By Planning Area					
Lot Number	Pad Elev. (feet)	Low Dynamic Pressure, PHD (psi)	Low Pressure Mitigation	High Static Pressure (psi)	High Pressure Mitigation
192	1334.5	51	OK	58	OK
193	1335.5	49	OK	57	OK
194	1337	49	OK	57	OK
195	1340	44	OK	55	OK
196	1342	44	OK	55	OK
197	1347.5	42	OK	52	OK
198	1348	42	OK	52	OK
199	1348.5	42	OK	52	OK
200	1349	42	OK	52	OK
201	1349.5	42	OK	51	OK
202	1350	42	OK	51	OK
203	1350.5	42	OK	51	OK
204	1349.5	42	OK	51	OK
205	1348.5	42	OK	52	OK
206	1346	42	OK	53	OK
207	1347.5	44	OK	52	OK
208	1347	44	OK	52	OK
216	1344.5	58	OK	53	OK
217	1341	58	OK	55	OK
218	1296.5	72	OK	74	OK
219	1395	72	OK	32	OK
283	1301.4	69	OK	72	OK
284	1299.5	69	OK	73	OK
285	1299.4	69	OK	73	OK
286	1297.4	69	OK	74	OK
287	1295.1	69	OK	75	OK
288	1290.2	69	OK	77	OK
289	1284.3	69	OK	80	OK
290	1277.8	69	OK	82	Pressure Regulator
291	1270.6	95	OK	85	Pressure Regulator
292	1262.9	95	OK	89	Pressure Regulator
293	1255.7	95	OK	92	Pressure Regulator
294	1248.6	95	OK	95	Pressure Regulator
295	1242.5	95	OK	98	Pressure Regulator
296	1238.1	95	OK	100	Pressure Regulator
297	1231.7	95	OK	102	Pressure Regulator
298	1225.9	95	OK	105	Pressure Regulator
299	1219.8	95	OK	107	Pressure Regulator
300	1299.6	61	OK	73	OK
301	1297.5	61	OK	74	OK
302	1295.6	69	OK	75	OK
303	1290.8	69	OK	77	OK
304	1281.9	69	OK	81	Pressure Regulator
305	1278.2	69	OK	82	Pressure Regulator
306	1272	95	OK	85	Pressure Regulator

Lost Canyons Lot Pressures By Planning Area					
Lot Number	Pad Elev. (feet)	Low Dynamic Pressure, PHD (psi)	Low Pressure Mitigation	High Static Pressure (psi)	High Pressure Mitigation
307	1266.3	95	OK	87	Pressure Regulator
308	1259.8	95	OK	90	Pressure Regulator
309	1254.2	95	OK	93	Pressure Regulator
310	1247.5	95	OK	95	Pressure Regulator
311	1240.1	95	OK	99	Pressure Regulator
312	1230.8	95	OK	103	Pressure Regulator
313	1217	95	OK	109	Pressure Regulator
314	1296.1	61	OK	74	OK

Appendix D

Hydraulic Model Results

Appendix D

Table of Contents

Scope	Demand	Pump	Fire Flow Node	Tank	Page	Note
All Phases	**MDD+HOA+LAKE**	**Off**	**None**	**Empty**	2-4	
All Phases	**PHD+HOA+LAKE**	**Off**	**None**	**Empty**	5-7	
All Phases	**MDD+HOA+LAKE**	**Off**		**Empty**		
			19		8-10	
			25		11-13	
			40		14-16	CLUBHOUSE
			58		17-19	
			86		20-22	
Time Series Table	**MDD+HOA+LAKE**					
Pump 1		On	None	Full	23-24	
1537 Tank		On	None	Full	25-26	

Network Table - Nodes **MDD+HOA+GOLF**

Node ID	Elevation (ft)	Demand (gpm)	Head (ft)	Pressure (psi)
1	1310	0	1512.2	87.61
2	1345	0	1445.95	43.74
3	1316	16.93	1512.26	85.04
4	1328	4.39	1445.94	51.11
5	1312	6.27	1445.88	58.01
6	1290	10.03	1445.79	67.5
7	1278	9.41	1445.75	72.69
8	1384	0	1512.73	55.78
9	1370	0	1512.73	61.84
10	1349.7	10.03	1512.37	70.48
12	1264	0	1512.73	107.77
13	1328	6.9	1512.21	79.82
14	1148	0	1337	81.89
15	1156	0	1337	78.43
16	1208	0	1337	55.9
17	1208	0	1512.73	132.04
18	1216	1.88	1445.73	99.54
19	1220	1.88	1445.73	97.81
20	1209	0	1445.73	102.57
21	1213	14.42	1445.73	100.84
22	1304	5.64	1445.74	61.42
23	1225	10.66	1445.73	95.64
24	1286	7.52	1445.73	69.21
25	1408	8.15	1512.63	45.34
26	1400	10.03	1512.6	48.79
30	1387.8	6.9	1512.59	54.07
31	1360.8	5.02	1512.45	65.71
33	1342	7.52	1512.36	73.82
35	1325	6.9	1512.33	81.17
37	1345	0	1512.68	72.66
39	1336	0	1445.97	47.65
40	1352	10.75	1445.95	40.71
42	1348	1.25	1512.68	71.36
45	1340	3.13	1512.68	74.82
46	1366	3.13	1512.68	63.56
47	1370	2.51	1512.68	61.82
48	1359	3.13	1512.68	66.59
49	1379	3.13	1512.68	57.92
50	1388	10.03	1512.64	54.01
52	1390	0	1512.71	53.17
53	1385	1.88	1512.71	55.34

54	1398	1.25	1512.73	49.71
55	1409	1.25	1512.75	44.95
56	1410	1.88	1512.75	44.52
57	1394	3.13	1512.73	51.44
58	1413	3.13	1512.73	43.21
59	1370	0	1445.98	32.92
60	1330	0	1445.99	50.26
83	1285	25	1512.14	98.42
86	1308.5	8.15	1512.23	88.28
91	1345	5.64	1445.95	43.74
94	1332	3.76	1445.94	49.37
100	1349	6.27	1445.95	42.01
101	1130	0	1337	89.69
102	1370	7.52	1512.6	61.79
105	1365	6.27	1512.73	64.01
111	1466	150	1512.43	20.12
112	1452	0	1512.81	26.35
Network Table - Nodes				
Resvr 29	1513	-342.91	1513	0
Resvr R1	1337	0	1337	0
Tank 109	1438	-153.73	1446	3.47

Network Table - Links **MDD+HOA+GOLF**

Link ID	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (fps)	Unit Headloss (ft/Kft)	Friction Factor	Status
1	2634	12	130	0	0	0	0	OPEN
2	660	8	130	86.45	0.55	0.21	0.03	OPEN
3	550	12	130	30.82	0.09	0	0.037	OPEN
5	1736.5	12	130	0	0	0	0	OPEN
6	582	12	130	110.91	0.31	0.05	0.032	OPEN
7	700	6	130	25	0.28	0.08	0.033	OPEN
8	885	12	130	20.07	0.06	0	0.038	OPEN
9	53	12	130	0	0	0	0	OPEN
10	257	12	130	93.35	0.26	0.04	0.037	OPEN
11	439	8	130	81.44	0.52	0.19	0.031	OPEN
12	821	8	130	-31.9	0.2	0.03	0.034	OPEN
13	285	8	130	-25	0.16	0.02	0.038	OPEN
14	543	12	130	0	0	0	0	OPEN
15	660	8	130	-7.52	0.05	0	0.041	OPEN
16	1228.5	12	130	0	0	0	0	OPEN
17	309	8	130	63.88	0.41	0.13	0.033	OPEN
18	173	8	130	1.88	0.01	0	0	OPEN
19	877	8	130	-3.76	0.02	0	0.052	OPEN
20	142	8	130	3.76	0.02	0	0.064	OPEN
21	150	8	130	42.01	0.27	0.07	0.04	OPEN
22	615	8	130	20.05	0.13	0.01	0.036	OPEN
23	920	8	130	12.53	0.08	0.01	0.038	OPEN
24	378	8	130	1.87	0.01	0	0	OPEN
25	1513	8	130	16.32	0.1	0.01	0.036	OPEN
26	272	8	130	4.39	0.03	0	0.049	OPEN
27	575	8	130	7.52	0.05	0	0.04	OPEN
28	570	12	130	-314.21	0.89	0.34	0.028	OPEN
30	69.5	12	130	0	0	0	0	OPEN
31	585	12	130	-164.21	0.47	0.1	0.03	OPEN
35	491	8	130	-8.15	0.05	0	0.043	OPEN
37	130	6	130	150	1.7	2.9	0.032	OPEN
39	450	8	130	-51.42	0.33	0.08	0.033	OPEN
40	418	8	130	6.27	0.04	0	0.047	OPEN
41	224	12	130	0	0	0	0	OPEN
42	1200	16	130	-98.54	0.16	0.01	0.032	OPEN
43	834	8	130	-61.45	0.39	0.11	0.031	OPEN
44	636	8	130	56.98	0.36	0.1	0.031	OPEN
45	227	12	130	-4.39	0.01	0	0	OPEN
46	415	8	130	2.51	0.02	0	0.049	OPEN
47	477	8	130	-3.13	0.02	0	0.055	OPEN
48	175	12	130	13.17	0.04	0	0.032	OPEN
49	646	12	130	-129.1	0.37	0.06	0.03	OPEN
50	498.5	8	130	-67.73	0.43	0.14	0.031	OPEN
51	326	12	130	145.4	0.41	0.09	0.033	OPEN
52	165	8	130	-1.88	0.01	0	0	OPEN
53	199	12	130	147.28	0.42	0.1	0.037	OPEN
54	135	12	130	-161.08	0.46	0.13	0.041	OPEN
55	139	6	130	1.88	0.02	0	0.062	OPEN
56	636	8	130	40.05	0.26	0.05	0.033	OPEN
57	425	12	130	-6.27	0.02	0	0.058	OPEN
58	330	8	130	3.13	0.02	0	0.04	OPEN
60	873	16	130	98.54	0.16	0.01	0.034	OPEN
61	1397	16	130	98.54	0.16	0.01	0.032	OPEN
70	150	12	130	119.06	0.34	0.07	0.041	OPEN
71	458	8	130	-3.13	0.02	0	0.057	OPEN
72	431	12	130	98.54	0.28	0.04	0.033	OPEN
106	3200	16	130	0	0	0	0	OPEN
107	3200	16	130	0	0	0	0	OPEN
111	1026	12	130	-12.54	0.04	0	0.042	OPEN
Pump P2	#N/A	#N/A	#N/A	0	0	0	0	CLOSED
Pump P3	#N/A	#N/A	#N/A	0	0	0	0	CLOSED
Pump P1	#N/A	#N/A	#N/A	0	0	0	0	CLOSED
Valve 4	#N/A	12	#N/A	0	0	0	0	CLOSED

Network Table - Nodes PHD+HOA+GOLF

Node ID	Elevation (ft)	Demand (gpm)	Head (ft)	Pressure (psi)
1	1310	0	1510.87	87.04
2	1345	0	1445.8	43.68
3	1316	35.44	1510.97	84.48
4	1328	9.19	1445.78	51.03
5	1312	13.13	1445.53	57.86
6	1290	21	1445.17	67.24
7	1278	19.69	1445.02	72.37
8	1384	0	1512.33	55.61
9	1370	0	1512.33	61.67
10	1349.7	21	1511.23	69.99
12	1264	0	1512.33	107.6
13	1328	14.44	1510.87	79.24
14	1148	0	1337	81.89
15	1156	0	1337	78.43
16	1208	0	1337	55.9
17	1208	0	1512.33	131.87
18	1216	3.94	1444.93	99.19
19	1220	3.94	1444.93	97.46
20	1209	0	1444.93	102.23
21	1213	30.19	1444.93	100.49
22	1304	11.81	1444.98	61.09
23	1225	22.31	1444.93	95.3
24	1286	15.75	1444.95	68.87
25	1408	17.06	1512	45.06
26	1400	21	1511.91	48.49
27	1387.8	14.44	1511.88	53.76
28	1360.8	10.5	1511.47	65.29
33	1342	15.75	1511.22	73.32
35	1325	14.44	1511.12	80.65
37	1345	0	1512.17	72.43
39	1336	0	1445.87	47.61
40	1352	22.5	1445.79	40.64
42	1348	2.62	1512.17	71.13
45	1340	6.56	1512.16	74.6
46	1366	6.56	1512.17	63.33
47	1370	5.25	1512.17	61.6
48	1359	6.56	1512.16	66.37
49	1379	6.56	1512.17	57.7
50	1388	21	1512.03	53.74
52	1390	0	1512.26	52.98
53	1385	3.94	1512.26	55.14

54	1398	2.62	1512.33	49.54
55	1409	2.62	1512.39	44.8
56	1410	3.94	1512.39	44.37
57	1394	6.56	1512.33	51.27
58	1413	6.56	1512.33	43.04
59	1370	0	1445.91	32.89
60	1330	0	1445.96	50.24
83	1285	25	1510.81	97.84
86	1308.5	17.06	1510.91	87.71
91	1345	11.81	1445.79	43.67
94	1332	7.88	1445.78	49.3
100	1349	13.13	1445.78	41.94
101	1130	0	1337	89.69
102	1370	15.75	1511.9	61.49
105	1365	13.13	1512.33	63.84
111	1466	150	1512.22	20.03
112	1452	0	1512.59	26.26

Network Table - Nodes

Resvr 29	1513	-466.37	1513	0
Resvr R1	1337	0	1337	0
Tank 109	1438	-206.25	1446	3.47

Network Table - Links **PHD+HOA+GOLF**

Link ID	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (fps)	Unit Headloss (ft/Kft)	Friction Factor	Status
1	2634	12	130	0	0	0	0	OPEN
2	550	12	130	64.5	0.18	0.02	0.034	OPEN
3	1736.5	12	130	0	0	0	0	OPEN
5	582	12	130	204.81	0.58	0.15	0.029	OPEN
6	700	6	130	25	0.28	0.08	0.033	OPEN
7	885	12	130	42	0.12	0.01	0.034	OPEN
8	53	12	130	0	0	0	0	OPEN
9	257	12	130	168.06	0.48	0.12	0.034	OPEN
10	660	8	130	153.62	0.98	0.61	0.027	OPEN
11	439	8	130	143.13	0.91	0.56	0.029	OPEN
12	821	8	130	-39.44	0.25	0.05	0.033	OPEN
13	285	8	130	-25	0.16	0.02	0.038	OPEN
14	543	12	130	0	0	0	0	OPEN
15	660	8	130	-15.75	0.1	0.01	0.038	OPEN
16	1228.5	12	130	0	0	0	0	OPEN
17	309	8	130	106.37	0.68	0.33	0.031	OPEN
18	173	8	130	3.94	0.03	0	0.048	OPEN
19	877	8	130	-7.88	0.05	0	0.04	OPEN
20	142	8	130	7.88	0.05	0	0.058	OPEN
21	150	8	130	87.93	0.56	0.27	0.036	OPEN
22	615	8	130	41.94	0.27	0.05	0.033	OPEN
23	920	8	130	26.19	0.17	0.02	0.034	OPEN
24	378	8	130	3.88	0.02	0	0.045	OPEN
25	1513	8	130	34.18	0.22	0.04	0.033	OPEN
26	272	8	130	9.19	0.06	0	0.045	OPEN
27	575	8	130	15.75	0.1	0.01	0.038	OPEN
28	570	12	130	-466.37	1.32	0.71	0.026	OPEN
30	69.5	12	130	0	0	0	0	OPEN
31	585	12	130	-316.37	0.9	0.34	0.027	OPEN
35	491	8	130	-17.06	0.11	0.01	0.038	OPEN
37	130	6	130	150	1.7	2.9	0.032	OPEN
39	450	8	130	-107.62	0.69	0.33	0.03	OPEN
40	418	8	130	13.13	0.08	0.01	0.039	OPEN
41	224	12	130	0	0	0	0	OPEN
42	1200	16	130	-206.25	0.33	0.04	0.029	OPEN
43	834	8	130	-128.62	0.82	0.43	0.028	OPEN
44	636	8	130	91.94	0.59	0.24	0.03	OPEN
45	227	12	130	-9.19	0.03	0	0.051	OPEN
46	415	8	130	5.25	0.03	0	0.045	OPEN
47	477	8	130	-6.56	0.04	0	0.044	OPEN
48	175	12	130	27.56	0.08	0	0.044	OPEN
49	646	12	130	-242.88	0.69	0.21	0.028	OPEN
50	498.5	8	130	-141.75	0.9	0.54	0.028	OPEN
51	326	12	130	277	0.79	0.29	0.031	OPEN
52	165	8	130	-3.94	0.03	0	0.05	OPEN
53	199	12	130	280.93	0.8	0.34	0.035	OPEN
54	135	12	130	-309.81	0.88	0.47	0.039	OPEN
55	139	6	130	3.94	0.04	0	0.057	OPEN
56	636	8	130	56.5	0.36	0.1	0.032	OPEN
57	425	12	130	-13.12	0.04	0	0.053	OPEN
58	330	8	130	6.56	0.04	0	0.045	OPEN
60	873	16	130	206.25	0.33	0.04	0.031	OPEN
61	1397	16	130	206.25	0.33	0.04	0.029	OPEN
70	150	12	130	221.88	0.63	0.24	0.039	OPEN
71	458	8	130	-6.56	0.04	0	0.046	OPEN
72	431	12	130	206.25	0.59	0.16	0.03	OPEN
106	3200	16	130	0	0	0	0	OPEN
107	3200	16	130	0	0	0	0	OPEN
111	1026	12	130	-26.25	0.07	0	0.036	OPEN
Pump P2	#N/A	#N/A	#N/A	0	0	0	0	CLOSED
Pump P3	#N/A	#N/A	#N/A	0	0	0	0	CLOSED
Pump P1	#N/A	#N/A	#N/A	0	0	0	0	CLOSED
Valve V2	#N/A	12	#N/A	0	0	0	0	CLOSED

Network Table - Nodes MDD+HOA+FF AT NODE 19

Node ID	Elevation (ft)	Demand (gpm)	Head (ft)	Pressure (psi)
1	1310	0	1512.2	87.61
2	1345	0	1444.37	43.06
3	1316	16.93	1512.26	85.04
4	1328	4.39	1444.36	50.42
5	1312	6.27	1440.28	55.58
6	1290	10.03	1433.88	62.34
7	1278	9.41	1430.33	66
8	1384	0	1512.73	55.78
9	1370	0	1512.73	61.84
10	1349.7	10.03	1512.37	70.48
12	1264	0	1512.73	107.77
13	1328	6.9	1512.21	79.82
14	1148	0	1337	81.89
15	1156	0	1337	78.43
16	1208	0	1337	55.9
17	1208	0	1512.73	132.04
18	1216	1.88	1418.92	87.92
19	1220	541.88	1417.53	85.59
20	1209	0	1424.48	93.37
21	1213	14.42	1425.69	92.16
22	1304	5.64	1428.89	54.12
23	1225	10.66	1426.31	87.23
24	1286	7.52	1427.81	61.45
25	1408	8.15	1512.63	45.34
26	1400	10.03	1512.6	48.79
27	1387.8	6.9	1512.59	54.07
28	1360.8	5.02	1512.45	65.71
33	1342	7.52	1512.36	73.82
35	1325	6.9	1512.33	81.17
37	1345	0	1512.68	72.66
39	1336	0	1444.94	47.21
40	1352	10.75	1444.36	40.02
42	1348	1.25	1512.68	71.36
45	1340	3.13	1512.68	74.82
46	1366	3.13	1512.68	63.56
47	1370	2.51	1512.68	61.82
48	1359	3.13	1512.68	66.59
49	1379	3.13	1512.68	57.92
50	1388	10.03	1512.64	54.01
52	1390	0	1512.71	53.17
53	1385	1.88	1512.71	55.34

54	1398	1.25	1512.73	49.71
55	1409	1.25	1512.75	44.95
56	1410	1.88	1512.75	44.52
57	1394	3.13	1512.73	51.44
58	1413	3.13	1512.73	43.21
59	1370	0	1445.23	32.6
60	1330	0	1445.64	50.11
83	1285	25	1512.14	98.42
86	1308	8.15	1512.23	88.49
91	1345	5.64	1444.36	43.05
94	1332	3.76	1444.36	48.69
100	1349	6.27	1444.36	41.32
101	1130	0	1337	89.69
102	1370	7.52	1512.6	61.79
105	1365	6.27	1512.73	64.01
111	1466	150	1512.43	20.12
112	1452	0	1512.81	26.35

Network Table - Nodes

Resvr 29	1513	-314.21	1513	0
Resvr R1	1337	0	1337	0
Tank 109	1438	-638.54	1446	3.47

Network Table - LINKS **MDD+HOA+FF AT NODE 19**

Link ID	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (fps)	Unit Headloss (ft/Kft)	Friction Factor	Status
1	2634	12	130	0	0	0	0	OPEN
2	550	12	130	30.82	0.09	0	0.037	OPEN
3	1736.5	12	130	0	0	0	0	OPEN
5	582	12	130	110.91	0.31	0.05	0.032	OPEN
6	700	6	130	25	0.28	0.08	0.033	OPEN
7	885	12	130	20.07	0.06	0	0.038	OPEN
8	53	12	130	0	0	0	0	OPEN
9	257	12	130	93.35	0.26	0.04	0.037	OPEN
10	660	8	130	86.45	0.55	0.21	0.03	OPEN
11	439	8	130	81.44	0.52	0.19	0.031	OPEN
12	821	8	130	-31.9	0.2	0.03	0.034	OPEN
13	285	8	130	-25	0.16	0.02	0.038	OPEN
14	543	12	130	0	0	0	0	OPEN
15	660	8	130	-7.52	0.05	0	0.041	OPEN
16	1228.5	12	130	0	0	0	0	OPEN
17	309	8	130	63.88	0.41	0.13	0.033	OPEN
18	173	8	130	541.88	3.46	8.02	0.029	OPEN
19	877	8	130	-543.76	3.47	6.34	0.023	OPEN
20	142	8	130	543.76	3.47	8.54	0.03	OPEN
21	150	8	130	582.01	3.71	9.56	0.03	OPEN
22	615	8	130	270.17	1.72	1.77	0.026	OPEN
23	920	8	130	262.65	1.68	1.63	0.025	OPEN
24	378	8	130	251.99	1.61	1.63	0.027	OPEN
25	1513	8	130	306.2	1.95	2.12	0.024	OPEN
26	272	8	130	4.39	0.03	0	0.049	OPEN
27	575	8	130	7.52	0.05	0	0.04	OPEN
28	570	12	130	-314.21	0.89	0.34	0.028	OPEN
30	69.5	12	130	0	0	0	0	OPEN
31	585	12	130	-164.21	0.47	0.1	0.03	OPEN
35	491	8	130	-8.15	0.05	0	0.039	OPEN
37	130	6	130	150	1.7	2.9	0.032	OPEN
39	450	8	130	-591.42	3.77	7.89	0.024	OPEN
40	418	8	130	6.27	0.04	0	0.039	OPEN
41	224	12	130	0	0	0	0	OPEN
42	1200	16	130	-638.54	1.02	0.3	0.025	OPEN
43	834	8	130	-601.45	3.84	7.67	0.022	OPEN
44	636	8	130	56.98	0.36	0.1	0.031	OPEN
45	227	12	130	-4.39	0.01	0	0	OPEN
46	415	8	130	2.51	0.02	0	0.049	OPEN
47	477	8	130	-3.13	0.02	0	0.055	OPEN
48	175	12	130	13.17	0.04	0	0.032	OPEN
49	646	12	130	-129.1	0.37	0.06	0.03	OPEN
50	498.5	8	130	-607.73	3.88	8.2	0.023	OPEN
51	326	12	130	145.4	0.41	0.09	0.033	OPEN
52	165	8	130	-1.88	0.01	0	0	OPEN
53	199	12	130	147.28	0.42	0.1	0.037	OPEN
54	135	12	130	-161.08	0.46	0.13	0.041	OPEN
55	139	6	130	1.88	0.02	0	0.062	OPEN
56	636	8	130	40.05	0.26	0.05	0.033	OPEN
57	425	12	130	-6.27	0.02	0	0.058	OPEN
58	330	8	130	3.13	0.02	0	0.04	OPEN
60	873	16	130	638.54	1.02	0.33	0.027	OPEN
61	1397	16	130	638.54	1.02	0.3	0.024	OPEN
70	150	12	130	119.06	0.34	0.07	0.041	OPEN
71	458	8	130	-3.13	0.02	0	0.057	OPEN
72	431	12	130	638.54	1.81	1.34	0.026	OPEN
106	3200	16	130	0	0	0	0	OPEN
107	3200	16	130	0	0	0	0	OPEN
111	1026	12	130	-12.54	0.04	0	0.042	OPEN
Pump P1	#N/A	#N/A	#N/A	0	0	0	0	CLOSED
Pump P2	#N/A	#N/A	#N/A	0	0	0	0	CLOSED
Pump P3	#N/A	#N/A	#N/A	0	0	0	0	CLOSED
Valve 4	#N/A	12	#N/A	0	0	0	0	CLOSED

Network Table - Nodes MDD+HOA+FF AT NODE 25

Node ID	Elevation (ft)	Demand (gpm)	Head (ft)	Pressure (psi)
1	1310	0	1508.04	85.81
2	1345	0	1445.95	43.74
3	1316	16.93	1508.1	83.24
4	1328	4.39	1445.94	51.11
5	1312	6.27	1445.88	58.01
6	1290	10.03	1445.79	67.5
7	1278	9.41	1445.75	72.69
8	1384	0	1510.54	54.83
9	1370	0	1510.54	60.9
10	1349.7	10.03	1508.21	68.68
12	1264	0	1510.54	106.83
13	1328	6.9	1508.05	78.01
14	1148	0	1337	81.89
15	1156	0	1337	78.43
16	1208	0	1337	55.9
17	1208	0	1510.54	131.09
18	1216	1.88	1445.73	99.54
19	1220	1.88	1445.73	97.81
20	1209	0	1445.73	102.57
21	1213	14.42	1445.73	100.84
22	1304	5.64	1445.74	61.42
23	1225	10.66	1445.73	95.64
24	1286	7.52	1445.73	69.21
25	1408	548.15	1508.47	43.53
26	1400	10.03	1508.44	46.99
27	1387.8	6.9	1508.43	52.27
28	1360.8	5.02	1508.29	63.91
33	1342	7.52	1508.2	72.02
35	1325	6.9	1508.17	79.37
37	1345	0	1509.64	71.34
39	1336	0	1445.97	47.65
40	1352	10.75	1445.95	40.71
42	1348	1.25	1509.64	70.04
45	1340	3.13	1509.64	73.51
46	1366	3.13	1509.64	62.24
47	1370	2.51	1509.64	60.51
48	1359	3.13	1509.64	65.27
49	1379	3.13	1509.64	56.61
50	1388	10.03	1508.75	52.32
52	1390	0	1510.17	52.07
53	1385	1.88	1510.17	54.24

54	1398	1.25	1510.54	48.76
55	1409	1.25	1510.84	44.13
56	1410	1.88	1510.84	43.69
57	1394	3.13	1510.54	50.5
58	1413	3.13	1510.54	42.26
59	1370	0	1445.98	32.92
60	1330	0	1445.99	50.26
83	1285	25	1507.98	96.62
86	1308.5	8.15	1508.07	86.47
91	1345	5.64	1445.95	43.74
94	1332	3.76	1445.94	49.37
100	1349	6.27	1445.95	42.01
101	1130	0	1337	89.69
102	1370	7.52	1508.44	59.99
105	1365	6.27	1510.54	63.06
111	1466	150	1511.36	19.66
112	1452	0	1511.74	25.88

Network Table - Nodes

Resvr 29	1513	-854.21	1513	0
Resvr R1	1337	0	1337	0
Tank 109	1438	-98.54	1446	3.47

Network Table - Links **MDD+HOA+FF AT NODE 25**

Link ID	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (fps)	Unit Headloss (ft/Kft)	Friction Factor	Status
1	2634	12	130	0	0	0	0	OPEN
2	660	8	130	86.45	0.55	0.21	0.03	OPEN
3	550	12	130	30.82	0.09	0	0.037	OPEN
5	1736.5	12	130	0	0	0	0	OPEN
6	582	12	130	110.91	0.31	0.05	0.032	OPEN
7	700	6	130	25	0.28	0.08	0.033	OPEN
8	885	12	130	20.07	0.06	0	0.038	OPEN
9	53	12	130	0	0	0	0	OPEN
10	257	12	130	93.35	0.26	0.04	0.037	OPEN
11	439	8	130	81.44	0.52	0.19	0.031	OPEN
12	821	8	130	-31.9	0.2	0.03	0.034	OPEN
13	285	8	130	-25	0.16	0.02	0.038	OPEN
14	543	12	130	0	0	0	0	OPEN
15	660	8	130	-7.52	0.05	0	0.041	OPEN
16	1228.5	12	130	0	0	0	0	OPEN
17	309	8	130	63.88	0.41	0.13	0.033	OPEN
18	173	8	130	1.88	0.01	0	0	OPEN
19	877	8	130	-3.76	0.02	0	0.052	OPEN
20	142	8	130	3.76	0.02	0	0.064	OPEN
21	150	8	130	42.01	0.27	0.07	0.04	OPEN
22	615	8	130	20.05	0.13	0.01	0.036	OPEN
23	920	8	130	12.53	0.08	0.01	0.038	OPEN
24	378	8	130	1.87	0.01	0	0	OPEN
25	1513	8	130	16.32	0.1	0.01	0.036	OPEN
26	272	8	130	4.39	0.03	0	0.049	OPEN
27	575	8	130	7.52	0.05	0	0.04	OPEN
28	570	12	130	-854.21	2.42	2.21	0.024	OPEN
30	69.5	12	130	0	0	0	0	OPEN
31	585	12	130	-704.21	2	1.54	0.025	OPEN
35	491	8	130	-8.15	0.05	0	0.043	OPEN
37	130	6	130	150	1.7	2.9	0.032	OPEN
39	450	8	130	-51.42	0.33	0.08	0.033	OPEN
40	418	8	130	6.27	0.04	0	0.047	OPEN
41	224	12	130	0	0	0	0	OPEN
42	1200	16	130	-98.54	0.16	0.01	0.032	OPEN
43	834	8	130	-61.45	0.39	0.11	0.031	OPEN
44	636	8	130	56.98	0.36	0.1	0.032	OPEN
45	227	12	130	-4.39	0.01	0	0	OPEN
46	415	8	130	2.51	0.02	0	0.049	OPEN
47	477	8	130	-3.13	0.02	0	0.055	OPEN
48	175	12	130	13.17	0.04	0	0.064	OPEN
49	646	12	130	-669.09	1.9	1.38	0.025	OPEN
50	498.5	8	130	-67.73	0.43	0.14	0.031	OPEN
51	326	12	130	685.4	1.94	1.62	0.028	OPEN
52	165	8	130	-1.88	0.01	0	0	OPEN
53	199	12	130	687.28	1.95	1.86	0.031	OPEN
54	135	12	130	-701.07	1.99	2.22	0.036	OPEN
55	139	6	130	1.88	0.02	0	0.062	OPEN
56	636	8	130	40.05	0.26	0.05	0.033	OPEN
57	425	12	130	-6.27	0.02	0	0.058	OPEN
58	330	8	130	3.13	0.02	0	0.04	OPEN
60	873	16	130	98.54	0.16	0.01	0.034	OPEN
61	1397	16	130	98.54	0.16	0.01	0.032	OPEN
70	150	12	130	659.06	1.87	1.89	0.035	OPEN
71	458	8	130	-3.13	0.02	0	0.057	OPEN
72	431	12	130	98.54	0.28	0.04	0.033	OPEN
106	3200	16	130	0	0	0	0	OPEN
107	3200	16	130	0	0	0	0	OPEN
111	1026	12	130	-12.54	0.04	0	0.042	OPEN
Pump P2	#N/A	#N/A	#N/A	0	0	0	0	CLOSED
Pump P3	#N/A	#N/A	#N/A	0	0	0	0	CLOSED
Pump P1	#N/A	#N/A	#N/A	0	0	0	0	CLOSED
Valve V4	#N/A	12	#N/A	0	0	0	0	CLOSED

Network Table - Nodes MDD+HOA+FF AT NODE 40

Node ID	Elevation (ft)	Demand (gpm)	Head (ft)	Pressure (psi)
1	1310	0	1504	84.06
2	1345	0	1432.7	38
3	1316	16.93	1504.06	81.49
4	1328	4.39	1420.53	40.1
5	1312	6.27	1432.63	52.27
6	1290	10.03	1432.54	61.76
7	1278	9.41	1432.5	66.95
8	1384	0	1506.92	53.26
9	1370	0	1506.92	59.33
10	1349.7	10.03	1504.17	66.93
12	1264	0	1506.92	105.26
13	1328	6.9	1504	76.26
14	1148	0	1337	81.89
15	1156	0	1337	78.43
16	1208	0	1337	55.9
17	1208	0	1506.92	129.52
18	1216	1.88	1432.48	93.8
19	1220	1.88	1432.48	92.07
20	1209	0	1432.48	96.83
21	1213	14.42	1432.48	95.1
22	1304	5.64	1432.49	55.68
23	1225	10.66	1432.48	89.9
24	1286	7.52	1432.48	63.47
25	1408	8.15	1504.43	41.78
26	1400	10.03	1504.4	45.24
27	1387.5	6.9	1504.39	50.65
28	1360.8	5.02	1504.25	62.16
33	1342	7.52	1504.16	70.27
35	1325	6.9	1504.13	77.61
37	1345	0	1502.04	68.05
39	1336	0	1437.44	43.95
40	1352	2885.75	1420.54	29.7
42	1348	1.25	1502.88	67.11
45	1340	3.13	1502.88	70.58
46	1366	3.13	1503.75	59.68
47	1370	2.51	1503.74	57.95
48	1359	3.13	1503.74	62.72
49	1379	3.13	1504.48	54.37
50	1388	10.03	1504.44	50.45
52	1390	0	1505.91	50.22
53	1385	1.88	1505.91	52.39

54	1398	1.25	1506.92	47.19
55	1409	1.25	1507.73	42.78
56	1410	1.88	1507.73	42.35
57	1394	3.13	1506.92	48.93
58	1413	3.13	1506.92	40.69
59	1370	0	1439.78	30.24
60	1330	0	1443.1	49.01
83	1285	25	1503.94	94.87
86	1308	8.15	1504.03	84.94
91	1345	5.64	1420.54	32.73
94	1332	3.76	1420.53	38.36
100	1349	6.27	1420.53	31
101	1130	0	1337	89.69
102	1370	7.52	1504.4	58.23
105	1365	6.27	1506.92	61.49
111	1466	150	1509.72	18.95
112	1452	0	1510.1	25.17

Network Table - Nodes

Resvr 29	1513	-1331.91	1513	0
Resvr R1	1337	0	1337	0
Tank 109	1438	-1955.85	1446	3.47

Network Table - Nodes **MDD+HOA+FF AT NODE 40**

Link ID	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (fps)	Unit Headloss (ft/Kft)	Friction Factor	Status
1	2634	12	130	0	0	0	0	OPEN
2	550	12	130	2905.82	8.24	22.11	0.021	OPEN
3	1736.5	12	130	0	0	0	0	OPEN
5	582	12	130	110.91	0.31	0.05	0.032	OPEN
6	700	6	130	25	0.28	0.08	0.033	OPEN
7	885	12	130	20.07	0.06	0	0.038	OPEN
8	53	12	130	0	0	0	0	OPEN
9	257	12	130	93.35	0.26	0.04	0.037	OPEN
10	660	8	130	86.45	0.55	0.21	0.03	OPEN
11	439	8	130	81.44	0.52	0.19	0.031	OPEN
12	821	8	130	-31.9	0.2	0.03	0.034	OPEN
13	285	8	130	-25	0.16	0.02	0.038	OPEN
14	543	12	130	0	0	0	0	OPEN
15	660	8	130	-7.52	0.05	0	0.041	OPEN
16	1228.5	12	130	0	0	0	0	OPEN
17	309	8	130	63.88	0.41	0.13	0.033	OPEN
18	173	8	130	1.88	0.01	0	0	OPEN
19	877	8	130	-3.76	0.02	0	0.041	OPEN
20	142	8	130	3.76	0.02	0	0.064	OPEN
21	150	8	130	42.01	0.27	0.07	0.04	OPEN
22	615	8	130	20.05	0.13	0.01	0.036	OPEN
23	920	8	130	12.53	0.08	0.01	0.038	OPEN
24	378	8	130	1.87	0.01	0	0.098	OPEN
25	1513	8	130	16.32	0.1	0.01	0.036	OPEN
26	272	8	130	4.39	0.03	0	0.049	OPEN
27	575	8	130	7.52	0.05	0	0.043	OPEN
28	570	12	130	-1331.91	3.78	5.09	0.023	OPEN
30	69.5	12	130	0	0	0	0	OPEN
31	585	12	130	-1181.91	3.35	4.05	0.023	OPEN
35	491	8	130	-8.15	0.05	0	0.043	OPEN
37	130	6	130	150	1.7	2.9	0.032	OPEN
39	450	8	130	-51.42	0.33	0.08	0.033	OPEN
40	418	8	130	6.27	0.04	0	0.047	OPEN
41	224	12	130	-1017.7	2.89	3.77	0.029	OPEN
42	1200	16	130	-1955.85	3.12	2.41	0.021	OPEN
43	834	8	130	-61.45	0.39	0.11	0.031	OPEN
44	636	8	130	56.98	0.36	0.1	0.032	OPEN
45	227	12	130	-1022.08	2.9	3.79	0.029	OPEN
46	415	8	130	2.51	0.02	0	0.049	OPEN
47	477	8	130	-3.13	0.02	0	0.055	OPEN
48	175	12	130	1030.86	2.92	4.2	0.032	OPEN
49	646	12	130	-129.1	0.37	0.06	0.031	OPEN
50	498.5	8	130	-67.73	0.43	0.14	0.031	OPEN
51	326	12	130	1163.09	3.3	4.39	0.026	OPEN
52	165	8	130	-1.88	0.01	0	0.22	OPEN
53	199	12	130	1164.98	3.3	5.07	0.03	OPEN
54	135	12	130	-1178.77	3.34	6.01	0.035	OPEN
55	139	6	130	1.88	0.02	0	0.062	OPEN
56	636	8	130	40.05	0.26	0.05	0.033	OPEN
57	425	12	130	-6.27	0.02	0	0	OPEN
58	330	8	130	3.13	0.02	0	0.079	OPEN
60	873	16	130	1955.85	3.12	2.68	0.024	OPEN
61	1397	16	130	1955.85	3.12	2.38	0.021	OPEN
70	150	12	130	119.06	0.34	0.07	0.041	OPEN
71	458	8	130	-3.13	0.02	0	0.029	OPEN
72	431	12	130	1955.85	5.55	11	0.023	OPEN
106	3200	16	130	0	0	0	0	OPEN
107	3200	16	130	0	0	0	0	OPEN
111	1026	12	130	-12.54	0.04	0	0.042	OPEN
Pump P1	#N/A	#N/A	#N/A	0	0	0	0	CLOSED
Pump P2	#N/A	#N/A	#N/A	0	0	0	0	CLOSED
Pump P3	#N/A	#N/A	#N/A	0	0	0	0	CLOSED
Valve 4	#N/A	12	#N/A	1017.7	2.89	69.34	0	ACTIVE

Network Table - Nodes MDD+HOA+FF AT NODE 58

Node ID	Elevation (ft)	Demand (gpm)	Head (ft)	Pressure (psi)
1	1310	0	1510.01	86.66
2	1345	0	1445.95	43.74
3	1316	16.93	1510.08	84.09
4	1328	4.39	1445.94	51.11
5	1312	6.27	1445.88	58.01
6	1290	10.03	1445.79	67.5
7	1278	9.41	1445.75	72.69
8	1384	0	1510.54	54.83
9	1370	0	1510.54	60.9
10	1349.7	10.03	1510.18	69.53
12	1264	0	1510.54	106.83
13	1328	6.9	1510.02	78.87
14	1148	0	1337	81.89
15	1156	0	1337	78.43
16	1208	0	1337	55.9
17	1208	0	1510.54	131.09
18	1216	1.88	1445.73	99.54
19	1220	1.88	1445.73	97.81
20	1209	0	1445.73	102.57
21	1213	14.42	1445.73	100.84
22	1304	5.64	1445.74	61.42
23	1225	10.66	1445.73	95.64
24	1286	7.52	1445.73	69.21
25	1408	8.15	1510.44	44.39
26	1400	10.03	1510.41	47.84
27	1387.8	6.9	1510.4	53.12
28	1360.8	5.02	1510.26	64.76
33	1342	7.52	1510.18	72.87
35	1325	6.9	1510.14	80.22
37	1345	0	1510.49	71.71
39	1336	0	1445.97	47.65
40	1352	10.75	1445.95	40.71
42	1348	1.25	1510.49	70.41
45	1340	3.13	1510.49	73.87
46	1366	3.13	1510.49	62.61
47	1370	2.51	1510.49	60.87
48	1359	3.13	1510.49	65.64
49	1379	3.13	1510.49	56.98
50	1388	10.03	1510.45	53.06
52	1390	0	1510.52	52.22
53	1385	1.88	1510.52	54.39

54	1398	1.25	1510.54	48.76
55	1409	1.25	1510.84	44.13
56	1410	1.88	1510.84	43.69
57	1394	3.13	1509.17	49.9
58	1413	543.14	1506.85	40.67
59	1370	0	1445.98	32.92
60	1330	0	1445.99	50.26
83	1285	25	1509.95	97.47
86	1308	8.15	1510.04	87.55
91	1345	5.64	1445.95	43.74
94	1332	3.76	1445.94	49.37
100	1349	6.27	1445.95	42.01
101	1130	0	1337	89.69
102	1370	7.52	1510.41	60.84
105	1365	6.27	1509.6	62.65
111	1466	150	1511.36	19.66
112	1452	0	1511.74	25.88

Network Table - Nodes

Resvr 29	1513	-854.21	1513	0
Resvr R1	1337	0	1337	0
Tank 109	1438	-98.54	1446	3.47

Network Table - Links **MDD+HOA+FF AT NODE 58**

Link ID	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (fps)	Unit Headloss (ft/Kft)	Friction Factor	Status
1	2634	12	130	0	0	0	0	OPEN
2	550	12	130	30.82	0.09	0	0.037	OPEN
3	1736.5	12	130	0	0	0	0	OPEN
5	582	12	130	110.91	0.31	0.05	0.032	OPEN
6	700	6	130	25	0.28	0.08	0.033	OPEN
7	885	12	130	20.07	0.06	0	0.038	OPEN
8	53	12	130	0	0	0	0	OPEN
9	257	12	130	93.35	0.26	0.04	0.037	OPEN
10	660	8	130	86.45	0.55	0.21	0.03	OPEN
11	439	8	130	81.44	0.52	0.19	0.031	OPEN
12	821	8	130	-31.9	0.2	0.03	0.034	OPEN
13	285	8	130	-25	0.16	0.02	0.038	OPEN
14	543	12	130	0	0	0	0	OPEN
15	660	8	130	-7.52	0.05	0	0.045	OPEN
16	1228.5	12	130	0	0	0	0	OPEN
17	309	8	130	63.88	0.41	0.13	0.033	OPEN
18	173	8	130	1.88	0.01	0	0	OPEN
19	877	8	130	-3.76	0.02	0	0.052	OPEN
20	142	8	130	3.76	0.02	0	0.064	OPEN
21	150	8	130	42.01	0.27	0.07	0.04	OPEN
22	615	8	130	20.05	0.13	0.01	0.036	OPEN
23	920	8	130	12.53	0.08	0.01	0.038	OPEN
24	378	8	130	1.87	0.01	0	0	OPEN
25	1513	8	130	16.32	0.1	0.01	0.036	OPEN
26	272	8	130	4.39	0.03	0	0.049	OPEN
27	575	8	130	7.52	0.05	0	0.043	OPEN
28	570	12	130	-854.21	2.42	2.21	0.024	OPEN
30	69.5	12	130	0	0	0	0	OPEN
31	585	12	130	-704.21	2	1.54	0.025	OPEN
35	491	8	130	-8.15	0.05	0	0.043	OPEN
37	130	6	130	150	1.7	2.9	0.032	OPEN
39	450	8	130	-51.42	0.33	0.08	0.033	OPEN
40	418	8	130	6.27	0.04	0	0.047	OPEN
41	224	12	130	0	0	0	0	OPEN
42	1200	16	130	-98.54	0.16	0.01	0.032	OPEN
43	834	8	130	-61.45	0.39	0.11	0.031	OPEN
44	636	8	130	56.98	0.36	0.1	0.032	OPEN
45	227	12	130	-4.39	0.01	0	0	OPEN
46	415	8	130	2.51	0.02	0	0.049	OPEN
47	477	8	130	-3.13	0.02	0	0.027	OPEN
48	175	12	130	13.17	0.04	0	0.064	OPEN
49	646	12	130	-129.1	0.37	0.06	0.031	OPEN
50	498.5	8	130	-67.73	0.43	0.14	0.031	OPEN
51	326	12	130	145.4	0.41	0.09	0.033	OPEN
52	165	8	130	-1.88	0.01	0	0	OPEN
53	199	12	130	147.28	0.42	0.1	0.037	OPEN
54	135	12	130	-701.08	1.99	2.22	0.036	OPEN
55	139	6	130	1.88	0.02	0	0.062	OPEN
56	636	8	130	40.05	0.26	0.05	0.033	OPEN
57	425	12	130	-546.27	1.55	1	0.027	OPEN
58	330	8	130	543.14	3.47	7.03	0.025	OPEN
60	873	16	130	98.54	0.16	0.01	0.034	OPEN
61	1397	16	130	98.54	0.16	0.01	0.032	OPEN
70	150	12	130	119.06	0.34	0.07	0.041	OPEN
71	458	8	130	-3.13	0.02	0	0.057	OPEN
72	431	12	130	98.54	0.28	0.04	0.033	OPEN
106	3200	16	130	0	0	0	0	OPEN
107	3200	16	130	0	0	0	0	OPEN
111	1026	12	130	-552.54	1.57	0.92	0.024	OPEN
Pump P1	#N/A	#N/A	#N/A	0	0	0	0	CLOSED
Pump P2	#N/A	#N/A	#N/A	0	0	0	0	CLOSED
Pump P3	#N/A	#N/A	#N/A	0	0	0	0	CLOSED
Valve 4	#N/A	12	#N/A	0	0	0	0	CLOSED

Network Table - Nodes MDD+HOA+FF AT NODE 86

Node ID	Elevation (ft)	Demand (gpm)	Head (ft)	Pressure (psi)
1	1310	0	1485.64	76.11
2	1345	0	1445.95	43.74
3	1316	16.93	1490.34	75.54
4	1328	4.39	1445.94	51.11
5	1312	6.27	1445.88	58.01
6	1290	10.03	1445.79	67.5
7	1278	9.41	1445.75	72.69
8	1384	0	1510.54	54.83
9	1370	0	1510.54	60.9
10	1349.7	10.03	1497.94	64.23
12	1264	0	1510.54	106.83
13	1328	6.9	1485.65	68.31
14	1148	0	1337	81.89
15	1156	0	1337	78.43
16	1208	0	1337	55.9
17	1208	0	1510.54	131.09
18	1216	1.88	1445.73	99.54
19	1220	1.88	1445.73	97.81
20	1209	0	1445.73	102.57
21	1213	14.42	1445.73	100.84
22	1304	5.64	1445.74	61.42
23	1225	10.66	1445.73	95.64
24	1286	7.52	1445.73	69.21
25	1408	8.15	1508.47	43.53
26	1400	10.03	1507.7	46.66
27	1387.8	6.9	1507.32	51.79
28	1360.8	5.02	1501.75	61.07
33	1342	7.52	1497.94	67.57
35	1325	6.9	1495.26	73.77
37	1345	0	1509.64	71.34
39	1336	0	1445.97	47.65
40	1352	10.75	1445.95	40.71
42	1348	1.25	1509.64	70.04
45	1340	3.13	1509.64	73.51
46	1366	3.13	1509.64	62.24
47	1370	2.51	1509.64	60.51
48	1359	3.13	1509.64	65.27
49	1379	3.13	1509.64	56.61
50	1388	10.03	1508.75	52.32
52	1390	0	1510.17	52.07
53	1385	1.88	1510.17	54.24

54	1398	1.25	1510.54	48.76
55	1409	1.25	1510.84	44.13
56	1410	1.88	1510.84	43.69
57	1394	3.13	1510.54	50.5
58	1413	3.13	1510.54	42.26
59	1370	0	1445.98	32.92
60	1330	0	1445.99	50.26
83	1285	25	1485.59	86.91
86	1308.5	548.15	1485.68	76.77
91	1345	5.64	1445.95	43.74
94	1332	3.76	1445.94	49.37
100	1349	6.27	1445.95	42.01
101	1130	0	1337	89.69
102	1370	7.52	1507.7	59.66
105	1365	6.27	1510.54	63.06
111	1466	150	1511.36	19.66
112	1452	0	1511.74	25.88

Network Table - Nodes

Resvr 29	1513	-854.21	1513	0
Resvr R1	1337	0	1337	0
Tank 109	1438	-98.54	1446	3.47

Network Table - Links **MDD+HOA+FF AT NODE 86**

Link ID	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (fps)	Unit Headloss (ft/Kft)	Friction Factor	Status
1	2634	12	130	0	0	0	0	OPEN
2	550	12	130	30.82	0.09	0	0.037	OPEN
3	1736.5	12	130	0	0	0	0	OPEN
5	582	12	130	650.91	1.85	1.33	0.025	OPEN
6	700	6	130	25	0.28	0.08	0.033	OPEN
7	885	12	130	20.07	0.06	0	0.038	OPEN
8	53	12	130	0	0	0	0	OPEN
9	257	12	130	633.35	1.8	1.48	0.029	OPEN
10	660	8	130	626.45	4	8.43	0.023	OPEN
11	439	8	130	621.44	3.97	8.68	0.024	OPEN
12	821	8	130	-31.9	0.2	0.03	0.034	OPEN
13	285	8	130	-25	0.16	0.02	0.038	OPEN
14	543	12	130	0	0	0	0	OPEN
15	660	8	130	-7.52	0.05	0	0.041	OPEN
16	1228.5	12	130	0	0	0	0	OPEN
17	309	8	130	603.88	3.85	8.67	0.025	OPEN
18	173	8	130	1.88	0.01	0	0	OPEN
19	877	8	130	-3.76	0.02	0	0.052	OPEN
20	142	8	130	3.76	0.02	0	0.064	OPEN
21	150	8	130	42.01	0.27	0.07	0.04	OPEN
22	615	8	130	20.05	0.13	0.01	0.036	OPEN
23	920	8	130	12.53	0.08	0.01	0.038	OPEN
24	378	8	130	1.87	0.01	0	0	OPEN
25	1513	8	130	16.32	0.1	0.01	0.036	OPEN
26	272	8	130	4.39	0.03	0	0.049	OPEN
27	575	8	130	7.52	0.05	0	0.043	OPEN
28	570	12	130	-854.21	2.42	2.21	0.024	OPEN
30	69.5	12	130	0	0	0	0	OPEN
31	585	12	130	-704.21	2	1.54	0.025	OPEN
35	491	8	130	-8.15	0.05	0	0.043	OPEN
37	130	6	130	150	1.7	2.9	0.032	OPEN
39	450	8	130	-51.42	0.33	0.08	0.033	OPEN
40	418	8	130	6.27	0.04	0	0.047	OPEN
41	224	12	130	0	0	0	0	OPEN
42	1200	16	130	-98.54	0.16	0.01	0.032	OPEN
43	834	8	130	-61.45	0.39	0.11	0.031	OPEN
44	636	8	130	596.98	3.81	7.74	0.023	OPEN
45	227	12	130	-4.39	0.01	0	0	OPEN
46	415	8	130	2.51	0.02	0	0.049	OPEN
47	477	8	130	-3.13	0.02	0	0.055	OPEN
48	175	12	130	13.17	0.04	0	0.064	OPEN
49	646	12	130	-669.1	1.9	1.38	0.025	OPEN
50	498.5	8	130	-67.73	0.43	0.14	0.031	OPEN
51	326	12	130	685.4	1.94	1.62	0.028	OPEN
52	165	8	130	-1.88	0.01	0	0	OPEN
53	199	12	130	687.28	1.95	1.86	0.031	OPEN
54	135	12	130	-701.08	1.99	2.22	0.036	OPEN
55	139	6	130	1.88	0.02	0	0.062	OPEN
56	636	8	130	580.05	3.7	7.33	0.023	OPEN
57	425	12	130	-6.27	0.02	0	0.058	OPEN
58	330	8	130	3.13	0.02	0	0.04	OPEN
60	873	16	130	98.54	0.16	0.01	0.034	OPEN
61	1397	16	130	98.54	0.16	0.01	0.032	OPEN
70	150	12	130	659.06	1.87	1.89	0.035	OPEN
71	458	8	130	-3.13	0.02	0	0.057	OPEN
72	431	12	130	98.54	0.28	0.04	0.033	OPEN
106	3200	16	130	0	0	0	0	OPEN
107	3200	16	130	0	0	0	0	OPEN
111	1026	12	130	-12.54	0.04	0	0.042	OPEN
Pump P1	#N/A	#N/A	#N/A	0	0	0	0	Closed
Pump P2	#N/A	#N/A	#N/A	0	0	0	0	Closed
Pump P3	#N/A	#N/A	#N/A	0	0	0	0	Closed
Valve 4	#N/A	12	#N/A	0	0	0	0	Closed

TIME SERIES TABLE - PUMP 1

Time	Hour	Flow	Unit Headloss	Status	
		(gpm)	(ft/Kft)		
12:00 AM	0:00	272.45	-250.93	OPEN	
1:00 AM	1:00	258.53	-251.29	OPEN	
2:00 AM	2:00	272.45	-250.93	OPEN	
3:00 AM	3:00	272.45	-250.93	OPEN	
4:00 AM	4:00	300.29	-250.10	OPEN	
5:00 AM	5:00	328.13	-249.15	OPEN	
6:00 AM	6:00	369.89	-247.46	OPEN	
7:00 AM	7:00	0.00	0.00	CLOSED	CLOSED
8:00 AM	8:00	0.00	0.00	CLOSED	
9:00 AM	9:00	0.00	0.00	CLOSED	
10:00 AM	10:00	0.00	0.00	CLOSED	
11:00 AM	11:00	0.00	0.00	CLOSED	
12:00 PM	12:00	0.00	0.00	CLOSED	
1:00 PM	13:00	0.00	0.00	CLOSED	
2:00 PM	14:00	0.00	0.00	CLOSED	
3:00 PM	15:00	0.00	0.00	CLOSED	
4:00 PM	16:00	0.00	0.00	CLOSED	
5:00 PM	17:00	0.00	0.00	CLOSED	
6:00 PM	18:00	0.00	0.00	CLOSED	
7:00 PM	19:00	808.66	-205.68	OPEN	
8:00 PM	20:00	802.10	-206.68	OPEN	
9:00 PM	21:00	795.50	-207.68	OPEN	
10:00 PM	22:00	788.36	-208.74	OPEN	
11:00 PM	23:00	781.19	-209.80	OPEN	
12:00 AM	24:00	773.82	-210.86	OPEN	
1:00 AM	25:00	766.26	-211.94	OPEN	
2:00 AM	26:00	759.24	-212.93	OPEN	
3:00 AM	27:00	752.06	-213.92	OPEN	
4:00 AM	28:00	300.29	-250.10	OPEN	
5:00 AM	29:00	328.13	-249.15	OPEN	
6:00 AM	30:00	369.89	-247.46	OPEN	
7:00 AM	31:00	0.00	0.00	CLOSED	
8:00 AM	32:00	0.00	0.00	CLOSED	
9:00 AM	33:00	0.00	0.00	CLOSED	
10:00 AM	34:00	0.00	0.00	CLOSED	
11:00 AM	35:00	0.00	0.00	CLOSED	
12:00 PM	36:00	0.00	0.00	CLOSED	
1:00 PM	37:00	0.00	0.00	CLOSED	
2:00 PM	38:00	0.00	0.00	CLOSED	
3:00 PM	39:00	0.00	0.00	CLOSED	

4:00 PM	40:00	0.00	0.00	CLOSED
5:00 PM	41:00	0.00	0.00	CLOSED
6:00 PM	42:00	0.00	0.00	CLOSED
7:00 PM	43:00	808.66	-205.68	OPEN
8:00 PM	44:00	802.10	-206.68	OPEN
9:00 PM	45:00	795.50	-207.68	OPEN
10:00 PM	46:00	788.36	-208.74	OPEN
11:00 PM	47:00	781.19	-209.80	OPEN
12:00 AM	48:00	773.82	-210.86	OPEN
1:00 AM	49:00	766.26	-211.94	OPEN
2:00 AM	50:00	759.24	-212.93	OPEN
3:00 AM	51:00	752.06	-213.92	OPEN
4:00 AM	52:00	300.29	-250.10	OPEN
5:00 AM	53:00	328.13	-249.15	OPEN
6:00 AM	54:00	369.89	-247.46	OPEN
7:00 AM	55:00	0.00	0.00	CLOSED
8:00 AM	56:00	0.00	0.00	CLOSED
9:00 AM	57:00	0.00	0.00	CLOSED
10:00 AM	58:00	0.00	0.00	CLOSED
11:00 AM	59:00	0.00	0.00	CLOSED
12:00 PM	60:00	0.00	0.00	CLOSED
1:00 PM	61:00	0.00	0.00	CLOSED
2:00 PM	62:00	0.00	0.00	CLOSED
3:00 PM	63:00	0.00	0.00	CLOSED
4:00 PM	64:00	0.00	0.00	CLOSED
5:00 PM	65:00	0.00	0.00	CLOSED
6:00 PM	66:00	0.00	0.00	CLOSED
7:00 PM	67:00	808.66	-205.68	OPEN
8:00 PM	68:00	802.10	-206.68	OPEN
9:00 PM	69:00	795.50	-207.68	OPEN
10:00 PM	70:00	788.36	-208.74	OPEN
11:00 PM	71:00	781.19	-209.80	OPEN
12:00 AM	72:00	773.82	-210.86	OPEN

Time	Hour	Demand	Head	Pressure
		(gpm)	(ft)	(psi)
12:00 AM	0:00	0.00	1537.00	10.40
1:00 AM	1:00	0.00	1537.00	10.40
2:00 AM	2:00	0.00	1537.00	10.40
3:00 AM	3:00	0.00	1537.00	10.40
4:00 AM	4:00	0.00	1537.00	10.40
5:00 AM	5:00	0.00	1537.00	10.40
6:00 AM	6:00	0.00	1537.00	10.40
7:00 AM	7:00	-383.82	1537.00	10.40
8:00 AM	8:00	-355.97	1536.01	9.97
9:00 AM	9:00	-328.13	1535.10	9.57
10:00 AM	10:00	-300.29	1534.25	9.21
11:00 AM	11:00	-286.37	1533.48	8.87
12:00 PM	12:00	-286.37	1532.74	8.55
1:00 PM	13:00	-286.37	1532.01	8.24
2:00 PM	14:00	-286.37	1531.27	7.92
3:00 PM	15:00	-300.29	1530.53	7.60
4:00 PM	16:00	-328.13	1529.76	7.26
5:00 PM	17:00	-355.97	1528.92	6.90
6:00 PM	18:00	-383.82	1528.00	6.50
7:00 PM	19:00	438.76	1527.01	6.07
8:00 PM	20:00	460.05	1528.14	6.56
9:00 PM	21:00	467.36	1529.32	7.07
10:00 PM	22:00	488.07	1530.53	7.59
11:00 PM	23:00	494.82	1531.78	8.14
12:00 AM	24:00	501.38	1533.06	8.69
1:00 AM	25:00	507.73	1534.35	9.25
2:00 AM	26:00	486.79	1535.65	9.82
3:00 AM	27:00	479.61	1536.91	10.36
4:00 AM	28:00	0.00	1537.00	10.40
5:00 AM	29:00	0.00	1537.00	10.40
6:00 AM	30:00	0.00	1537.00	10.40
7:00 AM	31:00	-383.82	1537.00	10.40
8:00 AM	32:00	-355.97	1536.01	9.97
9:00 AM	33:00	-328.13	1535.10	9.57
10:00 AM	34:00	-300.29	1534.25	9.21
11:00 AM	35:00	-286.37	1533.48	8.87
12:00 PM	36:00	-286.37	1532.74	8.55
1:00 PM	37:00	-286.37	1532.01	8.24
2:00 PM	38:00	-286.37	1531.27	7.92
3:00 PM	39:00	-300.29	1530.53	7.60

4:00 PM	40:00	-328.13	1529.76	7.26
5:00 PM	41:00	-355.97	1528.92	6.90
6:00 PM	42:00	-383.82	1528.00	6.50
7:00 PM	43:00	438.76	1527.01	6.07
8:00 PM	44:00	460.05	1528.14	6.56
9:00 PM	45:00	467.36	1529.32	7.07
10:00 PM	46:00	488.07	1530.53	7.59
11:00 PM	47:00	494.82	1531.78	8.14
12:00 AM	48:00	501.38	1533.06	8.69
1:00 AM	49:00	507.73	1534.35	9.25
2:00 AM	50:00	486.79	1535.65	9.82
3:00 AM	51:00	479.61	1536.91	10.36
4:00 AM	52:00	0.00	1537.00	10.40
5:00 AM	53:00	0.00	1537.00	10.40
6:00 AM	54:00	0.00	1537.00	10.40
7:00 AM	55:00	-383.82	1537.00	10.40
8:00 AM	56:00	-355.97	1536.01	9.97
9:00 AM	57:00	-328.13	1535.10	9.57
10:00 AM	58:00	-300.29	1534.25	9.21
11:00 AM	59:00	-286.37	1533.48	8.87
12:00 PM	60:00	-286.37	1532.74	8.55
1:00 PM	61:00	-286.37	1532.01	8.24
2:00 PM	62:00	-286.37	1531.27	7.92
3:00 PM	63:00	-300.29	1530.53	7.60
4:00 PM	64:00	-328.13	1529.76	7.26
5:00 PM	65:00	-355.97	1528.92	6.90
6:00 PM	66:00	-383.82	1528.00	6.50
7:00 PM	67:00	438.76	1527.01	6.07
8:00 PM	68:00	460.05	1528.14	6.56
9:00 PM	69:00	467.36	1529.32	7.07
10:00 PM	70:00	488.07	1530.53	7.59
11:00 PM	71:00	494.82	1531.78	8.14
12:00 AM	72:00	501.38	1533.06	8.69

Appendix E

Walnut Avenue Pump Station Draft Preliminary Design Technical Memorandum

February 22, 2022, by Wood Rodgers

Technical Memorandum

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

To: Michael Kang, P.E.
Principal Engineer
City of Simi Valley – Waterworks District No. 8

From: Kevin J. Gustorf, P.E.
Karl F. Meier, P.E.
Alia Meier, P.E.
Shirley Reppert, E.I.T.

Date: February 22, 2022

Subject: City of Simi Valley – Waterworks District No. 8 | Walnut Avenue Pump Station – Draft Preliminary Design Technical Memorandum

INTRODUCTION

The Ventura County Waterworks District No. 8 (District) owns, operates, and maintains a water distribution system that serves approximately 80,000 residents in the City of Simi Valley (City). The District receives potable water from two sources: imported water delivered by the Calleguas Municipal Water District via 12 turnout connections, and local ground water supplied by 2 wells in the Tapo Canyon area. The potable water distribution system consists of 40 water storage tanks, 22 pump stations, 2 production wells, 26 pressure reducing stations. The District is comprised of 24 service areas ranging in elevation from approximately 650-feet to approximately 2,100-feet above sea level.

The District has requested Wood Rodgers to evaluate and design the Walnut Avenue Pump Station (Walnut PS), a new pump station to replace the existing Tapo Street Pump Station that will supply water from the 1248 Pressure Zone (PZ) to the 1357 PZ. The new pump station will also supply water to the proposed Lost Canyons Development. This Preliminary Design Technical Memorandum (PDM) will discuss and assess the demands within the 1357 PZ and Lost Canyons Development to ensure the new pump station will hydraulically meet or exceed requirements set forth by the District. The 1357 PZ is located north of State Route 118 in the northern part of the City. This PZ is supplied by the Tapo Street Pump Station and is comprised of two (2) storage tanks, known as Marr Ranch 1 and Marr Ranch 2, providing a combined capacity of 2.75 million gallons (MG). The proposed Lost Canyons Development will be located northwest of the new Tapo Street and Walnut Avenue intersection along Lost Canyons Drive.

Project Purpose

The purpose of this project is to design and construct a new pump station for the District to replace the existing Tapo Street PS. The primary reasons for the new pump station include the following:

1. Increase pumping capacity to serve the proposed Lost Canyons Development Project
2. Replace the aging and undersized Tapo Street Pump Station

The Lost Canyons Development is a proposed development project that is located on the north and south sides of Lost Canyons Drive and west of Tapo Canyon Road. This development spans approximately 1,677 acres and includes an 18-hole golf course, a clubhouse and 364 residential lots. Its site ranges in elevation

from approximately 1,000-feet to 2,000-feet above sea level. The developer is required to build a new 0.58 MG reservoir (580,000 gallons) and 1,650 gpm pump station within the Lost Canyons' 1537 service area. The future 1537 Pump Station will take suction from the 1357 service area and pump to the new 1537 Reservoir.

The proposed Walnut PS will be built to meet the existing and proposed water demands within the existing 1357 PZ and proposed Lost Canyons' 1537 and 1355 pressure zones. This pump station will deliver water to the future 1537 Pump Station to serve the new 1537 PZ, as described further in the System Hydraulic Analysis section.

The objective of this technical memorandum is to provide the District with the Walnut PS design parameters and concepts to document the design approach for this new pumping facility.

Project Location

The existing Tapo Street Pump Station is located on the east side of Tapo Street, approximately 200 feet south of Kadota Street.

The proposed Walnut PS will be located on District-owned property on the northeast side of the intersection of Walnut Avenue and Lightning Ridge Way. The pump station building will be located on the southern, vacant portion of the 1.84-acre parcel (APN 614-400-10-18). Figure 1 depicts the locations of the proposed and existing pump stations.



Figure 1: Vicinity Map

Environmental Considerations

The location of the new Walnut PS was predetermined by the District. There have not been any known environmental concerns such as noise or community disturbance as the pump station will be located on District-owned property.

Geotechnical Investigation

A geotechnical evaluation was performed by Ninyo and Moore "Walnut Avenue Pump Station", Project No. 211684001, on July 23, 2021, (geotechnical report) and is included as Appendix A. One boring was performed at the anticipated location of the proposed pump station at the time of investigation.

The project is located within the Transverse Ranges Geomorphic Province that consists of thick sequences of non-marine and marine sedimentary rock, volcanic rock, and alluvial deposits in low lying areas. Regionally, the vicinity is underlain by Holocene and late Pleistocene age young alluvium which consists of friable, stream-deposited silt, sand, and gravel on flood plains.

Materials encountered during the subsurface investigation were artificial fill underlain by alluvium. The artificial fill was encountered up to a depth of approximately seven feet below ground surface and consisted of dry to moist, medium dense, silty sand with varying amounts of gravel, cobbles, and asphalt concrete fragments. The alluvium was encountered to the depth of the boring (61.5 feet) and consisted of moist, medium dense to very dense, poorly graded sand, poorly graded sand with silt, silty sand, and clayey sand, and moist, very stiff to hard, sandy clay with varying amounts gravel. Cobbles and some oversized materials may be encountered during excavation. Overall, excavation was described as feasible in the geotechnical report.

A list of other design considerations as depicted in the geotechnical report are listed as follows:

- No groundwater was encountered at the depth of the boring and is not anticipated to be encountered at this site at the elevation of excavation for potential pump cans.
- The site is located within a seismically active area and within an Earthquake Fault Zone. The Simi Fault is located approximately 400 feet north of the proposed pump station. As such, proposed structures will be designed to account for the seismic loading as required by the California Building Code and the American Society of Civil Engineers Publication 7-16.
- Liquefaction is not deemed to be a concern at this site.
- The pump station could be subject to approximately 1.75 inches of dynamic settlement due to earthquake-induced dynamic compaction of dry soils
- The in-situ soil was classified as non-corrosive per the geotechnical report.

Topographic Mapping

A topographic survey was performed on June 10, 2021, by Calvada Surveying, Inc. Job No. 21260 and is shown in the exhibits and drawings presented herein.

Permitting

The District will be required to complete and submit a building permit for approval. Although the Walnut PS will be built on District-owned property, the permits will provide historical documentation for City purposes. A permit declaration must be completed and signed by the property owner before a building permit can be issued. The following permits, however, not limited to, coincide with the pump station design and construction plans, and should be reviewed and submitted by the District:

- Building & Safety – Commercial/Industrial New Building Permit
- Building & Safety – Commercial/Industrial Retaining Wall or Fence Permit
- Building & Safety – Demolition Permit
- Building & Safety – Grading Permit
- Building & Safety – Miscellaneous Permit
- Public Works – Encroachment Permit – Utility Regular
- Sewer Availability Letter – Non-Residential
- Sewer Will Serve Letter – Non-Residential
- Water Availability Letter – Non-Residential
- Water Will Serve Letter – Non-Residential

Additional related permitting information as identified on the City's Building & Safety Division website can be found in Appendix B.

PUMP STATION CAPACITY & SYSTEM HYDRAULIC ANALYSIS

Pump Station Capacity

The proposed Walnut PS will be designed to meet the pump station design criteria established in the VCWWD #8 Capacity Evaluation and Analysis of Waterworks Distribution System Summary Report – Final, dated November 2021 (2021 Summary Report). This includes requirements for reservoir replenishment rates under maximum day demand conditions.

A calculation was performed to determine the minimum capacity of the Walnut PS to ensure existing 1357 PZ and proposed Lost Canyons Development water demands will be supplied and is reflected as the Q3 Data Scenario in Table 1 below.

Table 1 below, and a portion of the discussion in this section, includes a potential operational condition where the Chumash Pump Station could be operating in tandem with the Walnut PS. This condition would only occur if a normally closed zone valve between the 1355 and 1357 PZs was opened. However, after further discussion with the District, the 1355 and 1357 PZs cannot be combined, and will remain permanently separated via the existing closed zone valve. The inclusion of the Chumash Pump Station within the following analyses poses no significant impact to the hydraulics of Walnut PS.

Table 1 reflects the total existing and proposed maximum day demand (MDD) and corresponding pumping rates for the Walnut PS based on a 12-hour reservoir replenishment (fill) time and a 72-hour fill time under MDD and fire flow conditions.

Table 1: Demands & Reservoir Fill Times

Data Scenario	MDD Water Demand (gpm)	12-Hour Fill[1] (gpm)	MDD + FF Storage Over 72 Hours[2,3] (gpm)
Q1	1,225	2,450	1,392
Q2	1,329	2,658	1,496
Q3	1,352	2,704	1,519
Q4	1,794	3,588	1,961
Q5 (Ultimate)	1,794	3,588	1,961

1. Pump stations to deliver the MDD within 12 hours to incorporate the off-peak pumping guidelines per SCE.
2. Per the Capacity Evaluation and Analysis of Waterworks Distribution System Summary Report – FINAL (November 2021).
3. 1357 Zone to meet School & Institutional Fire Flow Requirement of 3,000 gpm over 4 hours per Simi Valley Water Plan Analyses.

The Walnut PS must be capable of pumping the total demand under the MDD condition. The 2021 Summary Report identifies that the Walnut PS is required to meet demands under Max Day plus fire flow storage over 72 hours, however the demands calculated under this condition are less than the 12-hour reservoir fill requirement.

Based on these calculations, the conservative approach of meeting the 12-hour fill demand of 2,700 gpm is recommended, and was selected by the District for the capacity of the Walnut PS. The full table showing various data flow scenarios can be found in Appendix C.

Hydraulic Analysis

Wood Rodgers utilized the District's Innovyze InfoWater hydraulic model to analyze the existing and proposed system hydraulic conditions, and generated system curves to allow for the evaluation and selection of appropriate pump(s) for the Walnut PS. Over twenty (20) scenarios were developed and examined within the hydraulic model. Of those scenarios, five (5) included the Chumash Pump Station turned on to depict how the system would operate with both the future Walnut PS and Chumash Pump Station running in tandem. As previously mentioned, the Chumash Pump Station does not impact the results of the Walnut PS hydraulics when the zone valve remains closed. Also, for all scenarios analyzed the Tapo Street PS was turned off as it will be demolished and not in use when the Walnut PS is constructed.

These scenarios captured the following conditions to establish the range of potential operating conditions.

Demand Scenarios | The following demand scenarios were analyzed within the hydraulic model; Average Day Demand (ADD), Maximum Day Demand (MDD), Peak Hour Demand (PHD), and Minimum Hour Demand (MHD).

Existing & Proposed Conditions | Future demands, including those from the proposed Lost Canyons Development were analyzed.

Head Conditions | Three different static head conditions were analyzed as follows:

- High Head: Suction side tanks were set at 1-foot above the minimum level and discharge side tanks were set at 1-foot below the maximum level.
- Average Head: Suction and discharge tanks were set to mid-level.
- Low Head: Suction side tanks were set to 1-foot below maximum level and discharge side tanks were set to 1-foot above the minimum level.

The conditions above were evaluated in various combinations within the hydraulic model to develop the potential operating range. These model results were then combined with calculations performed within Microsoft Excel to account for the pipe friction and minor losses associated with the proposed on-site yard piping and appurtenances.

Discussions with the District determined that the minimum hour demand (MHD) system curve should be utilized as the primary system curve for pump selection and determining the firm capacity of the pump station.

In addition to developing system curves for pump selection, calculations were performed to size the on-site yard piping. District standards and the Hydraulic Institute criteria were used to size the 16-inch suction header, the 16-inch discharge header, 12-inch suction lines, and 8-inch discharge lines. Additionally, the net positive suction head available and required for the pump station was determined. Appendix D contains the hydraulic calculations and system curves developed for this pump station.

WALNUT AVENUE PUMP STATION DESIGN CRITERIA

The following sections provide the basis of design for the major elements for the project.

Civil Design

The civil design will follow the most recent Simi Valley public works standards and common engineering/best management practices needed to comply with Federal (NFIP), State (NPDES), City Drainage Requirements, and Flood Damage Ordinance 1268.

Existing Site

The District currently utilizes the northern half of the parcel as a maintenance yard. To maintain functionality of the existing maintenance yard, the pump station will be located on the southern half of the parcel and will not impact any existing structures currently in use.

Demolition

The southern half of the property contains several eucalyptus trees that will be removed to support the construction of the Walnut PS. In addition, the existing chain link fence bordering the site will be removed. An existing water line that feeds two on-site fire hydrants bisects the site. One of the two on-site hydrants will be removed and relocated, while the fire hydrant on the northern portion of the project site will be reconnected to the pump station discharge line.

Proposed Site

The site will be paved with asphalt concrete and may contain minor retaining walls (less than four feet high) to level the site.

Vehicular Access

The site is currently accessed via a 24-foot driveway (Felix Avenue). This driveway will serve as the main access for Walnut PS along with a new 24-foot automatic rolling gate directly off Felix Avenue.

Grading and Drainage

Over-excavation to competent material of approximately seven feet below the pump station building slab is anticipated per the geotechnical report. The site will be designed to sheet flow stormwater away from the building and into the curb inlet on the frontage of Walnut PS. The need for onsite subgrade storm drain piping and structures (area drains and/or curb inlets) will be determined during detailed design. An existing catch basin was found on the northern border of the site, above the retaining wall, and if the connected below-grade piping is encountered during excavation, it will need to be rerouted to provide positive drainage.

Security

The site perimeter will be secured with an 8-foot-high chain link security fence with a barbed wire top. The automatic rolling gate will be fit with an access control system.

Yard Piping

The District's July 2021 Standards for Water Mains indicate that pipelines 18-inches and less in diameter shall be ductile iron pipe (DIP). However, the majority of the District's pump stations have welded steel piping. A brief comparison of advantages and disadvantages for DIP and welded steel pipe are depicted in Table 2.

Table 2: Comparison DIP and CML&C Welded Steel Pipe

	Ductile Iron Pipe	Welded Steel (CML&C)
Advantages	• Easily modified in the field with fittings, couplings, etc. and can easily make changes in direction. • More readily available than CML&C welded steel as sizes for this project are not extremely large and are typically stocked. • Typically, shorter lead times due to availability. • Quickly and easily assembled and doesn't require a welder.	• Welded joints are fully restrained, therefore thrust blocks and mechanical restraint systems are not needed. • Thicker mortar lining and coating (and external tape wrapping beneath the mortar coating if selected) provides good corrosion resistance. • Custom bends, changes in direction, taps are available if needed.
Disadvantages	• Thrust restraint requires either mechanical restraint systems or thrust blocks. • More susceptible to internal corrosion if the interior cement lining is damaged. • More susceptible to external corrosion if the polyethylene encasement is not properly installed or becomes damaged.	• Interior mortar lining at field welded joints requires repair which is done using hand holes in pipes smaller than 24" in diameter. • Field welding requires specialized labor force and takes longer to install. • Nominal diameter of steel pipe is typically the inner diameter, which is slightly smaller than its DIP counterpart which has a larger inner diameter. • Longer lead time and availability can be impacted more drastically than steel since steel is typically fabricated for specific projects and not "stocked".

As shown in Table 2, the advantages for DIP and CML&C welded steel pipe indicate that either pipe material is satisfactory for this project. To maintain consistency amongst the other pump stations within the District, welded steel pipe will be provided for both the yard piping and mechanical piping within the building.

For exposed pipe within the pump station, fusion boned epoxy (FBE) lined and coated pipe is recommended.

For direct buried pipe (yard piping), tape-wrapped pipe with a cement coating or only a cement mortar coating can be utilized. The tape coating adds an additional layer of protection for the pipe. Cement mortar coating only (without the tape wrap) is recommended as the additional protection is not warranted due to the non-corrosive environment.

The discharge pressure at the Walnut PS, depending on the hydraulic conditions present, could range to just under 150 psi. Therefore, all piping and appurtenances will be designed to accommodate the actual working pressure plus the potential for additional pressure during pump start-up.

Connections to Existing System

The pump station suction line will connect to the existing 14-inch Asbestos Cement Pipe (ACP) water main on the south side of Walnut Avenue in the 1248 PZ. As described under System Hydraulics, the existing 8-inch ACP on the north side of Walnut Avenue in the 1357 PZ will be upsized to a 16-inch water main by the District. As such, a 16-inch discharge line at the new pump station will tie connect to the proposed 16-inch pipeline being design by District staff. Handling and disposal of any existing ACP will be in accordance with local and federal requirements.

Mechanical Design

The following sections provide the basis of design for the mechanical items for the project.

Design Criteria/Standards

The mechanical design will follow applicable sections of the American Water Works Association (AWWA), 2021 VCWWD Water Design and Construction Standards, and the 2021 VCWWD Standard Plates. Pump requirements can be found within the 2021 Summary Report.

Pump Type Selection

The design capacity for the Walnut PS is 2,700 gpm. As determined by the District, the desired pump configuration is two (2) 1,350 gpm duty pumps and one (1) 1,350 gpm standby pump, as this minimizes the number of pumping units and related operations and maintenance associated with each unit. Appendix E contains meeting minutes with the District documenting the pump station design capacity.

As a part of this project, the District requested that various pump types be evaluated for this new pump station. The three applicable types of pumps suitable for this potable water booster pump station are as follows: split-case pumps, vertical turbine pumps, and vertical in-line pumps. Split-case pumps can be divided into two sub-categories: horizontal-split case and vertical-split case. As such, during this preliminary design phase the four types listed were evaluated at a high level, and the most suitable was selected for final design. Pump manufacturers including Grundfos, Fairbanks, and Goulds were consulted for costs and recommended pump selections for the project. A summary comparing the different types of pumps is provided below in Table 3. An expanded pump type comparison table and discussion is in Appendix F.

Table 3: Pump Type Comparison Summary

Pump Type	Deep Excavation Required for Pump Can	Crane Required for Pump Install or Removal	Summary	
			Pros	Cons
Horizontal Split Case	No	No[1]	• Easily accessible pump components	• Flat performance curve
Vertical Split Case	No	No[1]	• Compact footprint	• Difficult maintenance access • Potential for bottom seal failure
Vertical Turbine	Yes, approximately 10-15 feet deep	Yes	• Steep performance curve • Most efficient	• Below-grade appurtenances • Excavation for cans • Crane required for pump removal
Vertical In-Line Multistage	No, approximately 6 feet tall	No[1]	• Above-grade appurtenances • Skid-mounted	• Flat performance curve • Insufficient shutoff head • Insufficient runout with single pump • Less competition (Grundfos) • Not suitable for this application

1. No exterior mobile crane required; however interior monorail is recommended.

Horizontal Split Case Pumps

The intake of horizontal split-case pumps is at ground level; therefore, conditions with ample net positive suction head available (NPSHa) are required. In addition, since the performance curves for horizontal split-case pumps are typically flatter, there is greater fluctuation in the flow range due to small changes in head.



Figure 2: Horizontal Split Case Pump (dual stage)

Vertical Split Case Pumps

The vertical split case pumps are split case pumps installed in a vertical configuration fitted within a frame. This arrangement is suitable for applications with limited space and costs approximately 30% more than the horizontal counterpart. As such, vertical split case pumps are not commonly installed for municipal pumping stations. Since this site is not constrained, the vertical split case pumps were deemed unnecessary and not selected.

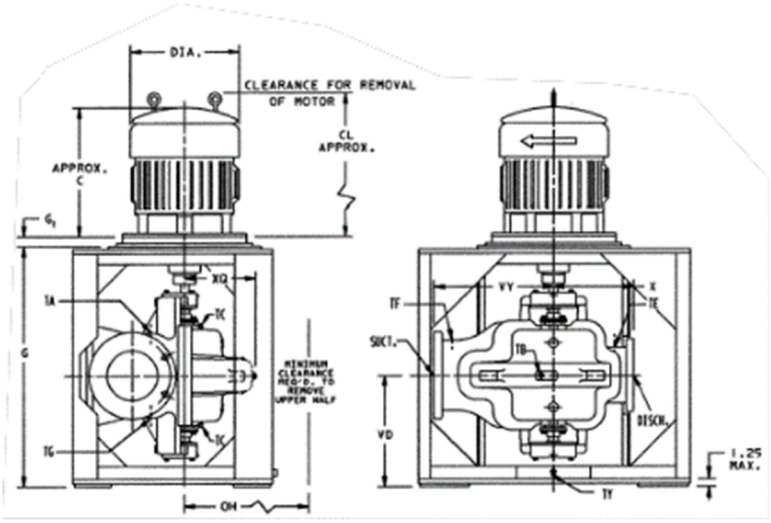


Figure 3: Vertical Split Case Pump (Goulds)

Vertical Turbine Pumps

Vertical turbine pumps are suitable for sites with low NPSH available as well as high-head applications as additional stages can be installed with minimal impact on footprint (although the cans will be deeper with more stages). Vertical turbine pumps naturally have steeper performance curves which correlates to the ability to maintain a steady flow over greater changes in head conditions.



Figure 4: Vertical Turbine Pumps

Vertical In-Line Pumps

Vertical in-line pumps are packaged systems suitable for lower flows. For larger flows, a high number of pumping units would be required to achieve the flow rate, and since two duty pumps were desired, the suitability of vertical in-lines was diminished. These packaged systems are skid mounted and closely nested together which is ideal for space-constrained sites but can tend to be a hindrance for normal operations. This pump type was therefore not selected.



Figure 5: Vertical In-Line

Figure 6 below provides an overview of the pump performance curves for the types of pumps described above and aides in the illustration of flat and steep curves and their interaction with the system curves.

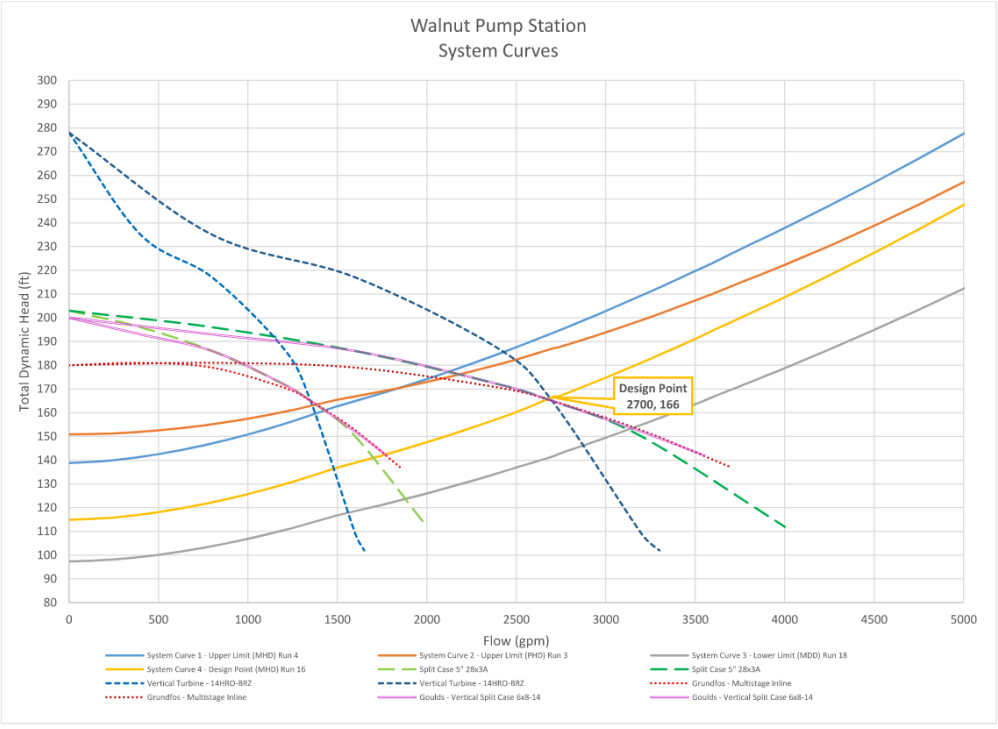


Figure 6: Pump Performance Curves vs System Curves

Pump Selected for Project

The vertical split case and vertical in-line pumps were dismissed with ease for the basic reasons previously described. However, both horizontal split-case pumps and vertical turbine pumps proved to be suitable for the project for the following primary reasons: the District is comfortable maintaining each type and do not have a standard pump type, there is ample NPSH available, the head is within the capacity of a single stage horizontal split-case pump, and the flows will be consistent and predictable (pumping to a reservoir).

To further aid the District determining the best suited pump type for this pump station, a brief and high-level evaluation on the difference in capital, operation and maintenance costs for horizontal split-case pumps and vertical turbine pumps was performed. Appendix G provides a high-level life cycle cost analysis for horizontal split case pumps and vertical turbine pumps including extractions from the Fairbanks Nijhuis O&M Manuals. The costs associated with each of the pump types over an assumed life span of 30 years and the manuals provide the frequency of maintenance and typical lifespan of each pump component. Any information regarding industry-accepted values were unavailable during this analysis and are excluded from the life cycle cost analysis.

Reliability is of upmost importance for the District's assets. According to the available O&M manual reviewed, vertical turbine pumps have less frequent maintenance obligations which results in increased reliability. Therefore, vertical turbine pumps are selected for the project.

The pumps will have the following characteristics based on the results of the hydraulic analyses previously described. Table 4 contains a summary of the pumping unit characteristics.

Table 4: Pumping Unit Summary

Pump Number	Type	Flow (gpm)	TDH (ft)	Motor Horsepower	Starter Type
1	Vertical Turbine (Can)	1,350	166	75	Variable Speed
2	Vertical Turbine (Can)	1,350	166	75	Variable Speed
3	Vertical Turbine (Can)	1,350	166	75	Variable Speed

Valves

Isolation valves sizes 4-inch to 10-inch in diameter will be resilient wedge gate valves. Isolation valves 12-inches and greater will be butterfly valves. Buried isolation valves will be equipped with a square operating nut and above grade valves will be equipped with a handwheel.

Flow Measurement

A 12-inch electromagnetic flow meter will be installed above-grade inside the pump station. Flow meter shall be manufactured by Sparling, ABB or an approved equal.

Pressure Relief

An 8-inch pressure relief valve will be installed and connected to the suction and discharge headers on the southern side outside the pump station building. The valve will be a Cla-Val series 50-01 Pressure Relief.

Equipment Removal/Access

The building will include roof hatches for pump removal as well as double-doors for a gantry crane and for a truck to back up to the building.

Electrical Design

The electrical design pertains to electrical distribution, control, and instrumentation elements of the Project. Electrical equipment will include the main switchboard, transfer switch, generator, panelboard, control panel, remote telemetry unit/programmable logic controller, and motor control center with variable frequency drives. The design will include instrumentation and SCADA programming modifications.

The design will meet the requirements of current National Electric Code (NEC). Equipment will maintain working clearances as noted in the NEC. The electrical equipment will be UL listed and meet applicable standards of NEMA; IEC rated equipment will not be allowed. All exposed conduits will be galvanized rigid steel, ¾-inch-diameter minimum. All underground conduits will be non-metallic Schedule 40 PVC, 1-inch-diameter minimum. All power and control wiring will be THHN/THWN insulation and copper conductors. Grounding will conform to NEC Article 250. All electrical equipment and anchorage will be seismic rated.

The power distribution system will consist of a utility transformer provided by SCE, utility meter, main service disconnect and transfer switch. The main switchboard will be mounted outside the fence in a weatherproof enclosure (NEMA 3R). The distribution system will include a surge protection device and power monitor. Refer to the drawings including in Appendix H for the electrical single line diagram, equipment elevations, and load calculations.

During design the design team will work with Southern California Edison (SCE) to provide a new 480 V, 3-phase, 4 wire service. Currently, the service is shown as 800 Amps. SCE will likely provide a pad-mounted transformer for the site.

A diesel engine driven standby generator has been preliminarily sized at 350 KW (for three 100 HP pumps) or 450 KW (for three 125 HP pumps) and will be mounted outside in a standard weatherproof enclosure with a skid mounted 24-hour fuel tank. The generator size will be finalized as final pump and corresponding motor horse powers are selected.

The control system of the Project will include features to facilitate unsupervised operations and status monitoring. The PLC will be Allen Bradley CompactLogix. A control system operator interface terminal (OIT) will also be provided: PanelView Plus 10". Communication to the [central] SCADA system will be facilitated via Microsemi 9501 radio. The control panel will include back-up batteries. The PLC, OIT and radio will be in the control panel which could be in an oversized motor control center section or a separately [floor] mounted Hammond or Hoffman type enclosure in the electrical room. The existing SCADA system is Inductive Automation – Ignition. The SCADA programming will be modified to include the new facility. SCADA modifications and PLC programming will be done by Northern Digital Inc.

Pump control for each motor will be identical and located at the motor control center located in the building. Motor control will be variable speed via variable frequency drives (VFDs). Standard six pulse drives will be specified with output filters and input reactors. Control strategies shall be per District standards. VFDs will be mounted in an MCC. The VFDs will be manufactured by Allen-Bradley with door mounted HIM: 20F1AND248AN0NNNNN/20-750-2262D-2R/20-HIM-C^s/20-750-FLNG4-F6.

Instrumentation Design

The flowmeter will be a 12-inch electromagnetic flow meter. The unit will be integral tube with transmitter. Inlet and Discharge pressure transmitters will be Ashcroft. High pressure switches will be Mercoid.

Building Plumbing Design

The restroom within the pump station shall abide by the codes set forth in the latest California Plumbing Code. The restroom will include a toilet, single sink, sewer drain for possible water overflow and ventilation to circulate air. A hot water heater will be included as well.

The pump station will contain a drain line with floor drains to capture extraneous flows from valves within the building.

Building Ventilation Design

The pump room will be mechanically ventilated using exhaust fans and louvers to achieve the required air exchanges per hour. A small exhaust fan and louvers will also be used to ventilate the restroom. The electrical room will be air conditioned using a ductless split system.

Structural Design

Design Criteria/Standard

Structural standards for the project structures will comply with the 2019 California Building Code, ASCE 7-16 Minimum Design Loads, and referenced material standards.

The seismic design criteria are as follows:

- Site Class D
- Occupancy III
- Importance Factor = 1.25
- Seismic Design Category D
- SDS = 1.437
- SD1 = 1.198

The structural foundation design will be based on the recommendations specified in the Geotechnical Evaluation prepared by Ninyo & Moore, Project No. 211684001, July 23, 2021.

The proposed pump station building will be a Concrete Masonry Unit (CMU) building. The lateral force resisting system will be designed as a Special Reinforced Masonry Shear Wall. The building roof system will consist of wood truss mansard roof over metal roof deck over steel beam framing. Access hatch roof penetrations, centered on the well pumps, will be provided to allow for the installation and removal of the pumps.

Architectural Design

Design Criteria/Standards

The proposed pump station will generally consist of a new concrete masonry unit (CMU) building which will house the majority of the mechanical and electrical equipment.

The exterior façade comprises primarily of durable non-combustible materials including a concrete tile mansard roof, masonry design of varying style, depth, detail, and articulation with consistent rhythm and symmetry. Glass block window units with good visible light transmittance are placed

throughout for natural daylighting. The eaves provide a rustic contrast of exposed rafters and a faux plank roof deck.

The Architect requests the Client to provide any preferred Door Hardware Selections for all openings as shown on the Architectural Drawings including any electrified devices.

DECOMMISSIONING AND DEMOLITION OF TAPO STREET PUMP STATION

There are two existing pumps located in a below-grade vault in a very tight site. The Tapo Street PS is an undersized and aging facility and requires replacement. Once the Walnut PS is on-line, the Tapo Street Pump Station will be decommissioned and demolished with select items to be salvaged per the District's instructions. The existing pipelines will be cut and capped in locations that eliminate stagnation within the system. Appendix H contains the demolition plan for this pump station.

APPENDICES

A. Ninyo and Moore "Walnut Avenue Pump Station", Project No. 211684001 (July 23, 2021)
B. Permit Information and Submittals
C. Pump Station Flow Scenarios
D. Pump Station Hydraulic Calculations
E. VCWWD #8 Meeting Minutes (September 17, 2021)
F. VCWWD #8 Meeting Minutes (November 23, 2021)
G. Life Cycle Cost Analysis
H. 35% Drawings

WOOD RODGERS

BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

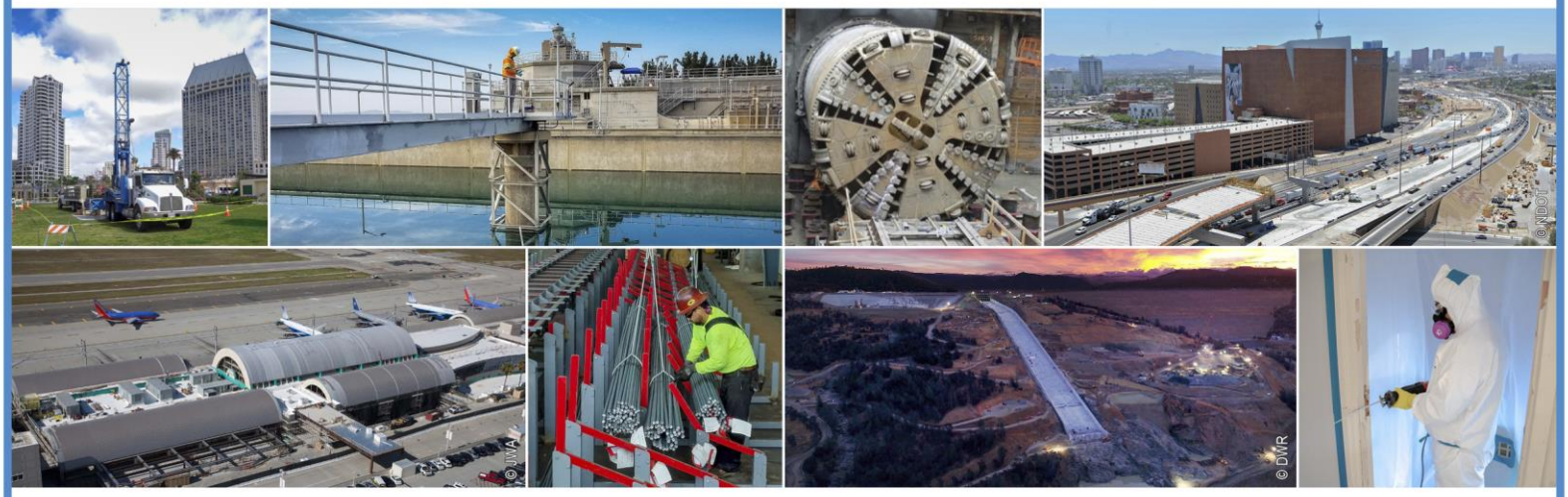
Appendix A

Geotechnical Evaluation
Walnut Avenue Pump Station
City of Simi Valley, County Waterworks District No. 8
Simi Valley, California

Wood Rodgers, Inc.

3301 C Street, Building 100-B | Sacramento, California 95816

July 23, 2021 | Project No. 211684001



Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

Geotechnical Evaluation
Walnut Avenue Pump Station
City of Simi Valley, County Waterworks District No. 8
Simi Valley, California

Mr. Kevin Gustorf
Wood Rodgers, Inc.
3301 C Street, Building 100-B | Sacramento, California 95816

July 23, 2021 | Project No. 211684001

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ECH/MLP/DBC/sc

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4 – Fault Locations
5 – Acceleration Response Spectra
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7 – Lateral Earth Pressures for Temporary Cantilevered Shoring
8 – Lateral Earth Pressures for Braced Excavation
9 – Thrust Block Lateral Earth Pressure Diagram

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B – Laboratory Testing

1 INTRODUCTION

In accordance with your request and authorization, we have performed a geotechnical evaluation for the City of Simi Valley, Ventura County Waterworks District No. 8 Walnut Avenue Pump Station Project located in Simi Valley, California (Figure 1). The project includes the replacement of the existing Tapo Street Pump Station with the new Walnut Avenue Pump Station. The purpose of our study was to evaluate the soil and geologic conditions at the site and provide geotechnical recommendations for the design and construction of the proposed improvements. This report presents the findings from our background review and subsurface exploration, results of our laboratory testing, conclusions regarding the subsurface conditions at the site, and geotechnical recommendations for design and construction of this project.

2 SCOPE OF SERVICES

Our scope of services included the following:

- Project coordination, planning, and scheduling of the subsurface exploration.
- Review of readily available background materials, including published geologic and seismic hazards maps, previous reports, published literature, in-house information, stereoscopic aerial photographs, and reports and plans provided by the client.
- Acquisition of a permit from the County of Ventura for drilling a boring deeper than 50 feet.
- A site reconnaissance to observe the general site conditions and to mark the boring location, and coordination with Underground Service Alert for utility clearance.
- Subsurface exploration consisting of drilling of one exploratory hollow-stem-auger boring to a depth of approximately 61½ feet. The boring was logged in the field by our representative and relatively undisturbed and bulk samples were collected and returned to our laboratory for evaluation and testing. The boring was backfilled with cement-bentonite grout.
- Laboratory testing on selected soil samples including evaluation of in-situ moisture content and dry density, percent of soil particles finer than the No. 200 sieve, direct shear strength, and soil corrosivity characteristics (including pH, resistivity, and water soluble sulfates and chlorides).
- Data compilation and engineering analysis of the information from our background review, subsurface exploration, and laboratory testing.
- Preparation of this report presenting our findings, conclusions, and recommendations pertaining to the geotechnical aspects of the design and construction of the proposed improvements.

3 SITE DESCRIPTION AND PROPOSED CONSTRUCTION

The site for the proposed Walnut Avenue Pump Station is located within the existing District maintenance and storage yard located at the northwest corner of Walnut Avenue and Felix

Avenue. The proposed pump station will be located within an undeveloped area in the southern portion of the district yard. The area is bounded by Walnut Avenue to the south, Lightning Ridge Way to the west, Felix Avenue to the east, and an existing building to the north. The vertical-walled Tapo Canyon drainage channel is located approximately 40 feet to the east. The site is generally surfaced with loose soil and large trees. The site is relatively flat with elevations ranging from approximately 1065 to 1072 feet above mean sea level (MSL) (Cal Vada Surveying, Inc., 2021).

At the time this report was prepared, detailed construction plans for the site have not been developed. However, we understand that the new pump station will include two duty pumps and one standby pump and new electrical equipment that will be housed in a concrete masonry unit (CMU) building.

4 SUBSURFACE EVALUATION AND LABORATORY TESTING

Our subsurface exploration consisted of the drilling, logging, and sampling of one small-diameter boring on June 17, 2021. The boring was drilled to a depth of approximately 61½ feet using a truck-mounted drill rig utilizing 8-inch-diameter augers. The boring was logged in the field by a representative of Ninyo & Moore. Representative bulk and relatively undisturbed soil samples were collected from the boring at selected depths for laboratory testing and transported to our laboratory. The approximate location of the boring is presented on Figure 2. The boring log is presented in Appendix A.

Laboratory testing was performed on representative soil samples collected from the boring. The laboratory testing included evaluation of in-situ moisture content and dry density, percent of soil particles finer than the No. 200 sieve, direct shear strength, and soil corrosivity characteristics (including pH, resistivity, and water soluble sulfates and chlorides). The results of the in-situ moisture content and dry density tests are presented on the boring log in Appendix A. The remaining laboratory testing results are presented in Appendix B.

5 GEOLOGY AND SUBSURFACE CONDITIONS

5.1 Regional Geology

The project site is situated within the Transverse Ranges Geomorphic Province, which encompasses an approximately 40- to 60-mile-wide area (north to south) that extends approximately 320 miles (west to east) from Point Arguello and San Miguel Island to the Eagle and Pinto Mountains of the Mojave Desert (Norris and Webb, 1990). The province generally consists of a region of east to west-trending mountain ranges considered atypical to the

predominant northwest to southeast structural fabric of California. The atypical trend of the Province is the result of a restraining bend ("the Big Bend") on the San Andreas fault that has rotated and compressed the region to its current configuration. The compression has resulted in regional uplift, folding and reverse/thrust faulting with similar east to west trends as the topography. This area of the province consists of thick sequences of non-marine and marine sedimentary rock, volcanic rock, and alluvial deposits in low lying areas.

Regional geologic maps indicate that the site and vicinity are underlain by Holocene and late Pleistocene age young alluvium generally consisting of friable, stream-deposited silt, sand and gravel on flood plains (Campbell, et al, 2014). The site lies in close proximity to the mapped trace of the Simi Fault. A geologic map of the site vicinity is provided on Figure 3.

5.2 Site Geology

Materials encountered during our subsurface exploration consisted of artificial fill underlain by alluvium to the total depth explored of 61½. The artificial fill was encountered up to a depth of approximately 7 feet below the ground surface and consisted of dry to moist, medium dense, silty sand with varying amounts of gravel, cobbles and asphalt concrete fragments. The alluvium consisted of moist, medium dense to very dense, poorly graded sand, poorly graded sand with silt, silty sand, and clayey sand, and moist, very stiff to hard, sandy clay with varying amounts gravel. More detailed descriptions of the subsurface materials encountered during our subsurface exploration are presented on the boring logs in Appendix A.

5.3 Groundwater

Groundwater was not encountered at the time we drilled our exploratory boring to the depth explored of approximately 61½ feet. Regional maps indicate that the historic high groundwater at the site is more than 50 feet below the ground surface (California Department of Conservation, Division of Mines and Geology [CDMG], 1997); however, the groundwater depth contours presented on the regional map do not extend into the area of the subject site. Based on the trends of nearby groundwater contours that terminate on the regional map, the depth to groundwater may be significantly deeper than 50 feet. In addition, our research on the California Department of Water Resources Water Data Library (2021) and the California State Water Resources Control Board GeoTracker (2021) websites did not reveal nearby groundwater wells that would provide additional data in the site vicinity. Fluctuations in groundwater levels will occur due to variations in precipitation, ground surface topography, subsurface stratification, irrigation, groundwater pumping, and other factors that may not have been evident at the time of our field evaluation.

6 FAULTING AND SEISMICITY

The site is located in a seismically active area, as is the majority of southern California, and the potential for strong ground motion in the project area is considered significant during the design life of the proposed improvements. The approximate locations of major faults in the region and their geographic relationship to the project sites are shown on Figure 4. The site is located within a State of California Earthquake Fault Zone (EFZ) (formerly known as an Alquist-Priolo Special Studies Zones) for the active Simi-Santa Rosa Fault (CGS, 1999). Accordingly, the potential for strong ground motion at the project area, as well as the potential for surface fault rupture, is considered to be significant during the design life of the proposed improvements.

The Principal seismic hazards evaluated at the subject site are surface fault rupture, ground motion, dynamic settlement and lateral spread. A brief description of these principal seismic hazards are discussed in the following sections.

6.1 Surface Fault Rupture

Based on our review of the referenced literature, the main trace of the active, northeast-trending, Simi Fault is located approximately 400 feet north of the proposed pump station. As described above, the pump station site is located within the State of California Earthquake Fault Zone for the Simi Fault. Earthquake Fault Zones were established as part of the Alquist-Priolo Earthquake Fault Zoning Act (A-P Act). The purpose of the A-P Act is to prohibit the location of developments and structures for human occupancy across the trace of active faults. Since the proposed pump station building is not intended for human occupancy, which is defined as more than 2,000 person-hours per year, a surface fault rupture hazard evaluation was not required for this project. However, due to the close proximity to the main trace of the active fault, there is a potential for surface fault rupture at the site, including lurching or cracking of the ground surface as a result of nearby seismic events.

6.2 Site-Specific Ground Motion

Considering the proximity of the sites to active faults capable of producing a maximum moment magnitude of 6.0 or more, the project area has a high potential for experiencing strong ground motion. The 2019 California Building Code (CBC) requires the risk-targeted maximum considered earthquake (MCE_R) ground motion response accelerations to evaluate seismic loads for design of buildings and other structures. Based on the information from an available online database (Wills & Clahan, 2006), the average shear wave velocity for the upper 30 meters of soil layers ($V_{s,30}$) used in the seismic analysis was 280 meters per second. Accordingly, the site is classified as Site Class D. Per the 2019 CBC, site-specific ground motion hazard analysis needs to be performed following the guidelines presented in Sections 21.2 and 21.3 of American Society of

Civil Engineers (ASCE) Publication 7-16 for soil deposits classified as Site Class D with mapped S_1 (spectral response acceleration at a period of 1 second) greater than or equal to 0.2g. Since the S_1 is 0.762g at the site (per ASCE 7-16, using the 2021 Applied Technology Council [ATC] web-based seismic design tool [ATC, 2021]), site-specific ground motion hazard analysis was performed to evaluate the ground motion characteristics at the site.

The site-specific ground motion hazard analysis consisted of the review of available seismologic information for nearby faults and performance of probabilistic seismic hazard analysis (PSHA) and deterministic seismic hazard analysis (DSHA) to develop 5-percent-damped acceleration response spectrum (ARS) curves corresponding to the MCE_R. Prior to the site-specific ground motion hazard analysis, we obtained the mapped seismic ground motion values and developed the general MCE_R response spectrum for 5 percent damping in accordance with Section 11.4 of ASCE 7-16 (ATC, 2021).

The 2014 next generation attenuation (NGA) West-2 relationships were used to evaluate the site-specific ground motions. The NGA relationships used for developing the probabilistic and deterministic response spectra were those by Chiou and Youngs (2014), Campbell and Bozorgnia (2014), Boore, Stewart, Seyhan, and Atkinson (2014), and Abrahamson, Silva, and Kamai (2014). The Open Seismic Hazard Analysis software developed by USGS (Field et al., 2003) was used for performing the PSHA. The Calculation of Weighted Average 2014 NGA Models spreadsheet developed by the Pacific Earthquake Engineering Research Center (PEER) was used for performing the DSHA (Seyhan, 2014).

PSHA was performed for earthquake hazards having a 2 percent probability of being exceeded in 50 years adjusted for the risk factors per ASCE 7-16. The maximum rotated components of 5-percent-damped ground motions were considered in PSHA. The DSHA considers accelerations from characteristic earthquakes on active faults within the region using the hazard curves and deaggregation plots at the site using the USGS Unified Hazard Tool application (USGS, 2020). A magnitude 7.0 event on the Simi Santa Rosa fault was deemed to be the controlling earthquake. The DSHA was performed for the site using this event and corrections were applied to spectral accelerations for the 84th percentile of the maximum rotated component of ground motion with 5 percent damping.

The site-specific MCE_R response spectrum was considered as the lesser of the PSHA and DSHA spectral response acceleration at any period, and the site-specific design response spectrum was determined by taking two-thirds of the MCE_R response spectrum with some conditions in accordance with Section 21.3 of ASCE 7-16. Figure 5 presents the site-specific MCE_R and design response spectra as well as the general mapped design response spectra calculated in

accordance with Section 11.4 of ASCE 7-16. The site-specific spectral acceleration parameters, obtained from ground motion hazard analysis, are presented in Section 8.3 for evaluation of seismic loads on buildings and other structures. The site-specific MCE_G (maximum considered earthquake geometric mean) peak ground acceleration, PGA_M, was calculated as 0.88g.

6.3 Liquefaction Potential

Liquefaction is the phenomenon in which loosely deposited granular soils and non-plastic silts located below the water table undergo rapid loss of shear strength when subjected to strong earthquake-induced ground shaking. Ground shaking of sufficient duration results in the loss of grain-to-grain contact due to a rapid rise in pore water pressure, and causes the soil to behave as a fluid for a short period of time. Liquefaction is known generally to occur in saturated or near-saturated cohesionless soils at depths shallower than 50 feet below the ground surface. Liquefaction is also known to occur in relatively fine-grained soils (i.e., sandy silt and clayey silt) with a plasticity index (PI) of less than 7. Factors known to influence liquefaction potential include composition and thickness of soil layers, grain size, relative density, groundwater level, degree of saturation, and both intensity and duration of ground shaking.

Review of the State of California Seismic Hazards Zones map (CGS, 1997) indicates that the site is located in an area mapped as a potential liquefaction hazard zone (Figure 6). Accordingly, we evaluated the liquefaction potential of the subsurface soils at the site. Our analysis was performed using soil sampler blow counts recorded at various depths in our exploratory borings and our laboratory test results. As described in Section 5.3, groundwater was not encountered in our boring that was drilled to a depth of approximately 61½ feet and regional maps indicate that the historic high groundwater at the site is more than 50 feet below the ground surface. For the purposes of our liquefaction analysis, a groundwater depth of 62 feet was utilized.

The liquefaction analysis was based on the National Center for Earthquake Engineering Research procedure (Youd, et al., 2001) developed from the methods originally recommended by Seed and Idriss (1982) using the computer program Liquefy Pro (CivilTech Software, 2019). A groundwater depth of 62 feet, a PGA_m of 0.88g, and a design earthquake magnitude of 7.0 were used in our analyses. Based on the relatively deep groundwater depth, our analysis indicated that the site is not susceptible to liquefaction during the design seismic event, however, there is a potential for dynamic compaction of dry soils, as described in the following section.

6.4 Dynamic Compaction of Dry Soils

Relatively dry soils (e.g., soils above the groundwater table) with low density or softer consistency tend to undergo a degree of compaction during a seismic event. Earthquake shaking often induces significant cyclic shear strain in a soil mass, which responds to the vibration by undergoing volumetric changes. Volumetric changes in dry soils take place primarily through changes in the void ratio (usually contraction in loose or normally consolidated soft soils, and dilation in dense or overconsolidated stiff soils) and secondarily through particle reorientation. Such volumetric changes are generally non-recoverable. Based on our subsurface exploration, the alluvium deposits at the site generally consist of medium dense to very dense, poorly graded sand, poorly graded sand with silt, silty sand, and clayey sand, and moist, very stiff to hard, sandy clay with varying amounts gravel. Based on our analysis, the pump station could be subject to approximately 1.75 inches of dynamic compaction of dry soils.

7 CONCLUSIONS

Based on the results of our evaluation, it is our opinion that new Walnut Avenue pump station is feasible from a geotechnical perspective, provided that the recommendations presented in this report are incorporated into the design and construction of the project. In general, the following findings and conclusions were made:

- The site is underlain by artificial fill underlain by alluvial deposits. The fill material generally consisted of dry to moist, medium dense, silty sand with gravel, and varying amounts of cobbles and asphalt debris. The alluvium generally consisted of moist, medium dense to very dense, poorly graded sand, poorly graded sand with silt, silty sand, and clayey sand, and very stiff to hard, sandy clay with varying amounts of gravel. Excavations in the soils described should be feasible with earthmoving equipment in good working condition.

- Approximately 7 feet of undocumented fill was encountered in our exploratory boring. Remedial grading to remove the undocumented fill and place it back as an engineered, compacted fill will be appropriate to prepare the site for the new pump house building.

- The on-site alluvial soils should be suitable for re-use as general fill and backfill once moisture-conditioned to near the optimum moisture content. Oversize materials with a diameter of 4 inches or more should be removed from engineered fill and trench backfill.

- Groundwater was not encountered during our subsurface exploration. Historical high groundwater levels at the site are more than 50 feet below the ground surface. Groundwater is not anticipated to be a design consideration for the project. Fluctuations in groundwater levels may occur due to variations in precipitation, ground surface topography, subsurface stratification, irrigation, groundwater pumping, and other factors which may not have been evident at the time of our field evaluation.

- The pump station could be subject to approximately 1.75 inches of dynamic settlement due to earthquake-induced dynamic compaction of dry soils.

- The site is located within a State of California Earthquake Fault Zone. The potential for surface fault rupture is a possibility at the site.
- Our limited laboratory corrosivity testing indicates that the on-site materials can be classified as non-corrosive based on the California Department of Transportation (Caltrans, 2018) corrosion guidelines.

8 RECOMMENDATIONS

The recommendations presented in the following sections provide geotechnical criteria regarding the design and construction of the proposed site improvements. The recommendations are based on the results of our subsurface evaluation, geotechnical analysis, and our project understanding. Detailed construction drawings were not available at the time this report was prepared. We recommend that the final construction drawings be submitted to Ninyo & Moore for review to evaluate conformance to the geotechnical recommendations provided in this report. Additional or revised recommendations may be appropriate. The proposed work should be performed in conformance with the recommendations presented in this report, project specifications, and appropriate agency standards.

8.1 Earthwork

Based on our understanding of the project, earthwork at the site is anticipated to consist of site clearing, remedial grading to prepare the ground surface for the new pump house structure, trenching and backfilling associated with underground utility installation, and finished grading for establishment of site drainage. Earthwork operations at the site should be performed in accordance with the recommendations provided in the following sections of this report and applicable governing agencies.

8.1.1 Pre-Construction Conference

We recommend that a pre-construction conference be held. The owner and/or their representative, the governing agencies' representatives, the civil engineer, the geotechnical engineer, and the contractor should attend to discuss the work plan, project schedule, and earthwork requirements.

8.1.2 Site Preparation

Prior to performing excavations or other earthwork, the area should be cleared of existing structures, water piping under and above the ground, AC pavements, rubble and debris, abandoned utilities, surface obstructions, and other deleterious materials. Existing utilities within the project limits should be re-routed or protected from damage by construction

activities. Materials generated from the clearing operations should be removed from the project site and disposed of at a legal dumpsite.

8.1.3 Excavation Characteristics

Based on our exploratory borings, we anticipate that excavations within the fill and alluvium present on site may be accomplished with grading equipment in good operating condition. We anticipate that the soils will generally consist of medium dense to very dense, poorly graded sand, poorly graded sand with silt, silty sand, and clayey sand, and very stiff to hard, sandy clay. Some asphalt concrete construction debris was observed in the fill. Cobbles should also be anticipated during constriction. During excavations, the contractor should anticipate encountering oversize materials in the on-site materials. The contractor should be prepared to take appropriate measures to address the presence of oversize materials.

8.1.4 Temporary Excavations

We recommend that trenches and excavations be designed and constructed in accordance with OSHA regulations. These regulations provide trench sloping and shoring design parameters for excavations up to 20 feet deep based on the soil types encountered. Excavations should be designed by the contractor's engineer based on site-specific geotechnical analyses. For planning purposes, we recommend that on-site fill and surficial soils (if encountered) be considered as OSHA Type C soil.

Temporary excavations should be constructed in accordance with OSHA recommendations. For trench or other excavations, OSHA requirements regarding personnel safety should be met by using appropriate shoring (including trench boxes) or by laying back the slopes no steeper than 1½:1 (horizontal to vertical) in Type C soils (alluvium). Temporary excavations that encounter seepage may need shoring or may be mitigated by placing sandbags or gravel along the base of the seepage zone. Excavations encountering seepage should be evaluated on a case-by-case basis. On-site safety of personnel is the responsibility of the contractor. Recommendations for temporary shoring can be provided, if requested.

8.1.5 Subgrade Preparation

Based on our exploratory boring, approximately 7 feet of undocumented fill containing construction debris was encountered overlying the native alluvial soils. In order to provide suitable support and reduce the potential settlements of the proposed pump house building, we recommend that the undocumented fill beneath the proposed well house building be removed to competent native alluvial soils and the materials placed back as compacted fill. The recompaction work should consist of 1) removing existing fill material down to competent

alluvium, or 2 feet below the bottom of foundation, whichever is deeper, 2) scarifying, moisture conditioning, and compacting the exposed natural subgrade soils, and 3) placing the fill and compacting it to a relative compaction of 90 percent or more near the laboratory optimum moisture content as evaluated by the latest edition of American Society for Testing and Materials (ASTM) D 1557. The lateral limits of removal should extend approximately 7 feet beyond the perimeter well house building at the base of the excavation, or to the distance corresponding to the depth of the excavation. The actual depth and limits of removal and recompaction should be evaluated by the geotechnical consultant during construction.

8.1.6 Shoring

Where slopes cannot be laid back, shoring may be appropriate. If shoring systems are used for site excavations, they should be designed for the anticipated soil conditions using the lateral earth pressures values shown on Figures 7 and 8 for cantilevered and braced excavations. The recommended design lateral earth pressures do not include the loads imposed on the shoring system from raising the ground surface elevation behind the wall, soil stockpiles, construction materials, construction equipment, and other loads acting above a 1:1 (horizontal to vertical) plane extending up and back from the base of the wall. For shoring subjected to the above-mentioned surcharge loads, the contractor should include the effects of these loads on the lateral pressures against the shoring system.

The contractor should retain a qualified and experienced engineer to design the shoring system. The shoring parameters presented in this report are minimum requirements, and the contractor should evaluate the adequacy of these parameters and make the appropriate modifications for their design.

8.1.7 Fill Material

In general, the on-site soils should be suitable for general fill and trench backfill material provided they are free of rocks or lumps of material in excess of 4 inches in diameter. On-site materials used as general fill and/or trench backfill will involve moisture-conditioning to achieve appropriate moisture content for compaction.

Imported materials, if needed, should consist of clean, non-expansive granular material which conforms to the latest edition of “Greenbook” Standard Specifications for Public Works Construction (Greenbook) for structural backfill. The imported materials should meet the Caltrans (2018) criteria for non-corrosive soils (i.e., soils having a chloride concentration of 500 parts per million [ppm] or less, a soluble sulfate content of approximately 1,500 ppm or less, a pH value of 5.5 or higher, and a minimum resistivity of 1,100 ohm-centimeters [ohm-

cm] or higher). Materials for use as fill should be evaluated by the geotechnical consultant prior to importing. The contractor should be responsible for the uniformity of import material brought to the site.

8.1.8 Fill Placement and Compaction

Fill and trench backfill should be compacted in uniform horizontal lifts to a relative compaction of 90 percent or more as evaluated by ASTM D 1557. Fill soils should be moisture-conditioned to above the optimum moisture content. The optimum lift thickness of fill will depend on the type of compaction equipment used but generally should not exceed 8 inches in loose thickness. Special care should be taken to avoid pipe damage when compacting trench backfill above pipes. Placement and compaction of the fill soils should be in general accordance with the appropriate governing agencies and good construction practices.

8.2 Underground Utilities

Utility trenches should not be excavated parallel to structure footings. If needed, trenches can be excavated adjacent to a continuous footing, provided that the bottom of the trench is located above a 1:1 (horizontal to vertical) plane projected downward from a point 6 inches above the bottom of the adjacent footing. Utility lines that cross beneath footings should be encased in concrete below the footing.

8.2.1 Pipe Bedding

We recommend that pipelines be supported on 6 inches or more of granular bedding material such as sand with a sand equivalent value of 30 or more. Bedding material should be placed and compacted around the pipe, and 12 inches or more above the top of the pipe in accordance with the current “Greenbook” Standard Specifications for Public Works. We do not recommend the use of crushed rock for bedding material. It has been our experience that the voids within a crushed rock material are sufficiently large enough to allow fines to migrate into the voids, thereby creating the potential for sinkholes and depressions to develop at the ground surface.

Special care should be taken not to allow voids beneath and around the pipe. Bedding material and compaction requirements should be in accordance with the recommendations of this report, the project specifications, and applicable requirements of the appropriate agencies. Compaction of the bedding material and backfill should proceed along both sides of the pipe concurrently and be compacted to 90 percent or more relative compaction as evaluated by ASTM D 1557.

8.2.2 Modulus of Soil Reaction

The modulus of soil reaction is used to characterize the stiffness of soil backfill placed on the sides of buried flexible pipelines for the purpose of evaluating lateral deflection caused by the weight of the backfill above the pipe. We recommend that a modulus of soil reaction of 1,000 pounds per square inch (psi) be used for design, provided that relatively granular bedding material is placed adjacent to the pipe, as recommended in this report.

8.2.3 Lateral Pressures for Thrust Blocks

Thrust restraint for buried pipelines may be achieved by transferring the thrust force to the soil outside the pipe through a thrust block. Thrust blocks may be designed using the passive lateral earth pressures presented on Figure 9. Excavations for construction of thrust blocks should be backfilled with granular backfill material and compacted following the recommendations presented in this report.

8.3 Site-Specific Seismic Design Considerations

Seismic design of the proposed improvements should be performed in accordance with the requirements of the governing jurisdictions and applicable building codes. Table 1 presents the site-specific spectral response acceleration parameters in accordance with the CBC (2019) guidelines.

Table 1 – 2019 California Building Code Seismic Design Criteria

Site-Specific Spectral Response Acceleration Parameters	Value
Site Class	D
Mapped Spectral Response Acceleration at 0.2-second Period, S_s	2.147g
Mapped Spectral Response Acceleration at 1.0-second Period, S_1	0.726g
Site-Modified Spectral Response Acceleration at 0.2-second Period, S_{MS}	2.155g
Site-Modified Spectral Response Acceleration at 1.0-second Period, S_{M1}	1.797g
Design Spectral Response Acceleration at 0.2-second Period, S_{DS}	1.437g
Design Spectral Response Acceleration at 1.0-second Period, S_{D1}	1.198g
Site Modified Peak Ground Acceleration, PGA_M	0.880g

8.4 Foundations

The proposed structures may be supported on shallow foundations including spread footings and mat foundations. Foundations should be designed in accordance with structural considerations and the following recommendations. In addition, requirements of the appropriate governing jurisdictions and applicable building codes should be considered in the design of the structures.

8.4.1 Spread Footings

Conventional spread footings should extend 2 feet deep or more below the adjacent finished grade and bear on compacted fill. Continuous footings should have a width of 2 feet or more.

Isolated pad footings should have a width of 3 feet or more and be founded at a depth of 2 feet below the adjacent finished grade. Footings constructed near existing underground utility lines should be deepened such that the utility line is located above a 1:1 (horizontal to vertical) plane projected downward from the base of the footing. Continuous footings should be reinforced with two No. 4 steel reinforcing bars, one placed near the top and one placed near the bottom of the footings, and further detailed in accordance with the recommendations of the structural engineer.

Spread footings, as described above and bearing on compacted fill, may be designed using a net allowable bearing capacity of 3,000 pounds per square foot (psf). Total and differential settlements for footings designed in accordance with the above recommendations are estimated to be on the order of 1 inch and ½ inch over a horizontal span of 40 feet, respectively.

Footings bearing in compacted fill may be designed using a coefficient of friction of 0.35, where the total frictional resistance equals the coefficient of friction times the dead load. The footings may be designed using a passive resistance value of 350 psf per foot of depth up to a value of 3,500 psf. The allowable lateral resistance can be taken as the sum of the frictional resistance and passive resistance, provided the passive resistance does not exceed one-half of the total allowable resistance. The net allowable bearing capacity and passive resistance may be increased by one-third when considering loads of short duration such as wind or seismic forces.

Trenches should not be excavated adjacent to footing foundations. If necessary, trenches can be excavated adjacent to a continuous footing, provided that the bottom of the trench is located above a 1:1 (horizontal to vertical) plane projected downward from the bottom of the adjacent footing. Utility lines that cross beneath footings should be encased in concrete below the footing.

8.4.2 Mat Foundations

Mat foundations may be designed using a net allowable bearing capacity of 4,000 pounds per square foot (psf) founded on newly compacted fill over competent alluvium. The total and differential settlements corresponding to this bearing load are estimated to be less than approximately 1 inch and ½ inches over a horizontal span of 40 feet, respectively. Mat foundations typically experience some deflection due to loads placed on the mat and the reaction of the soils underlying the mat. A design modulus of subgrade reaction of 120 kips per cubic foot (kcf) may be used for the subgrade soils in evaluating such deflections.

8.5 Slabs-On-Grade

Floor slabs subjected to dead and live loads should be designed by the project structural engineer based on the anticipated loading conditions. Floor slabs should be underlain by compacted soil prepared with the recommendations presented in this report. We recommend that slabs be 5 inches thick and reinforced with No. 4 steel reinforcing bars placed 24 inches on-center (each way) placed near the mid-height of the slab. The placement of the reinforcement in the slab is vital for satisfactory performance. The floor slab and foundation should be tied together by extending the slab reinforcements into the foundation.

The slab should be underlain by a 4-inch-thick, or more, layer of sand or gravel with a particle size of approximately 3/8-inch or smaller. Soils underlying the slab should be moisture-conditioned and compacted in accordance with the recommendations presented in this report prior to concrete placement. Joints should be constructed at intervals designed by the structural engineer to help reduce random cracking of the slab.

8.6 Corrosivity

Laboratory testing was performed on one representative soil sample to evaluate pH, electrical resistivity, water-soluble chloride content, and water-soluble sulfate content. The soil pH and electrical resistivity tests were performed in general accordance with California Test Method (CT) 643. Chloride content test was performed in general accordance with CT 422. Sulfate testing was performed in general accordance with CT 417. The laboratory test results are presented in Appendix B.

The results of the corrosivity testing indicated a soil pH of 6.6. The electrical resistivity was 3,855 ohm-cm; the chloride content was 50 ppm; the sulfate content was 0.001 percent (i.e., 10 ppm). Based on the laboratory test results and Caltrans (2018) criteria, the soils at the project site can be classified as non-corrosive, which is defined as having earth materials with less than 500 ppm chlorides, less than 1,500 ppm sulfates, a pH of 5.5 or more, and an electrical resistivity of more than 1,100 ohm-cm.

8.7 Concrete Placement

Concrete in contact with soil or water that contains high concentrations of water-soluble sulfates can be subject to premature chemical and/or physical deterioration. Based on the CBC criteria, the potential for sulfate attack is negligible for water-soluble sulfate contents in soil ranging from 0.00 to 0.10 percent by weight and moderate for water-soluble sulfate contents ranging from 0.10 to 0.20 percent by weight. The potential for sulfate attack is severe for water-soluble sulfate contents ranging from 0.20 to 2.00 percent by weight and very severe for water-soluble sulfate

contents over 2.00 percent by weight. The soil sample tested for this evaluation, using Caltrans Test Method 417, indicates a water-soluble sulfate content of 0.001 percent by weight (i.e., 10 ppm). Accordingly, the on-site soils are considered to have a negligible potential for sulfate attack. However, due to the potential variability of the soils on site, consideration should be given to using Type II/V cement for the project.

In order to reduce the potential for shrinkage cracks in the concrete during curing, we recommend that the concrete for the proposed structures be placed with a slump of 4 inches based on ASTM C 143. The slump should be checked periodically at the site prior to concrete placement. We further recommend that concrete cover over reinforcing steel for foundations be provided in accordance with CBC (2019). The structural engineer should be consulted for additional concrete specifications.

8.8 Drainage

Positive surface drainage is imperative for performance of site improvements. Positive drainage should be provided and maintained to transport surface water away from foundations and other site improvements. Positive drainage incorporates a slope of 2 percent or more over a distance of 5 feet or more away from structures, pavements, and top of slopes. Surface water should not be allowed to flow over slope faces or pond adjacent to footings.

9 CONSTRUCTION OBSERVATION

The recommendations provided in this report are based on our understanding of the proposed project and our evaluation of the data collected based on subsurface conditions observed in our exploratory borings. It is imperative that the geotechnical consultant checks the subsurface conditions during construction.

During construction, we recommend that the duties of the geotechnical consultant include, but not be limited to:

- Observing clearing, grubbing, and removals.
- Observing remedial grading excavations, placement, and compaction of fill, including trench backfill.
- Evaluating on-site soil for suitability as use as engineered fill/structural backfill prior to placement.
- Evaluating imported materials prior to their use as fill, if used.
- Performing field tests to evaluate fill compaction.

- Observing foundation excavations for bearing materials and cleaning prior to placement of reinforcing steel or concrete.
- Performing material testing services including concrete compressive strength and steel tensile strength tests and inspections.

The recommendations provided in this report are based on the assumption that Ninyo & Moore will provide geotechnical observation and testing services during construction. In the event that the services of Ninyo & Moore are not utilized during construction, we request that the selected consultant provide the owner with a letter (with a copy to Ninyo & Moore) indicating that they fully understand Ninyo & Moore's recommendations, and that they are in full agreement with the design parameters and recommendations contained in this report.

10 LIMITATIONS

The field evaluation, laboratory testing, and geotechnical analyses presented in this geotechnical report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. No warranty, expressed or implied, is made regarding the conclusions, recommendations, and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be encountered during construction. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation will be performed upon request. Please also note that our evaluation was limited to assessment of the geotechnical aspects of the project, and did not include evaluation of structural issues, environmental concerns, or the presence of hazardous materials.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

Our conclusions, recommendations, and opinions are based on an analysis of the observed site conditions. If geotechnical conditions different from those described in this report are encountered, our office should be notified, and additional recommendations, if warranted, will be provided upon request. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may,

therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

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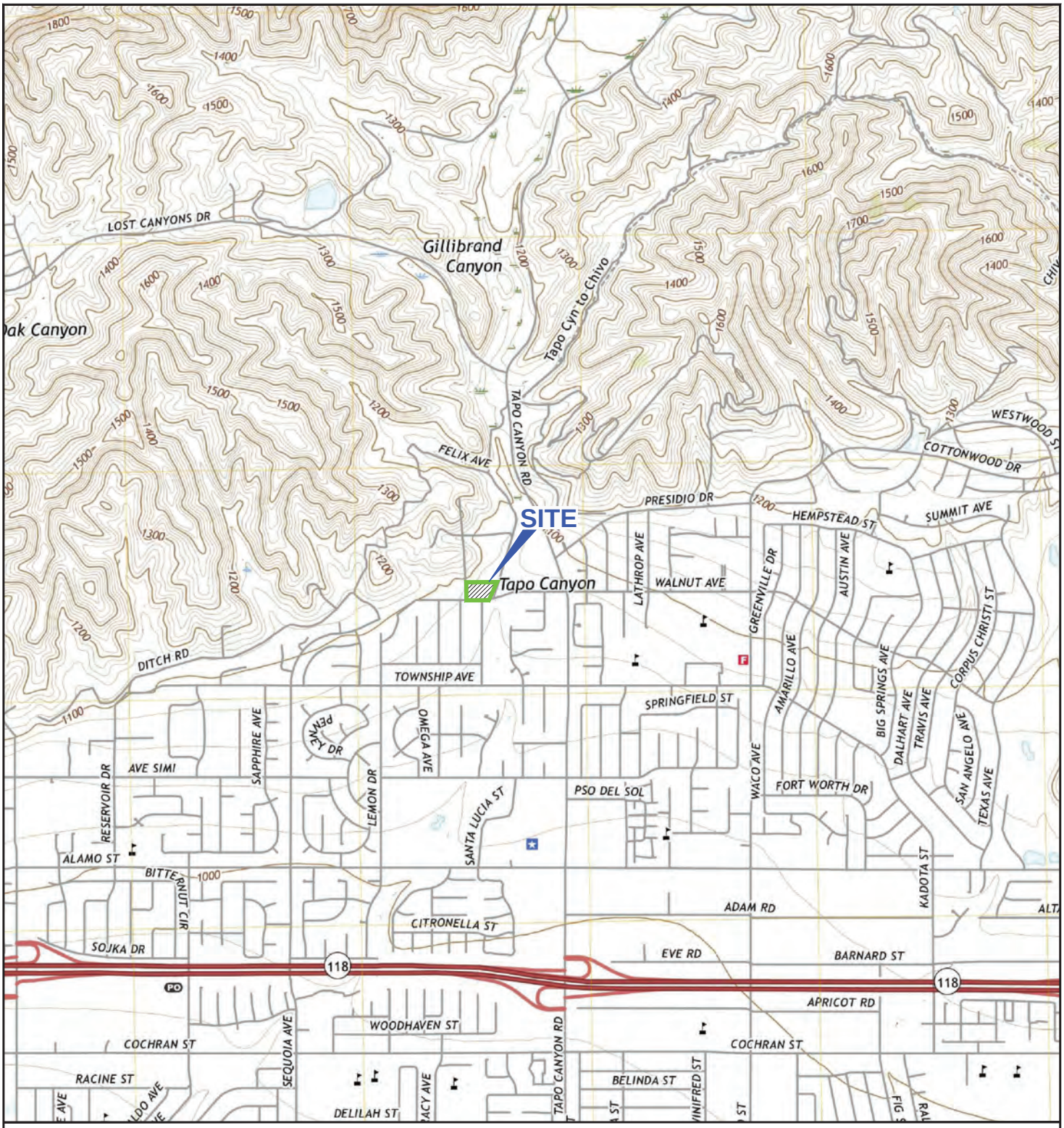
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FIGURES



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: USGS, 2018.

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FIGURE 1

SITE LOCATION

WALNUT AVENUE PUMP STATION
SIMI VALLEY, CALIFORNIA

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LEGEND

SITE BOUNDARY

B-1 TD=16.5 BORING;
TD=TOTAL DEPTH IN FEET

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: GOOGLE EARTH, 2021.

N

FEET
0 120 140

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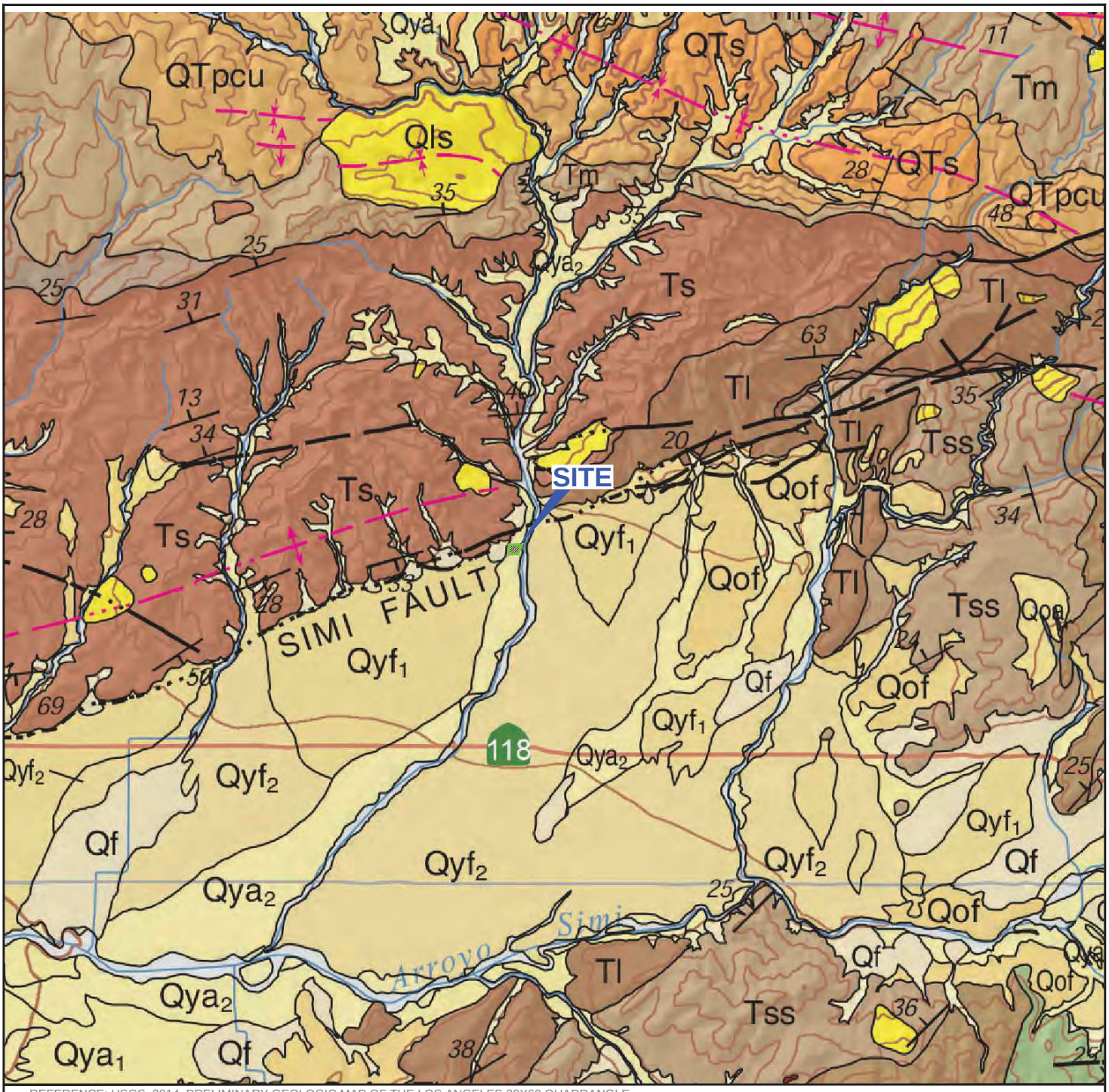
FIGURE 2

BORING LOCATION

WALNUT AVENUE PUMP STATION
SIMI VALLEY, CALIFORNIA

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211684001 I 7/21



REFERENCE: USGS, 2014, PRELIMINARY GEOLOGIC MAP OF THE LOS ANGELES 30X60 QUADRANGLE.

LEGEND

Ts	SESPE FORMATION	Qof	OLD FAN DEPOSITS
Qya	YOUNG ALLUVIUM	Tl	LIAJAS FORMATION
Qf	ALLUVIAL FAN		GEOLOGIC CONTACT
Qyf	YOUNG FAN DEPOSITS		FAULT

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

N

FEET

0 4,000 8,000

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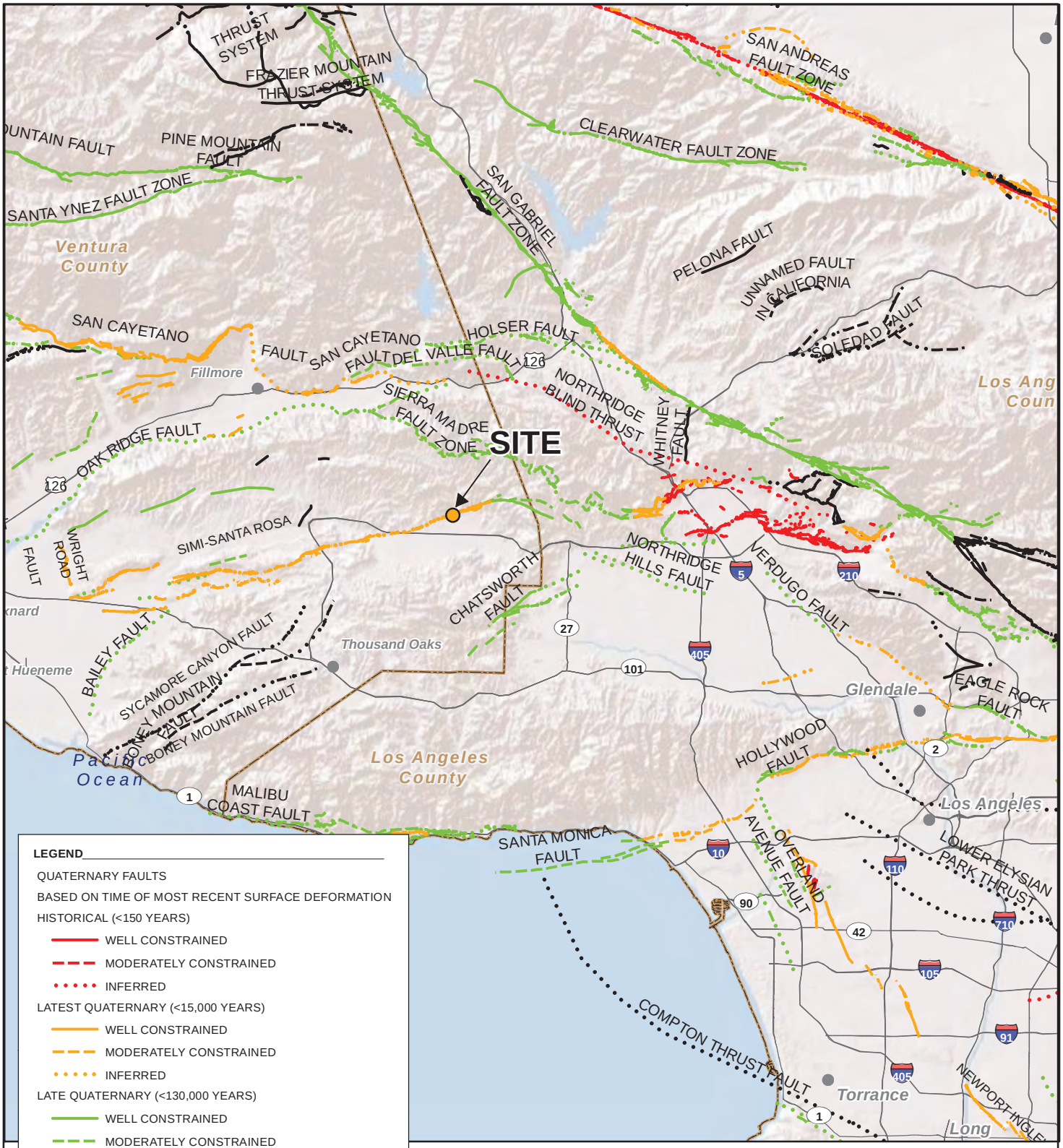
FIGURE 3

REGIONAL GEOLOGY

WALNUT AVENUE PUMP STATION
SIMI VALLEY, CALIFORNIA

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LEGEND

QUATERNARY FAULTS

BASED ON TIME OF MOST RECENT SURFACE DEFORMATION

HISTORICAL (<150 YEARS)

- WELL CONSTRAINED
- MODERATELY CONSTRAINED
- INFERRED

LATEST QUATERNARY (<15,000 YEARS)

- WELL CONSTRAINED
- MODERATELY CONSTRAINED
- INFERRED

LATE QUATERNARY (<130,000 YEARS)

- WELL CONSTRAINED
- MODERATELY CONSTRAINED
- INFERRED

UNDIFFERENTIATED QUATERNARY(<1.6 MILLION YEARS)

- WELL CONSTRAINED
- MODERATELY CONSTRAINED
- INFERRED

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

SOURCES: CALIFORNIA GEOLOGICAL SURVEY, ACCESSED MONTH DAY, YEAR, AT: https://www.usgs.gov/natural-hazards/earthquake-hazards/faults; ESRI, 2021.

N

MILES

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FIGURE 4

FAULT LOCATIONS

WALNUT AVENUE PUMP STATION
SIMI VALLEY, CALIFORNIA

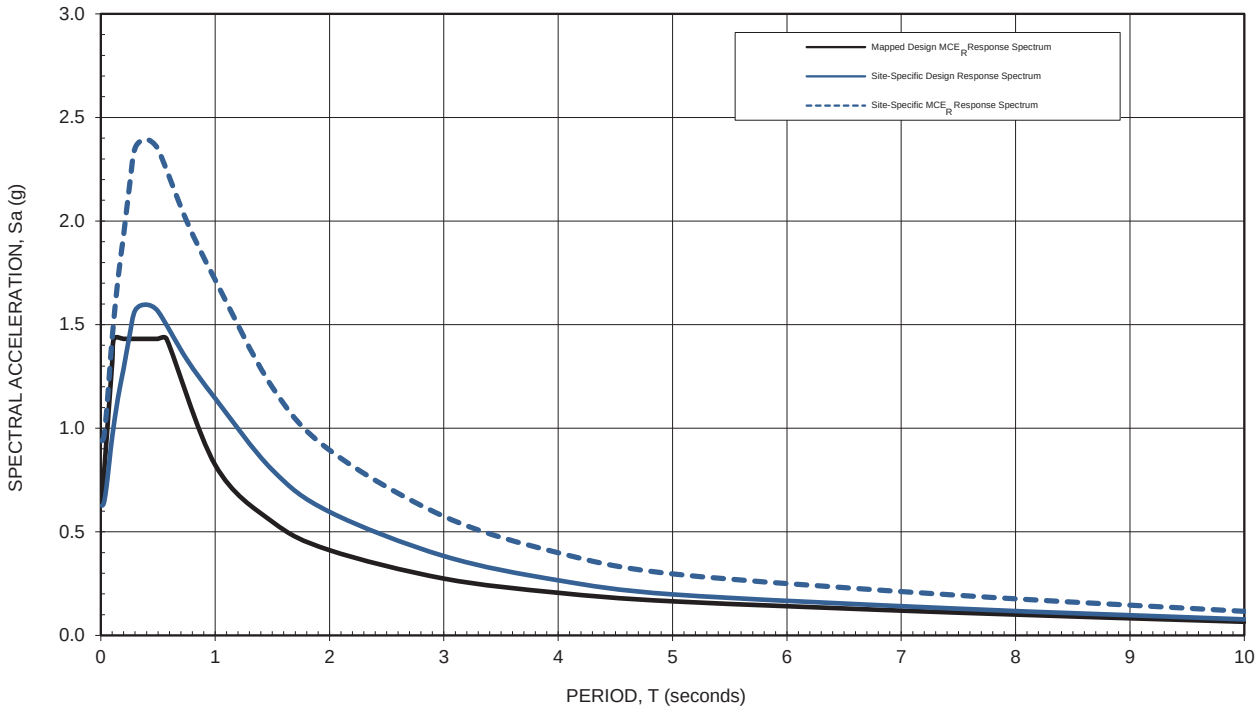
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PERIOD (seconds)	SITE-SPECIFIC MCE_R RESPONSE SPECTRUM Sa (g)	SITE-SPECIFIC DESIGN RESPONSE SPECTRUM Sa (g)
0.010	0.940	0.626
0.020	0.946	0.631
0.030	0.970	0.647
0.050	1.079	0.719
0.075	1.261	0.840
0.100	1.440	0.960
0.150	1.720	1.146
0.200	1.934	1.290
0.250	2.165	1.443
0.300	2.352	1.568
0.400	2.395	1.596

PERIOD (seconds)	SITE-SPECIFIC MCE_R RESPONSE SPECTRUM Sa (g)	SITE-SPECIFIC DESIGN RESPONSE SPECTRUM Sa (g)
0.500	2.347	1.564
0.750	2.001	1.334
1.000	1.716	1.144
1.500	1.198	0.799
2.000	0.894	0.596
3.000	0.575	0.383
4.000	0.399	0.266
5.000	0.297	0.198
7.500	0.194	0.129
10.000	0.116	0.077

S_{DS} = 1.437 g	S_{D1} = 1.198 g	S_{MS} = 2.155 g	S_{M1} = 1.797 g	PGA_M = 0.880 g



NOTES:

1 The probabilistic ground motion spectral response accelerations are based on the risk-targeted Maximum Considered Earthquake (MCE_R) having a 2% probability of exceedance in 50 years in the maximum direction using the Chiou & Youngs (2014), Campbell & Bozorgnia (2014), Boore et al. (2014), and Abrahamson et al. (2014) attenuation relationships and the risk coefficients.

2 The deterministic ground motion spectral response accelerations are for the 84th percentile of the geometric mean values in the maximum direction using the Chiou & Youngs (2014), Campbell & Bozorgnia (2014), Boore et al. (2014), and Abrahamson et al. (2014) attenuation relationships for deep soil sites considering a Mw 7.0 event on the Simi Santa Rosa fault zone located 1.0 kilometers from the site. It conforms with the lower bound limit per ASCE 7-16 Section 21.2.2.

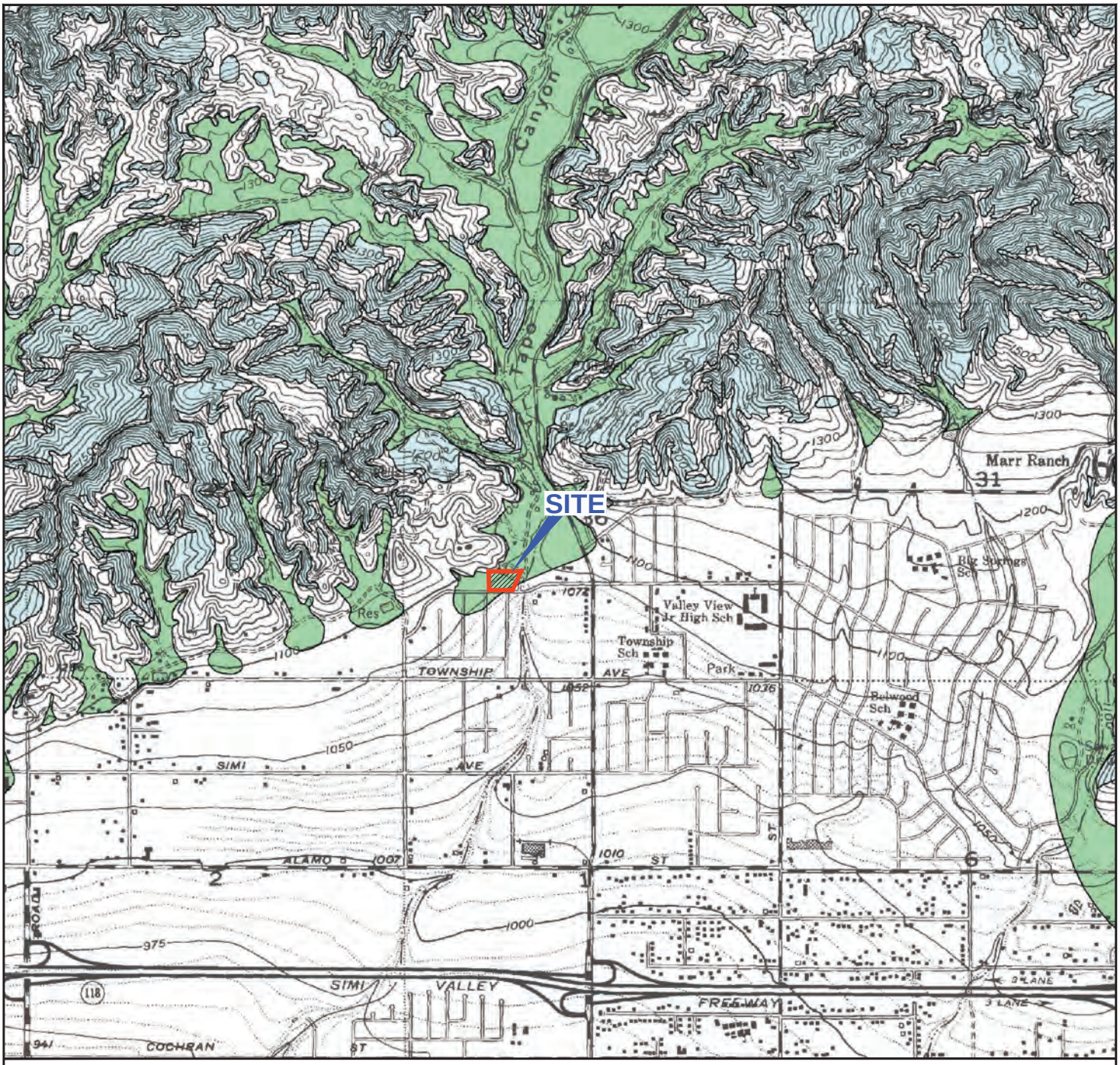
3 The Site-Specific MCE_R Response Spectrum is the lesser of spectral ordinates of deterministic and probabilistic accelerations at each period per ASCE 7-16 Section 21.2.3. The Site-Specific Design Response Spectrum conforms with lower bound limit per ASCE 7-16 Section 21.3.

4 The Mapped Design MCE_R Response Spectrum is computed from mapped spectral ordinates modified for Site Class D (stiff soil profile) per ASCE 7-16 Section 11.4. It is presented for the sake of comparison.

FIGURE 5

ACCELERATION RESPONSE SPECTRA

WALNUT AVENUE PUMP STATION
SIMI VALLEY, CALIFORNIA



REFERENCE: STATE OF CALIFORNIA, 1997, SEISMIC HAZARD ZONES SIMI VALLEY EAST QUADRANGLE.

LEGEND

EARTHQUAKE-INDUCED LANDSLIDES

Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

LIQUEFACTION

Areas where historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

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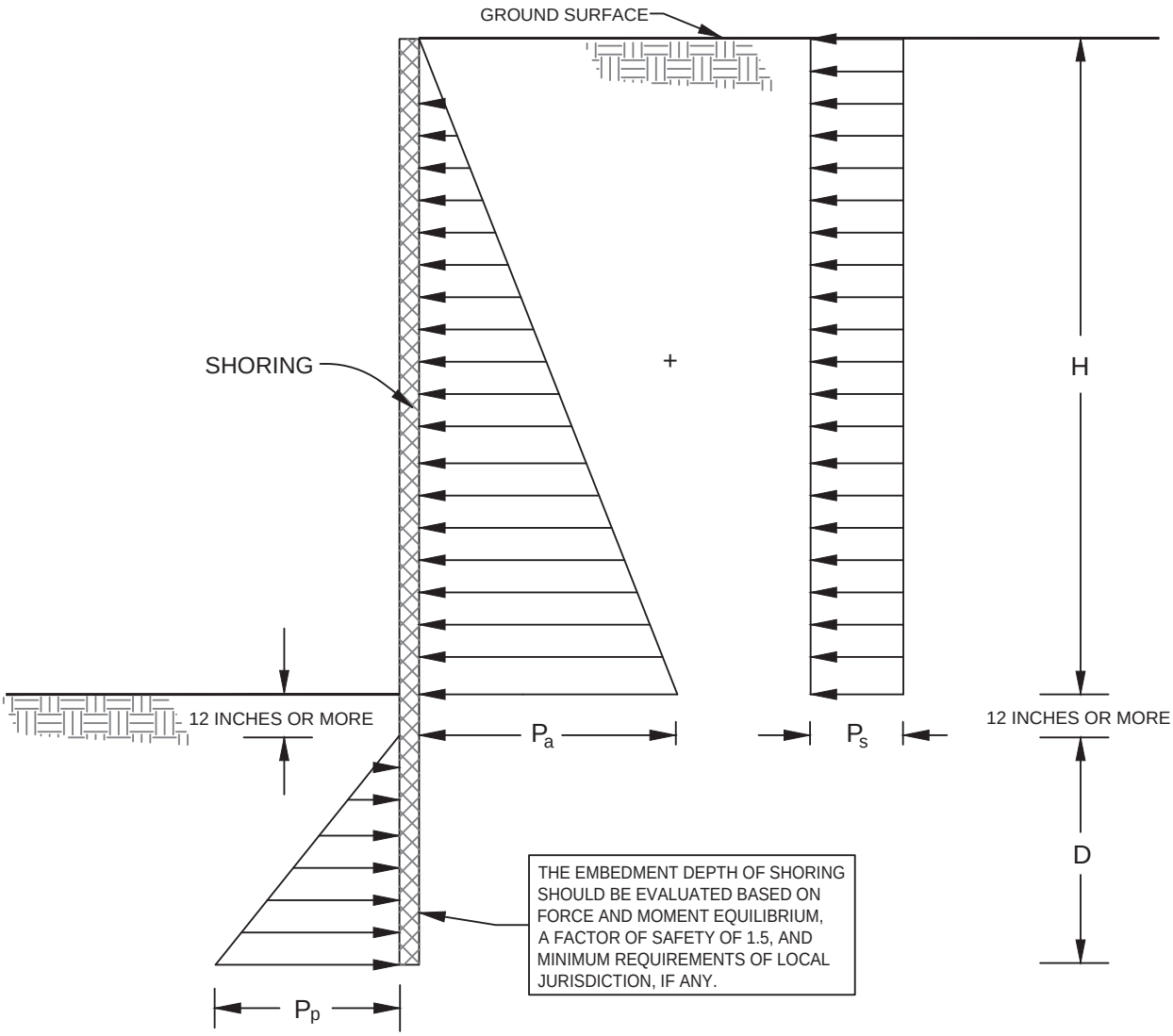
FIGURE 6

SEISMIC HAZARD ZONES

WALNUT AVENUE PUMP STATION
SIMI VALLEY, CALIFORNIA

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NOTES:

1. ACTIVE LATERAL EARTH PRESSURE, P_a
   P_a = 31H psf
2. CONSTRUCTION TRAFFIC INDUCED SURCHARGE PRESSURE, P_s
   P_s = 72 psf
3. PASSIVE LATERAL EARTH PRESSURE, P_p
   P_p = 350D psf
4. ASSUMES GROUNDWATER IS NOT PRESENT
5. H AND D ARE IN FEET

NOT TO SCALE

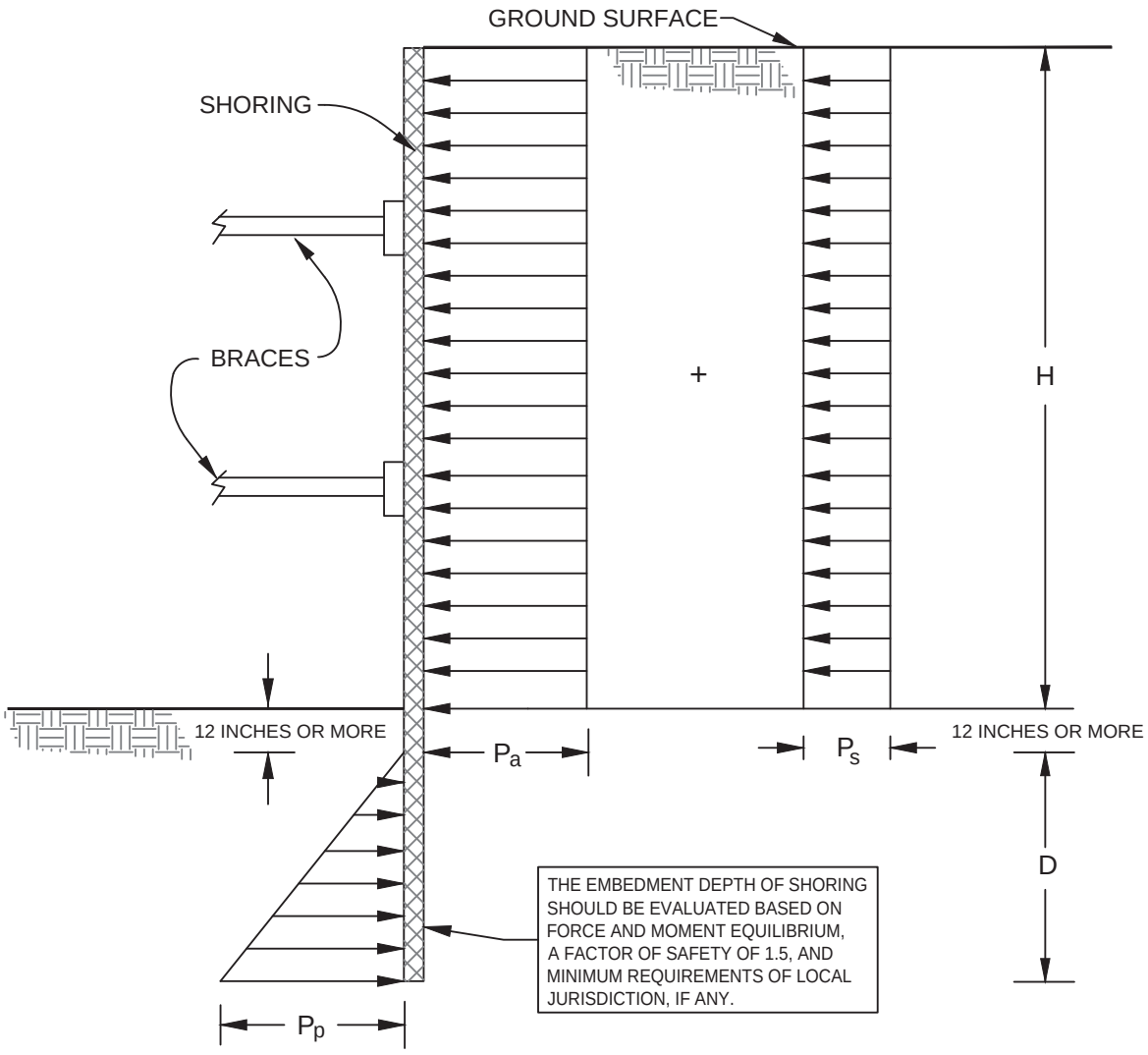
211684001_LEP-CS1.dwg 07/23/2021 GK, JDP

FIGURE 7

LATERAL EARTH PRESSURES FOR TEMPORARY CANTILEVERED SHORING

WALNUT AVENUE PUMP STATION
SIMI VALLEY, CALIFORNIA

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NOTES:

1. APPARENT LATERAL EARTH PRESSURE, P_a
   P_a = 20H psf
2. CONSTRUCTION TRAFFIC INDUCED SURCHARGE PRESSURE, P_s
   P_s = 120 psf
3. PASSIVE LATERAL EARTH PRESSURE, P_p
   P_p = 350D psf
4. ASSUMES GROUNDWATER IS NOT PRESENT
5. SURCHARGES FROM EXCAVATED SOIL OR CONSTRUCTION MATERIALS ARE NOT INCLUDED
6. H AND D ARE IN FEET

NOT TO SCALE

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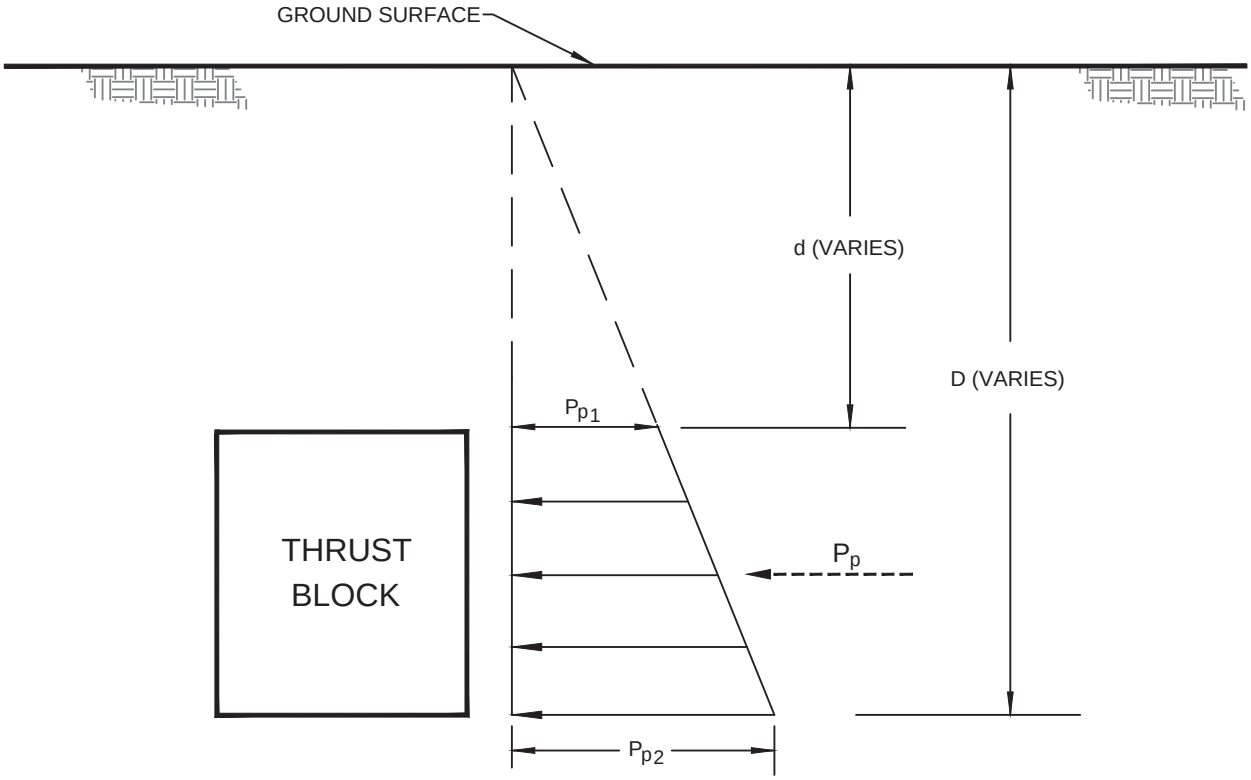
FIGURE 8

LATERAL EARTH PRESSURES FOR BRACED EXCAVATION

WALNUT AVENUE PUMP STATION
SIMI VALLEY, CALIFORNIA

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NOTES:

1. GROUNDWATER BELOW BLOCK
   $P_p = 175(D^2-d^2)$ lb/ft
2. ASSUMES BACKFILL IS GRANULAR MATERIAL
3. ASSUMES THRUST BLOCK IS ADJACENT TO COMPETENT MATERIAL
4. D, d AND h ARE IN FEET

NOT TO SCALE

FIGURE 9

THRUST BLOCK LATERAL EARTH PRESSURE DIAGRAM

WALNUT AVENUE PUMP STATION
SIMI VALLEY, CALIFORNIA

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APPENDIX A

Boring Log

APPENDIX A

BORING LOG

Field Procedure for the Collection of Disturbed Samples
Disturbed soil samples were obtained in the field using the following method.

Bulk Samples
Bulk samples of representative earth materials were obtained from the exploratory drilling. The samples were bagged and transported to the laboratory for testing.

The Standard Penetration Test (SPT) Sampler
Disturbed drive samples of earth materials were obtained by means of a Standard Penetration Test sampler. The sampler is composed of a split barrel with an external diameter of 2 inches and an unlined internal diameter of $1^3/_8$ inches. The sampler was driven into the ground 18 inches with a 140-pound hammer falling freely from a height of 30 inches in general accordance with ASTM D 1586. The blow counts were recorded for every 6 inches of penetration; the blow counts reported on the logs are those for the last 12 inches of penetration. Soil samples were observed and removed from the sampler, bagged, sealed and transported to the laboratory for testing.

Field Procedure for the Collection of Relatively Undisturbed Samples
Relatively undisturbed soil samples were obtained in the field using the following method.

The Modified Split-Barrel Drive Sampler
The sampler, with an external diameter of 3 inches, was lined with 1-inch-long, thin brass rings with inside diameters of approximately 2.4 inches. The sample barrel was driven into the ground with the weight of a hammer in general accordance with ASTM D 3550. The driving weight was permitted to fall freely. The approximate length of the fall, the weight of the hammer, and the number of blows per foot of driving are presented on the boring logs as an index to the relative resistance of the materials sampled. The samples were removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

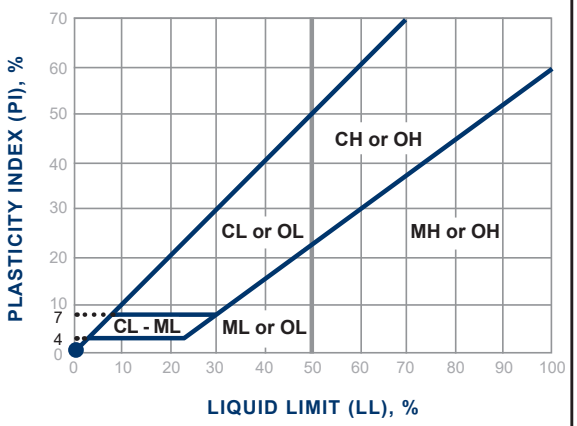
Soil Classification Chart Per ASTM D 2488

Primary Divisions			Secondary Divisions	
			Group Symbol	Group Name
COARSE-GRAINED SOILS more than 50% retained on No. 4 sieve	**GRAVEL** more than 50% of coarse fraction retained on No. 4 sieve	CLEAN GRAVEL less than 5% fines	GW	well-graded GRAVEL
			GP	poorly graded GRAVEL
		GRAVEL with DUAL CLASSIFICATIONS 5% to 12% fines	GW-GM	well-graded GRAVEL with silt
			GP-GM	poorly graded GRAVEL with silt
			GW-GC	well-graded GRAVEL with clay
			GP-GC	poorly graded GRAVEL with clay
		GRAVEL with FINES more than 12% fines	GM	silty GRAVEL
			GC	clayey GRAVEL
			GC-GM	silty, clayey GRAVEL
	SAND 50% or more of coarse fraction passes No. 4 sieve	CLEAN SAND less than 5% fines	SW	well-graded SAND
			SP	poorly graded SAND
		SAND with DUAL CLASSIFICATIONS 5% to 12% fines	SW-SM	well-graded SAND with silt
			SP-SM	poorly graded SAND with silt
			SW-SC	well-graded SAND with clay
			SP-SC	poorly graded SAND with clay
		SAND with FINES more than 12% fines	SM	silty SAND
			SC	clayey SAND
			SC-SM	silty, clayey SAND
FINE-GRAINED SOILS 50% or more passes No. 200 sieve	**SILT and CLAY** liquid limit less than 50%	INORGANIC	CL	lean CLAY
			ML	SILT
			CL-ML	silty CLAY
		ORGANIC	OL (PI > 4)	organic CLAY
			OL (PI < 4)	organic SILT
	SILT and CLAY liquid limit 50% or more	INORGANIC	CH	fat CLAY
			MH	elastic SILT
		ORGANIC	OH (plots on or above "A"-line)	organic CLAY
			OH (plots below "A"-line)	organic SILT
	Highly Organic Soils		PT	Peat

Grain Size

Description		Sieve Size	Grain Size	Approximate Size
Boulders		> 12"	> 12"	Larger than basketball-sized
Cobbles		3 - 12"	3 - 12"	Fist-sized to basketball-sized
Gravel	Coarse	3/4 - 3"	3/4 - 3"	Thumb-sized to fist-sized
	Fine	#4 - 3/4"	0.19 - 0.75"	Pea-sized to thumb-sized
Sand	Coarse	#10 - #4	0.079 - 0.19"	Rock-salt-sized to pea-sized
	Medium	#40 - #10	0.017 - 0.079"	Sugar-sized to rock-salt-sized
	Fine	#200 - #40	0.0029 - 0.017"	Flour-sized to sugar-sized
Fines		Passing #200	< 0.0029"	Flour-sized and smaller

Plasticity Chart



Apparent Density - Coarse-Grained Soil

Apparent Density	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Loose	≤ 4	≤ 8	≤ 3	≤ 5
Loose	5 - 10	9 - 21	4 - 7	6 - 14
Medium Dense	11 - 30	22 - 63	8 - 20	15 - 42
Dense	31 - 50	64 - 105	21 - 33	43 - 70
Very Dense	> 50	> 105	> 33	> 70

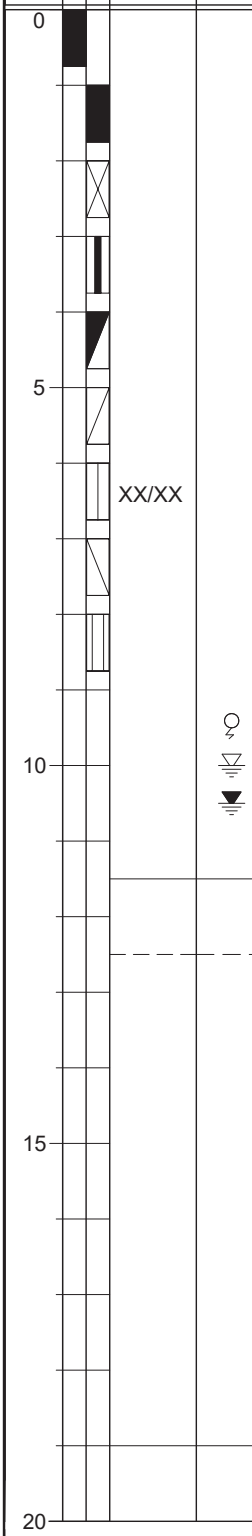
Consistency - Fine-Grained Soil

Consis-tency	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Soft	< 2	< 3	< 1	< 2
Soft	2 - 4	3 - 5	1 - 3	2 - 3
Firm	5 - 8	6 - 10	4 - 5	4 - 6
Stiff	9 - 15	11 - 20	6 - 10	7 - 13
Very Stiff	16 - 30	21 - 39	11 - 20	14 - 26
Hard	> 30	> 39	> 20	> 26

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USCS METHOD OF SOIL CLASSIFICATION

BORING LOG EXPLANATION SHEET



Bulk sample.

Modified split-barrel drive sampler.

No recovery with modified split-barrel drive sampler.

Sample retained by others.

Standard Penetration Test (SPT).

No recovery with a SPT.

Shelby tube sample. Distance pushed in inches/length of sample recovered in inches.

No recovery with Shelby tube sampler.

Continuous Push Sample.

Seepage.

Groundwater encountered during drilling.

Groundwater measured after drilling.

SM

MAJOR MATERIAL TYPE (SOIL):

Solid line denotes unit change.

CL

Dashed line denotes material change.

Attitudes: Strike/Dip
b: Bedding
c: Contact
j: Joint
f: Fracture
F: Fault
cs: Clay Seam
s: Shear
bss: Basal Slide Surface
sf: Shear Fracture
sz: Shear Zone
sbs: Shear Bedding Surface

The total depth line is a solid line that is drawn at the bottom of the boring.

DATE DRILLED 6/17/21 BORING NO. B-1

GROUND ELEVATION 1,080' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY MLP

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL: Grayish brown, dry, medium dense, silty SAND with gravel; trace cobbles; gravel sub-rounded to sub-angular; trace gravel-sized asphalt concrete debris.
	Driven	24	6.7	102.7			Moist.
						SM	ALLUVIUM: Grayish brown, moist, medium dense, silty SAND; trace gravel.
10	Driven	27	4.1	104.1			
	Driven	50/6"					Very dense; difficult drilling.
						SP-SM	Yellowish brown, moist, dense, poorly graded SAND with silt and gravel.
20	Driven	47	4.7	103.3			Grayish brown.
	Driven	20					Medium dense.
30	Driven	27					Dense.
						CL	Light yellowish brown, moist, very stiff, sandy CLAY; trace gravel.
	Driven	14					
	Driven	40					Hard.
						SC	Light yellowish brown, moist, dense, clayey SAND.
40							

FIGURE A- 1

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WALNUT AVENUE PUMP STATION
SIMI VALLEY, CALIFORNIA

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DATE DRILLED 6/17/21 BORING NO. B-1

GROUND ELEVATION 1,080' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY MLP

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		27				SC	ALLUVIUM: (Continued) Light yellowish brown, moist, dense, clayey SAND.
		19				CL	Olive brown, moist, very stiff, sandy CLAY.
						SP	Light yellowish brown, moist, dense, poorly graded SAND with gravel; increase in gravel drilling becomes more difficult.
50		33					
		17				CL	Yellowish brown, moist, very stiff, sandy CLAY.
						SM	Yellowish brown, moist, very dense, silty SAND with gravel.
60		65					
							Total Depth = 61.5 feet. Groundwater was not encountered during drilling. Backfilled with cement-bentonite grout on 6/17/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
70							
80							

APPENDIX B

Laboratory Testing

APPENDIX B

LABORATORY TESTING

Classification
Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488. Soil classifications are indicated on the logs of the exploratory boring in Appendix A.

In-Place Moisture and Density Tests
The moisture content and dry density of relatively undisturbed samples obtained from the exploratory borings were evaluated in general accordance with ASTM D 2937. The test results are presented on the logs of the exploratory borings in Appendix A.

Percent Finer than No. 200 Sieve
An evaluation of the percentage of particles finer than the No. 200 sieve in selected soil samples was performed in general accordance with ASTM D 1140. The results of the tests are presented on Figure B-1.

Direct Shear Test
Direct shear test was performed on a relatively undisturbed sample in general accordance with ASTM D 3080 to evaluate the shear strength characteristics of the selected material. The sample was inundated during shearing to represent adverse field conditions. The results are shown on Figure B-2.

Soil Corrosivity Tests
Soil pH and resistivity tests were performed on a representative sample in general accordance with California Test (CT) 643. The soluble sulfate and chloride content of the selected sample were evaluated in general accordance with CT 417 and CT 422, respectively. The test results are presented on Figure B-3.

SAMPLE LOCATION	SAMPLE DEPTH (ft)	DESCRIPTION	PERCENT PASSING NO. 4	PERCENT PASSING NO. 200	USCS (TOTAL SAMPLE)
B-1	10.0-11.5	SILTY SAND	91	24	SM
B-1	20.0-21.5	POORLY-GRADED SAND WITH SILT & GRAVEL	80	8	SP-SM
B-1	25.0-26.5	POORLY-GRADED SAND WITH SILT & GRAVEL	84	12	SP-SM
B-1	40.0-41.5	CLAYEY SAND	99	34	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140

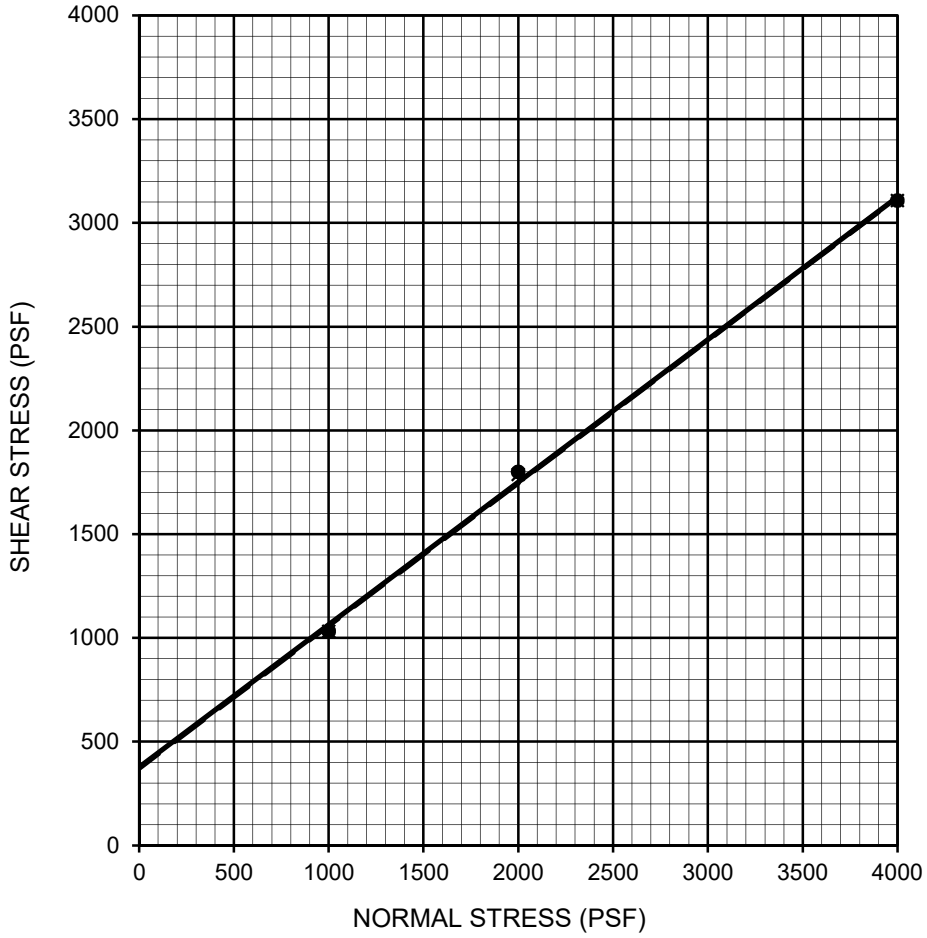
FIGURE B-1

NO. 200 SIEVE ANALYSIS TEST RESULTS

WALNUT AVENUE PUMP STATION
SIMI VALLEY, CALIFORNIA

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Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
SILTY SAND	●——	B-1	5.0-6.5	Peak	378	34	SM
SILTY SAND	– – X – –	B-1	5.0-6.5	Ultimate	372	35	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

FIGURE B-2

DIRECT SHEAR TEST RESULTS

WALNUT AVENUE PUMP STATION
SIMI VALLEY, CALIFORNIA

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SAMPLE LOCATION	SAMPLE DEPTH (ft)	pH [1]	RESISTIVITY [1] (ohm-cm)	SULFATE CONTENT [2]		CHLORIDE CONTENT [3] (ppm)
				(ppm)	(%)	
B-1	0.0-5.0	6.6	3,855	10	0.001	50

[1] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 643
[2] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 417
[3] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 422

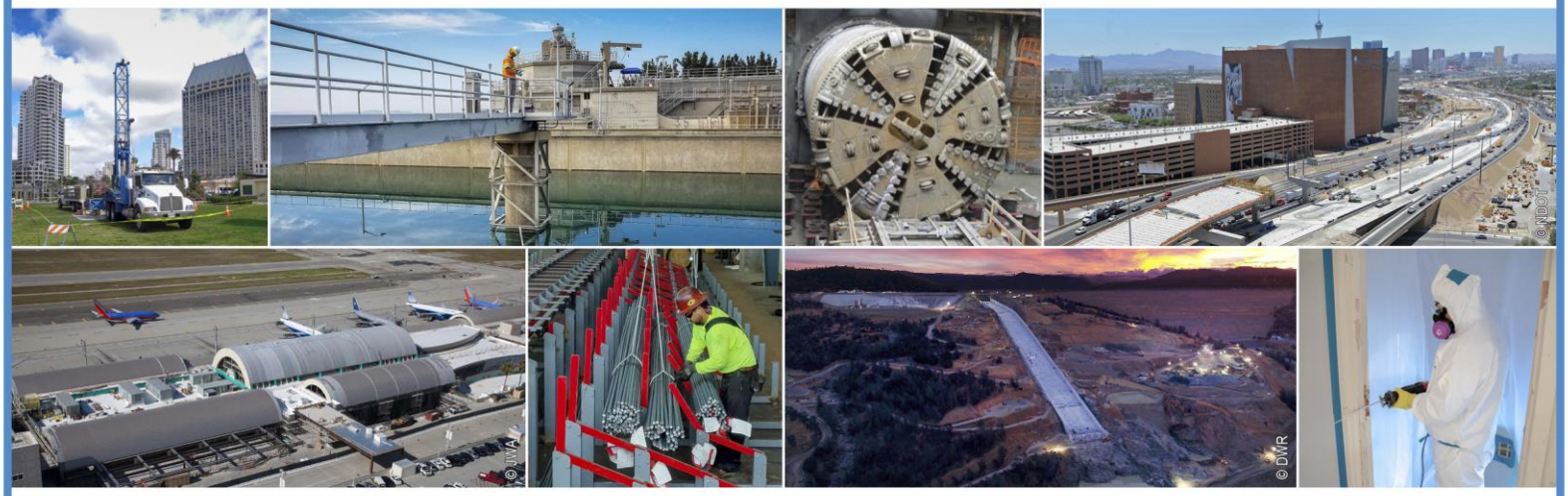
FIGURE B-3

CORROSIVITY TEST RESULTS

WALNUT AVENUE PUMP STATION
SIMI VALLEY, CALIFORNIA

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WOOD RODGERS

BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

Appendix B

City of Simi Valley Permitting Information

Online Permit Submittal Instructions	https://www.simivalley.org/departments/environmental-services/building-safety-division/online-permit-submittal-instructions
Property Owner's Package & Construction Permit Declaration	https://www.simivalley.org/home/showpublisheddocument/14944/637642947443070000 **To be completed and signed by property owner before a building permit can be issued
Permit Application (Online)	https://selfservice.simivalley.org/EnerGovProd/SelfService#/applicationAssistant?sectionName=All&moduleId=2&categoryName=All&showTemplates=false Permits to consider: - Building & Safety - Commercial/Industrial New Building Permit - Building & Safety - Commercial/Industrial Retaining Wall or Fence Permit - Building & Safety - New Commercial/Industrial Electrical Permit - Building & Safety - New Commercial/Industrial Mechanical Permit - Building & Safety - New Commercial/Industrial Plumbing Permit - Building & Safety - Commercial/Industrial Miscellaneous Permit - Building & Safety - Demolition Permit - Building & Safety - Grading Permit - Public Works - Encroachment Permit - Utility Regular - Sewer Availability Letter - Non-Residential - Sewer Lateral - Sewer Will Serve Letter - Non-Residential - Water Availability Letter - Non-Residential - Water Will Serve Letter - Non-Residential
Permit Application (Paper)	https://www.simivalley.org/departments/environmental-services/building-safety-division/forms-and-handouts
Information required for Commercial/Industrial New Building Permit	- Project address - Permit Type - Building description (bldg type, square footage, includes mech/elec/plumbing work, etc) - Building Square footage - Valuation - All contacts for the project (property owner, contractor, engineer, architect, etc) - Project type - Building Occupancy (Building Occupancy Classification) - Construction Type - Add'l plans to be included in project (mech, elec, plumbing) - Fire Sprinklers Required? - Occupant Load - Number of stories - Attachments needed for project (plans, calculations, site plans, Title 24, agency approval documents, etc)
Simi Valley Municipal Code - Building Codes (Title 8) // Chapter 5 - Permits	https://library.municode.com/ca/simi_valley/codes/code_of_ordinances?nodeId=TIT8BUCO_CH5PE **8-5.03 - Building permit exemptions: City likely not exempt from permits

WOOD RODGERS

BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

Appendix C

Water Demands

Water Demands			
Zone	**ADD (gpm)**	**MDD (gpm)**	**PHD (gpm)**
Existing 1357 Zone (Tapo PS)[1]	600	1110	2220
Phase 1 - Lost Canyons[2]	54	115	242
Q1 SUBTOTAL	654	1225	2462
Existing 1357 Zone (Tapo PS)[1]	600	1110	2220
Phase 1 - Lost Canyons[2]	54	115	242
Phase 2 - Dry Canyon[2]	48	104	217
Q2 SUBTOTAL	702	1329	2679
Existing 1357 Zone (Tapo PS)[1]	600	1110	2220
Phase 1 - Lost Canyons[2]	54	115	242
Phase 2 - Dry Canyon[2]	48	104	217
Phase 3 - South Tapo[2]	11	23	50
Q3 SUBTOTAL	713	1352	2729
Existing 1357 Zone (Tapo PS)[1]	600	1110	2220
Phase 1 - Lost Canyons[2]	54	115	242
Phase 2 - Dry Canyon[2]	48	104	217
Phase 3 - South Tapo[2]	11	23	50
Existing 1355 Zone (Chumash PS)[1]	239	442	884
Q4 SUBTOTAL	952	1794	3613
Existing 1357 Zone (Tapo PS)[1]	600	1110	2220
Phase 1 - Lost Canyons[2]	54	115	242
Phase 2 - Dry Canyon[2]	48	104	217
Phase 3 - South Tapo[2]	11	23	50
Existing 1355 Zone (Chumash PS)[1]	239	442	884
Future Growth[3]	0	0	0
Q5 (Ultimate) SUBTOTAL	952	1794	3613

1. Zone demands obtained from SV Capacity Study hydraulic model.
2. Phase and demands per Lost Canyons Development Water Master Plan.
   Phase 1 - Lost Canyons: Proposed 1537 Zone
   Phase 2 - Dry Canyon: Proposed 1329 + Add'l 1470 Zone
   Phase 3 - South Tapo: Add'l 1357 Zone
3. Future projects and corresponding demands to be provided by District.

Demand Fill Time

Demand Fill-Times			
Data Scenario	**MDD Water Demand (gpm)**	**12-Hour Fill[1] (gpm)**	**MDD + FF Storage Over 72 Hours[23] (gpm)**
Q1	1225	2450	1392
Q2	1329	2658	1496
Q3	1352	2704	1519
Q4	1794	3588	1961
Q5 (Ultimate)	1794	3588	1961

1. Pump stations to deliver the MDD within 12 hours to incorporate the off-peak pumping guidelines per Southern California Edison (SCE) noted in the Lost Canyons Development Water System Master Plan
2. Pump station capacity criteria requirement per TM 1 - Planning and Analysis Criteria.
3. 1357 Zone to meet School & Institutional Fire Flow Requirement of 3,000 gpm over 4 hours per Simi Valley Water Plan Analyses

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

Appendix D

Walnut Avenue Pump Station
Planning & Preliminary Design Report

Hydraulic Calculations & System Curve Development

Prepared For:
Ventura County Waterworks District No. 8

Ventura County
Waterworks District No. 8

Prepared By: Daniel Valencia, EIT
Date Prepared: 12/13/2021
Revision No.: 0



WOOD RODGERS

Checked By: Karl Meier, P.E.
Date Checked: 12/14/2021

Wood Rodgers Project Number: 8802002

SYSTEM CURVE PARAMETERS				
PARAMETER DESCRIPTION	**UNITS**			
System Curve Flow Rate No. 1	-	GPM	0.00	CFS
System Curve Flow Rate No. 2	250	GPM	0.56	CFS
System Curve Flow Rate No. 3	500	GPM	1.11	CFS
System Curve Flow Rate No. 4	750	GPM	1.67	CFS
System Curve Flow Rate No. 5	1,000	GPM	2.23	CFS
System Curve Flow Rate No. 6	1,250	GPM	2.79	CFS
System Curve Flow Rate No. 7	1,500	GPM	3.34	CFS
System Curve Flow Rate No. 8	1,750	GPM	3.90	CFS
System Curve Flow Rate No. 9	2,000	GPM	4.46	CFS
System Curve Flow Rate No. 10	2,250	GPM	5.01	CFS
System Curve Flow Rate No. 11	2,500	GPM	5.57	CFS
System Curve Flow Rate No. 12	**2,700**	**GPM**	**6.02**	**CFS**
System Curve Flow Rate No. 13	2,750	GPM	6.13	CFS
System Curve Flow Rate No. 14	3,000	GPM	6.68	CFS
System Curve Flow Rate No. 15	3,250	GPM	7.24	CFS
System Curve Flow Rate No. 16	3,500	GPM	7.80	CFS
System Curve Flow Rate No. 17	3,600	GPM	8.02	CFS
System Curve Flow Rate No. 18	3,750	GPM	8.36	CFS
System Curve Flow Rate No. 19	4,000	GPM	8.91	CFS

Pump Station Parameters		
Fluid Pumped	Potable Water	
Firm Capacity Required	2,700	GPM

FRICTION LOSSES

Suction Yard Piping

Pipe Description	Pipe Material	Dia. (in)	Length (ft)	c	Q (gpm)	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2700	2750	3000	3250	3500	3600	3750	4000
					Q (cfs)	0.00	0.56	1.11	1.67	2.23	2.79	3.34	3.90	4.46	5.01	5.57	6.02	6.13	6.68	7.24	7.80	8.02	8.36	8.91
Suction Piping	STL	16	167	120		0.00	0.01	0.03	0.07	0.12	0.18	0.26	0.34	0.44	0.55	0.66	0.76	0.79	0.93	1.08	1.24	1.30	1.40	1.40
Suction Piping	STL	12	15	120		0.00	0.00	0.01	0.03	0.04	0.07	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Total friction loss in pipes (ft) =						**0.0**	**0.0**	**0.0**	**0.1**	**0.2**	**0.3**	**0.4**	**0.4**	**0.5**	**0.6**	**0.8**	**0.9**	**0.9**	**1.0**	**1.2**	**1.3**	**1.4**	**1.5**	**1.5**

Discharge Yard Piping

Pipe Description	Pipe Material	Dia. (in)	Length (ft)	c	Q (gpm)	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2700	2750	3000	3250	3500	3600	3750	4000
					Q (cfs)	0.00	0.56	1.11	1.67	2.23	2.79	3.34	3.90	4.46	5.01	5.57	6.02	6.13	6.68	7.24	7.80	8.02	8.36	8.91
Discharge Piping	STL	8	15	120		0.00	0.02	0.09	0.19	0.32	0.48	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Discharge Piping	STL	16	121	120		0.00	0.01	0.02	0.05	0.09	0.13	0.19	0.25	0.32	0.40	0.48	0.55	0.57	0.67	0.78	0.90	0.94	1.02	1.02
Total friction loss in pipes (ft) =						**0.0**	**0.0**	**0.1**	**0.2**	**0.4**	**0.6**	**0.9**	**0.9**	**1.0**	**1.1**	**1.2**	**1.2**	**1.3**	**1.4**	**1.5**	**1.6**	**1.6**	**1.7**	**1.7**

Notes:

1. Calculations on this sheet utilize the Hazen-Williams formula.

MINOR HEAD LOSS

Yard Suction Piping

NO.	FITTING DESCRIPTION	Quantity	Unit K[1]	Total K	Diameter (in.)	Q (gpm)	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2700	2750	3000	3250	3500	3600	3750	4000
						Q (cfs)	**0.00**	**0.56**	**1.11**	**1.67**	**2.23**	**2.79**	**3.34**	**3.90**	**4.46**	**5.01**	**5.57**	**6.02**	**6.13**	**6.68**	**7.24**	**7.80**	**8.02**	**8.36**	**8.91**
1	Tee, Line Flow	2	0.300	0.60	16		0.00	0.00	0.01	0.01	0.02	0.04	0.05	0.07	0.09	0.12	0.15	0.17	0.18	0.21	0.25	0.29	0.31	0.33	0.33
2	Tee, Branch Flow	1	0.750	0.75	12		0.00	0.01	0.02	0.05	0.09	0.15	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
3	Butterfly valve	1	0.270	0.27	12		0.00	0.00	0.01	0.02	0.03	0.05	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
4	90 Deg, Long Radius	2	0.180	0.36	12		0.00	0.00	0.01	0.03	0.04	0.07	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
5	Exit	1	1.000	1.00	12		0.00	0.01	0.03	0.07	0.12	0.20	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
	TOTAL HEADLOSS DUE TO FITTINGS, VALVES AND OTHER (ft) =						**0.0**	**0.0**	**0.1**	**0.2**	**0.3**	**0.5**	**0.7**	**0.7**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.9**	**0.9**	**1.0**	**1.0**	**1.0**	**1.0**

Yard Discharge Piping

NO.	FITTING DESCRIPTION	Quantity	Unit K	Total K	Diameter (in.)	Q (gpm)	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2700	2750	3000	3250	3500	3600	3750	4000
						Q (cfs)	**0.00**	**0.56**	**1.11**	**1.67**	**2.23**	**2.79**	**3.34**	**3.90**	**4.46**	**5.01**	**5.57**	**6.02**	**6.13**	**6.68**	**7.24**	**7.80**	**8.02**	**8.36**	**8.91**
1	Tee, Line Flow	2	0.300	0.60	16		0.00	0.00	0.01	0.01	0.02	0.04	0.05	0.07	0.09	0.12	0.15	0.17	0.18	0.21	0.25	0.29	0.31	0.33	0.33
2	Tee, Branch Flow	1	0.900	0.90	8		0.00	0.04	0.14	0.32	0.57	0.89	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28
3	Butterfly valve	1	0.324	0.32	8		0.00	0.01	0.05	0.12	0.20	0.32	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
4	Swing Check Valve	1	0.720	0.72	8		0.00	0.03	0.11	0.26	0.46	0.71	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
5	90 Deg, Long Radius	2	0.216	0.43	8		0.00	0.02	0.07	0.15	0.27	0.43	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
	TOTAL HEADLOSS DUE TO FITTINGS, VALVES AND OTHER (ft) =						**0.0**	**0.1**	**0.4**	**0.9**	**1.5**	**2.4**	**3.4**	**3.5**	**3.5**	**3.5**	**3.5**	**3.6**	**3.6**	**3.6**	**3.6**	**3.7**	**3.7**	**3.7**	**3.7**

Notes:

1. K values per Pumping Station Design, 3rd Edition. K-value increased by 5% for each 1-inch decement in pipe smaller than 12-inches.

TOTAL DYNAMIC HEAD

Discharge

GPM	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2700	2750	3000	3250	3500	3600	3750	4000
CFS	0.00	0.56	1.11	1.67	2.23	2.79	3.34	3.90	4.46	5.01	5.57	6.02	6.13	6.68	7.24	7.80	8.02	8.36	8.91

Summary of Headloss Calculations

Minor Headlosses (ft) - Suction Yard Piping	0.0	0.0	0.1	0.2	0.3	0.5	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.9	0.9	1.0	1.0	1.0	1.0
Minor Headlosses (ft) - Discharge Yard Piping	0.0	0.1	0.4	0.9	1.5	2.4	3.4	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.7	3.7	3.7	3.7
Friction Losses (ft) - Suction Yard Piping	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.4	0.5	0.6	0.8	0.9	0.9	1.0	1.2	1.3	1.4	1.5	1.5
Friction Losses (ft) - Discharge Yard Piping	0.0	0.0	0.1	0.2	0.4	0.6	0.9	0.9	1.0	1.1	1.2	1.2	1.3	1.4	1.5	1.6	1.6	1.7	1.7
Model Output Results (ft) - Upper Limit (MHD) Run 4	139	140	142	145	148	153	157	163	168	175	181	187	188	196	204	212	216	221	230
Model Output Results (ft) - Upper Limit (PHD) Run 3	151	151	152	153	155	157	160	163	167	171	176	181	181	187	193	200	203	207	214
Model Output Results (ft) - Lower Limit (MDD) Run 18	97	98	100	102	104	108	111	116	120	125	131	135	136	143	149	156	159	163	171
Model Output Results (ft) - Design Point (MHD) Run 16	115	116	118	120	123	127	132	136	142	148	154	160	161	168	176	184	187	192	201

Total Dynamic Head for System

System Curve 1 - Upper Limit (MHD) Run 4	139	140	143	146	151	156	163	168	174	181	188	193	195	203	211	220	223	229	238
System Curve 2 - Upper Limit (PHD) Run 3	151	151	153	155	157	161	166	169	173	177	182	187	188	194	200	207	210	215	222
System Curve 3 - Lower Limit (MDD) Run 18	97	98	100	103	107	111	117	121	126	131	137	141	143	149	156	164	167	171	179
System Curve 4 - Design Point (MHD) Run 16	115	116	118	121	126	131	137	142	148	154	160	166	167	175	183	191	195	200	209

Velocites in Pipe

Location	Material, Class	Flow (gpm)	Flow (cfs)	Pipe Diameter (in)	Area (ft^2)	Velocity (ft/s)	Max Velocity[1] (ft/s)	Result
Suction Header	CMLC Steel, CL 150	2,700	6.0	16.0	1.40	4.3	10.0	**PASS**
Suction Line	CMLC Steel, CL 150	1,350	3.0	12.0	0.79	3.8	4.0	**PASS**
Discharge Line	CMLC Steel, CL 350	1,350	3.0	8.0	0.35	8.6	10.0	**PASS**
Discharge Header	CMLC Steel, CL 350	2,700	6.0	16.0	1.40	4.3	10.0	**PASS**

Suction Pipe Lay Length[1,3]

Pipe Diameter (in)	Minimum Lay Length Required for Suction Elev equal to Discharge Elev (ft)	Minimum Lay Length Required for Suction Elev below Discharge Elev (ft)	Result
12	2.0	5.0	**n/a**

Can Diameter Sizing

Flow (gpm)	Flow (cfs)	Max OD (in)[2]	Bowl Area (ft^2)	Can ID (in)	Can Area (ft^2)	Annular Area (ft^2)	Velocity (ft/s)	Max Velocity (ft/s)	Result
1,350	3.0	14.1	1.08	18.0	1.77	0.69	4.4	5.0	**PASS**

[1] Per HI Figure 9.8.3.6.5 and/or Agency accepted values

[2] Per 14-HRO-BRZ Fairbanks Cut Sheet

[3] Distance measured is from can flange to gate valve

[4] Total Can Length per Manufacturer. Suction to Bottom > 2xCan Diameter

NPSHA/NPSHR Calculation	
H_{atm}, Barometric Pressure (ft)	32
Elevation of Impeller Eye (ft)[1]	1060
Minimum Available Suction Head (ft)[4]	1192
Z_s, Static Head above Impeller Eye (ft)	132
Maximum Expected Temperature (^{0}F)	70
H_{vap}, Vapor Pressure (ft)	0.8
h_m, Sum of Losses in Suction (ft)[2]	7.7
Safety Factor (ft)[3]	0.0
NPSHA (ft)	**156**
NPSHR, for Pump with Largest Requirement (ft)	12
NPSH Margin (5 ft Minimum)	144
NPSH Ratio (1.35 Minimum)	13.12

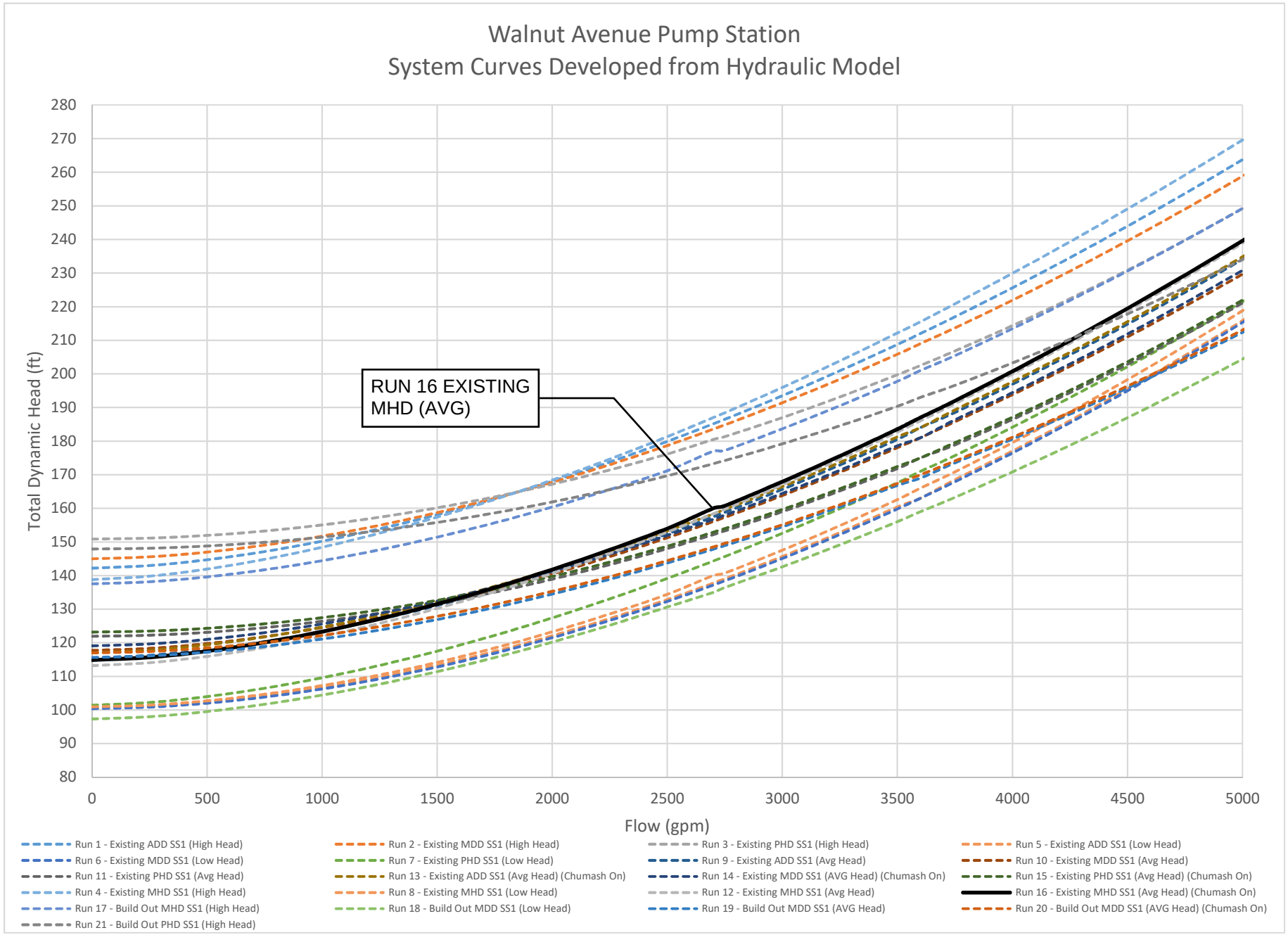
Notes:

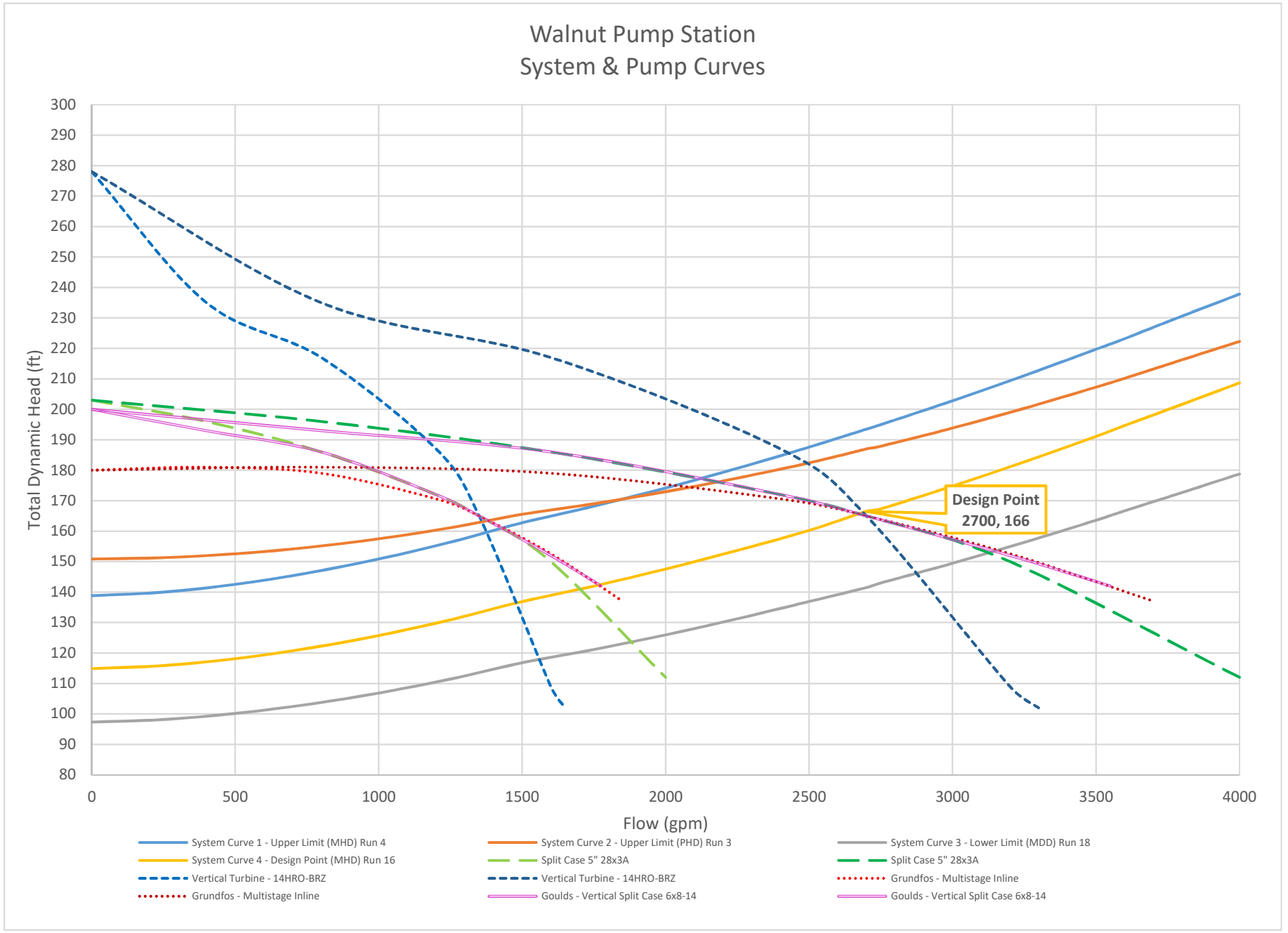
[1] Existing Site @ 1070 Elev. Pump Setting @ 10-ft below Surface.

[2] Loss in Yard Suction Piping.

[3] Assuming model pressures are 6 psi > field, de-rate results by 14 ft.

[4] Minimum from model pressure at flow of 3600 gpm


Walnut Avenue Pump Station
System Curves Developed from Hydraulic Model
Total Dynamic Head (ft)
280
270
260
250
240
230
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
Flow (gpm)
RUN 16 EXISTING MHD (AVG)
Run 1 - Existing ADD SS1 (High Head)
Run 2 - Existing MDD SS1 (High Head)
Run 3 - Existing PHD SS1 (High Head)
Run 5 - Existing ADD SS1 (Low Head)
Run 6 - Existing MDD SS1 (Low Head)
Run 7 - Existing PHD SS1 (Low Head)
Run 9 - Existing ADD SS1 (Avg Head)
Run 10 - Existing MDD SS1 (Avg Head)
Run 11 - Existing PHD SS1 (Avg Head)
Run 13 - Existing ADD SS1 (Avg Head) (Chumash On)
Run 14 - Existing MDD SS1 (AVG Head) (Chumash On)
Run 15 - Existing PHD SS1 (Avg Head) (Chumash On)
Run 4 - Existing MHD SS1 (High Head)
Run 8 - Existing MHD SS1 (Low Head)
Run 12 - Existing MHD SS1 (Avg Head)
Run 16 - Existing MHD SS1 (Avg Head) (Chumash On)
Run 17 - Build Out MHD SS1 (High Head)
Run 18 - Build Out MDD SS1 (Low Head)
Run 19 - Build Out MDD SS1 (AVG Head)
Run 20 - Build Out MDD SS1 (AVG Head) (Chumash On)
Run 21 - Build Out PHD SS1 (High Head)


Walnut Pump Station
System & Pump Curves
Total Dynamic Head (ft)
300
290
280
270
260
250
240
230
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
0
500
1000
1500
2000
2500
3000
3500
4000
Flow (gpm)
Design Point
2700, 166
System Curve 1 - Upper Limit (MHD) Run 4
System Curve 2 - Upper Limit (PHD) Run 3
System Curve 3 - Lower Limit (MDD) Run 18
System Curve 4 - Design Point (MHD) Run 16
Split Case 5" 28x3A
Split Case 5" 28x3A
Vertical Turbine - 14HRO-BRZ
Vertical Turbine - 14HRO-BRZ
Grundfos - Multistage Inline
Grundfos - Multistage Inline
Goulds - Vertical Split Case 6x8-14
Goulds - Vertical Split Case 6x8-14

Item number	: Default	Size	: 14HRO-BRZ
Service	:	Stages	: 4
Quantity	: 1	Speed	: 1780 rpm
Quote number	:	Frame size	:
		Date last saved	: 12 Oct 2021 12:09 PM

Performance Data

Head, maximum diameter, rated flow	: 207.0 ft
Head, minimum diameter, rated flow	: 112.4 ft
Head max.	: 277.6 ft
Efficiency adjustment factor, total	: 1.00
Power adjustment, total	: 0.00 hp
Head adjustment factor, total	: 1.00
Flow adjustment factor, total	: 1.00
NPSH3 adjustment factor, total	: 1.00
NPSH margin dictated by pump supplier	: 0.00 ft
NPSH margin dictated by user	: 0.00 ft
NPSH margin used (added to 'required' values)	: 0.00 ft

Mechanical Limits

Torque, rated power, rated speed	: 3.79 hp/100 rpm
Torque, maximum power, rated speed	: 3.80 hp/100 rpm
Torque, driver power, full load speed	: 4.21 hp/100 rpm
Torque, driver power, rated speed	: 4.21 hp/100 rpm
Torque, pump shaft limit	: 19.56 hp/100 rpm
Radial load, worst case	: -
Radial load limit	: -
Impeller peripheral speed, rated	: -
Impeller peripheral speed limit	: -

Stage, Speed and Solids Limits

Stages, maximum	: 11
Stages, minimum	: 1
Pump speed limit, maximum	: 1800 rpm
Pump speed limit, minimum	: 901 rpm
Curve speed limit, maximum	: 1800 rpm
Curve speed limit, minimum	: 901 rpm
Variable speed limit, maximum	: -
Variable speed limit, minimum	: 450 rpm
Solids size limit	: 1.14 in

Typical Driver Data

Driver speed, full load	: 1780 rpm
Driver speed, rated load	: 1782 rpm
Driver efficiency, 100% load	: N/A
Driver efficiency, 75% load	: N/A
Driver efficiency, 50% load	: N/A

Various Performance Data	Flow (USgpm)	Head (ft)	Efficiency (%)	NPSH3 (ft)	Power (hp)
Shutoff, rated	0.00	277.6	-	-	42.72
Shutoff, maximum	0.00	320.0	-	-	51.82
Minimum Continuous Stable Flow	739.5	219.4	70.27	12.14	58.30
Rated flow, minimum	1,350.0	112.4	78.44	-	48.82
Rated flow, maximum	1,350.0	207.0	85.89	-	82.13
BEP flow, rated	1,248.3	180.5	84.79	11.09	67.11
120% rated flow, rated	1,620.0	103.8	71.33	17.97	59.50
End of curve, rated	1,624.9	102.3	70.92	18.15	59.19
End of curve, minimum	1,477.0	83.15	69.69	13.90	44.49
End of curve, maximum	1,737.0	118.8	71.85	22.90	72.50
Maximum value, rated	-	277.6	84.79	-	67.56
Maximum value, maximum	-	-	85.91	-	82.19

System differential pressure	@ Density, rated	@ Density, max
Differential pressure, rated flow, rated (psi)	71.48	71.48
Differential pressure, shutoff, rated (psi)	120.2	120.2
Differential pressure, shutoff, maximum (psi)	138.5	138.5

Discharge pressure	@ Suction pressure, rated	@ Suction pressure, max	@ Suction pressure, rated	@ Suction pressure, max
Discharge pressure, rated flow, rated (psi.g)	71.48	71.48	71.48	71.48
Discharge pressure, shutoff, rated (psi.g)	120.2	120.2	120.2	120.2
Discharge pressure, shutoff, maximum (psi.g)	138.5	138.5	138.5	138.5

Ratios

Maximum flow / rated flow, rated	: 120.36 %	Head rated diameter / head minimum diameter, rated flow	: 146.99 %

Head and Power Losses

Friction loss rate, column	: 19.12 %
Friction loss, column	: 0.72 ft
Friction loss, discharge head	: 2.91 ft
Friction loss, can/barrel	: 0.59 ft
Friction loss, suction bell and strainer	: 0.00 ft
Friction loss, bowl/column adaptor	: 0.00 ft
Friction loss, total	: 4.21 ft
Power loss, lineshaft bearings	: 0.04 hp
Power loss, thrust bearing	: 0.32 hp
Power loss, total	: 0.36 hp

Bowl vs. Pump Performance

Head (bowl / pump)	: 165.2 ft / 160.9 ft
Efficiency (bowl / pump)	: 83.96 % / 81.39 %
Power (bowl / pump)	: 67.04 hp / 67.40 hp
NPSH required at first stage impeller eye	: 11.85 ft

Weights and Down Thrust

Weight, lineshaft	: 18.11 lb
Weight, bowl assembly rotating element	: 748.0 lb
Thrust factor	: 9.80 lb/ft
Thrust, hydraulic (rated / max)	: 1,615.8 / 2,716.1 lbf
Thrust, bowl shaft end (rated / max)	: 0.00 / 0.00 lbf
Thrust, shaft step (rated / max)	: 70.51 / 70.51 lbf
Thrust, stuffing box sleeve (rated / max)	: -27.57 / -27.57 lbf
Thrust, total (rated / max)	: 2,424.9 / 3,525.1 lbf
Thrust bearing capacity	: -

* Rated thrust @ rated head, density, and suction pressure where applicable
* Max thrust @ max head, density, and suction pressure where applicable

Pressure Data

	Maximum working pressure (psi.g)	Maximum allowable working pressure (psi.g)	Hydrostatic test pressure (psi.g)
Bowl	120.2	364.0	546.0
Column	120.2	475.0	-
Discharge head	120.2	175.0	-
Can/Barrel	3.90	150.0	-

Torque Limits

Torque, lineshaft limit	: 6.60 hp/100 rpm

Dimensions

Minimum clearance below suction bell lip/case	: 7.95 in
Minimum well diameter	: 0.00 in
Suction nozzle centerline height	: -12.00 in
Suction to first stage impeller centerline	: 3.78 in
Bowl assembly length, first stage	: 22.55 in
Bowl assembly length, upper stage	: 12.50 in
Bowl assembly length, total	: 60.05 in
Suction bearing hub length	: 0.00 in
Strainer length	: 0.00 in
Bowl to column adaptor length	: 7.00 in
Discharge head stick-down	: 0.00 in
Submersible motor adaptor length	: -
Submersible motor length	: -
Column length	: 3.75 ft
Total pump length	: 9.34 ft
Can / barrel length	: 10.00 ft
Stuffing box sleeve diameter	: 1.44 in
Suction bell diameter	: 14.00 in
Minimum submergence to prevent vortexing	: 31.00 in
Actual submergence (based on LLL)	: 112 in
Discharge head height	: 0.00 in
Discharge nozzle centerline height	: 0.00 in
Min distance discharge nozzle centerline to suction bell	: 0.00
Lineshaft length	: 4.33 ft
Bowl shaft diameter	: 1.69 in
Bowl diameter, outside	: 14.07 in
Bowl diameter, exit	: 5.90 in
Column diameter, inside	: 6.07 in
Column internal obstruction diameter	: 1.25 in
Can/barrel diameter, inside	: 19.25 in
Can/barrel obstruction diameter	

NPSH

NPSH at bowl (available / required)	: Ample / 11.85 ft
NPSH at low liquid level (available / required)	: - / -
NPSH at suction flange (available / required)	: Ample / 4.42 ft

Liquid Velocities

Column liquid velocity	: 15.66 ft/s
Discharge head liquid velocity	: 15.68 ft/s
Can liquid velocity	: 3.29 ft/s
Suction nozzle liquid velocity	: 3.14 ft/s

Potable water

Is this for potable water service?	: Yes	ANSI / NSF61 & 372 Certified?	: Yes

Product line options

Pump type	: Can/barrel	Discharge nozzle location from mounting surface	: in
Head measured at	: Bowl	Suction nozzle location from mounting surface	: in
Length Strategy	:	Column liquid velocity limit	: 16.40 ft/s
Length	: 10.00 ft	Can liquid velocity limit	: 5.00 ft/s
Low liquid level (Bottom of baseplate/ soleplate to minimum submergence level)	: ft	Suction nozzle liquid velocity limit	: 4.00 ft/s
NPSHa measured at	: Bowl	Can sizing	:

Product line options - additional

Pump Shaft Material	: Standard	Suction strainer	: None
Bowl to column conn.	: Discharge case threaded	Column construction	: Threaded
Motor shaft type	: Hollow shaft	Column type	: AWWA Standard Wall
Flanged adjustable coupling	: None	Column diameter	: 6 inch
Flange rating	: 125#	Can diameter	: 20 inch
Discharge head conn.	: Flanged	Lineshaft type	: Threaded lineshaft
Discharge head design and material	: Type CT-Cast Iron	Lineshaft lubrication	: Open lineshaft, product lube
Discharge head size	: 16.5 or 20 BD x 6	Lineshaft diameter	: 1 1/4 inches
Suction nozzle size	: 14 inch	Lineshaft material	: Carbon steel (AISO-C1045)
Suction type	: Bell		

PENTAIR

Customer :
Project name :

Pump Performance Datasheet

Encompass 2.0 - 21.3.1

Item number	: Default	Size	: 14HRO-BRZ
Service	:	Stages	: 4
Quantity	: 1	Based on curve number	: 14_HRO_3450_1800_BR Rev 180727
Quote number	:	Date last saved	: 06 Oct 2021 11:56 AM

Operating Conditions

Flow, rated	: 1,350.0 USgpm
Differential head / pressure, rated (requested)	: 165.0 ft
Differential head / pressure, rated (actual)	: 165.2 ft
Suction pressure, rated / max	: 0.00 / 0.00 psi.g
NPSH available, rated	: Ample
Site Supply Frequency	: 60 Hz

Performance

Speed criteria	: Synchronous
Speed, rated	: 1780 rpm
Impeller diameter, rated	: 8.14 in
Impeller diameter, maximum	: 8.70 in
Impeller diameter, minimum	: 7.40 in
Efficiency (bowl / pump)	: 83.96 / - %
NPSH required / margin required	: 11.85 / 0.00 ft
nq (imp. eye flow) / S (imp. eye flow)	: 65 / 199 Metric units
Minimum Continuous Stable Flow	: 739.5 USgpm
Head, maximum, rated diameter	: 277.6 ft
Head rise to shutoff (bowl / pump)	: 68.09 / - %
Flow, best eff. point (bowl / pump)	: 1,248.3 / - USgpm
Flow ratio, rated / BEP (bowl / pump)	: 108.15 / - %
Diameter ratio (rated / max)	: 93.56 %
Head ratio (rated dia / max dia)	: 79.80 %
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00
Selection status	: Acceptable

Liquid

Liquid type	: Water
Additional liquid description	:
Solids diameter, max	: 0.00 in
Solids diameter limit	: 1.14 in
Solids concentration, by volume	: 0.00 %
Temperature, max	: 68.00 deg F
Fluid density, rated / max	: 1.000 / 1.000 SG
Viscosity, rated	: 1.00 cP
Vapor pressure, rated	: 0.34 psi.a

Material

Material selected	: Cast Iron bowl Std impeller

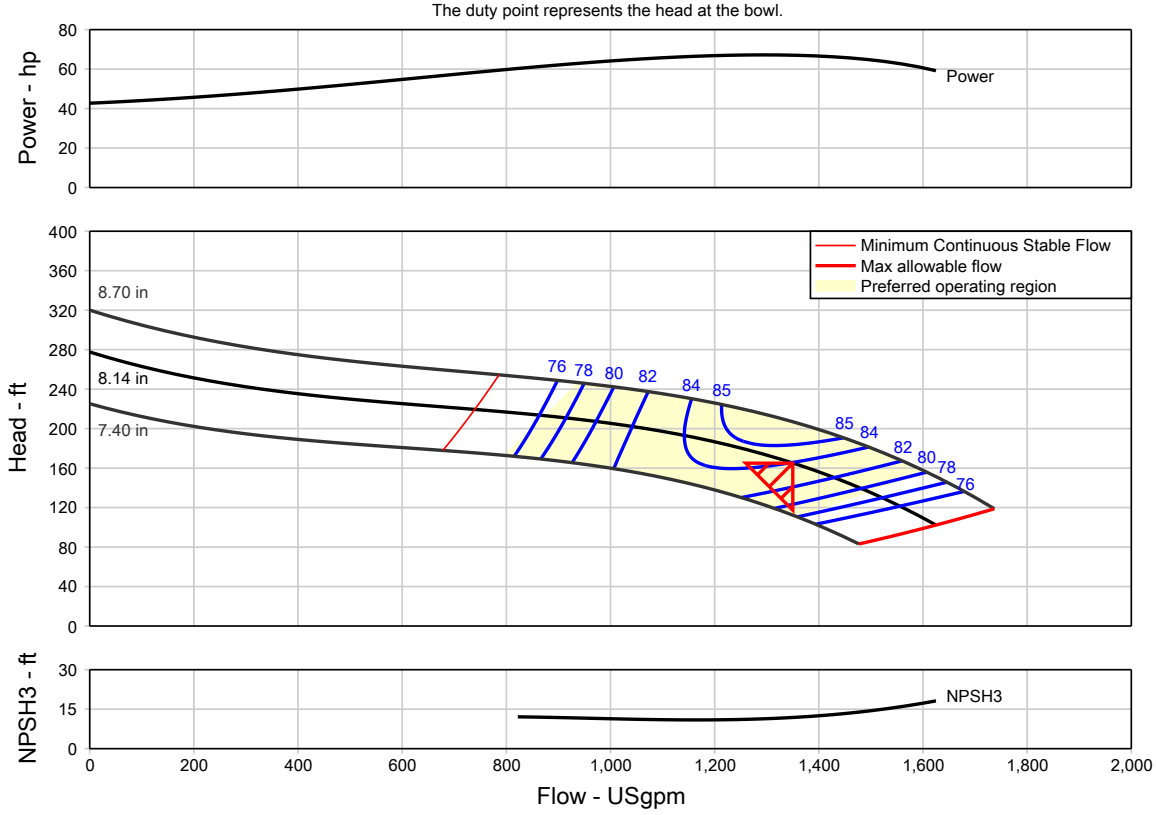
Pressure Data

Maximum working pressure	: See the Additional Data page
Maximum allowable working pressure	: See the Additional Data page
Maximum allowable suction pressure	: N/A
Hydrostatic test pressure	: See the Additional Data page

Driver & Power Data (@Max density)

Driver sizing specification	: Maximum power
Margin over specification	: 0.00 %
Service factor	: 1.00
Power, hydraulic	: 56.29 hp
Power (bowl / pump)	: 67.04 / - hp
Power, maximum, rated diameter	: 67.20 hp
Minimum recommended motor rating	: 75.00 hp / 55.93 kW

Bowl performance. Adjusted for construction and viscosity.
The duty point represents the head at the bowl.



PENTAIR

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WOOD RODGERS

BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

Appendix E

Walnut Avenue Pump Station (PW20-12)

Ventura County Waterworks District No. 8

MEETING MINUTES

Meeting Date:	September 17, 2021, 2:00 PM – 3:00 PM
	Virtual Teleconference - Microsoft Teams
	+1 916-374-6850, 633759228#
	Draft Minutes Issued: 9/27/2021
Final Minutes Issued:	TBD

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*Meeting notes are in italics, actions items are shown in **bold italics**.*

Agenda Items:

1. Introductions

Mike Kang – VCWWD #8
Jay Lukiewski – VCWWD #8
Dan Newton – VCWWD #8
Kevin Gustorf – Wood Rodgers
Karl Meier – Wood Rodgers
Alia Meier – Wood Rodgers
Daniel Valencia - Wood Rodgers

The focus of the meeting is to confirm pump phasing, pump sizing, systems curves, and design point to advance the preliminary design.

2. Pump Configuration

    a. Reference "Walnut Avenue Pump Capacity and Phasing" attached.

        i. *Karl walked through each data scenario and the target capacities. The existing capacity is the initial phase, Q3 represents the interim phase and Q4/Q5 is the future phase. The required maximum flow represents a 12-hour reservoir fill time.*

ii. *VCWWD noted they prefer larger pumps with VFDs. If the pumps are vertical turbines, they want fewer pumps with more flow per pump. Configuration 1 is not appealing to VCWWD.*

iii. *The pumps presented in Configuration 2 are similar in capacity to Chumash Pump Station. Chumash has 800 gpm pumps and Configuration 2 includes 900 gpm pumps.*

iv. *Karl explained how Configuration 3 exceeds the required flow of the initial phase, and for the final phase a jockey pump would be installed to hit the future flow target.*

v. *VCWWD selected Configuration 3. VCWWD has no issues with having a smaller pump for the future condition but doesn't see it as necessary; they prefer to keep the two zones (1355 & 13557) separated during normal operation. VCWWD performed field tests with the valve open, and water quality decreased significantly with the zones connected. They are fine with having an open space for a future pump but do not want to plan on connecting the two pressure zones often; the zones need to be separate permanently except in an emergency.*

vi. *After further discussion, the jockey pump is not necessary for the reservoir system. The normal day flow is 2,700 gpm and in a rare emergency event, the three pumps will be able to provide enough flow to "tread water". The fourth empty can as shown in Configuration 3 is not needed for the future.*

vii. *Chumash Pump Station operates with a lead-lag configuration, so time is spent equally on all pumps; Walnut Avenue Pump Station will likely operate lead-lag as well. For Walnut Avenue Pump Station, all three pumps will be installed at the same time, and during an emergency all three pumps would be on or will run for a longer period of time (more than 12 hours).* ***Wood Rodgers will move forward with a total of three 1,350 gpm pumps (two duty and one standby).***

3. Hydraulics

    a. Reference "System Curves Developed from Hydraulic Model" attached.

    b. The MHD average head system curves were chosen for the design (the higher of the two was selected). As noted above, instead of 3,600 gpm, 2,700 gpm is the

design point which equates to approximately 160 feet of head. This design point will result in pumps with less horsepower.

c. *Pumps in parallel might not reach the curve at 3,600 gpm, which is acceptable to VCWWD.* ***Wood Rodgers will provide pump selections and present to VCWWD.***

d. *VCWWD determined designing to the Chumash flow isn't necessary; two pumps at 2,700 gpm is sufficient and the additional flow from the third pump is extra.*

e. *Initially Wood Rodgers was to evaluate three different types of pumps. Karl inquired about the VCWWD's preferences for pump type. Vertical In-lines will likely not be able to provide 1,350 gpm. There appears to be adequate suction pressure for vertical turbine or horizontal split case, and the head is not extremely high. Vertical turbines are Jay's preference due to the higher maintenance on horizontal split cases. Horizontal split case pumps may work out nicely though, depending on the curve of the selected pump (might be flatter than a vertical turbine). Horizonal split case pumps might be slightly more efficient as well. Size of building and reliability should also be considered.* ***Wood Rodgers will evaluate different pump types and provide a technical memo for VCWWD to review.***

f. *VCWWD has a few preferred pumps: Fairbanks, FloWay, Flow Systems (Amir), Flow N Control.*

g. *VCWWD has an internal SCADA integrator (Northern Digital) that works together with the design team. The electrical engineer (Sam Terry) will prepare the process, piping size, and electrical service size, then VCWWD sends that data to their SCADA integrator, and all work together with Royal Wholesale on design of MCC, gear, instruments, starters, etc. Sam just needs to provide the power and process, then Northern Digital can take it from there.*

h. *All parties will have a kickoff meeting to ensure all are on the same page. Typically, Northern Digital prepares shop drawing-level drawings to make sure it's clear and constructible.* ***Wood Rodgers should notify VCWWD when timing is right to have a kick off meeting.***

4. Next Steps

a. *Wood Rodgers will proceed with three pumps and develop technical memo for pump selection.*

5. Recap and Action Items

   *See above for **bold italic** items that are action items.*

Attachments: (1) Walnut Avenue Pump Capacity and Phasing

(2) System Curves Developed from Hydraulic Model

Walnut Avenue Pump Capacity and Phasing

Data Scenario	Required Max Flow (gpm)	Zone
Existing Capacity	2,220	Existing 1357 Zone
Q1	2,450	Existing 1357 Zone Phase 1 - Lost Canyons
Q2	2,660	Existing 1357 Zone Phase 1 - Lost Canyons Phase 2 - Dry Canyon
Q3	2,705	Existing 1357 Zone Phase 1 - Lost Canyons Phase 2 - Dry Canyon Phase 3 - South Tapo
Q4/Q5 (Ultimate)	3,600	Existing 1357 Zone Phase 1 - Lost Canyons Phase 2 - Dry Canyon Phase 3 - South Tapo Existing 1355 Zone (Chumash PS)

Notes:

If Maximum Station Flow exceeds the Required Maximum Flow, fill time will be less than 12 hours.
All pumps will be VFDs

Legend

Pump (Size A, B, C, etc). No label indicates space reserved for future pump.
Stand-by Pump. For all configurations, largest pump has a back-up/stand-by pump.

Pump Configuration 1							
Existing Capacity							
No. of Pump (Size A)	Pump A Flow (gpm)	No. of Pump (Size B)	Pump B Flow (gpm)	**Pump A+B Total Flow (gpm)**	No. of Pump (Size C)	Pump C Flow (gpm)	**Maximum Station Flow**
4	600	0	0	**2,400**	0	0	**2,400**
Q3							
No. of Pump (Size A)	Pump A Flow (gpm)	No. of Pump (Size B)	Pump B Flow (gpm)	**Pump A+B Total Flow (gpm)**	No. of Pump (Size C)	Pump C Flow (gpm)	**Maximum Station Flow**
5	600	0	0	**3,000**	0	0	**3,000**
Q4/Q5 (Ultimate)							
No. of Pump (Size A)	Pump A Flow (gpm)	No. of Pump (Size B)	Pump B Flow (gpm)	**Pump A+B Total Flow (gpm)**	No. of Pump (Size C)	Pump C Flow (gpm)	**Maximum Station Flow**
6	600	0	0	**3,600**	0	0	**3,600**

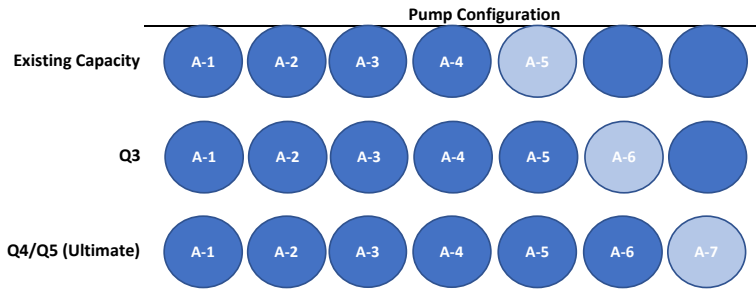
Pros

Smaller pumps, approximately 50 HP each
Maximum flexibility in regards to flow capacity
Potentially eligible for SCE Incentive

Cons

Large quantity of pumps
Many mechanical elements, valves, etc. More maintenance
Potentially larger building footprint

Pump Configuration



Pump Configuration 2							
Existing Capacity							
No. of Pump (Size A)	Pump A Flow (gpm)	No. of Pump (Size B)	Pump B Flow (gpm)	**Pump A+B Total Flow (gpm)**	No. of Pump (Size C)	Pump C Flow (gpm)	**Maximum Station Flow**
3	900	0	0	**2,700**	0	0	**2,700**
Q3							
No. of Pump (Size A)	Pump A Flow (gpm)	No. of Pump (Size B)	Pump B Flow (gpm)	**Pump A+B Total Flow (gpm)**	No. of Pump (Size C)	Pump C Flow (gpm)	**Maximum Station Flow**
3	900	0	0	**2,700**	0	0	**2,700**
Q4/Q5 (Ultimate)							
No. of Pump (Size A)	Pump A Flow (gpm)	No. of Pump (Size B)	Pump B Flow (gpm)	**Pump A+B Total Flow (gpm)**	No. of Pump (Size C)	Pump C Flow (gpm)	**Maximum Station Flow**
4	900	0	0	**3,600**	0	0	**3,600**

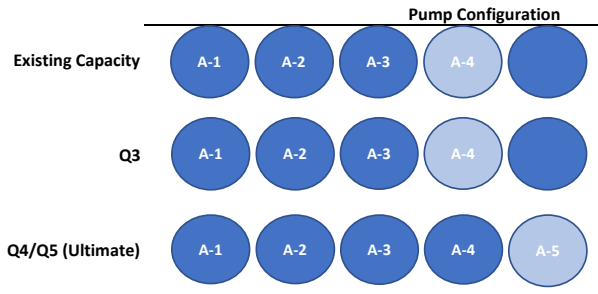
Pros

Provides sufficient flexibility in regards to flow capacity
Less mechanical elements, valves, etc. Less maintenance
Potentially eligible for SCE Incentive but likely less than Configuration 1

Cons

Larger pumps, approximately 100 HP each

Pump Configuration



Pump Configuration 3							
Existing Capacity							
No. of Pump (Size A)	Pump A Flow (gpm)	No. of Pump (Size B)	Pump B Flow (gpm)	**Pump A+B Total Flow (gpm)**	No. of Pump (Size C)	Pump C Flow (gpm)	**Maximum Station Flow**
2	1,360	0	0	**2,720**	0	0	**2,720**
Q3							
No. of Pump (Size A)	Pump A Flow (gpm)	No. of Pump (Size B)	Pump B Flow (gpm)	**Pump A+B Total Flow (gpm)**	No. of Pump (Size C)	Pump C Flow (gpm)	**Maximum Station Flow**
2	1,360	0	0	**2,720**	0	0	**2,720**
Q4/Q5 (Ultimate)							
No. of Pump (Size A)	Pump A Flow (gpm)	No. of Pump (Size B)	Pump B Flow (gpm)	**Pump A+B Total Flow (gpm)**	No. of Pump (Size C)	Pump C Flow (gpm)	**Maximum Station Flow**
2	1,360	1	880	**3,600**	0	0	**3,600**

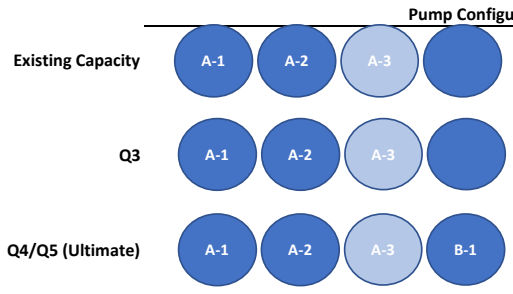
Pros

Least amount of pumps
Least amount of mechanical elements
Potentially smaller building footprint
Potentially eligible for SCE Incentive but likely less than Configuration 1

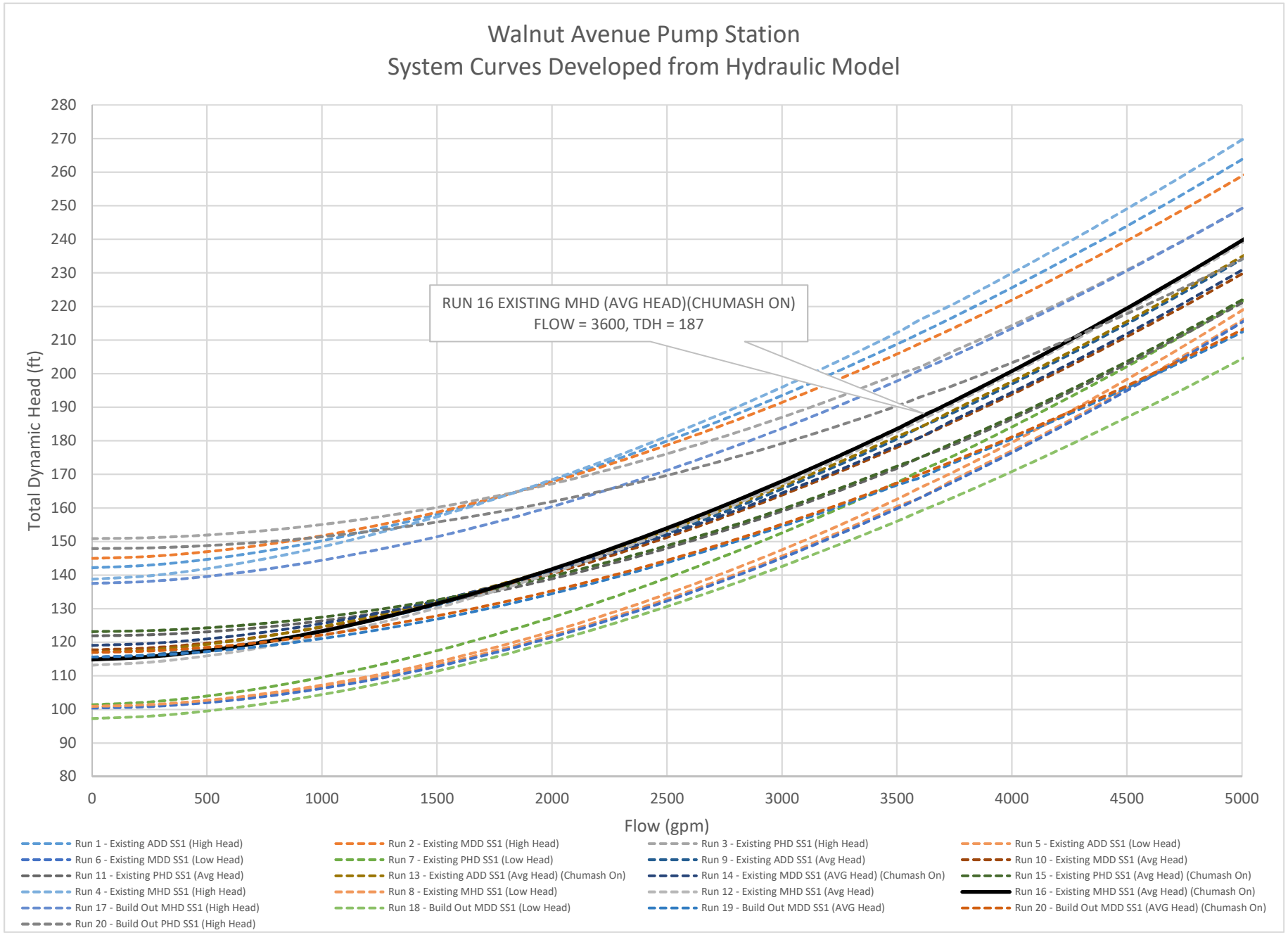
Cons

Does not provide much flexibility for flow capacity
Requires one smaller pump
Larger pumps, approximately 150 HP and 100 HP each

Pump Configuration



WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME


Walnut Avenue Pump Station
System Curves Developed from Hydraulic Model
RUN 16 EXISTING MHD (AVG HEAD)(CHUMASH ON)
FLOW = 3600, TDH = 187
Total Dynamic Head (ft)
Flow (gpm)
280
270
260
250
240
230
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
Run 1 - Existing ADD SS1 (High Head)
Run 2 - Existing MDD SS1 (High Head)
Run 3 - Existing PHD SS1 (High Head)
Run 5 - Existing ADD SS1 (Low Head)
Run 6 - Existing MDD SS1 (Low Head)
Run 7 - Existing PHD SS1 (Low Head)
Run 9 - Existing ADD SS1 (Avg Head)
Run 10 - Existing MDD SS1 (Avg Head)
Run 11 - Existing PHD SS1 (Avg Head)
Run 13 - Existing ADD SS1 (Avg Head) (Chumash On)
Run 14 - Existing MDD SS1 (AVG Head) (Chumash On)
Run 15 - Existing PHD SS1 (Avg Head) (Chumash On)
Run 4 - Existing MHD SS1 (High Head)
Run 8 - Existing MHD SS1 (Low Head)
Run 12 - Existing MHD SS1 (Avg Head)
Run 16 - Existing MHD SS1 (Avg Head) (Chumash On)
Run 17 - Build Out MHD SS1 (High Head)
Run 18 - Build Out MDD SS1 (Low Head)
Run 19 - Build Out MDD SS1 (AVG Head)
Run 20 - Build Out MDD SS1 (AVG Head) (Chumash On)
Run 20 - Build Out PHD SS1 (High Head)

WOOD RODGERS

BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

Appendix F

Walnut Avenue Pump Station (PW20-12)

Ventura County Waterworks District No. 8

MEETING MINUTES

Meeting Date:	November 16, 2021, 2:00 PM – 3:00 PM
	Virtual Teleconference - Microsoft Teams
	+1 916-374-6850, 325708356#
	Draft Minutes Issued: 11/23/2021
Final Minutes Issued:	TBD

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*Meeting notes are in italics, actions items are shown in **bold italics**.*

Agenda Items:

1. Attendees

Mike Kang – VCWWD #8
Jay Lukiewski – VCWWD #8
Dan Newton – VCWWD #8
Karl Meier – Wood Rodgers
Alia Meier – Wood Rodgers

The focus of the meeting is to discuss pump type and pump station layout.

2. Pump Type

    a. Reference "Walnut Avenue Pump Comparison" attached.

        i. *Dan discussed performance curves with one of his trusted pump manufacturers and relayed the information to the group during this call. In summary, Dan and the pump representative agreed that the steeper performance curve provided by the vertical turbine pump is preferred. Flatter curves are typically not as desirable due to the greater fluctuation in flow with a smaller change in total dynamic head. The steeper curve provides a more constant flow should the head condition change.*

ii. *Dan mentioned that due to the vertical turbine pump configuration of being "hung", there is less wear and tear on the bearings which results in less maintenance. For horizontal split case pumps there is typically more load on bearings and production can be observed to change over time. Dan noted that the vertical turbine pumps are hardly ever pulled out. For split cases, replacement of the mechanical seals and bearings is somewhat regular.*

iii. *Karl walked through each pump type:*

Vertical In-Line | Not recommended for reasons listed in table. The vertical in-lines typically don't last as long as the other types being considered. Another reason is the design flow is accomplished via VFD, not by trimming impellers. The price does include an entire skid, but often times the skid will need to be modified to meet customer needs which results in an increased price (Grundfos GES). ***The decision was made to dismiss vertical inline pump types.***

Horizontal Split Case | There are two different mounting options – grouted base (difficult) or a special non-grout base. Karl agrees with Dan on disliking the flat curve. The change in head results in a larger swing in flow, and the VFD will work a little harder to hunt for the right flow. Mike believes these pumps would probably run more on the higher head area. Karl noted that the flatter curves can work for this project but anticipate to rebuild every 15 years or sooner and replace seals every five years.

Vertical Split Case | These pumps have a smaller footprint for space-constrained sites. Regarding prices - reference note on the attachment. Vertical split case pumps are not needed for this project (not space-constrained). The attendees noted they haven't heard of vertical split case pumps before. Mike noted that the vertical split case is not the best selection for this project and agreed this pump type will not be selected for design.

Vertical Turbine | Typically the building size is dependent on skylight spacing, not necessarily the size of the pump. Mike was concerned about the pump can and potential for corrosion. Karl discussed for a different project, the owner wanted 36" diameter cans for future recoating. Locating the cans outside was discussed, a building is typically needed for sound attenuation, aesthetics, and level of security desired. Mike noted that noise shouldn't be an issue for this project; however, it is likely there will be complaints from the neighbors if noise isn't attenuated sufficiently. Dan noted that the nearby residences are not accustomed to the noise that would be generated by the pumps, therefore he still sees the need for a building for noise and to protect the pumps and mechanical equipment.

Dan noted that his preference for vertical turbine is not just about the maintenance costs, it's also about the performance curves. Verticals provide plenty of control with variable head, and over the lifetime of the pump costs can be recuperated. Life cycle costs would need to be

evaluated to truly understand the cost value of verticals vs horizontal split cases. Mike noted that he thinks we need perform this exercise and determine which pump is the best for this application. Dan noted that these pumps will be operating for the foreseeable future and would rather spend money now on vertical turbines rather choose the cheaper product now and spend more money in the long term. Mike mentioned that we are replacing Tapo Street pump station which has a low operating cost due to the years in service. Mike expressed his desire to be fiscally responsible and not spend money where it isn't necessarily warranted.

The design memo will provide a discussion of pump types (horizontal split case and vertical turbines). ***A very high-level/cursory life cycle cost analysis between two pumps may be warranted to better aid the District in making their decision on pump type****. For the estimate, both pumps will be housed within a building.*

Obtaining cost and frequency information on maintenance may be difficult (may need to start with recommendations presented in O&M manuals). Efficiency will also play a part in the life cycle costs. The efficiencies for vertical and horizontal are about the same but the horsepower is different – the horizontal is likely right on the cusp of being 75 HP. Manufacturer has to spec a motor that covers the spectrum, so the 100 HP shown appears to be due to the high flow at runout for the horizontal split case.

Dan asked in situations where good suction pressure is available and demands are fairly consistent, what is the driver for verticals? Often times pump type can be a preference of the owner and is selected based on comfort level. A local water district Wood Rodgers is currently working with does not have any horizontal spilt cases; vertical turbines are their standard. However, many of those pump stations are co-located with reservoirs, requiring a pump can for suction pressure. Mike noted that the life cycle costs can be high level and does not need to take too much effort. Regarding Mike's concern with the pump cans – the design can possibly include thicker steel or epoxy for additional protection.

BEP will be considered as well for the final pump selection.

3. Pump Station Layout

    a. Reference attachments showing the layouts for vertical turbine and horizontal split case.

    b. Decision: generator to be placed outdoors
    c. Decision: place SCE equipment outdoors
    d. Regarding general layout:
        i. For verticals suction line will be underground.
        ii. The District accepted the suction and discharge headers outside of the building footprint but wanted the suction lines to penetrate the wall instead of slab (for horizontals).

iii. *The PRV could be placed outside of building to make building smaller*

iv. *Prefer flow meter above ground in building – typically use mag meters but will consider recommendations for latest and greatest technologies. Currently use Sparling. ABB makes a great mag meter. As far as above ground, providing the required uninterrupted flow length may be a bit challenging, but Wood Rodgers can likely make it work.* ***Flow meter needs to be above ground.***

v. *Electrical Items:*

1. ***Bypass on 1 VFD***
2. *Assuming standard VFDs not clean power or low harmonic units. Please let us know if you would prefer otherwise. Only have standard or talk to their distributor, Dan provided part numbers below.*

MFR	CATALOG #	DESCRIPTION
AB	20F1AND248AN0NNNNN	PF753 AC DRV
AB	20-750-2262D-2R	PF 750 115V 1/O MODULE
AB	20-HIM-C6S	DOOR MOUNT HIM 1P66 NEMA 12
AB	20-750-FLNG4-F6	PF750 FLG ADPTR

3. *John Chandler can assist with the electrical and controls. Royal Wholescale can work with distributer and can make it custom UL which can be more cost efficient than redoing other equipment. The District has their own SCADA integrator. And he can build so it gets complicated when bidding. There will be a meeting with Sam Terry and the District's in-house programmer.*
4. *The pump station will be level-controlled.* ***Include transmitters for suction and discharge pressure. Use suction and discharge pressure gauges for alarming.***

4. Recap and Action Items

See above for ***bold italic*** *items that are action and/or decision items.*

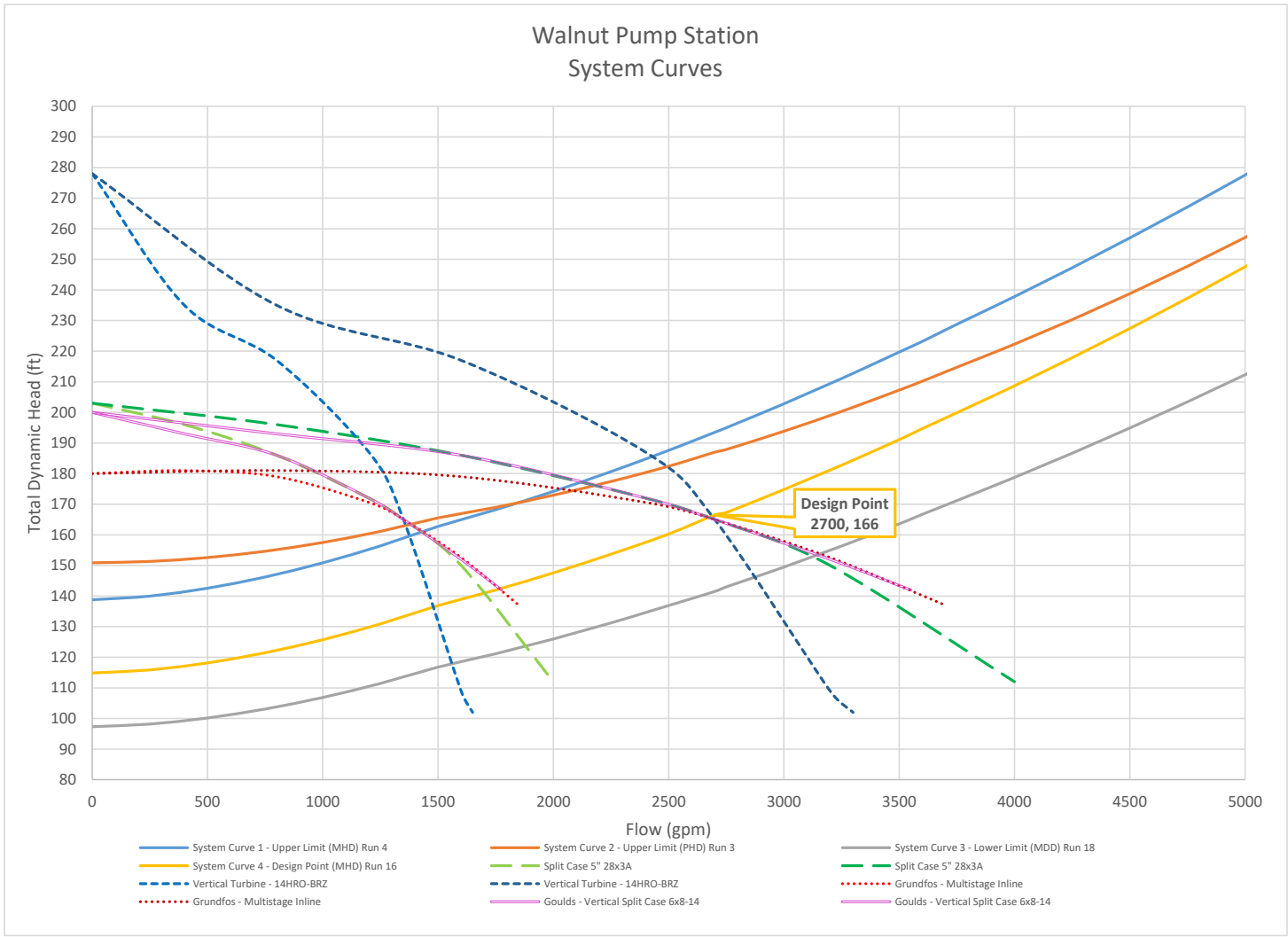
Attachments: (1) Walnut Ave Pump Comparison 2021-11-05

(2) Walnut Ave Pump Layouts

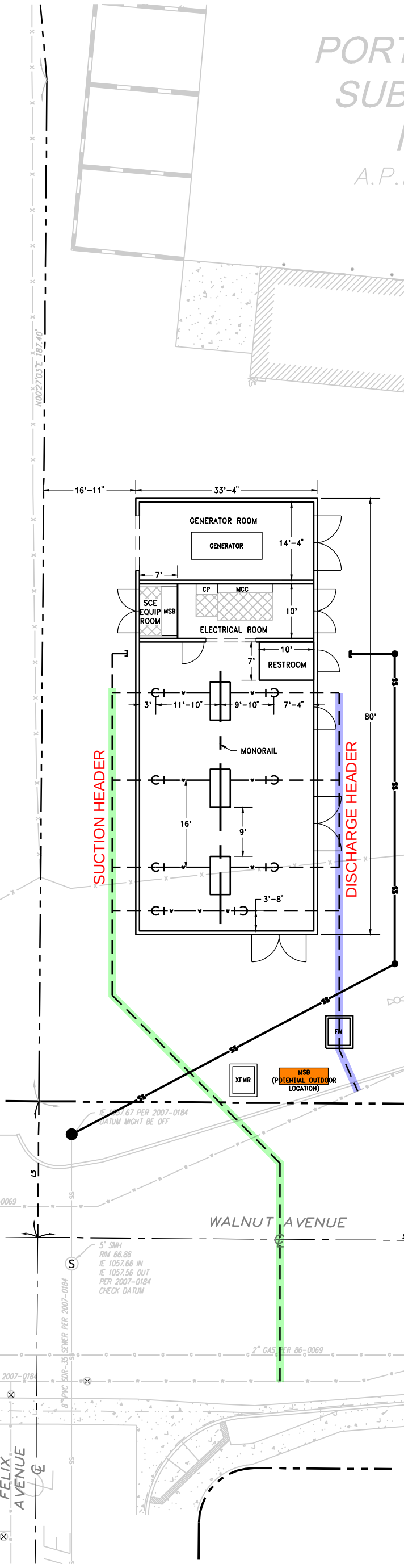
Walnut Avenue Pump Station
Pump Type Comparison

Pump Type	Deep Excavations Required for Pump Can	Approximate Footprint for Each Pump	Skid Mounted Package Available	Crane Required for Pump Install/Removal	Estimated Horsepower	Efficiency	RPM	Budgetary Costs per Pump [1,3]	Summary	
									Pros	Cons
Horizontal Split Case	No	4ft x 7ft	No	No[2]	100	83	1780	$98,000	◦ Easily accessible pump components	◦ Flat performance curve
Vertical Split Case	No	3.5ft x 3ft	No	No[2]	100	79	1780	$127,400	◦ Compact footprint	
Vertical Turbine	Yes, approximately 10-15 feet deep	3ft x 3ft	No	Yes	75	84	1780	$120,000	◦ Steep performance curve ◦ Most efficient	◦ Below-grade appurtenances ◦ Excavation for cans ◦ Crane required for pump removal
Vertical In-Line Multistage	No, approximately 6 ft tall	5ft x 5ft	Yes	No[2]	100	79	1676 (achieved via VFD)	$52,000	◦ Above-grade appurtenances ◦ Skid-mounted	◦ Flat performance curve ◦ Insufficient shutoff head ◦ Insufficient runout with single pump ◦ Less competition (Grundfos) ◦ Not suitable for this application

[1] *Does not include freight or installation*
[2] *No exterior mobile crane required, however interior monorail is recommended.*
[3] *Vertical Split Case budgetary costs were not received from multiple vendors; therefore, the cost for Vertical Split Case pump shown represents a typical difference of 1.3x that of a Horizontal Split Case pumps*



PORTION OF LOT 89
SUBDIVISON NO. 3
M.R. 8/26-31
A.P.N. 614-0-010-185



NOTE

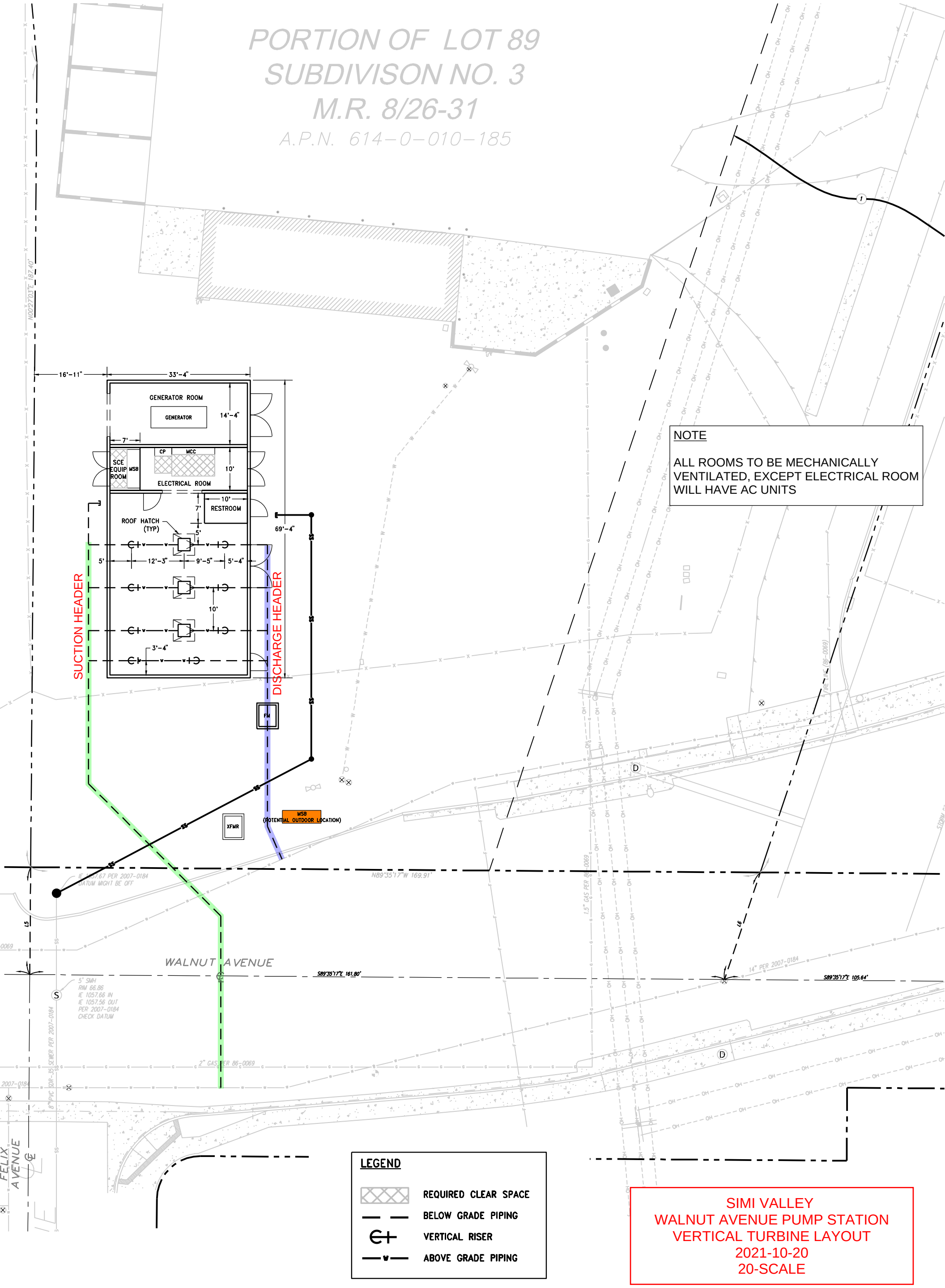
ALL ROOMS TO BE MECHANICALLY VENTILATED, EXCEPT ELECTRICAL ROOM WILL HAVE AC UNITS

LEGEND

- REQUIRED CLEAR SPACE
- BELOW GRADE PIPING
- VERTICAL RISER
- ABOVE GRADE PIPING

SIMI VALLEY
WALNUT AVENUE PUMP STATION
HORIZONTAL SPLIT CASE LAYOUT
2021-10-20
20-SCALE

PORTION OF LOT 89
SUBDIVISON NO. 3
M.R. 8/26-31
A.P.N. 614-0-010-185



SIMI VALLEY
WALNUT AVENUE PUMP STATION
VERTICAL TURBINE LAYOUT
2021-10-20
20-SCALE

WOOD RODGERS

BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

Appendix G

Assumptions

Present Year	2021	
Year of Construction	2021	$F = PV \times (1+i)^n$
Inflation Rate, APY (%)	2.0%	
Rate of Return, APY (%)	2.0%	$PV = \frac{F}{(1+i)^n}$

Notes:

[1] *Includes pump costs as well as the additional costs for building, material, and excavation incurred by a VTP Pump Station*

[2] *Assumes pump lasts 30 years*

[3] *Reference Tables 1 and 2*

[4] *This cost also includes regular inspections on seal box*

[5] *Per Fairbanks O&M Manual, bearings are to be relubricated every 6 months. This cost is included in the annual costs.*

Estimated Capital Costs

	VTP	HSC
No. Pumps	*3*	*3*
Pump Cost (Material), EA	*$ 120,000*	*$ 98,000*
Additional Building/Excavation/Material Costs	*$ 91,000*	*$ - *
Total	$ 451,000	$ 294,000

Walnut Avenue Pump Station						
		Vertical Turbine Pumps			Horizontal Split Case Pumps	
		Capital Costs, 2021 dollars[1,2]	$451,000		Capital Costs, 2021 dollars[1,2]	$294,000
		Annual Electricity Costs (x2 pumps)	$22,968		Annual Electricity Costs (x2 pumps)	$22,949
		Maintenance, every 6 months, 2021 dollars[5]	$0		Maintenance, every 6 months, 2021 dollars[5]	$1,000
		Maintenance at 5 years, 2021 dollars[3,4]	$0		Maintenance, every 5 years, 2021 dollars[4]	$2,000
		Maintenance at 10 years, 2021 dollars[4]	$10,000		Maintenance at 10 years, 2021 dollars[4]	$5,000
		NPV :	$1,160,048		NPV :	$1,062,472
Year	Year No.	Future Cost	Present Value		Future Cost	Present Value
2021	0	$451,000	$451,000		$294,000	$294,000
2022	1	$23,428	$22,968		$25,448	$24,949
2023	2	$23,896	$22,968		$25,957	$24,949
2024	3	$24,374	$22,968		$26,476	$24,949
2025	4	$24,862	$22,968		$27,006	$24,949
2026	5	$25,359	$22,968		$29,754	$26,949
2027	6	$25,866	$22,968		$28,097	$24,949
2028	7	$26,383	$22,968		$28,659	$24,949
2029	8	$26,911	$22,968		$29,232	$24,949
2030	9	$27,449	$22,968		$29,816	$24,949
2031	10	$40,188	$32,968		$38,946	$31,949
2032	11	$28,558	$22,968		$31,021	$24,949
2033	12	$29,129	$22,968		$31,641	$24,949
2034	13	$29,712	$22,968		$32,274	$24,949
2035	14	$30,306	$22,968		$32,920	$24,949
2036	15	$30,912	$22,968		$36,270	$26,949
2037	16	$31,531	$22,968		$34,250	$24,949
2038	17	$32,161	$22,968		$34,935	$24,949
2039	18	$32,804	$22,968		$35,633	$24,949
2040	19	$33,460	$22,968		$36,346	$24,949
2041	20	$48,989	$32,968		$47,475	$31,949
2042	21	$34,812	$22,968		$37,814	$24,949
2043	22	$35,508	$22,968		$38,571	$24,949
2044	23	$36,219	$22,968		$39,342	$24,949
2045	24	$36,943	$22,968		$40,129	$24,949
2046	25	$37,682	$22,968		$44,213	$26,949
2047	26	$38,436	$22,968		$41,750	$24,949
2048	27	$39,204	$22,968		$42,585	$24,949
2049	28	$39,988	$22,968		$43,437	$24,949
2050	29	$40,788	$22,968		$44,306	$24,949
2051	30	$41,604	$22,968		$45,192	$24,949

Table 1: Fairbanks Vertical Turbine Pump O&M - Predicted Life for Parts

Item	Description	Life (Yr.)
7	Discharge Head	20
13	Shaft Sleeve	5
15	Packing, Set	1
17	Packing Box	20
17A	Packing Box Bushing	10
19	Top Shaft	10
21	Top Column	20
23	Line shaft	10
25	Bearing Retainer	20
26	Line shaft Bearing	10
29	Shaft Sleeve	5
30	Bottom Column	20
31	Shaft Coupling	10
32	Pump Shaft	10
34	Top Bowl Bearing	10
35	Inter Bowl Bearing	10
36	Inter Bowl	20
36W	Bowl Wear Ring	5
38	Impeller	10
38W	Impeller Wear Ring	5
40	Suction Bell (Case)	20
41	Suction Bell Bearing	10
50	Connector Bearing	10
54	Discharge Case	20
55	Top Inter Bowl	20
58	Sand Collar	10

Table 2: Fairbanks Horizontal Split Case Pump O&M - Predicted Life for Parts

Ref. No.	Description	Predicted Life
1	Impeller	10 yrs
2	Casing, Lower	20 yrs
3	Casing, Upper	20 yrs
14	Shaft Sleeve	5 yrs
16	Wear Ring, Casing	5 yrs
17	Wear Ring, Impeller	5 yrs
163	Bearing, Radial	100,000 hrs
168	Bearing, Thrust	100,000 hrs
212	Packing	1 yr
456	Mechanical Seal	5 yrs

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

WOOD RODGERS

BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

Appendix H

VENTURA COUNTY WATERWORKS DISTRICT NO. 8
CITY OF SIMI VALLEY

WATER SYSTEM IMPROVEMENT PLANS

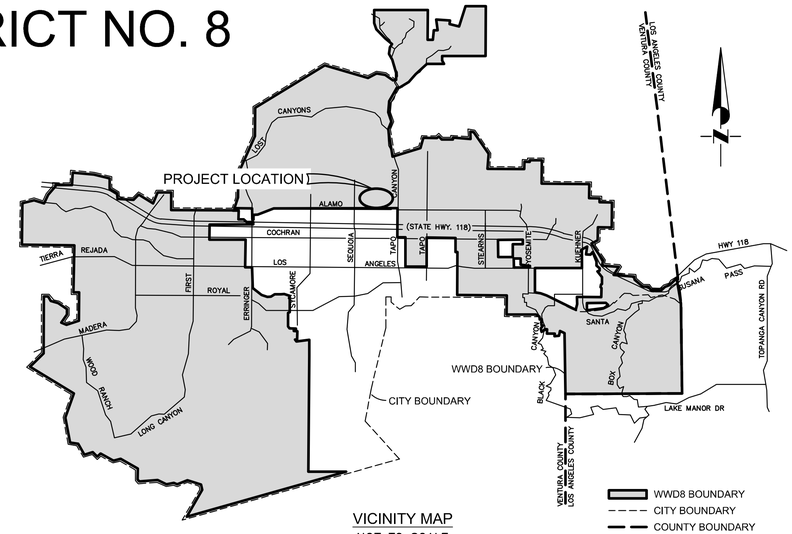
WALNUT AVENUE PUMP STATION

35% SUBMITTAL

INDEX OF DRAWINGS*		
SHEET NO.	DESCRIPTION	CITY DWG. NO.
1	TITLE SHEET	2022-XXXX
2	GENERAL NOTES	2022-XXXX
3	EXISTING SITE PLAN	2022-XXXX
4	DEMOLITION PLAN	2022-XXXX
5	SITE PLAN	2022-XXXX
6	GRADING PLAN	2022-XXXX
7	YARD PIPING PLAN	2022-XXXX
8	YARD PIPING PROFILES	2022-XXXX
9	CIVIL DETAILS	2022-XXXX
10	TAPO STREET PUMP STATION DEMOLITION	2022-XXXX
11	ARCHITECTURAL COVER SHEET	2022-XXXX
12	FLOOR, ROOF & REFLECTED CEILING PLANS	2022-XXXX
13	DOOR AND HARDWARE SCHEDULES	2022-XXXX
14	EXTERIOR ELEVATIONS AND SECTIONS	2022-XXXX
15	EXTERIOR DETAILS	2022-XXXX
16	STRUCTURAL NOTES	2022-XXXX
17	STRUCTURAL NOTES AND TYPICAL DETAILS	2022-XXXX
18	FOUNDATION AND ROOF FRAMING PLAN	2022-XXXX
19	BUILDING SECTIONS	2022-XXXX
20	STRUCTURAL DETAILS	2022-XXXX
21	MECHANICAL PIPING PLAN	2022-XXXX
22	MECHANICAL PIPING SECTIONS	2022-XXXX
23	MECHANICAL DETAILS	2022-XXXX
24	ELECTRICAL SYMBOLS, ABBREVIATIONS AND AREA PLAN	2022-XXXX
25	SINGLE LINE DIAGRAM, EQUIPMENT ELEVATIONS AND LOAD CALCULATIONS	2022-XXXX
26	ELECTRICAL BUILDING AND SITE PLAN	2022-XXXX
27	P&ID	2022-XXXX

*NOTE: NOT ALL SHEETS LISTED IN THIS INDEX ARE INCLUDED FOR THE 35-PERCENT SUBMITTAL

QUANTITY TABLE	
	DESCRIPTION



VICINITY MAP
NOT TO SCALE

PUBLIC UTILITIES / SERVICES

CABLE TV: SPECTRUM
2525 KNOLL ROAD
VENTURA, CA 93003
(805) 732-8160

ELECTRIC: EDISON INTERNATIONAL CO.
3589 FOOTHILL DR.
THOUSAND OAKS, CA 91361
(805) 494-7030 (805) 433-5464

FIRE: VENTURA CO. FIRE DEPARTMENT
165 DURLEY AVE. CAMARILLO, CA 93010
(805) 389-9738 x1

GAS: SO. CALIFORNIA GAS CO.
977 CHAMBERS LANE
SIMI VALLEY, CA 93065
(818) 701-3468
EMERGENCY: (800) 427-2200 ext.1

OIL: CRIMSON PIPELINE
ATT: CORDELIA CISNEROS
3780 KILROY AIRPORT WAY, STE. 400
LONG BEACH, CA 90806
(562) 285-4133 or 285-4100
EMERGENCY: (866) 351-7473

PARKS & RECREATION: RANCHO SIMI RECREATION
& PARK DISTRICT
1692 SYCAMORE DR.
SIMI VALLEY, CA 93065
(805) 584-4400

POLICE: SIMI VALLEY POLICE DEPARTMENT.
3901 ALAMO STREET
SIMI VALLEY, CA 93063
(805) 583-6950

POSTAL SERVICE: MAIN POST OFFICE
2551 GALENA AVE.
SIMI VALLEY, CA 93063
(805) 526-9819 (800) 275-8777

RUBBISH: AMERICAN RUBBISH CO. (G.I. RUBBISH)
195 W. LOS ANGELES AVE.
SIMI VALLEY, CA 93065
(805) 522-9400 x4360

ANDERSON RUBBISH
4590 INDUSTRIAL ST.
SIMI VALLEY, CA 93063
(805) 526-1919

SCHOOL DISTRICT: SIMI VALLEY UNIFIED SCHOOL DIST.
875 E. COCHRAN ST.
SIMI VALLEY, CA 93065
(805) 306-4500

SEWER: CITY OF SIMI VALLEY, SANITATION DIVISION
500 W. LOS ANGELES AVE.
SIMI VALLEY, CA 93065
(805) 583-6404

TELEPHONE AND FIBER OPTICS: A.T.& T. CONSTRUCTION & ENGINEERING
600 E. GREEN ST., 3rd FLOOR
PASADENA, CA 91101-2020
(626) 817-4263

A.T.& T. INQUIRIES (long distance fiber optic)
22311 BROOKHURST STREET, SUITE No. 203
HUNTINGTON BEACH, CA 92646
(714) 963-7964

VERIZON/MCI L.A. NORTH FIELD SERVICES
157 So. LILAC AVENUE
RIALTO, CA. 92376-6322
(909) 421-3316 OR (941) 993-9018

SPRINT NEXTEL TRANSMISSION OPERATIONS
ATTN: TIBOR LAKY
2592 DUPONT DRIVE
IRVINE, CA 92612
(949) 842-9870

LEVEL 3 COMMUNICATIONS
100 S. CINCINNATI AVE.
TULSA, OK 74103
(918) 547-0007

TRAFFIC: CITY OF SIMI VALLEY
DEPARTMENT OF PUBLIC WORKS
TRAFFIC ENGINEERING
2929 TAPO CANYON RD.
SIMI VALLEY, CA 93063
(805) 583-6786

TRANSIT: CITY OF SIMI VALLEY
TRANSIT DIVISION
2929 TAPO CANYON ROAD
SIMI VALLEY, CA 93063
(805) 583-6456

WATER: CALLEGUAS MUNICIPAL WATER DIST.
2100 OLSEN RD.
THOUSAND OAKS, CA 91362
(805) 579-7156 (805) 807-9495

VENTURA CO. WATERWORKS DIST. NO. 8
500 W. LOS ANGELES AVE.
SIMI VALLEY, CA 93065
(805) 583-6469

GOLDEN STATE WATER CO.
4680 LOS ANGELES AVE, UNIT H
SIMI VALLEY, CA 93063
(805) 527-9393 (805) 990-9600

UNDERGROUND SERVICE ALERT
CALL TOLL FREE – 1 800 227 2600
OR 811
TWO WORKING DAYS BEFORE YOU DIG



LOCATION MAP
NOT TO SCALE

BENCHMARK

VENTURA COUNTY BM 72-5 ELEV. 1083.21 (NAVD 1988)

A 3.5" VENTURA COUNTY BRASS DISK LOCATED 3.25 MILES SOUTHEASTERLY ALONG THE SOUTHERN PACIFIC RAILROAD FROM THE POST OFFICE IN SANTA SUSANA PASS ROAD, THENCE 0.2 MILE WESTERLY ALONG KATHERINE ROAD TO A PAVED PARKING LOT OF THE SANTA SUSANA CITY PARK, SET IN THE EAST END AND IN THE TOP OF A CONCRETE CURB OF A TRIANGULAR CONCRETE SLAB AND A FLAGPOLE ABOUT IN THE CENTER OF THE SLAB, 105.6 FEET NORTHWEST OF THE CENTER OF THE ROAD, 0.7 FEET EAST OF A FLAG POLE, 0.78 FEET WEST OF THE EAST END OF THE CURB, 0.7 FEET ABOVE THE PARKING LOT SURFACE.

WATER PRESSURE ZONE

1248 PRESSURE ZONE (SUCTION)
1357 PRESSURE ZONE (DISCHARGE)

RECORD DRAWING CERTIFICATE

I HEREBY CERTIFY THAT THE WATER SYSTEM SHOWN ON DRAWINGS _____ THROUGH _____ HAVE BEEN CONSTRUCTED IN CONFORMANCE WITH LINES AND GRADES AS SHOWN ON SAID PLANS AND REFERENCED SPECIFICATIONS.

REGISTERED CIVIL ENGINEER

R.C.E. NO. DATE

VENTURA COUNTY FIRE PROTECTION DISTRICT

REVIEWED DATE

REQUIRED FIRE FLOW _____ @ 20 PSI. HYDRANTS SHALL BE INSTALLED PER VCFD AND WWD8 STANDARDS.
-O- = DENOTES 6" WET BARREL HYDRANT WITH ____ 4" & ___ 2 ½" OUTLETS.

NO.	REVISION	PREP.	APPVD.	DATE

CITY OF SIMI VALLEY – VENTURA COUNTY WATERWORKS DISTRICT NO 8

ACCEPTED:

ASSIST. DIR./DIST. ENGINEER DATE

DEPUTY DIRECTOR/WATERWORKS SERVICES DATE

REVIEWED:

DATE

RECOMMENDED: PRINCIPAL ENGINEER DATE

CITY OF SIMI VALLEY
DEPARTMENT OF PUBLIC WORKS

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

DESIGNED BY DRAWN BY DATE

TITLE SHEET

VENTURA COUNTY WATERWORKS DISTRICT NO. 8
WALNUT AVENUE PUMP STATION

CP 980460

WATER PLAN SET ____ OF T

SHEET NUMBER 1 OF T

DRAWING NUMBER T-01

REV. 10/2020 RAI

8802002-TS-01.dwg Feb 22, 2022-10:12am

EXISTING BUILDING
ELECTRIC PANEL
DRAIN INLET
BLOCK WALL
CHAIN LINK FENCE
DIRT & BRUSH
EXISTING UTILITY EASEMENT
DRAINAGE CANAL
FELIX AVENUE
WALNUT AVENUE
A.P.N. 614-0-010-185
BUSHROW
GRASS/DIRT
DRIVEWAY
CURB & GUTTER
SIDEWALK
PLANTER
BERM
MAIL BOX
WATER WITNESS POST
CATCH BASIN
VAULT
ICV
BFV
ARV
CP1
CP3
CP5
CP7
P/L
R/W
℄
60'
8" ACP CL 200 PER 86-0069
14" PER 2007-0184
2" GAS PER 86-0069
15" GAS PER 86-0069
STORM DRAIN RCP CULVERT (85-0009)
FD N/T "L.S. 7998" PER C.R. 21728

EXISTING SITE PLAN

10' 5' 0 10'
SCALE: 1" = 10'

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
STATE OF CALIFORNIA

NO.	REVISION	PREP.	APPVD.	DATE

CITY OF SIMI VALLEY – VENTURA COUNTY WATERWORKS DISTRICT NO 8

ACCEPTED:
ASSIST. DIR./DIST. ENGINEER — DATE
DEPUTY DIRECTOR/WATERWORKS SERVICES — DATE

REVIEWED:
DATE
RECOMMENDED: PRINCIPAL ENGINEER — DATE

CITY OF SIMI VALLEY
DEPARTMENT OF PUBLIC WORKS

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME
DESIGNED BY DRAWN BY DATE

EXISTING SITE PLAN
VENTURA COUNTY WATERWORKS DISTRICT NO. 8
WALNUT AVENUE PUMP STATION
CP 980460

WATER PLAN SET ___ OF T
SHEET NUMBER 3 OF T
DRAWING NUMBER C-01

REV. 02/2020 RHS

8802002-C-01.dwg Feb 22, 2022-9:38am

GENERAL NOTES:

1. PROVIDE SITE SECURITY FENCING AROUND PROJECT SITE.
2. PROTECT IN PLACE ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES, LANDSCAPE FEATURES, AND APPURTENANCES NOT IDENTIFIED TO BE REMOVED, DEMOLISHED OR ABANDONED IN PLACE.
3. ALL DEMOLISHED MATERIALS AND DEBRIS WITHIN PROJECT SITE SHALL BE DISPOSED OF OFF SITE AT AN APPROVED LANDFILL FACILITY.

PROTECT IN-PLACE EX FIRE HYDRANT

EXISTING UTILITY EASEMENT

DRAINAGE CANAL

FELIX AVENUE

REMOVE AND DISPOSE TREES, PLANS AND BUSHES AS SHOWN

REMOVE AND DISPOSE EXISTING CHAIN LINK FENCE

REMOVE AND DISPOSE EXISTING BUSHROW

REMOVE AND DISPOSE 8" ACP

REMOVE AND DISPOSE EX FIRE HYDRANT

ABANDON IN PLACE 8" ACP

ABANDON IN PLACE 8" ACP

WALNUT AVENUE

8" ACP CL. 200 PER 86-0069

2" GAS PER 86-0069

14" PER 2007-0184

8" SSC PER 2007-0184

15" GAS PER 86-0069

STORM DRAIN RCP CULVERT (86-0069)

FD N/T "L.S. 7898" PER C/R: 21728

P/L

R/W

℄

CP1 CP3 CP5 CP7

10' 5' 0 10'

SCALE: 1" = 10'

DEMOLITION PLAN

NO.	REVISION	PREP.	APPVD.	DATE

CITY OF SIMI VALLEY – VENTURA COUNTY WATERWORKS DISTRICT NO 8

ACCEPTED:

ASSIST. DIR./DIST. ENGINEER — DATE

DEPUTY DIRECTOR/WATERWORKS SERVICES — DATE

REVIEWED:

RECOMMENDED: PRINCIPAL ENGINEER — DATE

CITY OF SIMI VALLEY
DEPARTMENT OF PUBLIC WORKS

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

DESIGNED BY — DRAWN BY — DATE

DEMOLITION PLAN

VENTURA COUNTY WATERWORKS DISTRICT NO. 8
WALNUT AVENUE PUMP STATION

CP 980460

WATER PLAN SET: ____ OF T

SHEET NUMBER: 4 OF T

DRAWING NUMBER: C-02

REV. 10/2020 RM

PRELIMINARY — NOT FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

8802002-C-02.dwg Feb 22, 2022-9:48am

GENERAL NOTES:

1. REFERENCE PROJECT GEOTECHNICAL REPORT FOR EXCAVATION REQUIREMENTS
2. ALL TREES WITHIN PROJECT SITE TO BE REMOVED

CONSTRUCTION NOTES:

1. INSTALL AC PAVEMENT
2. INSTALL 24' ROLLING CHAIN LINK GATE
3. INSTALL 8' TALL CHAIN LINK FENCE WITH BARBED WIRE TOP
4. UTILITY PER YARD PIPING PLAN
5. TRANSFORMER AND METER PER ELECTRICAL PLAN
6. INSTALL REDWOOD HEADER AT EDGE OF PAVEMENT

GENERATOR
16'-11"
26'-8"
10'
52'
5%
XFMR
MSB
DRAINAGE CANAL
EXISTING EASEMENT
FELIX AVENUE
WALNUT AVENUE
P/L
R/W
℄
FD N/T "L.S. 7898", PER C.R. 21/28

SITE PLAN

10' 5' 0 10'
SCALE: 1" = 10'

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
STATE OF CALIFORNIA

8802002-C-03.dwg Feb 22, 2022-9:58am

NO.	REVISION	PREP.	APPVD.	DATE

CITY OF SIMI VALLEY – VENTURA COUNTY WATERWORKS DISTRICT NO 8

ACCEPTED:

ASSIST. DIR./DIST. ENGINEER ____ DATE ____

DEPUTY DIRECTOR/WATERWORKS SERVICES ____ DATE ____

REVIEWED:

____ DATE ____

RECOMMENDED: PRINCIPAL ENGINEER ____ DATE ____

CITY OF SIMI VALLEY
DEPARTMENT OF PUBLIC WORKS

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

DESIGNED BY ____ DRAWN BY ____ DATE ____

SITE PLAN

VENTURA COUNTY WATERWORKS DISTRICT NO. 8
WALNUT AVENUE PUMP STATION

CP 980460

WATER PLAN SET ____ OF T
SHEET NUMBER 5 OF T

DRAWING NUMBER C-03

REV. 10/2020 RM

CONSTRUCTION NOTES:

1. 16"x 16" TEE
2. 16" BUTTERFLY VALVE
3. 8" 22.5° BEND
4. 1" WATER METER PER STANDARD PLATE 401
5. 8" 45° BEND
6. CONNECTION TO EXISTING WATER PER STANDARD PLATE 304
7. CONNECT TO EXISTING 8" SEWER
8. 16" CMLC STEEL WATER PIPE
9. 1" COPPER WATER PIPE
10. 4" SDR-35 SEWER PIPE
11. SEWER CLEANOUT
12. REFERENCE MECHANICAL PLANS FOR CONTINUATION
13. 12"x8" REDUCER
14. 8" DR 14 PVC PIPE
15. 16" DR 14 PVC PIPE BY OTHERS
16. 8" GATE VALVE
17. CUT AND CAP EX ACP, ABANDON IN PLACE.
18. 12"x8" TEE

GENERATOR
IE 1063
IE 1060
XFMR
MSB
P/L
R/W
FELIX AVENUE
FIRE LINE (86-0069)
STORM DRAIN, RCP, CULVERT (86-0069)
WALNUT AVENUE
1.5" GAS PER 86-0069
8" ACP CL 200 PER 86-0069
FD N/T "L.S. 7998" PER C.R. 21/29
8"PVC SDR-35 SEWER PER 2007-0184
14" PER 2007-0184
2" GAS PER 86-0069
(TYP 3)
SS
OH
D
S
℄

10' 5' 0 10'
SCALE: 1" = 10'

REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA
PRELIMINARY

YARD PIPING PLAN

NO.	REVISION	PREP.	APPVD.	DATE

CITY OF SIMI VALLEY – VENTURA COUNTY WATERWORKS DISTRICT NO 8

ACCEPTED:

ASSIST. DIR./DIST. ENGINEER — DATE

DEPUTY DIRECTOR/WATERWORKS SERVICES — DATE

REVIEWED:

DATE

RECOMMENDED: PRINCIPAL ENGINEER — DATE

CITY OF SIMI VALLEY
DEPARTMENT OF PUBLIC WORKS

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

DESIGNED BY DRAWN BY DATE

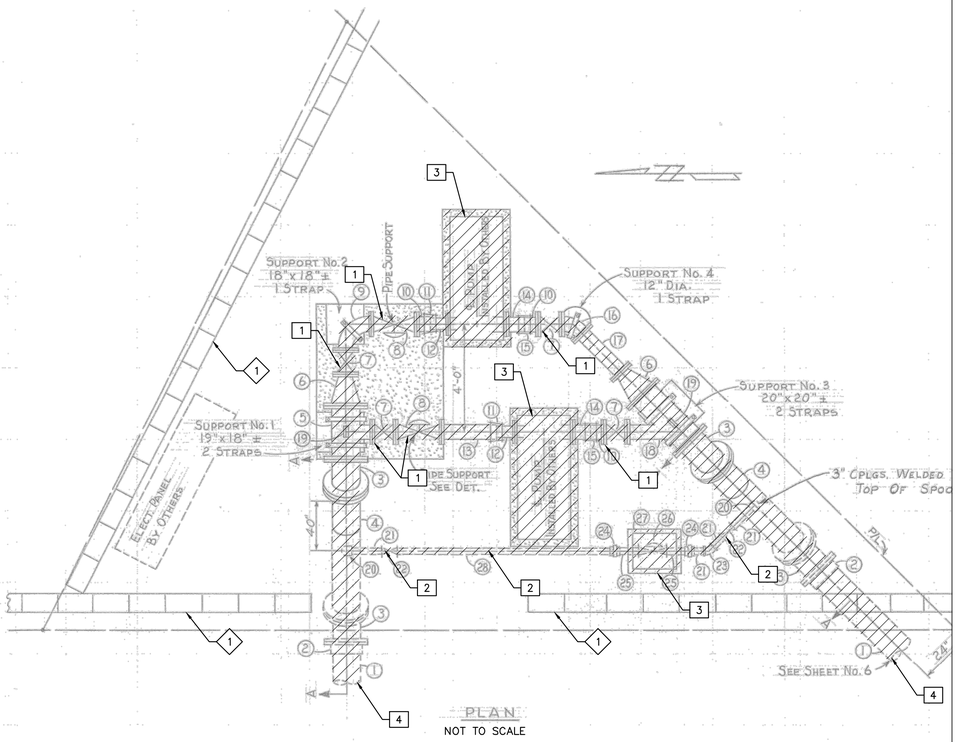
YARD PIPING PLAN
VENTURA COUNTY WATERWORKS DISTRICT NO. 8
WALNUT AVENUE PUMP STATION
CP 980460

WATER PLAN SET ___ OF T
SHEET NUMBER 7 OF T

DRAWING NUMBER C-05

REV. 10/2020 RWI

8802002-C-05.dwg Feb 22, 2022-10:05am



LEGEND

1. 12" A.C.P. Class 150
2. 12" Flg. x A.C. Adapter
3. 12" Flgd. 45° Ell
4. * 12" x 6'-5" Flg'd. Spool - Sched. 30 Stl. Pipe
5. 12"x12"x6" Flg'd. Tee + ½" Tap Opening On Top
6. 12" x 6" Flgd. Reducer
7. 6" Flg'd. Gate Valve
8. ** 6" Flg'd. CLA-Valve No. 60-P
9. 6" Flgd. Long Radius 90° Ell
10. * 6"ø x 6" Lg. Flg. x P.E. Piece - Sched. 40 Stl. Pipe
11. 6"x4" Reducing Coupling
12. * 4"ø x 8" Lg. Flg. x P.E. Piece - Sched. 40 Stl. Pipe
13. * 6"ø x 24" Lg. Flg. x P.E. Piece - Sched. 40 Stl. Pipe
14. * 6"ø x 8" Lg. Flg. x P.E. Piece - Sched. 40 Stl. Pipe
15. 6" Flexible Coupling
16. 6" Flg'd. 45° Ell
17. * 6"ø x 24" Flg'd. Spool
18. 12"x12"x6" Flg'd. Lateral - ¾" Tap Opening On Top
19. ¾" Pressure Ga. - 0 To 200 - w/ Shut Off Cock.
20. 3" Ex. Hvy. Short Cpl'g. Welded To Spool & 90° Ell
21. 3" Short (As Req'd.) Galv. Nipple
22. 3" Screwed Gate Valve & Valve Box
23. 3"x45° Galv. Ell
24. 3" Galv. Union
25. 3"x8" Galv. Nipple
26. ** 3" CLA-Valve No. 50 - Screwed
27. 16"x21" Meter Box (Non-Traffic)
28. 3" Galv. Pipe As Req'd. - 8"±

* A.S.A. 150 Smooth Face Flg's. - Epoxy Lined Spool

** To Be Furnished By District.

NOTES:

1. Conc. Pump Pads & Conc. Pad Under Valves Placed By Others. Conc. Supports & Pipe Supports By Pipe Line Contractor.
2. ---- Indicates Underground Piping.
3. * Do Not Apply Epoxy To Spools, Etc. Until After All Fabricating Of The Piece Has Been Completed.
4. Electrical Conduit (See Reference Dwg.) Will Be Placed Prior To Pipe Line Construction.



GENERAL NOTES:

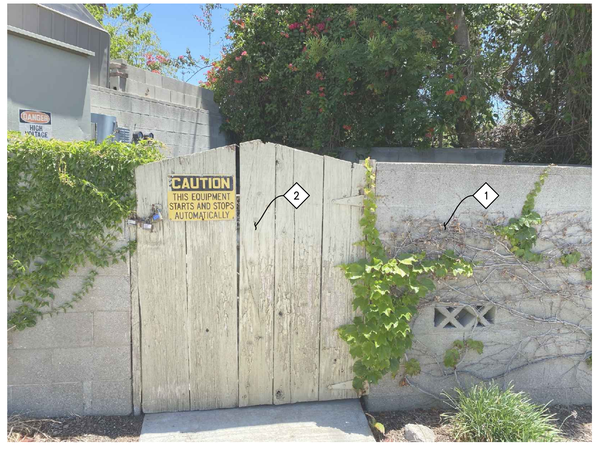
1. A HAZARDOUS MATERIALS SURVEY HAS NOT BEEN COMPLETED FOR THIS PROJECT. HAZARDOUS MATERIALS ARE NOT ANTICIPATED, HOWEVER IF CONTRACTOR ENCOUNTERS HAZARDOUS MATERIALS, THE ENGINEER AND OWNER SHALL BE NOTIFIED IMMEDIATELY. CONTRACTOR SHALL REMOVE AND DISPOSE OF ANY HAZARDOUS MATERIALS ONSITE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS.
2. UNDERGROUND ELECTRICAL NOT SHOWN. CONTRACTOR TO VERIFY LOCATION PRIOR TO EXCAVATION.

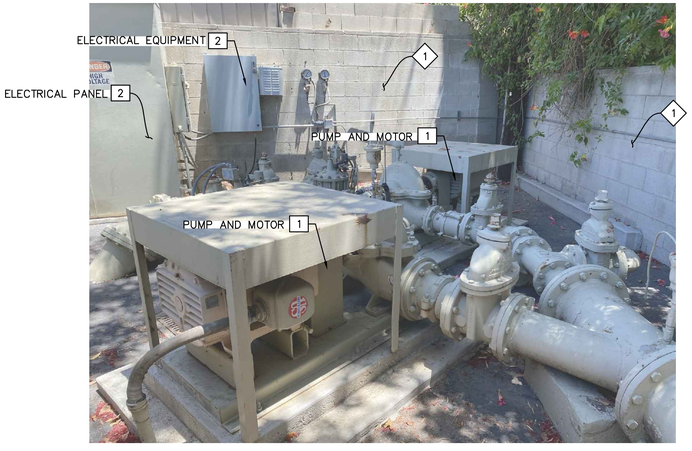
DEMOLITION NOTES:

1. SALVAGE AND RETURN TO OWNER
2. REMOVE AND DISPOSE ACCORDING TO SPECIFICATIONS
3. FILL VAULT WITH SAND
4. CUT 12" AC PIPE AND CAP WITH CONCRETE

PROTECTION NOTES:

1. BLOCK WALL
2. GATE
3. AIR VALVE





TAPO STREET PUMP STATION DEMOLITION PLAN

NO.	REVISION	PREP.	APPVD.	DATE

CITY OF SIMI VALLEY – VENTURA COUNTY WATERWORKS DISTRICT NO 8

ACCEPTED:

ASSIST. DIR./DIST. ENGINEER — DATE

DEPUTY DIRECTOR/WATERWORKS SERVICES — DATE

REVIEWED:

DATE

RECOMMENDED: PRINCIPAL ENGINEER — DATE

CITY OF SIMI VALLEY
DEPARTMENT OF PUBLIC WORKS

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

DESIGNED BY — DRAWN BY — DATE

TAPO STREET PUMP STATION DEMOLITION PLAN
VENTURA COUNTY WATERWORKS DISTRICT NO. 8
WALNUT AVENUE PUMP STATION
CP 980460

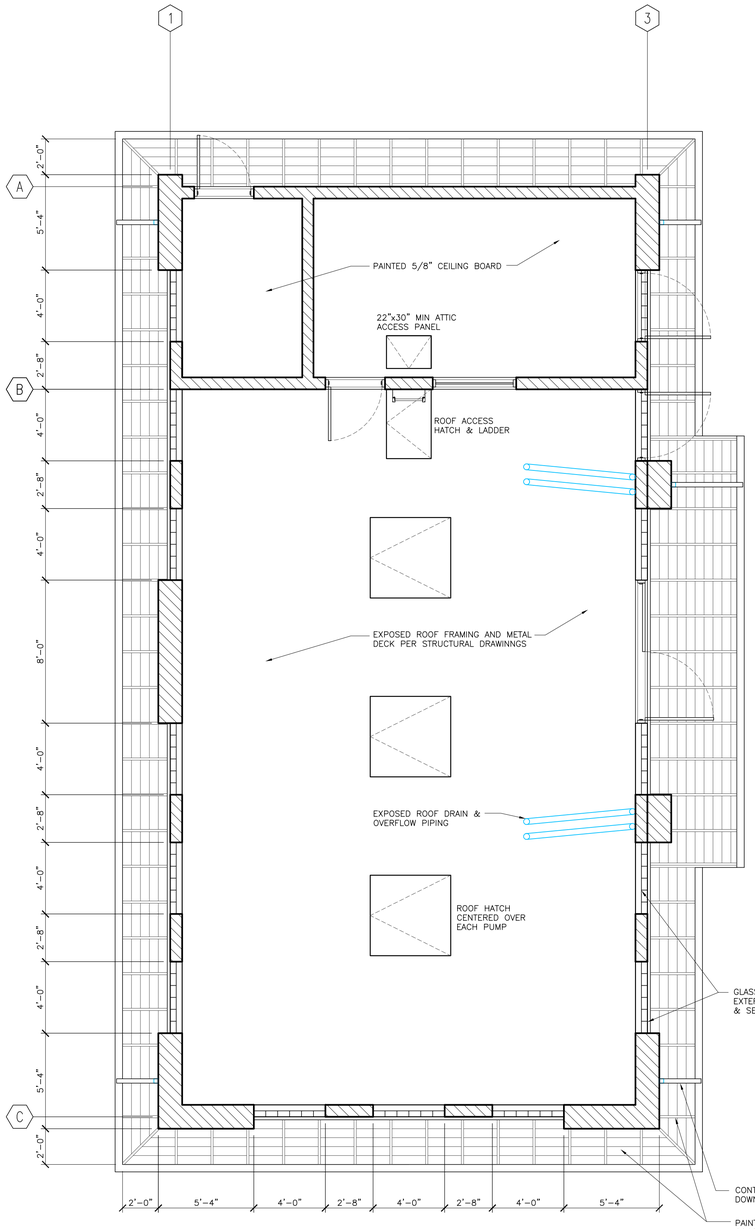
WATER PLAN SET ____ OF T
SHEET NUMBER 10 OF T

DRAWING NUMBER C-08

REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY — STATE OF CALIFORNIA

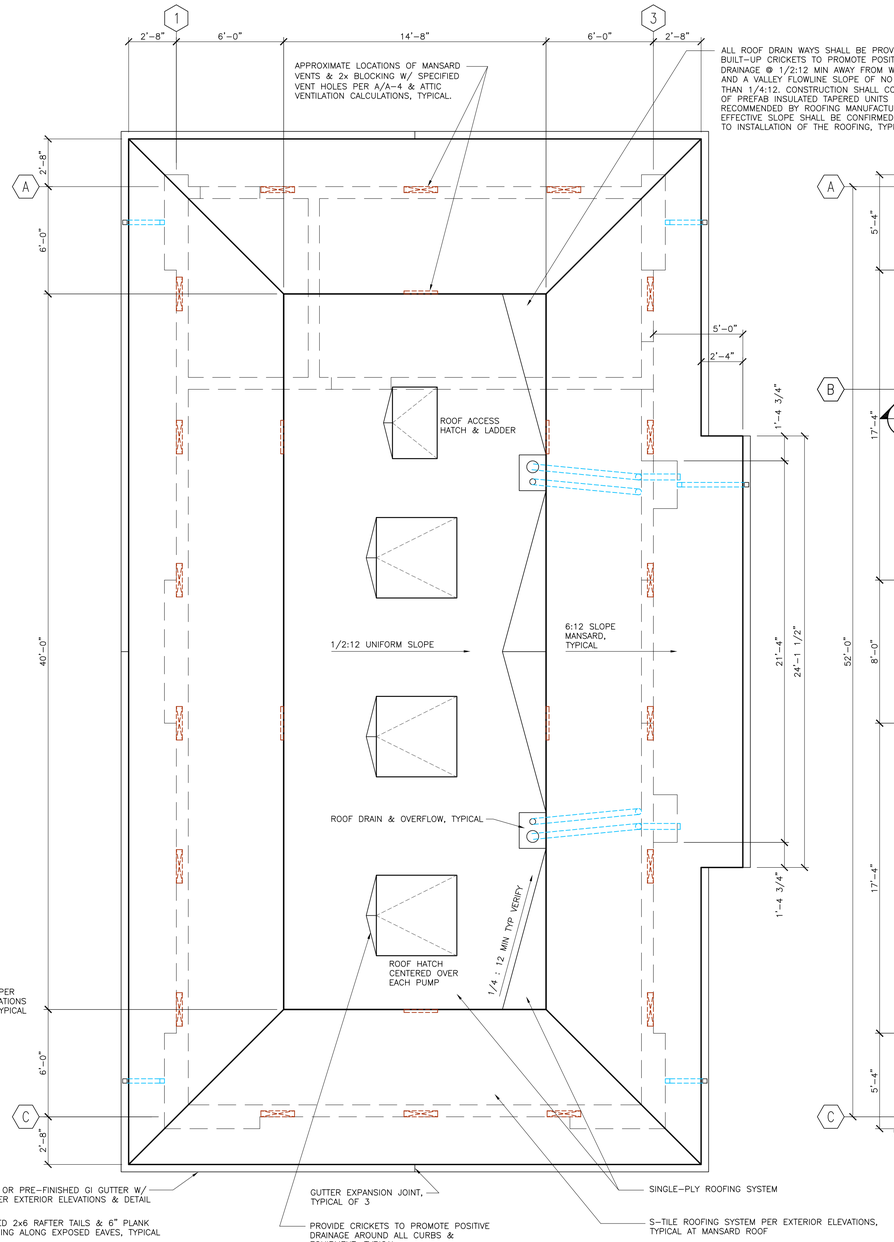
3802002-C-08.dwg Feb 22, 2022-8:13am

REV. 02/2020 RMI



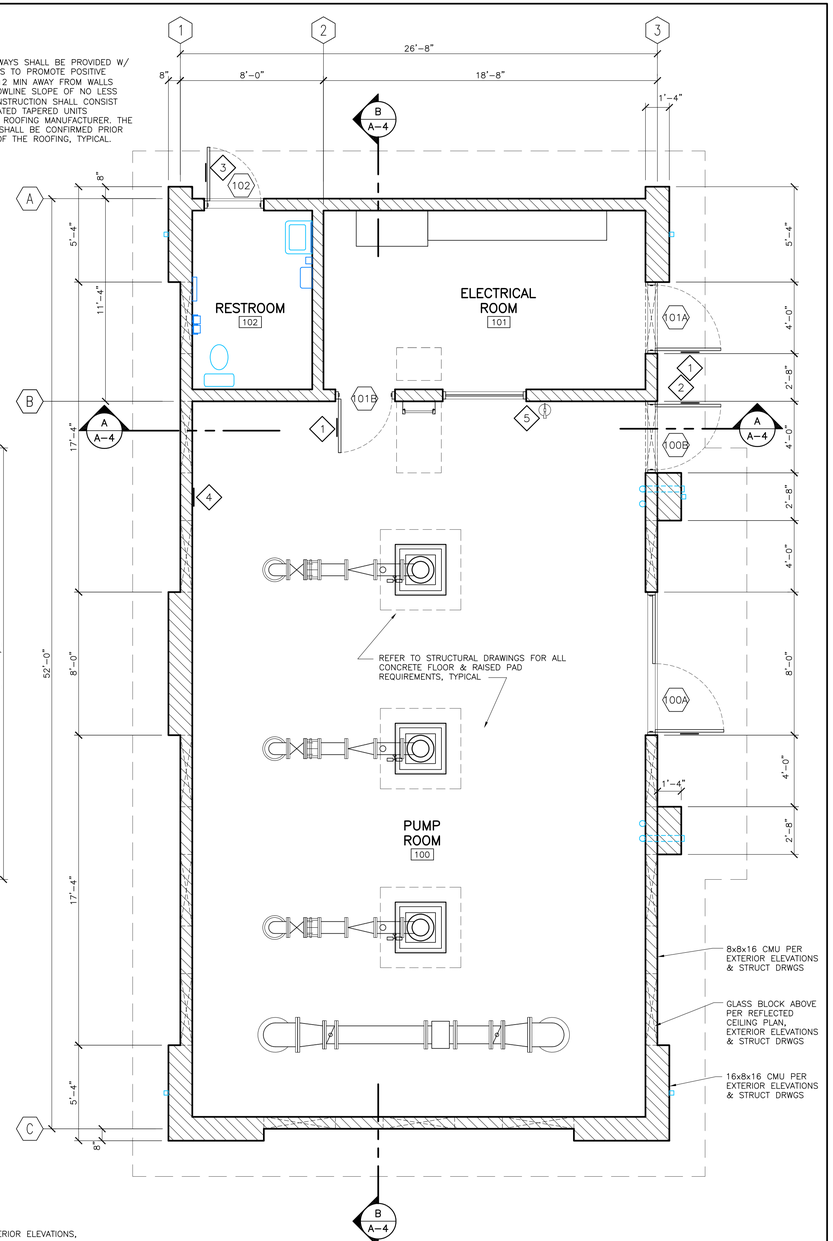
REFLECTED CEILING PLAN

1/4" = 1'-0"



ROOF PLAN

1/4" = 1'-0"



FLOOR PLAN

GSB SVWAPS ofp

1/4" = 1'-0"

KEYNOTE SCHEDULE

1	"ELECTRICAL ROOM" DOOR SIGNAGE. MOUNT CENTERED @ +60"
2	"PUMP ROOM" DOOR SIGNAGE. MOUNT CENTERED @ +60"
3	"RESTROOM" DOOR SIGNAGE. MOUNT CENTERED @ +60"
4	"NO SMOKING IN THIS BUILDING" SIGNAGE PER CFC 5003.7.1. MOUNT CENTERED @ +60". IF ANY LOCATION DISCREPANCIES ARISE, COORDINATE PLACEMENT SO AS NOT TO BLOCK VIEW OF SIGNAGE.
5	4A-80B:C MP FIRE EXTINGUISHER W/ MOUNTING BRACKET @ +60"

LICENSED ARCHITECT GREG S. BALDERREE NO. C27461 REN. 1-31-23 STATE OF CALIFORNIA

GSB ARCHITECTURE, INC.
Architecture • Interiors • Planning
Greg S. Balderree, AIA
Architect / CGBP / LEED AP
(916) 933-8033 GSB-Arch@comcast.net
8502 Lilliput Way El Dorado Hills, CA 95762

NO.	REVISION	PREP.	APPVD.	DATE

CITY OF SIMI VALLEY – VENTURA COUNTY WATERWORKS DISTRICT NO 8

ACCEPTED:		REVIEWED:	
ASSIST. DIR./DIST. ENGINEER	DATE	ENGINEER	DATE
DEPUTY DIRECTOR/WATERWORKS SERVICES	DATE	RECOMMENDED: PRINCIPAL ENGINEER	DATE

CITY OF SIMI VALLEY
DEPARTMENT OF PUBLIC WORKS

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

DESIGNED BY DRAWN BY DATE

FLOOR PLAN, ROOF PLAN, REFLECTED CEILING PLAN

VENTURA COUNTY WATERWORKS DISTRICT NO. 8
WALNUT AVENUE PUMP STATION

CP 980460

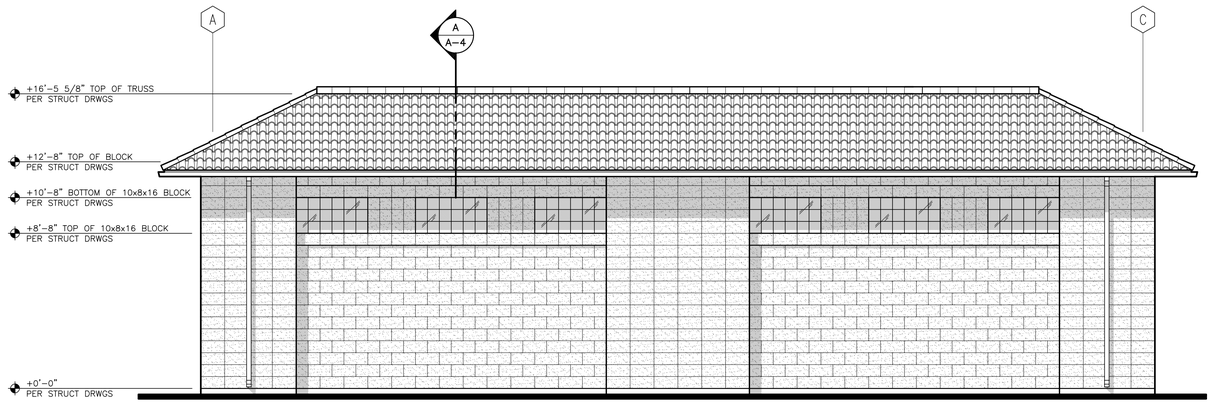
WATER PLAN SET ____ OF T

SHEET NUMBER ____ OF T

DRAWING NUMBER A-2

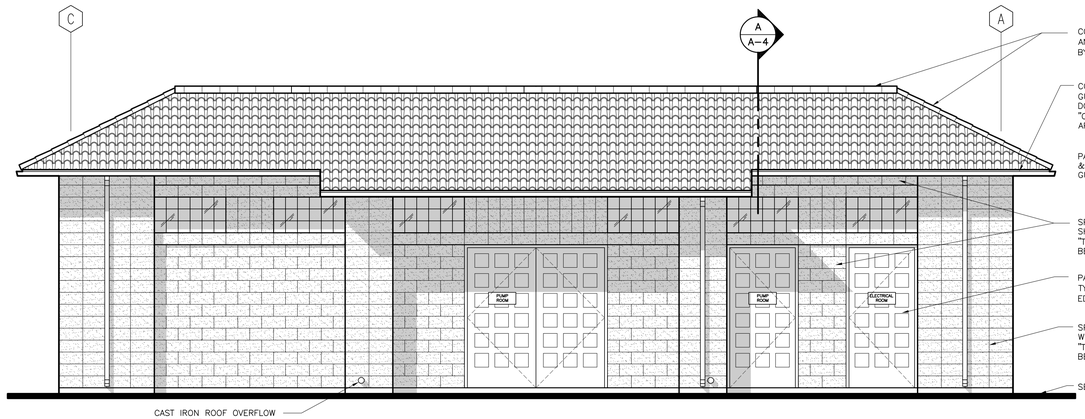
REV. 10/2020 RAH

GSB SVWAPS A-2 Floor Roof Ceiling Plans.dwg Feb 03, 2022-1:03pm



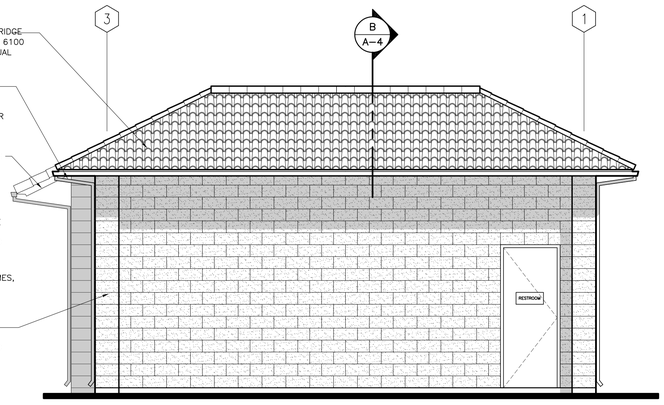
WEST ELEVATION

1/4"=1'-0"



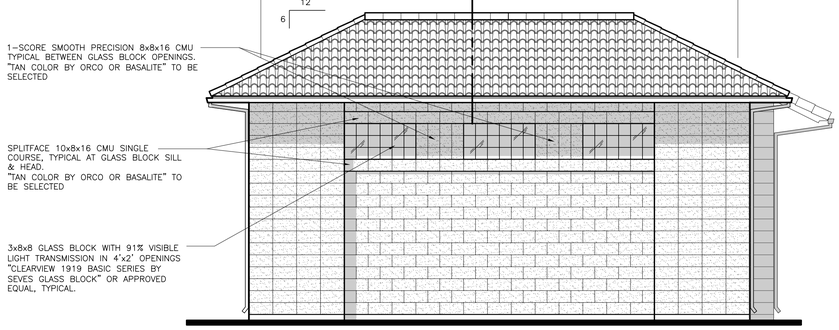
SOUTH ELEVATION

1/4"=1'-0"



EAST ELEVATION

1/4"=1'-0"

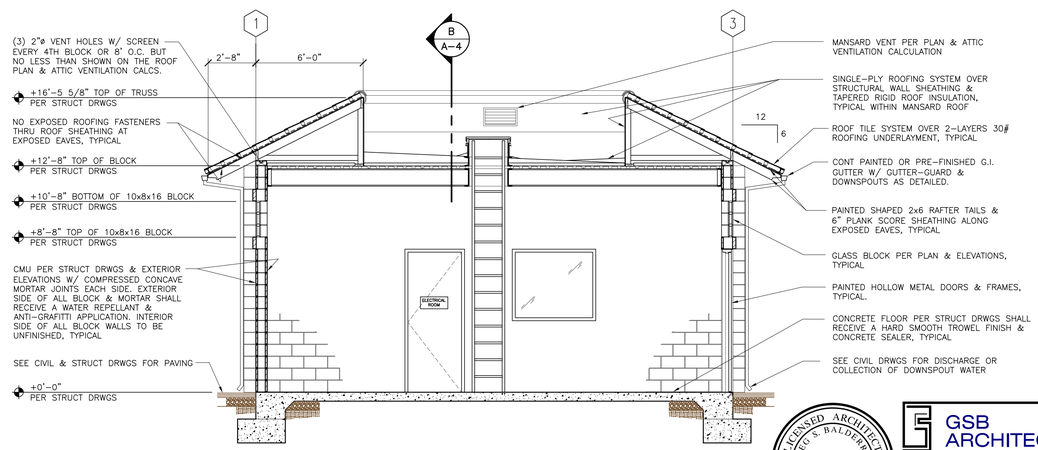


MASONRY FINISH NOTES

1. ALL CONCRETE MASONRY UNITS SHALL RECEIVE COMPRESSED CONCAVE MORTAR JOINTS EACH SIDE.
2. GROUT COLORS SHALL MATCH EACH BLOCK TYPE COLOR SO AS TO APPEAR JOINT-LESS.
3. EXTERIOR SIDES OF ALL MASONRY WALLS SHALL RECEIVE A PENETRATING WATER REPELLENT SYSTEM & COMPATIBLE ANTI-GRAFFITI COATING SYSTEM, TYPICAL.

NORTH ELEVATION

1/4"=1'-0"



A/A-4 TRANSVERSE SECTION

1/4"=1'-0"

LICENSED ARCHITECT GREG S. BALDERREE NO. C27461 REN. 1-31-23 STATE OF CALIFORNIA

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NO.	REVISION	PREP.	APPVD.	DATE

CITY OF SIMI VALLEY – VENTURA COUNTY WATERWORKS DISTRICT NO 8

ACCEPTED:

ASSIST. DIR./DIST. ENGINEER ____ DATE

DEPUTY DIRECTOR/WATERWORKS SERVICES ____ DATE

REVIEWED:

ENGINEER ____ DATE

RECOMMENDED: PRINCIPAL ENGINEER ____ DATE

CITY OF SIMI VALLEY
DEPARTMENT OF PUBLIC WORKS

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

DESIGNED BY DRAWN BY DATE

EXTERIOR ELEVATIONS & SECTIONS

VENTURA COUNTY WATERWORKS DISTRICT NO. 8
WALNUT AVENUE PUMP STATION

CP 980460

WATER PLAN SET ____ OF T

SHEET NUMBER ____ OF T

DRAWING NUMBER A-4

REV. 10/2020 RAH

CSB SVWAPS A-4 Elevations Sections.dwg Feb 03, 2022-1:40pm

INTENT OF DRAWINGS

1. TYPICAL DETAILS AND GENERAL NOTES ON THESE DRAWINGS APPLY TO ALL PARTS OF THE JOB EXCEPT WHERE SPECIFICALLY DETAILED OR NOTED OTHERWISE ON THEIR SHEET.

2. RESOLVE ANY CONFLICTS ON THE DRAWINGS WITH THE ARCHITECT AND ENGINEER BEFORE PROCEEDING WITH CONSTRUCTION. DIMENSIONS TAKE PRECEDENCE OVER SCALE OF DRAWINGS. HOWEVER, ANY SIGNIFICANT CONFLICTS SHOULD BE RESOLVED AS NOTED ABOVE.

3. VERIFY ALL DIMENSIONS AND CONDITIONS ON THE JOB. RESOLVE ANY CONFLICTS BETWEEN EXISTING CONDITIONS AND INFORMATION SHOWN ON THESE DRAWINGS WITH THE ARCHITECT AND ENGINEER BEFORE PROCEEDING WITH CONSTRUCTION.

4. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE THE MEANS OR METHODS OR SEQUENCES OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY BRACING, SHORING AND SUPPORT NECESSARY TO ACHIEVE THE FINISHED STRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING AND ENFORCING ALL CONSTRUCTION LOAD LIMITS ON THE STRUCTURE.

GENERAL

1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE DRAWINGS, GENERAL NOTES, AND SPECIFICATIONS.

2. ALL APPLICABLE REQUIREMENTS OF THE LOCAL CONSTRUCTION AND GENERAL INDUSTRY SAFETY ORDERS, THE OCCUPATIONAL SAFETY AND HEALTH ACT, AND THE CONSTRUCTION SAFETY ACT SHALL BE MET.

3. ALL ERECTION PROCEDURES SHALL CONFORM TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS. ANY DEVIATION MUST BE APPROVED BY OSHA PRIOR TO ERECTION.

4. ALL NECESSARY PERMITS, LICENSES, APPROVALS, FEES, NOTICES, ETC, SHALL BE OBTAINED PRIOR TO BEGINNING CONSTRUCTION.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE STRUCTURE DURING THE CONSTRUCTION PERIOD. ALL WALLS, FLOORS, AND ROOF MEMBERS SHALL BE SECURELY SHORED AND BRACED AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR SHALL RETAIN A REGISTERED CIVIL ENGINEER TO DESIGN ALL TEMPORARY SHORING, BRACING AND GUYS REQUIRED DURING CONSTRUCTION IN ACCORDANCE WITH ALL NATIONAL, STATE AND LOCAL SAFETY ORDINANCES.

6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING AND PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS, AND UTILITIES IN ACCORDANCE WITH ALL NATIONAL, STATE AND LOCAL SAFETY ORDINANCES.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITIES AGENCIES AS TO THE LOCATION OF ALL UNDERGROUND FACILITIES FOR THE PROTECTION OF AND REPAIR OF DAMAGE TO THEM. CALL "UNDERGROUND SERVICE ALERT" FORTY-EIGHT HOURS BEFORE DIGGING.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AND SHALL CHECK ALL DIMENSIONS. ALL DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT, ENGINEER, AND SHALL BE RESOLVED BEFORE PROCEEDING WITH THE WORK.

9. SHOP DRAWINGS REQUIRED BY THE CONTRACT DOCUMENTS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION. ALL SHOP DRAWINGS SHALL BE REVIEWED BY THE GENERAL CONTRACTOR BEFORE SUBMITTAL. THE ENGINEER'S REVIEW IS TO BE FOR CONFORMANCE WITH THE DESIGN CONCEPT AND GENERAL COMPLIANCE WITH THE RELEVANT CONTRACT DOCUMENTS. THE ENGINEER'S REVIEW DOES NOT RELIEVE THE CONTRACTOR OF THE SOLE RESPONSIBILITY TO REVIEW, CHECK AND COORDINATE THE SHOP DRAWINGS PRIOR TO SUBMISSION. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, DIMENSIONS, ETC.

10. ALL DETAILS DESIGNATED AS STANDARD OR TYPICAL SHALL APPLY TO ALL APPLICABLE CONDITIONS IN ADDITION TO OTHER SPECIFICALLY REFERENCED DETAILS AND SECTIONS.

11. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW BY THE ARCHITECT AND ENGINEER.

12. REFER TO CIVIL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR SIZE AND LOCATION OF ALL OPENINGS REQUIRED FOR DUCTS, PIPES AND PIPE SLEEVES, ELECTRICAL CONDUITS AND OTHER ITEMS TO BE EMBEDDED IN CONCRETE OR OTHERWISE INCORPORATED IN STRUCTURAL WORK. NO PIPE OR DUCTS SHALL BE EMBEDDED INTO STRUCTURAL MEMBERS UNLESS SHOWN ON THE PLANS.

13. ARCHITECTURAL, CIVIL, MECHANICAL, PLUMBING, AND ELECTRICAL PLANS ARE CONSIDERED A PART OF THE STRUCTURAL DESIGN DRAWINGS AND ARE TO BE USED TO DEFINE DETAIL CONFIGURATIONS INCLUDING, BUT NOT LIMITED TO RELATIVE LOCATION OF MEMBERS, ELEVATIONS, LOCATION OF ALL OPENINGS, ETC.

14. REFER TO ARCHITECTURAL PLANS FOR FLOOR DEPRESSIONS, OPENINGS, SLOPES, DRAINS, CURBS, PADS, EMBEDDED ITEMS, NON-BEARING PARTITIONS, STAIR HANGERS, ETC. REFER TO MECHANICAL, PLUMBING AND ELECTRICAL PLAN FOR SLEEVES, OPENINGS, AND HANGERS FOR PIPES, DUCTS AND EQUIPMENT.

TESTS, AND INSPECTIONS:

1. TESTS AND INSPECTIONS SHALL BE PROVIDED BY A QUALIFIED TESTING AGENCY AS REQUIRED BELOW AND SHALL CONFORM TO THE REQUIREMENTS OF THE **2019 CBC CHAPTER 17**.

2.

TESTS:	INSPECTIONS:
☒ FILL COMPACTION	☒ SPECIAL GRADING, EXCAVATION AND FILLING
☒ REINFORCING STEEL	☐ PILE/PIER INSTALLATION
☒ CONCRETE	☒ REINFORCEMENT PLACEMENT
☒ STRUCTURAL STEEL	☒ CONCRETE PLACEMENT
☒ EPOXY AND EXPANSION ANCHORS	☒ SHOP WELDING
☐ SHOTCRETE	☒ FIELD WELDING
☒ MASONRY	☒ HIGH STRENGTH BOLTING
☒ GROUT AND MORTAR	☒ MASONRY PLACEMENT AND GROUTING
	☒ SHEAR STUD INSTALLATION
	☒ EPOXY AND EXPANSION ANCHORS
	☐ SHOTCRETE
	☒ ANCHOR BOLT SIZE AND PLACEMENT

DESIGN CRITERIA

1. CODES AND STANDARDS:

   2019 CALIFORNIA BUILDING CODE (CBC)

   ASCE 7-16 MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES

   ACI 318-14 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE

   2016 TMS 402/602-16 BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES

   AISC 360-16 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS

2. ROOF DEAD LOADS:

   FLAT ROOF DEAD LOAD = XX PSF
   (STEEL FRAMING WITH METAL DECK)

   MANSARD ROOF DEAD LOAD = XX PSF

3. LIVE LOADS:

   ROOF LIVE LOAD = 20.0 PSF (REDUCIBLE)

4. WIND LOADS:

   RISK CATEGORY III
   BASIC WIND SPEED, = XX MPH
   EXPOSURE CATEGORY = C
   TOPOGRAPHIC FACTOR, K_{ZT} = 1.0

5. SEISMIC DESIGN PARAMETERS:

   SITE SPECIFIC RESPONSE ACCELERATION PARAMETERS

   SITE CLASS D

   SEISMIC DESIGN CATEGORY D

   RISK CATEGORY III

   IMPORTANCE FACTOR, I_E = 1.25

   S_S = 2.147 S_{MS} = 2.155 S_{DS} = 1.437
   S_1 = 0.726 S_{M1} = 1.797 S_{D1} = 1.198

   BEARING WALL SYSTEM - SPECIAL REINFORCED MASONRY SHEAR WALLS

   R = 5.0 Ω_0 =2.5 C_d = 3.5

REINFORCING STEEL

1. ALL REINFORCING STEEL SHALL CONFORM TO ASTM STANDARD AS NOTED:

TYPICAL REBAR:	A615 GRADE 60
REBAR WHERE SPECIFICALLY NOTED:	A615 GRADE 40
REBAR TO BE WELDED:	A706 GRADE 60

2. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. MINIMUM LAP AT SPLICES SHALL BE 12 INCHES.

3. ALL CONCRETE SHALL BE REINFORCED UNLESS SPECIFICALLY NOTED "NOT REINFORCED" IN THE DRAWINGS. IF REINFORCING BARS ARE NOT SHOWN OR NOTED, PROVIDE SAME REINFORCEMENT AS FOR SIMILAR CONDITIONS ELSEWHERE IN THE WORK, OR AS DIRECTED BY THE ENGINEER.

4. REINFORCEMENT BARS #5 AND LARGER SHALL NOT BE SPLICED EXCEPT AS DETAILED AND LOCATED ON DRAWINGS. #4 AND SMALLER BARS WITH LENGTH NOT SHOWN SHALL BE CONTINUOUS, LAPPING IN CONCRETE 1'-6" MINIMUM. WALL HORIZONTAL REINFORCEMENT SPLICES SHALL BE STAGGERED, VERTICAL REINFORCEMENT SHALL BE SPLICED ONLY AT HORIZONTAL SUPPORTS, SUCH AS ROOF OR FLOOR UNLESS OTHERWISE NOTED ON DRAWINGS. ALL SPLICES SHALL BE CLASS B UNLESS OTHERWISE NOTED.

5. ANCHOR BOLTS, DOWELS, AND OTHER EMBEDDED ITEMS SHALL BE ACCURATELY SET IN PLACE AND FIRMLY SUPPORTED BEFORE CONCRETE IS POURED.

6. REINFORCEMENT BARS SHALL BE ACCURATELY PLACED AND FIRMLY SUPPORTED USING TIES AND SUPPORT BARS IN ADDITION TO REINFORCEMENT SHOWN WHERE FIRM AND ACCURATE PLACING IS NECESSARY AS SPECIFIED IN THE ACI STANDARDS. DOWELS SHOULD BE PROVIDED TO MATCH ALL REINFORCEMENT AT CONSTRUCTION JOINTS UNLESS OTHERWISE NOTED.

7. NO REINFORCEMENT WELDING (TACK WELDING INCLUDED) SHALL BE DONE UNLESS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER.

8. ALL DIMENSIONS SHOWN FOR LOCATION OF REINFORCING ARE TO THE FACE OF BARS AND DENOTE CLEAR COVERAGE UNLESS OTHERWISE NOTED.

9. MINIMUM CONCRETE COVERAGE OF REINFORCING STEEL SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED ON PLANS:

   CONCRETE CAST AGAINST EARTH 3"

   FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6-#18 BARS 2"
   #5 BAR AND SMALLER 1 1/2"

   FORMED CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
   BARS IN SLABS AND WALLS 3/4"
   BARS IN BEAMS AND COLUMNS 1 1/2"

   SLABS ON GRADE: 3/4" (FROM TOP)

10. DRAWINGS SHOW TYPICAL REINFORCING CONDITIONS. CONTRACTOR SHALL PREPARE DETAILED PLACEMENT DRAWINGS OF ALL CONDITIONS SHOWING QUANTITY, SPACING, SIZES, CLEARANCE, LAPS, INTERSECTIONS AND COVERAGE REQUIRED BY STRUCTURAL DETAILS, APPLICABLE CODE AND TRADE STANDARDS. CONTRACTOR SHALL NOTIFY REINFORCING INSPECTOR OF ANY ADJUSTMENTS FROM TYPICAL CONDITIONS WHICH ARE PROPOSED IN PLACEMENT DRAWINGS TO FACILITATE FIELD PLACEMENT OF REINFORCING STEEL AND CONCRETE.

FOUNDATION AND GEOTECHNICAL DESIGN CRITERIA

1. FOUNDATION WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE 2019 CBC, ALL APPLICABLE LOCAL CODES, AND THE REFERENCED GEOTECHNICAL REPORT WHERE PROVIDED.
2. THE FOUNDATION DESIGN IS BASED ON THE GEOTECHNCIAL RECOMMENDATIONS PROVIDED IN THE FOLLOWING GEOTECHNICAL REPORT

TITLE:	GEOTECHNICAL EVALUATION WALNUT AVENUE PUMP STATION CITY OF SIMI VALLEY, COUNTY WATER WORKS DISTRICT NO 8 SIMI VALLEY, CALIFORNIA
BY:	NINYO & MOORE
PROJECT No.	211684001
DATE:	JULY 23, 2021

3. GEOTECHNICAL DESIGN PARAMETERS

   SITE ALLOWABLE BEARING PRESSURE

   CONTINUOUS AND SPREAD FTGS = 3000 PSF

   MATTRESS SLAB FOUNDATIONS = 4000 PSF
   MODULUS OF SUBGRADE REACTION = 120 KCF

   LATERAL RESISTANCE

   PASSIVE RESISTANCE = 350 PSF/FT

   COEFFICIENT OF FRICTION = 0.35
   (COMBINED WITH PASSIVE) = 0.35 x 0.50 = 0.18

4. FOUNDATION EXCAVATIONS SHALL BE EXAMINED AND CERTIFIED BY THE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE PRIOR TO THE PLACEMENT OF ANY REINFORCING STEEL OR CONCRETE.

5. FOUNDATION EXCAVATIONS SHALL BE CLEANED OF ANY LOOSENED SOILS AND STANDING WATER BEFORE PLACING STEEL OR CONCRETE.

6. BOTTOM OF FOOTING SHALL BE STEPPED IF NECESSARY TO PROVIDE LEVEL BEARING.

7. FORM FOOTINGS AS NECESSARY.

8. COMPACTION: MATERIAL FOR FILLING AND BACKFILLING SHALL CONSIST OF THE EXCAVATED MATERIAL AND/OR IMPORTED BORROW AND SHALL BE FREE OF ORGANIC MATTER, TRASH, LUMBER OR OTHER DEBRIS. COMPACT FILL TO AT LEAST 90 PERCENT OF THE ASTM D1559 MAXIMUM DRY DENSITY.

9. EARTH SHALL BE COMPACTED UNDER ALL SLABS AND AROUND ALL FOOTINGS.

10. UNEXPECTED SOIL CONDITIONS: FOUNDATION DESIGN IS BASED UPON SOIL CONDITIONS NORMALLY ENCOUNTERED ON LOTS SUITABLE FOR CONSTRUCTION OF THESE TYPES OF STRUCTURES. WHERE SOIL CONDITIONS ARE ENCOUNTERED THAT ARE SUSPECT WITH REGARD TO THE SUITABILITY OR CAPACITY OF SOIL TO SUPPORT THE STRUCTURE IN THE OPINION OF THE CONTRACTOR OR BUILDING INSPECTOR, NOTIFY THE ARCHITECT/ENGINEER IN A TIMELY FASHION. THE ARCHITECT/ENGINEER MAY THEN RECOMMEND TO THE OWNER TO EMPLOY THE SERVICES OF THE GEOTECHNICAL ENGINEER TO PROVIDE SPECIFIC RECOMMENDATIONS FOR FURTHER FOUNDATION PREPARATION.

DEFERRED SUBMITTALS

1. FOLLOWING IS A LIST OF DEFERRED SUBMITTAL ITEMS.

   A. ELECTRICAL EQUIPMENT ANCHORAGE

   B. MECHANICAL EQUIPMENT ANCHORAGE

   C. PUMP ANCHORAGE

   D. PIPE SUPPORT ANCHORAGE

   E. XXXXX

2. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND CALCULATIONS FOR THE DEFERRED SUBMITTAL ITEMS TO THE ENGINEER FOR REVIEW PRIOR TO SUBMITTAL TO THE BUILDING AUTHORITY.

3. DEFERRED SUBMITTAL SHOP DRAWINGS AND CALCULATIONS SHALL BE STAMPED AND SIGNED BY A CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA.

4. DO NOT DELIVER PRODUCTS TO THE JOB SITE WITHOUT BUILDING AUTHORITY APPROVAL.

CONCRETE

1. ALL STRUCTURAL CONCRETE UNLESS OTHERWISE NOTED SHALL HAVE A DENSITY OF 150 PCF AGGREGATES AND SHALL CONFORM TO ASTM C33 WITH PROVEN SHRINKAGE CHARACTERISTICS OF LESS THAN 0.05%.

2. ALL CONCRETE SHALL DEVELOP MINIMUM COMPRESSIVE STRENGTHS AT THE END OF 28 DAYS AS FOLLOWS:

	STRENGTH	MAX W/CM	AGGREGATE
FOOTINGS, SLABS AND STEM WALLS	4500 PSI	0.45	3/4"
CONC FILLED METAL DECK	4500 PSI	0.45	3/4"
NON STRUCTURAL	3500 PSI	0.55	3/4"

3. STRENGTHS AND WATER TO CEMENT (W/CM) RATIOS SHOWN ARE MINIMUM REQUIREMENTS AND MAY REQUIRE MORE RESTRICTIVE REQUIREMENTS DUE TO DURABILITY REQUIREMENTS.

4. ALL CEMENT SHALL CONFORM TO ASTM C150 TYPE II MINIMUM. FLY ASH SHALL CONFORM TO ASTM C618 AND SHALL NOT EXCEED 25% OF THE TOTAL CEMENTITIOUS MATERIAL.

5. MINIMUM DURABILITY REQUIREMENTS PER ACI 318-14 SECTIONS 19.3 AND 19.4 SHALL BE MET.

6. ADMIXTURES SHALL COMPLY WITH ASTM C494 AND BE OF A TYPE THAT INCREASES THE WORKABILITY OF THE CONCRETE BUT SHALL NOT BE CONSIDERED TO REDUCE THE SPECIFIED MINIMUM CEMENT CONTENT (CALCIUM CHLORIDE SHALL NOT BE USED).

7. CONCRETE MIXTURE PROPORTIONS SUBMITTAL SHALL BE PREPARED BY AN INDEPENDENT LABORATORY, STAMPED BY A LICENSED ENGINEER, AND SUBMITTED FOR REVIEW BY THE STRUCTURAL ENGINEER. CONCRETE MIXTURE PROPORTIONS SHALL BE ESTABLISHED IN ACCORDANCE WITH ARTICLE 4.2.3 OF ACI 301-10 OR BY ALTERNATIVE METHOD ACCEPTABLE TO THE STRUCTURAL ENGINEER.

8. PLACEMENT OF CONCRETE SHALL BE IN CONFORMANCE WITH THE ACI 301-10.

9. SET FLOOR SCREEDS TO REQUIRED ELEVATIONS DURING CONCRETE POURING TO COMPENSATE FOR FORM SETTLEMENT.

10. CONCRETE SHALL BE MAINTAINED ABOVE 50°F AND IN A CONTINUOUSLY MOIST CONDITION FOR AT LEAST (7) DAYS AFTER PLACEMENT OR CONTRACTOR SHALL USE OTHER CURING TECHNIQUES TO ENSURE STRUCTURAL INTEGRITY, SERVICEABILITY AND TO MINIMIZE SURFACE CRACKING.

11. CONTROL JOINTS SHALL BE LOCATED AND FORMED AS SHOWN ON THE DRAWINGS. SLAB CONTROL JOINTS SHALL BE PLACED AT POINTS OF LOW STRESS AS WELL AS LOCATED TO MINIMIZE EFFECTS OF SHRINKAGE. KEY AND DOWEL SLAB CONSTRUCTION JOINTS AS SHOWN ON THE PLANS. ALL CONSTRUCTION JOINTS SHALL BE CLEANED THOROUGHLY AND ALL LAITANCE SHALL BE REMOVED FROM THE SURFACE. ALL VERTICAL JOINTS SHALL BE THOROUGHLY WETTED AND SLUSHED WITH A COAT OF NEAT CEMENT OR BONDING AGENT IMMEDIATELY BEFORE POURING NEW CONCRETE.

CONCRETE MASONRY

1. CONCRETE MASONRY SYSTEM COMPRESSIVE STRENGTH f'm = 2000 PSI.

2. CONCRETE BLOCK, CMU CONFORMING TO ASTM C90 WITH A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI.

3. MORTAR, TYPE S, CONFORMING TO ASTM C270 WITH A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI AT 28 DAYS.

4. GROUT, CONFORMING TO ASTM C476 MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI AT 28 DAYS WITH A FLUID CONSISTENCY. GROUT ALL CELLS SOLID.

5. PROVIDE TEST AS MAY BE REQUIRED BY THE BUILDING OFFICIAL.

6. THE THICKNESS OF GROUT BETWEEN BLOCK UNITS AND REINFORCING STEEL SHALL BE NOT LESS THAN 5/8" AND BETWEEN PARALLEL REINFORCING BARS, NOT LESS THAN 3/4".

7. IF WORK IS STOPPED ONE HOUR OR LONGER, PROVIDE HORIZONTAL CONSTRUCTION JOINTS BY STOPPING THE GROUT 1 ½" BELOW THE TOP OF THE BLOCK.

8. CONTINUOUS INSPECTION BY AN INSPECTOR APPROVED BY THE ARCHITECT (OR) ENGINEER AND THE BUILDING DEPARTMENT IS REQUIRED.

9. REFER TO REINFORCING STEEL NOTES AND STANDARD DETAILS FOR REBAR REQUIREMENTS.

10. LAP ALL BARS 48 BAR DIAMETERS UNLESS OTHERWISE NOTED.

11. BEFORE BLOCK IS PLACED ON CONCRETE, THOROUGHLY CLEAN CONCRETE OF ALL LAITANCE AND ALL LOOSE MATERIAL. ROUGHEN AS IN A CONCRETE CONSTRUCTION JOINT.

12. CLEAN OUT OPENINGS SHALL BE PROVIDE AT THE BOTTOMS OF ALL CELLS TO BE FILLED AT EACH LIFT OR POUR OF GROUT WHERE SUCH LIFT OR POUR OF GROUT IS IN EXCESS OF 4'-0" IN HEIGHT. ANY OVERHANGING MORTAR OR OTHER OBSTRUCTION OR DEBRIS SHALL BE REMOVED FROM INSIDE OF SUCH CELLS. THE CLEANOUTS SHALL BE SEALED AFTER INSPECTION AND BEFORE GROUTING. VIBRATE AND REVIBRATE EACH LIFT.

13. UNLESS OTHERWISE NOTED ON THE DRAWINGS, WALL REBAR SHALL BE #5@16" VERTICAL AND #5@24" HORIZONTAL, WITH ADDED BARS AT JAMBS AND HEADERS AS SHOWN PER TYPICAL DETAILS.

14. GROUT ALL CELLS SOLID.

15. MASON SHALL PLACE EXPANSION JOINTS IN WALLS LOCATED TO LEAST IMPAIR THE STRUCTURE, NOT TO EXCEED 40'-0".

16. BLOCK SHALL BE LAID IN RUNNING BOND.

REGISTERED PROFESSIONAL ENGINEER ANTHONY E. ... 2020 STRUCTURAL ... OF CALIFORNIA — PRELIMINARY

NO.	REVISION	PREP.	APPVD.	DATE

CITY OF SIMI VALLEY – VENTURA COUNTY WATERWORKS DISTRICT NO 8

ACCEPTED:

ASSIST. DIR./DIST. ENGINEER DATE

DEPUTY DIRECTOR/WATERWORKS SERVICES DATE

REVIEWED:

DATE

RECOMMENDED: PRINCIPAL ENGINEER DATE

CITY OF SIMI VALLEY
DEPARTMENT OF PUBLIC WORKS

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

DESIGNED BY DRAWN BY DATE

STRUCTURAL NOTES 1

VENTURA COUNTY WATERWORKS DISTRICT NO. 8
WALNUT AVENUE PUMP STATION

CP 980460

WATER PLAN SET _____ OF T

SHEET NUMBER 16 OF T

DRAWING NUMBER S-01

REV. 02/2020 RAH

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ABBREVIATIONS

AB	ANCHOR BOLT
ABV	ABOVE
ACI	AMERICAN CONCRETE INSTITUTE
ADDL	ADDITIONAL
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	ALTERNATE
ALUM	ALUMINUM
ANCH	ANCHOR, ANCHORAGE
APPROX	APPROXIMATE
ARCH	ARCHITECT, ARCHITECTURAL
A/E	ARCHITECT/ENGINEER
ASPH	ASPHALT
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
BD	BOARD
BN	BOUNDARY NAILING
BTWN	BETWEEN
BLDG	BUILDING
BLKG	BLOCKING
BLW	BELOW
BM	BEAM
BOT	BOTTOM
BP	BASE PLATE
BRG	BEARING
BRKT	BRACKET
BOF	BOTTOM OF FRAMING
BOS	BOTTOM OF STEEL
CC	CENTER TO CENTER
CANT	CANTILEVER
CAP	CAPACITY
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT
℄	CENTERLINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONST	CONSTRUCTION
CONN	CONNECTION
CONT	CONTINUOUS
CTR	CENTER
CTSK	COUNTERSUNK
CF	CUBIC FEET
CY	CUBIC YARD
DBL	DOUBLE
DEMO	DEMOLITION
DET	DETAIL
DIAG	DIAGONAL
DIA	DIAMETER
DIM	DIMENSION
DO	DITTO (REPEAT)
d	BAR DIAMETER
DWGS	DRAWINGS
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
EN	EDGE NAILING
ENGR	ENGINEER
EOR	ENGINEER OF RECORD
EQ	EQUAL
EQUIP	EQUIPMENT
EW	EACH WAY
(E)	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FDN	FOUNDATION
FIN	FINISH, FINISHED
FLR	FLOOR
FN	FIELD NAILING
FO	FACE OF
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOW	FACE OF WALL
FP	FIREPROOF
FS	FAR SIDE
FT	FOOT, FEET
FTG	FOOTING, FITTING
GA	GAUGE, GAGE
GALV	GALVANIZED
GLB	GLUE LAMINATED BEAM
GYP BD	GYPSUM BOARD
HDR	HEADER
HEX	HEXAGONAL
HGR	HANGER
HT	HEIGHT
HORIZ	HORIZONTAL
HSB	HIGH STRENGTH BOLTS
HSS	HOLLOW STRUCTURAL SECTION
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
IF	INSIDE FACE
IN	INCH
INT	INTERIOR
JF	JOINT FILLER
JST	JOIST
JT	JOINT
KIP	KILOPOUND (1000 POUNDS)
KO	KNOCKOUT
KS	KING STUD
L	ANGLE
LAM	LAMINATED
LAT	LATERAL
LB	POUND (WEIGHT)
LONG	LONGITUDINAL
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LSL	LAMINATED STRAND LUMBER
LT WT	LIGHTWEIGHT
LVL	LAMINATED VENEER LUMBER
LWC	LIGHT WEIGHT CONCRETE
MAS	MASONRY
MAT	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MBM	METAL BUILDING MANUFACTURER
MECH	MECHANICAL
MEMB	MEMBRANE
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
(N)	NEW
NS	NEAR SIDE
NTS	NOT TO SCALE
NO	NUMBER
oc	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OPNG	OPENING
OPP	OPPOSITE
OH	OPPOSITE HAND
PAF	POWDER ACTUATED FASTENERS
PAR	PARALLEL
PARTN	PARTITION
PCF	POUNDS PER CUBIC FOOT
PERIM	PERIMETER
PERP	PERPENDICULAR
℄	PLATE
PLF	POUNDS PER LINEAL FOOT
PLYWD	PLYWOOD
PN	PLATE NAILING
PP	PARTIAL PEN
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALLEL STRAND LUMBER
PT	PRESERVATIVE/PRESSURE TREATED
QUAL	QUALITY
QTY	QUANTITY
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
REINF	REINFORCEMENT
REQD	REQUIRED
REV	REVISION
SAD	SEE ARCHITECTURAL DRAWINGS
SCH	SCHEDULE
SECT	SECTION
SF	SQUARE FOOT
SHTG	SHEATHING
SIM	SIMILAR
SMS	SHEET METAL SCREW
SN	SOLE NAILING
SOG	SLAB ON GROUND
SPECS	SPECIFICATIONS
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STGR	STAGGER
STIFF	STIFFENER
STL	STEEL
STRUCT	STRUCTURAL
SUSP	SUSPENDED
SW	SHEARWALL
SYM	SYMMETRICAL
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
THK	THICK, THICKNESS
THRU	THROUGH
TOC	TOP OF CONCRETE
TOF	TOP OF FRAMING
TOS	TOP OF STEEL
TR	TRIMMER
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
VERT	VERTICAL
w/	WITH
w/o	WITHOUT
WD	WOOD
WF	WIDE FLANGE
WDW	WINDOW
WP	WORKING POINT
WTPF	WATERPROOF
WS	WATER STOP
WT	WEIGHT
WWF	WELDED WIRE FABRIC
XS	EXTRA STRONG

STRUCTURAL STEEL

1. STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST EDITIONS OF AISC SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS, AND CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES.

2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS AND GRADES:

   WIDE FLANGE BEAMS AND COLUMNS: ASTM A992, GRADE 50
   CHANNELS, ANGLES AND PLATES: ASTM A36
   ROUND STEEL PIPE: ASTM A53, TYPE E OR S, GRADE B
   RECTANGULAR STRUCTURAL TUBING: ASTM A500, GRADE B

3. MACHINE BOLTS SHALL BE GRADE "A" CONFORMING TO ASTM A307, UON. ANCHOR BOLTS SHALL BE GRADE 36 CONFORMING TO ASTM F1554, UON. NUTS SHALL BE STANDARD HEX, GRADE A, CONFORMING TO ASTM A563.

4. ALL BOLTED CONNECTIONS SHALL HAVE A MINIMUM OF TWO HIGH STRENGTH BOLTS CONFORMING TO ASTM A325 UNLESS SHOWN OTHERWISE. NUTS FOR HIGH STRENGTH BOLTS SHALL BE HEAVY HEX, GRADE C, CONFORMING TO ASTM A563.

5. "SLIP-CRITICAL" BOLTED CONNECTIONS:

   A. "SLIP-CRITICAL" CONNECTIONS (A325 SC DESIGN VALUES WITH SPECIAL INSPECTION) ARE REQUIRED AT ALL MOMENT FRAME CONNECTIONS, AT ALL CONNECTIONS ALONG CHORD LINES AND DRAG LINES (AS NOTED ON PLANS), AND AT ALL BOLTS IN OVERSIZED OR SLOTTED HOLES.

   B. THE SPECIAL INSPECTOR MUST BE PRESENT DURING THE ENTIRE INSTALLATION AND TIGHTENING OPERATION OF "SLIP- CRITICAL" CONNECTIONS.

6. WELDING SHALL BE DONE BY A PROCESS APPROVED BY THE ENGINEER AND THE BUILDING DEPARTMENT. WELDERS SHALL BE CERTIFIED IN ACCORDANCE WITH AWS D1.1 LATEST EDITION.

7. A SEQUENCE OF FIELD WELDING SHALL BE PLANNED TO MINIMIZE LOCKED-IN STRESSES AND DISTORTION.

8. WELDING SHALL CONFORM TO AWS D1.1 LATEST EDITION.

9. LENGTHS OF WELDS SHOWN ARE EFFECTIVE LENGTHS AS SPECIFIED IN AWS D1.1. WHERE LENGTH OF WELD IS NOT SHOWN IT SHALL BE FULL LENGTH OF JOINT. ALL BUTT WELDS SHALL BE FULL PENETRATION UNLESS NOTED OTHERWISE.

10. WHERE MINIMUM AISC FILLET WELD THICKNESS REQUIREMENTS EXCEED WELDS SHOWN ON DETAILS, PROVIDE MINIMUM AISC WELD.

11. ALL SHOP WELDING SHALL BE PERFORMED IN AN APPROVED FABRICATOR'S SHOP IN ACCORDANCE WITH CBC 1705A.2.5

12. ELECTRODES: AWSD1.1 E70XX SERIES AS REQUIRED FOR INTENDED USE.

13. AFTER FABRICATION, ALL STEEL SHALL BE CLEANED FREE OF RUST, LOOSE MILL SCALE AND OIL AND GIVEN ONE SHOP COAT OF RUST INHIBITIVE PRIMER. AFTER ERECTION, GIVEN A FIELD TOUCH-UP COAT OF THE PRIMER USED FOR THE SHOP COAT. OMIT PAINT ON PART OF STEEL TO BE EMBEDDED IN CONCRETE, FIELD WELDED, OR TO RECEIVE A "SLIP-CRITICAL" TYPE HIGH STRENGTH BOLT.

14. SHOP DRAWINGS: CONTRACTOR SHALL PREPARE STEEL SHOP DRAWINGS INDICATING PROFILES, SIZES, SPACING, LOCATIONS OF STRUCTURAL MEMBERS, OPENINGS, ATTACHMENTS, CONNECTIONS AND CAMBERS.

15. REFER TO PLAN FOR STEEL MEMBERS WHICH REQUIRE GALVANIZING.

METAL DECK NOTES

1. PROVIDE METAL DECKING OF TYPE AND GAUGE AS SHOWN ON PLANS, INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

2. METAL FLOOR DECK SHALL COMFORM TO ASTM A-653-SS, GRADE 33 WITH MINIMUM YIELD STRENGTH OF 38 KSI AND SHALL BE ZINC COATED WITH A G60 GRADE COATING, U.O.N.

3. METAL ROOF DECK SHALL CONFORM TO ASTM A-653-SS, GRADE 33 WITH MINIMUM YIELD STRENGTH OF 38 KSI AND SHALL BE ZINC COATED WITH A G60 GRADE COATING, U.O.N.

4. ALL NECESARY ACCESSORY ITEMS SUCH AS CLOSURE CLIPS, ROOF SUMP RECESSES, ETC. SHALL BE GALVANIZED, FURNISHED AND INSTALLED AS REQUIRED.

5. PRIOR TO FABRICATION, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE METAL DECKING, SHOWING DECK GAUGE, SIZE AND LAYOUT AS WELL AS CLOSURE CONDITIONS, WELDS TO SUPPORTS AND SIDE LAP DETAILS.

6. CONNECTION AND WELDING OF DECKING TO STRUCTURAL SUPPORTS AND DECK SIDE SEAMS SHALL BE AS SPECIFIED IN THE STRUCTURAL DRAWINGS.

7. ALL WELDING SHALL BE IN CONFORMANCE WITH THE LATEST EDITION OF AWS D1.3 USING E60XX ELECTRODES AND SHALL BE PERFORMED BY CERTIFIED LIGHT GAUGE WELDERS THOROUGHLY EXPERIENCED IN WELDING LIGHT GAUGE STRUCTURAL METAL. SPECIAL INSPECTION IS REQUIRED FOR ALL WELDING OF METAL DECK.

8. ALL REINFORCED OPENINGS IN METAL DECK SHALL BE INSTALLED BY METAL DECK SUBCONTRACTOR.

9. AT METAL DECK TO RECEIVE CONCRETE, ABSOLUTELY NO CONDUIT OR PIPING OF ANY TYPE IS TO BE PLACED HORIZONTALLY WITHIN THE DEPTH OF THE CONCRETE ABOVE THE METAL DECK.

10. AT METAL DECK WITHOUT CONCRETE, HANG NO MORE THAN 50 LBS, AT 1 ½" DECK (20 GAUGE MIN.) PER METAL DECK RIB IN ANY SPAN: SPACE HANGERS NO CLOSER THAN 2'-0"o.c. PERPENDICULAR TO SPAN.

11. WHERE SUSPENSION OR HANGER WIRES ARE REQUIRED BY OTHERS, VERIFY AND COORDINATE LOCATIONS, PATTERNS, SPACINGS, ETC.. WITH THE APPROPRIATE TRADE. DRILL OR PUNCH HOLES AT BOTTOM OF DECK FLUTES OF SUFFICIENT SIZE TO PASS SUPPORT WIRES. WIRE SUPPORTS SHALL BE LOOPED AND SECURED WITH A MINIMUM OF THREE (3) TIGHT TURNS AROUND A MINIMUM 1 ½" x 8" LONG FURRING CHANNEL OR No. 3 x 8" LONG REINFORCING BAR CENTERED ABOVE THE HOLE AND LAID IN THE DECK FLUTES.

STRUCTURAL LUMBER

1. ALL LUMBER SHALL BE DOUGLAS FIR-LARCH (U.O.N.) GRADED IN ACCORDANCE WITH "STANDARD GRADING RULES NO. 17" OF THE WEST COAST LUMBER INSPECTION BUREAU OR "WESTERN LUMBER GRADING RULES" OF THE WESTERN WOOD PRODUCTS ASSOCIATION. LUMBER SHALL HAVE THE FOLLOWING NOTED GRADES OR BETTER:

MEMBER	SPECIES AND GRADE
PLATE MATERIAL FOR STRUCTURAL WALLS	DOUGLAS FIR-LARCH #2
2x JOISTS AND RAFTERS	DOUGLAS FIR-LARCH #2
4x6 TO 4x10 BEAMS	DOUGLAS FIR-LARCH #2
4x12 BEAMS	DOUGLAS FIR-LARCH #2

2. MAXIMUM MOISTURE CONTENT AT TIME OF ENCLOSURE SHALL NOT EXCEED 19% FOR ALL STRUCTURAL MEMBERS.

3. SHEATHING FOR SHEAR WALLS AND DIAPHRAGMS SHALL BE A WOOD PRODUCT PANEL (PLYWOOD OR ORIENTIATED STRAND BOARD) IN CONFORMANCE WITH U.S. PRODUCT STANDARD PS1 (CONSTRUCTION AND INDUSTRIAL PLYWOOD) OR U.S. PRODUCT STANDARD U.S. PRODUCT PS2. PANELS WHICH HAVE AN EDGE OR SURFACE EXPOSED TO WEATHER OR MOISTURE SHALL BE EXTERIOR GRADE EXCEPT ROOF SHEATHING EXPOSED ONLY ON THE UNDERSIDE AT EAVES AND OTHER SHEATHING SHALL BE EXPOSURE I. THICKNESS SHALL BE AS CALLED OUT ON PLAN. PROVIDE STRUCTURAL 1 SHEATHING WHERE INDICATED IN THE SHEARWALL SCHEDULE.

4. SILL PLATES BEARING ON CONCRETE OR MASONRY SHALL BE PRESERVATIVE-TREATED.

5. UNLESS OTHERWISE SHOWN OR NOTED, ALL BOLTS SHALL BE A307 OF THE FOLLOWING SIZES:
   WOOD TO STEEL ..... ⅝" DIAMETER
   WOOD TO WOOD ..... ⅝" DIAMETER
   WOOD TO CONCRETE ..... SEE PLAN AND ANCHOR BOLTING DETAIL FOR SIZE SPACING AND WASHERS OF ANCHOR BOLTS

6. ALL BOLTS AND LAG SCREWS CONNECTING WOOD TO WOOD OR WOOD TO STEEL MEMBERS SHALL BE PROVIDED WITH METAL WASHERS UNDER HEADS AND NUTS WHICH BEAR ON WOOD PER THE FOLLOWING TABLE.

BOLT DIAMETER	M.I. WASHER	STEEL WASHER
⅝" dia	2 ¾"ø x 5/16"	2 ½" square x ¼"
¾" dia	3"ø x 7/16"	3" square x 5/16"
⅞" dia	3 ½"ø x ½"	3 ½" square x ⅜"
1" dia	4"ø x ½"	3 ¾" square x ⅜"

7. HOLES FOR BOLTS SHALL NOT BE MORE THAN 1/16" LARGER NOR LESS THAN 1/32" LARGER THAN THE BOLT DIAMETER.

8. ALL BOLT AND LAG SCREWS SHALL BE TIGHTENED ON INSTALLATION AND RETIGHTENED BEFORE CLOSING IN OR AT COMPLETION OF JOB.

9. SCREWS SHALL NOT BE HAMMERED INTO PLACE. PRE-DRILLING SHALL NOT BE LARGER THAN THE ROOT DIAMETER OF THREADS FOR THE DEPTH OF THE THREADED PORTION.

10. NAIL SIZES SHALL CONFORM TO THE FOLLOWING TABLE. PROVIDE PILOT HOLES WHEN NECESSARY TO PREVENT SPLITTING OF WOOD. NAILS SHALL BE COMMON U.N.O.

NAIL NAME	MIN LENGTH	SHANK DIA	HEAD DIA	NOTE
8d COMMON	2 ½"	.0131"	0.281"	SIMPSON N8 EQUIV
8d COOLER	2 ⅜"	0.113"	0.281"	
8d HARDWARE	1 ½"	.0131"	0.281"	
10d COMMON	3"	0.148"	0.312"	
10d PLYWOOD	2 ¼"	0.148"	0.312"	ADD ⅛" IN LENGTH FOR EVERY ⅛" SHEATHING THICKNESS PAST ½" SHEATHING
10d HARDWARE	1 ½"	0.148"	0.312"	SIMPSON N10 EQUIV
16d COMMON	3 ½"	0.162"	0.344"	
16d SHORT (FRAMER)	3 ¼"	0.131"	0.281"	
16d HARDWARE	2 ½"	0.162"	0.344"	SIMPSON N16 EQUIV
16d SINKER	3 ¼"	0.148"	0.344"	
16d BOX	3 ½"	0.133"	0.344"	

11. NO STRUCTURAL MEMBER SHALL BE CUT OR NOTCHED UNLESS SPECIFICALLY SHOWN, NOTED AND APPROVED BY THE STRUCTURAL ENGINEER.

12. PROVIDE JOIST OR TRUSS BRIDGING AS REQUIRED BY THE JOIST/TRUSS MANUFACTURER.

13. WHERE ROUGH CARPENTRY IS EXPOSED TO WEATHER, IN GROUND CONTACT, OR IN AREA OF HIGH RELATIVE HUMIDITY, PROVIDE FASTENERS WITH A HOT-DIP ZINC COATING PER ASTM A 153 OR OF TYPE 304 STAINLESS STEEL.

14. METAL FRAMING CONNECTORS SHALL BE MANUFACTURED BY SIMPSON STRONG TIE OR EQUAL. INSTALL PER MANUFACTURE'S INSTRUCTIONS FOR THE FULL DESIGN VALUE. ALL SIZE AND TYPE SHOULD BE AS SPECIFIED BY SIMPSON. FILL ALL NAIL HOLES, UNLESS OTHERWISE NOTED.

15. MACHINE NAILING MAY BE USED ONLY IF THE NAIL GUN IS SET TO LEAVE NAILS APPROXIMATELY ¼" HIGH. NAILS SHALL BE DRIVEN FLUSH BY HAND. VIOLATION OF THIS REQUIREMENT OR OF MINIMUM EDGE DISTANCE REQUIREMENTS WILL BE CAUSE FOR REJECTION OF ALL IMPROPER NAILING AND SUSPENSION OF PERMISSION TO USE NAIL GUNS. PROPER USE OF THE NAIL GUN SHALL BE DEMONSTRATED TO THE SATISFACTION OF THE INSPECTOR OF RECORD PRIOR TO USE. USE OF NAIL GUNS MAY BE REVOKED BY THE INSPECTOR, ARCHITECT OR ENGINEER AT ANY TIME.

16. BOLTS SHALL HAVE FULL SIZE SHANKS AND CUT THREADS. "UPSET" BOLTS OR "ROLLED" THREADS ARE NOT ALLOWED.

17. PROVIDE MINIMUM 2x FULL DEPTH PERIMETER BLOCKING AT ALL DUCT PENETRATIONS EXCEEDING 12" IN EACH DIRECTION THRU THE ROOF SHEATHING ATTACHED TO JOISTS/CLIPS WITH A35 CLIPS OR 4-16d END NAILS.

LIGHT METAL PLATE CONNECTED WOOD TRUSSES

1. ROOF TRUSS MANUFACTURER SHALL SUPPLY TO THE ARCHITECT AND THE BUILDING DEPARTMENT CALCULATIONS AND SHOP DRAWINGS FOR APPROVAL OF CONFIGURATION (2 OR 3 POINT BEARING) AND SHEAR TRANSFER PRIOR TO FABRICATION. ALL CALCULATIONS AND SHOP DRAWINGS SHALL BE SIGNED BY A CALIFORNIA REGISTERED CIVIL ENGINEER. IT SHALL BE THE RESPONSIBILITY OF THE MANUFACTURER TO OBTAIN BUILDING DEPARTMENT APPROVAL OF CALCULATIONS AND SHOP DRAWINGS PRIOR TO FABRICATIONS.

2. TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST LOCAL BUILDING CODE FOR ALL LOADS IMPOSED, INCLUDING LATERAL LOADS AND MECHANICAL EQUIPMENT LOADS. SEE DESIGN CRITERIA SECTION OF THESE GENERAL NOTES FOR WIND AND SEISMIC FORCES.

3. ALL TRUSS FABRICATION SHALL BE PERFORMED IN AN APPROVED FABRICATOR'S SHOP IN ACCORDANCE WITH UBC 1701.7 AND 2343.7.

4. ALL CONNECTORS SHALL BE ICBO APPROVED AND OF ADEQUATE STRENGTH TO RESIST STRESSES DUE TO THE LOADINGS INVOLVED.

5. TRUSSES SHALL BE DESIGNED FOR A MAXIMUM TOTAL LOAD DEFLECTION OF L/240.

6. CROSS BRIDGING AND/OR BRACING SHALL BE PROVIDED AND DETAILED AS REQUIRED TO ADEQUATELY BRACE ALL TRUSSES.

7. TRUSS LAYOUT AS SHOWN ON THE ROOF FRAMING PLAN IS FOR TRUSS MANUFACTURER'S AID IN DESIGNING THE TRUSSES. ACTUAL TRUSS LAYOUT MAY DIFFER SLIGHTLY, BUT AS LONG AS ARCHITECTURAL ROOF AND CEILING PROFILES ARE MAINTAINED, THIS IS ACCEPTABLE.

8. APPROVED FINAL TRUSS DRAWINGS SHALL BECOME PART OF CONSTRUCTION DOCUMENTS.

9. ALL MEMBERS SHALL BE DOUGLAS FIR (DF) No. 2 OR BETTER.

10. PLATE MATERIAL SHALL BE ASTM A-653-SS, GRADE 33 OR BETTER ZINC COATED WITH A G60 GRADE COATING.

11. ALLOWABLE STRESS INCREASE FOR LOAD DURATION SHALL BE 15% MAXIMUM.

12. INCREASES IN ALLOWABLE STRESSES FOR REPETITIVE MEMBERS, UBC SECTION 2304.1, ARE NOT PERMISSIBLE.

13. GABLE END TRUSSES SHALL HAVE 2x VERTICALS AT 16"oc TYPICAL, UNLESS OTHERWISE NOTED.

14. ALL HARDWARE FOR CONNECTING TRUSSES (JACK TO HIP, HIP TO GIRDER, GIRDER TO GIRDER, ETC.) SHALL BE DESIGNED DETAILED AND PROVIDED BY TRUSS FABRICATOR.

15. TRUSS DESIGNER SHALL INCORPORATE ONE 400# VERTICAL LOAD ON THE BOTTOM CHORD OF ALL TRUSSES FROM FIRE SPRINKLER LINE. TRUSS MUST BE DESIGNED TO CARRY THE LOAD AT ANY PANEL POINT ALONG THE BOTTOM CHORD.

REGISTERED PROFFESIONAL ENGINEER ANTHONY E. T. S. 2020 STRUCTURAL OF CALIFORNIA PRELIMINARY NOT FOR CONSTRUCTION

8802002-S-02_Structural Notes 2.dwg Feb 08, 2022-9:27am

NO.	REVISION	PREP.	APPVD.	DATE

CITY OF SIMI VALLEY – VENTURA COUNTY WATERWORKS DISTRICT NO 8

ACCEPTED:

ASSIST. DIR./DIST. ENGINEER ____ DATE

DEPUTY DIRECTOR/WATERWORKS SERVICES ____ DATE

REVIEWED:

____ DATE

RECOMMENDED: PRINCIPAL ENGINEER ____ DATE

CITY OF SIMI VALLEY
DEPARTMENT OF PUBLIC WORKS

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

DESIGNED BY ____ DRAWN BY ____ DATE ____

STRUCTURAL NOTES 2

VENTURA COUNTY WATERWORKS DISTRICT NO. 8
WALNUT AVENUE PUMP STATION

CP 980460

WATER PLAN SET ____ OF T

SHEET NUMBER 17 OF T

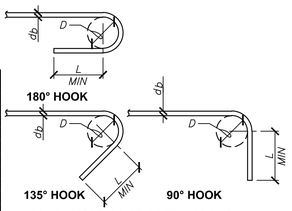
DRAWING NUMBER S-02

REV. 10/2020 RAH

TYPICAL BARS OTHER THAN STIRRUPS, TIES, HOOPS AND CROSS-TIES				
BAR SIZE	"D"	180° "L"	135° "L"	90° "L"
#3	2 ¼	2 ½	2 ½	4 ½
#4	3	2 ½	3	6
#5	3 ¾	2 ½	3 ¾	7 ½
#6	4 ½	3	4 ½	3
#7	5 ¼	3 ½	5 ¼	10 ½
#8	6	4	6	12
#9	9 ½	4 ½	6 ¾	13 ½
#10	10 ¾	5 ¼	7 ¾	15 ¼
#11	12	5 ¾	8 ½	17
#14	18 ¼	7	10 ½	21
#18	24	9	13 ½	27
STIRRUPS, TIES, HOOPS AND CROSS-TIES				
#3	1 ½	–	4	4
#4	2	–	4	4
#5	2 ½ (1)	–	4	4
#6	4 ½	–	4 ½	9
#7	5 ¼	–	5 ¼	10 ½
#8	6	–	6	12
(1) USE 3 ¾" IN CONC. BLK. CONSTRUCTION				

NOTE:

1. ALL DIMENSIONS GIVEN ARE IN INCHES.

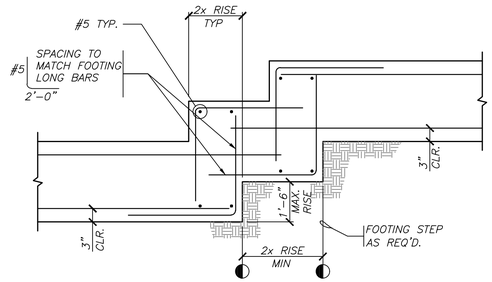


LEGEND FOR REINF BENDS (N.T.S.)

- INDICATES 90° BEND IN PLANE OF DRAWING
- INDICATES 90° BEND PERPENDICULAR TO PLANE OF DRAWING
- INDICATES 135° BEND IN PLANE OF DRAWING
- INDICATES 180° BEND IN PLANE OF DRAWING
- INDICATES 1.35° OR 180° BEND PERPENDICULAR TO PLANE OF DRAWING
- INDICATES OFFSET IN PLANE OF DRAWING

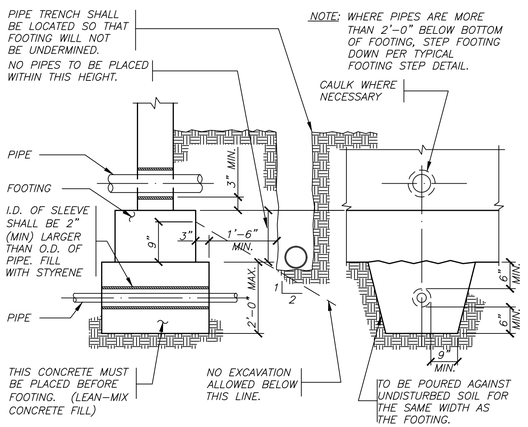
4 S-03 TYPICAL BAR BENDS AND HOOKS

SCALE: 3/4" = 1'-0"



TYPICAL STEPPED FOOTING STEPPED TOP BEARING

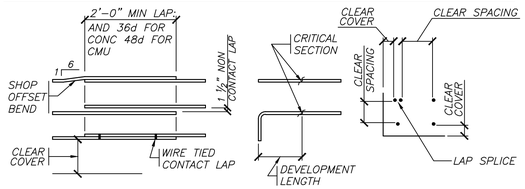
5 S-03 SCALE: 3/4" = 1'-0"



TYPICAL FOOTING AT PIPE OR CONDUIT

6 S-03 SCALE: 3/4" = 1'-0"

REINFORCEMENT PROPERTIES	BAR SIZE		#11	#10	#9	#8	#7	#6	#5	#4	#3
	REINF GRADE (ksi)		60	60	60	60	60	60	60	60	60
	NOMINAL AREA (in)		1.56	1.27	1.00	0.79	0.60	0.44	0.31	0.20	0.11
	WEIGHT (lb/ft)		5.313	4.303	3.400	2.670	2.044	1.502	1.043	0.668	0.376
	NOMINAL DIA (in) "d"		1.410	1.270	1.128	1.000	0.875	0.750	0.625	.500	.375
DEVELOPMENT OR CLASS A TENSION LAP SPLICE (LENGTH IN INCHES)	3000	TYPICAL	78	70	62	55	48	33	28	22	17
		TOP REINF.[2]	101	91	81	72	63	43	36	29	22
	4000	TYPICAL	67	61	54	48	42	29	24	19	15
		TOP REINF.[2]	87	79	70	62	54	37	31	25	19
	4500	TYPICAL	63	57	51	45	39	27	22	18	14
		TOP REINF.[2]	82	74	66	58	51	35	27	23	18
CLASS B TENSION LAP SPLICE (LENGTH IN INCHES)	3000	TYPICAL	101	91	81	72	63	43	36	29	22
		TOP REINF.[2]	131	118	105	93	81	56	47	37	28
	4000	TYPICAL	87	79	70	62	54	37	31	25	19
		TOP REINF.[2]	113	102	91	81	71	49	41	33	24
	4500	TYPICAL	82	74	66	58	51	35	29	23	18
		TOP REINF.[2]	101	91	81	72	63	43	36	28	22
COMPRESSION LAP SPLICE WHERE NOTED (LENGTH IN INCHES)	<3000		55	50	44	39	35	30	25	20	15
	>3000		43	39	34	30	26	23	19	15	12
STANDARD HOOKED DEVELOPMENT (LENGTH IN INCHES)	3000		31	28	25	22	20	17	13	11	8
	4000		26	24	22	19	17	15	12	10	7
	4500		25	23	20	18	16	14	11	9	7



SPLICES **EMBEDMENTS** **COVER & SPACING**

1. REINFORCEMENT TABLE IS BASED ON ACI 318-14.
2. TOP REINFORCEMENT IS HORIZONTAL REINFORCEMENT PLACED SUCH THAT 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE DEVELOPMENT LENGTH OR SPLICE.
3. EMBEDMENT AND LAP LENGTH IS BASED ON NORMAL WEIGHT CONCRETE. FOR LIGHT WEIGHT CONCRETE MULTIPLY THE TENSION DEVELOPMENT AND SPLICE LENGTHS BY 1.3.
4. THE DEVELOPMENT AND LAP SPLICE SCHEDULE CAN BE USED FOR NON CONTACT LAP SPLICE WHEN BAR SPACING IS LESS THAN 6".
5. THE SCHEDULE ABOVE IS APPLICABLE FOR THE FOLLOWING CONDITIONS. IF THE FOLLOWING CONDITIONS ARE NOT MET MULTIPLY THE LENGTHS PROVIDED BY 1.5. BARS NOT CONFINED BY TIES:

   a. CLEAR SPACING OF DEVELOPED OR SPLICED BARS ≥ d
   b. CLEAR COVER ≥ d

   BARS CONFINED BY TIES:

   a. CLEAR SPACING OF DEVELOPED OR SPLICED BARS ≥ 2 x d AND
   b. CLEAR COVER ≥ d

6. ALL BAR TENSION LAP SPLICES ARE CLASS B UNLESS OTHERWISE NOTED.
7. FOR 3 BAR BUNDLE MULTIPLY THE TENSION LAP SPLICE BY 1.2 FOR 4 BAR BUNDLE MULTIPLE THE TENSION LAP SPLICE BY 1.33
8. FOR BAR SIZES #14 AND #18 USE MECHANICAL SPLICES.
9. TENSION LAP SPLICES MAY BE SUBSTITUTED WITH MECHANICAL SPLICES WITH APPROVAL BY THE ENGINEER.

2 S-03 TYPICAL LAP SPLICE SCHEDULE

SCALE: 1/2" = 1'-0"

REGISTERED PROFESSIONAL ENGINEER ANTHONY E... 2020 STRUCTURAL OF CALIFORNIA PRELIMINARY

NO.	REVISION	PREP.	APPVD.	DATE

CITY OF SIMI VALLEY – VENTURA COUNTY WATERWORKS DISTRICT NO 8

ACCEPTED:

ASSIST. DIR./DIST. ENGINEER DATE

DEPUTY DIRECTOR/WATERWORKS SERVICES DATE

REVIEWED:

DATE

RECOMMENDED: PRINCIPAL ENGINEER DATE

CITY OF SIMI VALLEY
DEPARTMENT OF PUBLIC WORKS

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

DESIGNED BY DRAWN BY DATE

TYPICAL DETAILS

VENTURA COUNTY WATERWORKS DISTRICT NO. 8
WALNUT AVENUE PUMP STATION

CP 980460

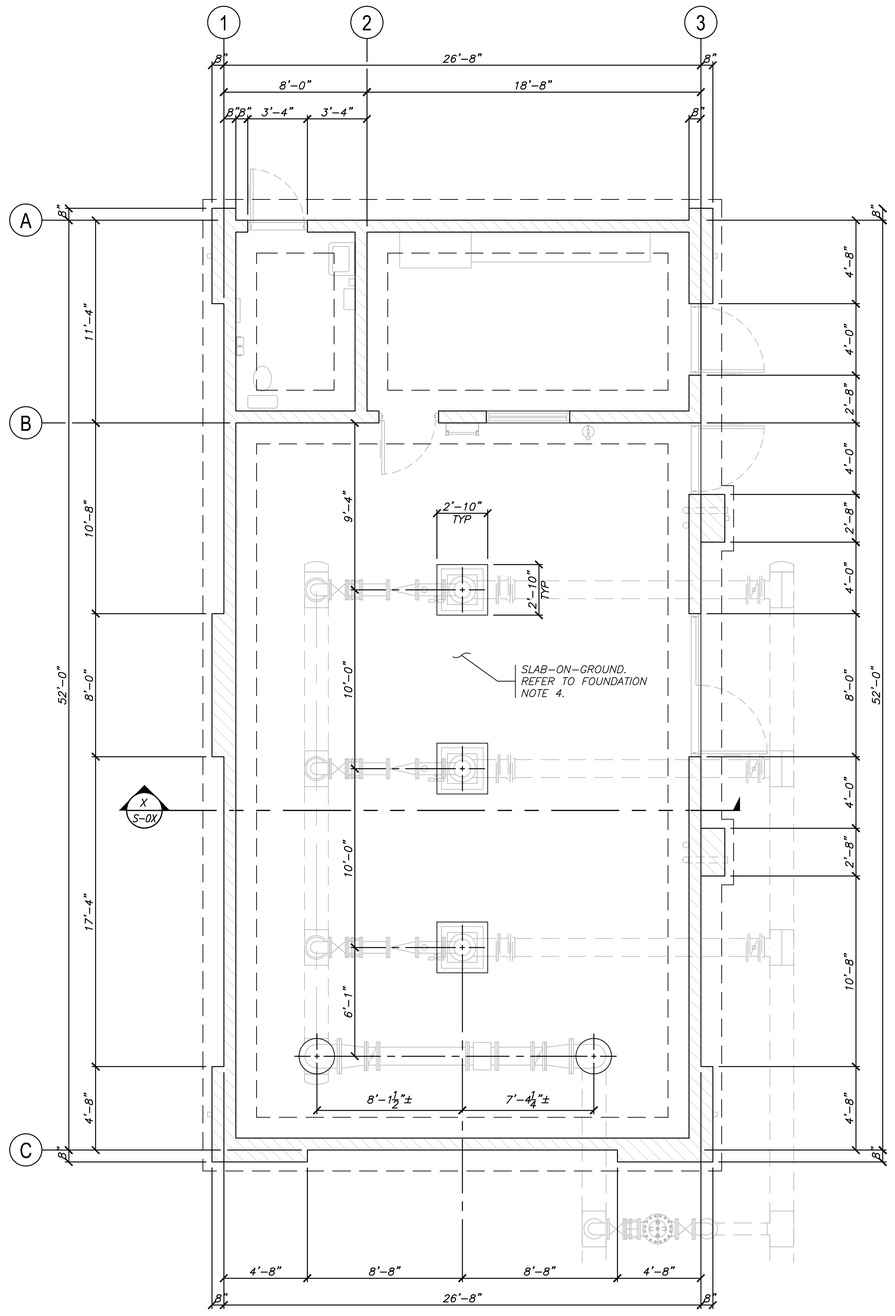
WATER PLAN SET ____ OF T

SHEET NUMBER 18 OF T

DRAWING NUMBER S-03

REV. 02/2020 RAR

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FOUNDATION NOTES

1. CMU WALLS SHALL REINFORCED WITH #5@16"oc VERTICAL AND #5@24"oc HORIZONTAL UON. SOLID GROUT ALL CELLS. REFER TO CONCRETE MASONRY NOTES ON SHEET S-01 FOR ADDITIONAL REQUIREMENTS.
2. REFER TO 2/S-03 AND 4/S-03 FOR TYPICAL CONCRETE REINFORCING HOOK AND SPLICE DETAILING.
3. REFER TO XX/S-0X FOR TYPICAL CMU WALL CORNER AND INTERSECTION DETAIL. REFER TO XX/S-0X FOR TYPICAL CMU WALL OPENING DETAIL.
4. TYPICAL SLAB-ON-GRADE SHALL BE 6" THICK CONCRETE WITH #4@12"oc EACH WAY, MID DEPTH OVER 2" DRY SAND, OVER 10-MIL POLYOLEFIN VAPOR RETARDING MEMBRANE, OVER 4" THICK FREE DRAINING DURABLE ROCK GRADED SUCH THAT 100% PASSES THE 1" SIEVE AND LESS THAN 5% PASSES THE NO 4 SIEVE, OVER COMPACTED BASE IN ACCORDANCE WITH THE REFERENCE GEOTECHNICAL REPORT.
5. VERIFY SIZE AND LOCATION OF ALL EQUIPMENT PADS AND PEDESTALS WITH THE ARCHITECT, ELECTRICAL ENGINEER, MECHANICAL ENGINEER, AND EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
6. CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF REQUIRED MECHANICAL OPENINGS IN CMU WALLS WITH THE HVAC MANUFACTURE'S APPROVED SUBMITTAL AND THE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS.
7. REFER TO X/S-0X FOR ELECTRICAL PAD DETAIL.
8. WHERE DRAIN PIPE OCCURS AT FOOTING, STEP FOOTING DOWN AS REQUIRED PER DETAILS 5/S-03 AND 6/S-03.

ROOF FRAMING NOTES

1. METAL ROOF DECK SHALL BE VERCO XX FORMLOK, XX GAGE WITH G90 GALVANIZATION.
2. WELD DECKS TO FRAMING AS FOLLOWS AND REFER TO DETAIL X/S-XX:

A.	AT SUPPORTS	4- ½"ø PUDDLE WELDS PER SHEET
B.	SIDELAP	BUTTON PUNCH @3'-0"oc
C.	EDGE	½"ø PUDDLE WELDS @12"oc

3. CAMBER ALL BEAMS AS NOTED (C= ¾"). WHERE NO CAMBER IS SPECIFIED, FABRICATE AND ERECT ALL BEAMS WITH NATURAL MILL CAMBER UP.
4. FOR TYPICAL STEEL BEAM CONNECTION, REFER TO X/S-XX AND X/S-XX

2/S-04 **ROOF FRAMING PLAN**
SCALE: 1/4" = 1'-0"

1/S-03 **FOUNDATION PLAN**
SCALE: 1/4" = 1'-0"

REGISTERED PROFESSIONAL ENGINEER ANTHONY E. J. PRELIMINARY 2020 STRUCTURAL OF CALIFORNIA

NO.	REVISION	PREP.	APPVD.	DATE

CITY OF SIMI VALLEY – VENTURA COUNTY WATERWORKS DISTRICT NO 8

ACCEPTED:

ASSIST. DIR./DIST. ENGINEER ____ DATE ____

DEPUTY DIRECTOR/WATERWORKS SERVICES ____ DATE ____

REVIEWED:

____ DATE ____

RECOMMENDED: PRINCIPAL ENGINEER ____ DATE ____

CITY OF SIMI VALLEY
DEPARTMENT OF PUBLIC WORKS

VENTURA COUNTY WATERWORKS DISTRICT NO.8

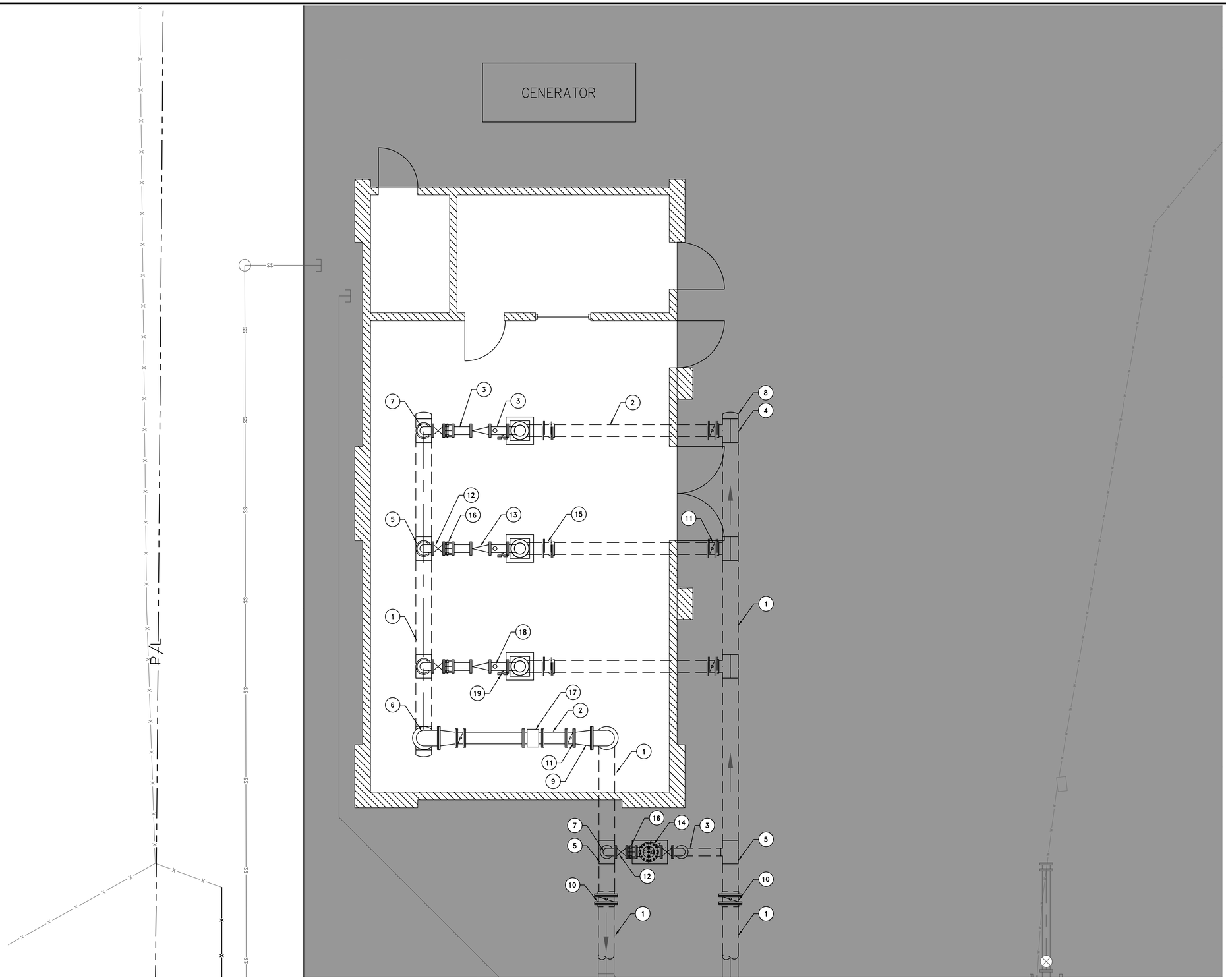
DESIGNED BY: AEJ
DRAWN BY: AEJ
DATE:

BUILDING FOUNDATION AND ROOF FRAMING PLANS
VENTURA COUNTY WATERWORKS DISTRICT NO. 8
WALNUT AVENUE PUMP STATION
CP 980460

WATER PLAN SET ____ OF T
SHEET NUMBER 19 OF T
DRAWING NUMBER S-04

REV. 02/2020 RAE

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GENERAL NOTES:

1. ALL UNDERGROUND PIPING SHALL BE WELDED STEEL.
2. PIPING CONNECTED TO FITTINGS OR APPURTENANCES SHALL BE FLANGE BY FLANGE.

CONSTRUCTION NOTES:

1. 16" WELDED CML&C PIPE
2. 12" WELDED CML&C PIPE
3. 8" WELDED CML&C PIPE
4. 16" x 12" STEEL TEE (TYP 3)
5. 16" x 8" STEEL TEE (TYP 5)
6. 16" STEEL 90° BEND (TYP 2)
7. 8" STEEL 90° BEND (TYP 5)
8. 16" STEEL CAP (TYP 3)
9. 16" x 12" REDUCER (TYP 2)
10. 16" BUTTERFLY VALVE (TYP 2)
11. 12" BUTTERFLY VALVE (TYP 5)
12. 8" GATE VALVE (TYP 5)
13. 8" SWING CHECK VALVE (TYP 3)
14. 8" PRESSURE RELIEF VALVE
15. 16" FLANGED COUPLING ADAPTER (TYP 3)
16. 8" DISMANTLING JOINT (TYP 4)
17. 12" ELECTROMAGNETIC FLOW METER
18. AIR RELEASE VALVE (TYP 3)
19. PRESSURE GAUGE (TYP 3)

MECHANICAL PIPING PLAN

N

4' 2' 0 4'

SCALE: 1/4" = 1'

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
STATE OF CALIFORNIA

8802002-M-01.dwg Feb 22, 2022-9:34am

NO.	REVISION	PREP.	APPVD.	DATE

CITY OF SIMI VALLEY – VENTURA COUNTY WATERWORKS DISTRICT NO 8

ACCEPTED:

ASSIST. DIR./DIST. ENGINEER — DATE

DEPUTY DIRECTOR/WATERWORKS SERVICES — DATE

REVIEWED:

DATE

RECOMMENDED: PRINCIPAL ENGINEER — DATE

CITY OF SIMI VALLEY
DEPARTMENT OF PUBLIC WORKS

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

DESIGNED BY DRAWN BY DATE

MECHANICAL PIPING PLAN

VENTURA COUNTY WATERWORKS DISTRICT NO. 8
WALNUT AVENUE PUMP STATION

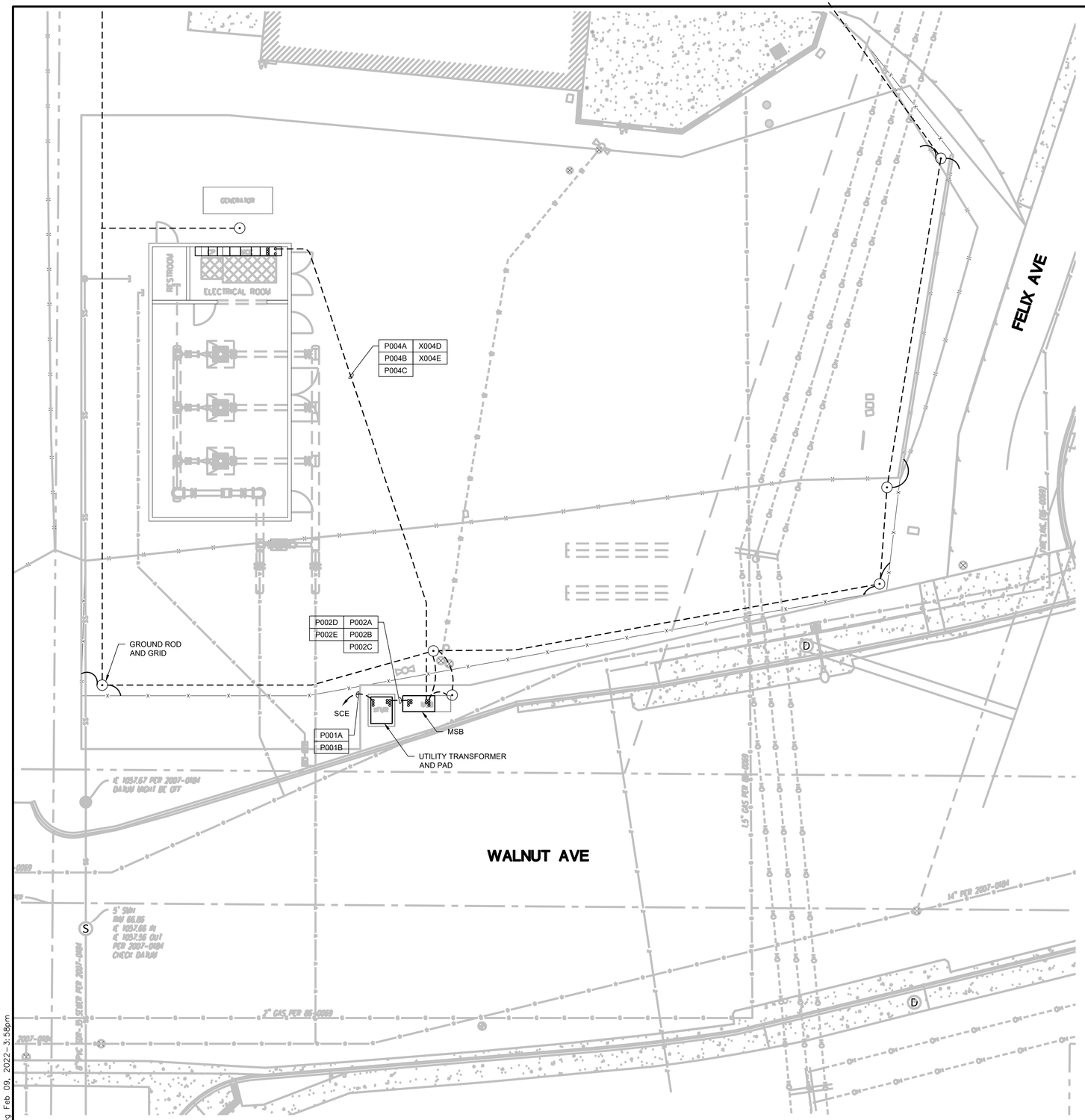
CP 980460

WATER PLAN SET ____ OF T

SHEET NUMBER 22 OF T

DRAWING NUMBER M-01

REV. 10/2020 RMI



CONDUIT AND CABLE SCHEDULE

CONDUIT NO.	CONDUIT SIZE	CABLE SIZE AND QUANTITY	FROM	TO	REMARKS
P001A	5"	1-PULLROPE	UTILITY TRANSFORMER - PRI	SCE GRID POINT OF CONNECTION	PROVIDE PER UTILITY STANDARDS
P001B	5"	1-PULLROPE	UTILITY TRANSFORMER - PRI	SCE GRID POINT OF CONNECTION	PROVIDE PER UTILITY STANDARDS
P002A	5"	1-PULLROPE	UTILITY TRANSFORMER - SEC	MAIN SWITCHBOARD (MAIN CB)	PROVIDE PER UTILITY STANDARDS
P002B	5"	1-PULLROPE	UTILITY TRANSFORMER - SEC	MAIN SWITCHBOARD (MAIN CB)	PROVIDE PER UTILITY STANDARDS
P002C	5"	1-PULLROPE	UTILITY TRANSFORMER - SEC	MAIN SWITCHBOARD (MAIN CB)	PROVIDE PER UTILITY STANDARDS
P002D	5"	1-PULLROPE	UTILITY TRANSFORMER - SEC	MAIN SWITCHBOARD (MAIN CB)	PROVIDE PER UTILITY STANDARDS
P002E	5"	1-PULLROPE	UTILITY TRANSFORMER - SEC	MAIN SWITCHBOARD (MAIN CB)	PROVIDE PER UTILITY STANDARDS
P004A	4"	3 - 500 KCMIL + 4/0 G	MCC (ATS)	MAIN SWITCHBOARD	
P004B	4"	3 - 500 KCMIL + 4/0 G	MCC (ATS)	MAIN SWITCHBOARD	
P004C	4"	3 - 500 KCMIL + 4/0 G	MCC (ATS)	MAIN SWITCHBOARD	
X004D	4"	1-PULLROPE	MCC (ATS)	MAIN SWITCHBOARD	SPARE, CAP FOR FUTURE USE
X004E	4"	1-PULLROPE	MCC (ATS)	MAIN SWITCHBOARD	SPARE, CAP FOR FUTURE USE
P005A	4"	4 - 300 KCMIL + 1/0 G	MCC (ATS)	GENERATOR	
P005B	4"	4 - 300 KCMIL + 1/0 G	MCC (ATS)	GENERATOR	
P005C	4"	4 - 300 KCMIL + 1/0 G	MCC (ATS)	GENERATOR	
X005D	4"	1-PULLROPE	MCC (ATS)	GENERATOR	SPARE, CAP FOR FUTURE USE
P005E	4"	4 - 500 KCMIL + #1G	LOAD BANK	GENERATOR	
C005F	1"	2 - #12 + #12G	MCC (ATS)	GENERATOR	CALL TO START
C005G	1"	10 - #14 + #14G	MCC (CONTROL PANEL)	GENERATOR	GENERATOR STATUS
P005H	1-1/4"	8 - #10 + 4 - #10G	MCC (PANELBOARD A)	GENERATOR	AUX LOAD POWER FEEDERS
P011A	2-1/2"	3 - 3/0 + #1 G	MCC (PUMP NO. 1 VFD)	MOTOR JUNCTION BOX (PUMP NO. 1)	NEMA 4 JB
C011C	1"	10 - #14 + #14G	MCC (PUMP NO. 1 VFD)	MOTOR JUNCTION BOX (PUMP NO. 1)	NEMA 4 JB
P012A	2-1/2"	3 - 3/0 + #1 G	MCC (PUMP NO. 2 VFD)	MOTOR JUNCTION BOX (PUMP NO. 2)	NEMA 4 JB
C012C	1"	10 - #14 + #14G	MCC (PUMP NO. 2 VFD)	MOTOR JUNCTION BOX (PUMP NO. 2)	NEMA 4 JB
P013A	2-1/2"	3 - 3/0 + #1 G	MCC (PUMP NO. 3 VFD)	MOTOR JUNCTION BOX (PUMP NO. 3)	NEMA 4 JB
C013C	1"	10 - #14 + #14G	MCC (PUMP NO. 3 VFD)	MOTOR JUNCTION BOX (PUMP NO. 3)	NEMA 4 JB
P014A	1"	4 - #12 + 2 - #12G	MCC (PANELBOARD A)	BLDG LIGHTS/SWITCHES	TWO THREE WAY SWITCHES
P014B	1"	4 - #12 + 2 - #12G	MCC (PANELBOARD A)	RECEPTACLES	
P016A	1"	4 - #12 + 2 - #12G	MCC (PANELBOARD A)	NORTH SITE LIGHT AND RECEPTACLE	
P016B	1"	4 - #12 + 2 - #12G	MCC (PANELBOARD A)	SOUTH SITE LIGHT AND RECEPTACLE	
P017A	1"	10 - #12 + 5 - #12G	MCC (PANELBOARD A)	MAIN SWITCHBOARD (120V LOADS)	PQM, LIGHTS, RECPT, HEATERS
C017B	1"	6 - #12 + #12G	MCC (CONTROL PANEL)	MAIN SWITCHBOARD (STATUS)	INTRUSION + FOUR SPARES
S017C	1"	2 - RS-485 CABLE + #14G	MCC (PQM-1)	MAIN SWITCHBOARD (PQM)	
C021A	1"	1 - #18 TSP	MCC (CONTROL PANEL)	LEVEL TRANSMITTER JUNCTION BOX	NEMA 4 JB
S021C	1"	LT MANUFACTURERS CABLE	MCC (CONTROL PANEL)	WET WELL VIA TJB (FOR LT)	NEMA 4 JB
X021D	1"	1-PULLROPE	MCC (CONTROL PANEL)	TRANSMITTER JUNCTION BOX	EYS, SPARE, CAP FOR FUTURE USE
X022A	1"	1-PULLROPE	MCC (CONTROL PANEL)	HANDHOLE	SPARE, CAP FOR FUTURE USE
X023A	1"	1-PULLROPE	MCC (CONTROL PANEL)	HANDHOLE	SPARE, CAP FOR FUTURE USE
S023B	1-1/4"	FM MANUFACTURERS CABLE	MCC (CONTROL PANEL)	FM JUNCTION BOX	
X023C	1-1/4"	1-PULLROPE	MCC (CONTROL PANEL)	FM VAULT	SPARE, CAP FOR FUTURE USE
C024A	1"	2 - #14 + #14G	MCC (CONTROL PANEL)	VALVE VAULT	COIL AND TAPE WRAP
D026A	2"	COAX	MCC (CONTROL PANEL)	ANTENNA MAST (ANTENNA)	
X027A	1-1/4"	1-PULLROPE	MCC (CONTROL PANEL)	HANDHOLE	SPARE, CAP FOR FUTURE USE
X027B	1-1/2"	1-PULLROPE	MCC (CONTROL PANEL)	HANDHOLE	SPARE, CAP FOR FUTURE USE
X027C	1-1/4"	1-PULLROPE	MCC (PANELBOARD A)	HANDHOLE	SPARE, CAP FOR FUTURE USE
X027D	1-1/4"	1-PULLROPE	MCC (PANELBOARD A)	GATE	SPARE, CAP FOR FUTURE USE

FIXTURE SCHEDULE

FIXTURE TYPE	LAMP QTY.	LAMP TYPE	LAMP WATTS	1Ø VOLTS	MOUNTING ARRGT	DESCRIPTION	CATALOG NUMBER
A	18	LED	61	120	PENDANT OR SURFACE APPROX 10' AFF	ENCLOSED INDUSTRIAL, DAMP AREA, 4000K LED	LITHONIA FEML484LIMAFLMD MVOLTGZ1040K80CRI
B	5	LED	45	120	OUTSIDE WALL ABOVE DOORS	BLDG. WALL PACK W/ BRONZE FINISH, 4000K LED	LITHONIA TWPLED20CT3M 120PEWGDDBXD
E	9	LED	10	120	WALL MOUNT 9' AFF	EMERGENCY BATTERY PACK	LITHONIA ELM6LUVOLTLTPSDRTEHO
F	2	LED	94	120	20' SQUARE POLE	POLE MOUNTED SITE LIGHT	LITHONIA KADLED40C5304OKR3MVOLT SSS204CDMDDBXD
X	3	LED	1	110	WALL ABOVE DOOR	EXIT LIGHT	LITHONIA LQMS3120

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DEPUTY DIRECTOR/WATERWORKS SERVICES — DATE

REVIEWED:
AREA PLAN
SCALE: 1" = 10'-0"
RECOMMENDED: PRINCIPAL ENGINEER — DATE

CITY OF SIMI VALLEY
DEPARTMENT OF PUBLIC WORKS

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ELECTRICAL SITE PLAN AND CONDUIT SCHEDULE

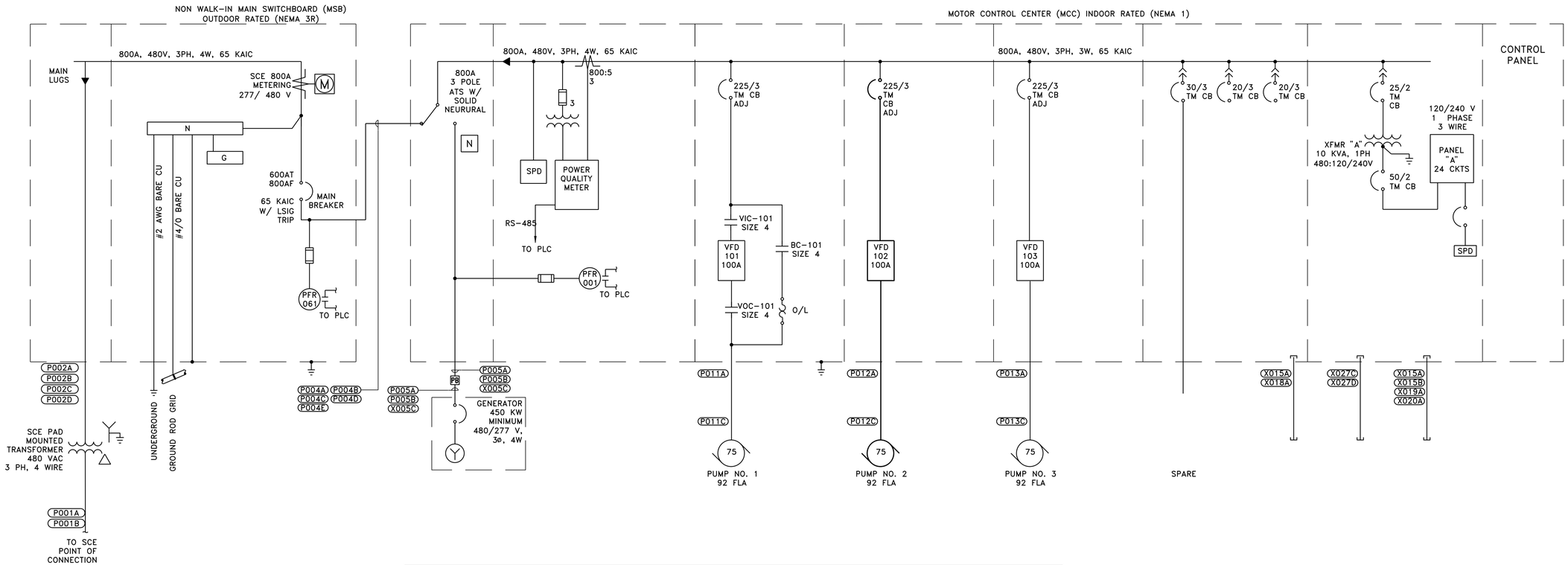
VENTURA COUNTY WATERWORKS DISTRICT NO. 8
WALNUT AVENUE PUMP STATION

CP 980460

WATER PLAN SET: 3 OF T
SHEET NUMBER: 3 OF T
DRAWING NUMBER: E3

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PANELBOARD "A" WITH SPD

LOCATION: MCC
MOUNTING: INTERIOR
ENCLOSURE NEMA TYPE: 1
VOLTAGE: 120/240
AIC RATING: 10,000
FED FROM (SOURCE): TRANSFORMER

PANEL AMP RATING: 100
PANEL PHASES: 1
PANEL WIRES: 3
MAIN LANDING TYPE: CB
MCB TRIP RATING: 70
MCB FRAME SIZE: 100

CKT NO.	CIRCUIT DESCRIPTION	TRIP (AMPS)	POLE	PHASE A (VA)	PHASE B (VA)	PHASE A (VA)	PHASE B (VA)	POLE	TRIP (AMPS)	CIRCUIT DESCRIPTION	CKT NO.
1	RTU/PLC CONTROL PANEL	20	1	500		540		1	20	RECEPTACLES	2
3	RTU/PLC CP LIGHTS/FAN/RECPT	20	1		300		720	1	20	RECEPTACLES	4
5	EXTERIOR LIGHTS	20	1	360		500		1	20	EXHAUST FAN EF-1	6
7	INTERIOR LIGHTS	15	1		300		500	1	20	EXHAUST FAN EF-2	8
9	INTERIOR LIGHTS	15	1	100		600		1	20	SUPPLY FAN SP-1	10
11	EX GEN SET CONTROLLER	15	1		400		850	1	15	GEN SET FUEL PUMP	12
13	GATE OPERATOR	15	1	1100		1500		2	30	GENERATOR BLOCK HEATER	14
15	SPARE	15	1		100		1500				16
17	SPARE	20	1	0		100		1	20	GENERATOR BATTERY CHARGER	18
19	SPARE	15	1		0		0	2	20	SPARE	20
21	SPARE	15	1	0		0					22
23	SPARE	15	1		0		0	1	20	SPARE	24
25	SPARE	20	1	0		0		1	20	SPARE	26
27	SPARE	20	1		0		0	1	20	SPARE	28
29	SPARE	20	1	0		0		1	20	SPARE	30
	TOTAL LOAD PER PHASE PER SIDE (VA)			2060	1100	3240	3570				
	TOTAL CONNECTED LOAD PER PHASE (VA)			5300	4670					SURGE PROTECTION DEVICE	
	TOTAL CONNECTED LOAD (VA)			9970							
	LOAD (AMPS)			42							

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND
LIGHTING	760	125%	950
LARGEST MOTOR	1100	125%	1375
OTHER	8110	100%	8110
TOTAL DEMAND LOAD			10435
TOTAL DEMAND CURRENT			43

LOAD CALCULATIONS AT 480 VAC

DESCRIPTION	SERVICE CONNECTED AMPS	GENERATOR AMPS	STEP
PUMP NO. 1	92	92	2
PUMP NO. 2	92	92	3
PUMP NO. 3	92	92	4
10 KVA TRANSFORMER	21	21	1
25% OF LARGEST LOAD	23		
TOTAL LOAD (AMPS)	320	297	
MAIN BREAKER TRIP	600A		
MAIN BREAKER FRAME	800A		
SWITCHBOARD AND MCC BUS	800A		

⚠ WARNING
ARC FLASH & SHOCK HAZARD
APPROPRIATE PPE AND TOOLS REQUIRED WHEN WORKING ON THIS EQUIPMENT

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CITY OF SIMI VALLEY – VENTURA COUNTY WATERWORKS DISTRICT NO 8

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DEPUTY DIRECTOR/WATERWORKS SERVICES — DATE

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CITY OF SIMI VALLEY
DEPARTMENT OF PUBLIC WORKS

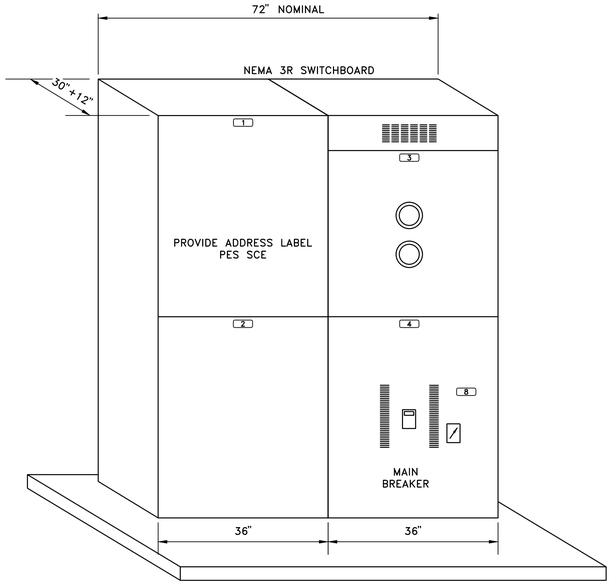
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SINGLE LINE DIAGRAMS, PANEL SCHED AND LOAD CALCS
VENTURA COUNTY WATERWORKS DISTRICT NO. 8
WALNUT AVENUE PUMP STATION
CP 980460

WATER PLAN SET 4 OF T
SHEET NUMBER 4 OF T
DRAWING NUMBER E4

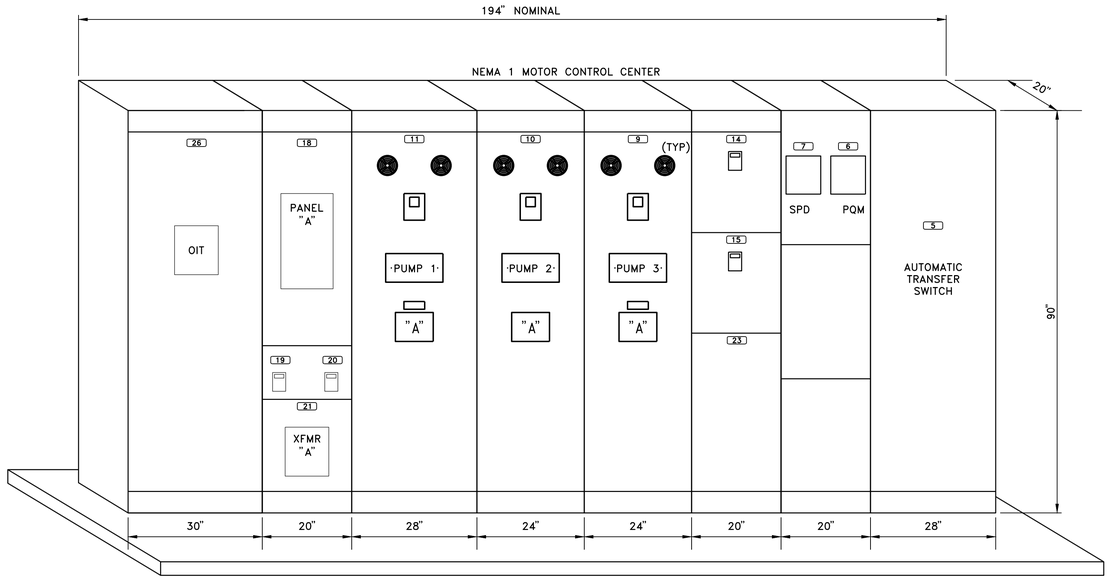
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MAIN SWITCHBOARD "MSB" ELEVATION

SCALE: NOT TO SCALE

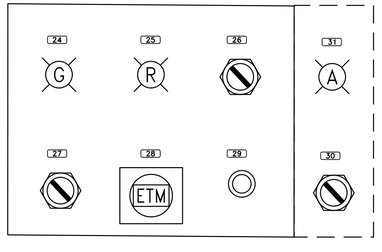


CONTROL PANEL AND MCC ELEVATION

SCALE: NOT TO SCALE

NAMEPLATE SCHEDULE

NO.	INSCRIPTION
1.	MAIN SWITCHBOARD "MSB", 800 AMP, 480 V, 3 PHASE, 4 WIRE, 65 KAIC
2.	SCE PULL SECTION
3.	SCE METER AND CT SECTION
4.	MAIN SERVICE DISCONNECT
5.	AUTOMATIC TRANSFER SWITCH
6.	POWER MONITOR
7.	SURGE PROTECTION (INSIDE)
8.	MAINTENANCE MODE SWITCH
9.	PUMP 1
10.	PUMP 2
11.	PUMP 3
12.	SPARE
13.	LIGHTING CONTROLS
14.	SPARE CB
15.	SPARE CB
16.	SPARE
17.	SPARE
18.	LIGHTING PANEL A 120/240 VAC
19.	XFMR – PRIMARY CB
20.	XFMR – SECONDARY CB
21.	10KVA (WITHIN CUBICLE)
22.	SPARE
23.	LANDING LUGS
24.	PUMP READY
25.	PUMP RUNNING
26.	CONTROL PANEL
27.	HAND-OFF-AUTO
28.	ELAPSED TIME METER
29.	RESET
30.	VFD-BYPASS
31.	RUNNING BYPASS



DETAIL "A"

PUMP CONTROLS

SCALE: NOT TO SCALE

A

⚠ WARNING

ARC FLASH & SHOCK HAZARD

APPROPRIATE PPE AND TOOLS REQUIRED WHEN WORKING ON THIS EQUIPMENT

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DEPARTMENT OF PUBLIC WORKS

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ELECTRICAL EQUIPMENT ELEVATIONS

VENTURA COUNTY WATERWORKS DISTRICT NO. 8
WALNUT AVENUE PUMP STATION

CP 980460

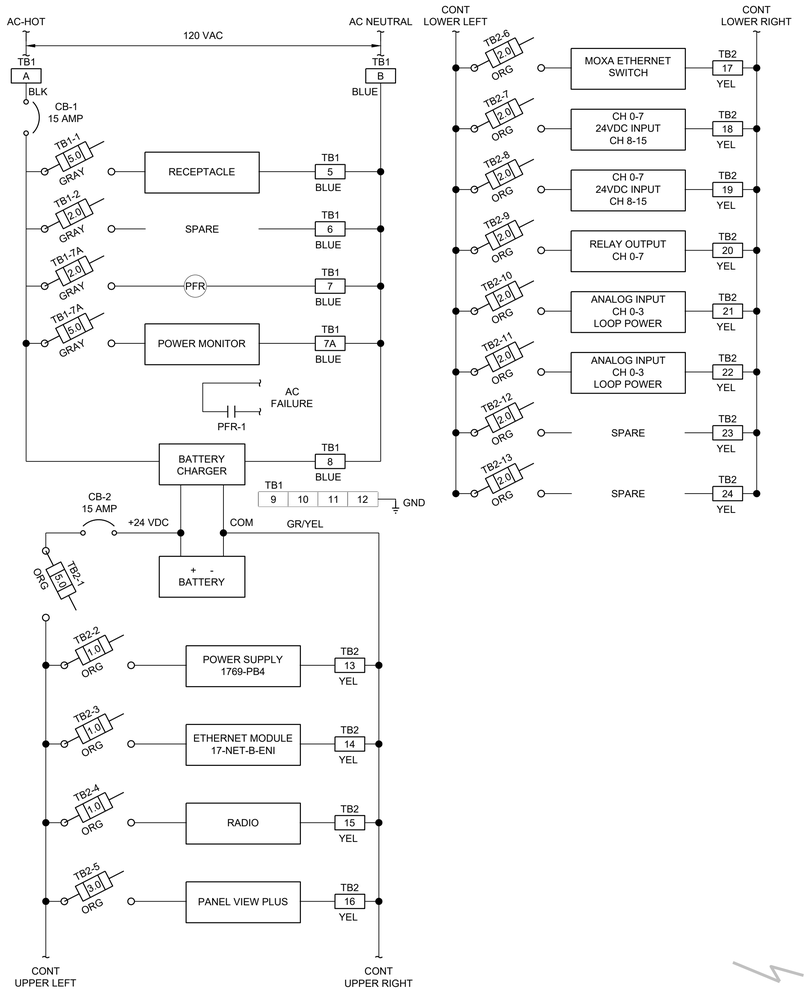
WATER PLAN SET: 5 OF T

SHEET NUMBER: 5 OF T

DRAWING NUMBER: E5

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Xrefs: ..\XR-TBLK_24x36-ECS.dwg
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CONTROL PANEL POWER WIRING DIAGRAM

SCALE: NOT TO SCALE

LEGEND

- TERMINAL BLOCK IN FIELD
- TERMINAL BLOCK IN MCC
- TERMINAL BLOCK IN CONTROL SECTION
- TERMINAL BLOCK IN CONTROL PANEL CP-1
- TERMINAL BLOCK IN ATS
- FIELD WIRING
- WIRING WITHIN RESPECTIVE CABINET, ENCLOSURE, OR SECTION

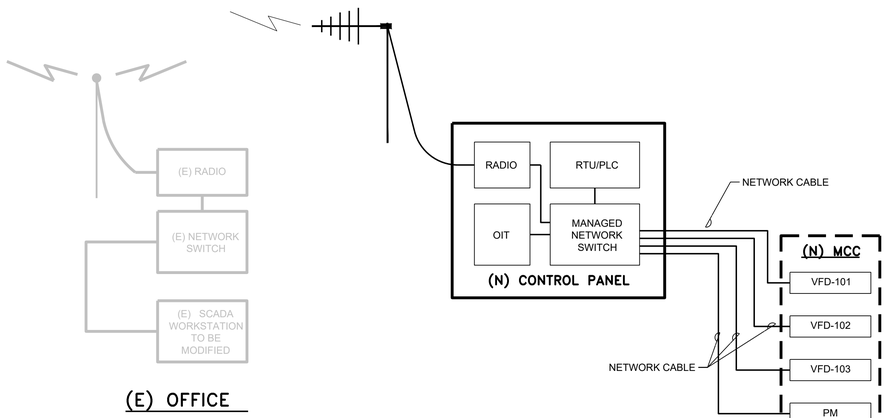
#1 PUMP CONTROLS = 1CR1, 1CR2, 1CR3, ETC

#2 PUMP CONTROLS = 2CR1, 2CR2, 2CR3, ETC

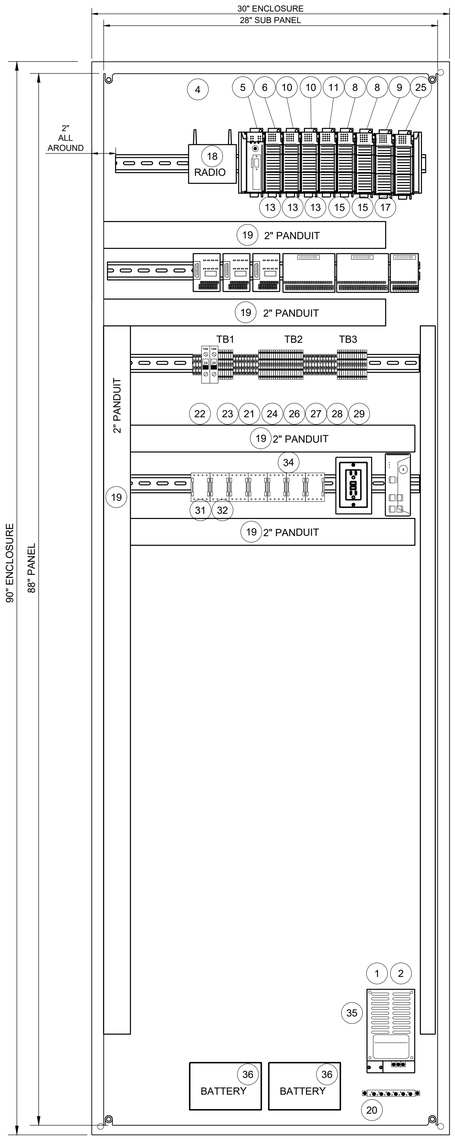
#3 PUMP CONTROLS = 3CR1, 3CR2, 3CR3, ETC

CONTROL PANEL MATERIAL LIST

ITEM#	QTY	DESCRIPTION	MANUFACTURE	MODEL#
1	1	ENCLOSURE	MCC MANUFACTURER	
2	1	BACK PANEL	MCC MANUFACTURER OR CUSTOM	
3		NOT USED		
4	1	OPERATOR INTERFACE PANELVIEW+	ALLEN-BRADLEY	
5	1	PLC, COMPACTLOGIX, 2 COMM PORTS	ALLEN-BRADLEY	1769-L35E
6	1	POWER SUPPLY	ALLEN-BRADLEY	1769-PB4
7	1	END CAP	ALLEN-BRADLEY	1769-ECR
8	2	DISCRETE INPUT CARD	ALLEN-BRADLEY	1769-IQ16
9	1	DISCRETE OUTPUT CARD	ALLEN-BRADLEY	1769-OW8
10	2	ANALOG INPUT CARD	ALLEN-BRADLEY	1769-IF4
11	1	ANALOG OUTPUT CARD	ALLEN-BRADLEY	1769-OF4
12	3	INTERFACE MODULE, AI/AO	ALLEN-BRADLEY	1492-AIFM4-3
13	2	INTERFACE CABLE, 0.5 M	ALLEN-BRADLEY	1492-ACAB005BD69
14	2	INTERFACE MODULE, DI	ALLEN-BRADLEY	1492-IFM20F-2
15	2	INTERFACE CABLE, 0.5 M	ALLEN-BRADLEY	1492-CAB005B69
16	1	INTERFACE MODULE, DO	ALLEN-BRADLEY	1492-IFM20FN
17	1	INTERFACE CABLE, 0.5 M	ALLEN-BRADLEY	1492-CAB005C69
18	1	ETHERNET RADIO	LOCUS	OS400-HSE
19	A/R	WIREWAY WITH COVER, 2"X3", GRAY	PANDUIT	E2X3LG6
20	1	GROUND BAR	PHOENIX	BRGBK
21	A/R	DIN RAIL	PHOENIX	NS 35/15
22	2	CIRCUIT BREAKER, 15 A, RAIL MOUNT	ENTRELEC	GMU15U
23	4	FUSE HOLDER, GRAY BODY	ENTRELEC	
24	4	END STOP FOR RAILS	ENTRELEC	103 002.26
25	2	PLC SLOT COVER	ALLEN-BRADLEY	
26	4	TERMINAL BLOCKS, BLUE	ENTRELEC	125.116.01
27	11	TERMINAL BLOCKS, YELLOW	ENTRELEC	105.116.16
28	5	TERMINAL BLOCKS, GREEN/YELLOW	ENTRELEC	165.113.16
29	19	FUSE HOLDER, ORANGE	ENTRELEC	105.135.11
30	A/R	FUSES	LITTLEFUSE	
31	8	RELAY, INTERPOSING, 120 VAC	IDEC	RR2PULAC102V
32	8	RELAY BASE	IDEC	SR2P06
33	1	ETHERNET DEVICE SWITCH, 5 PORT	MOXA	EDS-305
34	1	UTILITY RECEPTACLE	PHOENIX	5600461
35	1	POWER SUPPLY	SOLA	SF112-24-100UDS
36	2	BATTERY, 12 VOLT, 12 AH, LEAD-ACID	POWER PS SONIC	PS-12120
37	1	ANTENNA AND CABLE		
38	1	FLOWMETER	SPARLING INST	TIGERMAGEP FM656
39	1	PRESSURE TRANSMITTER	ASHCROFT	452174SD04LXAY
40		NOT USED		



COMMUNICATION BLOCK DIAGRAMS



FRONT VIEW INTERIOR CONTROL PANEL

SCALE: NOT TO SCALE

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CITY OF SIMI VALLEY
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CONTROL PANEL

VENTURA COUNTY WATERWORKS DISTRICT NO. 8
WALNUT AVENUE PUMP STATION

CP 980460

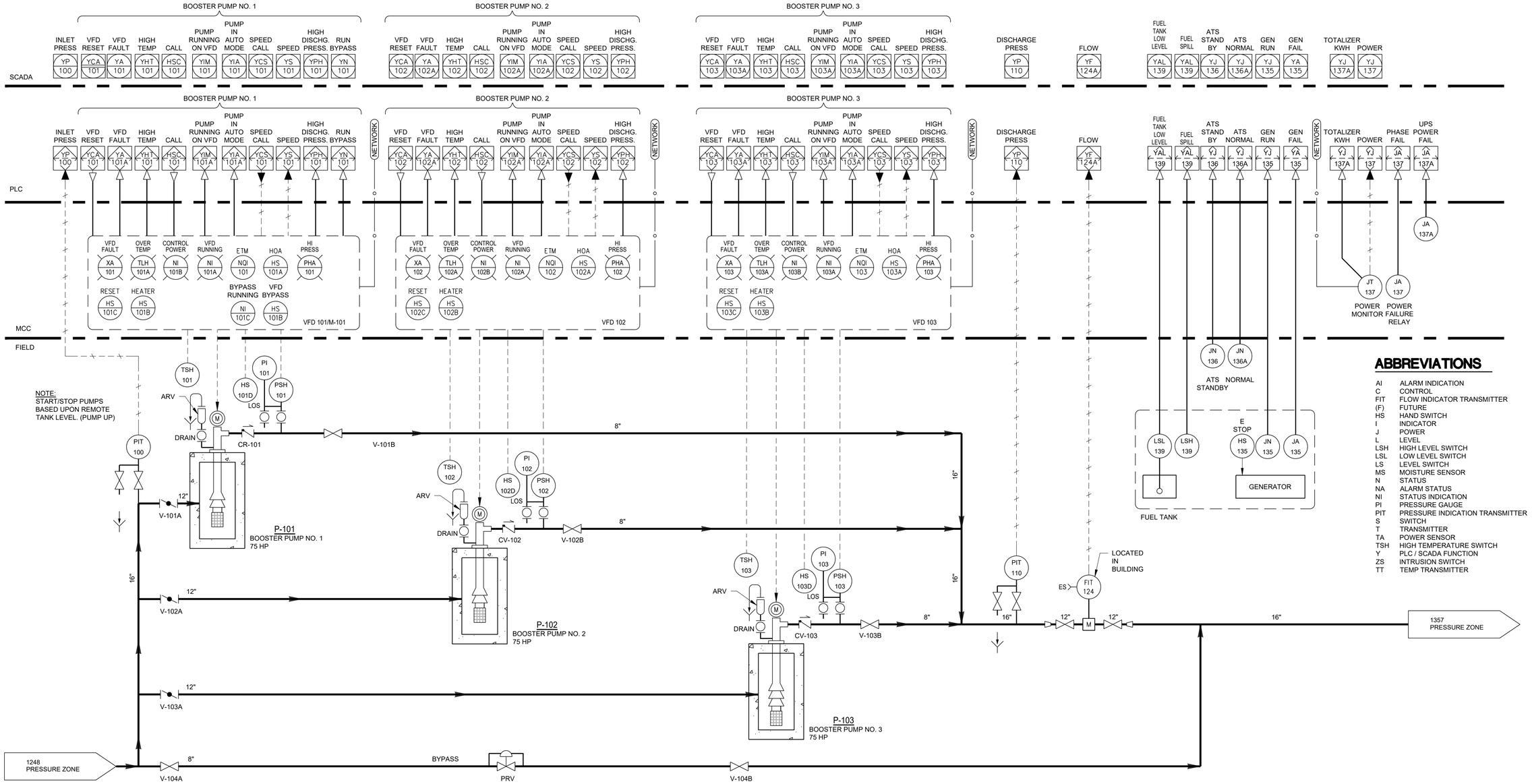
WATER PLAN SET: 8 OF T

SHEET NUMBER: 8 OF T

DRAWING NUMBER: E8

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ABBREVIATIONS

AI	ALARM INDICATION
C	CONTROL
FIT	FLOW INDICATOR TRANSMITTER
(F)	FUTURE
HS	HAND SWITCH
I	INDICATOR
J	POWER
L	LEVEL
LSH	HIGH LEVEL SWITCH
LSL	LOW LEVEL SWITCH
LS	LEVEL SWITCH
MS	MOISTURE SENSOR
N	STATUS
NA	ALARM STATUS
NI	STATUS INDICATION
PI	PRESSURE GAUGE
PIT	PRESSURE INDICATION TRANSMITTER
S	SWITCH
T	TRANSMITTER
TA	POWER SENSOR
TSH	HIGH TEMPERATURE SWITCH
Y	PLC / SCADA FUNCTION
ZS	INTRUSION SWITCH
TT	TEMP TRANSMITTER

GENERAL INSTRUMENT OR FUNCTION SYMBOLS

	LOCATION NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNTED	NORMALLY NOT ACCESSIBLE TO OPERATOR	NORMALLY ACCESSIBLE TO OPERATOR
DISCRETE INSTRUMENTS	⊖	○	(--)	⊖
SHARED DISPLAY, SHARED CONTROL	⊖	○	(--)	⊖
COMPUTER FUNCTION	⬡	⬡	⬡	⬡
PROGRAMMABLE LOGIC CONTROL	◇	◇	◇	◇

INPUT & OUTPUT SIGNALS TO PLC/RTU

- ANALOG INPUT
- ANALOG OUTPUT
- PULSE INPUT
- MODULATING OUTPUT
- DIGITAL INPUT
- DIGITAL OUTPUT

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CITY OF SIMI VALLEY
DEPARTMENT OF PUBLIC WORKS

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PROCESS AND INSTRUMENTATION DIAGRAM
VENTURA COUNTY WATERWORKS DISTRICT NO. 8
WALNUT AVENUE PUMP STATION
CP 980460

WATER PLAN SET: 15 OF T
SHEET NUMBER: 15 OF T
DRAWING NUMBER: E15

REV. 10/2020 RAH

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APPENDIX L

SEWER SYSTEM MASTER PLAN

SEWER SYSTEM MASTER PLAN

ADDENDUM #2

November 22, 2024

LOST CANYONS DEVELOPMENT

PREPARED FOR:

LOST CANYONS, LLC

SIMI VALLEY, CA

RTM ENGINEERING CONSULTANTS, LLC
1 Ada, Suite 100
Irvine, CA 92618

Introduction

This addendum is intended to provide revisions to the calculations presented in Addendum #1 of the City-Approved Lost Canyons Development Sewer Master Plan Dated April 29, 2015. Specifically, this addendum calculates whether the existing offsite sewer system is sufficiently sized to receive additional discharge that would result from the proposed re-entitlement of the Lost Canyons Development. The re-entitlement of the project leaves one lot in Dry Canyon, one lot in South Tapo Canyon and the remaining 362 proposed lots now located north of Lost Canyons Drive. The sewage of the individual lots in Dry Canyon and South Tapo will be contained onsite through septic systems and therefore not included in the revised calculations. See revised site plan in Appendix A.

At the time Addendum #1 was approved (2017), the Lost Canyons Development had four (4) locations where the proposed onsite flows joined an existing sewer system – Big Sky Development, Anderson Drive and two separate locations on Presidio Drive. The site plan for the re-entitlement would remove the Anderson Drive and one of the Presidio Drive connections. The onsite flows to the Big Sky Development will not change, therefore it does not need to be analyzed again. The Presidio Drive connection at Tapo Canyon Road (Off-Site Area F), however, now includes an additional 185 tributary EDUs and therefore was analyzed to determine if the increase in flow would require any improvements to the offsite infrastructure.

It should be noted that the existing flows were based on field flow testing at various downstream locations determined by the city prior to approval of the project's EIR. No additional flow testing of the existing flows has been completed in conjunction with this analysis. Therefore, the presented results are limited to a mathematical evaluation.

Methodology

Addendum #1 calculated sewage flows for both Onsite and Off-Site Area F through two methods: equivalent dwelling units (EDU) or by land use. Table 2.2 of the City of Simi Valley Manual & Standard Plans for the Design and Construction of Sanitary Sewage Facilities Manual (the Manual) sets categories from which EDU's can be assigned. Similarly, Table 2.1 of the Manual and City of Simi Valley Zoning Maps were used to determine flows for areas that don't fall under the categories set in Table 2.2. Tables F.3 and F.4 in Appendix B show the existing flow quantities calculations for Offsite Area F. Once flows were determined for both the onsite development and Offsite Area F, a peaking factor was set at various confluence points using the Simi Valley Average Flow-Peak Flow Graph. Using peak flow rates, Mannings Equation was utilized convert flow rates into flow depths.

Per the Manual, flow depths for main lines 12" and smaller in diameter cannot exceed a d/D of 1/2 while main lines larger than 12" in diameter cannot exceed a d/D of 2/3 during peak flow conditions. As noted above, no additional flow study has been conducted therefore the previously approved calculations for the offsite flows were used. Appendix B, contains Tables 2.1 and 2.2 stated above, the Simi Valley Average Flow-Peak Flow Graph and the Land Use Map for Offsite Area F.

Results

While the average sewage flow rate coming into Offsite Area F from the Lost Canyons Development increased from 0.0771 cfs to 0.1568 cfs with the revised site plan, this analysis demonstrates that the existing sewer system is sufficiently sized to convey the additional sewage flow without requiring any

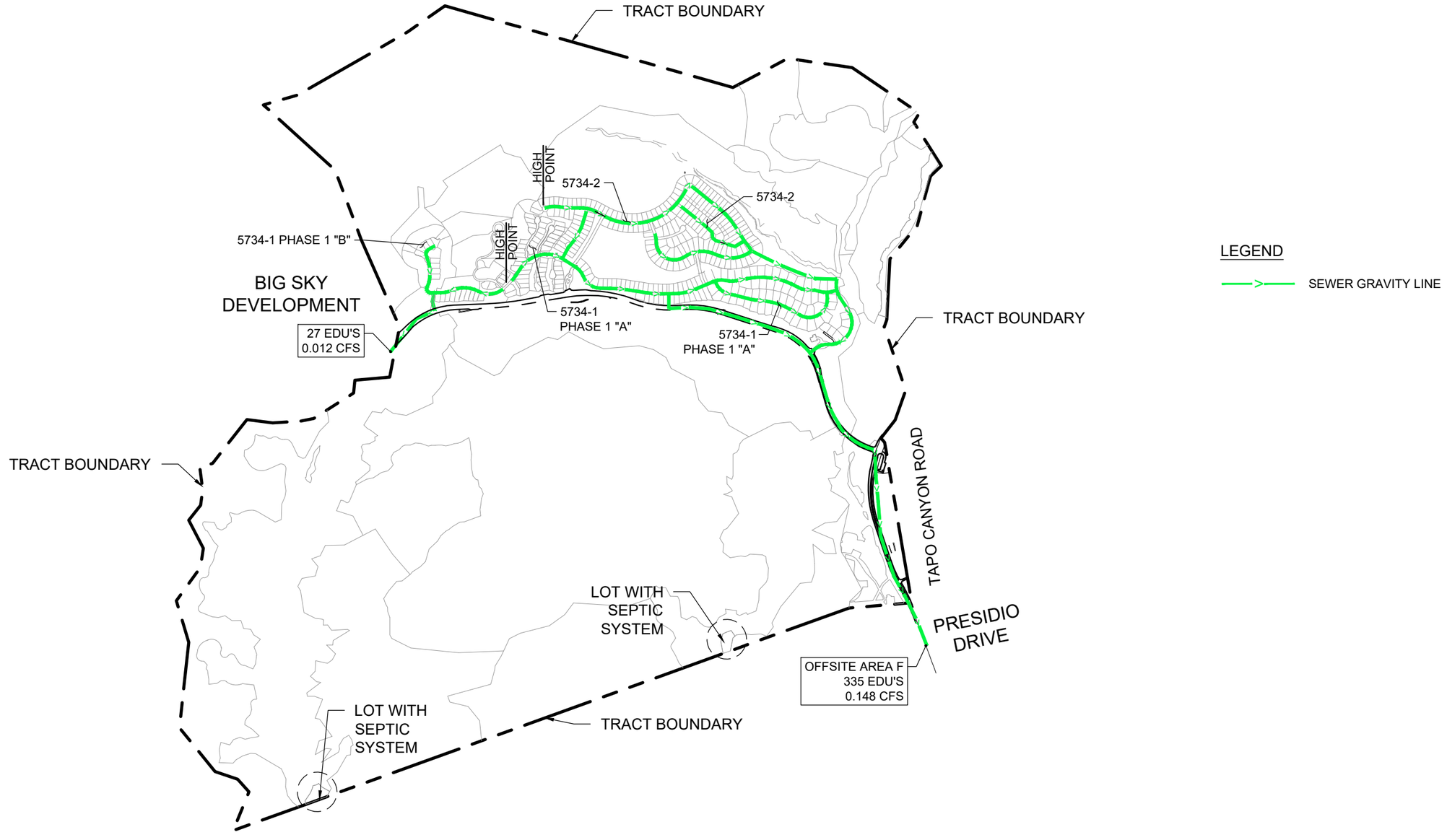
offsite sewer infrastructure upgrades. The calculations show that all 8” pipes will convey sewage at a maximum depth of 0.28’, which is less than the City of Simi Valley’s maximum of 1/2 full (0.33’ in an 8”Ø pipe). Additionally, the existing 12” pipe will convey sewage at a maximum depth of 0.63’, which is less than the City of Simi Valley’s maximum of 2/3 full (0.67’ in an 12”Ø pipe). See Appendix A for the revised sewage flows and depths at each of the offsite confluence points.

Conclusion

Given that the revised flow analysis is based on approved methodologies and that no further offsite sewer improvements are necessary, it is recommended that this addendum be approved. The results ensure the continued viability and capacity of the existing sewer system to support the proposed development without adverse impacts.

APPENDIX A

Exhibit 1 – Sewer Master Plan Map
Table F.1 – On-Site Sewage Generation Calculations
Table F.2 – Off-Site Area F Sewage Flow Depths
Table F.3 – Post-Development Sewage Flows and Depths



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SEWER MASTER PLAN MAP

LOST CANYONS

EXHIBIT 1

P:\1756 Lost Canyons\06 PROJECT DOCS\03 REPORTS\03 TTM Golf\03 Sewer Master Plan\EH-LAND PLAN.dwg Plotted: Nov 20, 2024 andres.ramirez

LOST CANYONS

Table F.1 - On-Site Sewage Generation[1]

Outlet	Development Area	Single Family Residential Lots	EDUs	Average Flow Rate (cfs)	Peak Flow Rate (cfs)
Tapo Cyn Road and Presido Drive	5734-2	182	182	0.078	0.252
	5734-2 Rec Area	See Table F.2	-	0.005	0.017
	5734-1 Phase 1 "A"	153	153	0.065	0.212
	TRIBUTARY TO OFF-SITE AREA F TOTAL		**335**	0.148	**0.481**
Big Sky Development	5734-1 Phase 1 "B"	27	27	0.012	0.037
	TRIBUTARY TO BIG SKY OFFSITE TOTAL		**27**	0.012	**0.037**
Septic Tank	South Tapo	1	1	-	-
	Dry	1	1	-	-
			2	-	**-**

Average Flow Rate = 0.000426
Peak Flow Rate = (Peak Flow Rate)*(Avg Flow Rate)*(EDU)

Table F.2 - 5734-2 Recreation Area Sewage Generation[1]

	Area (ac)	Avg Flow Coefficent (cfs/ac)	Avg Flow (cfs)
Clubhouse	0.75	0.006	0.0045
Future Park	2.75	0.0003	0.0008
		Total	**0.005**

[1] Per table 2.1 in City of Simi Valley Manual & Standard Plans for the Design and Construction of Sanitary Sewage Facilities, dated August 28, 2006

OFFSITE AREA F SEWAGE

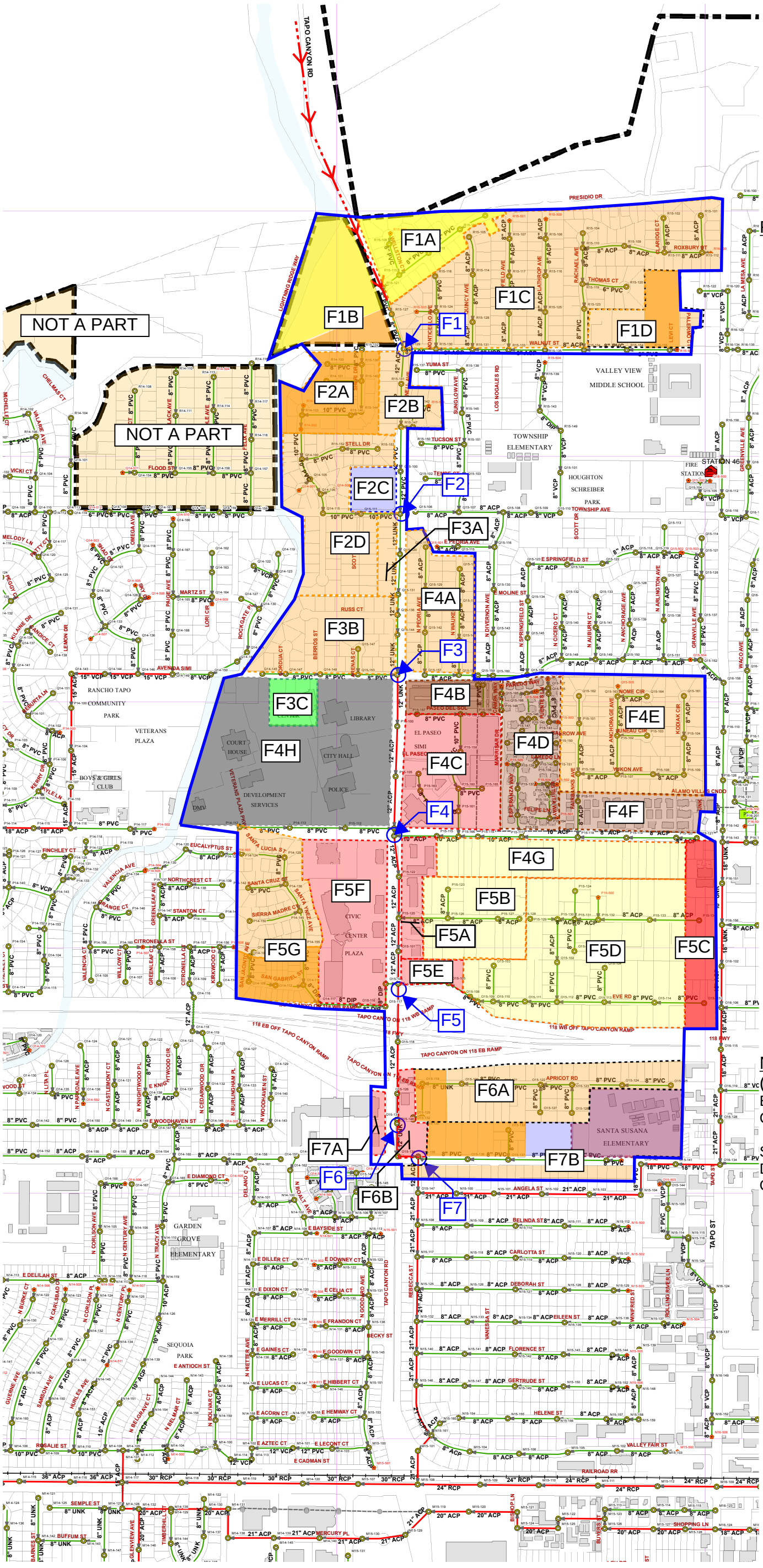
Table F.3 - Post-Devlopment Sewage Flows and Depths

Per City of Simi Valley Sewer Design Manual:
Max Flow Depth at Peak Flow Rate in 8" Pipe: 0.3 ft
Max Flow Depth at Peak Flow Rate in 12" Pipe: 0.7 ft

Area	Zoning	Q (cfs) EDU	EDU	Q (cfs)	Cumulative Q (cfs)	Peak Q (cfs)	Existing Flow Depth (ft)	Updated Flow Depth (ft)	
Lost Canyons		0.1480		0.1480	0.1480				
Water Treatment Plant			210	0.0891	0.2372				
F1A	RLow	0.0123	28	0.0123	0.2495				
F1B	Rlow/Rmod	0.0179	42	0.0179	0.2673	0.8020	**0.2 FT**	**0.28 FT ∴ good**	Assume 8" pipe, Min S=1.64%, half full pipe flow, Peaking Factor = 3.0
F1C	Rmed	0.0698	175	0.0746	0.0746				
F1D	RMed	0.0034	20.5	0.0087	0.0833				
Confluence F1					0.3506				
F2A	Rmod	0.0319		0.0319	0.3825				
F2B	Rmed	0.0055		0.0055	0.3880				
F2C	Church	0.0179	**4.50**	0.0019	0.3899	1.1308	**0.23 FT**	**0.32 FT ∴ good**	Assume 12", Min S=1.50%, two-thirds full pipe flow, Peaking Factor = 2.9
F2D	Rmed	0.0264		0.0264	0.0264				
Confluence F2					0.4163				
F3A	Rmed	0.0026		0.0026	0.4189	1.2149	**0.27 FT**	**0.33 FT ∴ good**	Assume 12", Min S=1.50%, two-thirds full pipe flow, Peaking Factor = 2.9
F3B	Rmed	0.0191		0.0191	0.0191				
F3C	Senior Living	0.0064	15	0.0064	0.0255				
Confluence F3					0.4444				
F4H	Civic Center	0.2617		0.2617	0.7062	1.9066	**0.46 FT**	**0.45 FT ∴ good**	Assume 12", Min S=1.20%, two-thirds full pipe flow, Peaking Factor = 2.7
F4A	Rmed	0.0213	50	0.0213	0.0213				
F4B	R very high	0.1098		0.1098	0.1311				
F4C	CPD	0.1034	104.8	0.0446	0.1757				
F4D	Rhigh	0.0565		0.0565	0.2322				
F4E	Rmed	0.0328		0.0328	0.2650				
F4F	Rhigh	0.0223		0.0223	0.2873				
F4G	R very low	0.0089		0.0089	0.2962				
Confluence F4					1.0024				
F5A	CPD	0.0568	41.00	0.0175	1.0199				
F5B	R very low	0.0077		0.0077	1.0276	2.7744	**0.52 FT**	**0.56 FT ∴ good**	Assume 12", Min S=1.20%, two-thirds full pipe flow, Peaking Factor = 2.7
F5C	CO	0.0264		0.042	0.042				
F5D	R very low/CO	0.0306	75.96	0.0324	0.0744				
F5E	CPD			0.0155	0.0899				
F5F	CPD	0.1140	118.7	0.0506	0.1405				
F5G	Rmed/mod	0.0396		0.0396	0.1801				
Confluence F5					1.2076				
F6A	Rmed/mod	0.0187		0.0187	1.2263				
F6B	CPD	0.0168	5	0.0021	1.2285	3.1940	**0.58 FT**	**0.62 FT ∴ good**	Assume 12", Min S=1.20%, two-thirds full pipe flow, Peaking Factor = 2.6
Confluence F6		#REF!			1.2285				
F7A	CPD	0.0084	26.6	0.0113	0.0113				
F7B	Mixed	0.0170	**46.1**	0.0196	0.0310				
Confluence F7					1.2594				
Rebecca St.					1.2594	3.2745	**0.59 FT**	**0.63 FT ∴ good**	Assume 12", Min S=1.20%, two-thirds full pipe flow, Peaking Factor = 2.6

APPENDIX B

Exhibit 1D – Offsite Area F Land Use Map
Table F.4 – Equivalent Dwelling Unit Assignments
Table F.5 – Land Use Assignment
Table 2.1 – Sewage Flow by Land Category
Table 2.2 – Equivalent Dwelling Unit Assignments by Category
Simi Valley Average Flow-Peak Flow Graph



LEGEND

RESIDENTIAL (1 EDU/UNIT)

- VERY LOW RESIDENTIAL
- LOW RESIDENTIAL
- MEDIUM RESIDENTIAL

RESIDENTIAL (0.75 EDU/UNIT)

- MODERATE RESIDENTIAL
- HIGH RESIDENTIAL
- VERY HIGH RESIDENTIAL

COMMERCIAL (1)

- COMMERCIAL PLANNED DEVELOPMENT
- COMMERCIAL OFFICE

OTHER

- CHURCH (1)
- SCHOOL (1)
- CIVIC CENTER (0.006 CFS/AC)
- SENIOR ASSISTED LIVING (0.75 EDU/UNIT)
- CONFLUENCE POINT
- TRIBUTARY AREA BOUNDARY
- NEW 8" SEWER LINE FROM LOST CANYONS DEVELOPMENT

NOTES

(1) SEE TABLE F.5 AND F.4 FOR EDU AND LAND USE FLOW CALCULATIONS TABLES.

SUBAREA LAND USES DETERMINED USING THE CITY OF SIMI VALLEY ZONING MAPS.

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EXHIBIT 1D - OFFSITE AREA F LAND USE MAP

LOST CANYONS SEWER MASTER PLAN
ADDENDUM 1

OFFSITE AREA F SEWAGE FLOW COUNTS

Table F.4 - Equivalent Dwelling Unit Assignments

Tributary area	Name	EDU Category	Quantity	Total Quanitity	Total EDU	Flow (cfs)
	Water Treatment Plant	Water Treatment Plant	Discharge Line	40 gpm	210.0	0.0895
F1B	Vacant Lot	Residential - Single Family			42.0	0.0179
F2C	Church of Jesus Christ of Latter-day Saints	Commercial - Church	1 church	500 seats	4.5	0.0019
F3C	Senior Assisted Living Center	Residential - Multiple Family	1 center	15 units	15.0	0.0064
F4C	El Paseo Simi	Restaurant > 42 seats	7 restaurants	648 seats	40.0	0.0170
		Store > 10,000 SF	3 stores	255,000 SF	59.4	0.0253
		Store < 10,000 SF	3 stores	16,400 SF	5.4	0.0023
				TOTAL	104.8	0.0446
F5A	Shopping Center	Restaurant > 42 seats	2 restaurants	300 seats	18.7	0.0080
		Restaurant < 42 seats	1 restaurant	42 seats	2.6	0.0011
		Store < 10,000 SF	12 stores	30,000 SF	9.9	0.0042
		Bank (Commercial Office)	4 banks	12,600 SF	4.2	0.0018
		Bar	1 Bar	94 seats	5.6	0.0024
				TOTAL	41.0	0.0175
F5F	Civic Center Plaza	Restaurant > 42 seats	10 restaurants	1200 seats	75.0	0.0320
		Store > 10,000 SF	1 store	38,000 SF	9.5	0.0040
		Store < 10,000 SF	7 stores	24,300 SF	8.0	0.0034
		Bank (Commercial Office)	3 offices	9,700 SF	3.2	0.0014
		Clinic	1 medical office	30,000 SF	18.0	0.0077
		Movie Theatre	1 theatre	4,500 seats	5.0	0.0021
				TOTAL	118.7	0.0506
F6B	Mixed Use	Gas Station	1 gas station	2 restrooms	1.0	0.0004
		Office Building	1 office	12,000 SF	4.0	0.0017
				TOTAL	5.0	0.0021
F7A	Griffin Plaza Shopping Center	Restaurant > 42 seats	1 restaurant	150 seats	9.4	0.0040
		Restaurant < 42 seats	2 restaurants		5.2	0.0022
		Store < 10,000 SF	3 stores	6,500 SF	2.1	0.0009
		Store > 10,000 SF	1 store	40,000 SF	9.9	0.0042
				TOTAL	26.6	0.0113
F7B	Mixed Use	Residential - Single Family	34 SFR		34.0	0.0145
		Church	1 church	500 seats	4.5	0.0019
		Elementary School	1 school	300 students	5.8	0.0025
		Preschool	1 school	100 students	1.8	0.0008
				TOTAL	46.1	0.0197

NOTE: See Table 2.1 in the Appendix for sewage flow by land use. See Table 2.2 in the Appendix for EDU assignments by category.

OFFSITE AREA F SEWAGE FLOW COUNTS

Table F.5 - Land Use Assignments

Tributary area	Name	Land Use	Quantity	Flow (cfs)
F4H	Simi Valley Civic Center	Civic Center	43.6 acres	0.2616
F5C	Commercial Office Zone	General Commercial	7.0 acres	0.0420
F5E	Commercial Planned Development	General Commercial	2.6 acres	0.0156

NOTE: See Table 2.1 in the Appendix for sewage flow by land use. See Table 2.2 in the Appendix for EDU assignments by category.

Table 2.1

LAND USE	ABR.	AVERAGE COEFFICIENT
High Density	H.D.	140 People/Acre (100 gpcd)
Medium Density	M.D.	75 People/Acre (100 gpcd)
Low Density	L.D.	20 People/Acre (100 gpcd)
Suburban	Sub	10 People/Acre (100 gpcd)
Hillside	H.S.	7 People/Acre (100 gpcd)
Agriculture	Agr	2.5 People/Acre (100 gpcd)
Light Industry	L.I.	0.008 cfs/Acre
Heavy Industry	H.I.	0.008 cfs/Acre
General Commercial	Gen	0.006 cfs/Acre
Limited Commercial	Ltd	0.006 cfs/Acre
Hospital	H	0.387 cfs/Hospital
School	S	0.062 cfs/school
University or College	U	0.371 cfs/Univ.
Civic or Administrative Center	C.C.	0.006 cfs/Acre
Airport	A	0.001 cfs/Acre
Park	P	0.0003 cfs/Acre
Future Park	F.P.	0.0003 cfs/Acre
Golf	G	0.0003 cfs/Acre

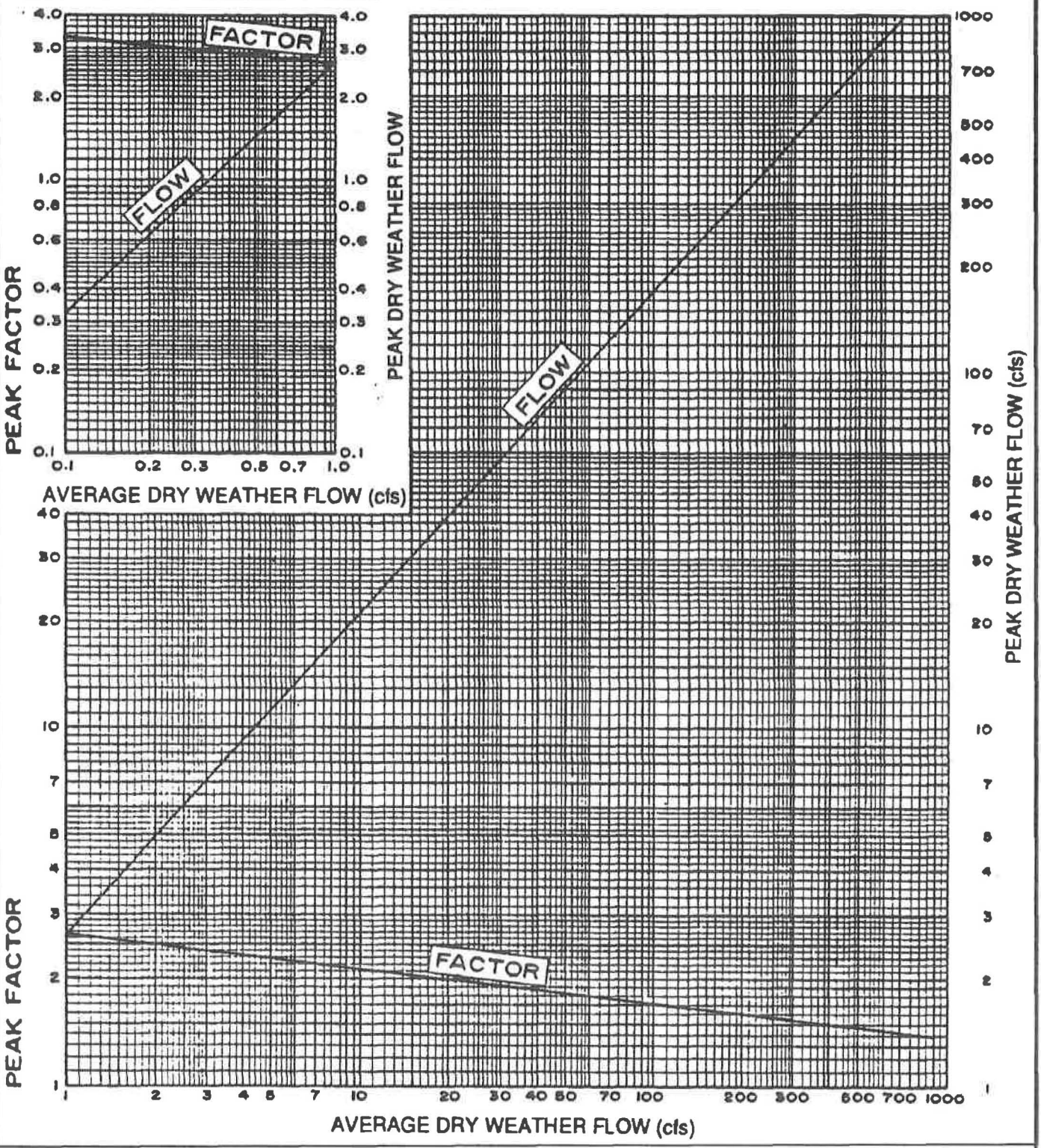
Table 2.2

EQUIVALENT DWELLING UNIT ASSIGNMENT

CATEGORY	EDU'S
Residential	
Single Family Detached/Attached	1.00
Multiple Family (Condos, Apts., Airspace Townhouses)	0.75
Mobile Home	0.60
Commercial	
Hotel/Motel	
Per unit without kitchen	0.33
Per unit with kitchen	0.55
Churches/Theatres/Auditoriums	
110 seats or less	1.00
Each additional seat	0.0091
Restaurants	
42 seats or less	2.60
Each additional seat	0.0625
Bars, Cocktail Lounge per seat	0.06
Automobile Service Stations	
Per restroom	0.33
Auto service & repair shops (additional)	0.34
Comfort Station	
Per water closet or urinal	0.33
Self-Service Laundry/Car Wash per washer/day	0.40
Shop and Store Buildings (gross bldg. sq. ft.)	
10,000 sq. ft. or less - per 1,000 sq. ft.	0.33
Each additional area - per 1,000 sq. ft.	0.22
Office Buildings	
Medical - per 1,000 sq. ft.	0.60
All other - per 1,000 sq. ft.	0.33
Industrial/Manufacturing	
Dry Industry - per 1,000 sq. ft.	0.36
Wet Industry - case-by-case determination	--
Warehouse - per 1,000 sq. ft.	0.08
Institutional	
Schools	
Elementary/Nursery, Etc. - 60 students or less	1.00
Each additional student	0.02
High School - 30 students or less	1.00
Each additional student	0.033
Hospitals - per bed	0.60

Categories not covered by the above table shall require special approval.

NOTE: Equivalent dwelling unit (EDU) is defined as the unit of measure, which is based on the flow characteristics of an average single-family residence in terms of sewage quantity and constituent quality. QEDU = 275 gal/day (2.75 persons/DU x 100 gal/person/day).



APPROVED: /S/ DIRECTOR OF PUBLIC WORKS Aug 28, 2006 DATE	CITY OF SIMI VALLEY DEPARTMENT OF PUBLIC WORKS	AVERAGE FLOW-PEAK FLOW GRAPH	STANDARD PLAN NO. SV 40-310 SHEET 1 OF 1