Draft Initial Study / Proposed Mitigated Negative Declaration

Arroyo Las Positas Flood Mitigation Project

Arroyo Las Positas Desilting through Las Positas Golf Course, City Project No 202015
and Las Positas Golf Course Repair, CIP 202132)
Livermore, California





Prepared for:

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WRA#27165

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List of Acronyms and Abbreviations

AB	Assembly Bill
ALUCP	Airport Land Use Compatibility Plan
ATP	Livermore Bicycle, Pedestrian, and Trails Active Transportation Plan
APN	Assessor's Parcel Number
A-PEFZA	Alquist-Priolo Earthquake Fault Zoning Act
BAAQMD	Bay Area Air Quality Management District
BMPs	best management practices
CAAQS	California Ambient Air Quality Standards
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
Cal/OSHA	California Division of Occupational Safety and Health
CAP	Clean Air Plan
CARB	California Air Resources Board
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
Cfs	cubic feet per second
CGS	California Geological Survey
CHRIS	California Historical Information System
City	City of Livermore
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent
Corps	United States Army Corps of Engineers
CRLF	California red-legged frog
CTS	California tiger salamander
CY	cubic yards
dB	decibel
dBA	A-weighted sound level
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone

FIRM	Federal Insurance Rate Maps
GHG	greenhouse gas
GIS	geographic information system
HRRP	Habitat Restoration and Revegetation Plan
INSP	Isabel Neighborhood Specific Plan
LF	linear feet
LMC	Livermore Municipal Code
LRA	Local Responsibility Area
LUST	leaking underground storage tank
MBTA	Migratory Bird Treaty Act
MM	Mitigation Measure
MSL	mean sea level
MT	metric tons
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_x	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resource Conservation Service
OSHA	Occupational Safety and Health Administration
OSP	Open Space
$PM_{2.5}$	fine particulate matter
PM_{10}	respirable particulate matter
PRC	Public Resources Code
Rank	California Rare Plant Rank
ROG	reactive organic gas
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SFBAAB	San Francisco Bay Area Air Basin
SRA	State Responsibility Area
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
SVP	Society of Vertebrate Paleontology
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
WRA	WRA, Inc.

1.0 INTRODUCTION AND PURPOSE

This Initial Study/Mitigated Negative Declaration (IS/MND) of environmental impacts is being prepared to conform to the requirements of the California Environmental Quality Act (CEQA), the CEQA Guidelines (California Code of Regulations [CCR] 15000 et. seq.), and the regulations and policies of the City of Livermore (City). This IS/MND evaluates the potential environmental impacts which might reasonably be anticipated to result from implementation of the Arroyo Las Positas Flood Mitigation Project ("proposed project," "project").

The City of Livermore is the Lead Agency under CEQA and has prepared this IS/MND to address the impacts of implementing the proposed project. The purpose of the project is to implement flood control improvements along the Arroyo Las Positas to reduce flooding of the Livermore Municipal Airport, the Las Positas Golf Course, and other buildings, parking lots, roadways, and structures surrounding the Arroyo Las Positas, as well as expand riparian habitat within the project site.

2.0 PROJECT INFORMATION

2.1 Project Title

Arroyo Las Positas Flood Mitigation Project

2.2 Lead Agency Name and Address

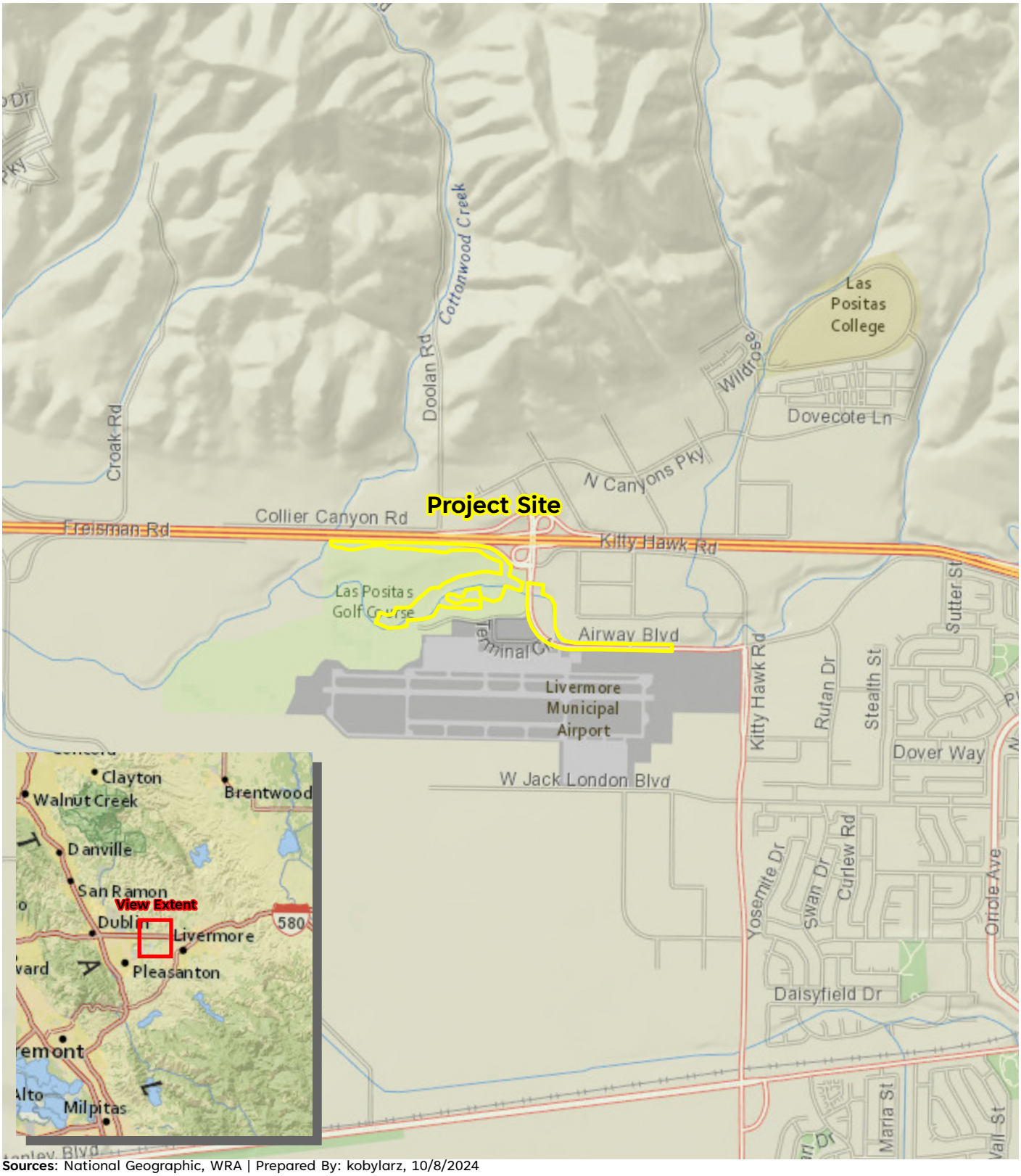
City of Livermore
1052 South Livermore Avenue
Livermore, CA 94550

2.3 Contact Person and Phone Number

Mallika Ramachandran, Assistant City Engineer
mramachandran@livermoreca.gov
(925) 960-4511

2.4 Project Location

The project is located within the City of Livermore in Alameda County, California (Figure 1). The project site includes areas generally along Arroyo Las Positas and extends across four parcels (Assessor's Parcel Number 904-000200600, 904-000405100, 904-000405200, and 904-000405600). The approximately 40-acre project site is bisected vertically by Airway Boulevard, which separates the eastern and western portions of the project site. The western portion of the site includes portions of the Las Positas Golf Course (hereinafter referred to as "the golf course") and the eastern portion of the site includes portions of three undeveloped parcels to the east of the golf course (Figure 2). The project site is generally surrounded by open space, commercial, and public facility land uses (airports, park, etc.).



Path: L:\Acad 2000 Files\27000\27165\GIS\ArcMap\27165_base\27165_base.aprx Layout Name:Fig 1 Location

Sources: National Geographic, WRA | Prepared By: kobylarz, 10/8/2024

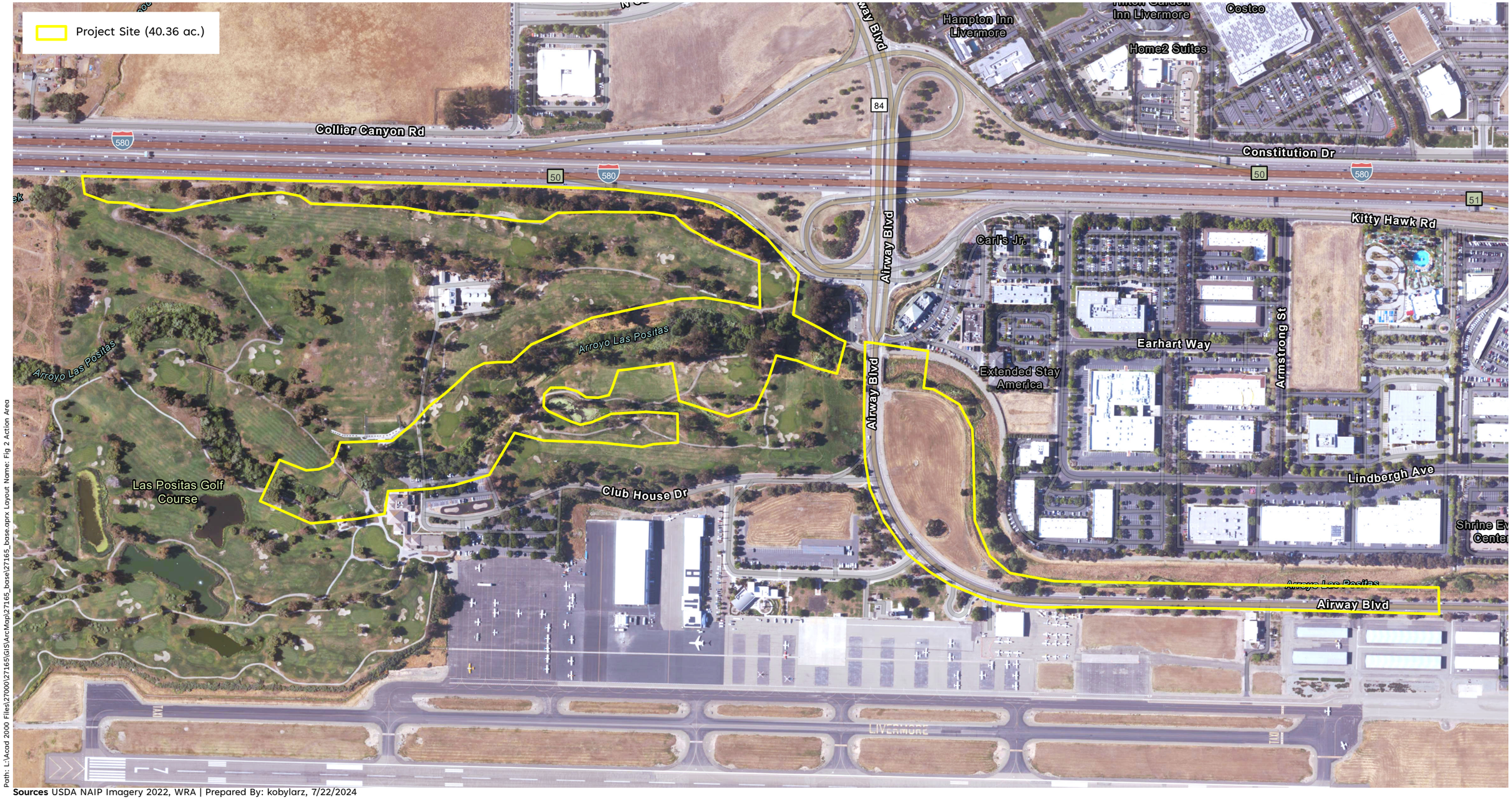
Figure 1. Project Site Regional Location

Arroyo Las Positas Flood Mitigation Project
Livermore, California

0 0.25 0.5 Miles

N

wra Environmental Consultants



Path: L:\Acad 2000 Files\27000\27165\GIS\ArcMap\27165_base\27165_base.aprx Layout Name: Fig 2 Action Area

Sources USDA NAIP Imagery 2022, WRA | Prepared By: kobylarz, 7/22/2024

Figure 2. Aerial Photograph of the Project Site

Arroyo Las Positas Flood Mitigation Project
Livermore, California

0 500 1,000 Feet N

wra Environmental Consultants

2.5 Existing General Plan Designation and Zoning District

General Plan Designation: Project site areas to the west of Airway Boulevard are within the City's General Plan planning area and are within the Open Space - Parks, Trailways, Recreation Areas (OSP) land use designation. Project site areas to the east of Airway Boulevard are within the Isabel Neighborhood (IN) and the Open Space land use designation.

Zoning District: Open Space Flood Plain, Education and Institutions, Isabel Neighborhood Specific Plan (INSP)

2.6 Surrounding Land Uses and Setting

Surrounding land uses include recreational areas of the Las Positas Golf Course, undeveloped open space, commercial areas of the Airway Business Park, and the Livermore Municipal Airport and associated facilities.

3.0 PROJECT DESCRIPTION

3.1 Background Information and Project Purpose

Arroyo Las Positas flows from east to west through the center of the project site and eventually flows into Alameda Creek, which flows out into South San Francisco Bay. On the project site, the creek is characterized by stretches of open water channels overlain by dense riparian tree canopy mixed with exposed stretches of channel supporting emergent vegetation species. There is significant growth of vegetation and fallen trees at many locations both on the banks and across the channel which reduces the capacity of the channel and likely increases sediment deposition upstream. The existing channel has a capacity of approximately 380 cubic feet per second (cfs), which is less than a two-year storm event. In recent years, heavy storms have caused significant flooding of the creek which has impacted not only the golf course but also the Livermore Municipal Airport and its facilities which border the golf course to the south.

The purpose of the project is to restore flow capacity for a reach of Arroyo Las Positas and improve water quality by increasing the adjacent riparian habitat and reducing sediment input resulting from flood events. By implementing these creek improvements, flooding would be reduced to the Livermore Municipal Airport and the airport facilities, buildings, golf course, parking lots, and roadways south of Arroyo Las Positas.

3.2 Project Elements

3.2.1 Overview of Project Elements

The project would include flood control improvements along Arroyo Las Positas, which would be facilitated by the following project elements:

- Increasing the flood conveyance in the channel bank for approximately 2,525 linear feet (LF) of channel downstream of Airway Boulevard;
- Installing a flood berm along the east side of Airway Boulevard, and a flood wall along the north side of Airway Boulevard;
- Installing a flood wall and flood gate along the north side of the golf course parking lot and restaurant/club house and flood berms in upstream locations to the east of the golf course parking lot and restaurant/club house;
- Raising one golf cart path bridge to reduce debris loading and increase channel conveyance;
- Installing culverts at four bridge crossings, outside of the limits of the bridge abutments, to increase channel conveyance and debris loading; and
- Relocating golf course features such as trees, greens, and golf cart paths.

Elements of the project are shown in the 65 percent design plans in Appendix A.

3.2.2 Flood Plain Expansion

Work within Arroyo Las Positas would primarily be focused on expanding the channel overbank areas to increase channel conveyance and to increase riparian habitat along the channel. The work would include removal of soil and sediment along approximately 2,525 LF of the channel. The primary focus of the soil and sediment removal is to increase flood conveyance while

expanding the riparian habitat along the channel. Work within the channel would be timed to coincide with the dry season (June 15-October 15) to minimize impacts to water quality and special-status wildlife species.

3.2.3 Installation of Flood Walls and Flood Berms

As part of the flood protection work, cast-in-place concrete flood walls and earthen berms would be constructed in the following locations:

- A concrete flood wall along the north side of Airway Boulevard, up to a height of 2.5 feet,
- An earthen berm along the east side of Airway Boulevard, up to a height of 4.5 feet,
- A concrete flood wall along the north side of the golf course parking lot, up to a height of 4.5 feet, including a flood gate at the existing bridge crossing which would be deployed to prevent flood waters from entering the parking lot and airport, and
- An earthen berm upstream of the golf course parking lot, connecting existing high points along the golf course, up to a height of approximately four feet.

Both flood wall types at all locations would be situated away from the top of bank and associated riparian habitat of Arroyo Las Positas. The flood berms and walls are intended to reduce routine flooding that occurs throughout the golf course, parking lots, airport, and associated infrastructure and buildings. Soil and vegetation removed for installation of the flood berms and walls would be hauled off site for disposal at an appropriate location or may be utilized throughout the golf course as needed for grounds maintenance and/or improvements. Earthen flood berms would be revegetated with native plants and/or seeds after construction work is complete.

3.2.4 Bridge and Culvert Work

As part of the work associated with raising the golf cart path bridge, the existing bridge will be removed and a new cast-in-place concrete bridge footings and drilled concrete piers would be installed in the same location as the existing footings, outside the top of bank of Arroyo Las Positas. The existing golf cart path bridge would be reinstalled on the new concrete bridge footings. The low chord of the existing bridge is within one foot of the sediment within the channel and the bridge accumulates debris during small frequent storms. The bridge would be elevated approximately two feet to reduce the potential for debris loading on the bridge and to increase hydraulic conveyance within the channel. Raising the bridge would increase the conveyance under the bridge and would reduce debris loading, which would ultimately reduce flooding. Elevating the bridge would increase the open area under the bridge from approximately 150 to 490 square feet.

It should be noted that it is not possible to elevate the bridge above the 100-year water surface elevation due to the significant depth and extent of the floodplain.

A Geotechnical Investigation was prepared for the project in August 2024 by Cornerstone Earth Group which consisted of field and laboratory programs to evaluate physical and engineering properties of the subsurface soils, engineering analysis to prepare recommendations for site work and grading, bridge foundations, retaining/flood walls, and pavements; and preparation of a final report. The project would implement recommendations provided in the Geotechnical Investigation, which include measures related to placement of engineered fill, temporary cut and fill slopes, subgrade preparation, soil stabilization techniques, and trench backfill. Proposed structures, such as bridge footings, would be designed in accordance with recommendations

provided in the Geotechnical Investigation prepared by Cornerstone Earth Group (Cornerstone Earth Group 2024).

Three additional bridge crossings are located upstream of the golf course parking lot and restaurant/club house and would not be raised as a result of the proposed project. These will remain in place, but in order to increase channel capacity, a total of eight culverts would be added in the channel overbank at the bridge crossings. The culverts would provide additional flood conveyance in the overbank and would reduce hydraulic restrictions caused by contraction and expansion of the flood flows.

3.2.5 Golf Course Amenity Relocation and Soil Stockpiling

Overbank expansion would encroach into existing golf course features, which would be relocated to maintain functionality. The relocated features would be situated outside of the expanded overbank areas. Soil stockpiling may be necessary for excavated material from overbank expansion and/or sediment and debris removal. Soil stockpiling areas have been identified throughout the golf course property, outside of any aquatic features.

3.3 Project Construction

3.3.1 Construction Phasing and Schedule

The project is dependent on Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant and California Department of Water Resources Flood Management grant funding. The FEMA grant requires that out-of-channel construction work for the project must be completed by December 1, 2025. Based on the grant schedule[1], it is estimated that work will commence June 15, 2025.

Work associated with the out of channel flood walls, berms, modifications to golf cart pathways, and raising the existing pedestrian bridge is anticipated to commence June 15, 2026, and is expected to require six months to complete. All in-channel work would be completed by October 31, 2026; however, replanting work may continue beyond this date.

Work associated with the floodplain bench expansion and installation of culverts is anticipated to commence May 1, 2026, contingent upon FEMA review and approval[2] and is expected to require six months to complete. All in-channel work would be completed by October 31, 2026. However, replanting work may continue beyond this date.

3.3.2 Staging, Access, and Equipment

The following equipment would be required for project construction:

- Excavators,
- Cranes,
- Loaders,

[1] The use of FEMA grants for the project triggers the need to conduct an environmental analysis under the National Environmental Policy Act (NEPA). This analysis is being prepared and conducted separately from CEQA.

[2] The channel work is funded by FEMA Hazard Mitigation Grant and proceeding to the construction phase is contingent upon FEMA's review and approval.

- Dump trucks,
- Drill rig,
- Concrete trucks,
- Compacting equipment,
- Water trucks,
- Transfer trucks and trailers,
- Woodchippers,
- Assorted power or hand tools (e.g., augers, chainsaws, etc.), and
- General use service vehicles (i.e., pickup trucks).

Trucks and vehicles would generally access the project site via the Interstate 580 (I-580) exits at Airway Boulevard. Access to specific areas within the project site would be achieved through the construction of temporary access routes, as described below in *Section 3.3.3, Site Work*. Designated staging areas for construction equipment have been identified within the project site and throughout the golf course, outside of any sensitive natural communities or aquatic areas.

3.3.3 Site Work

Grading quantities for the project would include approximately 14,700 cubic yards (CY) of excavation and 6,910 CY of fill. Flood plain expansion work would prioritize preserving as many trees as feasible but is expected to require the removal of up to 116 riparian trees of varying non-native and native species including eucalyptus (*Eucalyptus* sp.), willows (*Salix* sp.), golden rain tree (*Koelreuteria paniculata*), coast live oak (*Quercus agrifolia*), pines (*Pinus* sp.), black walnut (*Juglans hindsii*), privet (*Ligustrum* sp.), non-native prunus (*Prunus* sp.), and popular (*Populus* sp.), along with other unknown dead trees.

Vegetation would be removed by various methods including hand cutting and extraction with heavy equipment. Some trees would be chipped on-site, and the chips would be laid along the northern site perimeter. Once any required vegetation is removed, temporary access routes would be created. Access routes would be placed at the top of bank and through the golf course so that equipment can perform work outside of the channel. A temporary construction bridge (railcar or similar) would be placed across the channel, spanning the low flow channel, to provide access to the north side of the channel. Soil and sediment would be removed with excavators and other such heavy equipment. During this process the overbanks would also be set back and tapered between an approximately 3:1 or 5:1 slope. Most slopes will be tapered to 5:1 with some steeper slopes (up to 3:1) in some locations as necessary to conform to existing contours. Buried wooded debris from the trees removed from the site would be used to protect the channel banks from erosion and migration. Minimal in water work and work within the low flow channel would be performed during this process.

Golf course facilities, such as cart paths, putting greens, and tee boxes, would be adjusted as necessary to accommodate the project. Proposed adjustments to golf course facilities are shown in the project 65 percent design plans (Appendix A). In addition, permanent fill material may be placed on the golf course at various locations. Any placement of fill material would only occur on developed portions of the golf course and would not occur within sensitive habitat areas.

3.3.4 Landscaping

All disturbed soils would be replanted with native plant species following the completion of excavation and grading. The temporarily impacted riparian habitat would also be replanted immediately following grading activities. Tree replacement would occur within the existing and

newly expanded riparian zones at a minimum of a 3:1 ratio (three trees replanted for each one removed). Newly planted trees would be regionally appropriate native species, chosen to increase diversity of tree composition in areas where they would be replanted.

3.4 Project-Related Approvals, Agreements, and Permits

The information contained in this Initial Study will be used by the City of Livermore (the CEQA Lead Agency) as it considers whether or not to approve the proposed project. If the project is approved, the IS/MND would be used by City and responsible and trustee agencies in conjunction with various approvals and permits. These actions include, but may not be limited to, the following approvals by the agencies indicated:

3.4.1 City of Livermore

- Tree Removal Permit
- Grading Permit
- Building Permit

3.4.2 U.S. Army Corps of Engineers

- Section 404 Nationwide Permit

3.4.3 Regional Water Quality Control Board

- Section 401 Water Quality Certification

3.4.4 California Department of Fish and Wildlife

- Section 1602 Streambed Alteration Agreement

3.4.5 Federal Emergency Management Agency

- Grant approval and clearance under the NEPA

Approvals may not be required from all agencies listed above. Regulators from each agency would make a determination upon project review whether the proposed project requires their oversight and/or authorization.

4.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is potentially significant unless mitigation is incorporated, as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Greenhouse Gas Emissions	☐ Public Services
☐ Agricultural Resources	☒ Hazards and Hazardous Materials	☒ Recreation
☒ Air Quality	☒ Hydrology and Water Quality	☐ Transportation
☒ Biological Resources	☐ Land Use/Planning	☒ Tribal Cultural Resources
☒ Cultural Resources	☐ Mineral Resources	☐ Utilities / Service Systems
☐ Energy	☐ Noise	☐ Wildfire
☒ Geology and Soils	☐ Population and Housing	☒ Mandatory Findings of Significance

4.1 Determination

On the basis of this initial evaluation:

☐ I find that the project COULD NOT have a significant effect on the environment and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the project MAY have a "Potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Mallika Ramachandran

Signature

10/15/2024

Date

Name and Title: Mallika Ramachandran, P.E., Assistant City Engineer

4.2 Initial Study Checklist

This section describes the existing environmental conditions on and near the project site and evaluates environmental impacts associated with the proposed project. The environmental checklist, as recommended in Appendix G of the CEQA Guidelines, was used to identify environmental impacts that could occur if the proposed project is implemented. The right-hand column in the checklist lists the source(s) for the answer to each question. The cited sources are identified at the end of this section.

Each of the environmental categories was fully evaluated, and one of the following four determinations was made for each checklist question:

> **"No Impact"** means that no impact to the resource would occur as a result of implementing the project.
>
> **"Less than Significant Impact"** means that implementation of the project would not result in a substantial and/or adverse change to the resource, and no mitigation measures are required.
>
> **"Less than Significant with Mitigation Incorporated"** means that the incorporation of one or more mitigation measures is necessary to reduce the impact from potentially significant to less than significant.
>
> **"Potentially Significant Impact"** means that there is either substantial evidence that a project-related effect may be significant, or, due to a lack of existing information, could have the potential to be significant.

4.2.1 Aesthetics

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The project site includes portions of the Las Positas Golf Course, Airway Boulevard, and portions of undeveloped parcels to the northeast of Airway Boulevard. The site is zoned for Open Space Flood Plain, Education and Institutions, and INSP. The golf course consists of grass areas with manicured fairways, greens, and tee boxes, along with pathways, sand traps, water features, and mature trees. The eastern portion of the project site consists of undeveloped lots and grassland and riparian vegetation.

Sources of lighting on the project site primarily include streetlights along Airway Boulevard, and lighting at the golf course club house and parking lot.

REGULATORY SETTING

City of Livermore General Plan

The City's General Plan designates the significant ridgelines north of the I-580 corridor and Arroyo Las Positas as scenic vistas. The General Plan contains the following relevant objectives and policies pertaining to aesthetics:

Objective CC-1.1: Use open space to protect and enhance local community character and identity, to preserve rural characteristics, and to provide an edge to urban growth.

Policy P3. Areas with slopes should be conditioned carefully with respect to grading, cut and fills, runoff, erosion and sedimentation, and maintenance and vegetation. Hillside development regulations should reflect these environmental concerns.

Policy P9. Open space shall be used as a buffer between incompatible land uses within urban or essentially undeveloped areas.

Policy P11. The City shall preserve and enhance, or work with and support the efforts of other agencies, as appropriate (e.g., with joint grant applications, sharing of staff resources and legal services), to preserve and enhance the following natural amenities:

- **a)** Ridgelines
- **b)** Oak Woodlands and Grasslands
- **c)** Grasslands
- **d)** Riparian Woodland
- **e)** Arroyos and Creeks
- **f)** Knolls
- **g)** Bushy Peak
- **h)** Arroyo Mocho/Cedar Mountain
- **i)** Corral Hollow
- **j)** Sycamore Grove
- **k)** Hilltops
- **l)** Slopes
- **m)** Viewscapes
- **n)** Frick Lake
- **o)** Springtown Alkali Sink

Policy P13. The City shall utilize open space easements to preserve sensitive environmental and visual resource areas as open space in perpetuity. Parcels with open space easements recorded on them shall subsequently be redesignated to Open Space on the General Plan Land Use Map to ensure that no future urban development is considered on the parcel.

Objective CC-4.1. Protect public views from scenic routes and corridors.

Policy P1. Development shall not be allowed to obscure, detract from, or negatively affect the quality of the views from designated scenic routes.

Policy P2. The City shall maintain in open space that portion of the hills which is seen from the freeway and which is within the I-580 Scenic Corridor as shown in Figure 4-1 (of the General Plan). Any development within the I-580 Scenic Corridor is subject to the policies set forth under Goal CC-4 and the conditions set forth in Section C, I-580 Scenic Corridor Implementation.

Policy P3. The City shall permit no development to wholly obstruct or significantly detract from views of any scenic area as viewed from a scenic route.

DISCUSSION OF IMPACTS

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

Less-than-Significant Impact

A scenic vista is defined as a panoramic view of distinctive visual resources from an elevated position or a long-range view from a public vantage point. The view of the Las Positas Golf Course and Livermore Municipal Airport from the ridgelines north of I-580 is designated as a scenic vista by the City's General Plan. The City's General Plan Community Character Element also designates the I-580 Scenic Corridor as the area within 3,500 feet of the freeway centerline and visible from the roadway.

Portions of the project site are located within a scenic vista that is visible from the ridgelines north of I-580, and the entire site is within the I-580 scenic corridor. Due to the presence of mature trees along the northern boundary of the golf course along I-580, the majority of the project site is not visible from the I-580. Therefore, the project would not have a substantial impact on views from the I-580 scenic corridor.

During construction, equipment and materials on the project site would temporarily alter the view of the scenic vista from along the ridgelines north of I-580. In addition, the removal of trees within the project site would alter views of the golf course of this scenic vista. Goal CC-4 of the Community Character Element regulates the protection and enhancement of public views within and from established scenic routes. Notably, Objective CC-4.1 Policy P1 regulates removal of vegetation in scenic routes as a means of preserving scenic quality. Although the project would remove substantial vegetation, the project would comply with these goals, objectives, and policies through the planned vegetation restoration. Specifically, the project would replace all trees to be removed at a 3:1 ratio, which would result in a similar view from the scenic vista in the long-term. Therefore, the project would not have a substantial adverse effect on a scenic vista. The impact would be less than significant.

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

Less-than-Significant Impact

There are no officially designated state scenic highways in the City (California Department of Transportation [Caltrans] 2018). However, I-580 runs directly adjacent to the northern boundary of the project site and is designated as an eligible state scenic highway and a locally designated scenic corridor (Caltrans 2018). As described above in *Threshold a),* the majority of the western portion of the project site is not visible from I-580 due to the mature trees that border the northern side of the golf course along the highway. In addition, project impacts would only be temporary in nature and therefore, would not be substantial. Therefore, the project would not substantially damage scenic resources within a state scenic highway. The impact would be less than significant.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less-than-Significant Impact

The project site includes portions of managed open space areas; however, the site is located in an urbanized area. The western portion of the project site is within the Open Space land use designation, and the eastern portion of the site is within the Isabel Neighborhood land use designation. The western portion of the project site is zoned as Open Space Flood Plain and Education and Institutions, and the eastern portion of the project site is zoned as INSP. The OSP General Plan land use designation is meant to preserve sensitive environmental and visual

resource areas. The project would include excavation and removal of vegetation from stream channels, thereby altering the appearance of the project site in these localized areas. However, the purpose of these alterations is to improve the channel conveyance and reduce flooding to surrounding areas. The project would include landscaping and replanting of trees and vegetation once the flood control improvements have been completed, which would result in views of the project site that are similar to existing conditions. The project would not change the existing land use of either portion of the project site; therefore, operation of the project would not conflict with applicable zoning.

The project would not conflict with other regulations governing scenic qualities, such as Goal LU-6 in the 2003-2025 General Plan Land Use Element that ensures development minimizes potential visual impacts, Objective LU-6.1 that encourages development that does not detract from the scenic character of Livermore, and Goal LU-15 that specifically aims to preserve South Livermore's unique rural and scenic qualities (City of Livermore 2004). The project would also not conflict with General Plan Objective CC-4.14 Policy P1 that controls removal of vegetation in scenic routes, Objective CC-4.15 Policy P1 that controls the alteration of streambeds and bodies of water in scenic routes, and Objective CC-4.15 Policy P2 that ensures development of lands adjacent to scenic routes would not obstruct views of scenic areas be visually compatible with the natural scenic qualities (City of Livermore 2004). Therefore, the project would be consistent with applicable zoning and other regulations governing scenic quality. The impact would be less than significant.

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

Less-than-Significant Impact

The project does not include new sources of lighting and therefore, would not create additional permanent sources of light or glare. Construction activities would take place during daytime hours as required by the Livermore Municipal Code (LMC) Chapter 9.36. Construction of the project would not result in extended periods of time where construction lighting would affect road users, aircraft or airport operations, and other sensitive receptors adjacent to the project site. Therefore, the project would not result in permanent adverse effects to daytime or nighttime views in the area. The impact would be less than significant.

4.2.2 Agricultural and Forestry Resources

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e)	Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The project site is within the Open Space Flood Plain, Education and Institutions, and INSP zoning districts. The General Plan land use designation for the project site is OSP and IN. The California Department of Conservation's (CDC) Farmland Mapping and Monitoring Program designates the project site as "Urban and Built Up Land" (CDC 2022).

DISCUSSION OF IMPACTS

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact

The project site is classified by the CDC as "Urban and Built Up Land." The project site does not contain any lands identified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The site is not zoned for agricultural use. No impact would occur.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact

The project site is not under a Williamson Act contract (CDC 2024). The project site is zoned for Open Space Flood Plain, Education and Institutions, Isabel Neighborhood Specific Plan, and has a General Plan land use designation of Open Space and Isabel Neighborhood. Therefore, the project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. No impact would occur.

c-e) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland(as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? Result in a loss of forest land or conversion of forest land to non-forest use? Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

No Impact

The project site is zoned as Open Space Flood Plain, Education and Institutions, and INSP, and has a General Plan land use designation of Open Space and Isabel Neighborhood. The project site does not contain any forest land or timberland and would not impact any forest land, agricultural land, or timberland. No impact would occur.

4.2.3 Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

Would the project:	*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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 in 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) affecting a substantial number of people?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The proposed project is located within the San Francisco Bay Area Air Basin (SFBAAB), which consists of the entirety of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties; the western portion of Solano County; and the southern portion of Sonoma County. The SFBAAB is characterized by complex terrain consisting of coastal mountain ranges, inland valleys, and bays. The regional climate of the SFBAAB is characterized by mildly dry summers and moderately wet winters. The region experiences moderate humidity with wind patterns consisting of mild onshore breezes during the day. The location of a strong subtropical high-pressure cell located in the Pacific Ocean induces foggy mornings and moderate temperatures during the summer, as well as occasional rainstorms during the winter. The air pollutants for which national and state standards have been promulgated and that are most relevant to air quality planning and regulation in the Bay Area include ozone, nitrogen oxides (NOx), carbon monoxide (CO), and particulate matter, including dust 10 micrometers or less in diameter (PM10) and 2.5 micrometers or less in diameter (PM2.5). In addition, toxic air contaminants (TACs) are of concern in the Bay Area. Each of these pollutants is briefly described below:

- Ozone is a gas that is formed when reactive organic gases (ROG) and NOx—both byproducts of internal combustion engine exhaust—undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are conducive to its formation. Its effects can cause irritated respiratory system, reduced lung function, breathing pattern changes, reduced breathing capacity, inflamed and damaged cells that line the lungs, lungs to be more susceptible to infection, permanent lung damage, some

immunological changes, increased mortality risk, and vegetation and property damage and aggravate asthma and other chronic lung diseases.

- CO is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during winter mornings, with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines—unlike ozone—and motor vehicles operating at slow speeds are the primary source of CO in the Bay Area, the highest ambient CO concentrations are generally found near congested transportation corridors and intersections. Potential health effects from CO ranges depending on exposure: slight headaches, nausea, aggravation of angina pectoris (chest pain) and other aspects of coronary heart disease, decreased exercise tolerance in persons with peripheral vascular disease and lung disease, impairment of central nervous system functions, possible increased risk to fetuses, and death.
- PM10 and PM2.5 consist of extremely small, suspended particles or droplets 10 microns and 2.5 microns or smaller in diameter, respectively. Some sources of particulate matter, like pollen and windstorms, are naturally occurring. However, in populated areas, most particulate matter is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities. Health effects from short-term exposure (hours per days) can include the following: irrigation of the eyes, nose, and throat; coughing; phlegm; chest tightness; shortness of breath; aggravation of existing lung disease causing asthma attacks and acute bronchitis; and those affected with heart disease can suffer heart attacks and arrhythmias. Health effects from long-term exposure can include the following: reduced lung function, chronic bronchitis, changes in lung morphology, and death.
- TACs refer to a diverse group of air pollutants that can affect human health but have not had ambient air quality standards established for them. Diesel particulate matter (DPM) is a toxic air contaminant that is emitted from construction equipment and diesel-fueled vehicles and trucks. Some short-term (acute) effects of DPM exposure include eye, nose, throat, and lung irritation; coughs; headaches; light-headedness; and nausea. Studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems. Human studies on the carcinogenicity of DPM demonstrate an increased risk of lung cancer, although the increased risk cannot be clearly attributed to diesel exhaust exposure.

Other pollutants that are regulated but not considered an issue in the project area are sulfur dioxide, vinyl chloride, sulfates, hydrogen sulfide, and lead; the proposed project would not emit substantial quantities of those pollutants, so they are not discussed further in this section. Construction and operation of the proposed project would be subject to applicable Bay Area Air Quality Management District (BAAQMD) rules and requirements. The BAAQMD CEQA Guidelines were developed to assist local jurisdictions and lead agencies in complying with the requirements of CEQA regarding potentially adverse impacts to air quality. The screening criteria established by the BAAQMD CEQA Guidelines dated May 2012 and amended May 2017 (BAAQMD 2017) have been relied upon to make the significance determinations discussed below.

REGULATORY SETTING

Federal and State Regulations

The federal Environmental Protection Agency (EPA) is responsible for implementing the programs established under the Federal Clean Air Act, such as establishing and reviewing the National Ambient Air Quality Standards (NAAQS) and judging the adequacy of State Implementation Plans to attain the NAAQS. A State Implementation Plan must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. If a state fails to enforce its implementation of approved regulations, or if the EPA determines that a State Implementation Plan is inadequate, the EPA is required to prepare and enforce a Federal Implementation Plan to promulgate comprehensive control measures for a given State Implementation Plan.

CARB is responsible for establishing and reviewing the California Ambient Air Quality Standards (CAAQS), developing and managing the California State Implementation Plans, identifying TACs, and overseeing the activities of regional air quality management districts. In California, mobile emissions sources (e.g., construction equipment, trucks, and automobiles) are regulated by CARB and stationary emissions sources (e.g., industrial facilities) are regulated by the regional air quality management districts.

In accordance with the federal Clean Air Act and California Clean Air Act, areas in California are classified as either in attainment, maintenance (i.e., former nonattainment), or nonattainment of the NAAQS and CAAQS for each criteria air pollutant. To assess the regional attainment status, the BAAQMD collects ambient air quality data from over 30 monitoring sites within the SFBAAB. Based on current monitoring data, the SFBAAB is designated as a nonattainment area for ozone, PM10 (CAAQS only), and PM2.5, and is designated an attainment or unclassified area for all other pollutants (Table 1).

Table 1. San Francisco Bay Area Air Basin Attainment Status with National Ambient Air Quality Standards

POLLUTANT	AVERAGING TIME	CAAQS		NAAQS	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone	8 Hours	0.070 ppm	N	0.070 ppm	N (marginal)
	1 Hour	0.09 ppm	N	Revoked in 2005	---
Carbon Monoxide	8 Hours	9.0 ppm	A	9 ppm	A
	1 Hour	20 ppm	A	35 ppm	A
Nitrogen Dioxide	1 Hour	0.18 ppm	A	0.100 ppm	U
	Annual	0.030 ppm	---	0.053 ppm	A
Sulfur Dioxide	24 Hours	0.04 ppm	A	0.14 ppm	A
	1-Hour	0.25 ppm	A	0.075 ppm	A
	Annual	---	---	0.030 ppm	A
Coarse Particulate Matter (PM10)	Annual	20 µg/m^3	N	---	---
	24 Hours	50 µg/m^3	N	150 µg/m^3	U
Fine Particulate Matter (PM2.5)	Annual	12 µg/m^3	N	12 µg/m^3	U/A
	24 Hours	---	---	35 µg/m^3	N (moderate)
Lead	30 Days	1.5 µg/m^3	A	---	---
	Calendar Quarter	---	---	1.5 µg/m^3	A
	Rolling 3 Months	---	---	0.15 µg/m^3	A

Source: BAAQMD 2017
Notes: CAAQS = California Ambient Air Quality Standards; NAAQS National Ambient Air Quality Standards; A = Attainment; N = Nonattainment; U = Unclassified; "---" = not applicable; ppm = parts per million; µg/m^3 = micrograms per cubic meter; PST = Pacific Standard Time.

Regional Regulatory Framework

The BAAQMD is primarily responsible for ensuring that the NAAQS and CAAQS are attained and maintained in the SFBAAB. The BAAQMD fulfills this responsibility by adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits, inspecting stationary sources of air pollutants, responding to citizen complaints, and monitoring ambient air quality and meteorological conditions. The BAAQMD has adopted thresholds of significance to assist lead agencies in the evaluation of ozone precursors (NOx and ROG), PM10, and PM2.5 emitted from individual projects that could have a cumulatively considerable contribution to adverse air quality in the SFBAAB, which are summarized in Table 2.

ASSESSMENT METHODOLOGY

The project's potential impacts related to air quality were evaluated in accordance with the current BAAQMD CEQA Air Quality Guidelines. The project's estimated emissions associated with ROG, NOx, PM10, and PM2.5 were compared to the BAAQMD's thresholds of significance presented in Table 2.

Table 2. BAAQMD Project-level Thresholds of Significance

IMPACT ANALYSIS	POLLUTANT	THRESHOLD
Regional Air Quality (Construction)	ROG	54 pounds/day (average daily emission)
	NOx	54 pounds/day (average daily emission)
	Exhaust PM10	82 pounds/day (average daily emission)
	Exhaust PM2.5	54 pounds/day (average daily emission)
	Fugitive dust (PM10 and PM2.5)	Best management practices
Regional Air Quality (Operation)	ROG	54 pounds/day (average daily emission) 10 tons/year (maximum annual emission)
	NO_x	54 pounds/day (average daily emission) 10 tons/year (maximum annual emission)
	PM10	82 pounds/day (average daily emission) 15 tons/year (maximum annual emission)
	PM2.5	54 pounds/day (average daily emission) 10 tons/year (maximum annual emission)
Local Community Risks and Hazards	Exhaust PM2.5 (project)	0.3 µg/m^3 (annual average)
	TACs (project)	Cancer risk increase > 10.0 in one million Chronic hazard index > 1.0
	Exhaust PM2.5 (cumulative)	0.8 µg/m^3 (annual average)
	TACs (cumulative)	Cancer risk > 100 in one million Chronic hazard index > 10.0

Source: BAAQMD 2023
Notes: ROG = reactive organic gases; NOx = oxides of nitrogen; PM10 = coarse particulate matter; PM2.5 = fine particulate matter; TACs = toxic air contaminants; µg/m3 = micrograms per cubic meter

DISCUSSION OF IMPACTS

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

Less-than-Significant Impact

The BAAQMD's 2017 Clean Air Plan (CAP) is the current applicable regional air quality plan for the SFBAAB (BAAQMD 2017). The primary goals of the 2017 CAP are to protect public health and protect the climate, and the plan acknowledges that the BAAQMD's two stated goals of protection are closely related. As such, the 2017 CAP identifies a wide range of control measures intended to decrease both criteria pollutants and greenhouse gas (GHG) emissions. The control measures are organized into nine categories: stationary sources, transportation, buildings, energy, agriculture, natural and working lands, waste, water, and super-GHG pollutants (e.g.,

methane, black carbon, and fluorinated gases). The consistency of the proposed project with control measures from the 2017 CAP is summarized in Table 3.

Table 3. Project Consistency with BAAQMD 2017 CAP

CONTROL MEASURES	PROPOSED PROJECT CONSISTENCY
Stationary Sources	**Not applicable**. The stationary source measures are enforced by the BAAQMD pursuant to its authority to control emissions from permitted facilities. The project would not create any permanent new stationary sources of emissions. Therefore, the stationary source control measures of the 2017 CAP are not applicable to the project.
Transportation	**Not applicable**. The transportation control measures are designed to reduce vehicle trips, use, miles traveled, idling, or traffic congestion for the purpose of reducing vehicle emissions. The Project would not cause a permanent increase in vehicle trips compared to the existing conditions. Therefore, the transportation control measures of the 2017 CAP are not applicable to the project.
Energy	**Not applicable**. The energy control measures are designed to reduce emissions of criteria air pollutants, TACs, and GHGs by decreasing the amount of electricity consumed in the Bay Area, as well as decreasing the carbon intensity of the electricity used by switching to less GHG-intensive fuel sources for electricity generation. Since these measures apply to electrical utility providers and local government agencies (and not individual projects), the energy control measures of the 2017 CAP are not applicable to the project.
Buildings	**Not applicable**. The BAAQMD has authority to regulate emissions from certain sources in buildings such as boilers and water heaters but has limited authority to regulate buildings themselves. Therefore, the building control measures focus on working with local governments that have authority over local building codes to facilitate adoption of best GHG control practices and policies. The project would not construct any new buildings or include any work on existing buildings. Therefore, the building control measures of the 2017 CAP are not applicable to the project.
Agriculture	**Not applicable**. The agriculture control measures are designed primarily to reduce emissions of methane. Since the project does not include any agricultural activities, the agriculture control measures of the 2017 CAP are not applicable to the project.
Natural and Working Lands	**Consistent**. The control measures for the natural and working lands sector focus on increasing carbon sequestration on rangelands and wetlands, as well as encouraging local governments to adopt ordinances that promote urban tree plantings. The project would require the removal of approximately 116 trees, which would temporarily decrease carbon sequestration. However, the project would replace all trees to be removed as part of the project at a 3:1 ratio, which would ultimately increase the carbon sequestration capacity of the project site. As described in *Section 4.2.4, Biological Resources*, although there are aquatic resources present

	within the project site, the project would not have any permanent impacts on rangelands or wetlands. The project is anticipated to improve aquatic habitat and water quality within Arroyo Las Positas. Therefore, the project would be consistent with the natural and working lands control measures of the 2017 CAP.
Waste Management	**Not applicable**. The waste management measures focus on reducing or capturing methane emissions from landfills and composting facilities, diverting organic materials away from landfills, and increasing waste diversion rates through efforts to reduce, reuse, and recycle. The project would generate minimal amounts of waste during construction; however, operation of the project would not cause an increase in waste generation. Therefore, the waste management measures of the 2017 CAP are not applicable to the Project.
Water	**Not applicable.** The water control measures to reduce emissions from the water sector are focused on minimizing emissions of GHGs, ROGs, and TACs from publicly owned treatment works (POTWs) and encouraging water conservation to reduce GHG emissions. The project would rehabilitate an existing wastewater treatment facility and would not impact any water supply or distribution infrastructure. Therefore, the water control measures of the 2017 CAP are not applicable to the project.
Super GHGs	**Not applicable**. The super-GHG control measures are designed to facilitate the adoption of best GHG control practices and policies through the BAAQMD and local government agencies. Since these measures do not apply to individual projects, the super-GHG control measures of the 2017 CAP are not applicable to the project.

Source: BAAQMD 2017

As shown above in Table 4, the project would not conflict with control measures of the 2017 CAP. The project consists of flood control improvements at the existing Arroyo Las Positas Golf Course and nearby adjacent land uses, and does not propose a change in land use or growth that would conflict with the CAP or other regional plans and policies. Therefore, the project would not conflict with or obstruct implementation of the applicable air quality plan. The impact would be less than significant.

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?

Less-than-Significant Impact with Mitigation Incorporated

Project construction activities would generate criteria air pollutant emissions that could potentially affect regional air quality. During construction, the primary pollutant emissions of concern would be ROG, NOx, PM10, and PM2.5 from the exhaust of off-road construction equipment and on-road construction vehicles related to worker vehicles, vendor trucks, and haul trucks. In addition, fugitive dust emissions of PM10 and PM2.5 would be generated by soil disturbance and demolition activities. The project's emissions of fugitive dust during construction are analyzed separately, further below.

The BAAQMD recommends using the most current version of the California Emissions Estimator Model (CalEEMod), Version 2022.1, to estimate construction and operational emissions of pollutants from a project. CalEEMod uses widely accepted models for emission estimates combined with appropriate default data for a variety of land-use projects that can be used if site-specific information is not available. CalEEMod Version 2022.1 was used to estimate construction and operational emissions of pollutants from the proposed project. The primary input data used to estimate emissions associated with construction of the project were provided by the engineering contractor and contain information on construction duration, construction-related vehicle trips, trip lengths, and off-road construction equipment inventory and usage. Construction information provided by the City and a copy of the CalEEMod report, which summarizes the input parameters, assumptions, and findings, are included in Appendix B.

As described in *Section 3.3.1, Construction Phasing and Schedule*, construction work associated with the flood wall and flood berm installation, bridge removal and replacement, and golf cart path replacement would begin on June 15, 2025, and would last for approximately six months. Work associated with the floodplain bench expansion and culvert installation would begin on June 15, 2026, and would last for approximately six months. To analyze daily emission rates, the total emissions estimated during construction were averaged over a total of 110 working days per year. The average daily emissions were then compared to the BAAQMD's thresholds of significance, as shown in Table 4.

Table 4. Criteria Air Pollutant Emissions during Construction (Pounds per Day)

EMISSIONS SCENARIO	ROG	NOX	EXHAUST PM10	EXHAUST PM2.5
Construction Emissions - 2025	0.4	3.5	0.1	0.1
Construction Emissions - 2026	1.2	0.4	0.4	0.4
Thresholds of Significance	54	54	82	54
Exceed Threshold?	No	No	No	No

Source: CalEEMod Report, Appendix B

As shown above in Table 4, construction emissions from ROG, NOx, and PM10 and PM2.5 from vehicle exhaust, would not exceed the BAAQMD's thresholds of significance.

The generation of fugitive dust PM10 and PM2.5 emissions from soil disturbance activities during construction could result in a cumulatively considerable net increase in regional PM10 and PM2.5 concentrations. The BAAQMD does not have a quantitative threshold of significance for fugitive dust PM10 and PM2.5 emissions; however, the BAAQMD considers implementation of dust control measures during construction sufficient to reduce air quality impacts from fugitive dust to a less-than-significant level. The project would implement Mitigation Measure (MM) AIR-1, which contains BMPs from the BAAQMD's CEQA Guidelines. Implementation of MM AIR-1 would ensure that project construction activities would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment.

With the implementation of MM AIR-1, construction of the project would not result in a cumulatively considerable net increase in ROG, NOx, PM2.5, or PM10 emissions. Operation of the project would not create any new, permanent sources of emissions. Therefore, the project would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment. The impact would be less than significant with mitigation incorporated.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact

Sensitive receptors are groups of people that are more affected by air pollution than others. CARB has identified that the following persons are considered air quality sensitive receptors: children, elderly, asthmatics, and others whose are at a heightened risk of negative health outcomes due to exposure to air pollution (CARB 2024). Locations that may contain a high concentration of these sensitive population groups include residential areas, schools, hospitals, daycare facilities, and elder care facilities.

Construction activities could generate DPM and PM2.5 emissions from off-road diesel construction equipment and on-road heavy-duty diesel trucks that could potentially result in elevated health risks to nearby sensitive receptors. The BAAQMD recommends evaluating a project's potential health risks to sensitive receptors within 1,000 feet of the project during project construction. There are no sensitive receptors within the immediate vicinity of the project site, as the project site is surrounded by commercial, industrial, and open space land uses. The nearest concentration of sensitive receptors would be the residential neighborhoods located approximately 0.85 miles (~4,450 feet) northeast of the project site. As such, the project is below the BAAQMD's screening threshold for a health risk assessment to nearby sensitive receptors to be performed. Therefore, the project would not expose sensitive receptors to substantial pollutant concentrations. The impact would be less than significant.

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

Less-than-Significant Impact

Some odors would be generated during project construction due to the use of gasoline- and/or diesel-powered construction equipment that emit exhaust fumes. These activities would take place outdoors and intermittently throughout the workday and the associated odors would dissipate within the immediate vicinity of the work area. Persons near the construction work area may find these odors objectionable; however, the project site is located on a public golf course and adjacent undeveloped parcel and is not immediately surrounded by residential uses.

The project would not include any new land uses that have been identified as potential sources of objectionable odors, such as restaurants, manufacturing plants, landfills, and agricultural and industrial operations. Therefore, operation of the project would not result in other emissions (such as those leading to odors) which would impact a substantial number of people. The impact would be less than significant.

MITIGATION MEASURES

MM AIR-1. Fugitive Dust Control Measures

The project shall implement BMPs as recommended by the BAAQMD 2022 CEQA Air Quality Guidelines, which include the following measures:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

4.2.4 Biological Resources

Would the project:	*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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, or regulations or by the California Department of Fish and Game or U.S. 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?	☐	☐	☒	☐

ASSESSMENT METHODOLOGY AND SIGNIFICANCE THRESHOLD CRITERIA

The following studies related to biological resources were prepared for the project and were used to inform this section of the IS/MND:

- Aquatic Resources Delineation Report (HDR 2022a)
- Biological Survey Report (HDR 2022b)
- Section 7 Biological Assessment (BA) (Appendix C)

The information in this section is informed by and adapted from the reports listed above.

For the purposes of this analysis, a “substantial adverse effect” as used in the thresholds above is generally interpreted to mean that a potential impact could directly or indirectly affect the resiliency or presence of a local biological community or species population. Potential impacts to natural processes that support biological communities and special-status species populations that can produce similar effects are also considered potentially significant. Impacts to individuals of a species or small areas of existing biological communities may be considered less than significant if those impacts are speculative, beneficial, de minimis, and/or would not affect the resiliency of a local population.

REGULATORY SETTING -FEDERAL AND STATE

Vegetation and Aquatic Communities

CEQA provides protections for particular vegetation types defined as sensitive by the California Department of Fish and Wildlife (CDFW) and aquatic features protected by laws and regulations administered by the U.S Army Corps of Engineers (Corps), State Water Resources Control Board (SWRCB), and Regional Water Quality Control Boards (RWQCB). The laws and regulations that provide protection for these resources are summarized below.

Sensitive Natural Communities: Sensitive natural communities include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database (CNDDB) (CDFW 2024a). Natural communities are ranked 1 through 5 in the CNDDB based on NatureServe's (2020) methodology, with those communities ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or U.S. Fish and Wildlife Service (USFWS) must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G). In addition, this general class includes oak woodlands that are protected by local ordinances under the Oak Woodlands Protection Act and Section 21083.4 of California PRC.

Waters of the United States, Including Wetlands: The Corps regulates “Waters of the United States” under Section 404 of the Clean Water Act. Waters of the United States are defined in the Code of Federal Regulations (CFR) as including the territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, such as tributaries, lakes and ponds, impoundments of waters of the U.S., and wetlands that are hydrologically connected with these navigable features (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Corps Manual; Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Unvegetated waters including lakes, rivers, and streams may also be subject to Section 404 jurisdiction and are characterized by an ordinary high water mark identified based on field indicators such as the lack of vegetation, sorting of sediments, and other indicators of flowing or standing water. The placement of fill material into Waters of the

United States generally requires a permit from the Corps under Section 404 of the Clean Water Act.

The Corps also regulates construction in navigable waterways of the U.S. through Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 U.S. Code [USC] 403). Section 10 of the RHA requires Corps approval and a permit for excavation or fill, or alteration or modification of the course, location, condition, or capacity of, any port, roadstead, haven, harbor, canal, lake, harbor or refuge, or enclosure within the limits of any breakwater, or of the channel of any navigable water of the United States. Section 10 requirements apply only to navigable waters themselves, and are not applicable to tributaries, adjacent wetlands, and similar aquatic features not capable of supporting interstate commerce.

Waters of the State, Including Wetlands: The term "Waters of the State" is defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The SWRCB and nine RWQCB protect waters within this broad regulatory scope through many different regulatory programs. Waters of the State in the context of a CEQA Biological Resources evaluation include wetlands and other surface waters protected by the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (SWRCB 2019). The SWRCB and RWQCB issue permits for the discharge of fill material into surface waters through the State Water Quality Certification Program, which fulfills requirements of Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act. Projects that require a Clean Water Act permit are also required to obtain a Water Quality Certification. If a project does not require a federal permit but does involve discharge of dredge or fill material into surface waters of the State, the SWRCB and RWQCB may issue a permit in the form of Waste Discharge Requirements.

Sections 1600-1616 of California Fish and Game Code: Streams and lakes, as habitat for fish and wildlife species, are regulated by CDFW under Sections 1600-1616 of California Fish and Game Code (CFGC). Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term "stream," which includes creeks and rivers, is defined in the CCR as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 CCR 1.72). The term "stream" can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (California Department of Fish and Game [CDFG] 1994). Riparian vegetation has been defined as "vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself" (CDFG 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

Special-status Species

Endangered and Threatened Plants, Fish, and Wildlife: Specific species of plants, fish, and wildlife may be designated as threatened or endangered by the Federal Endangered Species Act (ESA), or the California Endangered Species Act (CESA). Specific protections and permitting mechanisms for these species differ under each of these acts, and a species' designation under one law does not automatically provide protection under the other.

The ESA (16 USC 1531 et seq.) is implemented by the United States Fish and Wildlife Service USFWS and the National Marine Fisheries Service (NMFS). The USFWS and NMFS maintain lists of "endangered" and "threatened" plant and animal species (referred to as "listed species").

"Proposed" or "candidate" species are those that are being considered for listing and are not protected until they are formally listed as threatened or endangered. Under the ESA, authorization must be obtained from the USFWS or NMFS prior to the take of any listed species. “Take" under the ESA is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Take under the ESA includes direct injury or mortality to individuals, disruptions in normal behavioral patterns resulting from factors such as noise and visual disturbance and impacts to habitat for listed species. Actions that may result in “take” of an ESA-listed species may obtain a permit under ESA Section 10, or via the interagency consultation described in ESA Section 7. Federally listed plant species are only protected when take occurs on federal land.

The ESA also provides for designation of critical habitat, which are specific geographic areas containing physical or biological features “essential to the conservation of the species.” Protections afforded to designated critical habitat apply only to actions that are funded, permitted, or carried out by federal agencies. Critical habitat designations do not affect activities by private landowners if there is no other federal agency involvement.

The CESA (California Fish and Game Code (CFGC) 2050 et seq.) prohibits a "take" of any plant and animal species that the California Fish and Game Commission determines to be an endangered or threatened species in California. CESA regulations include take protection for threatened and endangered plants on private lands, as well as extending this protection to “candidate species” which are proposed for listing as threatened or endangered under CESA. The definition of a "take" under CESA ("hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") only applies to direct impact to individuals, and does not extend to habitat impacts or harassment. The CDFW may issue an Incidental Take Permit under CESA to authorize take if it is incidental to otherwise lawful activity and if specific criteria are met. Take of these species is also authorized if the geographic area is covered by a Natural Community Conservation Plan (NCCP), if the NCCP covers that activity. CDFW may also authorize take for voluntary restoration projects through the Restoration Management Permit.

Fully Protected Species and Designated Rare Plant Species: This category includes specific plant and wildlife species that are designated in the CFGC as protected even if not listed under CESA or the ESA. Fully Protected Species includes specific lists of birds, mammals, reptiles, amphibians, and fish designated in the CFGC. Fully protected species may not be taken or possessed at any time. No licenses or permits may be issued for the take of fully protected species, except for necessary scientific research and conservation purposes. The definition of "take" is the same under the CFGC and the CESA. By law, CDFW may not issue an Incidental Take Permit for Fully Protected Species. Under the California Native Plant Protection Act (NPPA), CDFW has listed 64 “rare” or “endangered” plant species, and prevents “take,” with few exceptions, of these species. CDFW may authorize take of species protected by the NPPA through the Incidental Take Permit process, or under a NCCP. CDFW may also authorize take for voluntary restoration projects through the Restoration Management Permit (RMP).

Special Protections for Nesting Birds and Bats: The federal Bald and Golden Eagle Protection Act provides relatively broad protections to both of North America’s eagle species (bald [*Haliaeetus leucocephalus*] and golden eagle [*Aquila chrysaetos*]) that in some regards are like those provided by the ESA. In addition to regulations for special-status species, most native birds in the U.S., including non-status species, have baseline legal protections under the Migratory Bird Treaty Act of 1918 (MBTA) and CFGC, i.e., Sections 3503, 3503.5 and 3513. Under these laws/codes, the harm or collection of adult birds as well as the collection or destruction of active nests, eggs, and young is illegal. For bat species, the Western Bat Working Group designates

conservation status for species of bats, and those with a high or medium-high priority are typically given special consideration under CEQA (Western Bat Working Group 2024).

Essential Fish Habitat: The Magnuson-Stevens Fishery Conservation and Management Act provides for conservation and management of fishery resources in the U.S., administered by NMFS. This Act establishes a national program intended to prevent overfishing, rebuild overfished stocks, ensure conservation, and facilitate long-term protection through the establishment of Essential Fish Habitat (EFH). EFH consists of aquatic areas that contain habitat essential to the long-term survival and health of fisheries, which may include the water column, certain bottom types, vegetation (e.g., eelgrass (*Zostera* spp.)), or complex structures such as oyster beds. Any federal agency that authorizes, funds, or undertakes action that may adversely affect EFH is required to consult with NMFS.

Species of Special Concern, Movement Corridors, and Other Special-Status Species under CEQA: A Species of Special Concern is a species formally designated by CDFW which meet one or more criteria related to federal ESA status (if it is not listed under CESA), extirpation from California, documented population declines, or small population size within California and risk of declines. Section 15280 of the CEQA Guidelines states that species of special concern must be included in project impact analyses. In addition, CDFW has developed a special animals list as "a general term that refers to all of the taxa the California Natural Diversity Database (CNDDB) is interested in tracking, regardless of their legal or protection status." This list includes lists developed by other organizations, including for example, the Audubon Watch List Species, the Bureau of Land Management Sensitive Species, and USFWS Birds of Special Concern. Plant species on the California Native Plant Society (CNPS) Rare Plant Inventory (Inventory; CNPS 2023) with California Rare Plant Ranks (Rank) of 1 and 2, as well as some with a Rank of 3 or 4, are also considered special-status plant species and must be considered under CEQA. Some Rank 3 and Rank 4 species are typically only afforded protection under CEQA when such species are particularly unique to the locale (e.g., range limit, low abundance/low frequency, limited habitat) or are otherwise considered locally rare. Additionally, any species listed as sensitive within local plans, policies and ordinances are likewise considered sensitive. Movement and migratory corridors for native wildlife (including aquatic corridors) as well as wildlife nursery sites are given special consideration under CEQA.

REGULATORY SETTING - LOCAL

City of Livermore General Plan

The City's General Plan Open Space and Conservation Element contains the following relevant objectives and policies related to biological resources:

Objective OSC-1.1: Maintain biodiversity within the Planning Area with special emphasis on species that are sensitive, rare, declining, unique or represent valuable biological resources.

> **Policy P4.** The City shall require all projects that impact a federal or State listed threatened or endangered species, federal or State listed candidate species, State species of special concern, or State designated sensitive habitats, to mitigate for identified impacts in a way consistent with mitigation and avoidance measures published and distributed by the federal and/or State resource agencies at the time of the specific plan or project-level review. Monitoring requirements shall also be consistent with the published requirements for each species or habitat. For listed and candidate species, species of special concern, or sensitive habitats for which no mitigation or avoidance measures have been published, the City shall require evidence of coordination with the

responsible agencies prior to acceptance of mitigation or avoidance measures or monitoring requirements.

Objective OSC-1.2: Minimize impacts to sensitive natural habitats including alkali sinks, riparian vegetation, wetlands and woodland forest.

Policy P1. Habitats of rare or endangered species shall be preserved.

Policy P2. Use and development of riparian areas should enhance the appearance of the creekside environment and protect and enhance native vegetation.

P4. Riparian woodlands and freshwater marshes shall be preserved. Developers shall be required to mitigate possible adverse impacts upon these resource areas.

P5. Grading and excavation in woodland areas shall avoid disturbances to subsurface soil, water or rooting patterns for natural vegetation.

P6. The City shall require all development to comply with State and federal regulations to preserve and protect the habitats of rare and endangered species.

P7. The City shall require project proponents to identify and map sensitive biological and wetland resources on each development parcel and identify the measures necessary to avoid and/or minimize impacts on sensitive biological and wetland resources prior to approving the development. Mitigation for impacts to sensitive biological and wetland resource shall replace the functions and values of the resources as well as gross acreage.

P8. The City shall require development to avoid take of species listed as threatened, endangered, or candidate under federal and State endangered species acts by implementing measures determined in consultation with the USFWS and the CDFW.

P12. The City shall require the maintenance of adequately-sized terrestrial and aquatic movement corridors that connect natural open space areas.

Objective OSC-1.3: Conserve Livermore's native trees and vegetation, which are important biological resources within the Planning Area.

Policy P1. Require developments to incorporate native vegetation into their landscape plans, and prohibit the use of invasive non-native plant species. Propagules (seeds or plants) of native plants shall be from native sources.

Actions A1. Restore areas adjacent to existing open space areas with native plant and animal communities. Restoration should be accomplished with native plants from local sources.

Action A2. Develop and implement an urban forest preservation ordinance, inclusive of an inventory of ancestral trees, to require the preservation of trees of significant value.

City of Livermore Tree Protection Ordinance

Chapter 12.20 of the LMC comprises the City's Tree Preservation Ordinance. Pursuant to Section 12.20.190, removal or encroachment into the protected zone of any "protected trees" on public or private property within the City requires issuance of a tree permit from the City pursuant to the provisions of the Ordinance. Protected trees are defined in Section 12.20.160(M) of the LMC as a single-trunked tree, a multi-trunked tree, or a stand of trees dependent upon each other for survival that meets any one or more of the following criteria:

1. Any tree located on private property occupied by single-family residential development that meets the following criteria:
    a. a. Any tree with a circumference at breast height (CBH) of 60 inches or more; or Chapter 4.3 – Biological Resources Page 4.3-21 Draft EIR SMP 38/SMP 39/SMP 40 Project August 2023
    b. b. Any California native tree having a circumference (CBH) of 24 inches or more;
2. Any tree located on private property occupied by commercial, industrial, institutional (i.e., religious, public agency, hospital, care facilities, etc.), mixed-use or multifamily residential (two or more units) development with a circumference (CBH) of 24 inches or more;
3. Any tree located on an undeveloped or underdeveloped property, regardless of zoning district, use, or development status, for which new development is proposed, with a circumference (CBH) of 18 inches or more;
4. Any tree located in an open space, riparian, or habitat area with a circumference (CBH) of 18 inches or more;
5. Any tree approved as part of a site plan approval, or required as a condition of approval for a development project, zoning use permit, use permit or other site development review;
6. Any tree designated by the City Council as determined to be an ancestral tree;
7. Any tree listed on the City's ancestral tree inventory; and/or
8. Any tree required to be planted as mitigation for unlawfully removed trees.

In addition, Section 12.20 contains further regulations related to the definition, planting, protection, removal, and pruning of street trees within the City. As noted in Section 12.20.020 of the LMC, all street trees within the City are considered property of the City, and the Director of Public Works or designee thereof retains exclusive authority and responsibility to plant, remove, prune, inspect, maintain, root-prune, or otherwise alter street trees.

East Alameda County Conservation Strategy

The East Alameda County Conservation Strategy (EACCS) was deemed final in December 2010 and has been approved and accepted by the City of Dublin, Zone 7 Water Agency, and the City of Livermore. The EACCS is intended to provide an effective framework to protect, enhance, and restore natural resources in eastern Alameda County, while improving and streamlining the environmental permitting process for impacts resulting from infrastructure and development projects. The EACCS focuses on impacts to biological resources such as endangered and other special-status species as well as sensitive habitat types (e.g., wetlands, riparian corridors, rare upland communities). However, the EACCS does not provide an estimate of impacts to species or their habitats during a designated period of time, nor does the EACCS provide a specific mitigation program to offset the estimated impacts, which are required elements of a Habitat Conservation Plan (HCP) or a NCCP. Therefore, while conservation strategies are provided by the EACCS, the document is not considered an adopted HCP/NCCP.

To support the project permitting process, the EACCS identifies mitigation standards to offset impacts expected from projects in the EACCS study area, and includes a set of specific management prescriptions to benefit natural communities and covered species. The EACCS also sets long-range conservation goals for preservation of all natural communities in the study area, and is designed to contribute to covered species recovery and to prevent the listing of non-listed

species within the region through the protection, restoration, and enhancement of natural communities and species habitat.

Covered species under the EACCS include longhorn fairy shrimp; vernal pool fairy shrimp; callippe silverspot butterfly; California tiger salamander (CTS); California red-legged frog (CRLF); foothill yellow-legged frog; Alameda whipsnake; Central California coastal steelhead; golden eagle; tricolored blackbird; western burrowing owl; American badger; San Joaquin kit fox, San Joaquin spearscale; big tarplant; Congdon's tarplant; palmate-bracted bird's-beak; Livermore Valley tarplant; and recurved larkspur.

ENVIRONMENTAL SETTING

Land Use

The project site includes the golf course, a heavily managed recreation area, and portions of three undeveloped parcels to the east. Arroyo Las Positas flows from east to west through the middle of the project site and eventually flows into Alameda Creek, which flows out into the South San Francisco Bay. On-site, the creek is characterized by stretches of open water channels overlain by dense riparian tree canopy mixed with exposed stretches of channel supporting emergent vegetation species, including cattails (*Typha* sp.), bulrush (*Schoenoplectus* sp.), and sedges (*Cyperus* sp.). There is significant growth of vegetation and fallen trees at many locations on both the banks and within the channel.

The golf course contains seven constructed (ornamental) ponds located downslope and to the south of Arroyo Las Positas, which are actively managed ornamental features with maintained hydrology that also capture surface flows across the golf course. None of the ponds are located within the project site.

Vegetation and Land Cover Types

The project site contains four land cover types, including developed/landscaped, non-native grassland areas, riparian woodland, and perennial stream (Arroyo Las Positas), which are summarized in Table 5. Each community is discussed below. Riparian habitat associated with Arroyo Las Positas is also present.

Table 5. Project Site Land Cover Types

COMMUNITY TYPE	PROJECT SITE (ACRES)
UPLANDS	
Developed/Landscaped	25.62
Non-native Annual Grassland	5.24
AQUATIC	
Riparian Woodland	8.47
Perennial Stream	1.03
TOTAL:	**40.36**

Developed/landscaped: Developed/landscaped areas are areas that have been landscaped, planted, and are routinely maintained (i.e., artificial/unnatural), as well as built infrastructure supporting the golf course, such as the club house and maintenance facilities. Vegetation diversity and cover are minimal in these areas and consist of a myriad of native and exotic ornamental species. The project site within the golf course also consists of paved pedestrian/cart paths surrounded by manicured lawns. This area is maintained for recreational use by the golf course and does not comprise a natural community.

Non-native annual grassland: This community includes areas that have been partially developed and have been allowed to revert to a semi-natural condition. The undeveloped eastern portion of the project site is composed primarily of ruderal herbaceous grassland. The grassland is dominated by a mix of non-native brome grass (*Bromus* spp.), wild oat (*Avena* sp.), and barley (*Hordeum* sp.), with native melic grass (*Melica* sp.) also present. Other less predominant species include non-native herbaceous species such as perennial pepperweed (*Lepidium latifolium*), mallow (*Malva* sp.), and English plantain (*Plantago lanceolata*).

Riparian woodland: The project site contains riparian woodland habitat situated along Arroyo Las Positas. The creek is flanked by narrow strips of dense riparian woodland vegetation which can be divided into areas dominated by native trees (California black walnut-red willow riparian woodland) and areas dominated by a mix of native and non-native trees (semi-natural mixed riparian woodland).

California black walnut–red willow riparian woodland (*Juglans hindsii–Salix laevigata* woodland alliance) is dominated by native riparian tree species including northern California black walnut and red willow. Other canopy components include occasional Fremont cottonwood (*Populus fremontii* ssp. *fremontii*) and ornamental trees encroaching from the golf course. The canopy varies from dense to open with an average canopy height of about 25 feet. The understory is composed mainly of native species including sandbar willow (*Salix exigua var. hindsiana*), mugwort (*Artemisia douglasiana*), stinging nettle (*Urtica dioica*), and bedstraw (*Galium* sp.), with some presence of non-native species including poison hemlock (*Conium maculatum*) and panic veldt grass (*Ehrharta erecta*).

Semi-natural mixed riparian woodland also occurs along the banks of Arroyo Las Positas. The canopy is dominated by non-native eucalyptus but native tree species including California black walnut and red willow are still present. The understory components are similar to that of California black walnut–red willow riparian woodland but with panic veldt grass and other non-native grasses more dominant.

Perennial stream: Arroyo Las Positas is a perennial stream that bisects the western portion of the project site and is generally a slow-flowing and narrow creek with gently to moderately sloped muddy banks. The substrate is clay to silt with little or no rocks. Along some stretches, there is open water with little to no emergent vegetation and in other areas the creek supports dense emergent vegetation including cattails (*Typha* sp.), bulrush (*Schoenoplectus* sp.), and sedges (*Cyperus* sp.).

Habitat and Wildlife Movement Corridors

Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act requires federal agencies to consult with NMFS on all actions that may adversely affect EFH. EFH covers federally managed fish and invertebrate species that are not found strictly in fresh water and includes all aquatic habitat types where fish spawn, breed, feed, or grow to maturity (NMFS 2017). EFH designated for coho salmon (*Oncorhynchus kisutch*) and Chinook salmon (*Oncorhynchus tshawytshca*) includes all streams, estuaries, marine waters, and other water bodies occupied or historically accessible to those species. Mapped EFH for coho and Chinook salmon is present within the project site (NMFS 2021).

Historically, the Alameda Creek watershed supported coho, Chinook salmon, and steelhead; however, it is not believed that salmonids were historically present within the Arroyo Las Positas (Hanson et. al 2004, Leidy et al. 2005, Stanford et al. 2013). Flood control and water diversion

projects throughout the 20th century altered the hydrology of the region such that Arroyo Las Positas and other tributaries now have perennial surface connectivity with Alameda Creek. These alterations included constructed structures in Alameda Creek and other locations downstream from the project that completely blocked access to suitable spawning and rearing habitat in the watershed (Alameda Creek Alliance n.d.). In 2003, concrete fish passage barriers were removed, and fish ladders were installed downstream of the project site. However, Arroyo Las Positas still does not currently provide suitable spawning or rearing habitat for steelhead, coho and Chinook salmon due to slow flows and muddy substrate. Several studies have concluded that Arroyo Las Positas does not provide suitable habitat for anadromous fish, and although the NMFS query tool identified the project site as overlapping with mapped EFH, it did not indicate anadromous species would be present (Hanson et al. 2004, Leidy et al. 2005, Gunther et al. 2000, NMFS 2021).

Critical Habitat

The project site does not contain any critical habitat for any special-status wildlife species.

Wildlife Movement Corridors

To account for potential impacts to wildlife movement/migratory corridors, maps from the California Essential Connectivity Project (CalTrans 2010), and habitat connectivity data available through the CDFW Biogeographic Information and Observation System (CDFW 2021c) were reviewed. Additionally, aerial imagery (Google Earth 2021) for the local area was referenced to assess if local core habitat areas were present within or connected to the project site. This assessment was refined based on observations of on-site physical and/or biological conditions, including topographic and vegetative factors that can facilitate wildlife movement, as well as on-site and off-site barriers to connectivity.

The potential presence of native wildlife nursery sites is evaluated as part of the site visit and discussion of individual wildlife species below. Examples of native wildlife nursery sites include nesting sites for native bird species (particularly colonial nesting sites) and colonial roosting sites for other species (such as for monarch butterfly [*Danaus plexippus*]). No native wildlife nursery sites are present in the project site.

Wildlife movement between suitable habitat areas can occur via open space areas lacking substantial barriers. The terms “landscape linkage” and “wildlife corridor” are often used when referring to these areas. The key to a functioning corridor or linkage is that it connects two larger habitat blocks, also referred to as core habitat areas (Beier and Loe 1992; Soulé and Terbough 1999). Above all, wildlife corridors must link two areas of core habitat and should not direct wildlife to developed areas or areas that are otherwise void of core habitat (Hilty et al. 2019).

The project site is not mapped as an area that functions as a wildlife movement corridor, based on the Essential Connectivity Areas geospatial dataset, which uses habitat modelling to identify areas of land with value as wildlife corridors (CDFW 2024b). The relatively low intensity of development within the project site facilitates wildlife species movement at a local scale. However, the project site does not facilitate connectivity between larger core areas of open space, and its utility as a wildlife corridor is substantially limited by the surrounding prevalent developed lands, including I-580 directly to the north, the Livermore Municipal Airport to the south, and commercial developments to the east and west. The Arroyo Las Positas is not a potential fish migration corridor for salmonids due to the presence of multiple downstream passage barriers and lack of suitable spawning habitat upstream, downstream, and within the

project site. These in-stream conditions in combination with migratory barriers inhibit successful upstream migration of anadromous fish within these watersheds (Hanson et al. 2004).

Special-status Species

Database searches were conducted to determine which special-status species have the potential to be present within the project site. Following the database searches, habitat assessments and field surveys were conducted by HDR in November 2021 and by WRA, Inc. (WRA) in May 2024.

Special-status Plants

The results of the database queries indicated that two special-status plant species had the potential to occur within the project site:

- Congdon's tarplant (*Centromadia parryi* ssp. *Congdonii*)
- San Joaquin spearscale (*Extriplex joaquinana*)

Portions of the project site within the Las Positas Golf Course do not contain suitable habitat for any special status plant species due to historic and current golf course management. Congdon's tarplant and San Joaquin spearscale are associated with open habitats underlain by alkaline soils, such as the slightly alkaline soils found east of Airway Boulevard within the project site. Field surveys of the site found that the habitat present within the project site is low quality due to ongoing disturbance associated with landscape management, exposure to runoff, human encroachment, mowing and the past land use history. However, the open grassland east of Airway Boulevard within the project site has the potential to support Congdon's tarplant and San Joaquin spearscale, which has been known to occur in regularly disturbed areas. The Biological Survey Report found that hispid bird's beak (*Chloropyron molle* ssp. *hispidum)* also had the potential to be present within the project site (HDR 2022b). Upon further analysis, it was determined that habitat conditions within the project site are not suitable for this species due to the narrow soil pH it tolerates, thereby limiting its location suitability significantly. Soils in this project area consist of the Diablo series which do not provide the alkalinity required by hispid birds beak. This plant occurs in inland alkali flats and alkali wetlands, which are not present at the project site.

Special-status Wildlife

The results of the database queries and field surveys indicated that 15 special-status wildlife species have the potential to occur within the project site, including the following:

- California red-legged frog (CRLF) (*Rana draytonii*)
- Northwestern pond turtle (NPT) (*Actinemys marmorata*)
- Tricolored blackbird (*Agelaius tricolor*)
- Grasshopper sparrow (*Ammodramus savannarum*)
- Golden eagle (*Aquila chrysaetos*)
- Long-eared owl (*Asio otus*)
- Burrowing owl (*Athene cunicularia*)
- Swainson's hawk (*Buteo swainsoni*)
- White-tailed kite (*Elanus leucurus*)
- Loggerhead shrike (*Lanius ludovicianus*)

- Yellow warbler (*Setophaga petechia*)
- Pallid bat (*Antrozous pallidus*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Western red bat (*Lasiurus blossevelli*)
- American badger (*Taxidea taxus*)

DISCUSSION OF IMPACTS

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 (CDFW) or United States Fish and Wildlife Service (USFWS)?

Less-than-Significant Impact with Mitigation Incorporated

Special-status Plants

The grassland habitat present within the project site provides suitable habitat for several CNPS-ranked rare plant species, including Congdon's tarplant and San Joaquin spearscale. These species are associated with open habitats underlain by alkaline soils, such as the slightly alkaline soil types found in the project site. The habitat present within the project site is considered low quality due to ongoing disturbance associated with golf course management, including exposure to runoff, human encroachment, mowing, and other vegetation management. However, should these species be present on the project site, construction activities could result in the destruction of a local population, which is a potentially significant impact.

The project would implement MM BIO-1, which requires environmental awareness training for all construction workers on the project site, and MM BIO-2, which requires rare plant surveys to be conducted prior to construction during the appropriate blooming period(s) and includes measures in the event that any rare plant occurrences are observed. With implementation of these measures, the project would not have a substantial adverse effect on any special-status plant species. The impact would be less than significant with mitigation incorporated.

Special-status Wildlife

Special-status Fish

The course of Arroyo Las Positas has been heavily altered for flood control and historically had no surface connection to the San Francisco Bay, making it inaccessible to anadromous fish (Hanson et al. 2004). The portion of Arroyo Las Positas within the project site does not support spawning and/or juvenile rearing for California Central Coast Distinct Population Segment steelhead. While it is possible that stray adult steelhead may wander into the project site, this would be an unlikely and extremely rare occurrence and the fish would likely perish from high temperatures, turbid waters, and other generally unsuitable habitat conditions regardless of whether or not any project activities occurred. As such, the impact of the project on special-status fish would be less than significant.

Special-status Reptiles and Amphibians

Arroyo Las Positas upstream of the project site is identified as movement corridor for CTS (*Ambystoma californiense;* federally and State threatened) where it crosses under I-580 in several locations. There are CNDDB records of CTS within one mile of the project site north of I-

580 (CDFW 2024a), which is within the potential dispersal distance of the species (USFWS 2005). Zander Associates completed a two-year protocol-level trapping study from 2005 to 2007 within a 50-acre plot of suitable habitat south of I-580 and less than a mile to the west of the project site. No CTS were found during the study. The El Charro Specific Plan, which encompasses the area just outside of the project site to the west, refers to these protocol-level surveys in their rationale for determining that the plan area does not support CTS (Jones & Stokes 2008). In the USFWS (2008) biological opinion for the El Charro Specific Area Plan, the agency agreed with the rationale utilized in the plan and affirmed that the project was "not likely to adversely affect the tiger salamander due to the absence of species during two years of protocol-level surveys and barriers to suitable breeding ponds." Due to the low habitat quality within the project site, ongoing and historic land management practices associated with the golf course, negative survey results in adjacent suitable habitat, lack of known occurrences within the project site, and presence of substantial barriers to migration from adjacent areas with known occurrences, CTS is considered absent from the project site and therefore, there would be no impact to this species.

The portion of Arroyo Las Positas within the project site has the potential to support CRLF and NPT, and there are CNDDB records of these species occurring in the creek and/or Cottonwood Creek upstream of the project site (CDFW 2024a). Grassland and riparian areas in the project site provide suitable basking and upland refugia habitat for both CRLF and NPT due to their proximity to aquatic habitat. There is also potential for NPT to nest in upland areas adjacent to Arroyo Las Positas and the golf course ponds. The golf course has the potential to be utilized for dispersal but is not considered suitable habitat for nesting NPT or refugia for CRLF due to the ongoing maintenance and disturbance.

Potential direct impacts to CRLF and NPT could occur if individuals were to enter active work areas, staging areas, or access routes during project activities. Other effects could include individuals being crushed, entombed in burrows, killed or injured by project equipment or worker foot-traffic, or harassed by noise or vibration associated with project activities. Potential indirect impacts could include degradation of water quality downstream of the project resulting from sedimentation or spills of hazardous materials in the project area. As described further below, the project would include MM BIO-1, MM BIO-3, and MM BIO-8, which would reduce potential direct and indirect impacts to NPT and CRLF to a less-than-significant level. In addition, the project would obtain permits from applicable regulatory agencies (USFWS and CDFW) and implement all measures contained in those permits. Additionally, project work would occur outside of the wet season from October 15 to May 1, which would help avoid impacts to CRLF and NPT. With implementation of MM BIO-1, MM BIO-3, and MM BIO-8, the project would not have a substantial adverse effect on special-status reptiles and amphibians. The impact would be less-than-significant with mitigation incorporated.

Special-status Birds

The project site contains many trees that could provide suitable nesting habitat for special-status and protected birds. Special-status raptors, including Swainson's hawk (State threatened) and white-tailed kite (CDFW fully protected), have potential to nest in eucalyptus and ornamental trees within the golf course and developed areas, and trees within riparian habitat. Other special-status birds, such as tricolored blackbird (State threatened) may utilize grassland on the project site for foraging.

The willow and cottonwood trees within the riparian corridor of Arroyo Las Positas may provide suitable nesting habitat for California species of special concern (SSC) including yellow warbler

and long-eared owls, although the latter is uncommon in the region. The grassland east of Airway Boulevard within the project site provides suitable habitat for other SSC, including grasshopper sparrow, burrowing owl, and loggerheaded shrike. However, this habitat is of low quality. Additionally, potential habitat for burrowing owl is mapped within grassland adjacent and within the project site along Airway Boulevard (CDFW 2024a).

Potential direct impacts to nesting birds could occur from project removal of nest trees or shrubs, and collapsing or disturbance to active nesting or over-wintering burrows. Potential indirect impacts could include nest abandonment from noise and visual disturbance. These effects could result in potentially significant impacts to special status birds. Therefore, if project activities occur during the nesting season (generally February 1 to August 31), MM BIO-4 shall be implemented, which requires nest surveys to be conducted prior to grading and tree or vegetation removal and no-activity buffers established surrounding active nests observed. For potential impacts to burrowing owl, the project shall implement MM BIO-5, which requires take avoidance surveys prior to construction. With the implementation of MM BIO-4 and MM BIO-5, the project would not have a substantial adverse effect on special-status birds. The impact would be less than significant with mitigation incorporated.

Special-status Mammals

The many trees found throughout the project site, particularly hollow trees or riparian trees, and structures in developed areas, including buildings and bridges over Arroyo Las Positas, may provide potential roosting habitat for special-status bats, including pallid bat and western red bat, (both of which are California SSC). Potential direct impacts to roosting bats could occur if individuals are roosting in the active work areas during vegetation removal activities. Potential indirect impacts could include noise disturbance (e.g., activity causing alteration of roosting behavior) and the removal of potential roosting habitat. Therefore, MM BIO-6 shall be implemented, which requires roosting bat surveys be conducted prior to grading and tree or vegetation removal and avoidance of identified roosts. With the implementation of MM BIO-6, potential impacts to special-status bat species and non-special-status roosting bats would be reduced to a less-than-significant level.

Additionally, the project site contains habitat with the potential to support American badger (California SSC). Grassland habitat found along the riparian corridor of Arroyo Las Positas and and east of Airway Boulevard may provide suitable denning habitat for American badger, and the golf course may potentially be utilized for dispersal between these habitat fragments. Potential direct impacts to American badger from project activities could occur if individuals were to enter active work areas, staging areas, or access routes during project activities (e.g., vehicle strike of individual) or impacts to badger habitat such as equipment use causing collapse of dens. Potential indirect impacts to badgers could include alteration of foraging or breeding behavior or temporary alteration of movement or foraging behavior. Therefore, MM BIO-7 shall be implemented, which requires den identification and avoidance. With the implementation of this MM BIO-7, potential impacts to American badger would be reduced to less than significant.

With the implementation of MM BIO-6 and BIO-7, the project would not have a substantial adverse effect on any special-status mammals. The impact would be less than significant with mitigation incorporated.

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 CDFW or USFWS?

Less-than-Significant Impact with Mitigation Incorporated

Sensitive natural communities within the project site include riparian woodland and perennial stream. The proposed project would include excavation and grading work within the banks of Arroyo Las Positas, which would result in direct impacts on the riparian vegetation found along the creek and the stream bank. The removal of riparian vegetation would require the project to secure a Lake and Streambed Alteration Agreement, as described in MM BIO-8. In addition to measures included in the aforementioned authorizations, MM BIO-8 includes a list of general measures that shall be implemented to reduce impacts within riparian habitat. The project aims to remove the minimum amount of riparian vegetation required to accomplish project objectives and includes the restoration of riparian habitat along the banks of the creek. The project would implement MM BIO-9 which requires a detailed creek restoration plan to be prepared prior to the start of construction activities at the project site to mitigate impacts to riparian habitat. With implementation of these measures, the project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community. The impact would be less than significant with mitigation incorporated.

Project work would occur outside of the Arroyo Las Positas creek channel, and therefore, no direct impacts to the creek would occur. Grading and excavation of areas around the channel during construction could result in indirect impacts to water quality; however, the project would implement MM BIO-8, which requires the implementation of erosion control BMPs to prevent excessive erosion and sedimentation of Arroyo Las Positas. The purpose of the project is to expand the capacity of Arroyo Las Positas which would contribute to the long-term health of the creek by expanding the associated riparian zone and providing room for channel meanders and migration. As such, the project would have a long term net positive benefit to aquatic resources. The impact would be less-than-significant with mitigation incorporated.

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?

Less-than-Significant Impact with Mitigation Incorporated

All soil and sediment removal work would occur outside of the low flow channel of Arroyo Las Positas creek; therefore, no direct impacts to the creek would occur. Grading and excavation of areas around the channel during construction could result in indirect impacts to water quality; however, the project would implement MM BIO-8, which requires the implementation of erosion control BMPs to prevent excessive erosion and sedimentation of Arroyo Las Positas. The purpose of the project is to expand the capacity of Arroyo Las Positas which would contribute to the long-term health of the creek by expanding the associated riparian zone and providing room for channel meanders and migration. As such, the project would have a long term net positive benefit to aquatic resources. The impact would be less-than-significant with mitigation incorporated.

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?

Less-than-Significant Impact

Perennial creeks such as Arroyo Las Positas often serve as important movement corridors for fish and wildlife. As discussed above, Arroyo Las Positas provides opportunity for local movement of wildlife, but does not constitute a substantial wildlife corridor because it does not facilitate movement between substantial areas of core habitat. The creek lacks the necessary conditions to facilitate fish migration. In addition, the project entails temporary impacts to Arroyo Las Positas only within a small reach of the creek. Project activities would not disrupt or adversely modify the limited wildlife corridor associated with the riparian habitat, and would result in a long term net benefit, increasing the size and complexity of the corridor. Therefore, the project would have a less than significant impact on wildlife movement.

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

Less-than-Significant Impact with Mitigation Incorporated

The City's General Plan contains policies pertaining to the protection of biological resources. The project would not conflict with any policies contained in the General Plan. As described in *Impacts a)* through *d)* above, the project would mitigate for identified impacts to sensitive natural communities, wetland resources, and special-status species and their habitats. With the implementation of MM BIO-1, BIO-2, BIO-3, BIO-4, BIO-6, BIO-7, BIO-8, and BIO-9, the project would comply with General Plan policies pertaining to biological resources as outlined in the Regulatory Setting section above covering local policies and tree ordinances for the City of Livermore.

The project site contains a large number of native and non-native trees, especially in the riparian area along Arroyo Las Positas. The proposed project activities would involve work within the riparian area of Arroyo Las Positas and would involve the removal and pruning of trees that meet the definition of protected trees by the City Tree Ordinance. Approximately 116 trees are anticipated for removal by the project. The project includes replanting of removed riparian vegetation which is further reinforced and managed by implementation of MM BIO-9. With implementation of MM BIO-9, impacts to trees would be less than significant and the project would not conflict with the local tree ordinance. Therefore, the project would not conflict with any local policies or ordinances protecting biological resources; the impact would be less than significant with mitigation incorporated.

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?

Less-than-Significant Impact

The project site is located within the boundaries of the EACCS; however, the EACCS is a Conservation Strategy and is not the same as a formal HCP, as it does not authorize take of listed species. Unlike an HCP, the primary focus of the EACCS is to develop a coordinated and biologically sound approach to mitigation that would both support conservation and/or recovery of listed species and streamline federal and state permitting by providing guidance on avoidance, minimization, and mitigation for projects. The project proposes flood control improvements on existing developed properties and does not occur in a location that is identified as a conservation area in the EACCS. Implementation of mitigation measures MM BIO-1 through BIO-6, as described above, is consistent with EACCS guidelines and would ensure that all impacts to EACCS focal species and habitats are reduced to a level that is less than significant. There are no adopted HCPs or NCCPs that are applicable to the project site. The project would

not conflict with the provisions of an adopted HCP, NCCP, or other approved plan. The impact would be less than significant.

MITIGATION MEASURES

MM BIO-1. Environmental Awareness Training

An environmental awareness training program shall be given to all crew members working on the project. The training must be given by a qualified biologist and would include education on sensitive resources such as protected wildlife with the potential to occur within the project site, water quality, and environmental protection measures.

MM BIO-2. Special-status plants

The project shall implement the following measures recommended by the East Alameda County Conservation Strategy to avoid impacts to special-status plants:

- A qualified biologist shall conduct a protocol-level survey during the appropriate bloom time (approximately June–September) focused on the following rare plants: Congdon's tarplant and San Joaquin spearscale. The survey shall occur within suitable habitat prior to clearing or grading operations. If no rare plants are observed, a letter report shall be prepared to document the results of the survey, and no additional measures are required. If rare plants are found at the site, then the plants will be fully avoided to the extent feasible.
- If special-status plants are detected and cannot be avoided entirely, then the Project will mitigate for impacts to special-status plants by seed collection prior to construction and replanting and seeding within suitable habitat on site at a minimum 1:1 ratio. The reseeded area shall be monitored for a minimum period of three years following reseeding to demonstrate successful recolonization. If recolonization is not successful, a qualified botanist shall determine suitable on-site locations for additional supplemental seeding of impacted rare plant species harvested from another local location using methods consistent with California Native Plant Society (CNPS) best practices for rare plant species management.

MM BIO-3. Special-status reptiles and amphibians

To avoid and minimize potential impacts to CRLF and NPT associated with project activities, the project shall implement the following:

- Prior to construction, a CRLF and NPT relocation plan shall be prepared for USFWS approval. The relocation plan shall detail methodologies for handling and relocating any encountered CRLF and NPT that cannot be avoided. Suitable relocation areas located within Arroyo Las Positas but outside of the construction area will also be identified in the relocation plan.
- Within 24 hours prior to commencement of initial construction activities, a biologist approved by USFWS (Approved Biologist) shall conduct a preconstruction survey for CRLF and NPT within and adjacent to the project site.
- Any detected nests of NPT shall be marked with temporary flagging and surrounded with silt fence or similar exclusion barrier to prevent disturbance by heavy equipment. The temporary barrier shall be configured to prevent access to the nest site by construction personnel and equipment, but also allow access between the nest site and suitable aquatic

habitat. If nests cannot be avoided, the Approved Biologist shall contact the USFWS to determine next steps.

- Prior to the commencement of work with wheeled or tracked equipment in vegetated areas, vegetation that could conceal CRLF shall be surveyed by an Approved Biologist. If vegetation is too dense to be adequately surveyed (e.g. thick blackberry bushes, etc.), an Approved Biologist will observe vegetation removal until vegetation is cleared sufficiently for the Approved Biologist to survey the area and verify the presence or absence of CRLF and NPT. If no CRLF or NPT are found, the vegetation shall be fully removed. If CRLF and/or NPT are observed, they will be relocated as specified in the species-specific USFWS-approved relocation plans.
- An exclusion fence will be installed around staging and upland work areas and along portions of the creekbank after vegetation removal is complete. Exclusion fencing will also be installed around the perimeter of floodplain excavation work area. A biological monitor shall oversee the installation of the fence.
- If conditions prevent an exclusion fence from being able to fully enclose the project site for any reason (e.g., the presence of open waters prevents installation of a fence around part of the work area), the project site shall be surveyed by an Approved Biologist before the commencement of work each day. An Approved Biologist is defined as a biologist with sufficient experience identifying, surveying, and handling CRLF and NPT. The Approved Biologist shall be approved by the USFWS. If a CRLF or NPT is observed within the project site during the daily inspection, the Approved Biologist will halt work and may relocate the animal according to the protocol above. The Approved Biologist shall have stop work authority.
- Erosion control structures shall not include monofilament or be of types that may entrap and kill wildlife.
- All construction activities shall cease one half hour before sunset and shall not begin prior to one half hour before sunrise.
- Construction activities shall not occur for 24 hours after rain events projected to deliver >0.25 inches of rain without the full-time presence of an Approved Biologist.
- Any open holes or trenches shall be covered or have escape ramps no steeper than 45 degrees installed at the end of each working day to prevent wildlife from becoming entrapped.
- Work will be avoided from October 15 (or the first measurable fall rain of 1 inch or greater) to May 1.
- If agency consultation or permits result in modification to these measures, the permit measures shall take precedence.

MM BIO-4. Special-status and nesting birds

The following measures shall be implemented to avoid potential impacts to special-status and nesting birds:

- A preconstruction survey for protected nesting birds shall be conducted by a qualified biologist within seven days prior to the start of construction activities. The survey must cover the project site and areas within 500 feet for birds-of-prey and 100 feet for other (non-bird-of-prey) nests. Inaccessible areas and private lands shall be surveyed from

accessible (public) areas with binoculars. If no active nests of a bird-of-prey, MBTA bird, or other CDFW-protected bird are found, then no further measures are necessary. If active nests are found, they shall be avoided and protected as follows:

- Special-status birds: If an active nest of a federally- or State-listed species or California SSC is found, the qualified biologist shall establish a no-disturbance buffer around the nest that is large enough to avoid nest abandonment.
  - If an effective no-disturbance buffer cannot be established, a qualified biologist will develop a site-specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, the sensitivity and habituation of the species, and the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the species.
- Non-special-status birds: If an active nest of a bird-of-prey nest is found, the qualified biologist will establish a no-disturbance buffer around the nest according to the species detected and field conditions.

- Between February 1 and August 31, if additional vegetation removal is required after construction has started, a survey will be conducted for active nests in the area to be affected.
- If a 15-day lapse in construction work occurs during the nesting season, then another preconstruction survey shall be conducted prior to the resumption of work. If an active nest is found, the above measures shall be implemented.

MM BIO-5. Burrowing Owl

- Prior to any ground disturbance, a qualified biologist shall conduct a "take avoidance survey" in accordance with the recommended methods described in the CDFW 2012 Staff Report on Burrowing Owl Mitigation. The survey effort will include an initial survey no less than 14 days prior to initiating ground disturbance activities and a final survey within 24 hours prior to ground disturbance and before construction equipment mobilizes to the Project site. Surveys shall encompass a sufficient buffer zone to detect owls nearby that may be impacted, which shall be a minimum of 150 meters, to the extent feasible.
- Detected burrowing owls shall be avoided pursuant to the buffer zones prescribed in the CDFW 2012 Staff Report, unless otherwise approved in writing by CDFW, and any eviction plan including off-site habitat compensation shall be subject to CDFW review.
- If an occupied burrow cannot be avoided, an eviction plan will be prepared and approved by CDFW. Eviction shall not apply to occupied nests, and those occupied nests must be avoided until a qualified biologist has determined that the young have fledged.

MM BIO-6. Roosting Bats

The following measures shall be implemented to avoid impacts to roosting bats:

- A qualified biologist shall conduct a preconstruction survey of any trees with cavities, cervices, or peeling bark within 50 feet of the project site no less than 30 days before the start of tree and vegetation removal and grading. If construction activities are delayed by more than 30 days, an additional bat survey will be performed. The survey may be conducted at any time of year but shall be conducted in such a way to allow sufficient time to determine if special-status bats or maternity colonies are present onsite, provide

replacement habitat (if required), and exclude bats during the appropriate time of year (e.g., outside the maternity season from March 1–August 31). The results of the survey will be documented. If no signs of bats are detected during the habitat suitability survey, no further surveys are warranted.

- If an occupied maternity or colony roost is detected or evidence of bat occupancy is found (e.g., guano pellets or urine staining), the CDFW will be consulted to determine the appropriate mitigation measures, which may include exclusion prior to removal if the roost cannot be avoided, a buffer zone, seasonal restrictions on construction work, construction noise reduction measures, and construction of an alternate roost structure.

MM BIO-7. American badger

The following measures shall be implemented to avoid impacts to American badger:

- A preconstruction survey for potential American badger dens will be conducted within seven days prior to construction. If potential dens are present, their disturbance and destruction will be avoided until a qualified biologist determines whether or not they are occupied.
- If potential dens are located within the proposed work area and cannot be avoided during construction, a qualified biologist will determine if the dens are occupied or were recently occupied using methodology coordinated with the CDFW. If unoccupied, the qualified biologist will collapse these dens by hand in accordance with USFWS procedures (USFWS 1999).
- If dens are found to be occupied, exclusion zones will be established following USFWS procedures (USFWS 1999) or the latest USFWS procedures available at the time.
- Pipes will be capped and trenches will contain exit ramps to avoid direct mortality while construction areas are active.

MM BIO-8. Impacts to aquatic resources

The project shall seek permission and obtain approval from the Corps, RWQCB, and CDFW prior to project construction. The project shall implement any additional avoidance, minimization, and/or compensatory mitigation required by the regulatory agencies as conditions of approval.

The following best management practices (BMPs) would be implemented during project construction to reduce impacts of construction work on biological resources and water quality:

- Erosion control measures would be utilized throughout all phases of the project where sediment runoff from construction may potentially enter waters. Erosion control structures will be monitored for effectiveness and will be repaired or replaced as needed. Appropriate erosion control measures would be installed around any stockpiles of soil or other materials which could be mobilized by rainfall or runoff. All erosion control materials would utilize natural biodegradable materials and would not contain plastic monofilament that may entangle wildlife.
- No fueling, cleaning, or maintenance of vehicles or equipment would take place within any areas where an accidental discharge may cause hazardous materials to enter waterways.
- Any equipment or vehicles used for the project would be checked and maintained daily to prevent leaks of fluids that could be deleterious to aquatic habitats.

- All equipment would be cleaned before arriving on the site and before removal from the site to prevent spread of invasive plants.
- Construction disturbance or removal of vegetation would be restricted to the minimum footprint necessary to complete the work. The work area will be delineated where necessary to minimize impacts to vegetated habitats beyond the work limit, or to protected vegetation within the work area.
- Staging and storage areas for equipment, materials, fuels, lubricants and solvents would be located outside of the stream channel banks.
- Stationary equipment such as motors, pumps, and generators, located adjacent to aquatic features would be positioned over secondary containment sufficient to arrest a catastrophic failure.
- All activities performed near aquatic features would have absorbent materials designated for spill containment and cleanup activities on-site for use in an accidental spill.
- Stockpiles of excavated soil or other would be covered when not in active use (i.e., would not be used, or moved for 72 hours). All trucks hauling soil, sand, and other loose materials would be covered.
- No construction debris of any type would be allowed to enter or be placed where they may be washed into any aquatic features.
- At the end of the project, all temporary flagging, fencing, or other materials would be removed from the project site and vicinity of the channel.
- No equipment would be washed down where runoff could enter the creek.
- No motorized equipment would be left within the channel overnight.
- All refueling and maintenance of equipment, other than stationary equipment, would occur outside of the top-of-bank. Refueling of stationary equipment within the channel (top of bank to top of bank) would only occur when secondary containment sufficient to eliminate escape of all potential fluids is in place.

MM BIO-9. Habitat Restoration and Revegetation Plan

A Habitat Restoration and Revegetation Plan (HRRP) or similar plan shall be prepared prior to construction and implemented for the project. The HRRP must provide detailed information regarding the revegetation and/or restoration of the temporarily disturbed areas, including the following:

- All areas of disturbance by construction will be revegetated including replanting of riparian vegetation at a minimum of 2:1 ratio of replanted trees and shrubs to removed trees and shrubs;
- The locations of the Restoration Areas;
- Revegetation methods (e.g., natural revegetation, topsoil salvage and redistribution, reseeding, planting);
- Application and/or installation methods for plant materials;
- Native plant and seed palette;

- Maintenance and monitoring protocol, including schedules, timelines, and data collection methods;
- Species- or community-specific habitat restoration and revegetation goals, objectives, and quantitative success criteria;
- Contingency measures to be implemented in the event the success criteria are not being met; and
- A description of the contents and timing for a monitoring report to be provided annually to CDFW and other applicable agencies. The HRRP shall be provided to CDFW and other applicable agencies for review and approval no fewer than 30 days prior to the initiation of project activities.

4.2.5 Cultural Resources

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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 dedicated cemeteries?	☐	☒	☐	☐

Tom Origer & Associates (Origer) prepared a Cultural Resources Study for the project in July 2024 (Barrow 2024, Appendix C). The study was conducted to meet the requirements of the City, the Corps, CEQA, and Section 106 of the National Historic Preservation Act (NHPA), and to identify potential historical resources, other than Tribal Cultural Resources, as defined in Public Resources Code (PRC) 21074 (a)(1)(A)-(B), in the vicinity of the project site. The study included archival research at the Northwest Information Center, Sonoma State University, examination of the library and files of Origer, Native American contact, and a field survey of the project site. Information in this section is adapted from and relies on the Cultural Resources Study.

ENVIRONMENTAL SETTING

Prehistory

The concept of prehistory refers to the period of time before events were recorded in writing and varied worldwide. Because there is no written record, the understanding of California prehistory relies on archaeological materials and oral histories passed down through generations. In the 1930s, archaeologists from Sacramento Junior College and the University of California began piecing together a sequence of cultures primarily based on burial patterns and ornamental artifact from sites in the lower Sacramento Valley (Lillard, Heizer, and Fenenga 1939). Their cultural sequence became known as the Central California Taxonomic System, which identified three culture periods termed the Early, Middle, and Late Horizons, but without offering date ranges. Refinement of the Central California Taxonomic System became a chief concern of archaeologists as the century progressed.

It is estimated that native peoples have occupied the region for over 11,000 years, and during that time, shifts took place in their social, political, and ideological regimes (Fredrickson 1973). Early occupants appear to have had an economy based largely on hunting, with limited exchange, and social structures based on the extended family unit. Later, milling technology and an inferred acorn economy were introduced. This diversification of economy appears to be coeval with the development of sedentism and population growth and expansion. Sociopolitical complexity and status distinctions based on wealth are also observable in the archaeological

record, as evidenced by an increased range and distribution of trade goods (e.g., shell beads, obsidian tool stone), which are possible indicators of both status and increasingly complex exchange systems.

These horizons or periods are marked by a transition from large projectile points and milling slabs, indicating a focus on hunting and gathering during the Early Period, to a marine focus during the Middle Period evidenced by the number of shellmounds in the Bay Area. The Middle Period also saw more reliance on acorns and the use of bowl-shaped mortars and pestles. Acorn exploitation increased during the Late Period and the bow and arrow were introduced.

Prehistoric archaeological site indicators expected to be found in the region include but are not limited to obsidian and chert flakes and chipped stone tools; grinding and mashing implements such as slabs and hand-stones, and mortars and pestles; and locally darkened midden soils containing some of the previously listed items plus fragments of bone, shellfish, and fire-affected stones.

Ethnography

Linguists and ethnographers tracing the evolution of languages have found that most of the indigenous languages of the California region belong to one of five widespread North American language groups (the Hokan and Penutian phyla, and the Uto-Aztecan, Algic, and Athabaskan language families). The distribution and internal diversity of four of these groups suggest that their original centers of dispersal were outside, or peripheral to, the core territory of California, that is, the Central Valley, the Sierra Nevada, the Coast Range from Cape Mendocino to Point Conception, and the Southern California coast and islands. Only languages of the Hokan phylum can plausibly be traced back to populations inhabiting parts of this core region during the Archaic period, and there are hints of connections between certain branches of Hokan, such as that between Salinan and Seri, that suggest that at least some of the Hokan languages could have been brought into California by later immigrants, primarily from the Southwest and northwestern Mexico (Golla 2011).

Linguistic evidence shows that between 10,000 and 4,000 years ago inhabitants in the area were Pre-Hokan speakers, and by 6,000 years ago Hokan languages had developed in the San Francisco Bay Area (Moratto 2004). Moratto hypothesized that about 4,000 years ago Penutian (Utian) speakers began to migrate into the area from the lower Sacramento Valley and established in the East Bay Area. He further hypothesized that Proto-Costanoan people originated in the East Bay Area, and early Costanoans spread to the peninsula by about 3,200 years ago (Moratto 2004).

The Ohlone/Costanoan were hunter-gatherers who lived in rich environments that allowed for dense populations with complex social structures (Kroeber 1925). They settled in large, permanent villages about which were distributed seasonal camps and task-specific sites. Permanent villages were occupied throughout the year and satellite sites were visited to procure particular resources that were especially abundant or only seasonally available. Sites often were situated near fresh water sources and in ecotones where plant life and animal life were diverse and abundant.

Between 1777 and 1797, Spanish missionaries established seven missions in Costanoan territory disrupting Costanoan lifeways and cultural identities and decimating the population. It is estimated that Costanoans numbered 10,000 in 1770 and less than 2,000 in 1832 as new diseases were introduced, leading to higher mortality rates and lower birth rates (Levy 1978).

History

Historically, most of the project site is within the Santa Rita land grant, and the eastern portion of the site is within the Valle de San Jose (Suñol & Bernal) land grant (General Land Office 1862, 1863). The Santa Rita rancho was granted to José Dolores Pacheco in 1839 (Cowan 1977, Hoover *et al.* 2002). When granted, it consisted of 8,800 acres of grazing land between Livermore and Pleasanton. A small adobe was built in 1845 on the west side of the rancho, in what is now Pleasanton, by Francisco Solano Alviso following his appointment as mayordomo of the rancho (Hoover *et al.* 2002). Pacheco held several public offices in San Jose between 1838 and 1846. (Hoover *et al.* 2002). Following Pacheco's death, about 5,000 acres of the rancho were purchased by Samuel and J. West Martin (Hoover *et al.* 2002).

The Valle de San Jose (Suñol & Bernal) rancho was granted to Antonio María Pico and Antonio María Suñol in 1839, and patented to Antonio Suñol, Juan Bernal, and Augustin Bernal in 1863. When granted, it consisted of 48,436 acres and included the present-day cities of Livermore and Pleasanton (Cowan 1977; Hoover *et al.* 2002). Pico held a variety of military and public offices throughout his career, was later appointed as a registrar of the United States Land Office in Los Angeles in 1861 and was the grantee of Rancho Pescadero in San Joaquin County (Hoover *et al.* 2002). Suñol was mainly a stock raiser and trader but was also the owner of Rancho Los Coches in Santa Clara County and the co-purchaser of the San Rafael Mission with Pico in 1846 (Hoover *et al.* 2002).

Historic period site indicators generally include fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits (e.g., wells, privy pits, dumps).

REGULATORY SETTING

Cultural Resources

As set forth in Section 5024.1(c) of the PRC for a cultural resource to be deemed "important" under CEQA and thus eligible for listing on the California Register of Historical Resources (California Register), it must meet at least one of the following criteria:

1. is associated with events that have made a significant contribution to the broad patterns of California History and cultural heritage; or
2. is associated with the lives of persons important to our past; or
3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possess high artistic value; or
4. has yielded or is likely to yield, information important to prehistory or history.

Historic-era structures older than 50 years are most commonly evaluated in reference to Criterion 1 (important events), Criterion 2 (important persons) or Criterion 3 (architectural value). To be considered eligible under these criteria the property, must retain sufficient integrity to convey its important qualities. Integrity is judged in relation to seven aspects including: location, design, setting, materials, workmanship, feeling, and association. Prehistoric and historic-era archaeological resources are commonly evaluated with regard to Criterion 4 (research potential).

Guidelines for the implementation of CEQA define procedures, types of activities, persons, and public agencies required to comply with CEQA. Section 15064.5(b) prescribes that project effects that would "cause a substantial adverse change in the significance of an historical resource" are

significant effects on the environment. Substantial adverse changes include both physical changes to the historical resource, or to its immediate surroundings.

Archaeological Resources

Section 21083.2 of the CEQA guidelines also defines “unique archaeological resources” as “any archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and show that there is a demonstrable public interest in that information.
- Has a special and particular quality, such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person."

This definition is equally applicable to recognizing “a unique paleontological resource or site.” CEQA Section 15064.5 (a)(3)(D), which indicates “generally, a resource shall be considered historically significant if it has yielded, or may be likely to yield, information important in prehistory or history,” provides additional guidance.

National Historic Preservation Act Section 106

Under Section 106 of the NHPA, when a federal agency is involved in an undertaking, it must take into account the effects of the undertaking on historic properties (36 CFR Part 800). Compliance with Section 106 requires that agencies make an effort to identify historic properties that might be affected by a project.

The National Register of Historic Places (National Register) defines a historic property as a district, site, building, structure, or object significant in American history, architecture, engineering, archaeology, and culture, and that may be of value to the nation as a whole or important only to the community in which it is located.

City of Livermore General Plan

The City’s General Plan Community Character Element contains the following relevant objectives and policies related to cultural resources:

Objective CC-3.4. Identify and protect archaeological and paleontological resources that enrich our understanding of early Livermore and the surrounding region.

> **Policy P1.** The City shall require proper archaeological or paleontological testing, research, documentation, monitoring, and safe retrieval of archaeological and cultural resources as part of a City established archaeological monitoring and mitigation program.
>
> **Policy P2.** Whenever there is evidence of an archaeological or paleontological site within a proposed project area, an archaeological survey by qualified professionals shall be required as a part of the environmental review process.
>
> **Policy P3.** If an archaeological site is discovered during construction, all work in the immediate vicinity shall be suspended pending site investigation by qualified professionals. If, in the opinion of a qualified professional, the site will yield new information or important verification of previous findings, the site shall not be destroyed.

CULTURAL RESOURCES STUDY FINDINGS

Archival Research

Results of the records search and literature review indicated that the eastern portion of the project site has not been previously subjected to cultural resources studies; however, the western portion has. No cultural resources have been documented within the project site. Twenty-one studies have been conducted within a half-mile of the project site, and there are four resources documented within a half-mile of the project site. There are no reported ethnographic sites within one mile of the project site.

Sensitivity for Buried Sites

Origer estimated the sensitivity of the project site for buried archaeological sites using a method which considers the age of the landform, slope, and proximity to water (Byrd et al. 2017). A location is considered to have a high sensitivity if the landform dates to the Holocene, has a slope of five percent or less, is within 150 meters of fresh water, and 150 meters of a confluence. Note, the Holocene Epoch is the current period of geologic time, which began about 11,700 years ago, and coincides with the emergence of human occupation of the area. A basic premise of the model is that archaeological deposits will not be buried within landforms that predate human colonization of the area. Calculating these factors using the buried site model, a location's sensitivity is scored on a scale of 1 to 10 and classed as follows: lowest (<1); low (1-3); moderate (3-5.5); high (5.5-7.5); highest (>7.5).

By incorporating the formula created by Byrd *et al.* (2017), it was determined that there is the highest potential for buried archaeological site indicators within the project site. However, the western portion of the project site (the golf course) was heavily modified during the construction and subsequent renovations of the golf course; therefore, the potential to encounter intact buried resources is considered less likely in that area.

Field Survey

In addition to previous studies of the western portion of the project site, an intensive pedestrian field survey of the western site portion was completed by HDR Engineering, Inc. in January 2022 (HDR Engineering, Inc. 2022). No archaeological site indicators or isolates were observed within the western portion of the site.

A field survey of the eastern portion of the project site was completed by Julia Karnowski and Taylor Alshuth of Origer on June 13, 2024. The survey involved walking the site in transects spaced ten meters apart, and a hoe was used as necessary to expose the ground surface. The banks of Arroyo Las Positas were also examined, and two hand-dug auger holes were excavated to look for buried archaeological site indicators. Visual examination of the bank was possible to a depth of six feet. Auger holes were excavated using a four-inch diameter barrel auger to a depth of 70 centimeters, at which point the soil became too silty and loose to stay in the auger barrel. No archaeological site indicators or isolates were observed during the course of the study or in the auger holes.

Built Environment

A review of 19th and 20th century maps showed no buildings within the project site prior to 1968. One building is shown on maps at the west end of the project site in 1968 and on subsequent maps, this building appears to be the original clubhouse of the Las Positas Golf Course, which was established in 1967. The golf course has been extensively renovated twice (Las Positas Golf Course 2023). Aerial photos indicated the clubhouse was demolished between 1987 and 1993

and a new, larger clubhouse was erected just outside the limits of the project site. There are no buildings or structures present within the project site.

Native American Contact

Origer sent letters to local Native American tribes to notify them of the project and obtain input on any sensitive resources which may be in the project site area. This outreach does not constitute formal consultation under AB 52, which is currently being conducted by the City. Six responses were received, including the following:

- Irene Zwierlein, of the Amah Mutsun Tribal Band of Mission San Juan Bautista responded via email on June 3, 2024. Ms. Zwierlein provided a letter of response which recommended that a sacred lands file search be conducted at the Native American Heritage Commission (NAHC), and that a records search be conducted through the California Historical Resource Information Center (CHRIS). They stated that if there is any cultural or historic sensitivity within a mile of the project area, they recommend a training session be conducted for the construction crew, and that earth movement be monitored by an archaeologist and Native American monitor. They also provided their rates.
- Richard Massiatt, Executive Director for the Muwekma Ohlone Indian Tribe of the San Francisco Bay Area responded via email on June 3, 2024. Mr. Massiatt stated that the tribe has an interest in the project and provided a rate sheet for their services.
- Louise Miranda-Ramirez, Tribal Chairwoman for the Ohlone/Costanoan-Essen Nation responded via email on June 3, 2024. Ms. Ramirez stated that the project is not within the aboriginal homeland.
- Ed Ketchum of the Amah Mustun Tribal Band responded on June 4, 2024, as did the Cultural Resources Team of the Amah Mutsun Tribal Band on June 5th. Mr. Ketchum stated that the Livermore Valley is represented by the Muwekma Tribal Band. The Cultural Resources Team declined to comment because the project is outside of their traditional territory.
- Corrina Gould, Tribal Chair for the Confederated Villages of Lisjan Nation responded via email on June 11, 2024. Ms. Gould requested a copy of the results of the sacred lands file search and any additional archaeological reports.
- Desiree Vigil of The Ohlone Indian Tribe responded via email on June 11, 2024. Ms. Vigil acknowledged receipt of our email and did not provide additional comment.

DISCUSSION OF IMPACTS

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

No Impact

There are no documented historical resources within the project site, although there are four resources documented within a half-mile of the project site. There are no structures on the project site that would be eligible for inclusion on the National Register of Historic Resources (National Register) or California Register of Historic Places (California Register). Therefore, the project would not cause a substantial adverse change in the significance of a historical resource. No impact would occur.

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

Less-than-Significant Impact with Mitigation Incorporated

Although no resources or archaeological site indicators were found during the field surveys of the project site conducted in 2022 and 2024, the site was determined to have a high potential for buried archaeological resources, particularly, the eastern portion of the project site. Should any unknown archaeological resources be present on the project site, such resources could be impacted by accidental discovery during project construction activities such as grading and excavation, which is a potentially significant impact. MM CUL-1 would be implemented during project construction which contains standard BMPs for the accidental discovery of buried archaeological resources on the project site. With implementation of this measure, the project would not cause a substantial adverse change in the significance of an archaeological resource. The impact would be less than significant with mitigation incorporated.

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

Less-than-Significant with Mitigation Incorporated

There are no known human remains within the project site, and no buried archaeological site indicators were observed during field surveys of the project site in 2022 and 2024. However, should unknown human remains interred outside of dedicated cemeteries be present on the project site, such remains could be impacted by project construction activities such as grading and excavation. MM CUL-2 would be implemented which contains standard BMPs for the accidental discovery of human remains during project construction. With implementation of MM CUL-2, the project would not disturb any human remains. The impact would be less than significant with mitigation incorporated.

MITIGATION MEASURES

MM CUL-1. Archaeological Resources

In keeping with the CEQA guidelines, if buried materials are encountered, all soil-disturbing work at the place of discovery should be halted immediately until a qualified archaeologist can evaluate the find(s) pursuant to Section 106 of the National Historic Preservation Act (36CFR60.4). Prehistoric archaeological site indicators include: obsidian and chert flakes and chipped stone tools; grinding and mashing implements (e.g., slabs and handstones, and mortars and pestles); bedrock outcrops and boulders with mortar cups; and locally darkened midden soils. Midden soils may contain a combination of any of the previously listed items with the possible addition of bone and shell remains, and fire-affected stones. Historic period site indicators generally include fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits (e.g., wells, privy pits, dumps).

MM CUL-2. Human Remains

If human remains are encountered, excavation or disturbance of the location must be halted in the vicinity of the find, and the county coroner contacted. If the coroner determines the remains are Native American, the coroner will contact the NAHC. The NAHC will identify the person or persons believed to be most likely descended from the deceased Native American. The most likely descendent makes recommendations regarding the treatment of the remains with appropriate dignity.

4.2.6 Energy

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

Energy use, especially through fossil fuel consumption and combustion, relates directly to environmental quality since it can adversely affect air quality and generate GHG emissions that contribute to climate change. Electrical power is generated through a variety of sources, including fossil fuel combustion, hydropower, wind, solar, biofuels, and others. Natural gas is widely used to heat buildings, prepare food in restaurants and residences, and fuel vehicles, among other uses. Fuel use for transportation is related to the fuel efficiency of cars, trucks, and public transportation; choice of different travel modes such as auto, carpool, and public transit; and miles traveled by these modes, and generally based on petroleum-based fuels such as diesel and gasoline. Electric vehicles may not have any direct emissions but do have indirect emissions via the source of electricity generated to power the vehicle. Construction and routine operation and maintenance of transportation infrastructure also consume energy.

The project site includes an existing golf course and associated buildings that require the use of energy and generate traffic trips to the project site.

REGULATORY SETTING

City of Livermore 2022 Climate Action Plan

The City's Climate Action Plan outlines a strategy for the City to reduce GHG emissions, adapt to extreme weather, deploy reliable and renewable energy, conserve habitat and biodiversity, and ensure equitable access to the benefits of a sustainable city (City of Livermore 2022a). The Plan includes a GHG emissions inventory and identifies tactics to achieve GHG emissions reductions goals. The 2017 GHG emissions inventory indicates that the largest source of GHG emissions in the City is on-road transportation, accounting for 59 percent of all emissions. The Plan contains objectives related to energy resilience, buildings and energy, and carbon sequestration.

DISCUSSION OF IMPACTS

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

Less-than-Significant Impact

The project proposes flood control improvements which would reduce flooding impacts and disruption at the site and adjacent land uses, including the airport. The project does not propose new growth or expansion of the urban service area. Operational activities would be periodic, would be minor, and would not require additional employees or equipment above existing conditions. Most energy consumption associated with the project would occur during the construction phase.

During construction, the project would result in energy consumption through the combustion of fossil fuels in construction vehicles, worker commute vehicles, and construction equipment, and the use of electricity for temporary buildings, lighting, and other sources. No natural gas would be utilized as part of construction. Fossil fuels used for construction vehicles and other energy-consuming equipment would be used during construction activities. The types of equipment could include gasoline- and diesel-powered construction and transportation equipment, including trucks, tractor/loader/backhoes, excavators, dozers, and graders. Other equipment could include electrically driven equipment such as pumps and other tools. Limitations on idling of vehicles and equipment and requirements that equipment be properly maintained would result in fuel savings. Idling from both on- and off-road diesel-powered equipment is limited in 13 CCR Sections 2449(d)(2) and 2485 and enforced by the CARB. In addition, given the cost of fuel, contractors and owners have a strong financial incentive to avoid wasteful, inefficient, and unnecessary consumption of energy during construction. Because of the temporary nature of construction and the financial incentives for developers and contractors to implement energy-efficient practices, project construction activities would not result in wasteful, inefficient, and unnecessary consumption of energy. Therefore, impacts related to fuel and electricity consumption would be less than significant.

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

Less-than-Significant Impact

Construction and operational activities would involve energy consumption in various forms and would be limited by California regulations such as 13 CCR Sections 2449(d)(3) and 2485, which limit idling from both on- and off-road diesel-powered equipment and are enforced by the CARB. The proposed project would be required to comply with these regulations. There are no renewable energy standards applicable to construction and operational activities for the proposed project. The project would not conflict with any regulations identified in the City's CAP. Therefore, the proposed project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing energy use or increasing the use of renewable energy. The impact would be less than significant.

4.2.7 Geology and Soils

Would the project:	*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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?	☐	☐	☒	☐
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, 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 wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

ENVIRONMENTAL SETTING

Regional Geology

The project site lies within the central Diablo Range, a topographic upland separating San Francisco Bay from the San Joaquin Valley. This represents one mountain range in a series of northwesterly-aligned mountains forming the Coast Ranges geomorphic province of California (Cornerstone Earth Group 2024). The Coast Ranges province runs almost directly parallel to the San Andreas Fault, beginning in the Central California Coast and extending north towards the state boundary, and are composed of thick Mesozoic and Cenozoic sedimentary strata. The northern and southern ranges are separated by a depression containing the San Francisco Bay.

Livermore consists of two general topographic areas: the lowland area and the upland area. The lowland area generally includes central Livermore and the Downtown area and has elevations ranging from approximately 350 feet to 600 feet above mean sea level (MSL). The upland area includes the hills to the northwest, northeast, and the south of Livermore, with elevations ranging from approximately 500 to 1,200 feet above MSL.

The project site is underlain by quaternary alluvium of the Miocene, Pleistocene period (City of Livermore 2003). This geologic unit includes unconsolidated sand, silt, gravel, and clay deposits generally subject to redistribution by fluvial processes. Stream channel banks are generally incised, locally being subject to unstable banks which can slump into the channel due to undercutting.

The topography of the project site is generally flat with undulations and elevational changes of one to four feet throughout resulting from the engineered design of the golf course. The elevation ranges from 355 to 395 feet above MSL with an overall gradual decline from north to south and from east to west. The highest elevation is along the northern edge immediately south of I-580 and the lowest elevation is in the southwest corner adjacent to a drainage ditch.

Soils

Soil types mapped by the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) within the project site include (USDA NRCS 2019):

- Diablo clay, very deep, three to 15 percent slopes
- Riverwash
- Sycamore silt loam over clay
- Sycamore silt loam, zero to two percent slopes
- Sunnyvale clay loam

Faults and Seismicity

The San Francisco Bay Area contains both active and potentially active faults and is regarded as a region of high seismic activity. The nearest regional faults to the project site are the Las Positas Fault (five miles south), Greenville Fault (six miles east), the Calaveras Fault (six miles west), and Hayward Fault (12 miles west) (CDC 2015, Cornerstone Earth Group 2024). Hazards associated with regional active faults are related to the estimated potential magnitude of earthquake occurring on each fault. The higher the magnitude of an earthquake occurring along a fault, the more intense the ground shaking will be. All four faults are considered to be active under the Alquist-Priolo Earthquake Fault Zoning Act (A-PEFZA). There are also two unnamed quaternary faults mapped within 500 feet of the project site (CDC 2015).

Seismically induced ground rupture can also occur, which is the physical displacement of surface deposits in response to an earthquake's seismic waves. Surface rupture can damage or collapse buildings, cause severe damage to roads and pavement structures, and cause failure of utilities, including overhead and underground. Ground rupture is typically confined to relatively narrow zones and considered more likely along active faults.

DISCUSSION OF IMPACTS

a-i), ii) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: 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? Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Strong seismic ground shaking?

Less-than-Significant Impact

The project site is located in close proximity to the Las Positas, Greenville, Calaveras, and Hayward Faults, all of which are considered active under the A-PEFZA. The project site is not located within an Alquist-Priolo Earthquake Fault Zone of Required Investigation associated with any of these faults (California Geological Survey [CGS] 2024). There are two other unnamed quaternary faults situated within the immediate vicinity of the project site. Should surface rupture occur within these fault zones due to movement of the fault, the project site could be impacted.

Surface fault rupture or ground shaking at the project site during construction could pose risk of injury to construction workers on the project site. The project contractor would be required to comply with all federal Occupational Safety and Health Administration (OSHA) and California OSHA (Cal/OSHA) requirements related to construction worker safety, which would reduce risks associated with fault rupture during construction to a less-than-significant level. The project would not create any new inhabitable or occupiable structures which would be at risk of causing loss, injury, or death due to seismic activity. As such, the project would not cause potential substantial adverse effects involving rupture of a known earthquake fault or strong seismic ground shaking. The impact would be less than significant.

a-iii) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Seismic-related ground failure, including liquefaction?

Less-than-Significant Impact

Liquefaction primarily occurs in relatively loose, saturated, cohesionless soils that lose their strength and become incapable of supporting the weight of overlying soils or structures when subject to earthquake stresses. The project site is within a Liquefaction Zone of an Earthquake Zone of Required Investigation (CGS 2024). Soils underlying the project site were assessed for liquefaction potential, and it was determined that several layers could potentially experience liquefaction triggering which could result in liquefaction-induced settlement of up to one inch, resulting in differential settlement up to 2/3 inch (Cornerstone Earth Group 2024). The project would be designed to tolerate the anticipated total and differential settlements estimated by the Geotechnical Investigation. In addition, the golf cart bridge and Airway Boulevard Bridge improvements would be supported by deep foundations, which would be designed in accordance with the recommendations provided in the Geotechincal Investigation. Therefore, the project would not result in hazards related to liquefaction. The project would not construct any new

inhabitable structures within areas that are prone to liquefaction; therefore, the project would not increase the risk of loss, injury, or death involving liquefaction. The impact would be less than significant.

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

Less-than-Significant Impact

The project site is not located within a Landslide Zone of an Earthquake Zone of Required Investigation (CGS 2024). The topography of the project site is generally flat with areas of smaller hills; therefore, project construction or operation would not increase risks associated with landslides. The proposed project includes stream bank stabilization, which would reduce the potential for landslides within the stream channel. As such, the project would not directly or indirectly cause adverse effects associated with landslides. The impact would be less than significant.

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

Less-than-Significant Impact with Mitigation Incorporated

The project would involve excavation and grading work during construction, which could result in soil erosion or the loss of topsoil. As described in *Section 4.2.4, Biological Resources*, the project would implement MM BIO-8, which contains general BMPs to reduce erosion during project construction. As described further in *Section 4.2.10, Hydrology and Water Quality,* the project would also be required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP), which would contain measures to reduce sedimentation of waterways from runoff soils and sediment. With implementation of BMPs, project construction would not result in substantial erosion or the loss of topsoil. Once construction is finished, the project would revegetate all excavated areas and would maintain the new vegetation in accordance with the HRPP included in MM BIO-8. During project operation, Arroyo Las Positas would have an increased flow capacity which would reduce erosion of the streambank and other surrounding areas. As such, project operation would not result in substantial soil erosion or the loss of topsoil; the project would result in a long-term benefit by reducing flooding and erosion. The impact would be less-than-significant with mitigation incorporated.

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?

Less-than-Significant Impact

As described above in *Impacts a),* the project is underlain by soils that are at elevated risk of liquefaction. However, the project would not create any new inhabitable structures which would become unstable as a result of the project and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. The design of project elements, such as the golf cart bridge and Airway Bridge improvements, would be designed in accordanace with recommendations provided in the Geotechnical Investigation prepared by Cornerstone Earth Group. Therefore, the new structures would be designed to be stable and would not result in unstable geologic or soil conditions. The impact would be less than significant.

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

Less-than-Significant Impact

The project site contains a variety of soil types, including Diablo clay, Sycamore silt loam over clay, Sycamore silt loam, and Sunnyvale clay loam. These soils types are moderately to highly expansive (City of Livermore 2022b). Exploratory borings were performed by Cornerstone Earth Group which confirmed that on-site soils had a low to moderate expansion potential (Cornerstone Earth Group 2024). However, the project would not create any new inhabitable structures and would not create substantial direct or indirect risks to life or property. Proposed improvements would be designed in accordance with recommendations provided in the Geotechnical Investigation. Therefore, the impact would be less than significant.

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 Impact

The project would not require any septic tanks or similar alternative wastewater disposal system. No impact would occur.

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

Less-than-Significant Impact with Mitigation Incorporated

The City's General Plan notes that Livermore is known to contain paleontological and archaeological resources, and that there is potential for discovering additional resources during ground disturbing activities. The portion of the project site within the golf course has been previously disturbed by land alterations associated with the creation and maintenance of the golf course, however the eastern portion of the project site may include undisturbed soils. The project site is underlain by Holocene-age alluvium (Qa) (Dibblee and Minch 2006). Late Holocene sediments (i.e., those less than 5,000 years old) are unlikely to yield scientifically important or unique ("significant") paleontological resources; however, middle to early Holocene sediments (i.e., those 5,000 years old to 10,000 years old) may yield scientifically significant paleontological resources. The depth of this transition from late Holocene to middle to early Holocene is unknown but likely shallow (e.g., five feet below ground surface) given the surrounding topography and geologic exposures. Therefore, the alluvium underlying the project site has a low to high (increasing with depth) paleontological sensitivity (Society of Vertebrate Paleontology [SVP] 2010). In addition, the Master Environmental Assessment prepared for the City's General Plan notes that the Sycamore Foundation (one of the soil formations underlying the project site) is one of the four deposits within the City which is likely to contain significant paleontological resources (City of Livermore 2003).

Along the southern border of the Santa Rita Amador Valley, along the base of the hills and along Arroyo Valle, late Pleistocene older alluvium (Qoa1 and Qoa2) is mapped at the surface and may extend in the subsurface at shallow depth across the valley into the project site. Moreover, along the hills situated along the northern boundary of the Santa Rita Amador Valley and the hills separating the Santa Rita Amador and Las Positas valleys east of the project site, surface geologic mapping indicates early Pleistocene to Pliocene Livermore Gravel (QTlg) and Pliocene Orinda Formation (Tor) are mapped at the surface; these units may also extend in the surface at shallow to moderate depth across the valley into the project site. Although generally considered too coarse-grained to yield intact fossils due to the high-energy paleoenvironment these rock units were deposited, the University of California Museum of Paleontology has several records of significant fossil localities in the project's vicinity (Harris 1985; Jefferson 1991a, 1991b; McDonald

1981; Paleobiology Database 2023; Repenning 1983; Savage 1951). Therefore, Qoa1, Qoa2, QTlg, and Tor (if present at depth underlying Qa) have a high paleontological sensitivity and paleontological resources could be discovered during grading, excavation, or other ground-disturbing activities. (SVP 2010).

In the event of an accidental discovery, MM GEO-1 would be implemented which requires that a professional paleontologist be retained in the event of a find to carry out all regulatory compliance measures and protocols related to paleontological resources.

MITIGATION MEASURES

MM GEO-1. Paleontological resources

In the event of an archaeological find, all work in the immediate vicinity of the find shall be halted. The project shall retain a Qualified Professional Paleontologist (Qualified Paleontologist/Project Paleontologist/Principal Paleontologist), who meets or exceeds the SVP definition, to make a significance evaluation of the find. Should the fossils be determined to be significant, the Qualified Paleontologist shall have the authority to professionally and efficiently recover the fossil specimens and collect associated data. The Qualified Paleontologist should record pertinent geologic data and collect appropriate sediment samples from any fossil localities. Recovered fossils should be prepared to the point of curation, identified by qualified experts, listed in a database to facilitate analysis, and deposited in a designated paleontological repository.

4.2.8 Greenhouse Gas Emissions

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b)	Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

GHGs are recognized by wide consensus among the scientific community to contribute to global warming/climate change and associated environmental impacts. The most common GHGs released from human activity are carbon dioxide, methane, and nitrous oxide (Governor's Office of Planning and Research 2008). The primary sources of GHGs are vehicles (including planes and trains), energy plants, and industrial and agricultural activities (e.g., dairies and hog farms).

In the United States, the major sources of GHG emissions are transportation, electricity generation, and industrial activities (EPA 2022). These three sources are also the top contributors of GHG emissions in California (CARB 2023).

Global Warming Solutions Act

Assembly Bill (AB) 32, adopted in 2006, established the Global Warming Solutions Act of 2006 which requires the State to reduce GHG emissions to 1990 levels by 2020. In 2016, Senate Bill (SB) 32 was signed into law, amending the California Global Warming Solution Action. SB 32 and Executive Order B-30-15 require CARB to ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by 2030. CARB updated its Climate Change Scoping Plan in December of 2017 to express the 2030 statewide target in terms of million metric tons of carbon dioxide equivalent (MMTCO2e). Based on the emissions reductions directed by SB 32, the annual 2030 statewide target emissions level for California is 260 MMTCO2e.

Bay Area 2017 Clean Air Plan

The 2017 CAP is the most recently adopted air quality plan in the Bay Area. The CAP focuses on two related BAAQMD goals: protecting public health and protecting the climate. To protect the climate, the CAP includes control measures designed to reduce emissions of methane and other super-GHGs that are potent climate pollutants in the near-term, and to decrease emissions of carbon dioxide by reducing fossil fuel combustion.

CEQA Air Quality Guidelines

The BAAQMD CEQA Air Quality Guidelines are intended to serve as a guide for those who prepare or evaluate air quality impact analyses for projects and plans in the San Francisco Bay Area. The City of Livermore and other jurisdictions in the SFBAAB utilize the thresholds and methodology for assessing GHG impacts developed by BAAQMD within the CEQA Air Quality

Guidelines. The guidelines include information on legal requirements, BAAQMD rules, methods of analyzing impacts, and recommended mitigation measures.

City of Livermore 2022 Climate Action Plan

The City's Climate Action Plan outlines a strategy for the City to reduce GHG emissions, adapt to extreme weather, deploy reliable and renewable energy, conserve habitat and biodiversity, and ensure equitable access to the benefits of a sustainable city (City of Livermore 2022a). The Plan includes a GHG emissions inventory and identifies tactics to achieve GHG emissions reductions goals. The 2017 GHG emissions inventory indicates that the largest source of GHG emissions in the City is on-road transportation, accounting for 59 percent of all emissions. The Plan contains objectives related to energy resilience, buildings and energy, and carbon sequestration.

DISCUSSION OF IMPACTS

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

Less-than-Significant Impact

The project would result in GHG emissions from temporary construction-related activities, including operation of heavy equipment, use of trucks, worker trips, and site preparation. Direct long term operational emissions would be limited to vehicular traffic during occasional maintenance activities. The project would not cause an increase in indirect or direct emissions during operation.

Construction would occur for approximately 110 working days in 2025 and 110 working days in 2026. GHG emissions generated by construction activities were calculated using CalEEMod Version 2022.1 and were based on the project's estimated construction schedule and anticipated equipment use (Appendix B). Construction activities would generate approximately 80.5 metric tons (MT) of CO2 equivalent (CO2e) in 2025, and 183 MT of CO2e in 2026.

The BAAQMD does not have adopted thresholds of significance for GHG emissions. The BAAQMD's approach to developing thresholds of significance for GHG impacts is to use a "fair share" approach to determine whether an individual project's GHG emissions would be cumulatively considerable. If a project would contribute its "fair share" of what is needed to achieve statewide long-term GHG reduction goals, the impact of the project's GHG emissions would be less than significant. The BAAQMD has identified required design elements that development and transportation projects must incorporate into project plans for their impact to be considered less than significant. There are no design elements required for restoration projects, and therefore the project must only be consistent with the local GHG reduction strategy that meets the criteria under CEQA Guidelines Section 15183.5(b) (BAAQMD 2022). As described below in *Impact b),* the project would be consistent with GHG reduction strategies outlined in the City's Climate Action Plan. The project would not include the use of natural gas; would not result in wasteful, inefficient, or unnecessary energy use; and would not cause a permanent increase in vehicle miles traveled. Therefore, the project would not generate GHG emissions, either directly or indirectly, which would have a significant impact on the environment. The impact would be less than significant.

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

Less-than-Significant Impact

The City's General Plan Climate Change Element does not contain specific policies pertaining to GHG emissions; however, it directs the City to create and implement a Climate Action Plan to help the City achieve Statewide GHG emissions reduction targets. The City's Climate Action Plan was established in 2022 and includes strategies and objectives to help the City attain GHG reduction targets established by State regulations. The Plan also includes a GHG emissions inventory for the City and forecasts anticipated GHG emissions up until 2045. The primary source of GHG emissions within the City is transportation, including on-road and off-road vehicles. The second largest source of emissions is residential and non-residential gas (City of Livermore 2022).

As described above in *Impact a),* the project would not include any natural gas usage and would not cause a permanent increase in vehicle trips. The majority of GHG emissions associated with the project would be from the use of construction equipment and vehicle hauling trips during project construction. These impacts would be temporary, and therefore would not conflict with the City's Climate Action Plan strategy to meet Statewide GHG emissions reduction targets. The project would remove a number of trees, which would reduce the capacity of carbon sequestration; however, the trees would be replaced at a 3:1 ratio, which would ultimately increase carbon sequestration in the long-term. As such, the project would not conflict with goals, strategies, or objectives of the City's Climate Action Plan related to GHG emissions. The impact would be less than significant.

4.2.9 Hazards and Hazardous Materials

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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 public use airport, would the project result in a safety hazard 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?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

A search of the SWRCB GeoTracker database (SWRCB 2024) and the Department of Toxic Substances Control (DTSC) EnviroStor database (DTSC 2024) indicated that there are no open hazardous materials cases on the project site. There is one former leaking underground storage tank (LUST) cleanup site; however, the case was closed after cleanup was completed in 1998.

The golf course does not typically use significant quantities of hazardous materials. The Livermore Municipal Airport is situated adjacent to the south of the golf course and may routinely use, transport, and store substantial quantities of hazardous materials.

DISCUSSION OF IMPACTS

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

Less-than-Significant Impact with Mitigation Incorporated

Relatively common hazardous substances such as gasoline, diesel fuel, lubricating oil, adhesive materials, grease, and solvents would be used during project construction. These materials are used routinely throughout urban environments for construction projects, small-scale structural improvements, and road projects. Further, these materials would be transported and handled in accordance with all federal, state, and local laws regulating the management and use of hazardous materials.

However, construction activities would occur adjacent to and within aquatic resources and vegetation communities on-site. The project could create a significant hazard through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Therefore, the project would implement MM HAZ-1 which would reduce potential impact to a less-than-significant level. With implementation of MM HAZ-1, which includes measures to prevent leaks and spills of hazardous materials during construction, the project would not create a significant hazard to the public or environmental through the use of hazardous materials. The impact would be less than significant with mitigation incorporated.

Project operation would involve ongoing monitoring and vegetation maintenance as needed. Maintenance activities in the creek and other aquatic features on the project site would consist of periodic (as needed) removal of excess vegetation and accumulated sediment using hand labor crews and/or mechanized equipment. Operation would not involve the use, storage, or disposal of hazardous materials. Therefore, project operation would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Similarly, project operation would not 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 impact would occur.

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 Impact

There are no schools within 0.25 mile of the project site. Acton Academy East Bay, the closest school, is located approximately 0.3 mile northeast of the project site boundary. Furthermore, as mentioned above, the project would not involve the use of significant quantities of hazardous materials. No impact would occur.

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?

Less-than-Significant Impact

There are no open hazardous materials cases on the project site as listed on the California DTSC EnviroStor database, the SWRCB GeoTracker site, the Cortese list, the Superfund site list, or any other list compiled pursuant to Section 65962.5 of the California Government Code (DTSC 2024, SWRCB 2024). There is one former LUST cleanup site on the golf course; however, the case was closed after cleanup was completed in 1998 (SWRCB 2024). There are no other open sites that would constitute an environmental hazard for the project site. Therefore, development of the project site would not create a significant hazard to the public or the environment. The impact would be less than significant.

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 for people residing or working in the project area?

Less-than-Significant Impact

The proposed flood control improvements would not change the nature of the golf course or commercial property and would not introduce new populations or aircraft hazards to the site.

The project site is directly adjacent to the Livermore Municipal Airport and subject to the Livermore Airport Land Use Compatibility Plan (ALUCP) (County of Alameda 2012). Portions of the project site are located within the 65 Community Noise Equivalent Level (CNEL) Noise Contour Zones, although the majority of the site is within the 60 CNEL Noise Contour. As shown in the Table 3-1 Noise Compatibility Criteria within the ALUCP, outdoor noise between 60 and 64 decibels (dB) CNEL is permitted at recreational uses and activities associated with this land use may be carried out with essentially no interference from aircraft noise. Outdoor noise above 65 dB CNEL is acceptable for outdoor activities, although some noise interference may occur; caution should be exercised with regard to noise-sensitive uses. The golf course would not be considered a noise-sensitive use. Therefore, impacts related to noise safety hazards would be less significant.

The project site also falls within two different safety compatibility zones, the Sideline Safety Zone (Zone 5) and Traffic Pattern Zone (Zone 6), which are identified based on runway length and flight patterns (County of Alameda 2012). The project would not include tall structures or new, occupied buildings and would not result in uses that are incompatible with the safety zones or result in safety hazards. Therefore, the project would not result in excessive noise or safety hazards, and impacts would be less than significant.

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

Less-than-Significant Impact

Project work would occur within portions of the golf course and portions of an open space parcel northeast of Airway Boulevard. The project would not alter existing roadways, streets, or intersection networks in the vicinity. The project would not include any work or staging of equipment within the public roadway right-of-way or within the airport property. Therefore, the project would not impair implementation or physically interfere with the *City of Livermore Emergency Operations Plan* (City of Livermore 2018). The impact would be less than significant.

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

Less-than-Significant Impact

The project is not located in a designated Fire Hazard Severity Zone (FHSZ). As described in *Section 4.2.20, Wildfire,* the project site is not situated near any densely populated areas and would not include activities which would exacerbate wildfire risk. The impact would be less than significant.

MITIGATION MEASURES

MM HAZ-1. Hazardous materials BMPs

The following measures shall be implemented prior to and during construction and shall be incorporated into project plans and specifications, including the Erosion and Sediment Control Plan and/or SWPPP.

1. All equipment shall be inspected by the contractor for leaks prior to the start of construction and regularly throughout project construction. Leaks from any equipment shall be contained and the leak remedied before the equipment is again used on the site.
2. Best management practices for spill prevention shall be incorporated into project plans and specifications and shall contain measures for secondary containment and safe handling procedures.
3. A spill kit shall be maintained on site throughout all construction activities and shall contain appropriate items to absorb, contain, neutralize, or remove hazardous materials stored or used in large quantities during construction.
4. Project plans and specifications shall identify construction staging areas and designated areas where equipment refueling, lubrication, and maintenance may occur. Areas designated for refueling, lubrication, and maintenance of equipment shall be approved by the City of Livermore.
5. In the event of any spill or release of any chemical or wastewater during construction, the contractor shall immediately notify the City of Livermore.

4.2.10 Hydrology and Water Quality

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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 off-site;	☐	☐	☒	☐
	iii) create or contribute runoff water that would exceed the capacity of existing or planned storm water 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?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Arroyo Las Positas flows from east to west through the middle of the project site and eventually flows into Alameda Creek, which flows into South San Francisco Bay. On-site, the creek is characterized by stretches of open water channels overlain by dense riparian tree canopy mixed with exposed stretches of channel supporting emergent vegetation species.

There are areas of significant growth of vegetation and fallen trees at many locations both on the banks and within the channel, which reduce the capacity of the channel and likely increase sediment deposition upstream. The existing channel has a capacity of approximately 380 cfs, which is less than a two-year storm event.

The golf course contains seven constructed ornamental ponds located downslope and to the south of Arroyo Las Positas, which are ornamental features that also capture surface flows across the golf course. Some of these ponds are used to irrigate the golf course and are kept at capacity year-round, while others are allowed to dry out seasonally. All ponds within the golf course have limited emergent vegetation.

REGULATORY SETTING

City of Livermore General Plan

The City's General Plan Open Space and Conservation Element contains the following relevant objectives and policies related to hydrology and water quality.

Objective OSC-2.1: Continue efforts to ensure that development does not harm the quality or quantity of Livermore's surface or ground water.

> **Policy P1.** Require the implementation of BMPs to minimize erosion, sedimentation, and water quality degradation resulting from the construction of new impervious surfaces.

DISCUSSION OF IMPACTS

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

Less-than-Significant Impact

Project construction would involve grading and excavation within the channel of Arroyo Las Positas. Excavation activities during construction have the potential to impact water quality through erosion and debris carried in runoff. As discussed in *Section 4.2.9, Hazards and Hazardous Materials*, project construction would involve heavy equipment that could also result in an increase in fuel, oil, and lubricants in stormwater runoff due to leaks or accidental releases. Construction activities could result in temporary impacts to water quality due to runoff from active construction areas adjacent to and within Arroyo Las Positas and stormwater infrastructure, potentially resulting in a violation of water quality standards.

As described in *Section 3.0, Project Description*, construction would occur during the dry season to minimize the potential for water quality impacts. In addition, the project would be subject to the San Francisco Bay Region Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit No. CAS612008, issued by Order No. R2-2022-0018 on May 11, 2022, to discharge stormwater runoff to storm drains and watercourses. Under the conditions of the permit, the project would be required to eliminate or reduce non-stormwater discharges to waters of the United States, develop and implement a SWPPP for construction activities, and perform inspections of the stormwater pollution prevention measures and control practices to ensure conformance with the SWPPP. The SWPPP would contain measures to reduce sediment runoff and erosion during project construction, and may include measures such as:

- Establish temporary erosion controls to stabilize all exposed soils;
- Use sediment controls or filtration to remove sediment;

- Protect all storm drain inlets in the vicinity of the project site using sediment controls such as berms, fiber rolls, or filters;
- Trap sediment on-site using BMPs such as sediment basins or traps, earthen dikes or berms, silt fences, check dams, soil blankets or mats, covers for soil stockpiles, etc.;
- Divert onsite and offsite runoff around exposed areas (e.g., swales and dikes);
- Protect undisturbed areas from construction impacts using vegetative buffer strips, sediment barriers or filters, dikes, mulching, or other measures as appropriate;
- Avoid cleaning, fueling, or maintaining vehicles onsite, except in a designated area where washwater is contained and treated;
- Store, handle, and dispose of construction materials and wastes properly to prevent contact with stormwater; and/or
- Control and prevent the discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, washwater or sediments, and non-stormwater discharges to storm drains and watercourses.

Additionally, because the proposed project would disturb at least one acre of land, the project must provide stormwater treatment and would be required to obtain coverage under the Construction General Permit (Order 2009-0009-DWQ).

Further, in accordance with LMC Chapter 13.45 (Stormwater Management and Control Program), LMC Chapter 16.08 (Watercourses), and Alameda County Codes and Ordinances Chapter 13.08 (Stormwater Management and Discharge Control), the project would be required to undertake all practicable measures to reduce pollutants.

Compliance with mandatory Clean Water Act requirements (NPDES Construction General Permit and MS4 General Permit), LMC requirements, and the San Francisco Bay RWQCB's post-construction requirements for stormwater management during construction would minimize erosion and siltation, prevent substantial discharges of contaminated stormwater to the municipal storm drain system or surface waters, and reduce the potential for violations of water quality standards or waste discharge requirements. With the incorporation of these measures, plus completing work during the dry season, construction would not violate any water quality standards or waste discharge requirements.

Operation of the project is anticipated to benefit water quality because the purpose of the project is to reduce flooding of Arroyo Las Positas, which would reduce non-point source pollution of the waterway from surrounding areas. By expanding the overbank areas and increasing the capacity of Arroyo Las Positas during flood events, the project would reduce channel erosion, which would be a beneficial long-term impact on drainage and water quality. Therefore, the project would not violate any water quality standards or waste discharge requirements. The impact would be less than significant.

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

Less-than-Significant Impact

The project would require minimal amounts of water for dust suppression during construction activities, which would not result in an increased demand for groundwater resources. Operation

of the proposed project would not cause any change in demand for water resources, including groundwater resources.

The project would maintain the same area of impervious surfaces within the project site compared to existing conditions, as no buildings or expanded paved areas would be constructed and the project would not induce unanticipated growth in the City or the surrounding area. The project would increase the conveyance of Arroyo Las Positas in order to mitigate flooding of the surrounding areas. Stormwater would continue to runoff from impervious surfaces into the existing stormwater drainage system. As the project would not result in an increase in impervious surfaces, groundwater recharge would continue consistent with existing conditions. Therefore, impacts related to depletion of groundwater supplies and groundwater recharge would be less than significant.

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 off-site; (iii) create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or (iv) impede or redirect flood flows?

Less-than-Significant Impact

The purpose of the project is to increase the channel capacity of Arroyo Las Positas within the project site to minimize flooding of surrounding areas. The channel currently has a streamflow capacity of 380 cfs, which is lower than the two-year storm event. Stormwater overflows the channel in multiple places during these events and overtops the existing golf cart bridge, which causes significant debris accumulation and decreases channel conveyance. The project would expand the creek channel to increase the flow capacity within the limits of the project site. In addition, the project would raise the height of the golf cart bridge two feet and add culverts to each bank underneath the golf cart paths. With these improvements, the channel would have an increased capacity which would exceed the capacity of the two-year event, and would prevent overtopping of the bridge for the 10-year, 25-year, and 50-year storms (Schaaf & Wheeler 2024).

During the two-year flow event, flood flows overtop the banks of the existing channel. Since the proposed channel would contain the flow of the two-year storm event, the channel's top width of flow would be narrower than the existing channel, and the velocities would increase within the channel and improve sediment transport during the two-year flow event. The proposed channel improvements would result in an increased velocity in low-flow events, which is anticipated to improve sediment transport during typical sediment-moving events. For these reasons, in the long term, the project would have a beneficial impact on drainage patterns.

Construction of the project would require grading and excavation within Arroyo Las Positas, which could cause erosion and sedimentation of the waterway. However, as described in *Impact a)* above, the project would implement BMPs for erosion and sediment control, which are required by federal and state regulations. As such, construction of the project would not result in substantial erosion or siltation on- or off-site.

In summary, the proposed project would reduce erosion and siltation on-site, increase the capacity of stormwater drainage, and reduce the majority of the flooding and surface runoff that occurs during the two-year storm event, which would be a benefit in the long term. The potential

for construction-related impacts would be reduced with implementation of standard measures. Therefore, the impact would be less than significant.

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

Less-than-Significant Impact

The project site is located within FEMA Flood Insurance Rate Map (FIRM) Panel numbered 06001C0329G (FEMA 2024). The published FIRM indicates the project site is within several different flood designations. It is designated within Zone AE, an area determined to be within the one percent Special Flood Hazard Area where the base flood elevation has been determined. This corresponds with the 100-year storm event. The project site is also within the 0.2 percent-annual-chance floodplain and designated as a Regulatory Floodway. The purpose of the project is to reduce flood inundation hazards and sedimentation. Project construction work would occur during the dry season; therefore, flooding at the site during construction, which could risk release of pollutants into nearby waterways, is not anticipated to occur. Furthermore, as described in *Impact a)* above, the project would be required to implement a SWPPP which would contain measures to reduce the risk of pollutant release. As such, the project would not risk release of pollutants due to project inundation during construction. The impact would be less than significant.

The project is located inland and is not within an area that has the potential for seiche or tsunamis to occur. Therefore, impacts related to flood hazard, tsunami, or seiche zones would be less than significant.

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

No Impact

The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) identifies specific beneficial uses and water quality objectives for each of the surface waters and groundwater management zones described in the Basin Plan, including for Arroyo Las Positas (California Water Boards 2023b). The proposed project would improve water quality in the long-term by reducing erosion and sediment runoff into Arroyo Las Positas. As such, the project would result in a net-positive impact to the creek, which would align with objectives of the Basin Plan.

During construction, the project would require compliance with the NPDES Construction General Permit and the LMC Chapter 13.45 Stormwater Management and Control Program, which would reduce the risk of short-term erosion and increased runoff resulting during construction. The project would also be subject to the San Francisco Bay Region Municipal Regional Stormwater NPDES Permit No. CAS612008, which would require the contractor to eliminate or reduce non-stormwater discharges to waters of the United States, develop and implement a SWPPP for construction activities, and perform inspections of the stormwater pollution prevention measures and control practices to ensure conformance with the SWPPP. Compliance with such regulations would ensure that the project does not conflict with the Basin Plan, and beneficial uses would be protected for Arroyo Las Positas in the vicinity of the project alignment. Overall, the proposed project would support goals and objectives of the Basin Plan by improving water quality. Therefore, no impact would occur related to conflicts with water quality control plans or sustainable groundwater management plans.

4.2.11 Land Use and Planning

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The project site is within the Open Space Flood Plain, Education and Institutions, and INSP zoning districts. The General Plan land use designation for the project site is OSP and IN. The western portion of the project site consists of areas of an operational golf course, while the eastern portion of the site includes an undeveloped parcel with sparse vegetation and trees.

DISCUSSION OF IMPACTS

a) Physically divide an established community?

No Impact

The project would involve flood control improvements along Arroyo Las Positas within a portion of the Las Positas Golf Course and an adjacent open space parcel. The project does not propose any new land uses or change in land use. The project would not divide any established community because project work would be temporary and would not physically divide any neighborhoods, commercial centers, or other land use. No impact would occur.

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?

Less-than-Significant Impact

The project would not include new land uses or changes in existing uses and would not conflict with the 2003-2025 General Plan policies or the LMC. The project would be required to obtain permits from the City, as well as federal and state agencies, to confirm the proposed use is consistent with the zoning district, ensure harmony with the area, and ensure compliance with City policies and regulations. The project would not have a significant environmental impact due to conflicts with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, the impact would be less than significant.

4.2.12 Mineral Resources

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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?	☐	☐	☐	☒

DISCUSSION OF IMPACTS

a-b) 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? 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 Impact

The CDC Division of Mines and Geology has mapped and classified mineral resources throughout the state. Livermore is underlain by alluvial deposits, which contain significant reserves of sand and gravel suitable for aggregate in the production of cement (Stinson et al. 1987). These mapped mineral resources include the Chain of Lakes mining pond complex approximately 0.5 mile south and southwest of the project site; however, the project site itself is not located in a designated resource area. The site is not delineated on a local general plan, specific plan, or other land use plan and the project would not impact mining operations (CDC 1996). Additionally, the project would not require the use of mineral resources valuable to the region and residents of the state, and there are no current or planned mineral resource mining operations occurring on the project site. Therefore, the project would have no impacts related to mineral resources.

4.2.13 Noise

Would the project result in:	*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

Sensitive Receptors

Sensitive receptors are defined as land uses where noise-sensitive people may be present or where noise-sensitive activities may occur. Examples of noise-sensitive land uses include residences, schools, hospitals, and retirement homes. Examples of noise-sensitive activities are those that occur in locations such as churches and libraries.

Construction of the project would occur primarily within the golf course and within an open space parcel adjacent east of the course. The project site is surrounded by industrial, commercial, and open space development. The nearest residential uses are located 0.85 miles (~4,450 feet) feet to the northeast of the project site. The nearest schools to the project site are Acton Academy East Bay (0.42 miles north), Rancho Las Positas Elementary (1.40 miles southeast), Livermore Valley Academy (1.80 miles south), and Marilyn Avenue Elementary School (two miles southeast). There are no noise-sensitive receptors within the immediate vicinity of the project site.

Existing Ambient Noise Setting

Noise sources within the vicinity of the project site include vehicle traffic from I-580 and surrounding roadways, aircraft takeoffs and landings and other activities at the Livermore Municipal Airport, and outdoor recreational uses. The project site is primarily within the 60 CNEL contour for the airport, although a small portion of the southern areas of the project site are within the 65 CNEL contour (County of Alameda 2012). As such, the existing ambient noise setting of the project site is between 60-65 CNEL.

DISCUSSION OF IMPACTS

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?

Less-than-Significant Impact

Primary noise sources within the vicinity of the project site include vehicle traffic from I-580 and surrounding roadways, the Livermore Municipal Airport, and outdoor recreational uses. There are no sensitive receptors within 1,000 feet of the boundaries of the project site.

During construction, the project would require the use of power tools and heavy equipment. All construction noise activities would adhere to the limitations outlined in LMC Chapter 9.36 Noise and General Plan Noise Element Objective N-1.5 (City of Livermore 2013). In addition, the implementation of the project would not result in changes in traffic volumes or patterns at noise-sensitive receptors in the project vicinity or result in changes to existing noise levels on the project site by developing new stationary sources of noise. Therefore, the project would not result in generation of a temporary or permanent increase in ambient noise levels in excess of local stands. The impact would be less than significant.

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

Less-than-Significant Impact

Groundborne vibration would be generated during construction of the proposed project by various construction activities, including drilling, the use of jackhammers, and other high-power or vibratory tools, and heavy-duty equipment. However, as described above in Impact a), there are no sensitive receptors within the vicinity of construction activities. The project would adhere to the construction hours outlined in LMC Section 9.36.080. Therefore, impacts related to groundborne vibration or groundborne noise levels would be less than significant.

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?

Less-than-Significant Impact

The Livermore Municipal Airport is situated adjacent to the south of the golf course. As described in Section 4.2.9, the project site is primarily within the 60 CNEL Noise Contour Zones for the airport, although some portions are within the 65 CNEL contour zone. Construction activities on the project site, in combination with noise from the airport, may expose site workers to elevated noise levels. However, construction activities which generate substantial noise would be intermittent and short term and would not create an ambient noise environment which is unsafe for workers. In addition, the construction contractor would be required to comply with all OSHA and Cal/OSHA requirements for site worker safety, which may include measures such as ear protection. As such, construction of the project would not expose people working in the project area to excessive noise levels.

Operation of the project would not change the existing use of the golf course or create any new permanent sources of noise. As such, project operation would not expose people residing or working in the project area to excessive noise levels. The impact would be less than significant.

4.2.14 Population and Housing

Would the project:	*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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 numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The City of Livermore has a population of 84,791 and has approximately 31,800 housing units (U.S. Census Bureau 2022). The project site is not located within a residential area. The nearest residences are situated approximately 0.85 miles to the northeast of the project site.

DISCUSSION OF IMPACTS

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)?

Less-than-Significant Impact

Project construction would require temporary staffing to complete the construction activities; however, these staff are anticipated to live in the larger region. Additionally, restoration and maintenance activities associated with the proposed project would be completed by the City Public Works Department, and it is not anticipated that new employees would be hired because of the project.

The project site currently operates as a golf course and undeveloped open space area and does not contain residential land uses. The project would not alter the number of residential units in the area nor would it induce population growth indirectly through the expansion of infrastructure. The impact would be less than significant.

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

No Impact

The project would not displace any people or housing. All work would occur within the project site, which consists of portions of a golf course and an open space parcel. No impact would occur.

4.2.15 Public Services

Would the project:	*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Fire protection services in the City are provided by the Livermore-Pleasanton Fire Department. The nearest fire station to the project site is Livermore-Pleasanton Fire Station No. 10 located at 330 Airway Boulevard, located across Airway Boulevard adjacent to the south of the project site.

Police protection services in the City are provided by the Livermore Police Department. The Police Department is located at 1110 South Livermore Avenue, approximately 3.35 miles southeast of the project site.

No schools are located within the immediate vicinity of the project site; however, various schools are situated within a two-mile radius of the project site, including Acton Academy East Bay (0.42 miles north), Rancho Las Positas Elementary (1.40 miles southeast), Livermore Valley Academy (1.80 miles south), and Marilyn Avenue Elementary School (two miles southeast).

A portion of the project site includes areas within the Las Positas Golf Course, a City-owned recreational facility. Other nearby parks include Cayetano Park (1.24 miles northeast), Hagemann Park (1.35 miles southeast), May Nissen Park (1.65 miles southeast), and Pleasure Island Park (1.70 miles south).

Other nearby public facilities include the Livermore Municipal Airport which is adjacent to the south of the project site, and the Livermore Public Library, situated approximately 1.60 miles east of the project site.

DISCUSSION OF IMPACTS

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?
- Other public facilities?

No Impact

As described in *Section 4.2.14, Population and Housing,* the project would not directly or indirectly induce population growth which would contribute to an increased demand for public facilities. As such, the project would not result in the provision of or need for new or physically altered fire protection, police protection, schools, or other governmental facilities. Therefore, the project would have no impact related to fire protection, police protection, schools, or other governmental facilities.

- Parks?

Less-than-Significant Impact

The project would include physical alterations to the Las Positas Golf Course, a publicly owned parks facility, in the form of flood control improvements along Arroyo Las Positas. Portions of the golf course may be closed during construction; however, the project would not increase demand for or use of parks, and therefore, would not result in the need for new or physically altered parks facilities in order to maintain acceptable service ratios, response times, or other performance objectives. The impact related to park facilities would be less than significant.

4.2.16 Recreation

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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?	☐	☒	☐	☐

ENVIRONMENTAL SETTING

The project site includes portions of the Las Positas Golf Course, a City-owned operational golf course. Other nearby park facilities include Cayetano Park (1.24 miles northeast), Hagemann Park (1.35 miles southeast), May Nissen Park (1.65 miles southeast), and Pleasure Island Park (1.70 miles south).

DISCUSSION OF IMPACTS

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?

Less-than-Significant Impact

The project would include flood control improvements along a stretch of Arroyo Las Positas which passes through the Las Positas Golf Course. The project is not anticipated to increase the use of the golf course or any other recreational facilities. As described in *Section 4.2.14, Population and Housing,* the project would not directly or indirectly induce population growth which would contribute to increased use of recreational facilities. As such, the project would not 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. The impact would be less than significant.

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

Less-than-Significant Impact with Mitigation Incorporated

The project would include flood control improvements along a stretch of Arroyo Las Positas which passes through the Las Positas Golf Course. The purpose of the project is to reduce flooding around Arroyo Las Positas throughout the golf course and surrounding areas. The project would require the temporary and/or permanent relocation of some golf course facilities, including bridges, cart paths, putting greens, and tee boxes. These facilities would be relocated within the existing golf course footprint and would not be situated in sensitive habitat areas. Potential environmental impacts of relocating these facilities are discussed throughout this

IS/MND. As discussed in *Section 4.2.21, Mandatory Findings of Significance,* the project's effects on the environment would be less than significant with implementation of mitigation measures contained within this IS/MND (MM AIR-1, MM BIO-1, MM BIO-2, MM BIO-3, MM BIO-4, MM BIO-5, MM BIO-6, MM BIO-7, MM BIO-8, MM BIO-9, MM CUL-1, MM CUL-2, MM GEO-1, and MM HAZ-1). The project would not include expansion of the golf course or any of its facilities. Therefore, the project would not include recreational facilities or require the construction or expansion of existing recreational facilities which might have an adverse physical effect on the environment. The impact would be less than significant with mitigation incorporated.

4.2.17 Transportation

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b)	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?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The project site is situated adjacent south of I-580, an east-west auxiliary interstate highway with six lanes traveling in each direction. The City's General Plan states that I-580 experiences severe congestion during the morning and evening peak traffic hours, generally between 7:00 and 9:00 AM and 4:00 and 6:00 PM. Within City limits, I-580 carries an average daily traffic volume of 165,000 to 220,000 vehicles (City of Livermore 2004). Regional and local access to the project site is provided by I-580 ramps situated at its intersection with Airway Boulevard, adjacent northeast of the project site.

REGULATORY SETTING

City of Livermore General Plan

The City's General Plan contains the following relevant objectives and policies related to transportation:

Objective CIR-5.1: Maintain adequate levels of service for all areas of the City.

> **Policy P1.** For the purposes of development associated traffic studies, road improvement design, and capita improvement priorities, the upper limit of acceptable service at signalized intersections shall be mid-level D, except in the Downtown Area and near freeway interchanges.
>
> **Policy P3.** The upper limit of acceptable level of service at selected intersections near freeway interchanges shall be LOS E. These intersections include: [3]
>
> (2) Airway Boulevard/I-580 westbound raps (0.20 miles north of the project site)

[3] The full list of intersections from the General Plan is not included here, only intersections that are nearby the project site and may be used by project-generated construction traffic.

(3) Airway Boulevard/I-580 eastbound ramp- Kitty Hawk Road (0.06 miles north of the project site)

Policy P4. The City accepts the need to balance competing objectives, including providing a system for safe, efficient, and convenient movement of traffic (Goal CIR-2); minimizing cut-through traffic (Objective CIR-5.1), and preventing or minimizing physical environmental constraints (Objective CIR-5.2), and therefore recognizes that certain intersections, located at freeway ramps and along east/west major streets carrying a high percentage of regional cut-through traffic, may exceed the established LOS standard. These intersections include:[4]

(2) Isabel Avenue/Airway Boulevard (0.20 miles east of the project site)

Livermore Bicycle, Pedestrian, and Trails Active Transportation Plan

The *Livermore Bicycle, Pedestrian, and Trails Active Transportation Plan* (ATP) provides a comprehensive set of policies, data, and programs to improve walking, biking, and trails in Livermore. The ATP serves as a framework to implement the development of pedestrian and bicycle facilities within the City. The ATP provides an assessment of existing conditions related to traffic and circulation, a needs analysis, and recommendations for projects, programs, and implementation strategies.

DISCUSSION OF IMPACTS

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

Less-than-Significant Impact

Construction activities associated with the project would occur entirely within the project site boundaries. Project construction and operation would not require the closure of lanes or streets, and would not require detours of any public roadways, and would not disrupt access to transit stops. As described in *Section 4.2.14, Population and Housing,* and *Section 4.2.16, Recreation,* the project would not increase commercial or residential development, would not generate population growth, and would not increase the operational use of the project site. Therefore, the project would not cause a permanent increase in traffic in the vicinity of the project site. The project would not impact bicycle or pedestrian facilities. Therefore, the project would not conflict with the goals, objectives, or policies addressing the circulation system in the City's General Plan or bicycle and pedestrian facilities in the ATP. The impact would be less than significant.

b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Less-than-Significant Impact

State CEQA Guidelines section 15064.3(b) describes criteria for analyzing transportation impacts based on vehicle miles traveled (VMT). For land use projects, VMT exceeding an applicable threshold of significance may indicate a significant impact. In accordance with the *Technical Advisory on Evaluating Transportation Impacts in CEQA*, Section 21099 of the PRC states that the criteria for determining the significance of transportation impacts must promote: (1) reduction of GHG emissions; (2) development of multimodal transportation networks; and (3) a diversity of

[4] The full list of intersections from the General Plan is not included here, only intersections that are nearby the project site and may be used by project-generated construction traffic.

land uses. Section 21099 subdivision (b)(1) further directed the Office of Planning and Research (OPR) to prepare and develop criteria for determining significance. The OPR identifies a screening threshold for small, land use projects as a project that generates or attracts fewer than 110 trips per day. Projects that generate fewer than this threshold may be assumed to cause a less-than-significant transportation impact (OPR 2018).

During construction, the project would generate some temporary vehicle trips from workers commuting to the project site and construction vehicles bringing materials to and from the site. The number of vehicle trips would not exceed 110 trips per day, which is OPR's screening threshold for conducting a VMT analysis. Project operation would not cause an increase in vehicle trips, aside from occasional vehicles needed for maintenance activities, such as landscape maintenance. As such, the project would not conflict with CEQA Guidelines section 15064.3, subdivision (b). The impact would be less than significant.

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

No Impact

The project would not include any work or staging of equipment within the public right-of-way, including Airway Boulevard. The project would not alter existing roadways, street, or intersection networks in the vicinity, nor increase hazards due to a new geometric design feature. The project would not introduce incompatible uses, including vehicles or equipment, to the alignment or the surrounding area. No impact would occur.

d) Result in inadequate emergency access?

Less-than-Significant Impact

The project would not include any work or staging of equipment within the public right-of-way. During construction, the arrival and departure of heavy machinery and large trucks bringing material to and from the project site may temporarily slow traffic along Airway Boulevard. However, these slight delays are not anticipated to impact emergency access. The project would not alter any roadways, streets, or intersection networks. Therefore, the project would not impact emergency access within the vicinity of the project site. The impact would be less than significant.

4.2.18 Tribal Cultural Resources

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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 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)?*	☐	☒	☐	☐
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 Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.*	☐	☒	☐	☐

ENVIRONMENTAL SETTING

A description of the environmental setting related to tribal cultural resources can be found in *Section 4.2.5, Cultural Resources.*

REGULATORY SETTING

Tribal Cultural Resources AB 52

AB 52 (Chapter 532, Statutes 2014) required an update of the CEQA Guidelines to include questions related to impacts to tribal cultural resources. AB 52 establishes a consultation process with all California Native American Tribes on the Native American Heritage Commission List, as well as Federal and Non-Federal Recognized Tribes. AB 52 also establishes a new class of resources: Tribal Cultural Resources. Key components of AB 52 include consideration of Tribal Cultural Values in determination of project impacts and mitigation and required Tribal notice and meaningful consultation.

PRC Section 21080.3.2(b) states that consultation ends when either 1) parties agree to mitigation measures or avoid a significant effect on a tribal cultural resource, or 2) a party, acting in good faith and after reasonable effort concludes that mutual agreement cannot be reached.

State of California Public Resources Code

Section 21074 of the PRC defines historical resources related to tribal cultural resources.

a) "Tribal cultural resources" are either of the following:
    a. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
        A. Included or determined to be eligible for inclusion in the California Register of Historical Resources.
        B. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
    b. 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.
b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.
c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

Section 5020.1(k) defines "Local register of historical resources" as a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution.

Section 5024.1 is the establishment of the California Register of Historical Resources (California Register).

DISCUSSION OF IMPACTS

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 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)?

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 Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less-than-Significant Impact with Mitigation Incorporated

As described in Section *4.2.5, Cultural Resources*, there are no listed historical, cultural, or archaeological resources within the project site. There are four archaeological resources listed within a half mile of the project site, the nearest of which is situated approximately 1,450 feet away.

As discussed above, Origer staff contacted the NAHC to request a review of the Sacred Lands file for information on Native American cultural resources within the project site and to request a list of Native American contacts in the project area. The NAHC replied with a letter indicating that the Sacred Lands File has no information about the presence of Native American cultural resources in the immediate project site and provided a list of additional contacts. Origer sent letters to each of these tribal groups associated with the project area to inform them of the proposed project and request their input regarding tribal cultural resources which may be present within the project site. Six tribes provided a response to Origer's initial outreach, the content of which is discussed in *Section 4.2.5, Cultural Resources.*

AB 52 requires a direct consulting relationship between tribes and the lead agency. Tribes who wish to consult on a project and the lead agency bear the responsibility for compliance with AB 52. Therefore, the City as the lead agency under CEQA shall conduct formal AB 52 consultation with any tribe that requests to consult on the proposed project. The five step process in making a good faith effort to conduct tribal consultation under State guidelines, as outlined by the NAHC, can be found at: https://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf.

Pursuant to AB 52, the City sent letters to local tribes on July 23, 2024, and received requests to consult from two tribes, including the Northern Valley Yokut Tribe and the Confederated Villages of Lisjan Nation. The City met with Katherine Perez, representative of the Northern Valley Yokut Tribe, on September 11, 2024. During the meeting, the City and the tribal representatives determined that MM CUL-1 and CUL-2 were sufficient to protect inadvertent discoveries. No additional mitigation measures were requested by the Northern Valley Yokut Tribe.

The City met with representatives of the Confederated Villages of Lisjan Nation, including Corrina Gould, Tribal Chair, Lucy Gill, Cultural Resources Manager, on October 9, 2024. The representatives requested the results of the California Historic Resources Information System (CHRIS) records request, the project geotechnical report, any augering information available for the project site, and the draft IS/MND. The CHRIS records were sent on October 10, 2024, and the geotechnical study was sent on October 14, 2024. The City will continue to work with the Confederated Villages of Lisjan Nation to identify and protect any tribal cultural resources which may have the potential to be impacted by the project. The tribe will have the opportunity to submit comments on the draft IS/MND when it is available for public review, and any comments will be incorporated into the final IS/MND.

No tribal cultural resources have been identified on the project site to-date. As described in *Section 4.2.5, Cultural Resources*, there is potential for unknown cultural resources, which may include tribal cultural resources, to be discovered during earth-disturbing construction activities, such as excavation and grading. As such, the project would implement MM CUL-1 and CUL-2 to ensure that any accidentally discovered cultural resources, which may include tribal cultural resources, would be treated with proper care. With implementation of MM CUL-1, and compliance with AB 52, potential impacts to tribal cultural resources would be less than significant.

4.2.19 Utilities and Service Systems

Would the project:	*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

Electricity and natural gas services in Livermore are provided by Pacific Gas & Electric (PG&E). Garbage, organics, and recycling services are provided by Livermore Sanitation. Drinking water, recycled water, and sewer services are provided by the City, and California Water Service also offers drinking water services to some addresses (City of Livermore "Utilities").

DISCUSSION OF IMPACTS

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?

Less-than-Significant Impact

The project would reduce flooding and restore channel conveyance capacity within a section of Arroyo Las Positas. The project would result in a limited demand for electric power, natural gas, and telecommunications facilities during construction activities and operations. The utility service providers are expected to be able to adequately serve the project and services would be provided in compliance with applicable regulations for electric power, natural gas, and telecommunications facilities. The project would not require or result in the relocation of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities. The impact would be less than significant.

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

Less-than-Significant Impact

The project would require some water for temporary construction activities on-site for activities such as watering exposed soils. This demand for water would be temporary and would not be substantial. Project operations would not generate an increased demand for water. The impact would be less than significant.

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 Impact

The project does not propose any land uses which would increase residents, employees, or visitors to the area. The project would not generate wastewater or increase demand for wastewater services during construction or operation. No impact would occur.

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?

Less-than-Significant Impact

Construction and operation of the proposed project would generate solid waste and recyclable materials. California regulations require that 50 percent of construction waste be diverted for reuse or recycling. The proposed project is not anticipated to generate a substantial amount of solid waste during construction or operation. Per LMC Chapter 8.08 (Solid Waste Management), the City would require the construction contractor to divert at least 50 percent of the solid waste generated, including soil, cardboard, wood, and other construction materials packaging. Solid waste generated by the project would require landfill disposal and would be hauled by Livermore Sanitation to the Republic Services Vasco Road Landfill for disposal (City of Livermore 2023). However, the project would have a negligible effect on the landfill's capacity; therefore, the impact would be less than significant.

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

Less-than-Significant Impact

As noted above in *Impact d),* the project would comply with applicable solid waste regulations for both project construction and operation and would be served by a solid waste service provider and landfill with sufficient capacity. The impact would be less than significant.

4.2.20 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The project site is located in a Local Responsibility Area (LRA), meaning that the local agency, rather than State agency, is responsible for managing wildfire hazards and providing firefighting resources. The project site is not located within a fire hazard safety zone (FHSZ) as identified by the California Department of Forestry and Fire Protection (CAL FIRE); however, areas to the north across I-580 are classified as High and Moderate FHSZ (CAL FIRE 2024).

DISCUSSION OF IMPACTS

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

No Impact

The purpose of the project is to reduce flooding hazards at the site and surrounding area. As discussed in *Section 4.2.9, Hazards and Hazardous Materials,* and *Section 4.2.17, Transportation,* the project would not interfere with the implementation of any emergency response plan or emergency evacuation plan and would not result in inadequate emergency access. The project would not include any work within the public right-of-way which would interfere with emergency response or emergency evacuation. No impact would occur.

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?

Less-than-Significant Impact

The project site is surrounded by urban development and infrastructure, except for undeveloped land to the north across I-580. The project site is not located within a Very High FHSZ as designated by CAL FIRE (CAL FIRE 2024). However, the undeveloped land directly across I-580 to the north is classified as High and Moderate FHSZ in an SRA and LRA.

The western portion of the project site is located within an irrigated golf course, and a large portion of the work would occur within a riparian area with low fire risk. The eastern portion of the project site is situated within an undeveloped area which is characterized by trees and grassland vegetation. There is potential for equipment used during project construction in this area to create sparks which could pose an exacerbated fire risk. Construction activities would adhere to all applicable policies and regulations related to fire safety and stopping the spread of wildfire in case of ignition. In addition, as there are no residences situated adjacent to the project site, any small fires would not pose a substantial risk of uncontrolled wildfire spread. With the implementation of BMPs for fire safety, any small ignition of vegetation would be extinguished before reaching any populated areas. As such, risks associated with wildfires and the uncontrolled spread of wildfire during construction would be less than significant.

The project would not construct any new structures which would pose exacerbated threat of wildfire. The project site is located on relatively flat ground and is not situated immediately adjacent to any residences or FHSZ. The project would not introduce any new uses or activities expected to increase the project site's susceptibility to wildfire. As such, the project would not exacerbate wildfire risks or expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildlife. The impact would be less than significant.

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 Impact

The project would utilize existing roads and infrastructure to construct and serve the project. The project would not include 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 result in temporary or ongoing impacts to the environment. No impact would occur.

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?

Less-than-Significant Impact

The purpose of the project is to reduce flooding along a portion of Arroyo Las Positas to reduce flood hazards in surrounding areas. The project is situated on relatively flat land and is not within an area of particularly high wildfire risk. The project would not significantly alter drainage patterns in a way which would redirect water off-site. The project would not involve substantial earthmoving activities which would induce post-fire instability or landslides. Therefore, the project would not expose people or structures to risks associated with downslope or downstream flooding or landslides, as a result of runoff, post-fire instability, or drainage changes. The impact would be less than significant.

4.2.21 Mandatory Findings of Significance

		Potentially Significant Impact	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c)	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

DISCUSSION OF IMPACTS

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less-than-Significant Impact with Mitigation Incorporated

As discussed in *Section 4.2.4, Biological Resources,* the project site includes a portion of Arroyo Las Positas which travels through the Las Positas Golf Course and an adjacent undeveloped area. The project site contains aquatic resources, riparian habitat, and has the potential to support special-status plant and wildlife species. As described in *Section 4.2.4, Biological Resources,* the project would implement nine mitigation measures to ensure that potential impacts of the project on biological resources would be reduced to a less-than-significant level. MM BIO-1 requires that an environmental awareness training be provided to all construction workers on the project by a qualified biologist; MM BIO-2 requires that rare plant surveys be conducted prior to project construction, and avoidance measures be implemented, if necessary; MM BIO-3, MM BIO-4, MM BIO-5, MM BIO-6, and MM BIO-7 require avoidance and protection measures for special-status wildlife species; MM BIO-8 requires that BMPs for erosion control and sediment runoff be implemented during project construction to avoid impacts to waterways;

MM BIO-9 requires that a HRRP be prepared to ensure survival of species planted on the project site prior to construction.

As described in *Section 4.2.5, Cultural Resources,* the project would have a less-than-significant impact on historical and archaeological resources with the implementation of mitigation measures. The project would include ground disturbing activities that could result in the unanticipated discovery of sub-surface cultural resources. In the unlikely event that sub-surface cultural resources were to be discovered during construction activities associated with the proposed project, the resource(s) would be protected in accordance with mitigation measures MM CUL-1 and/or MM CUL-2. These measures require the project to implement standard BMPs pertaining to the accidental discovery of buried archaeological resources and human remains during construction. With the implementation of mitigation measures, the project would not eliminate important examples of the major periods of California history or prehistory.

Therefore, impacts to biological and cultural resources resulting from the proposed project would be less than significant with mitigation incorporated, specifically with the implementation of MM BIO-1, MM BIO-2, MM BIO-3, MM BIO-4, MM BIO-5, MM BIO-6, MM BIO-7, MM BIO-8, MM BIO-9, MM CUL-1, and MM CUL-2.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less-than-Significant Impact with Mitigation Incorporated

As described throughout this IS/MND, the proposed project would result in potentially significant impacts related to air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, and tribal cultural resources. However, mitigation measures have been identified that would reduce these impacts to less than significant levels. Furthermore, the Air Quality analysis presented in *Section 4.2.3, Air Quality,* of this IS/MND considers cumulative impacts related to air quality and has determined that impacts would be less than significant.

There are a few other projects within the project site vicinity which would be under construction concurrently with the proposed project, including the following:

- City of Livermore Stream Maintenance Program (SMP): The City conducts routine maintenance activities, including sediment cleanout and vegetation trimming/removal, within streams to ensure that adequate capacity is maintained to convey stormwater. The SMP may include stretches of Arroyo Las Positas and other nearby creeks.
- Arroyo Mocho Bank Repair Project: This project is located along Arroyo Mocho approximately 1.5 miles south of the proposed project site. The project includes repairs to a breach of creek bank on Arroyo Mocho that diverts stream flow into a chain of quarry ponds adjacent to the creek. An emergency repair was completed immediately after the breach, however the project proponent is currently working with regulatory agencies to implement a permanent bank repair project.

These two projects, as well as all reasonably foreseeable future development in the City would be subject to the same land use and environmental regulations that have been described throughout this document. Furthermore, all development projects are guided by the policies identified in the City's General Plan and by the regulations established in the LMC and must undergo their own CEQA review. Therefore, compliance with applicable land use and

environmental regulations would ensure that environmental effects associated with the proposed project would not combine with effects from reasonably foreseeable future development in the City to cause cumulatively considerable significant impacts. In addition, given the nature of the project, most impacts would be temporary, resulting from construction activities. For these reasons, the project would not have any impacts that are individually limited, but cumulatively considerable. The impact would be less than significant with mitigation incorporated.

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

Less-than-Significant Impact with Mitigation Incorporated

Impacts of the proposed project on human beings are analyzed throughout this IS/MND, particularly in *Section 4.2.1, Aesthetics; Section 4.2.3, Air Quality; Section 4.2.9, Hazards and Hazardous Materials; Section 4.2.13, Noise; Section 4.2.15, Public Services; and 4.2.17, Transportation.* As detailed throughout these sections, the project would not exceed any significance thresholds or result in significant impacts in categories typically associated with direct or indirect effects to human beings, such as aesthetics, noise, public services, and transportation.

The project could potentially result in significant impacts in the categories of air quality and hazards and hazardous materials. To reduce these impacts to a less-than-significant level, the project would implement MM AIR-1 and MM HAZ-1. MM AIR-1 requires that the project comply with BAAQMD-recommended BMPs for fugitive dust control during construction, and MM HAZ-1 requires BMPs to be implemented to prevent the accidental release of hazardous materials into the environment. With implementation of these measures, the project would not cause substantial adverse effects on human beings, either directly or indirectly. The impact would be less-than-significant with mitigation incorporated.

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APPENDIX A. PROJECT 65 PERCENT DESIGN PLANS

COMMUNITY DEVELOPMENT DEPARTMENT
PLANS FOR CONSTRUCTION OF

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

ARROYO LAS POSITAS DESILTING THROUGH LOS POSITAS GOLF COURSE, CITY PROJECT No. 202015
FEMA HAZARD MITIGATION GRANT PROGRAM PA-09-CA-4344-138
DEPARTMENT OF WATER RESOURCES FLOOD PROTECTION GRANT PROGRAM

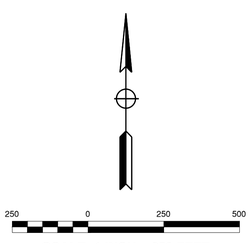
GOLF COURSE DAMAGE REPAIRS, CITY PROJECT No. 202132
FEMA PA-09-CA-4308-00602

AUGUST 2024

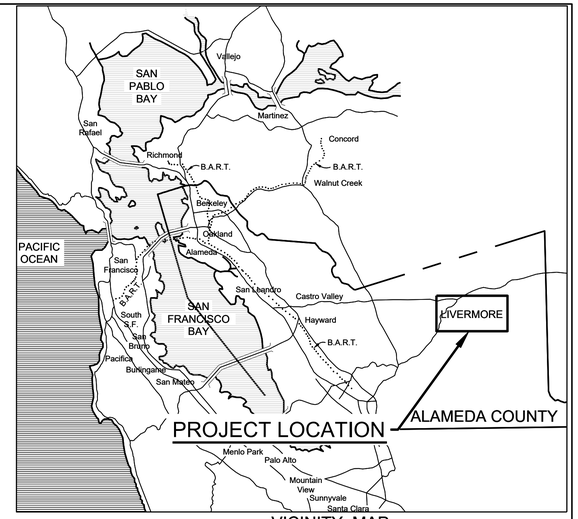
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SITE MAP
SCALE: 1 INCH = 250 FEET



SCALE: 1 INCH = 250 FEET



VICINITY MAP
NTS

APPROVALS

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Principal, Schaaf & Wheeler
RCE No. C68813

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Assistant Civil Engineer, City of Livermore
RCE No. C95398

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City Engineer, City of Livermore
RCE No. C49965

Mallika Ramachandran — Date
Assistant City Engineer, City of Livermore
RCE No. C51782

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHICK
No. 68131
CIVIL
STATE OF CALIFORNIA
DRAFT

The Contractor shall possess a valid Class A license at the time of bid opening.

60% DRAFT - NOT FOR CONSTRUCTION

Inch 0.5 0

Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS
2200 RANGE AVENUE, STE 201
SANTA ROSA, CA 95405
(707) 528-4848

		NO.	DATE	BY	REVISIONS
	08/20/24				
APPROVED BY	DATE				
DESIGNED BY	JFO				
DRAWN BY	JFO				
CHECKED BY	BLS				

CITY OF LIVERMORE CALIFORNIA
COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

TITLE SHEET

T-1

Sheet 1
Of 33
Scale: AS SHOWN

GENERAL NOTES

1. NO CHANGE TO THE PROJECT IMPROVEMENT PLANS SHALL BE PERMITTED WITHOUT PRIOR APPROVAL BY THE CITY. CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE CITY AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT TO THE EXTENT ARISING FROM THE NEGLIGENCE OF THE CITY OR ENGINEER.

2. CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAG MEN, CONES OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY IN ACCORDANCE WITH THE SPECIFICATIONS. SEE ALSO TRAFFIC CONTROL NOTES.

3. CONTRACTOR SHALL REPLACE, AT HIS EXPENSE, ALL TREES, SHRUBS, LAWNS, FENCES, IRRIGATION SYSTEMS AND IMPROVEMENTS WHICH ARE TO REMAIN INTACT BUT HAVE BEEN REMOVED OR DAMAGED DURING CONSTRUCTION. CONTRACTOR SHALL NOT REMOVE OR DAMAGE IMPROVEMENTS LOCATED WITHIN CITY PROPERTY WITHOUT WRITTEN PERMISSION FROM THE CITY; OR FROM PRIVATE PROPERTY WITHOUT WRITTEN PERMISSION FROM THE PROPERTY OWNER.

4. TREES, SHRUBS, AND ROOTS OUTSIDE OF THE DEFINED EXCAVATION LIMITS SHALL NOT BE TRIMMED OR PRUNED WITHOUT THE APPROVAL OF THE CITY.

5. CLEARING AND GRUBBING SHALL BE PERFORMED WITHIN THE ENTIRE GRADING LIMITS AREA SHOWN ON THE PLANS. THE SITE SHALL BE STRIPPED AND CLEARED OF ALL VEGETATION, DEBRIS, AND ORGANIC-LADEN TOP SOIL. THE STRIPPED MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. VEGETATION AND DEBRIS SHALL BE REMOVED FROM THE SITES AND DISPOSED OF BY THE CONTRACTOR'S EXPENSE.

6. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL DEMOLITION DEBRIS AND EXCESS EXCAVATED MATERIAL TO A SUITABLE SITE. ALL TESTING REQUIRED FOR LEGAL DISPOSAL SHALL BE CONDUCTED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR IS RESPONSIBLE TO DISPOSE OF ALL MATERIALS IN A PROPER AND LEGAL MANNER. IF THE MATERIAL IS TESTED AND FOUND TO BE HAZARDOUS, THE CONTRACTOR'S PRICE AND CONTRACT TIME SHALL BE ADJUSTED. MATERIAL TESTING PREVIOUSLY COMPLETED BY THE CITY IS PROVIDED AS AN APPENDIX TO THE SPECIFICATIONS. REFERENCE SPECIFICATION SECTION 31 30 00 -EARTHWORK.

7. ALL PERMANENT IMPROVEMENTS REMOVED OR DAMAGED BY THE CONTRACTOR, THAT ARE NOT SPECIFICALLY SHOWN TO BE REMOVED, SHALL BE RESTORED TO THEIR ORIGINAL LOCATION AND CONDITION BY THE CONTRACTOR USING NEW MATERIALS AS DIRECTED BY THE ENGINEER

8. OVERNIGHT PARKING OF CONSTRUCTION EQUIPMENT AND VEHICLES IS PERMITTED WITHIN STAGING AREAS INDICATED ON PLAN SHEETS. ALL EQUIPMENT SHALL BE SURROUNDED BY REFLECTIVE DELINEATORS AT ALL TIMES. SEDIMENT MAY BE TEMPORARILY STAGED NEAR A MINIMUM DISTANCE OF 100-FEET FROM THE CREEK OR CHANNEL TO ALLOW AN APPROPRIATE DRYING TIME PRIOR TO TRANSPORT. STOCKPILING OF MATERIALS IS NOT PERMITTED AT STAGING LOCATIONS UNLESS IT IS CONTAINED WITH EROSION CONTROL BMPs. PARKING EQUIPMENT AND STORING MATERIALS IN OTHER LOCATIONS, INCLUDING WITHIN THE STREET RIGHT-OF-WAY SHALL NOT BE PERMITTED, EXCEPT AT LOCATION(S) APPROVED BY THE CITY TRAFFIC ENGINEER.

9. THE USE OF TRACKED EQUIPMENT ON TRAILS AND ROADWAYS IS AT THE DISCRETION OF THE CONTRACTOR. THE CONTRACTOR SHALL REPAIR AND REPLACE ANY DAMAGE TO TRAILS AND ROADWAYS AT COMPLETION OF CONSTRUCTION. ANY SETTLEMENT, CRACKING, OR DAMAGE TO EXISTING TRAILS (DIRT, AC, CONCRETE, ETC.) DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR. AC TRAIL REPAIR SHALL BE PERFORMED BY REPLACING THE FULL WIDTH OF THE AC TRAIL FOR THE LENGTH OF THE DAMAGED TRAIL SECTION. TRAILS SHALL BE REPLACED AS DETAILED ON THE PLANS.

10. MUD AND CONSTRUCTION DEBRIS ON STREETS, SIDEWALKS OR BICYCLE PATHS SHALL BE CLEANED OFF IMMEDIATELY.

11. ALL WORK BELOW THE TOP OF BANK SHOWN ON PLANS SHALL BE COMPLETED BETWEEN APRIL 15 AND OCTOBER 15.

12. CONTRACTOR SHALL PERFORM HIS CONSTRUCTION AND OPERATION IN A MANNER WHICH WILL NOT ALLOW HARMFUL POLLUTANTS TO ENTER THE CREEK. TO ENSURE COMPLIANCE, THE CONTRACTOR SHALL IMPLEMENT THE APPROPRIATE BEST MANAGEMENT PRACTICE (BMP) AS OUTLINED IN THE "CALIFORNIA STORMWATER BMP HANDBOOK" FOR CONSTRUCTION (www.cabmphandbooks.com) AND THE CITY OF LIVERMORE'S "STREAM MAINTENANCE PROGRAM MANUAL (SMP)". INCLUDING, BUT NOT LIMITED TO:
    a. CREEK FLOW SHALL BE DIVERTED AROUND OR THROUGH EXCAVATION ACTIVITIES PER SECTION NS-5, CLEAR WATER DIVERSION
    b. STOCKPILED MATERIALS SHALL BE PROTECTED PER SECTION WM-3, STOCKPILE MANAGEMENT
    c. HANDLING OF ALL SHRUBS, TREES, AND MATERIALS TO BE DISPOSED OF SHALL FOLLOW SECTION WM-5 SOLID WASTE MANAGEMENT
    d. STREAMBANK STABILIZATION AND SEDIMENT CONTROL SHALL FOLLOW SECTION EC-12, STREAMBANK STABILIZATION

13. ALL BMP MATERIALS SHALL ADHERE TO THE REQUIREMENTS AND SPECIFICATIONS WITHIN THE CALIFORNIA STORMWATER BMP HANDBOOK.

14. UTILITIES HAVE NOT BEEN LOCATED AND ARE NOT SHOWN ON PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES WITH THE APPROPRIATE UTILITY AGENCIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. CONTRACTOR SHALL NOTIFY ALL PUBLIC AND PRIVATE UTILITY OWNERS 48 HOURS PRIOR TO COMMENCEMENT OF WORK ADJACENT TO THE UTILITY. CONTACT UNDERGROUND SERVICE ALERT (USA) AT 1-800-227-2600.

15. THE LIVERMORE STREAM MAINTENANCE PROGRAM (SMP) MANUAL WILL BE PROVIDED TO THE CONTRACTOR. ADDITIONAL REGULATORY PERMITS WILL BE PROVIDED TO THE CONTRACTOR PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL ADHERE TO ALL REQUIREMENTS WITHIN THE SMP MANUAL AND REGULATORY PERMITS IN ADDITION TO THE REQUIREMENTS HEREIN.

16. CONSTRUCTION SHALL BE SEQUENCED TO PROVIDE THE LEAST POSSIBLE EFFECT ON NATURAL RESOURCES.

17. CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR SHALL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSON AND PROPERTY; THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD OWNER AND DESIGN CIVIL ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE CIVIL ENGINEER.

18. THE LOCATION, DEPTH, AND EXISTENCE OF UNDERGROUND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE POSITIONS BASED UPON INFORMATION AVAILABLE TO THE ENGINEER. THE CONTRACTOR SHALL EXCAVATE INSPECTION HOLES ("POT HOLES") AND DETERMINE THE LOCATION AND DEPTH OF ALL UNDERGROUND STRUCTURES AND UTILITIES THAT ARE IN THE VICINITY OF AND/OR MAY BE AFFECTED BY THE PROPOSED IMPROVEMENT WORK PRIOR TO ANY CONSTRUCTION WORK WHICH COULD DAMAGE OR CONFLICT WITH SAID STRUCTURES AND/OR UTILITIES.

19. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CITY INSPECTOR AND THE CIVIL ENGINEER OF ANY DIFFERENCES IN LOCATIONS OF EXISTING UTILITIES SHOWN, OR ANY CONFLICTS WITH THE DESIGN THAT BECOME APPARENT DURING CONSTRUCTION, BEFORE CONTINUING WITH WORK IN THAT AREA.

20. THE CONTRACTOR SHALL PROVIDE ADEQUATE COVER FOR THE PROTECTION OF ALL PROPOSED AND EXISTING UTILITIES DURING THE CONSTRUCTION OF THIS PROJECT.

21. ALL GRADING OPERATIONS SHALL BE CONTINUOUSLY OBSERVED BY A SOILS ENGINEER. CONTRACTOR MUST NOTIFY SOILS ENGINEER TWO (2) WORKING DAYS IN ADVANCE.

22. THE SURVEYOR SHALL BE NOTIFIED 48 HOURS IN ADVANCE OF WHEN FIELD STAKING IS TO BE REQUIRED.

23. ALL CUT SLOPES SHALL BE ROUNDED TO MEET EXISTING GRADES AND BLEND WITH SURROUNDING TOPOGRAPHY. ALL GRADED SLOPES OVER FIVE FEET IN HEIGHT SHALL BE PLANTED WITH SUITABLE GROUND COVER.

LEGEND

- EXISTING TREES TO REMAIN
- STAGING/STOCKPILE AREA
- NEW ROCK RIP RAP
- CONTROL POINT
- BURIED TREE
- REMOVE EXISTING TREE
- DISPOSAL AREA
- REMOVE CART PATH
- NEW CART PATH
- 545 — EXISTING CONTOUR
- 545 — PROPOSED CONTOUR
- EXISTING GRADE
- X — X — EXISTING FENCE
- SD — EXISTING STORM DRAIN
- W — EXISTING IRRIGATION
- SS — EXISTING SANITARY SEWER
- PROPOSED GRADE
- EXISTING TOP OF BANK
- NEW TOP OF OVERBANK SLOPE
- NEW TOE OF FLOODPLAIN
- ORDINARY HIGH WATER MARK
- UE — EXISTING UNDERGROUND ELECTRIC
- PROPERTY LINE
- DETAIL OR SECTION DESIGNATION / SHEET NO. WHERE DETAIL OR SECTION IS DRAWN (A / 1)

TREE PROTECTION NOTES

1. EXCEPT FOR TREES INDICATED TO BE REMOVED ON THE DRAWINGS, NO CUTTING OF ANY PART OF PRIVATE OR CITY TREES, INCLUDING ROOTS, SHALL BE DONE WITHOUT SECURING APPROVAL AND DIRECT SUPERVISION FROM THE CITY ARBORIST.

2. ANY ROOTS DAMAGED DURING CONSTRUCTION SHALL BE EXPOSED TO SOUND TISSUE AND CUT CLEANLY WITH APPROVED TOOLS/EQUIPMENT. ACCIDENTALLY BROKEN ROOTS SHOULD BE SAWED ABOUT TWO INCHES (2") BEHIND THE RAGGED END. CRUSHED OR TORN ROOTS ARE MORE LIKELY TO ALLOW DECAY TO BEGIN; SHARPLY CUT ROOTS PRODUCE A FLUSH OF NEW ROOTS HELPING THE TREE TO RECOVER FROM ITS INJURY.

3. NO TRENCHING SHALL BE DONE WITHIN THE DRIP LINE OF EXISTING TREES WITHOUT THE APPROVAL OF THE CITY ARBORIST.

4. WHEN TRENCHING IS ALLOWED, THE CONTRACTOR MUST FIRST CUT ROOTS WITH A VERMEER ROOT CUTTER PRIOR TO ANY TRENCHING TO AVOID TUGGING OR PULLING OF ROOTS.

5. IF TRENCHING WITHIN DRIPLINE OF TREE IS ALLOWED / APPROVED BY CITY ARBORIST, THEN CONTRACTOR IS TO REFILL OPEN TRENCHES QUICKLY WITHIN HOURS OF EXCAVATION WHEN THEY OCCUR WITHIN THE DRIP LINE OF EXISTING TREES. IF THIS IS NOT POSSIBLE AND WEATHER IS HOT, DRY, OR WINDY, CONTRACTOR MUST KEEP ROOT ENDS MOIST BY COVERING THEM WITH WET BURLAP.

6. WHEN CONSTRUCTION OCCURS WITHIN DRIP-LINE OF EXISTING TREES, CONTRACTOR IS TO PLACE SOIL AND OTHER MATERIALS BEYOND THE DRIP-LINE. WHEN THIS IS NOT POSSIBLE, WITH THE APPROVAL OF CITY/PROJECT ARBORIST, PLACE SOIL ON PLYWOOD, A TARP, OR THICK BED OF MULCH. THIS IS TO HELP PREVENT CUTTING INTO THE SOIL SURFACE WHEN REFILLING THE TRENCH.

7. NO MATERIALS, EQUIPMENT, FUELS, PAINT, SPOIL, WASTE OR WASH-OUT WATER MAY BE DEPOSITED, STORED, OR PARKED WITHIN THE DRIP-LINE OF A TREE.

8. THE DEATH OF A TREE DUE TO DAMAGE DURING CONSTRUCTION SHALL RESULT IN THE CONTRACTOR REPLACING THE TREE WITH ANOTHER OF COMPARABLE SIZE. IN THE EVENT THE TREE IS, DUE TO LARGE SIZE OR UNIQUE STRUCTURE, UNABLE TO BE DUPLICATED, A FAIR VALUE AS DETERMINED BY A CERTIFIED ARBORIST OR THE "GUIDE FOR ESTABLISHING VALUE OF TREES" (COUNCIL OF TREE AND LANDSCAPE APPRAISERS) WILL BE CHARGED TO THE CONTRACTOR.

TREE REMOVAL NOTES

TREE SHALL BE REMOVED AS SHOWN ON THE PLANS. ALL TREES TO BE REMOVED SHALL BE MARKED BY THE CONTRACTOR AND CONFIRMED BY THE CITY PRIOR TO REMOVAL. LARGE TREES WITH ROOT BALLS SHALL BE EXCAVATED AND REMOVED IN ONE COMPLETE SECTION AS REQUIRED TO INSTALL BURIED WOODY DEBRIS ALONG THE CHANNEL AS SHOWN ON THE PLANS. ALL BRANCHES AND TREES NOT REQUIRED FOR WOODY DEBRIS SHALL BE CHIPPED AND PLACED IN THE LOCATIONS ON THE PLANS AND/OR PROPERLY DISPOSED OF BY THE CONTRACTOR.

ABBREVIATIONS

(E)	EXISTING
(N)	NEW
AB	AGGREGATE BASE
AC	ASPHALTIC CONCRETE
APPROX	APPROXIMATE
BMP	BEST MANAGEMENT PRACTICES
CAMUTCD	CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
CASQA	CALIFORNIA STORM WATER QUALITY ASSOCIATION
CDF	CONTROLLED DENSITY FILL
CFS	CUBIC FEET PER SECOND
CLSM	CONTROLLED-LOW-STRENGTH MATERIAL
COMP	COMPACTION
CY	CUBIC YARD
EG	EXISTING GRADE
ELEV	ELEVATION
ESA	ENVIRONMENTALLY SENSITIVE AREA
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY
FG	FINISHED GRADE
GALV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
H, HOR.	HORIZONTAL
INV	INVERT
LF	LINEAR FEET
MAX	MAXIMUM
MIN	MINIMUM
NTS	NOT TO SCALE
OC	ON CENTER
OHWM	ORDINARY HIGH WATER MARK
PVC	POLYVINYL CHLORIDE
SMP	STREAM MAINTENANCE PERMIT
STA	STATION
TOB	TOP OF BANK
TYP	TYPICAL
USA	UNDERGROUND SERVICE ALERT
V, VER.	VERTICAL
W/	WITH

CLEAR WATER DIVERSION/CHANNEL BYPASS NOTES

FLOW IN THE ARROYO LAS POSITAS WILL REQUIRE DEWATERING, REFERENCE SPECIFICATION SECTION 31 11 00. DEWATERING OF THE CHANNEL SHALL BE IMPLEMENTED IN ACCORDANCE WITH CALIFORNIA STORM WATER QUALITY ASSOCIATION (CASQA) NS-5: CLEAR WATER DIVERSION AND SMP BMP BR-4, IMPACT AVOIDANCE AND MINIMIZATION DURING DEWATERING. CONTRACTOR SHALL SUBMIT A CLEAR WATER DIVERSION/BYPASS PLAN TO CITY ENGINEER FOR REVIEW AND APPROVAL PRIOR TO STARTING WORK. CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO ESTIMATE THE FLOW DIVERSION AND BYPASS REQUIREMENTS. CONTRACTOR IS RESPONSIBLE FOR MONITORING THE WEATHER, AND PROTECTING THE SITE FROM CHANNEL FLOWS AND EROSION.

DEBRIS AND DEADFALL REMOVAL NOTES

EXISTING DEBRIS, DEADFALL, AND TRASH THROUGHOUT THE LIMITS OF WORK SHALL BE REMOVED BY THE CONTRACTOR. NATURAL WOOD MATERIAL SHALL BE CHIPPED AND PLACED IN THE LOCATIONS SHOWN ON THE PLANS. ALL OTHER MATERIAL SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR.

REGISTERED PROFESSIONAL ENGINEER — BENJAMIN L. SHICK — No. 68312 — CIVIL — STATE OF CALIFORNIA — DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

Inch 0.5 0

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APPROVED BY	DATE				
DESIGNED BY	JFO				
DRAWN BY	JFO				
CHECKED BY	BLS				

CITY OF LIVERMORE CALIFORNIA
COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

NOTES, ABBREVIATIONS, AND LEGEND

T-2

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Scale: AS SHOWN

TRAFFIC CONTROL NOTES

1. CONTRACTOR SHALL PROVIDE ALL BARRIERS AND SIGNS, TO BE APPROVED BY THE CITY, TO CLOSE OFF PUBLIC ACCESS TO EACH SITE DURING CONSTRUCTION. THE EXACT LOCATION OF SITE CLOSURE SHALL BE COORDINATED WITH THE CITY PRIOR TO BEGINNING CONSTRUCTION.

2. IF THE CONTRACTOR PLANS TO CLOSE TRAFFIC LANES FOR ANY PERIOD OF TIME, OR DISRUPT THE FLOW OF TRAFFIC, THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN TO THE CITY ENGINEER FOR APPROVAL PRIOR TO BEGINNING WORK. THE PLAN SHALL BE SIGNED BY A LICENSED CIVIL OR TRAFFIC ENGINEER WHEN IT INVOLVES AN ARTERIAL STREET. CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL IN ACCORDANCE WITH THE LATEST EDITION OF THE "CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". A MINIMUM OF OF ONE TRAFFIC LANE (10' MIN) SHALL BE OPEN TO VEHICULAR TRAFFIC DURING ALL HOURS, WEEKENDS, AND HOLIDAYS. STREET DETOURS SHALL ONLY TAKE PLACE UPON CITY APPROVAL.

3. ALL TRAFFIC CONTROL DEVICES SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH PART 6 AND PART 9 OF THE LATEST EDITION OF THE "CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

4. ALL CONES USED FOR LANE CLOSURE AFTER NIGHTFALL SHALL BE FITTED WITH RETROREFLECTIVE BANDS (OR SLEEVES).

5. ALL ADVANCED WARNING SIGN INSTALLATIONS SHALL BE EQUIPPED WITH FLAGS FOR DAYTIME CLOSURES. FLASHING BEACONS SHALL BE PLACED AT THE LOCATIONS INDICATED FOR NIGHTTIME CLOSURES.

6. PERMANENT SIGNS OR EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH THE TRAFFIC CONTROL PLAN SHALL BE COVERED, OBLITERATED OR REMOVED AS DIRECTED BY THE ENGINEER, AND RESTORED TO THEIR ORIGINAL CONDITION UPON COMPLETION OF THE WORK.

7. DURING ALL CONSTRUCTION PERIODS, THE CONTRACTOR SHALL HAVE AT THE JOBSITE ALL NECESSARY TRAFFIC CONTROL DEVICES (APPROPRIATE SIGN, LIGHTED ARROW DISPLAY, CHANNELIZING DEVICES, ETC.) NEEDED TO IMPLEMENT THE APPROVED TRAFFIC CONTROL PLAN

8. CONSTRUCTION SHALL BE SEQUENCED TO PROVIDE THE LEAST POSSIBLE ADVERSE EFFECT TO RESIDENCES AND BUSINESS.

9. CONSTRUCTION MATERIALS SHALL BE KEPT OFF SIDEWALKS AND CONSOLIDATED IN AREAS WITHIN THE CITY RIGHT-OF-WAY UNLESS OTHERWISE APPROVED BY THE CITY.

10. CONTRACTOR SHALL COORDINATE DETOUR ROUTES (IF NECESSARY) WITH THE CITY.

HAUL ROUTE/ CONSTRUCTION ACCESS

ACCESS TO PROJECT BY CONSTRUCTION EQUIPMENT, MATERIAL DELIVERY AND OTHER HEAVY LOADS SHALL BE LIMITED TO THE FOLLOWING ROUTE:

I-580 TO AIRWAY BOULEVARD, AIRWAY BOULEVARD TO TERMINAL CIRCLE

THE WHEEL-LOADING ON THE ABOVE ROUTES SHALL NOT EXCEED THE STATE LOAD LIMITS.

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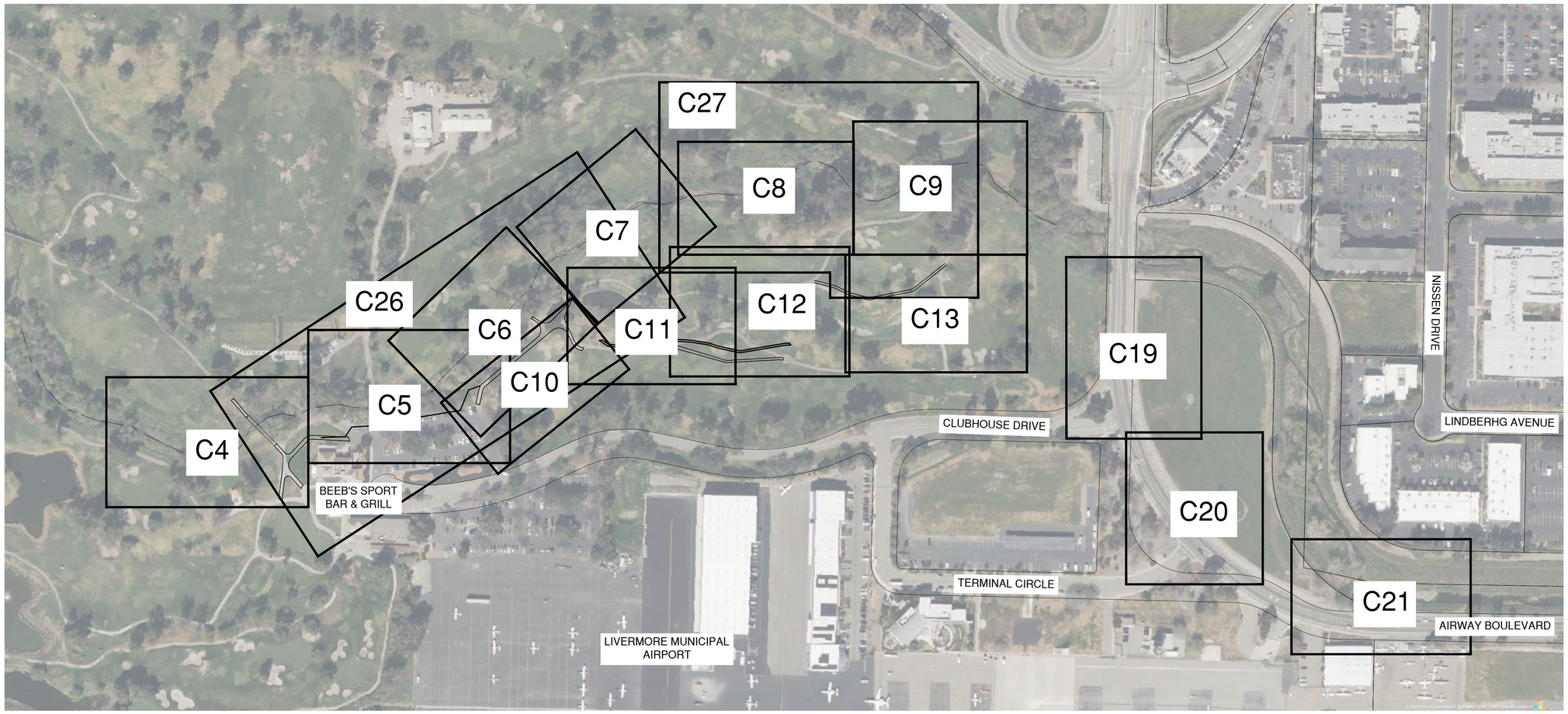
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ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

NOTES

T-3

Sheet 3
Of 33
Scale: AS SHOWN



PLAN
SCALE: 1" = 150'

N

150 0 150 300

SCALE: 1 INCH = 150 FEET

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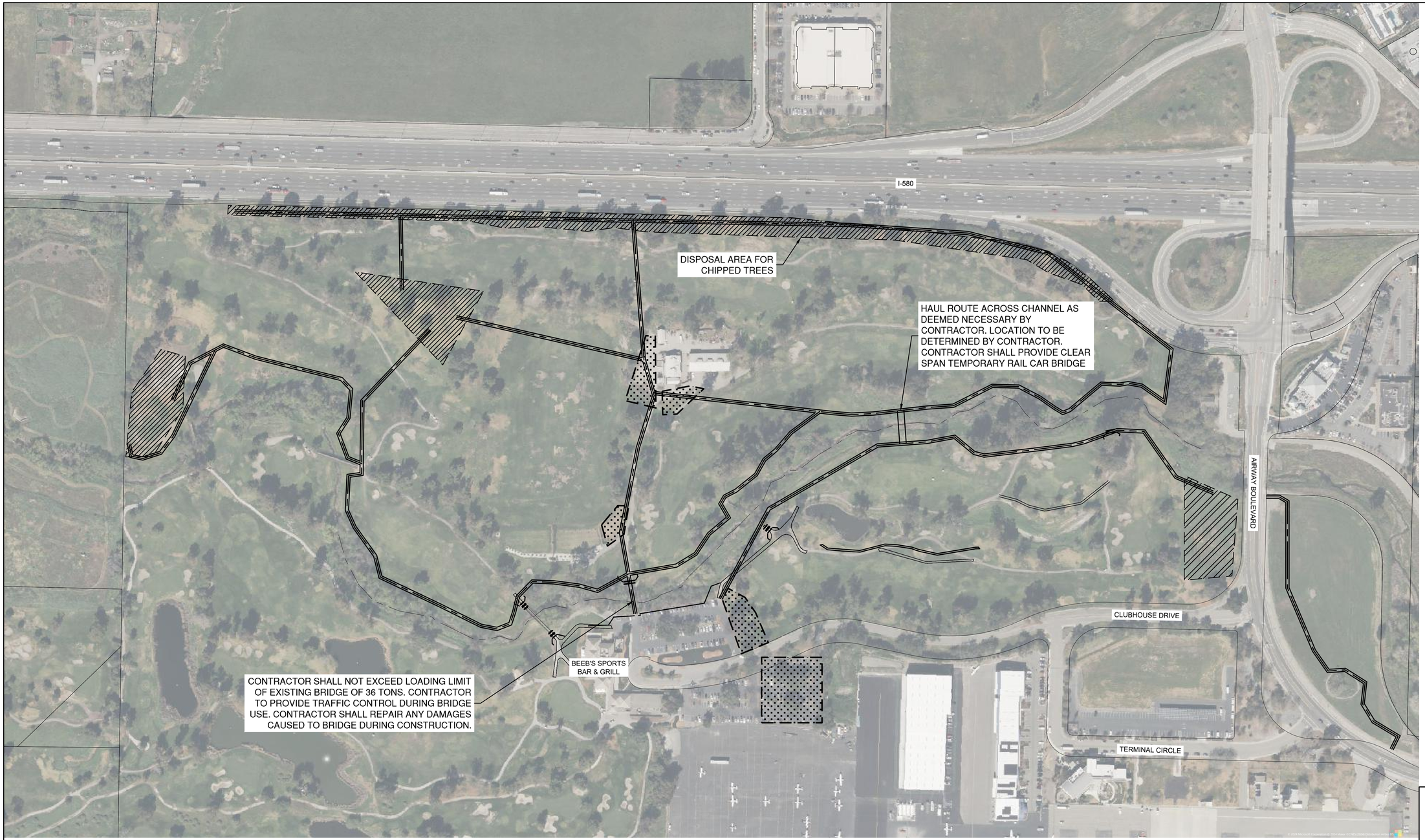
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ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

PROJECT LOCATION MAP

C1

Sheet 4
Of 33
Scale: AS SHOWN



N

150 0 150 300

SCALE: 1 INCH = 150 FEET

NOTES:

1. LOCATION OF HAUL ROUTES AND DISPOSAL AREAS ARE APPROXIMATE AND WILL BE FIELD VERIFIED BY THE CITY PRIOR TO CONSTRUCTION.
2. RESTORE CONDITIONS OF ROUTES TO PRE-PROJECT CONDITION WHEN CONSTRUCTION IS COMPLETE.
3. DO NOT REMOVE ANY TREES NOT LABELED FOR REMOVAL ON THE GRADING PLANS

PLAN
SCALE: 1" = 150'

LEGEND	
	DISPOSAL AREAS
	CONSTRUCTION STAGING AREAS
	HAUL ROUTES (10' WIDTH)

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ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

HAUL ROUTES AND DISPOSAL AREAS

C2

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Of 33
Scale: AS SHOWN



PLAN
SCALE: 1" = 150'

SEE SHEETS C4 TO SHEET C20 FOR ADDITIONAL DETAILS.

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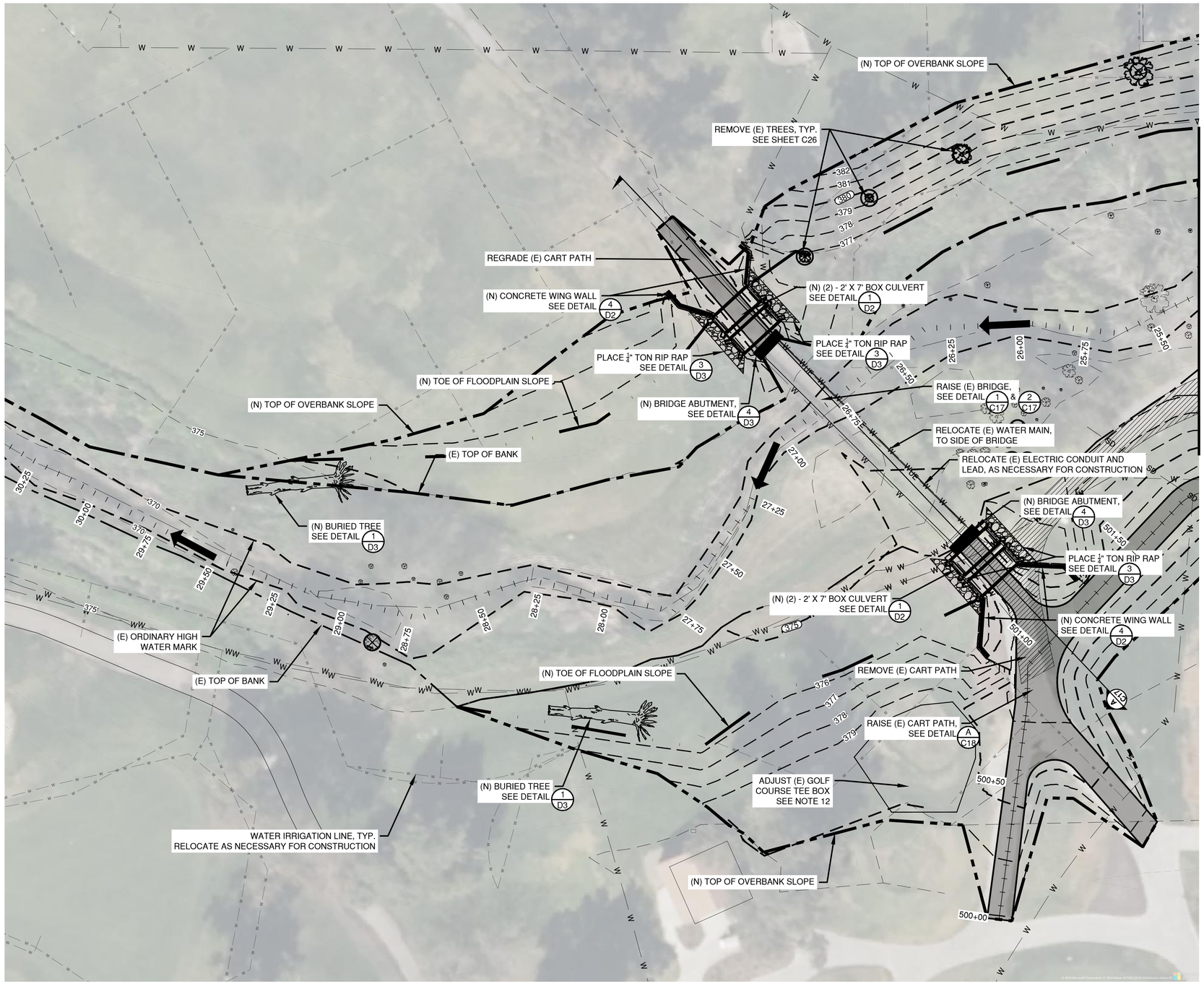
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ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

PROJECT IMPROVEMENTS

C3

Sheet	6
Of	33
Scale:	AS SHOWN



PLAN
SCALE: 1" = 20'

NOTES:

1. THE EXTENT, ELEVATIONS, AND QUANTITIES OF GRADING AND SEDIMENT REMOVAL IS APPROXIMATE AND SHALL BE CONFIRMED AND ADJUSTED AS DIRECTED BY THE CITY'S REPRESENTATIVES IN THE FIELD DURING CONSTRUCTION.
2. THE LOCATIONS AND LIMITS OF TREE REMOVAL AND TRIMMING IS APPROXIMATE AND SHALL BE CONFIRMED AND ADJUSTED AS DIRECTED BY THE CITY'S REPRESENTATIVES IN THE FIELD DURING CONSTRUCTION.
3. CONTRACTOR SHALL REMOVE AND DISPOSE OF TRASH, SOIL, SILT, MUD, EXCESSIVE ORGANIC MATERIAL AND DEBRIS.
4. BIODEGRADABLE EROSION CONTROL BLANKET AND BROADCAST SEEDING SHALL BE INSTALLED ON DISTURBED SLOPES STEEPER THAN 5H:1V, AND HYDROSEEDING SHALL BE PLACED ON ALL OTHER DISTURBED AREAS AT THE COMPLETION OF CONSTRUCTION. AVOID PLACEMENT IN LOW FLOW CHANNEL.
5. SOIL AND SEDIMENT REMOVAL SHALL NOT OCCUR WITHIN THE LIMITS OF THE EXISTING TREE ROOT SYSTEMS FOR TREES TO REMAIN.
6. EQUIPMENT SHALL NOT ENTER THE CHANNEL BELOW THE OHWM AS DIRECTED BY THE CITY'S BIOLOGIST. ALL EXCAVATIONS SHALL BE SHALL BE PERFORMED WITH AN EXCAVATOR, A DOZER SHALL NOT BE USED TO GRADE OR REMOVE MATERIAL FROM THE SITE.
7. ONCE CONSTRUCTION IS COMPLETE AND ALL SLOPES ARE TO FINAL GRADE, ALL DISTURBED SOILS SHALL BE HYDROSEEDED. AN EROSION CONTROL BLANKET SHALL BE PLACED ON ALL DISTURBED SLOPE STEEPER THAN 5:1 AFTER HYDROSEEDING PER THE SPECIFICATIONS.
8. NATIVE SPECIES GRASS SHALL BE APPLIED AT A RATE OF 20 POUNDS OF PURE LIVE SEED PER ACRE.
9. REMOVE TREES AS INDICATED ON THE PLANS AND AS SHOWN ON SHEETS C26 AND C27, SEE TECHNICAL SPECIFICATIONS FOR TREE REMOVAL REQUIREMENTS.
10. PROTECT EXISTING TREE IN PLACE AND PROVIDE NECESSARY PROTECTION MEASURES. FULL TREE PROTECTION MEASURES MAY NOT BE POSSIBLE DUE TO TREE LOCATION. CONTRACTOR SHALL TAKE CAUTION TO NOT DAMAGE OR DISTURB TREE DURING CONSTRUCTION.
11. CONTRACTOR SHALL PRESERVE AREA BELOW EXISTING ORDINARY HIGH-WATER MARK. NO WORK SHALL BE COMPLETED WITHIN THE ORDINARY HIGH-WATER MARK LIMITS SHOWN ON THE PROJECT DRAWINGS.
12. CONTRACTOR SHALL COORDINATE LOCATION OF (N) TEE BOX WITH THE GOLF COURSE AND CITY. CONTRACTOR SHALL MARK LOCATION OF PROPOSED TEE BOX LOCATION AND DISCUSS WITH CITY PRIOR TO CONSTRUCTION.

N

20 0 20 40
SCALE: 1 INCH = 20 FEET

REGISTERED PROFESSIONAL ENGINEER
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60% DRAFT - NOT FOR CONSTRUCTION

Inch 0.5 0

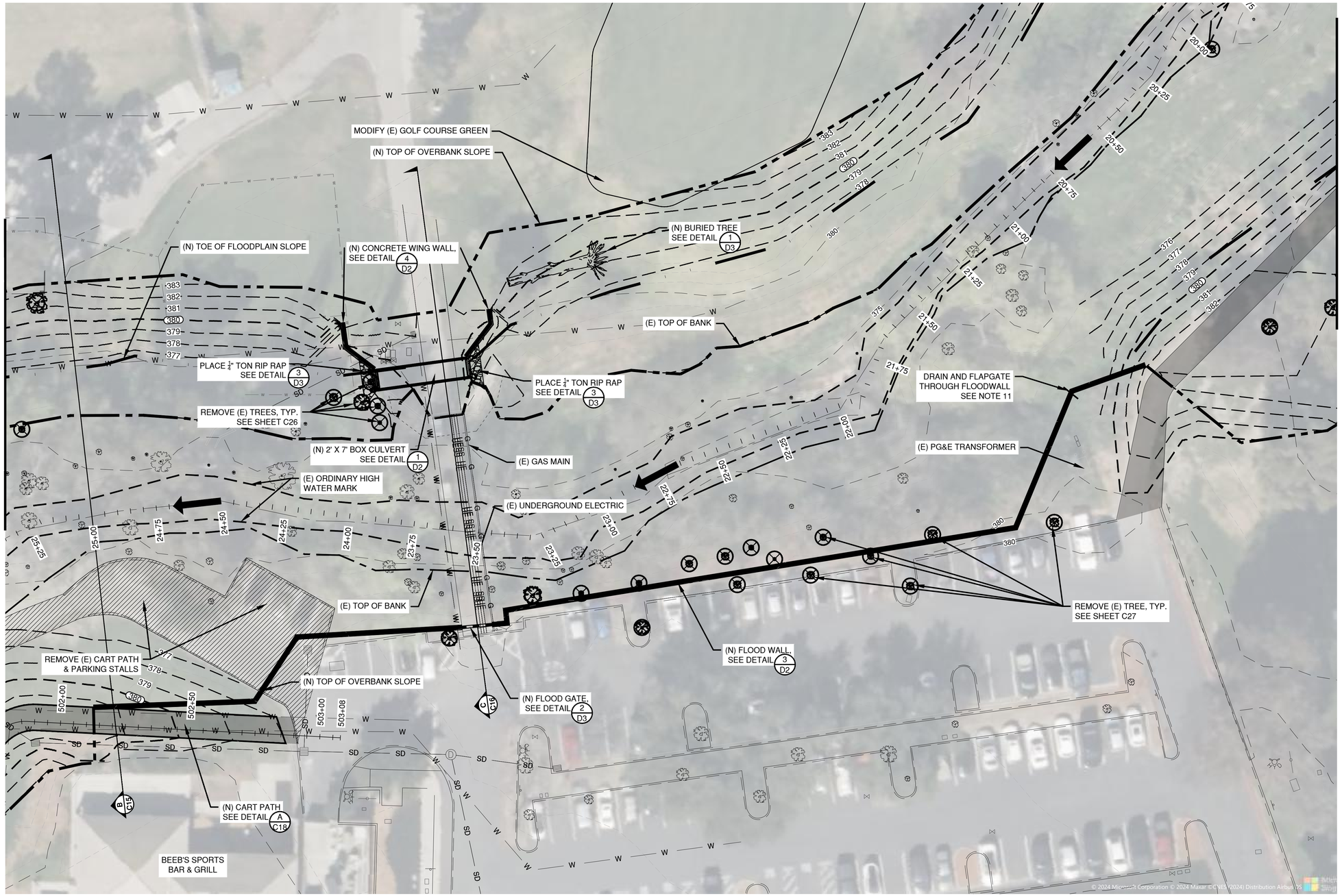
Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS
2200 RANGE AVENUE, STE 201
SANTA ROSA, CA 95405
(707) 528-4848

		NO.	DATE	BY	REVISIONS
	08/20/24				
APPROVED BY	DATE				
DESIGNED BY	JFO				
DRAWN BY	JFO				
CHECKED BY	BLS				

CITY OF
LIVERMORE
CALIFORNIA
COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT
ALP SITE PLAN

C4
Sheet 7
Of 33
Scale: AS SHOWN



PLAN
SCALE: 1" = 20'

NOTES:

1. THE EXTENT, ELEVATIONS, AND QUANTITIES OF GRADING AND SEDIMENT REMOVAL IS APPROXIMATE AND SHALL BE CONFIRMED AND ADJUSTED AS DIRECTED BY THE CITY'S REPRESENTATIVES IN THE FIELD DURING CONSTRUCTION.
2. THE LOCATIONS AND LIMITS OF TREE REMOVAL AND TRIMMING IS APPROXIMATE AND SHALL BE CONFIRMED AND ADJUSTED AS DIRECTED BY THE CITY'S REPRESENTATIVES IN THE FIELD DURING CONSTRUCTION.
3. CONTRACTOR SHALL REMOVE AND DISPOSE OF TRASH, SOIL, SILT, MUD, EXCESSIVE ORGANIC MATERIAL AND DEBRIS.
4. BIODEGRADABLE EROSION CONTROL BLANKET AND BROADCAST SEEDING SHALL BE INSTALLED ON DISTURBED SLOPES STEEPER THAN 5H:1V, AND HYDROSEEDING SHALL BE PLACED ON ALL OTHER DISTURBED AREAS AT THE COMPLETION OF CONSTRUCTION. AVOID PLACEMENT IN LOW FLOW CHANNEL.
5. SOIL AND SEDIMENT REMOVAL SHALL NOT OCCUR WITHIN THE LIMITS OF THE EXISTING TREE ROOT SYSTEMS FOR TREES TO REMAIN.
6. EQUIPMENT SHALL NOT ENTER THE CHANNEL BELOW THE OHWM AS DIRECTED BY THE CITY'S BIOLOGIST. ALL EXCAVATIONS SHALL BE SHALL BE PERFORMED WITH AN EXCAVATOR, A DOZER SHALL NOT BE USED TO GRADE OR REMOVE MATERIAL FROM THE SITE.
7. ONCE CONSTRUCTION IS COMPLETE AND ALL SLOPES ARE TO FINAL GRADE, ALL DISTURBED SOILS SHALL BE HYDROSEEDED. AN EROSION CONTROL BLANKET SHALL BE PLACED ON ALL DISTURBED SLOPE STEEPER THAN 5:1 AFTER HYDROSEEDING PER THE SPECIFICATIONS.
8. NATIVE SPECIES GRASS SHALL BE APPLIED AT A RATE OF 20 POUNDS OF PURE LIVE SEED PER ACRE.
9. REMOVE TREES AS INDICATED ON THE PLANS AND AS SHOWN ON SHEETS C26 AND C27, SEE TECHNICAL SPECIFICATIONS FOR TREE REMOVAL REQUIREMENTS.
10. CONTRACTOR SHALL PRESERVE AREA BELOW EXISTING ORDINARY HIGH-WATER MARK. NO WORK SHALL BE COMPLETED WITHIN THE ORDINARY HIGH-WATER MARK LIMITS SHOWN ON THE PROJECT DRAWINGS.
11. CONTRACTOR SHALL INSTALL (N) FLAPGATE AT THE END OF THE (N) STORM DRAIN. STORM DRAIN SHALL BE INSTALLED THROUGH (N) FLOODWALL PER X DX.

N

20 0 20 40
SCALE: 1 INCH = 20 FEET

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHICK
No. 0831
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

Inch 0.5 0

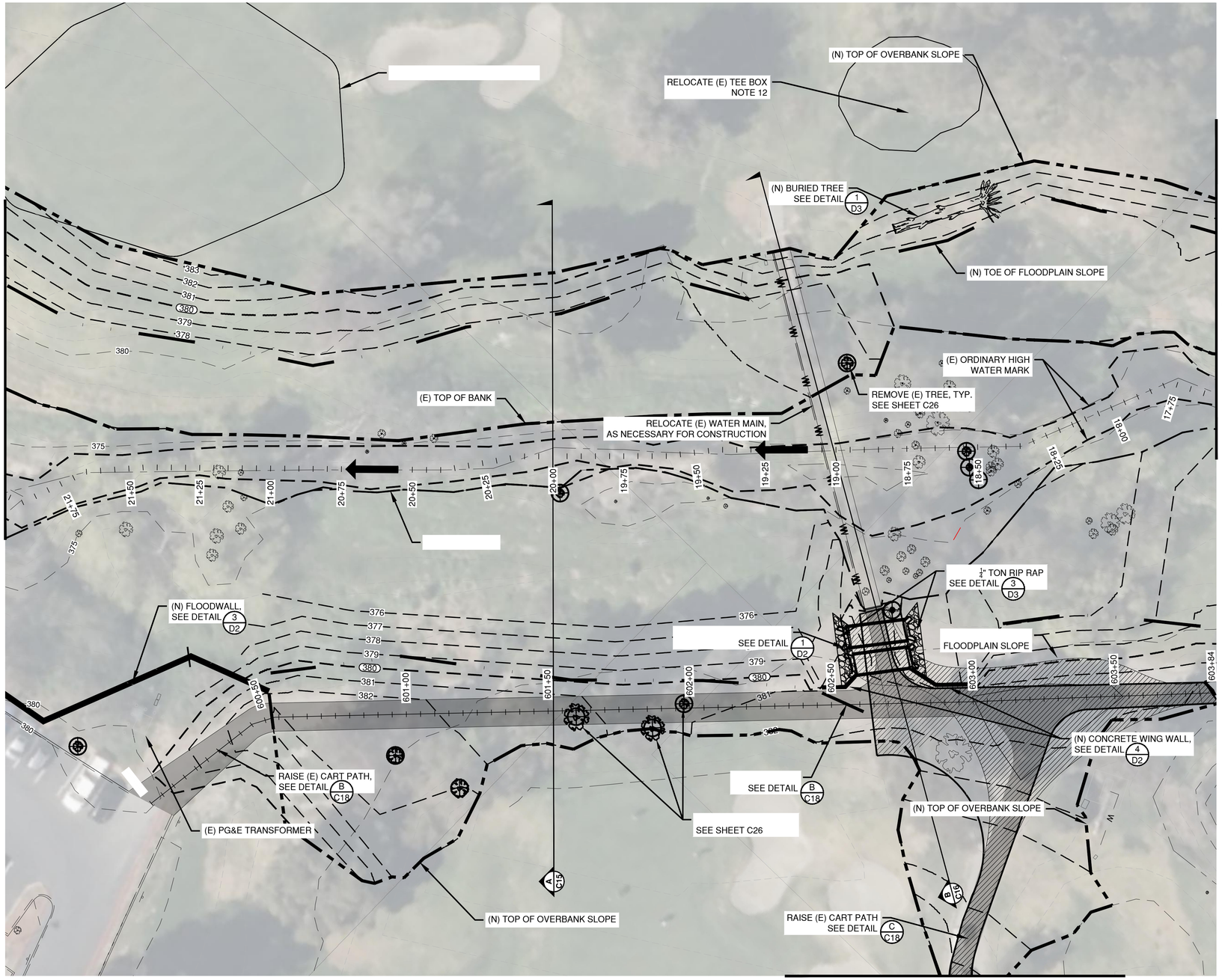
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City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT
ALP SITE PLAN

C5
Sheet 8
Of 33
Scale: AS SHOWN



PLAN
SCALE: 1" = 20'

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12. CONTRACTOR SHALL COORDINATE LOCATION OF (N) TEE BOX WITH THE GOLF COURSE AND CITY. CONTRACTOR SHALL MARK LOCATION OF PROPOSED TEE BOX LOCATION AND DISCUSS WITH CITY PRIOR TO CONSTRUCTION.

20 0 20 40
SCALE: 1 INCH = 20 FEET

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHTCH
No. 18311
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

0.5 0

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(707) 528-4848

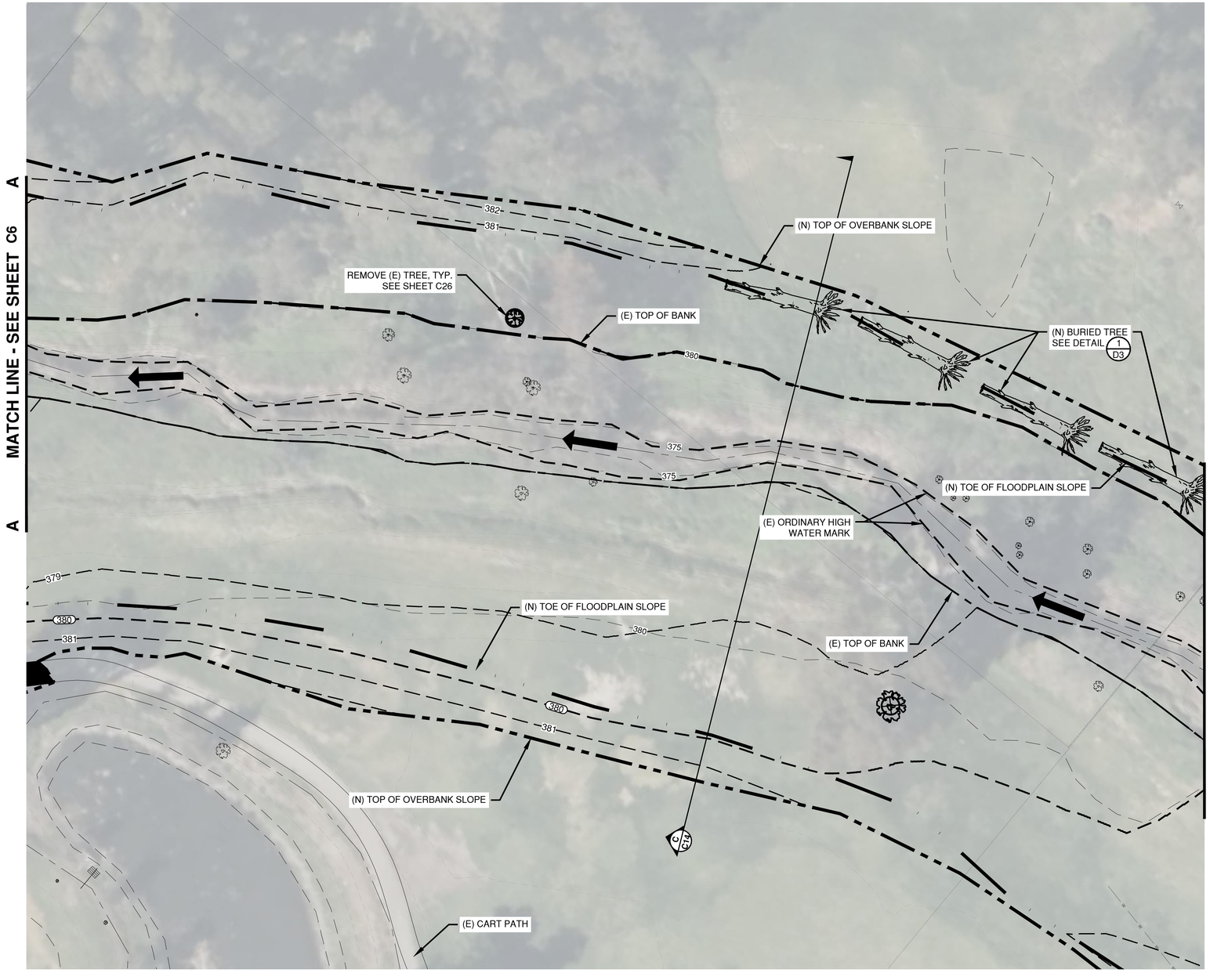
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COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT
ALP SITE PLAN

C6
Sheet 9
Of 33
Scale: AS SHOWN

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PLAN
SCALE: 1" = 20'

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20 0 20 40
SCALE: 1 INCH = 20 FEET

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHICK
No. 18312
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

Inch 0.5 0

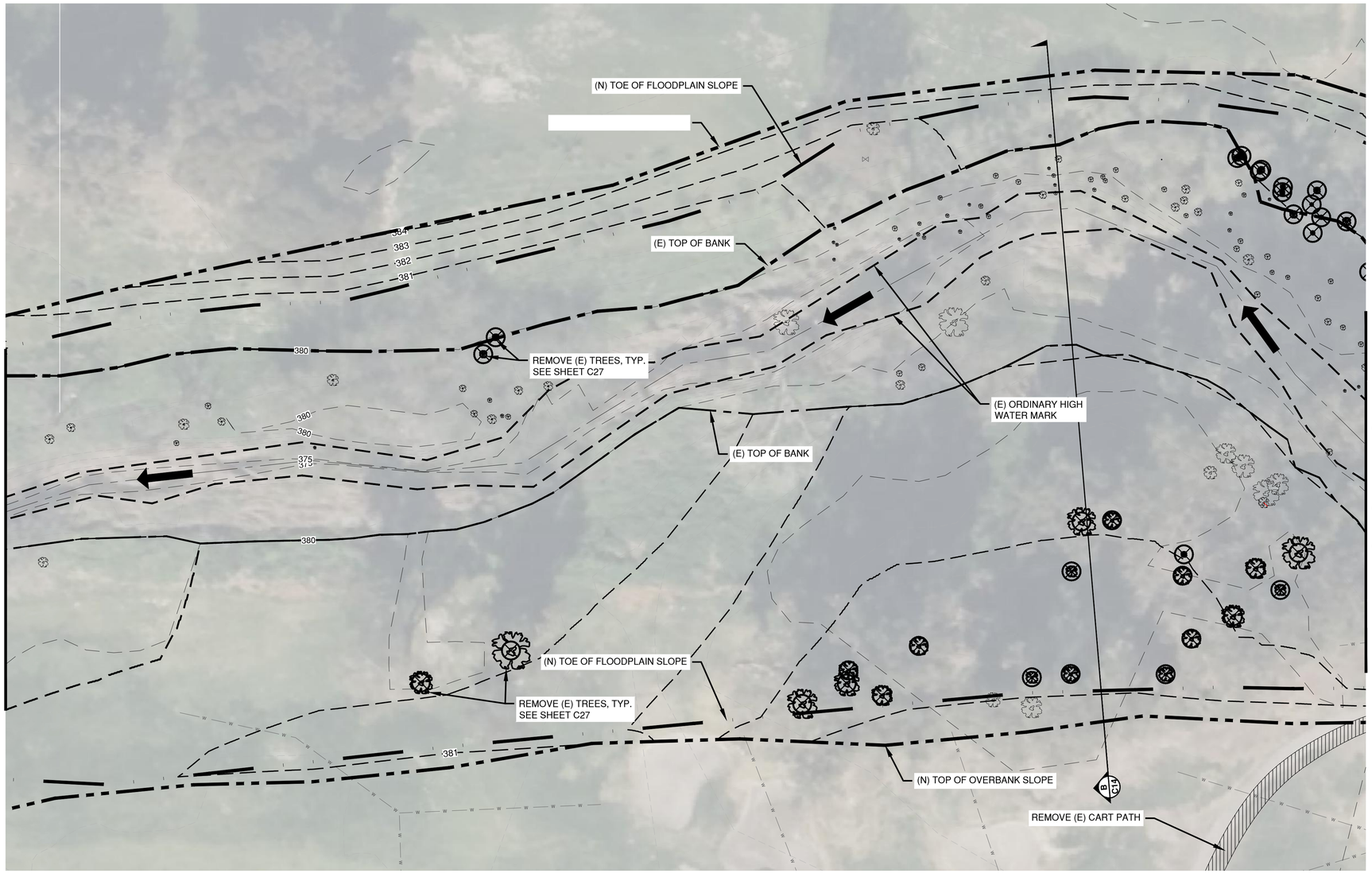
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City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT
ALP SITE PLAN

C7
Sheet 10
Of 33
Scale: AS SHOWN



PLAN
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N

20 0 20 40

SCALE: 1 INCH = 20 FEET

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHIGA
No. 18811
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

0.5 0

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(707) 528-4848

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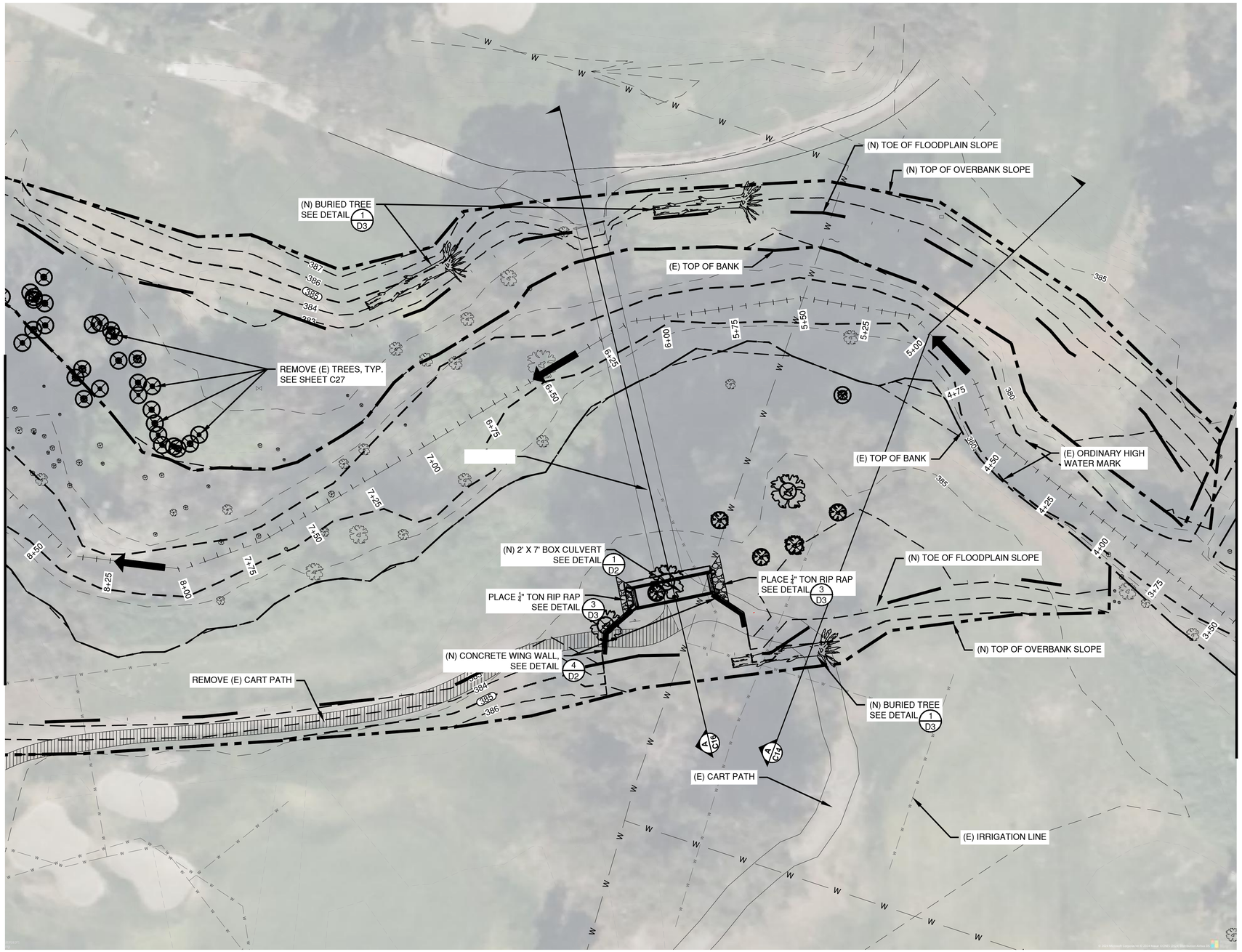
ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

ALP SITE PLAN

C8

Sheet	11
Of	33
Scale:	AS SHOWN

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PLAN
SCALE: 1" = 20'

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N

20 0 20 40
SCALE: 1 INCH = 20 FEET

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHIOW
No. 18311
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

0.5 0

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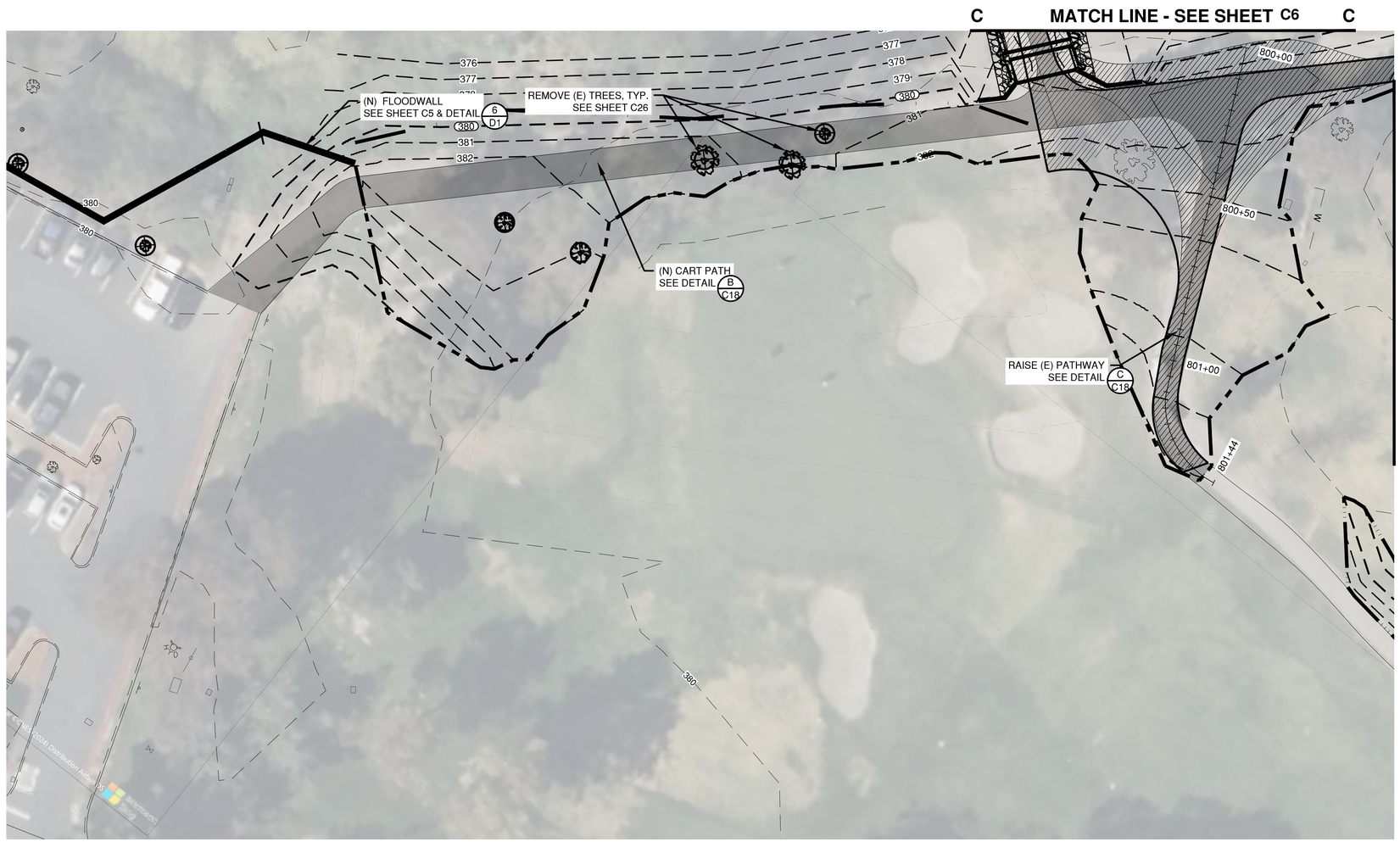
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City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT
ALP SITE PLAN

C9
Sheet 12
Of 33
Scale: AS SHOWN

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PLAN
SCALE: 1" = 20'

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20 0 20 40
SCALE: 1 INCH = 20 FEET

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHITCH
No. 18317
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

Inch 0.5 0

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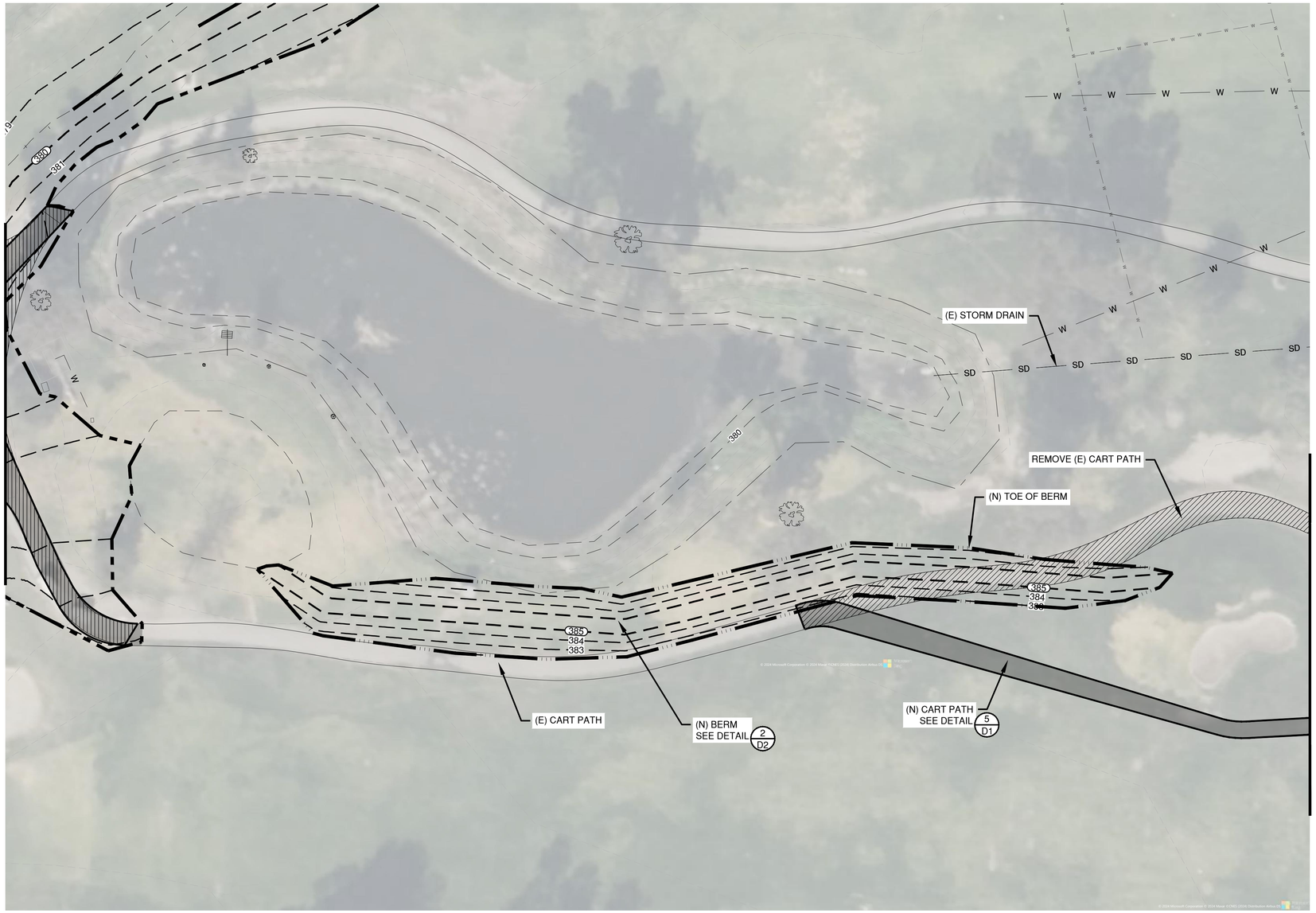
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ARROYO LAS POSITAS FLOOD MITIGATION PROJECT
ALP SITE PLAN

C10

Sheet	13
Of	33
Scale:	AS SHOWN



PLAN
SCALE: 1" = 20'

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N

20 0 20 40

SCALE: 1 INCH = 20 FEET

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHTOKA
No. 18311
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

0.5
0

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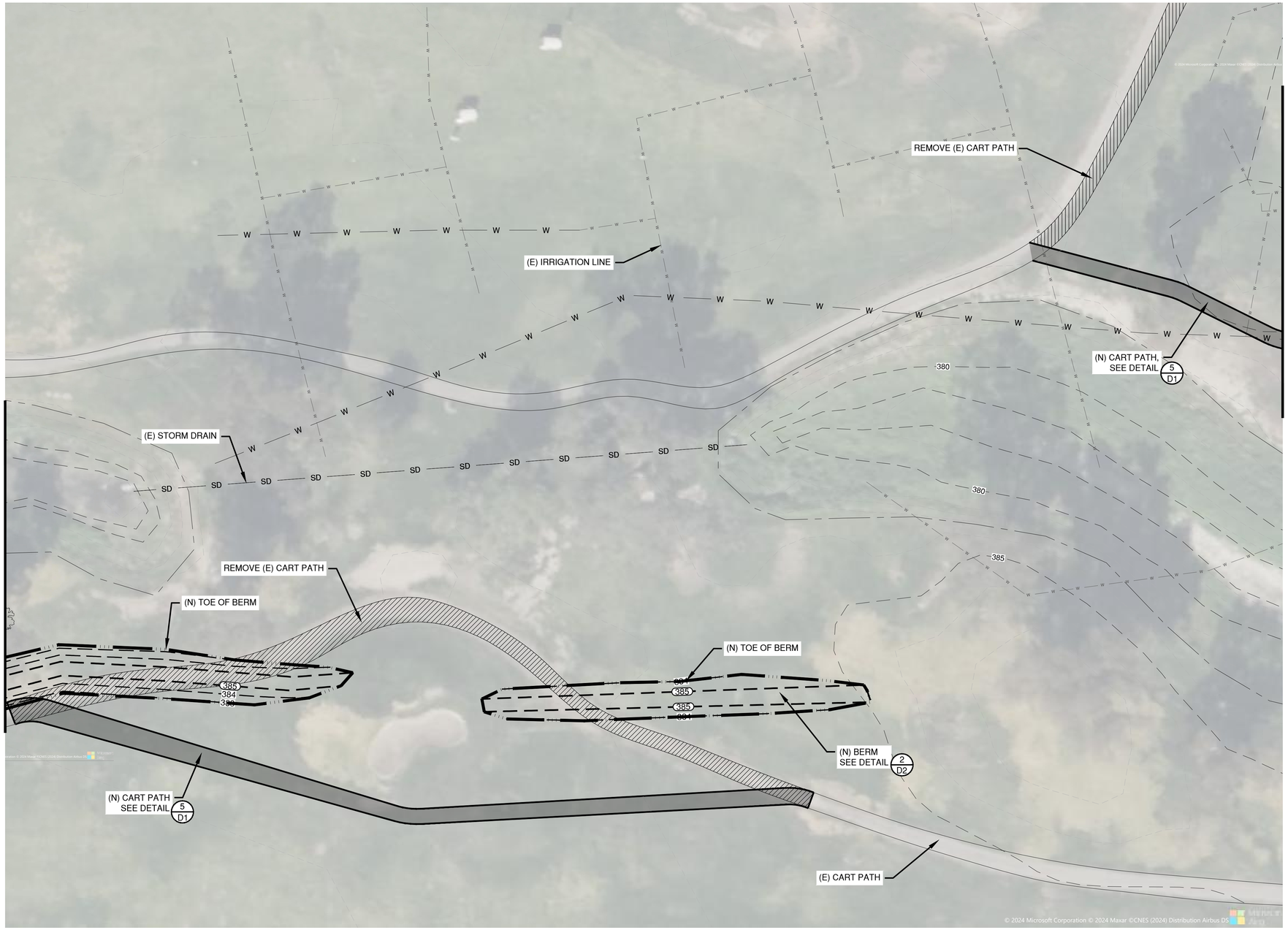
ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

ALP SITE PLAN

C11

Sheet	14
Of	33
Scale:	AS SHOWN

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PLAN
SCALE: 1" = 20'

NOTES:

1. THE EXTENT, ELEVATIONS, AND QUANTITIES OF GRADING AND SEDIMENT REMOVAL IS APPROXIMATE AND SHALL BE CONFIRMED AND ADJUSTED AS DIRECTED BY THE CITY'S REPRESENTATIVES IN THE FIELD DURING CONSTRUCTION.
2. THE LOCATIONS AND LIMITS OF TREE REMOVAL AND TRIMMING IS APPROXIMATE AND SHALL BE CONFIRMED AND ADJUSTED AS DIRECTED BY THE CITY'S REPRESENTATIVES IN THE FIELD DURING CONSTRUCTION.
3. CONTRACTOR SHALL REMOVE AND DISPOSE OF TRASH, SOIL, SILT, MUD, EXCESSIVE ORGANIC MATERIAL AND DEBRIS.
4. BIODEGRADABLE EROSION CONTROL BLANKET AND BROADCAST SEEDING SHALL BE INSTALLED ON DISTURBED SLOPES STEEPER THAN 4H:1V, AND HYDROSEEDING SHALL BE PLACED ON ALL OTHER DISTURBED AREAS AT THE COMPLETION OF CONSTRUCTION. AVOID PLACEMENT IN LOW FLOW CHANNEL.
5. SOIL AND SEDIMENT REMOVAL SHALL NOT OCCUR WITHIN THE LIMITS OF THE EXISTING TREE ROOT SYSTEMS FOR TREES TO REMAIN.
6. EQUIPMENT SHALL NOT ENTER THE CHANNEL BELOW THE OHWM AS DIRECTED BY THE CITY'S BIOLOGIST. ALL EXCAVATIONS SHALL BE SHALL BE PERFORMED WITH AN EXCAVATOR, A DOZER SHALL NOT BE USED TO GRADE OR REMOVE MATERIAL FROM THE SITE.
7. ONCE CONSTRUCTION IS COMPLETE AND ALL SLOPES ARE TO FINAL GRADE, ALL DISTURBED SOILS SHALL BE HYDROSEEDED. AN EROSION CONTROL BLANKET SHALL BE PLACED ON ALL DISTURBED SLOPE STEEPER THAN 5:1 AFTER HYDROSEEDING PER THE SPECIFICATIONS.
8. NATIVE SPECIES GRASS SHALL BE APPLIED AT A RATE OF 20 POUNDS OF PURE LIVE SEED PER ACRE.

N

20 0 20 40

SCALE: 1 INCH = 20 FEET

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHTCAT
No. 18317
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

0.5 0

Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS
2200 RANGE AVENUE, STE 201
SANTA ROSA, CA 95405
(707) 528-4848

	08/20/24				
APPROVED BY	DATE				
DESIGNED BY	JFO				
DRAWN BY	JFO				
CHECKED BY	BLS	NO.	DATE	BY	REVISIONS

CITY OF
LIVERMORE
CALIFORNIA
COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

ALP SITE PLAN

C12

Sheet	15
Of	33
Scale:	AS SHOWN

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PLAN
SCALE: 1" = 20'

NOTES:

1. THE EXTENT, ELEVATIONS, AND QUANTITIES OF GRADING AND SEDIMENT REMOVAL IS APPROXIMATE AND SHALL BE CONFIRMED AND ADJUSTED AS DIRECTED BY THE CITY'S REPRESENTATIVES IN THE FIELD DURING CONSTRUCTION.
2. THE LOCATIONS AND LIMITS OF TREE REMOVAL AND TRIMMING IS APPROXIMATE AND SHALL BE CONFIRMED AND ADJUSTED AS DIRECTED BY THE CITY'S REPRESENTATIVES IN THE FIELD DURING CONSTRUCTION.
3. CONTRACTOR SHALL REMOVE AND DISPOSE OF TRASH, SOIL, SILT, MUD, EXCESSIVE ORGANIC MATERIAL AND DEBRIS.
4. BIODEGRADABLE EROSION CONTROL BLANKET AND BROADCAST SEEDING SHALL BE INSTALLED ON DISTURBED SLOPES STEEPER THAN 4H:1V, AND HYDROSEEDING SHALL BE PLACED ON ALL OTHER DISTURBED AREAS AT THE COMPLETION OF CONSTRUCTION. AVOID PLACEMENT IN LOW FLOW CHANNEL.
5. SOIL AND SEDIMENT REMOVAL SHALL NOT OCCUR WITHIN THE LIMITS OF THE EXISTING TREE ROOT SYSTEMS FOR TREES TO REMAIN.
6. EQUIPMENT SHALL NOT ENTER THE CHANNEL BELOW THE OHWM AS DIRECTED BY THE CITY'S BIOLOGIST. ALL EXCAVATIONS SHALL BE SHALL BE PERFORMED WITH AN EXCAVATOR, A DOZER SHALL NOT BE USED TO GRADE OR REMOVE MATERIAL FROM THE SITE.
7. ONCE CONSTRUCTION IS COMPLETE AND ALL SLOPES ARE TO FINAL GRADE, ALL DISTURBED SOILS SHALL BE HYDROSEEDED. AN EROSION CONTROL BLANKET SHALL BE PLACED ON ALL DISTURBED SLOPE STEEPER THAN 5:1 AFTER HYDROSEEDING PER THE SPECIFICATIONS.
8. NATIVE SPECIES GRASS SHALL BE APPLIED AT A RATE OF 20 POUNDS OF PURE LIVE SEED PER ACRE.

N

20 0 20 40
SCALE: 1 INCH = 20 FEET

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHICK
No. 18311
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

Inch 0.5 0

Schaaf & Wheeler
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2200 RANGE AVENUE, STE 201
SANTA ROSA, CA 95405
(707) 528-4848

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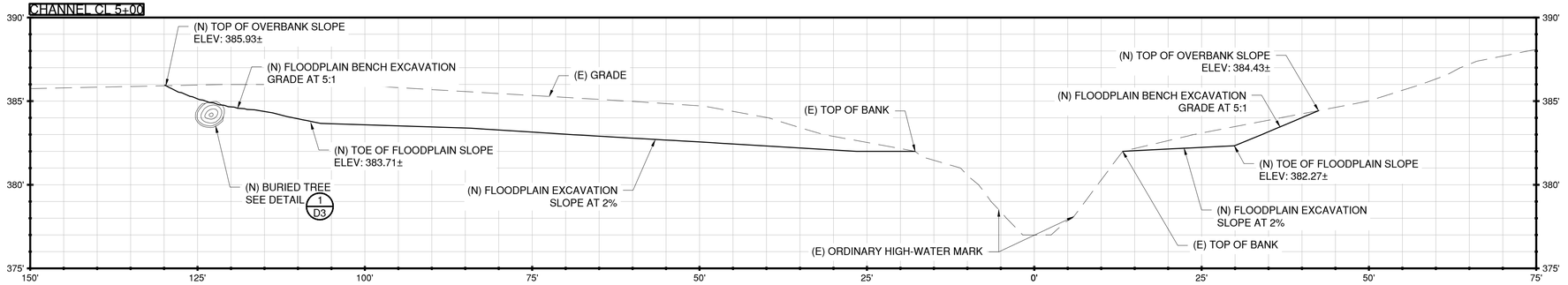
CITY OF
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CALIFORNIA
COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

ALP SITE PLAN

C13

Sheet 16
Of 33
Scale: AS SHOWN

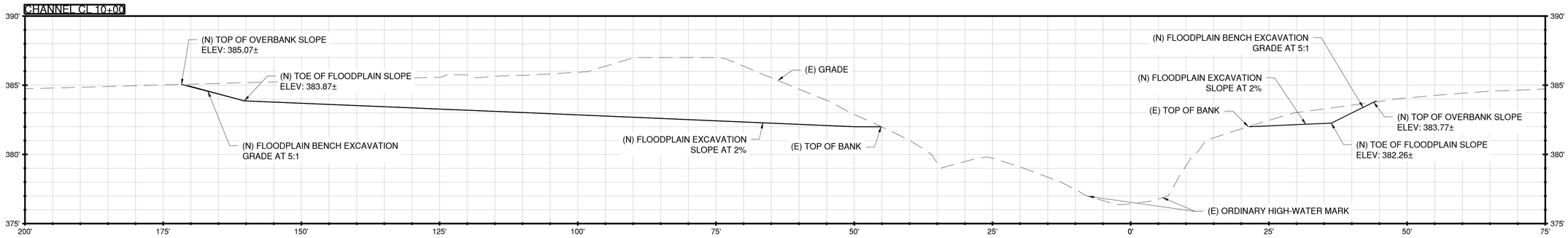


CHANNEL SECTION A / C14

HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 4'

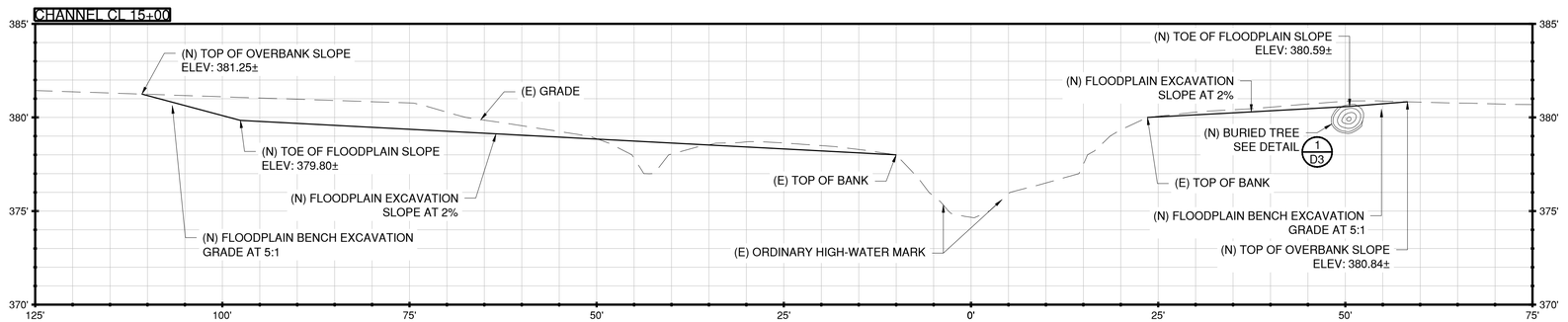
NOTES:

1. CONTRACTOR SHALL EXCAVATE, OFF-HAUL, AND DISPOSE OF ALL DEBRIS, TRASH AND VEGETATION AS DETAILED ON THE PLANS AND SPECIFICATIONS.
2. CROSS SECTION SHOWN LOOKING DOWNSTREAM. REFER TO SHEET C8 & C9 FOR LOCATION AND ORIENTATION.
3. LIMITS OF PROPOSED GRADING AND ELEVATIONS ARE APPROXIMATE, CONFIRM WITH CITY PRIOR TO EXCAVATION.
4. CONTRACTOR SHALL PRESERVE AREA BELOW EXISTING ORDINARY HIGH-WATER MARK. NO WORK SHALL BE COMPLETED WITHIN THE LIMITS SHOWN ON THE PROJECT DRAWINGS.



CHANNEL SECTION B / C14

HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 4'



CHANNEL SECTION C / C14

HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 4'

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHTOK
No. 0831?
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

Inch 0.5 0

Schaaf & Wheeler
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SANTA ROSA, CA 95405
(707) 528-4848

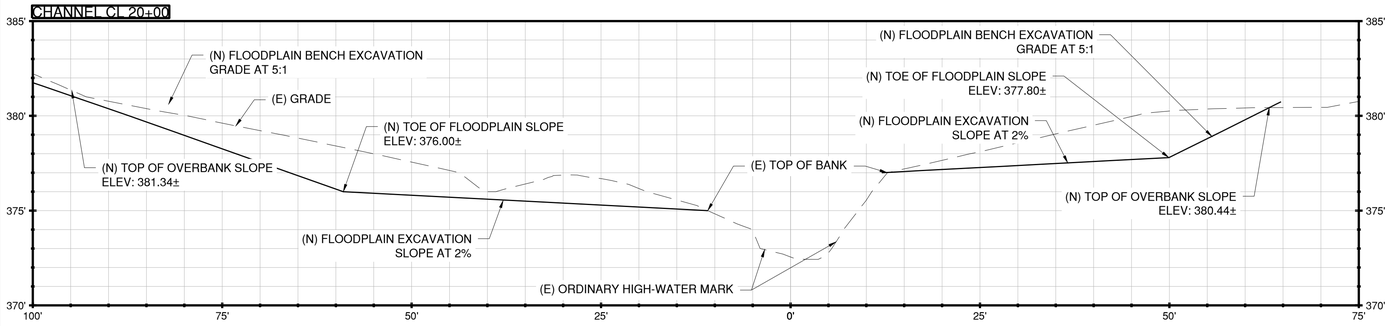
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APPROVED BY	DATE				
DESIGNED BY	JFO				
DRAWN BY	JFO				
CHECKED BY	BLS				

CITY OF LIVERMORE CALIFORNIA
COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT
SECTION VIEWS

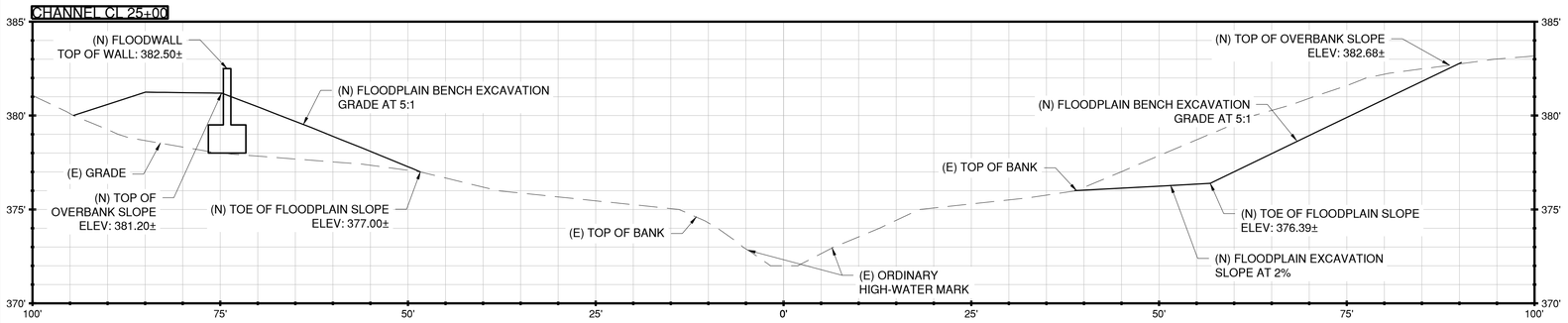
C14

Sheet 17
Of 33
Scale: AS SHOWN



CHANNEL SECTION A / C15

HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 4'



CHANNEL SECTION B / C15

HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 2'

NOTES:

1. CONTRACTOR SHALL EXCAVATE, OFF-HAUL, AND DISPOSE OF ALL DEBRIS, TRASH AND VEGETATION AS DETAILED ON THE PLANS AND SPECIFICATIONS.
2. CROSS SECTION SHOWN LOOKING DOWNSTREAM. REFER TO SHEET C5, C6, AND C7 FOR LOCATION AND ORIENTATION.
3. LIMITS OF PROPOSED GRADING AND ELEVATIONS ARE APPROXIMATE, CONFIRM WITH CITY PRIOR TO EXCAVATION.
4. CONTRACTOR SHALL PRESERVE AREA BELOW EXISTING ORDINARY HIGH-WATER MARK. NO WORK SHALL BE COMPLETED WITHIN THE LIMITS SHOWN ON THE PROJECT DRAWINGS.

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHTCHUR
No. 18817
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

Inch 0.5 0

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SANTA ROSA, CA 95405
(707) 528-4848

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DRAWN BY	JFO				
CHECKED BY	BLS				

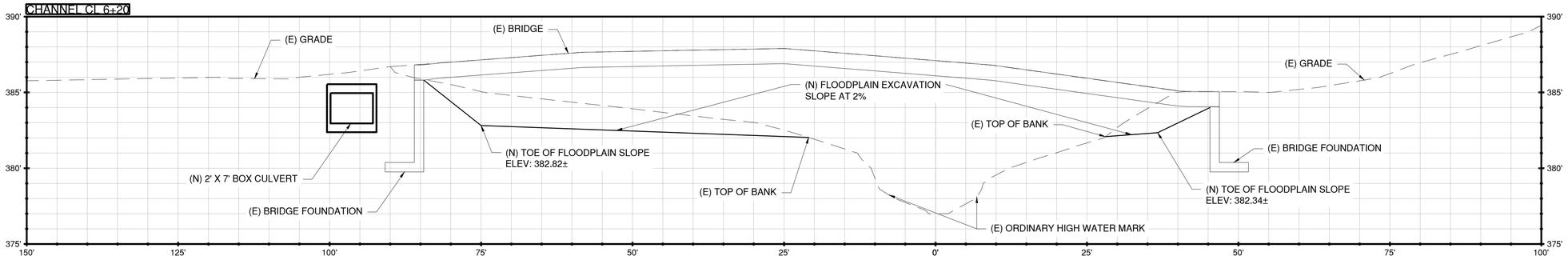
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COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

CHANNEL SECTION VIEWS

C15

Sheet 18
Of 33
Scale: AS SHOWN

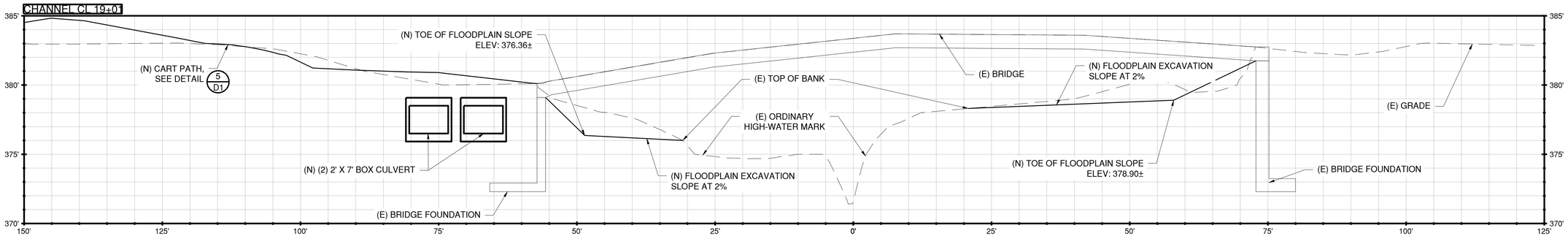


BRIDGE STA 6+20 SECTION (A / C16)

HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 4'

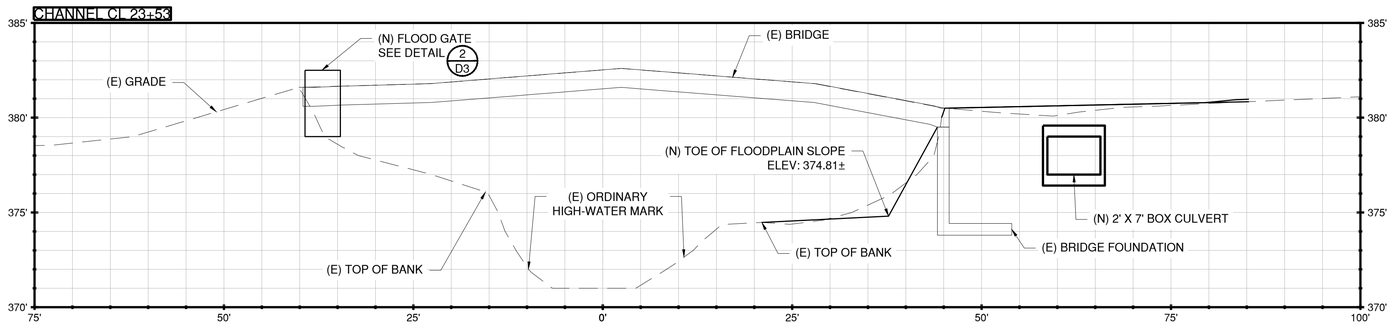
NOTES:

1. CONTRACTOR SHALL EXCAVATE, OFF-HAUL, AND DISPOSE OF ALL DEBRIS, TRASH AND VEGETATION AS DETAILED ON THE PLANS AND SPECIFICATIONS.
2. CROSS SECTION SHOWN LOOKING DOWNSTREAM. REFER TO SHEET C5, C6, AND C7 FOR LOCATION AND ORIENTATION.
3. LIMITS OF PROPOSED GRADING AND ELEVATIONS ARE APPROXIMATE, CONFIRM WITH CITY PRIOR TO EXCAVATION.
4. CONTRACTOR SHALL PRESERVE AREA BELOW EXISTING ORDINARY HIGH-WATER MARK. NO WORK SHALL BE COMPLETED WITHIN THE LIMITS SHOWN ON THE PROJECT DRAWINGS.



BRIDGE STA 19+01 SECTION (B / C16)

HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 4'



BRIDGE STA 23+53 SECTION (C / C16)

HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 4'

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHICK
No. 18312
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

Inch 0.5 0

Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS
2200 RANGE AVENUE, STE 201
SANTA ROSA, CA 95405
(707) 528-4848

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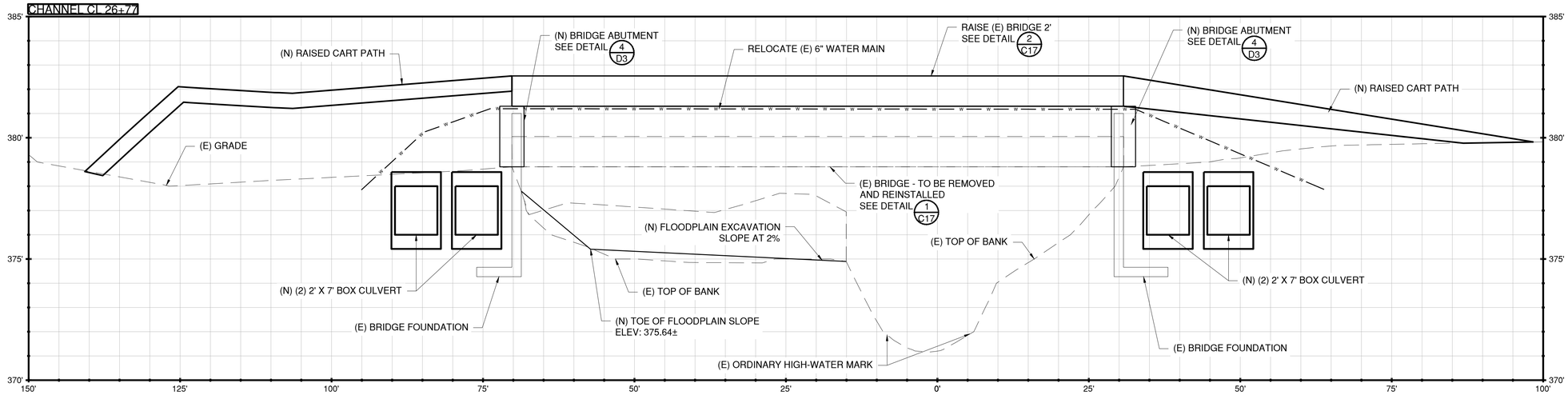
CITY OF LIVERMORE CALIFORNIA
COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

BRIDGE SECTION VIEWS

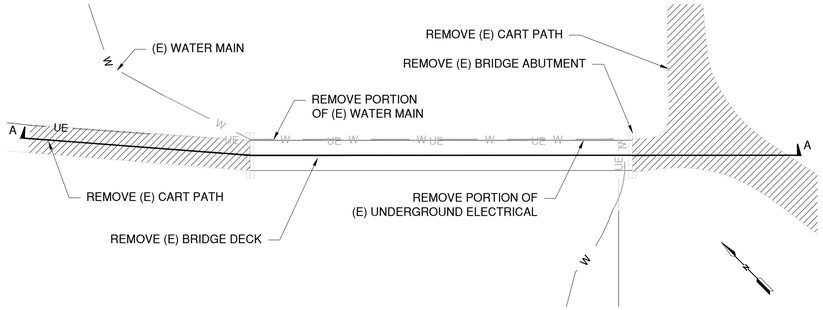
C16

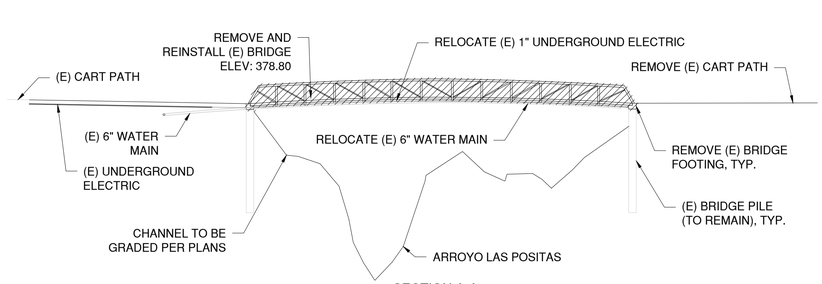
Sheet 19
Of 33
Scale: AS SHOWN



BRIDGE STA 26+77 SECTION A C17

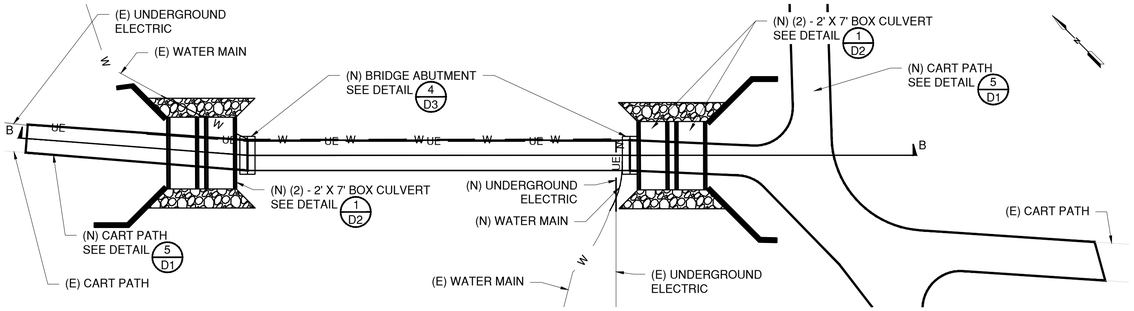
HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 4'

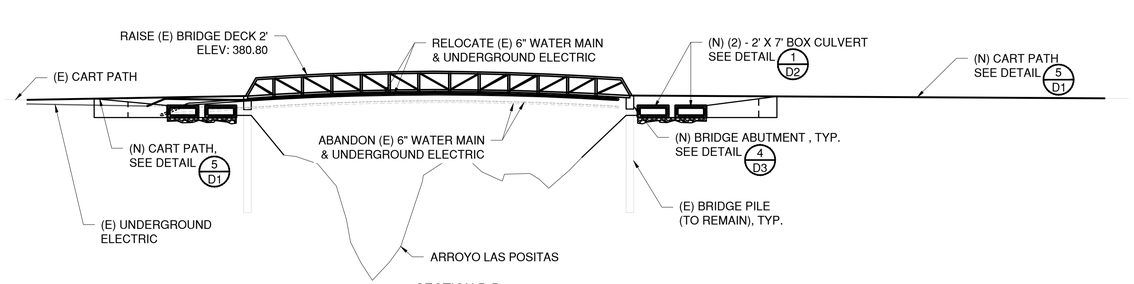




BRIDGE AT 26+77 DEMOLITION PLAN & SECTION 1 C17

SCALE: NTS





BRIDGE AT 26+77 IMPROVEMENT PLAN & SECTION 2 C17

SCALE: NTS

NOTES:

1. CONTRACTOR SHALL EXCAVATE, OFF-HAUL, AND DISPOSE OF ALL DEBRIS, TRASH AND VEGETATION AS DETAILED ON THE PLANS AND SPECIFICATIONS.
2. CROSS SECTION SHOWN LOOKING DOWNSTREAM. REFER TO SHEET C4 AND C5 FOR LOCATION AND ORIENTATION.
3. LIMITS OF PROPOSED GRADING AND ELEVATIONS ARE APPROXIMATE, CONFIRM WITH CITY PRIOR TO EXCAVATION.
4. CONTRACTOR SHALL PRESERVE AREA BELOW EXISTING ORDINARY HIGH-WATER MARK. NO WORK SHALL BE COMPLETED WITHIN THE LIMITS SHOWN ON THE PROJECT DRAWINGS.

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHICK
No. (6811)
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

Inch 0.5 0

Schaaf & Wheeler
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SANTA ROSA, CA 95405
(707) 528-4848

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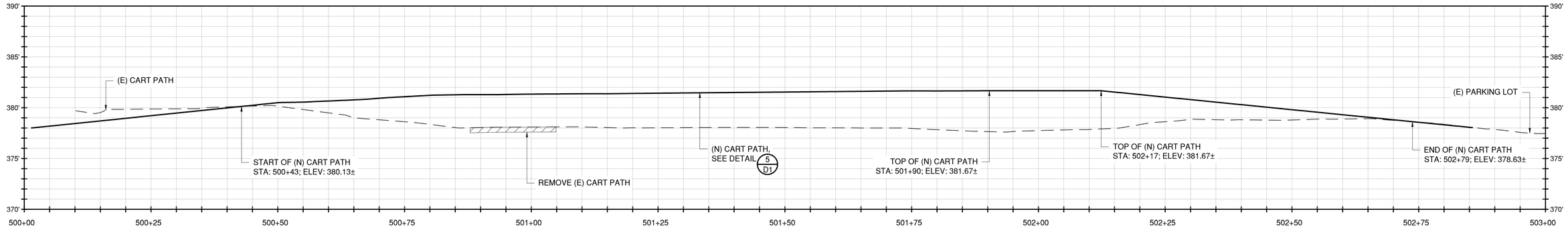
CITY OF LIVERMORE CALIFORNIA
COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

BRIDGE SECTION VIEWS

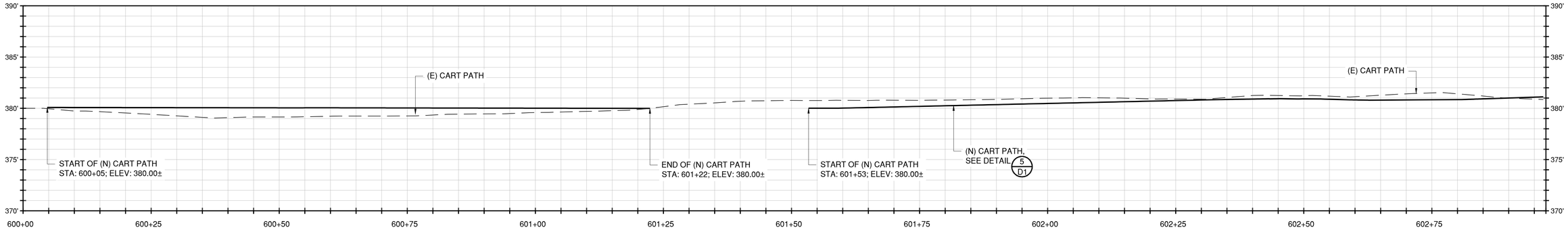
C17

Sheet 20
Of 33
Scale: AS SHOWN



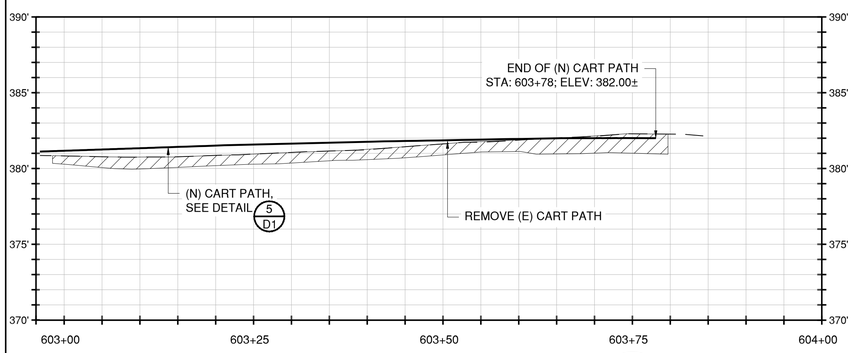
CART PATH SECTION A / C18

HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 5'



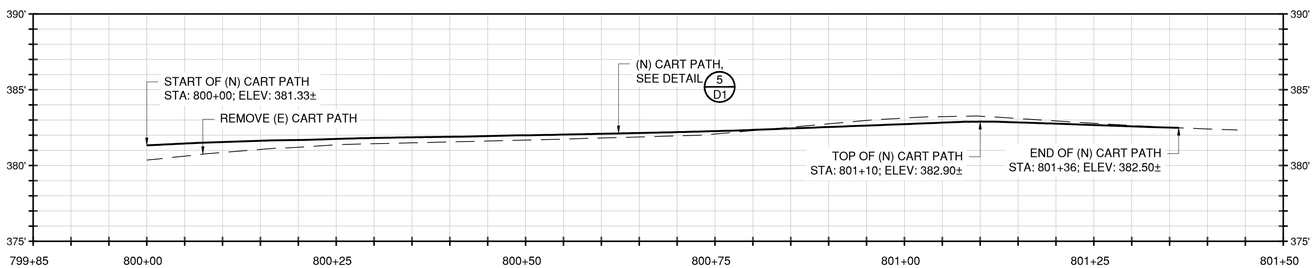
CART PATH SECTION B / C18

HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 5'



CART PATH SECTION - CONTINUED B / C18

HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 5'



CART PATH SECTION C / C18

HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 5'

NOTES:

1. REFER TO SHEET C4, C5, C6, AND C10 FOR LOCATION AND ORIENTATION.
2. LIMITS OF PROPOSED GRADING AND ELEVATIONS ARE APPROXIMATE, CONFIRM WITH CITY PRIOR TO EXCAVATION.

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHTOK
No. 68312
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

Inch
0.5
0

Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS
2200 RANGE AVENUE, STE 201
SANTA ROSA, CA 95405
(707) 528-4848

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CHECKED BY	BLS				

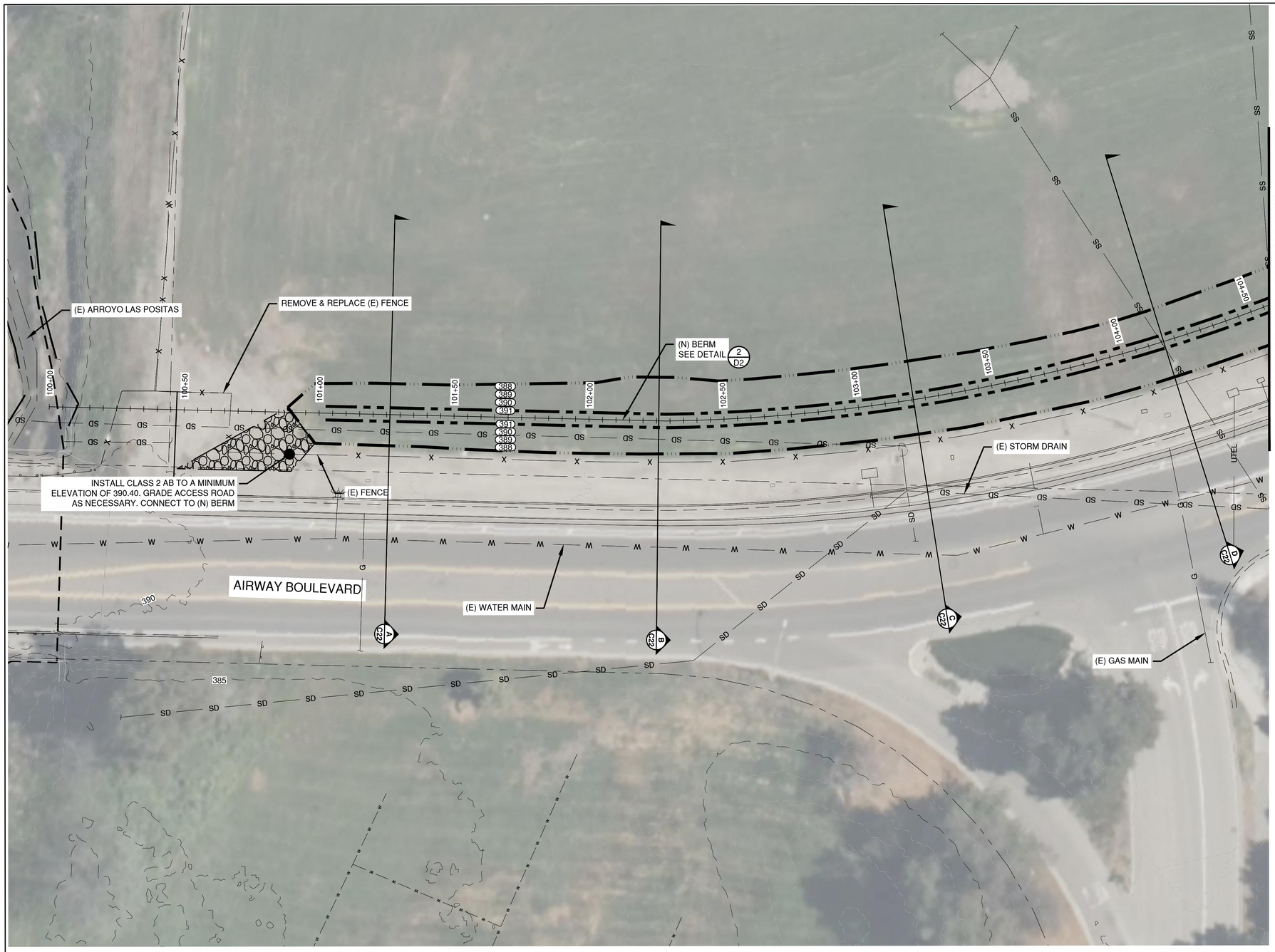
CITY OF
LIVERMORE
CALIFORNIA
COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

CART PATH PROFILE VIEWS

C18

Sheet	21
Of	33
Scale:	AS SHOWN



A MATCH LINE - SEE SHEET C20 A

NOTES:

1. THE EXTENT, ELEVATIONS, AND QUANTITIES OF GRADING IS APPROXIMATE AND SHALL BE CONFIRMED AND ADJUSTED AS DIRECTED BY THE CITY'S REPRESENTATIVES IN THE FIELD DURING CONSTRUCTION.
2. BIODEGRADABLE EROSION CONTROL BLANKET AND BROADCAST SEEDING SHALL BE INSTALLED ON DISTURBED SLOPES STEEPER THAN 5H:1V, AND HYDROSEEDING SHALL BE PLACED ON ALL OTHER DISTURBED AREAS AT THE COMPLETION OF CONSTRUCTION. AVOID PLACEMENT IN LOW FLOW CHANNEL.
3. SOIL AND SEDIMENT REMOVAL SHALL NOT OCCUR WITHIN THE LIMITS OF THE EXISTING TREE ROOT SYSTEMS FOR TREES TO REMAIN.
4. ONCE CONSTRUCTION IS COMPLETE AND ALL SLOPES ARE TO FINAL GRADE, ALL DISTURBED SOILS SHALL BE HYDROSEEDED. NATIVE SPECIES GRASS SEEDS SHALL BE USED ON THE GOLF COURSE SIDE OF THE BERM, AND THE SEEDING MIX INCLUDED IN THE SEEDING SPECIFICATION SECTION **329100** SHALL BE USED ON THE REMAINING AREAS. AN EROSION CONTROL BLANKET SHALL BE PLACED ON ALL DISTURBED SLOPE STEEPER THAN 5:1 AFTER HYDROSEEDING PER THE SPECIFICATIONS.
5. NATIVE SPECIES GRASS SHALL BE APPLIED AT A RATE OF 20 POUNDS OF PURE LIVE SEED PER ACRE.
6. PROTECT EXISTING TREE IN PLACE AND PROVIDE NECESSARY PROTECTION MEASURES. FULL TREE PROTECTION MEASURES MAY NOT BE POSSIBLE DUE TO TREE LOCATION. CONTRACTOR SHALL TAKE CAUTION TO NOT DAMAGE OR DISTURB TREE DURING CONSTRUCTION

PLAN
SCALE: 1" = 20'

20 0 20 40
SCALE: 1 INCH = 20 FEET

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHITOW
No. 18311
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

Inch 0.5 0

Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS
2200 RANGE AVENUE, STE 201
SANTA ROSA, CA 95405
(707) 528-4848

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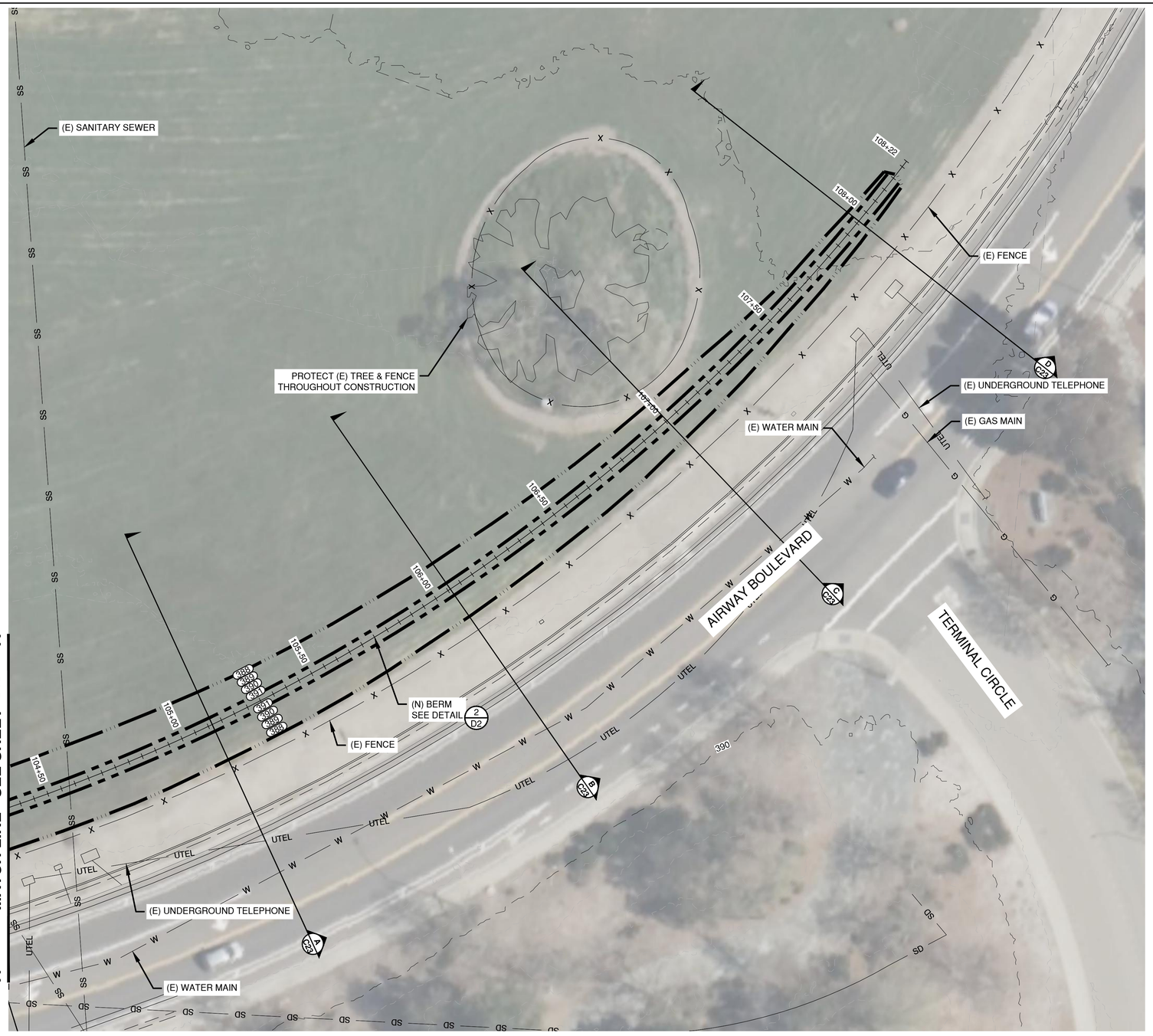
CITY OF
LIVERMORE
CALIFORNIA
COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

AIRWAY BOULEVARD - BERM PLAN VIEW

C19

Sheet	22
Of	33
Scale:	AS SHOWN



PLAN
SCALE: 1" = 20'

NOTES:

1. THE EXTENT, ELEVATIONS, AND QUANTITIES OF GRADING IS APPROXIMATE AND SHALL BE CONFIRMED AND ADJUSTED AS DIRECTED BY THE CITY'S REPRESENTATIVES IN THE FIELD DURING CONSTRUCTION.
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3. SOIL AND SEDIMENT REMOVAL SHALL NOT OCCUR WITHIN THE LIMITS OF THE EXISTING TREE ROOT SYSTEMS FOR TREES TO REMAIN.
4. ONCE CONSTRUCTION IS COMPLETE AND ALL SLOPES ARE TO FINAL GRADE, ALL DISTURBED SOILS SHALL BE HYDROSEEDED. NATIVE SPECIES GRASS SEEDS SHALL BE USED ON THE GOLF COURSE SIDE OF THE BERM, AND THE SEEDING MIX INCLUDED IN THE SEEDING SPECIFICATION SECTION **329100** SHALL BE USED ON THE REMAINING AREAS. AN EROSION CONTROL BLANKET SHALL BE PLACED ON ALL DISTURBED SLOPE STEEPER THAN 5:1 AFTER HYDROSEEDING PER THE SPECIFICATIONS.
5. NATIVE SPECIES GRASS SHALL BE APPLIED AT A RATE OF 20 POUNDS OF PURE LIVE SEED PER ACRE.
6. PROTECT EXISTING TREE IN PLACE AND PROVIDE NECESSARY PROTECTION MEASURES. FULL TREE PROTECTION MEASURES MAY NOT BE POSSIBLE DUE TO TREE LOCATION. CONTRACTOR SHALL TAKE CAUTION TO NOT DAMAGE OR DISTURB TREE DURING CONSTRUCTION

20 0 20 40
SCALE: 1 INCH = 20 FEET

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHTOK
No. 083112
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

Inch 0.5 0

Schaaf & Wheeler
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2200 RANGE AVENUE, STE 201
SANTA ROSA, CA 95405
(707) 528-4848

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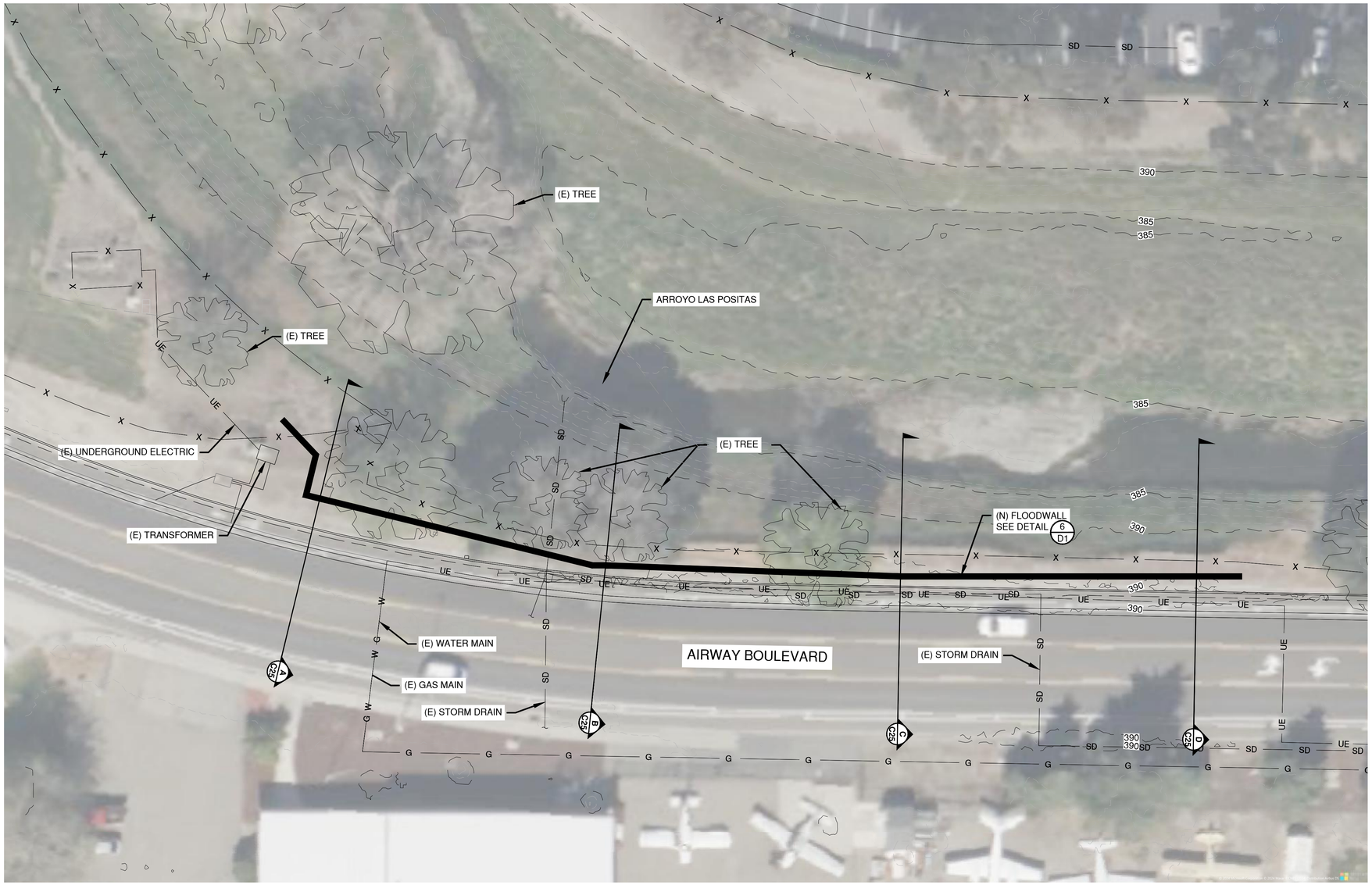
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CALIFORNIA
COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

AIRWAY BOULEVARD - BERM PLAN VIEW

C20

Sheet	23
Of	33
Scale:	AS SHOWN



PLAN
SCALE: 1" = 20'

NOTES:

1. THE EXTENT, ELEVATIONS, AND QUANTITIES OF GRADING IS APPROXIMATE AND SHALL BE CONFIRMED AND ADJUSTED AS DIRECTED BY THE CITY'S REPRESENTATIVES IN THE FIELD DURING CONSTRUCTION.
2. BIODEGRADABLE EROSION CONTROL BLANKET AND BROADCAST SEEDING SHALL BE INSTALLED ON DISTURBED SLOPES STEEPER THAN 5H:1V, AND HYDROSEEDING SHALL BE PLACED ON ALL OTHER DISTURBED AREAS AT THE COMPLETION OF CONSTRUCTION. AVOID PLACEMENT IN LOW FLOW CHANNEL.
3. SOIL AND SEDIMENT REMOVAL SHALL NOT OCCUR WITHIN THE LIMITS OF THE EXISTING TREE ROOT SYSTEMS FOR TREES TO REMAIN.
4. ONCE CONSTRUCTION IS COMPLETE AND ALL SLOPES ARE TO FINAL GRADE, ALL DISTURBED SOILS SHALL BE HYDROSEEDED. NATIVE SPECIES GRASS SEEDS SHALL BE USED ON THE GOLF COURSE SIDE OF THE BERM, AND THE SEEDING MIX INCLUDED IN THE SEEDING SPECIFICATION SECTION **329100** SHALL BE USED ON THE REMAINING AREAS. AN EROSION CONTROL BLANKET SHALL BE PLACED ON ALL DISTURBED SLOPE STEEPER THAN 5:1 AFTER HYDROSEEDING PER THE SPECIFICATIONS.
5. NATIVE SPECIES GRASS SHALL BE APPLIED AT A RATE OF 20 POUNDS OF PURE LIVE SEED PER ACRE.
6. PROTECT EXISTING TREE IN PLACE AND PROVIDE NECESSARY PROTECTION MEASURES. FULL TREE PROTECTION MEASURES MAY NOT BE POSSIBLE DUE TO TREE LOCATION. CONTRACTOR SHALL TAKE CAUTION TO NOT DAMAGE OR DISTURB TREE DURING CONSTRUCTION

N

20 0 20 40

SCALE: 1 INCH = 20 FEET

REGISTERED PROFESSIONAL ENGINEER
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No. 18311
CIVIL
STATE OF CALIFORNIA
DRAFT

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Inch 0.5 0

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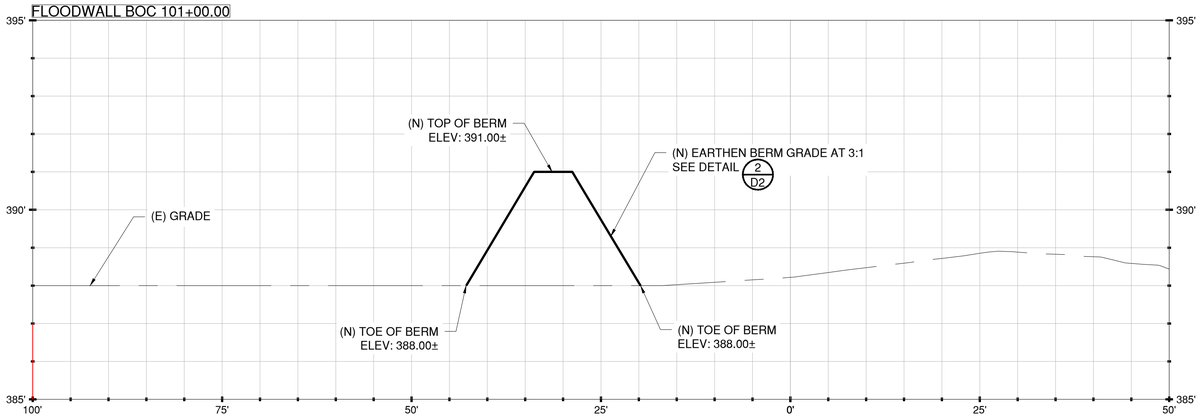
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CALIFORNIA
COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

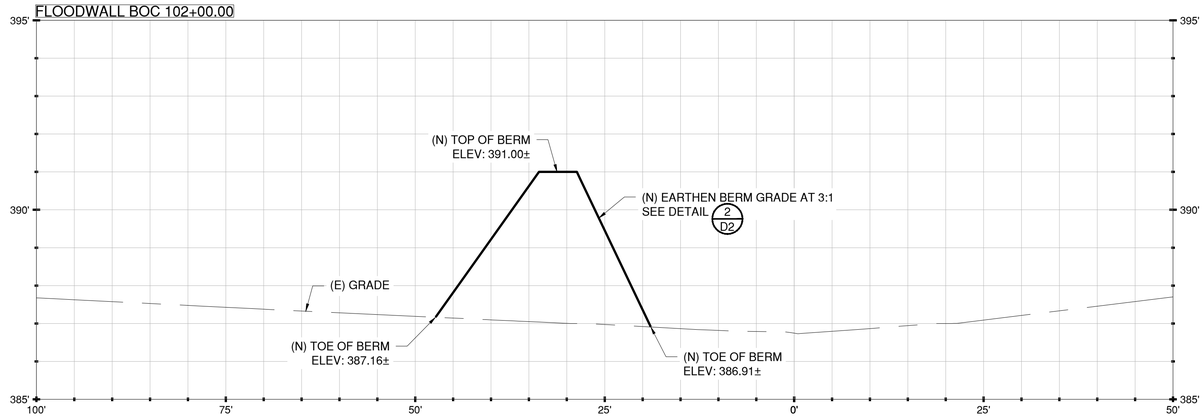
AIRWAY BOULEVARD - FLOODWALL PLAN VIEW

C21

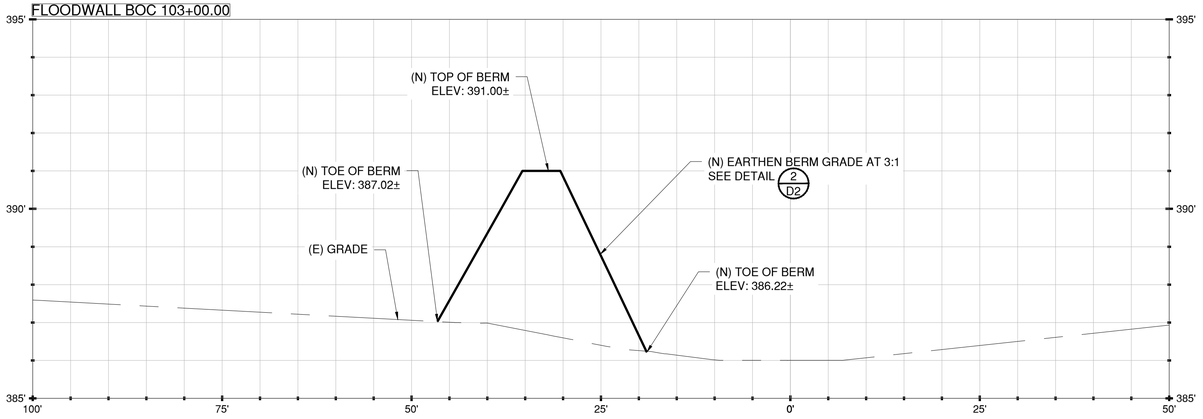
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Of	33
Scale:	AS SHOWN



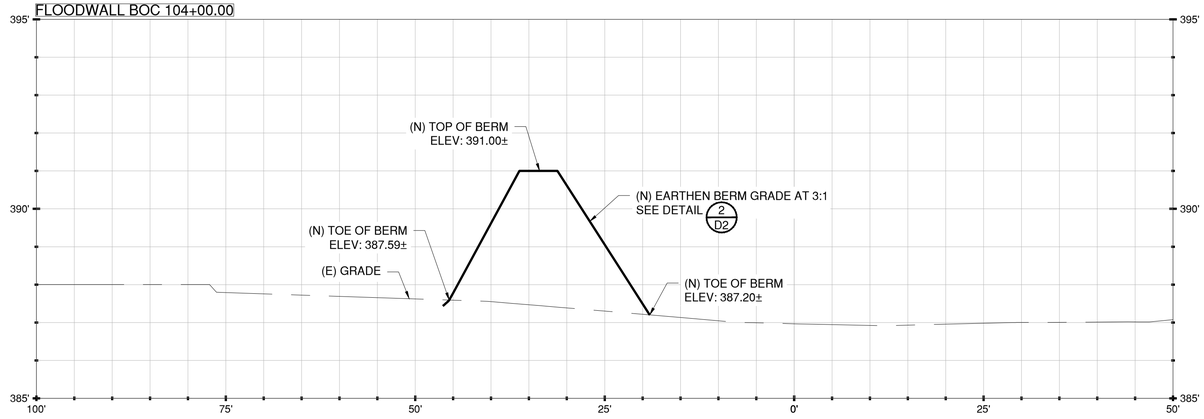
BERM SECTION A C22
HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 2'



BERM SECTION B C22
HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 2'



BERM SECTION C C22
HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 2'



BERM SECTION D C22
HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 2'

NOTES:

1. CROSS SECTION SHOWN LOOKING DOWNSTREAM. REFER TO SHEET C19 FOR LOCATION AND ORIENTATION.
2. LIMITS OF PROPOSED GRADING AND ELEVATIONS ARE APPROXIMATE, CONFIRM WITH CITY PRIOR TO EXCAVATION.

REGISTERED PROFESSIONAL ENGINEER
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No. 18311
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

0.5
0

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(707) 528-4848

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CALIFORNIA
COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

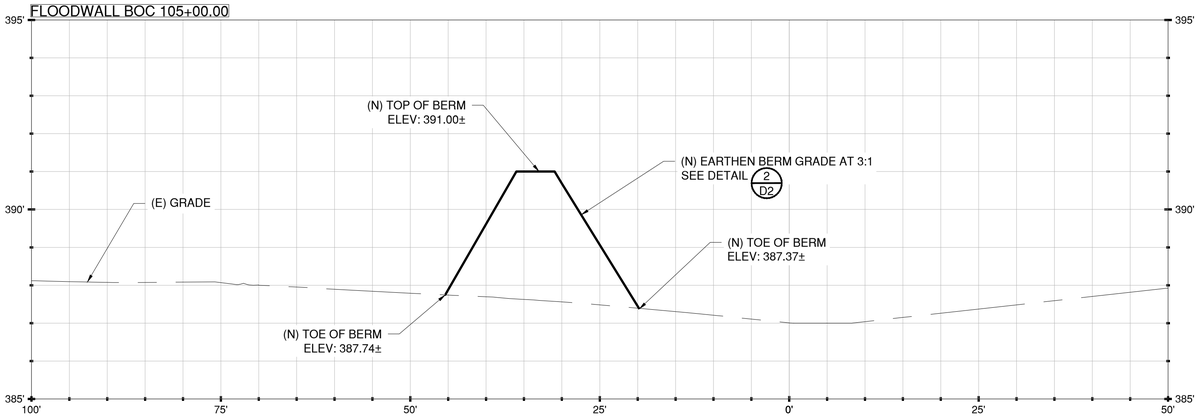
ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

AIRWAY BOULEVARD - BERM AND FLOODWALL SECTION VIEWS

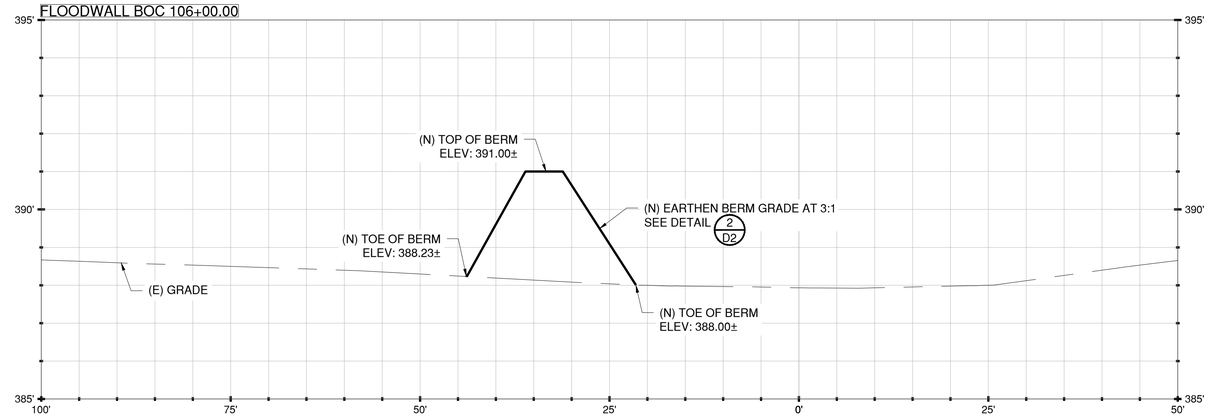
C22

Sheet 25
Of 33
Scale: AS SHOWN

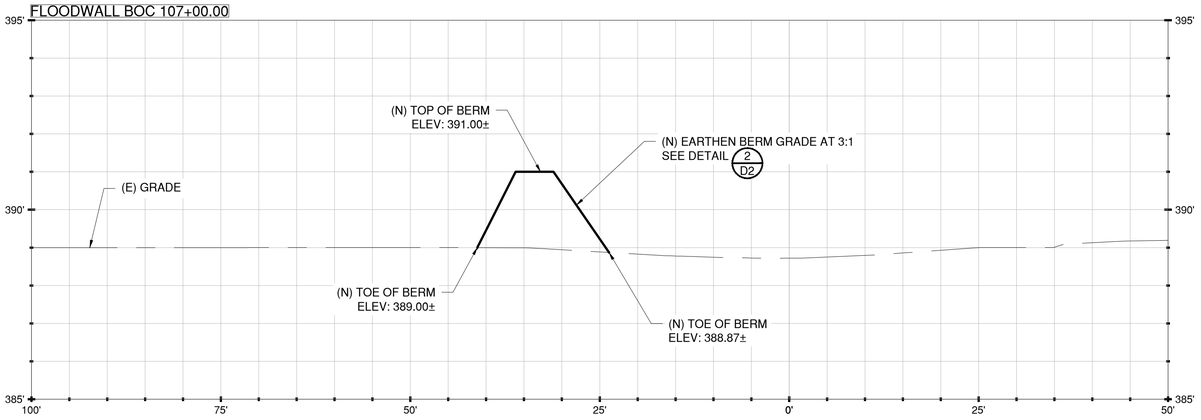
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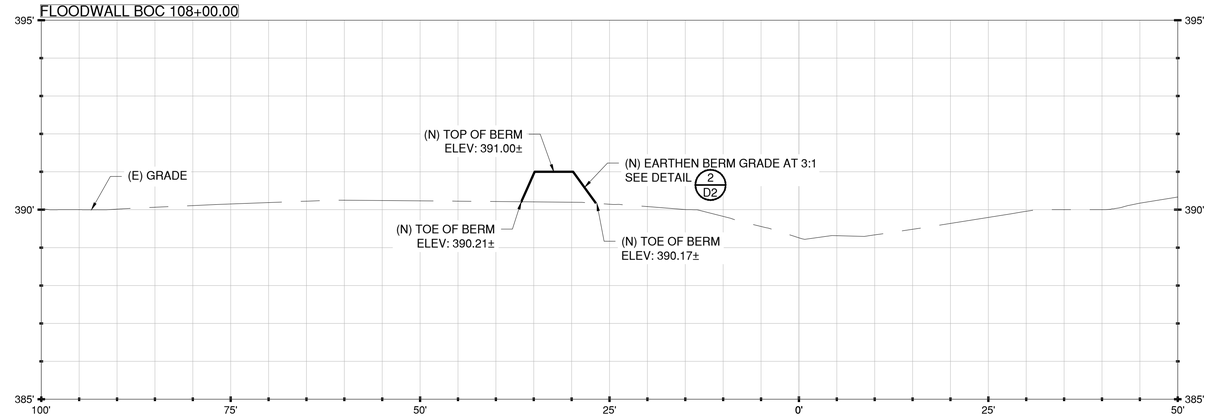
BERM SECTION A C23
HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 2'



BERM SECTION B C23
HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 2'



BERM SECTION C C23
HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 2'



BERM SECTION D C23
HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 2'

NOTES:

1. CROSS SECTION SHOWN LOOKING DOWNSTREAM. REFER TO SHEET C20 FOR LOCATION AND ORIENTATION.
2. LIMITS OF PROPOSED GRADING AND ELEVATIONS ARE APPROXIMATE, CONFIRM WITH CITY PRIOR TO EXCAVATION.

REGISTERED PROFESSIONAL ENGINEER
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No. 18311
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

Inch
0.5
0

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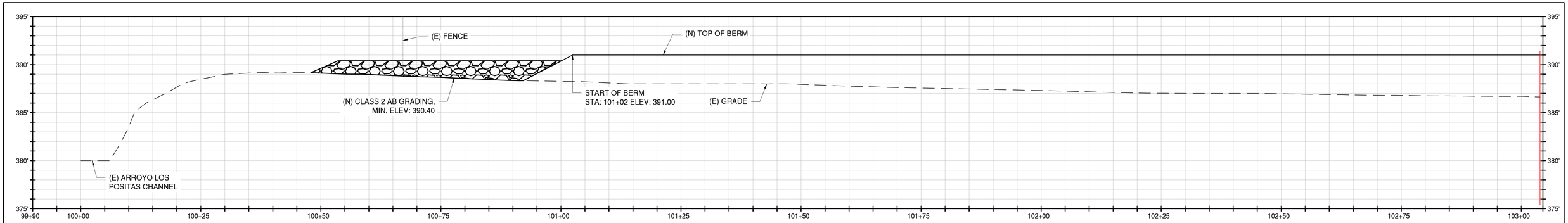
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CALIFORNIA
COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

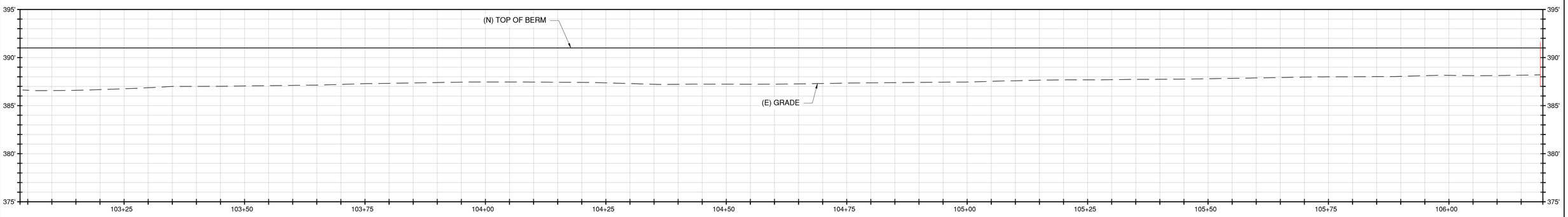
AIRWAY BOULEVARD - BERM AND FLOODWALL SECTION VIEWS

C23

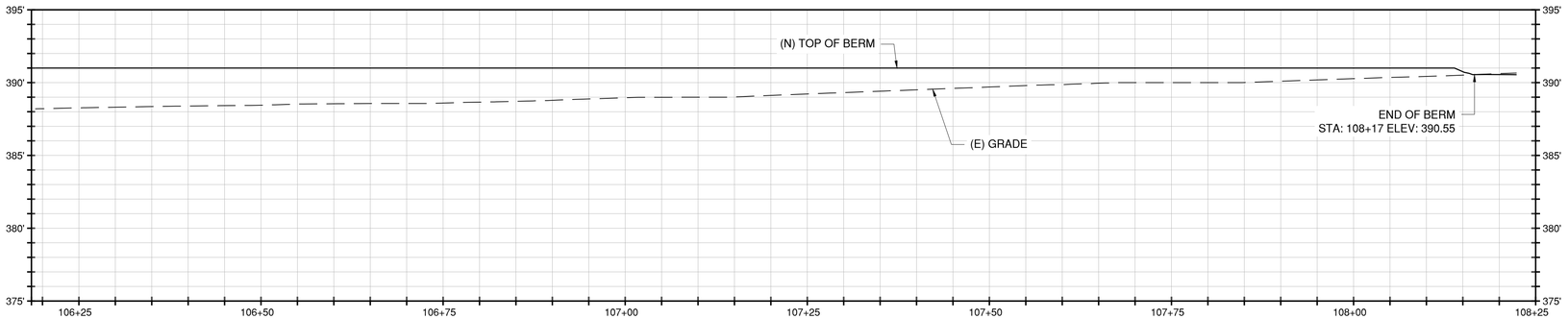
Sheet 26
Of 33
Scale: AS SHOWN



PROFILE
HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 5'



PROFILE
HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 5'



PROFILE
HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 5'

NOTES:

1. LIMITS OF PROPOSED GRADING AND ELEVATIONS ARE APPROXIMATE, CONFIRM WITH CITY PRIOR TO EXCAVATION.

REGISTERED PROFESSIONAL ENGINEER
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0.5
0

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CALIFORNIA
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City Project No. 202015

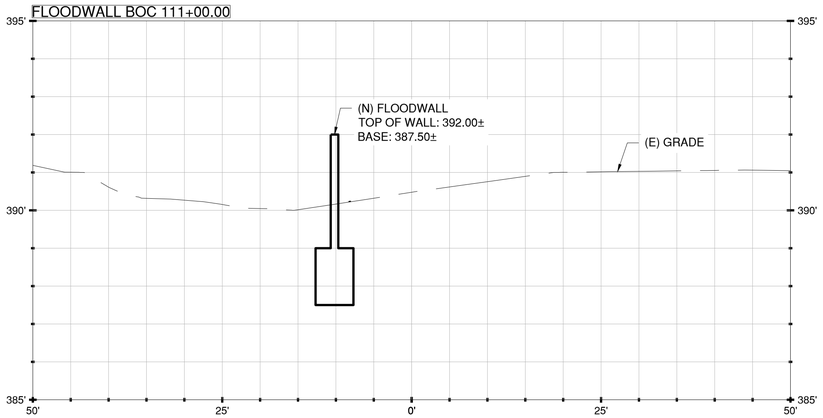
ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

AIRWAY BOULEVARD - BERM PROFILE VIEWS

C24

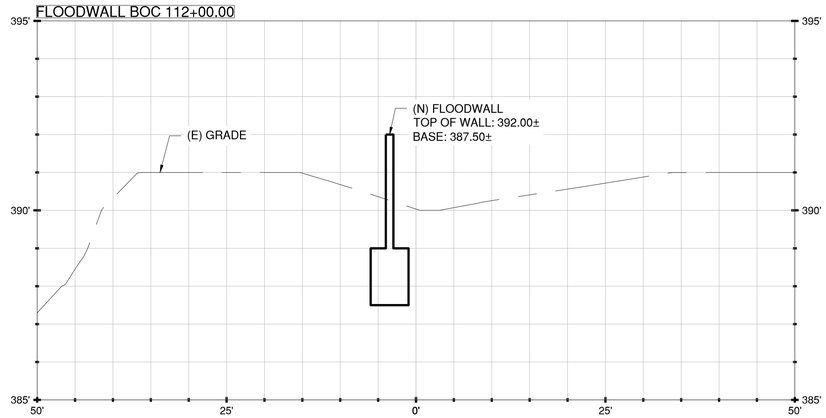
Sheet 27
Of 33
Scale: AS SHOWN

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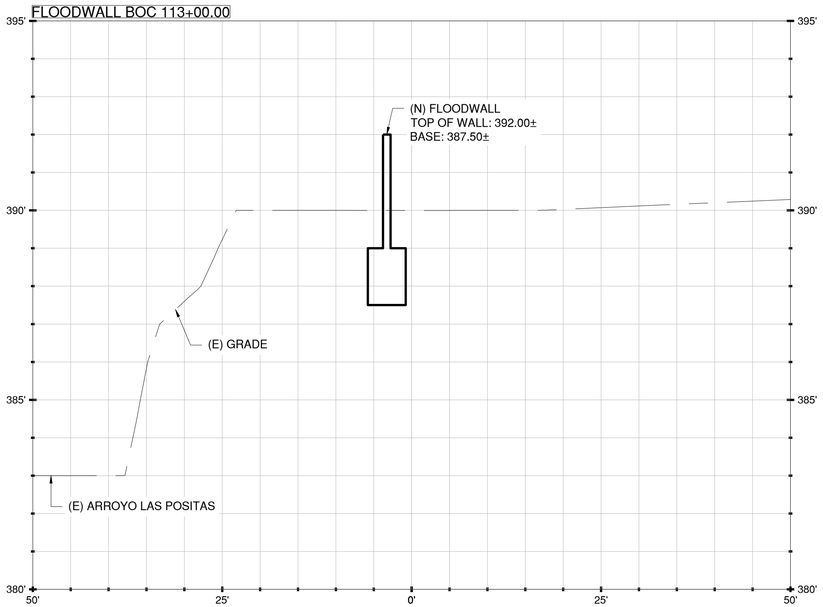
FLOODWALL SECTION A / C25

HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 2'



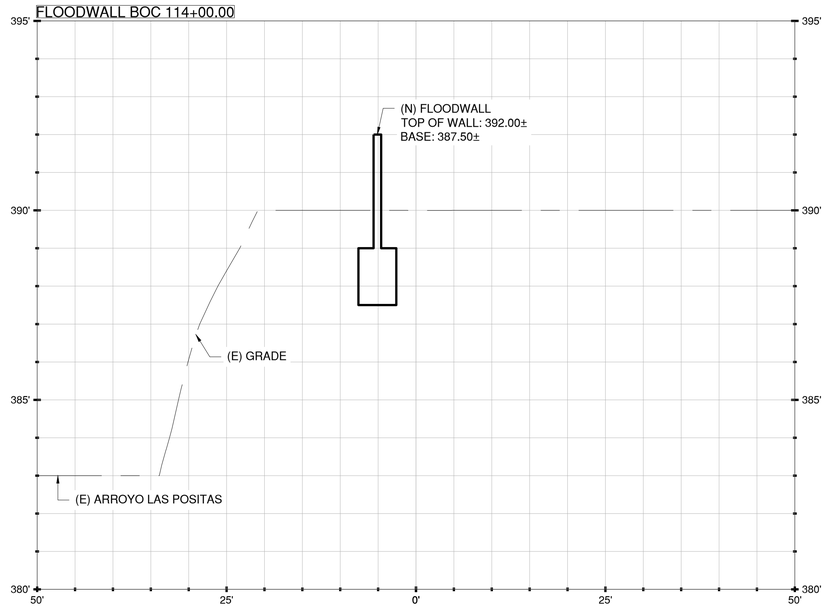
FLOODWALL SECTION B / C25

HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 2'



FLOODWALL SECTION C / C25

HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 2'



FLOODWALL SECTION D / C25

HOR. SCALE: 1" = 10'
VER. SCALE: 1" = 2'

NOTES:

1. CROSS SECTION SHOWN LOOKING DOWNSTREAM. REFER TO SHEET C21 FOR LOCATION AND ORIENTATION.
2. LIMITS OF PROPOSED GRADING AND ELEVATIONS ARE APPROXIMATE, CONFIRM WITH CITY PRIOR TO EXCAVATION.

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60% DRAFT - NOT FOR CONSTRUCTION

Inch 0.5 0

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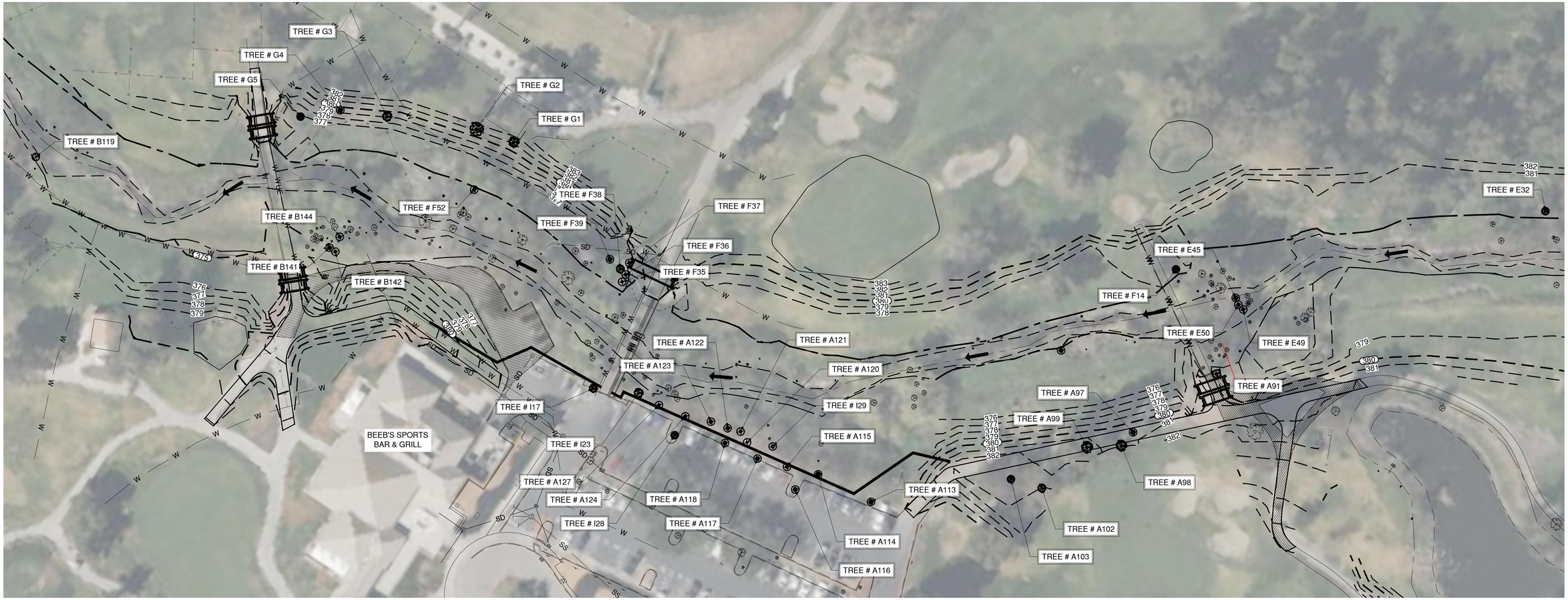
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CALIFORNIA
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City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

AIRWAY BOULEVARD - FLOODWALL SECTION VIEWS

C25

Sheet 28
Of 33
Scale: AS SHOWN



PLAN
SCALE: 1" = 40'

TREE REMOVAL TABLE						
Tag Number	Diameter at Breast Height (DBH) (in)	Multi-stem	Species Name	Tree Species	Latitude	Longitude
B119	20	11	Eucalyptus	Eucalyptus sp.	37.697105	-121.826174
B141	11	4,4	Willow	Salix sp.	37.697297	-121.825369
B142	8	2,2	Willow	Salix sp.	37.697297	-121.825350
B144	8	7,5,4	Willow	Salix sp.	37.697329	-121.825363
A91	7	5,3,2,2	Eucalyptus	Eucalyptus sp.	37.698142	-121.823165
A97	13	12	Ash	Fraxinus sp.	37.697936	-121.823265
A98	32		Eucalyptus	Eucalyptus sp.	37.697898	-121.823271
A99	34		Eucalyptus	Eucalyptus sp.	37.697854	-121.823347
A101	11		Black walnut	Juglans hindsii	37.697997	-121.823553
A102	24		Eucalyptus	Eucalyptus sp.	37.697725	-121.823387
A103	20		Eucalyptus	Eucalyptus sp.	37.697704	-121.823470
A113	13		Golden rain tree	Koelreuteria paniculata	37.697494	-121.823753
A114	14		Golden rain tree	Koelreuteria paniculata	37.697479	-121.823915
A115	9		Dead unknown	Dead Unknown	37.697455	-121.823997
A116	11		Golden rain tree	Koelreuteria paniculata	37.697424	-121.823944
A117	11		Golden rain tree	Koelreuteria paniculata	37.697434	-121.824077
A118	11		Golden rain tree	Koelreuteria paniculata	37.697423	-121.824174
A120	4	4,4,3	Willow	Salix sp.	37.697451	-121.824125
A121	7	6	Willow	Salix sp.	37.697462	-121.824156
A122	11	10,9	Willow	Salix sp.	37.697453	-121.824191

LEGEND

TREE, TO REMAIN

TREE, REMOVE

TREE REMOVAL TABLE						
Tag Number	Diameter at Breast Height (DBH) (in)	Multi-stem	Species Name	Tree Species	Latitude	Longitude
A123	10	10,5	Willow	Salix sp.	37.697444	-121.824239
A124	8	6,4,4,4	Willow	Salix sp.	37.697423	-121.824305
A127	7	7,3	Coast live oak	Quercus agrifolia	37.697411	-121.824382
E32	21		Pine	Pinus sp.	37.698834	-121.822666
E45	12		Eucalyptus	Eucalyptus sp.	37.698302	-121.823237
E49	9		Eucalyptus	Eucalyptus sp.	37.698291	-121.823202
E50	9		Eucalyptus	Eucalyptus sp.	37.698293	-121.823220
F14	16		Eucalyptus	Eucalyptus sp.	37.698282	-121.823416
F35	5		Dead Unknown	Dead Unknown	37.697589	-121.824653
F36	8		Dead Unknown	Dead Unknown	37.697607	-121.824656
F37	9	7	Dead Unknown	Dead Unknown	37.697632	-121.824666
F38	24	9	Dead Unknown	Dead Unknown	37.697610	-121.824677
F39	12		Dead Unknown	Dead Unknown	37.697615	-121.824715
F52	9		Black walnut	Juglans hindsii	37.697577	-121.825130
G1	31		Eucalyptus	Eucalyptus sp.	37.697710	-121.825112
G2	41		Eucalyptus	Eucalyptus sp.	37.697689	-121.825217
G3	28		Eucalyptus	Eucalyptus sp.	37.697603	-121.825438
G4	12	11,11	Eucalyptus	Eucalyptus sp.	37.697558	-121.825554
G5	16	13	Eucalyptus	Eucalyptus sp.	37.697498	-121.825635

N

40 0 40 80

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHICK
No. 68312
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

0.5 0

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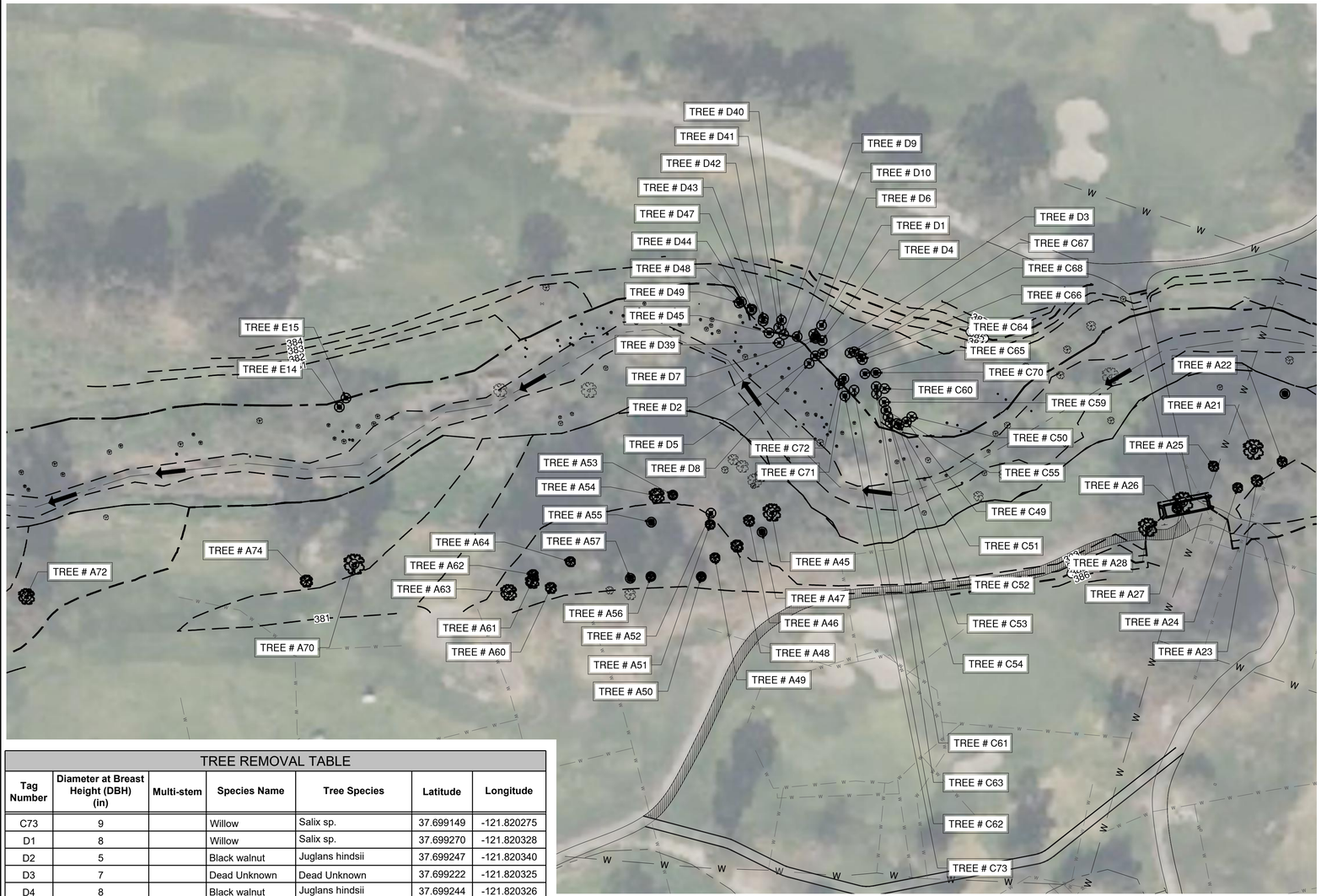
ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

ALP SITE PLAN

C26

Sheet	29
Of	33
Scale:	AS SHOWN

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PLAN
SCALE: 1" = 40'

LEGEND

TREE, TO REMAIN

TREE, REMOVE

TREE REMOVAL TABLE						
Tag Number	Diameter at Breast Height (DBH) (in)	Multi-stem	Species Name	Tree Species	Latitude	Longitude
C73	9		Willow	Salix sp.	37.699149	-121.820275
D1	8		Willow	Salix sp.	37.699270	-121.820328
D2	5		Black walnut	Juglans hindsii	37.699247	-121.820340
D3	7		Dead Unknown	Dead Unknown	37.699222	-121.820325
D4	8		Black walnut	Juglans hindsii	37.699244	-121.820326
D5	9		Black walnut	Juglans hindsii	37.699217	-121.820340
D6	5		Black walnut	Juglans hindsii	37.699254	-121.820344
D7	15		Black walnut	Juglans hindsii	37.699250	-121.820340
D8	6		Privet	Privet sp.	37.699204	-121.820354
D9	5	2,2	Black walnut	Juglans hindsii	37.699253	-121.820409
D10	10		Willow	Salix sp.	37.699250	-121.820380
D39	5		Black walnut	Juglans hindsii	37.699239	-121.820419
D40	8		Willow	Salix sp.	37.699278	-121.820415
D41	4		Willow	Salix sp.	37.699265	-121.820421
D42	6		Black walnut	Juglans hindsii	37.699280	-121.820454
D43	6		Black walnut	Juglans hindsii	37.699276	-121.820455
D44	6		Willow	Salix sp.	37.699294	-121.820481
D45	9		Willow	Salix sp.	37.699256	-121.820441
D47	8		Non-native prunus	Prunus sp.	37.699296	-121.820479
D48	10		Willow	Salix sp.	37.699308	-121.820502
D49	8		Willow	Salix sp.	37.699306	-121.820507
E14	9		Willow	Salix sp.	37.699118	-121.821369
E15	8		Willow	Salix sp.	37.699133	-121.821355

TREE REMOVAL TABLE						
Tag Number	Diameter at Breast Height (DBH) (in)	Multi-stem	Species Name	Tree Species	Latitude	Longitude
I17	23		Poplar?	Populus sp.	37.697362	-121.824557
I23	27		Dead Unknown	Dead Unknown	37.697409	-121.824447
I28	19		Golden rain tree	Koelreuteria sp.	37.697376	-121.824300
I29	9	5,4	Willow	Salix sp.	37.697474	-121.824061
A19	13		Black walnut	Juglans hindsii	37.699164	-121.819323
A21	48		Eucalyptus	Eucalyptus sp.	37.699067	-121.819390
A22	23		Eucalyptus	Eucalyptus sp.	37.699046	-121.819327
A23	27		Eucalyptus	Eucalyptus sp.	37.699013	-121.819381
A24	23		Eucalyptus	Eucalyptus sp.	37.699001	-121.819422
A25	24		Eucalyptus	Eucalyptus sp.	37.699037	-121.819475
A26	21		Eucalyptus	Eucalyptus sp.	37.698964	-121.819553
A27	48		Eucalyptus	Eucalyptus sp.	37.698975	-121.819541
A28	44		Eucalyptus	Eucalyptus sp.	37.698930	-121.819616
A45	42		Eucalyptus	Eucalyptus sp.	37.698947	-121.820430
A46	26		Eucalyptus	Eucalyptus sp.	37.698932	-121.820479
A47	14		Eucalyptus	Eucalyptus sp.	37.698913	-121.820450
A48	29		Eucalyptus	Eucalyptus sp.	37.698888	-121.820504
A49	23		Eucalyptus	Eucalyptus sp.	37.698867	-121.820552
A50	18		Eucalyptus	Eucalyptus sp.	37.698835	-121.820581
A51	22		Eucalyptus	Eucalyptus sp.	37.698925	-121.820563
A52	7	5	Eucalyptus	Eucalyptus sp.	37.698944	-121.820562
A53	20		Eucalyptus	Eucalyptus sp.	37.698974	-121.820645
A54	36		Eucalyptus	Eucalyptus sp.	37.698973	-121.820680
A55	14		Eucalyptus	Eucalyptus sp.	37.698927	-121.820690
A56	19		Eucalyptus	Eucalyptus sp.	37.698834	-121.820690
A57	15		Eucalyptus	Eucalyptus sp.	37.698830	-121.820734
A60	26		Eucalyptus	Eucalyptus sp.	37.698812	-121.820906
A61	32		Eucalyptus	Eucalyptus sp.	37.698822	-121.820946
A62	24		Eucalyptus	Eucalyptus sp.	37.698834	-121.820945
A63	38		Eucalyptus	Eucalyptus sp.	37.698803	-121.820997
A64	23		Eucalyptus	Eucalyptus sp.	37.698857	-121.820864
A70	49		Eucalyptus	Eucalyptus sp.	37.698848	-121.821332
A72	38		Eucalyptus	Eucalyptus sp.	37.698784	-121.822041
A74	29		Eucalyptus	Eucalyptus sp.	37.698818	-121.821435
C49	8		Willow	Salix sp.	37.699106	-121.820141
C50	5		Willow	Salix sp.	37.699115	-121.820130
C51	9		Willow	Salix sp.	37.699101	-121.820157
C52	7		Black walnut	Juglans hindsii	37.699103	-121.820162
C53	6	3	Willow	Salix sp.	37.699104	-121.820176
C54	5		Willow	Salix sp.	37.699114	-121.820181
C55	8	7	Willow	Salix sp.	37.699126	-121.820186
C59	7		Willow	Salix sp.	37.699139	-121.820190
C60	6		Willow	Salix sp.	37.699163	-121.820190
C62	5	4,3	Privet	Ligustrum sp.	37.699159	-121.820255
C61	7		Willow	Salix sp.	37.699166	-121.820208
C63	4		Black walnut	Juglans hindsii	37.699154	-121.820207
C64	8		Willow	Salix sp.	37.699212	-121.820239
C65	8		Willow	Salix sp.	37.699188	-121.820232
C66	11		Willow	Salix sp.	37.699218	-121.820242
C67	5		Willow	Salix sp.	37.699223	-121.820265
C68	6		Privet	Ligustrum sp.	37.699225	-121.820257
C70	11		Dead Unknown	Dead Unknown	37.699190	-121.820209
C71	10		Willow	Salix sp.	37.699179	-121.820278
C72	9	4	Willow	Salix sp.	37.699170	-121.820286

N

40 0 40 80

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
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No. C83127
CIVIL
STATE OF CALIFORNIA
DRAFT

60% DRAFT - NOT FOR CONSTRUCTION

Inch 0.5 0

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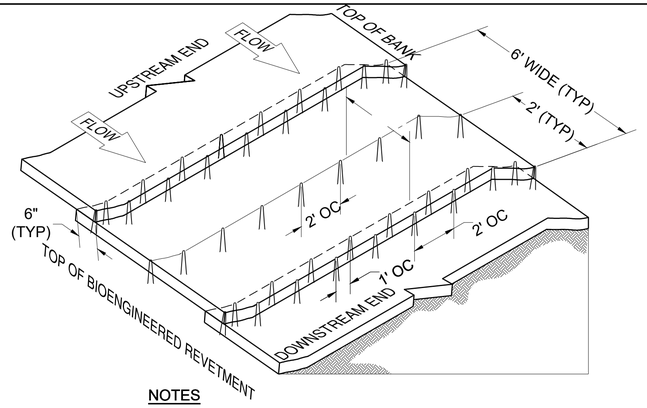
		NO.	DATE	BY	REVISIONS
	08/20/24				
APPROVED BY	DATE				
DESIGNED BY	JFO				
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CALIFORNIA
COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT
ALP SITE PLAN

C27

Sheet 30
Of 33
Scale: AS SHOWN



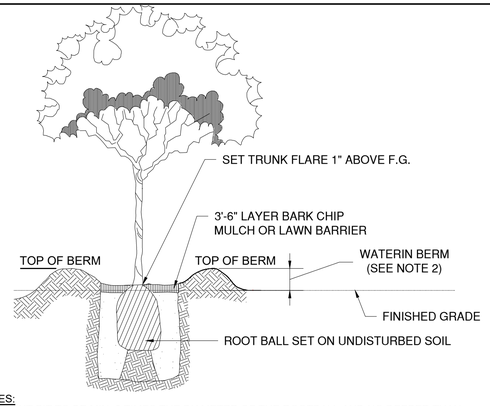
NOTES

OVERLAP DIRECTION OF STREAM FLOW.

2. EROSION CONTROL BLANKET SHALL BE MADE OF BIODEGRADABLE MATERIAL, NO POLYURETHANE NETTING PERMITTED.

EROSION CONTROL BLANKET DETAIL 1/D1

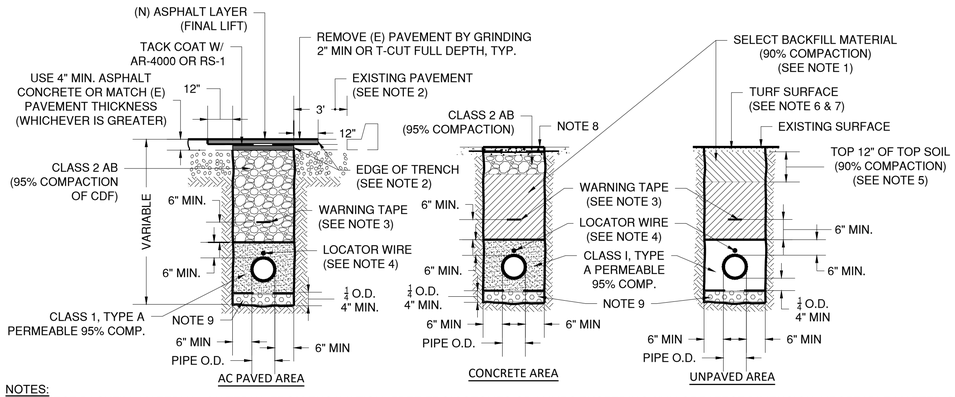
SCALE: NTS



NOTES:
1. PLANT PIT TO BE MIN. 2 TIMES THE DIAMETER OF THE ROOTBALL AND NO DEEPER THAN ORIGINAL LOCATION.
2. IN LAWN AREAS, EDGE OF SOD/SEED TO BE OUTSIDE OF WATERING BERM (2' MIN. DIAMETER).
3. PLANT TREES NO CLOSER THAN 5' FROM WATER SERVICES, 3' FROM WALKWAYS, 5' FROM DRIVEWAYS AND NEAREST UTILITY.

PLANTING DETAIL 2/D1

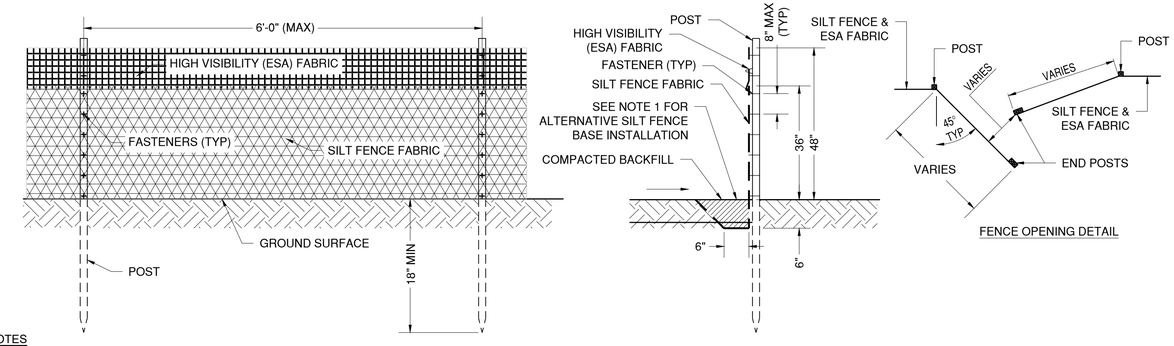
SCALE: NTS



NOTES:
1. SELECT BACKFILL MATERIAL - MATERIAL FROM EXCAVATION, FREE FROM STONES OR LUMPS EXCEEDING 3" IN GREATEST DIMENSION, VEGETABLE MATTER OR UNSATISFACTORY MATERIAL. (SEE SPECIFICATIONS).
2. IF THE EDGE OF THE TRENCH OR T-CUT FALLS WITHIN 3' OF THE GUTTER, THE ENTIRE PAVEMENT SHALL BE REMOVED.
3. PLACE WARNING TAPE 12" TO 15" ABOVE PIPE.
4. TAPE LOCATOR WIRE AT TOP OF PIPE.
5. TOP 12" OF SOIL SHALL BE RE-USED IN THE TOP 12" OF THE TRENCH. REMOVE ANY STONES OR LUMPS EXCEEDING 3" IN GREATEST DIMENSION.
6. WHERE INDICATED ON PROFILE, CONTRACTOR SHALL SEED SURFACE, SEE SPECIFICATION SECTION 02900.
7. AS DIRECTED BY THE CITY AND GOLF COURSE, EXISTING TURF SHALL BE CUT OUT ALONG THE TRENCH AND REUSED. REMOVED TURF SHALL BE KEPT MOIST IF REMOVED FOR MORE THAN 4 HOURS. IF EXISTING TURF IS DAMAGED, INSTALL NEW SOD. SEE SPECIFICATION SECTION 02900 FOR ADDITIONAL INFORMATION.
8. REFER TO DETAIL **5/D1, 7/D1, & 1/P2** FOR CONCRETE SURFACE REQUIREMENTS. INSTALL ½" X 12" SLIP DOWELS AT 18" MAX O.C. TO CONNECT TO (E) CONCRETE.
9. IF SOFT SOILS ARE ENCOUNTERED, EXCAVATE AN ADDITIONAL 4" AND INSTALL CRUSHED ROCK WRAPPED IN GEOTEXTILE FABRIC, MARFI 600X OR APPROVED EQUAL AS DIRECTED BY THE CITY.

TRENCH REPLACEMENT DETAIL 3/D1

SCALE: NTS

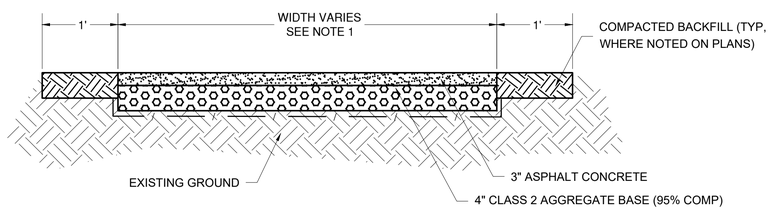


FENCE OPENING DETAIL

NOTES
1. AS ALTERNATIVE TO TRENCH KEY IN, SILT FENCE MAY BE SECURED VIA STAPLES & GRAVEL BAGS. A MINIMUM OF 1 FOOT SILT FABRIC TO BE STAPLED TO GROUND, AND MINIMUM SINGLE COURSE GRAVEL BAGS PLACED ON TOP OF STAPLED SILT FENCE.
2. FENCE OPENINGS SHALL BE CONSTRUCTED IN A MANNER TO ENSURE THAT SEDIMENT IS RETAINED BY THE TEMPORARY SILT FENCE.
3. ALL SILT FENCING SHALL BE REMOVED BY CONTRACTOR AT END OF PROJECT.
4. POSTS TO BE INSTALLED ON INSIDE ASPECT OF WORK SITE.
5. CONTRACTOR SHALL MARK AND REVIEW THE PROPOSED LOCATIONS OF THE ESA AND SILT FENCE WITH THE CITY'S BIOLOGIST PRIOR TO CONSTRUCTION. THE LOCATION AND EXTENTS IS AT THE DISCRETION OF THE BIOLOGIST, THE CONTRACTOR SHALL ADJUST AS DIRECTED BY THE CITY'S BIOLOGIST.

ESA & SILT FENCE INSTALLATION DETAIL 4/D1

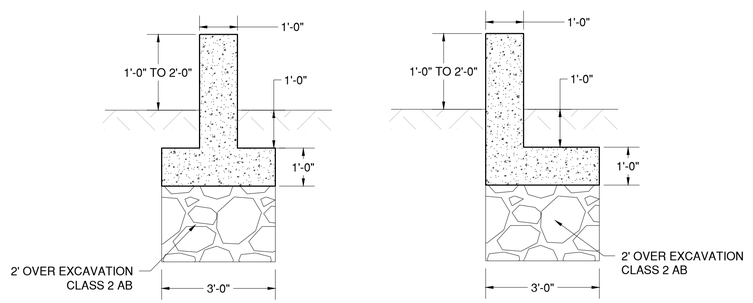
SCALE: NTS



NOTES
1. EXISTING AB MAY BE RE-USED. PORTIONS OF THE EXISTING CART PATH DO NOT HAVE AB
2. SLOPE AC TO DRAIN.

CART PATH DETAIL 5/D1

SCALE: NTS



TYPE A: "T" SHAPED FOOTING

TYPE B: "L" SHAPED FOOTING

FLOODWALL #1 FOOTINGS 6/D1

SCALE: NTS

REGISTERED PROFESSIONAL ENGINEER
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60% DRAFT - NOT FOR CONSTRUCTION

0.5
0

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		NO.	DATE	BY	REVISIONS
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DESIGNED BY	JFO				
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CHECKED BY	BLS				

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COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

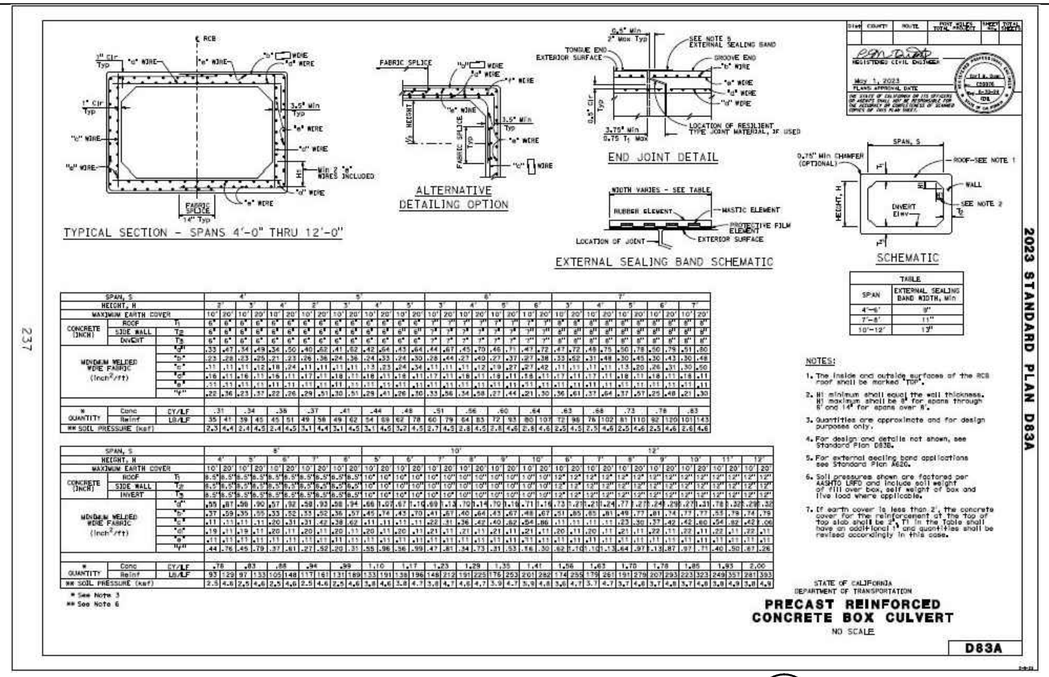
ARROYO LAS POSITAS FLOOD MITIGATION PROJECT

DETAILS

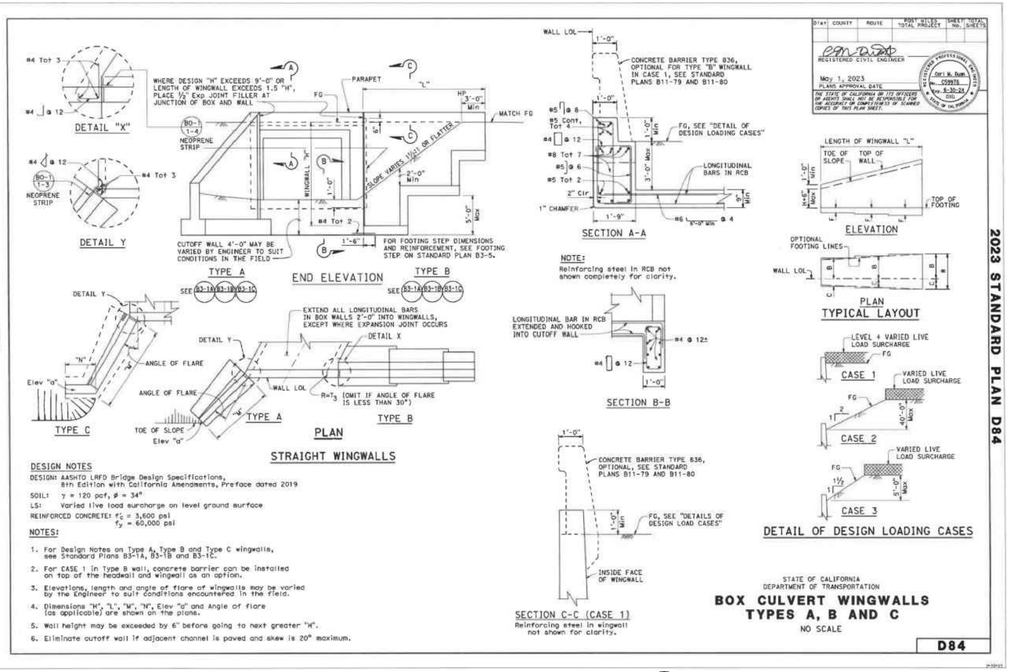
D1

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Scale: AS SHOWN

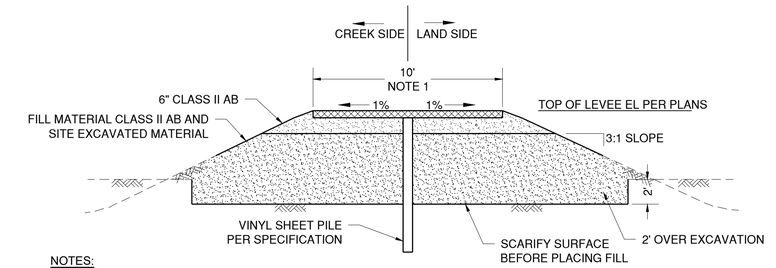
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PRECAST REINFORCED CONCRETE BOX DETAIL 1 D2
SCALE: NTS

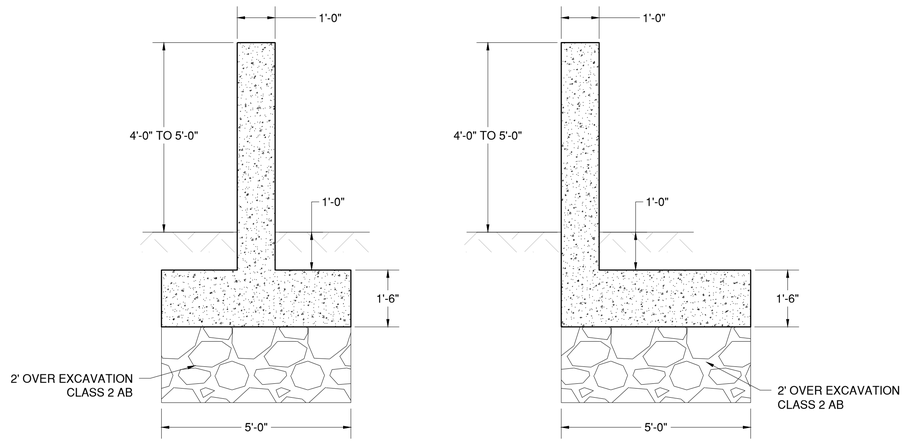


BOX CULVERT WINGWALLS 4 D2
SCALE: NTS

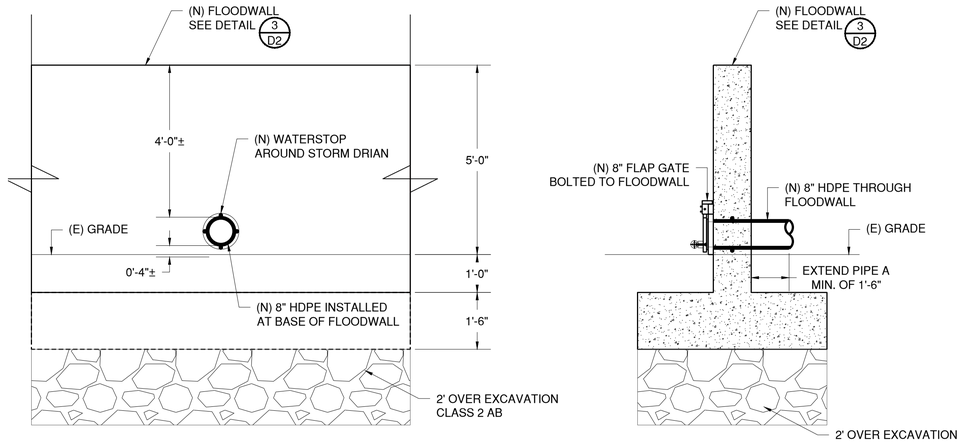


NOTES:
1. IN LOCATIONS WITHOUT PATHWAY, BERM WILL HAVE TOP WIDTH OF 5'

TYPICAL FLOOD BERM 2 D2
SCALE: NTS



FLOODWALL #2 FOOTINGS 3 D2
SCALE: NTS



FLOODWALL STORM DRAIN CONNECTION 5 D2
SCALE: NTS

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60% DRAFT - NOT FOR CONSTRUCTION

0.5
0

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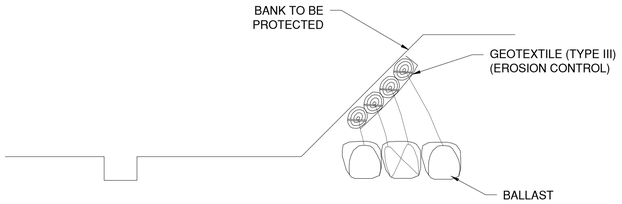
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City Project No. 202015

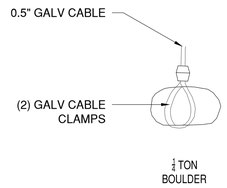
ARROYO LAS POSITAS FLOOD MITIGATION PROJECT
DETAILS

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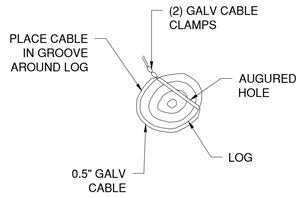
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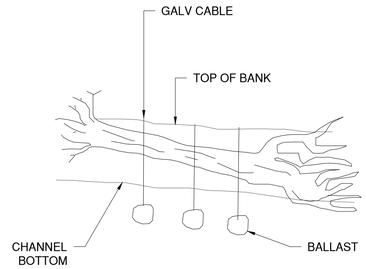
SECTION VIEW



BALLAST ANCHORS



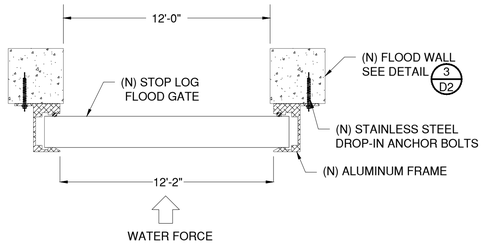
ANCHOR CONNECTION



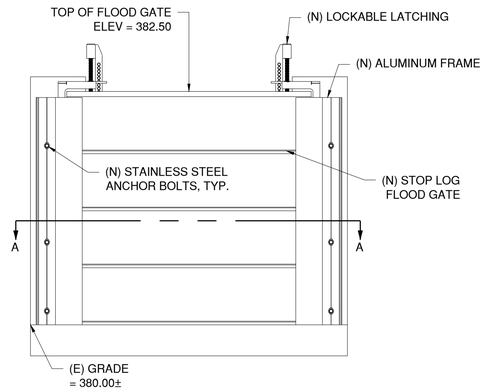
TREE PLACEMENT

LARGE BURIED TREE 1 D3

SCALE: NTS

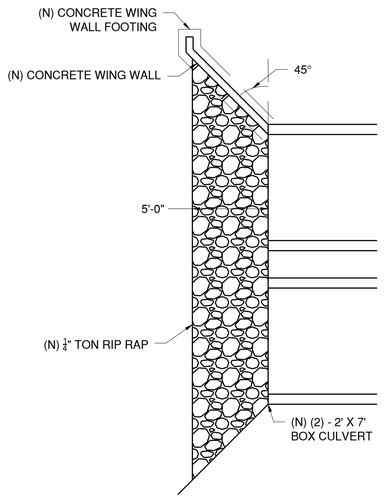


SECTION A-A



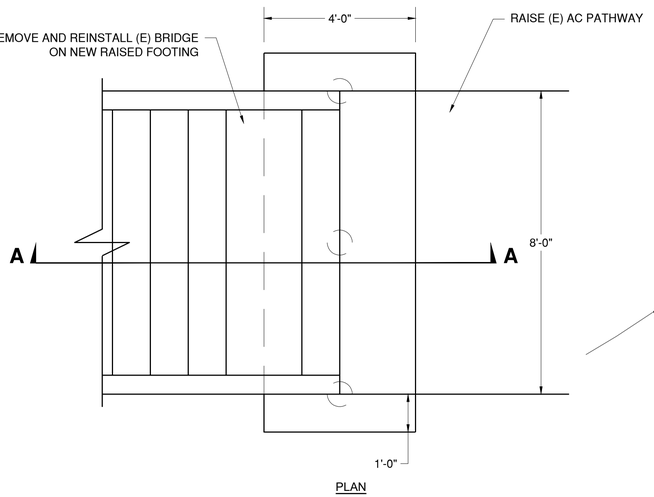
FLOOD GATE 2 D3

SCALE: NTS

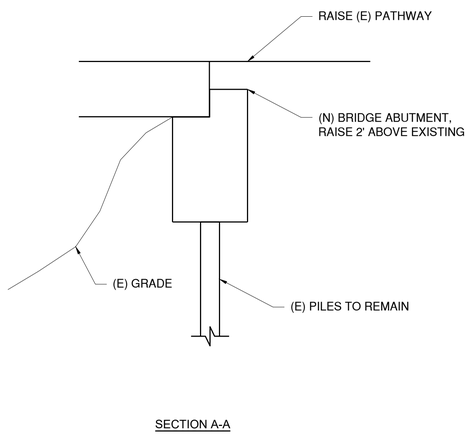


BOX CULVERT AND WING WALL TYPICAL CONFIGURATION 3 D3

SCALE: NTS



PLAN



SECTION A-A

BRIDGE ABUTMENT MODIFICATION 4 D3

SCALE: NTS

60% DRAFT - NOT FOR CONSTRUCTION

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Inch 0.5 0

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CITY OF LIVERMORE CALIFORNIA
COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. 202015

ARROYO LAS POSITAS FLOOD MITIGATION PROJECT
DETAILS

D3

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APPENDIX B. CALEEMOD REPORT

Arroyo Las Positas Custom Report

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3.5. Year 2025 - Irrigation and Utility Relocation (2025) - Unmitigated

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Arroyo Las Positas
Construction Start Date	6/1/2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.00
Precipitation (days)	33.2
Location	37.69814547047194, -121.82238544816327
County	Alameda
City	Livermore
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1680
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.26

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
User Defined Linear	1.00	Mile	10.0	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

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.	1.51	1.22	10.7	11.8	0.03	0.42	4.69	5.11	0.38	1.94	2.32	—	3,664	3,664	0.16	0.23	3.38	3,739
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.41	1.13	10.2	11.0	0.03	0.40	4.69	5.08	0.36	1.94	2.30	—	3,557	3,557	0.16	0.23	0.09	3,629
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.44	0.35	3.13	3.40	0.01	0.12	1.41	1.53	0.11	0.58	0.69	—	1,083	1,083	0.05	0.07	0.44	1,106
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.08	0.06	0.57	0.62	< 0.005	0.02	0.26	0.28	0.02	0.11	0.13	—	179	179	0.01	0.01	0.07	183

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	0.68	0.56	4.37	5.13	0.01	0.15	0.90	1.05	0.14	0.16	0.31	—	1,772	1,772	0.07	0.10	1.70	1,805

2026	1.51	1.22	10.7	11.8	0.03	0.42	4.69	5.11	0.38	1.94	2.32	—	3,664	3,664	0.16	0.23	3.38	3,739
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.46	0.37	2.90	3.22	0.01	0.09	0.90	0.99	0.08	0.16	0.24	—	1,465	1,465	0.06	0.10	0.04	1,495
2026	1.41	1.13	10.2	11.0	0.03	0.40	4.69	5.08	0.36	1.94	2.30	—	3,557	3,557	0.16	0.23	0.09	3,629
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.16	0.13	1.05	1.18	< 0.005	0.03	0.27	0.30	0.03	0.05	0.08	—	477	477	0.02	0.03	0.22	486
2026	0.44	0.35	3.13	3.40	0.01	0.12	1.41	1.53	0.11	0.58	0.69	—	1,083	1,083	0.05	0.07	0.44	1,106
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.03	0.02	0.19	0.22	< 0.005	0.01	0.05	0.06	0.01	0.01	0.01	—	78.9	78.9	< 0.005	< 0.005	0.04	80.5
2026	0.08	0.06	0.57	0.62	< 0.005	0.02	0.26	0.28	0.02	0.11	0.13	—	179	179	0.01	0.01	0.07	183

3. Construction Emissions Details

3.1. Year 2025 - Earthwork (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-Road Equipment	0.37	0.31	2.17	2.47	0.01	0.08	—	0.08	0.07	—	0.07	—	816	816	0.03	0.01	—	819
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Demolition	—	—	—	—	—	—	0.64	0.64	—	0.10	0.10	—	—	—	—	—	—	—
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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	2.17	2.47	0.01	0.08	—	0.08	0.07	—	0.07	—	816	816	0.03	0.01	—	819
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Demolition	—	—	—	—	—	—	0.64	0.64	—	0.10	0.10	—	—	—	—	—	—	—
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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.66	0.74	< 0.005	0.02	—	0.02	0.02	—	0.02	—	246	246	0.01	< 0.005	—	247
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Demolition	—	—	—	—	—	—	0.19	0.19	—	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.02	0.12	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	40.7	40.7	< 0.005	< 0.005	—	40.9
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Demolition	—	—	—	—	—	—	0.04	0.04	—	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.56	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	126	126	< 0.005	< 0.005	0.50	128
Vendor	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	47.9	47.9	< 0.005	0.01	0.13	50.2
Hauling	0.04	0.01	0.58	0.23	< 0.005	0.01	0.13	0.14	0.01	0.04	0.04	—	484	484	0.03	0.08	1.07	509
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.49	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	116	116	< 0.005	0.01	0.01	118
Vendor	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	48.0	48.0	< 0.005	0.01	< 0.005	50.1
Hauling	0.04	0.01	0.62	0.24	< 0.005	0.01	0.13	0.14	0.01	0.04	0.04	—	484	484	0.03	0.08	0.03	508
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	35.3	35.3	< 0.005	< 0.005	0.06	35.9
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.5	14.5	< 0.005	< 0.005	0.02	15.1
Hauling	0.01	< 0.005	0.18	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	146	146	0.01	0.02	0.14	153
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.85	5.85	< 0.005	< 0.005	0.01	5.94
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.39	2.39	< 0.005	< 0.005	< 0.005	2.50

Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.2	24.2	< 0.005	< 0.005	0.02	25.4

3.3. Year 2026 - Earthwork (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	1.25	1.05	8.51	9.83	0.02	0.37	—	0.37	0.34	—	0.34	—	2,113	2,113	0.09	0.02	—	2,120
Dust From Material Movement	—	—	—	—	—	—	3.55	3.55	—	1.71	1.71	—	—	—	—	—	—	—
Demolition	—	—	—	—	—	—	0.64	0.64	—	0.10	0.10	—	—	—	—	—	—	—
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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.25	1.05	8.51	9.83	0.02	0.37	—	0.37	0.34	—	0.34	—	2,113	2,113	0.09	0.02	—	2,120
Dust From Material Movement	—	—	—	—	—	—	3.55	3.55	—	1.71	1.71	—	—	—	—	—	—	—
Demolition	—	—	—	—	—	—	0.64	0.64	—	0.10	0.10	—	—	—	—	—	—	—

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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.38	0.32	2.56	2.96	0.01	0.11	—	0.11	0.10	—	0.10	—	637	637	0.03	0.01	—	639
Dust From Material Movement	—	—	—	—	—	—	1.07	1.07	—	0.52	0.52	—	—	—	—	—	—	—
Demolition	—	—	—	—	—	—	0.19	0.19	—	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.47	0.54	< 0.005	0.02	—	0.02	0.02	—	0.02	—	105	105	< 0.005	< 0.005	—	106
Dust From Material Movement	—	—	—	—	—	—	0.20	0.20	—	0.09	0.09	—	—	—	—	—	—	—
Demolition	—	—	—	—	—	—	0.04	0.04	—	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.66	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	155	155	< 0.005	0.01	0.57	157
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	47.1	47.1	< 0.005	0.01	0.12	49.4
Hauling	0.10	0.03	1.49	0.60	0.01	0.02	0.34	0.36	0.02	0.09	0.11	—	1,252	1,252	0.07	0.20	2.69	1,316

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.58	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	143	143	< 0.005	0.01	0.01	145
Vendor	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	47.2	47.2	< 0.005	0.01	< 0.005	49.3
Hauling	0.10	0.03	1.58	0.61	0.01	0.02	0.34	0.36	0.02	0.09	0.11	—	1,253	1,253	0.07	0.20	0.07	1,314
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	43.5	43.5	< 0.005	< 0.005	0.07	44.1
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.2	14.2	< 0.005	< 0.005	0.02	14.9
Hauling	0.03	0.01	0.47	0.18	< 0.005	0.01	0.10	0.11	< 0.005	0.03	0.03	—	378	378	0.02	0.06	0.35	396
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.21	7.21	< 0.005	< 0.005	0.01	7.31
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.35	2.35	< 0.005	< 0.005	< 0.005	2.46
Hauling	0.01	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	62.5	62.5	< 0.005	0.01	0.06	65.6

3.5. Year 2025 - Irrigation and Utility Relocation (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-Road Equipment	0.11	0.09	0.60	0.67	< 0.005	0.03	—	0.03	0.02	—	0.02	—	96.4	96.4	< 0.005	< 0.005	—	96.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	0.07	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.4	11.4	< 0.005	< 0.005	—	11.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	1.88	1.88	< 0.005	< 0.005	—	1.89
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
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. Year 2026 - Irrigation and Utility Relocation (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	0.10	0.08	0.58	0.66	< 0.005	0.02	—	0.02	0.02	—	0.02	—	96.5	96.5	< 0.005	< 0.005	—	96.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	0.07	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.4	11.4	< 0.005	< 0.005	—	11.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	1.88	1.88	< 0.005	< 0.005	—	1.89
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
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

3.9. Year 2025 - Bridge and Cart Path (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-Road Equipment	0.11	0.09	0.92	1.17	< 0.005	0.04	—	0.04	0.04	—	0.04	—	203	203	0.01	< 0.005	—	203
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	0.11	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	23.9	23.9	< 0.005	< 0.005	—	23.9
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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.95	3.95	< 0.005	< 0.005	—	3.96
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
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

4.10. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Year 2025 - Earthwork	Linear, Grading & Excavation	6/1/2025	10/31/2025	5.00	110	Year 2025 - Earthwork
Year 2026 - Earthwork	Linear, Grading & Excavation	6/1/2026	10/31/2026	5.00	110	Year 2026 - Earthwork
Year 2025 - Irrigation and Utility Relocation	Linear, Drainage, Utilities, & Sub-Grade	8/1/2025	9/30/2025	5.00	43.0	Year 2025 - Irrigation and Utility Relocation
Year 2026 - Irrigation and Utility Relocation	Linear, Drainage, Utilities, & Sub-Grade	8/1/2026	9/30/2026	5.00	43.0	Year 2026 - Irrigation and Utility Relocation
Year 2025 - Bridge and Cart Path	Linear, Paving	8/1/2025	9/30/2025	5.00	43.0	Year 2025 - Bridge and Cart Path

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
Year 2025 - Earthwork	Excavators	Diesel	Average	1.00	4.00	36.0	0.38
Year 2025 - Earthwork	Off-Highway Trucks	Diesel	Average	1.00	4.00	376	0.38

Year 2025 - Earthwork	Skid Steer Loaders	Diesel	Average	1.00	1.64	71.0	0.37
Year 2025 - Earthwork	Generator Sets	Diesel	Average	1.00	1.64	14.0	0.74
Year 2025 - Earthwork	Sweepers/Scrubbers	Diesel	Average	1.00	0.36	36.0	0.46
Year 2026 - Earthwork	Graders	Diesel	Average	1.00	4.00	148	0.41
Year 2026 - Earthwork	Rubber Tired Dozers	Diesel	Average	1.00	4.00	367	0.40
Year 2026 - Earthwork	Rubber Tired Loaders	Diesel	Average	1.00	4.00	150	0.36
Year 2026 - Earthwork	Excavators	Diesel	Average	1.00	4.00	36.0	0.38
Year 2026 - Earthwork	Off-Highway Trucks	Diesel	Average	1.00	4.00	376	0.38
Year 2026 - Earthwork	Skid Steer Loaders	Diesel	Average	1.00	4.00	71.0	0.37
Year 2026 - Earthwork	Generator Sets	Diesel	Average	1.00	1.64	14.0	0.74
Year 2026 - Earthwork	Sweepers/Scrubbers	Diesel	Average	1.00	0.36	36.0	0.46
Year 2025 - Irrigation and Utility Relocation	Trenchers	Diesel	Average	1.00	3.72	40.0	0.50
Year 2026 - Irrigation and Utility Relocation	Trenchers	Diesel	Average	1.00	3.72	40.0	0.50
Year 2025 - Bridge and Cart Path	Pavers	Diesel	Average	1.00	1.86	81.0	0.42
Year 2025 - Bridge and Cart Path	Paving Equipment	Diesel	Average	1.00	1.86	89.0	0.36
Year 2025 - Bridge and Cart Path	Plate Compactors	Diesel	Average	1.00	0.93	8.00	0.43
Year 2025 - Bridge and Cart Path	Rollers	Diesel	Average	1.00	0.56	36.0	0.38
Year 2025 - Bridge and Cart Path	Cranes	Diesel	Average	1.00	0.37	367	0.29

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Year 2025 - Earthwork	—	—	—	—

Year 2025 - Earthwork	Worker	14.5	11.7	LDA,LDT1,LDT2
Year 2025 - Earthwork	Vendor	1.80	8.40	HHDT,MHDT
Year 2025 - Earthwork	Hauling	6.90	20.0	HHDT
Year 2025 - Earthwork	Onsite truck	—	—	HHDT
Year 2025 - Irrigation and Utility Relocation	—	—	—	—
Year 2025 - Irrigation and Utility Relocation	Worker	0.00	11.7	LDA,LDT1,LDT2
Year 2025 - Irrigation and Utility Relocation	Vendor	0.00	8.40	HHDT,MHDT
Year 2025 - Irrigation and Utility Relocation	Hauling	0.00	20.0	HHDT
Year 2025 - Irrigation and Utility Relocation	Onsite truck	—	—	HHDT
Year 2025 - Bridge and Cart Path	—	—	—	—
Year 2025 - Bridge and Cart Path	Worker	0.00	11.7	LDA,LDT1,LDT2
Year 2025 - Bridge and Cart Path	Vendor	0.00	8.40	HHDT,MHDT
Year 2025 - Bridge and Cart Path	Hauling	0.00	20.0	HHDT
Year 2025 - Bridge and Cart Path	Onsite truck	—	—	HHDT
Year 2026 - Earthwork	—	—	—	—
Year 2026 - Earthwork	Worker	18.2	11.7	LDA,LDT1,LDT2
Year 2026 - Earthwork	Vendor	1.80	8.40	HHDT,MHDT
Year 2026 - Earthwork	Hauling	18.2	20.0	HHDT
Year 2026 - Earthwork	Onsite truck	—	—	HHDT
Year 2026 - Irrigation and Utility Relocation	—	—	—	—
Year 2026 - Irrigation and Utility Relocation	Worker	0.00	11.7	LDA,LDT1,LDT2
Year 2026 - Irrigation and Utility Relocation	Vendor	0.00	8.40	HHDT,MHDT
Year 2026 - Irrigation and Utility Relocation	Hauling	0.00	20.0	HHDT

Year 2026 - Irrigation and Utility Relocation	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)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Year 2025 - Earthwork	—	2,280	10.0	3,200	—
Year 2026 - Earthwork	—	12,800	10.0	3,200	—

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
User Defined Linear	1.00	100%

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	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005

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. Biomass Cover Type

5.18.1.1. Unmitigated

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)

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	16.6	annual days of extreme heat
Extreme Precipitation	3.60	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth

Wildfire	17.3	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	N/A	N/A	N/A	N/A
Extreme Precipitation	1	0	0	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	N/A	N/A	N/A	N/A
Extreme Precipitation	1	1	1	2

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.

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	32.1
AQ-PM	18.7
AQ-DPM	74.1
Drinking Water	56.2
Lead Risk Housing	20.7
Pesticides	60.5
Toxic Releases	45.7
Traffic	81.5
Effect Indicators	—
CleanUp Sites	33.9
Groundwater	74.2

Haz Waste Facilities/Generators	76.2
Impaired Water Bodies	33.2
Solid Waste	0.00
Sensitive Population	—
Asthma	24.5
Cardio-vascular	35.0
Low Birth Weights	32.0
Socioeconomic Factor Indicators	—
Education	28.4
Housing	7.69
Linguistic	0.00
Poverty	20.4
Unemployment	—

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	88.02771718
Employed	90.28615424
Median HI	84.79404594
Education	—
Bachelor's or higher	66.26459643
High school enrollment	100
Preschool enrollment	18.64493776
Transportation	—
Auto Access	66.18760426
Active commuting	44.87360452

Social	—
2-parent households	60.05389452
Voting	63.5698704
Neighborhood	—
Alcohol availability	69.56242782
Park access	60.3105351
Retail density	41.55010907
Supermarket access	27.46054151
Tree canopy	55.21621968
Housing	—
Homeownership	83.93430001
Housing habitability	94.25125112
Low-inc homeowner severe housing cost burden	85.39715129
Low-inc renter severe housing cost burden	86.23123316
Uncrowded housing	68.66418581
Health Outcomes	—
Insured adults	81.97099962
Arthritis	45.8
Asthma ER Admissions	70.0
High Blood Pressure	91.4
Cancer (excluding skin)	30.9
Asthma	55.1
Coronary Heart Disease	72.1
Chronic Obstructive Pulmonary Disease	65.3
Diagnosed Diabetes	84.4
Life Expectancy at Birth	64.6
Cognitively Disabled	70.6
Physically Disabled	63.7

Heart Attack ER Admissions	62.1
Mental Health Not Good	66.0
Chronic Kidney Disease	79.8
Obesity	63.1
Pedestrian Injuries	65.0
Physical Health Not Good	73.7
Stroke	80.6
Health Risk Behaviors	—
Binge Drinking	11.3
Current Smoker	62.2
No Leisure Time for Physical Activity	81.2
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	28.6
Elderly	77.9
English Speaking	84.5
Foreign-born	27.7
Outdoor Workers	52.1
Climate Change Adaptive Capacity	—
Impervious Surface Cover	39.4
Traffic Density	84.9
Traffic Access	51.8
Other Indices	—
Hardship	15.9
Other Decision Support	—
2016 Voting	61.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	21.0
Healthy Places Index Score for Project Location (b)	80.0
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	Construction phasing and durations were provided by the applicant. Year 2025: Flood Wall and Flood Berm Installation; Bridge Removal and Replacement; Cart Path Replacement. Year 2026: Floodplain Bench Expansion; Culvert Installation
Construction: Off-Road Equipment	Project-specific construction equipment list was provided by the applicant.
Construction: Dust From Material Movement	Exported volumes were estimated based on the off-haul truck trips provided by the applicant and 16 cubic yard of material per truck load.
Construction: Demolition	Amounts of demolition debris were estimated base on the demolition haul trips provided by the applicant and 20 short tons of material per truck load.
Construction: Trips and VMT	Construction trips were provided by the applicant. Construction vehicle trips were included in the earthwork phases.

Construction: Paving	Only cart path replacement includes paving equipment. It was assumed that the paved area would be 1 acre.

Construction Off-Road Equipment Activity (Total Hours per Month)

Construction Phase			Equipment Type	Fuel Type	Horse-power	Engine Tier	2025							2026						
							Jun	Jul	Aug	Sept	Oct	Duration (day)	Average Hours per Day	Jun	Jul	Aug	Sept	Oct	Duration (day)	Average Hours per Day
Year 2025: Flood Wall and Flood Berm Installation; Bridge Removal and Replacement; Cart Path Replacement	Year 2025 - Bridge and Cart Path	Cart Path Replacement	Pavers	Diesel	81	Average				80		43	1.86							
			Paving Equipment	Diesel	89	Average				80			1.86							
			Plate Compactors	Diesel	8	Average				40			0.93							
			Rollers	Diesel	36	Average				24			0.56							
		Bridge Removal and Replacement	Cranes	Diesel	367	Average			8	8			0.37							
	Year 2025 - Earthwork	Earthwork	Excavators	Diesel	158	Average	100	100	100	100	40	110	4.00							
		Earthwork	Off-Highway Trucks	Diesel	376	Average	100	100	100	100	40		4.00							
		Earthwork	Skid Steer Loaders	Diesel	71	Average	40	40	40	40	20		1.64							
		Hand held equipment	Generator Sets	Diesel	14	Average	40	40	40	40	20		1.64							
		Street Cleaning	Sweepers/Scrubbers	Diesel	36	Average	8	8	8	8	8		0.36							
	Year 2025 - Irrigation and Utility Relocation	Irrigation and Utility Relocation	Trenchers	Diesel	40	Average			80	80		43	3.72							
Year 2026: Floodplain Bench Expansion; Culvert Installation	Year 2026 - Earthwork	Earthwork	Graders	Diesel	148	Average								100	100	100	100	40	110	4.00
		Earthwork	Rubber Tired Dozers	Diesel	367	Average								100	100	100	100	40		4.00
		Earthwork	Rubber Tired Loaders	Diesel	150	Average								100	100	100	100	40		4.00
		Earthwork	Excavators	Diesel	158	Average								100	100	100	100	40		4.00
		Earthwork	Off-Highway Trucks	Diesel	376	Average								100	100	100	100	40		4.00
		Earthwork	Skid Steer Loaders	Diesel	71	Average								100	100	100	100	40		4.00
		Hand held equipment	Generator Sets	Diesel	14	Average								40	40	40	40	20		1.64
		Street Cleaning	Sweepers/Scrubbers	Diesel	36	Average								8	8	8	8	8		0.36
	Year 2026 - Irrigation and Utility Relocation	Irrigation and Utility Relocation	Trenchers	Diesel	40	Average										80	80		43	3.72

Note: CalEEMod default horsepower and engine tier were used for construction off-road equipment. It. Assumed diesel engine to be conservative.

Construction Vehicle Trip Activity

Vehicle Trip Activity	Travel Distance (One-Way Trip Miles)	Fleet Mix (percentage)				2025									2026								
						(Round Trips per Month)					Duration (day)	Trip Category	Round Trips per Day	One-way Trips per Day	(Round Trips per Month)					Duration (day)	Trip Category	Round Trips per Day	One-way Trips per Day
		LDA	LHD	MHD	HHD	Jun	Jul	Aug	Sept	Oct					Jun	Jul	Aug	Sept	Oct				
Worker Commute Trips	11.7	100%				160	160	160	160	160	110	Worker Commute	7.3	14.5	200	200	200	200	200	110	Worker Commute	9.1	18.2
Vendor Trips	8.4			50%	50%	20	20	20	20	20		Vendor	0.9	1.8	20	20	20	20	20		Vendor	0.9	1.8
Demolition Haul Trips	20.0				100%	80	80					Hauling	3.5	6.9	80	80					Hauling	9.1	18.2
Soil Haul Trips					100%	60	60	60							100	200	200	200	100				
Concrete Trucks Trips					100%			20	20								20	20					

APPENDIX C. SECTION 7 BIOLOGICAL ASSESSMENT

Section 7 Biological Assessment

Arroyo Las Positas Flood Hazard Mitigation Project

(Arroyo Las Positas Restoration Through Golf Course, CIP 202015 and Las Positas Golf Course Repair, CIP 202132)

Livermore, Alameda County, California



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List of Preparers

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List of Acronyms

BA	Section 7 Biological Assessment
BMP	Best Manage Practice
CCC	Central California Coast Distinct Population Segment
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Corps	U.S. Army Corps of Engineers
CRLF	California red-legged frog
CTS	California tiger salamander
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FR	Federal Register
IPaC	USFWS Information for Planning and Conservation
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPT	Northwestern pond turtle
RWQCB	Regional Water Quality Control Board
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WRA	WRA, Inc.

1 INTRODUCTION

WRA, Inc. (WRA), on behalf of the City of Livermore (Applicant), submits this Biological Assessment (BA) in accordance with legal requirements set forth under section 7 of the Endangered Species Act (ESA) (16 U.S.C. 1536 (c)) and follows ESA guidance provided by the United States Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and standards established in the National Environmental Policy Act (NEPA).

The purpose of this BA is to review the proposed Arroyo Las Positas Flood Hazard Mitigation Project (Action) in sufficient detail to determine to what extent the Action may affect any endangered or threatened species or designated critical habitats listed below.

Elements of the Action include, in summary:

- Floodplain excavation and recontouring
- In-channel sediment and debris removal
- Expansion of riparian corridor
- Soil stockpiling
- Relocation of golf course features
- Reconstruction of pathways
- Raise golf cart bridge
- Culvert installation
- Construction of berms and floodwalls
- Vegetation and tree removals

The Project is funded by grants from the Federal Emergency Management Agency (FEMA) and the California Department of Water Resources in response to repeated flooding that has caused millions of dollars in damages to the Livermore Municipal Airport, adjacent businesses, and the Las Positas Golf Course. Grant funding requires permits to be received by March 28, 2025, and Project construction of at least portions of the Project to be completed by December 1, 2025. Failure to meet these deadlines will result in the loss of necessary grant funding. Federal funding means that FEMA is the Federal Action Agency for Section 7 Consultation. The U.S. Army Corps of Engineers (Corps) is expected to issue a Clean Water Act permit for the Project and will rely on this consultation for that permit.

The Livermore Municipal Airport and adjacent buildings have been subjected to regular flooding as a result of Arroyo Las Positas Creek's limited capacity, causing more than $7 million in damages over the last seven years. Arroyo Las Positas is part of a network of historic drainage channels which have been heavily modified physically and with respect to hydroperiod over a period of many decades to carry stormwater flows from developed portions of the Livermore Valley. As development progressed throughout the City of Livermore, stormwater was routed to Arroyo Las Positas Creek. Sediment and debris buildup have substantially reduced the creek's capacity to convey stormwater flows. The reduced creek capacity results in flooding of the airport, golf course, and surrounding areas during 5-year storm events and greater. The airport is an essential component for regional emergency responses and must maintain functionality at all times. During times of flooding, the runway is unusable to aircraft and emergency vehicles. Additionally, each flood event results in a significant amount of runoff that re-enters and degrades the creek's water

quality by creating turbid conditions and water that has been exposed to airport infrastructure, including fuelling areas and power generation equipment.

The Action Area (defined in Section 2.1 below) is comprised of the Project Area (i.e., the location where the Project will be physically constructed) as well as a buffer of 300 feet to account for potential effects minor, temporary impacts to downstream portions of Arroyo Las Positas. The extent of the Action Area in relation to the Project Area are shown in Figure 2 (Appendix A).

1.1 Federal-listed or Candidate Species Considered

1.1.1 Federal-listed Species Likely to be Adversely Affected by the Proposed Action

The following listed species may be adversely affected by the proposed Action:

- California red-legged from (CRLF) (*Rana draytonii*) – **Threatened**
- Northwestern pond turtle (NPT) (*Actinemys marmorata*) – **Proposed Threatened**

NPT is known to be present within the Action Area and is currently proposed for listing as "Threatened" under the Endangered Species Act. The Action also may adversely affect NPT, and NPT is also being evaluated in this Biological Assessment in the event that it becomes listed during the course of Project construction.

1.1.2 Federal-listed Species which May Affect, Not Likely to be Adversely Affected by the Proposed Action

The following listed species may be affected, but are not likely to be adversely affected by the proposed Action:

- Steelhead, Central California Coast (CCC) Distinct Population Segment (DPS) (*Oncorhynchus mykiss irideus*) – **Threatened**

1.1.3 Federal-listed Species that will have No Effect by the Proposed Action

The California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB; CDFW 2024), USFWS Information for Planning and Conservation (IPaC) Website (USFWS 2024), and the National Marine Fisheries Service California Species List Tool (NMFS 2024, Appendix D) were queried during the database search to determine what federal listed species might be present. Any federal-listed species documented in the CNDDB database within 5 miles of the Action Area and the potential for these species to occur within the Action Area is assessed in Appendix C.

For any remaining federal listed or candidate species, the Action Area is outside of the known range for the species and/or suitable habitat is not present within the Action Area, and the proposed Action will have no effect on the following species:

NMFS MANAGED SPECIES

- California Coastal Chinook salmon (*Oncorhynchus tshawytscha*) – **Threatened**
- Central California Coast Coho salmon (*Oncorhynchus kisutch*) – **Endangered**

USFWS MANAGED SPECIES

Wildlife

- Alameda Whipsnake (*Masticiphis lateralis euryxanthus*) – **Threatened**
- California Condor (*Gymnogyps californianus*) – **Endangered**
- California Least Tern (*Sternula antillarum browni*) – **Endangered**
- California tiger salamander (CTS) (*Ambystoma californiense*) – **Endangered**
- Conservancy Fairy Shrimp (*Branchinecta conservatio*) – **Endangered**
- Foothill yellow-legged frog (FYLF) (*Rana boylii*) – **Threatened**
- Monarch Butterfly (*Danaus Plexippus*) – **Candidate**
- San Joaquin Kit Fox (*Vulpes macrotis mutica*) – **Endangered**
- Vernal Pool Fairy Shrimp (*Branchinecta lynchi*) – **Threatened**
- Western Spadefoot (*Spea hammondii*) – **Proposed Threatened**

Plants

- Palmate-bracted Bird's Beak (*Cordylanthus palmatus*) – **Endangered**

A movement corridor for CTS has been identified upstream of the Project Area where Arroyo Las Positas crosses under I-580 in several locations. There are CNDDB records of CTS within 1 mile of the Project Area north of I-580 (CDFW 2024), which is within the potential dispersal distance of the species (USFWS 2005). While the ponds in the project site provide suitable habitat to support CTS breeding, the upland habitat is low quality due to heavy management, regularly mowing, and very low density of small mammal burrows. Zander Associates completed a 2-year protocol-level trapping study from 2005 to 2007 within a 50-acre plot of suitable habitat south of Interstate 580 and less than a mile to the west of the Project Area. No CTS were found during the study. Due to the low habitat quality within the Project Area, negative survey results in adjacent suitable habitat, lack of known occurrences within the Project Area, and presence of substantial barriers to migration from adjacent areas with known occurrences, habitat within the Project Area is not anticipated to support CTS.

For many of the other species, habitat is not present to support any life stage. For plants, there are no undeveloped or undisturbed habitats within the Project Area that could support listed plants. There is potential for monarch butterflies to overwinter in suitable roost trees within the Project Area, but Project activities will be timed outside of the overwintering period for monarchs. Other Federal-listed birds are similarly absent due to the lack of species-specific nesting habitats such as sandy beaches which are needed to support species like the least tern. Other species are totally absent such as Coho salmon as these have been extirpated from San Francisco Bay and all of its tributaries (USFWS 2005, NMFS 2012). As such these species are reviewed in Appendix C but are not discussed further in this BA.

1.2 Critical Habitat

The Action Area does not contain Critical habitat for any of the special-status wildlife species.

1.3 Essential Fish Habitat

The Action Area is a tributary to fish-bearing streams supporting Essential Fish Habitat (EFH) for one fisheries management plan (FMP): Pacific Salmon (NMFS 2024; NMFS Consultation Meeting May 31, 2024).

- The Pacific Salmon Fisheries Management Plan (PFMC 2022b) is designed to protect habitat for commercially important salmonid species, and specifically Chinook salmon which may occur within the Action Area. Chinook salmon may be seasonally present within waters downstream of the Action Area and the EFH Mapper (NMFS 2024) shows the entire Alameda Creek watershed mapped as EFH.

The Arroyo Las Positas is within the Alameda Creek watershed and would be considered EFH. However, the Arroyo Las Positas is not known to support EFH managed species and the potential for effect to EFH is limited to indirect effects, primarily related to turbidity and sedimentation. The Proposed Action will not result in any adverse effect to EFH and an Essential Fish Habitat (EFH) Assessment is provided in Appendix D.

1.4 Consultation to Date

An initial consultation for the Project occurred on September 14, 2023, as part of an Interagency Meeting hosted by the U.S. Army Corps of Engineers. A follow-up interagency meeting was held on May 9, 2024. That meeting included an introduction of the project to USFWS and NFMS and a review of the mechanics of consultation, including that FEMA would be the lead agency for the Project. A follow-up meeting for the project was held with NMFS on May 31, 2024, to discuss the potential for steelhead and NMFS' expedited consultation process.

1.5 Current Management Direction

Lands within the Action Area are primarily managed by the Las Positas Golf Course and owned by the City of Livermore. Arroyo Las Positas runs through the Project Area and consists of a creek bed and associated riparian vegetation. Airport Boulevard runs north/south through the Action Area to the east and the Livermore Airport borders the Action Area to the south.

2 DESCRIPTION OF THE PROPOSED ACTION

2.1 Location and Action Area

The approximately 40.36-acre Project Area, where the Project will be constructed, is located in the Las Positas Golf Course and an adjacent land parcel to the east, within the City of Livermore, Alameda County, California (Figure 1, Appendix A).

The Action Area is approximately 172 acres in size and encompasses the Project Area (40.36 acres) and a buffer of 300 feet beyond the Project Area in aquatic and upland areas to account for the potential movement of covered species around the immediate vicinity of Project activities. This buffer also accounts for potential effects of temporary impacts to vegetation, grading, dust, noise and turbidity changes in Arroyo Las Positas as a result of Project activities (Figure 2, Appendix A).

2.2 Existing Conditions

2.2.1 Land Use and Topography

The Project is within the Las Positas Golf Course, which is a heavily managed recreation area, with regularly maintained grounds and infrastructure associated with golf course operations. There is a clubhouse and parking area in the southern portion of the Project Area as well as other maintenance sheds approximately 800 feet north of the clubhouse. The golf course grounds are heavily manicured and narrow interconnected paved cart paths are present throughout the project site.

The topography of the project site is generally flat with undulations and elevational changes of 1 to 4 feet throughout resulting from the engineered design of the golf course. The elevation ranges from 355 to 395 feet above mean sea level with an overall gradual decline from north to south and from east to west. The highest elevation is along the northern edge immediately south of I-580 and the lowest elevation is in the southwest corner adjacent to a drainage ditch.

2.2.2 Hydrology

Arroyo Las Positas flows from east to west through the middle of the project site and eventually flows into Alameda Creek, which flows out into South San Francisco Bay. Onsite, the creek is characterized by stretches of open water channels overlain by dense riparian tree canopy mixed with exposed stretches of channel supporting emergent vegetation species, including cattails (*Typha* sp.), bulrush (*Schoenoplectus* sp.), and sedges (*Cyperus* sp.).

There is a significant growth of vegetation and fallen trees at many locations both on the banks and within the channel, which reduces the capacity of the channel and likely increase sediment deposition upstream. The existing channel has a capacity of approximately 380 cubic feet per second (cfs), which is less than a 2-year storm event.

The golf course contains seven constructed (ornamental) ponds located downslope and to the south of Arroyo Las Positas, which are ornamental features that also capture surface flows across the golf course. Three of these ponds are within the Action Area, one of which is kept at capacity year-round and is also used to irrigate the golf course. The other two ponds adjacent to the Project Area are allowed to dry out seasonally. All ponds within the golf course have limited emergent vegetation.

2.2.3 Land Cover Types

The Project Area contains four land cover types, including developed/landscaped, non-native grassland areas, riparian woodland, and perennial stream (Arroyo Las Positas) and are summarized in Table 1. Each community is discussed below. Riparian habitat associated with Arroyo Las Positas is also present. Acreages of the land cover types that occur within the Project Area are shown in Figure 3.

Table 1. Project Area Land Cover Types

COMMUNITY TYPE	PROJECT AREA (acres)
UPLANDS	
Developed/Landscaped	25.62
Non-native Annual Grassland	5.24
AQUATIC	
Riparian Woodland	8.47
Perennial Stream	1.03
TOTAL:	**40.36**

Upland Areas

DEVELOPED/LANDSCAPED

Developed/landscaped areas are areas that have been landscaped, planted, and are routinely maintained (i.e., artificial/unnatural), as well as built infrastructure supporting the golf course, such as the club house and maintenance facilities. Vegetation diversity and cover are minimal in these areas and consist of a myriad of native and exotic ornamental species. The Project Area within the Las Positas Golf Course also consists of paved pedestrian/cart paths surrounded by manicured lawns. This area is maintained for recreational use by the golf course and does not comprise a natural community.

NON-NATIVE ANNUAL GRASSLAND

This community includes areas that have been partially developed and have been allowed to revert to a semi-natural condition. The eastern portion of the Project Area, east of Airway Boulevard, is composed primarily of ruderal herbaceous grassland. The grassland is dominated by a mix of non-native brome grass (*Bromus* spp.), wild oat (*Avena* sp.), and barley (*Hordeum* sp.), with native melic grass (*Melica* sp.) also present. Other less predominant species include non-native herbaceous species such as perennial pepperweed (*Lepidium latifolium*), mallow (*Malva* sp.), and English plantain (*Plantago lanceolata*).

Aquatic

RIPARIAN WOODLAND

The Project Area contains riparian woodland habitat situated along Arroyo Las Positas. The creek is flanked by narrow strips of dense riparian woodland vegetation which can be divided into areas dominated by native trees (California black walnut-red willow riparian woodland) and areas dominated by a mix of native and non-native trees (semi-natural mixed riparian woodland).

California black walnut–red willow riparian woodland (*Juglans hindsii–Salix laevigata* woodland alliance) is dominated by native riparian tree species including northern California black walnut and red willow. Other canopy components include occasional Fremont cottonwood (*Populus fremontii* ssp. *fremontii*) and ornamental trees encroaching from the golf course. The canopy varies from dense to open with an average canopy height of about 25 feet. The understory is composed mainly of native species including sandbar willow (*Salix exigua var. hindsiana*), mugwort (*Artemisia douglasiana*), stinging nettle (*Urtica dioica*), and bedstraw (*Galium* sp.), with some presence of non-native species including poison hemlock (*Conium maculatum*) and panic veldt grass (*Ehrharta erecta*).

Semi-natural mixed riparian woodland also occurs along the banks of Arroyo Las Positas. The canopy is dominated by non-native eucalyptus but native tree species including California black walnut and red willow are still present. The understory components are similar to that of California black walnut–red willow riparian woodland but with panic veldt grass and other non-native grasses more dominant.

PERENNIAL STREAM

Arroyo Las Positas is a perennial stream that bisects the western portion of the Project Area and is generally a slow-flowing and narrow creek with gently to moderately sloped muddy banks. The substrate is clay to silt with little or no rocks. Along some stretches, there is open water with little to no emergent vegetation and in other areas the creek supports dense emergent vegetation including cattails (*Typha* sp.), bulrush (*Schoenoplectus* sp.), and sedges (*Cyperus* sp.).

2.3 Description of the Proposed Action

2.3.1 Action Agency

The Action Agency is FEMA which is partially funding the Project. The USACE will also likely rely on the results of this consultation for issuing a Clean Water Act permit.

2.3.2 Applicant

The Applicant is the City of Livermore. The Las Positas Golf Course within the Project Area and the Livermore Municipal Airport to the south of the Project Area are owned by the City of Livermore. The address and contact information for the Applicant are:

The City of Livermore
1052 South Livermore Ave
Livermore, CA, 94550
Contact: Mallika Ramachandran
(925) 960-4511
mramachandran@livermoreca.gov

2.3.3 Purpose of Action

The purpose of the Project is to mitigate recurring flooding occurring within the adjacent Livermore Regional Airport, airport infrastructure facilities, and adjacent businesses. Expanding the overbanks and sediment/debris removal are critical components to restoring flow conveyance throughout this reach thereby ultimately reducing flood events and magnitude. The Project will provide flood mitigation improvements along Arroyo Las Positas Creek with the implementation of the Project.

2.3.4 Description of the Proposed Action

The Project is dependent on Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant and California Department of Water Resources (DWR) Flood Management grant funding. The FEMA grant requires that construction for the project must be completed by December 1, 2025. Based on the grant schedule, it is estimated that work will commence June 15, 2025. Project plans are included as Appendix C and a summary of project activities to occur as part of this Project are as follows:

- Increasing the flood conveyance along the channel overbank for approximately 2,700 linear feet of channel, downstream of Airway Boulevard
- Sediment and debris removal within 400 linear feet of Arroyo Las Positas along with the potential placement of a temporary cofferdam upstream
- Installing a flood berm along the east side of Airway Boulevard, and a flood wall along the north side of Airway Boulevard
- Installing a combination of a flood berm and flood wall along the north side of the golf course parking lot and restaurant/club house
- Raise one cart path bridges to reduce debris loading and increase channel conveyance
- Installing culverts under pathways to reduce debris loading and increase channel conveyance
- Relocate golf features such as tees and cart paths

Floodplain Expansion

The Project primarily focuses on expanding the channel overbank (floodplain) areas to increase flow conveyance while also increasing riparian habitat along the channel. The work will occur along approximately 2,700 linear feet on both sides of the channel. Floodplain expansion work will prioritize preserving as many existing trees as feasible but is expected to require the removal of up to 75 total riparian trees targeting non-natives over natives. Vegetation would be removed by various methods including hand cutting, and extraction with heavy equipment. Some trees would be chipped on-site, and the chips would be laid along the northern site perimeter along Interstate 580 (Appendix B). Once any required vegetation is removed, temporary access routes will be created. Access routes will be placed at the top of bank and through the golf course so that equipment can perform work outside of the channel. A temporary construction bridge (railcar or similar) will be placed across the channel, spanning the low flow channel, to provide access to the north side of the channel. Excavation will be conducted using excavators and other such heavy equipment. During this process the area of the existing banks and floodplain will be expanded

and tapered to between an approximately 3:1 and 5:1 slope. Most slopes will be tapered to 5:1 with some steeper slopes (up to 3:1) in some locations as necessary to conform to existing contours. Removed trees may be used to protect the channel banks from erosion and migration by burying within the expanded floodplain. Work will be conducted during the dry season when flows and inundation within the channel is expected to be largely absent. The expanded floodplain will result in an increased area of planted riparian habitat. Upon the completion of floodplain expansion, the area will be replanted with regionally appropriate native riparian trees, shrubs, and herbaceous species to create a diverse palette with variable structure. Removed trees will be replaced at a minimum of a 3:1 ratio.

Sediment and Debris Removal

Sediment and debris have accumulated within segments of Arroyo Las Positas resulting in compromised flow rates and exacerbating flood events. To minimize these affects, sediment will be removed from an approximately 400 linear foot section of the creek within and adjacent to the low flow channel. The majority of sediment and debris removal will occur adjacent to the low flow channel but small areas within the low flow channel may require some removal actions. Excavation activities will prioritize preserving riparian trees to the maximum extent feasible; however, some riparian trees have been identified as needing to be removed to achieve the target flood reduction benefit. Sediment and debris removal work will occur during the dry months when flows are minimal or entirely absent. However, some standing remnant, or groundwater may be encountered within various areas of the channel during excavation and drilling of the new pedestrian bridge abutments. Should dewatering be necessary, it will be conducted using cofferdams to isolate the work area and temporary bypass pipe. Excavated material will be stored within the greater golf course facility, outside of aquatic features.

Installation of Flood Walls and Flood Berms

As part of the floodwall work, cast-in-place concrete flood walls and earthen berms will be constructed in the following locations:

- A combination of concrete flood wall and earthen berm along the north side of Airway Boulevard, up to a height of 4.5 feet
- A concrete flood wall along the north side of the golf course parking lot, up to a height of 4.5 feet
- An earthen berm would be constructed upstream and downstream of the golf course parking lot, connecting existing high points along the golf course, up to a height of 4 feet.

Both flood wall types at all locations would be situated away from the top of bank and associated riparian habitat of Arroyo Las Positas. The flood berms and walls are intended to reduce routine flooding that occurs throughout the golf course, parking lots, airport, and associated infrastructure and buildings. Soil and vegetation removed for installation of the flood berms and walls will be hauled off site for disposal at an appropriate location, may be utilized throughout the golf course as needed for grounds maintenance and/or improvements, or will be stockpiled within the golf course for future use. Earthen flood berms would be revegetated with a native plant mix after construction work is complete.

Bridge and Culvert Work

As part of the work associated with raising the cart path bridge, new cast-in-place concrete bridge footings and drilled concrete piers would be installed in the same location as the existing footings, outside the top of bank of Arroyo Las Positas. The existing bridge would be temporarily removed and replaced in the same location as the existing bridge. The bridge would be elevated approximately two to three feet to reduce the potential for debris loading on the bridge and to increase hydraulic conveyance within the channel. The low chord of the existing bridge is within one foot of the sediment within the channel and the bridge accumulates debris during small frequent storms. Elevating the bridge and removing sediment within the channel would increase the open area under the bridge from approximately 150 to 490 square feet. The cart paths leading towards the bridge would be elevated and culverts would be placed under the pathways to increase overbank conveyance.

Golf Course Amenity Relocation and Soil Stockpiling

Floodplain expansion will encroach into existing golf course features and they require relocation to maintain functionality. These features will be relocated to be situated outside of the expanded floodplain areas. Soil stockpiling may be necessary for excavated material from floodplain expansion and/or sediment and debris removal. Soil stockpiling areas have been identified throughout the golf course property, outside of any aquatic features.

Construction, Equipment, and Staging

Equipment used to complete the Project may include general use service vehicles (i.e. pickup trucks), excavators, cranes, loaders, dump trucks, concrete trucks, drill rig, compacting equipment, water trucks, transfer trucks and trailers, wood chippers, and assorted power or hand tools (e.g. augers, chainsaws etc.). Equipment staging areas are identified along existing golf cart paths, within upland areas.

2.4 Avoidance, Minimization, and Conservation Measures

The proposed Project will include general and species-specific measures to avoid or minimize effects to listed species, sensitive habitats, and the surrounding environment. Measures have been developed to preserve extant riparian vegetation to the extent possible and minimize any potential deleterious effects to water quality. A qualified biologist will assist with the implementation of any species-specific minimization measures that may be required by project permits.

2.4.1 General Avoidance and Minimization Measures

Avoidance and minimization measures that will be implemented during the proposed Action to reduce adverse effects to sensitive species and habitats are outlined below. All permit conditions, legal requirements, and appropriate excavation and engineering practices associated with the proposed Action will be followed.

- An environmental awareness training program will be given to all crew members working on the Project. The training will be given by a qualified biologist and shall include education on sensitive resources such as protected wildlife with the potential to occur within the Project Area, water quality, and environmental protection measures.

- Erosion control measures will be utilized throughout all phases of the Project where sediment runoff from construction may potentially enter waters. Erosion control structures will be monitored for effectiveness and will be repaired or replaced as needed. Appropriate erosion control measures will be installed around any stockpiles of soil or other materials which could be mobilized by rainfall or runoff. All erosion control materials will utilize natural biodegradable materials and shall not contain plastic monofilament that may entangle wildlife.
- No fuelling, cleaning, or maintenance of vehicles or equipment will take place within any areas where an accidental discharge may cause hazardous materials to enter waterways.
- Any equipment or vehicles used for the Project will be checked and maintained daily to prevent leaks of fluids that could be deleterious to aquatic habitats.
- All equipment will be cleaned before arriving on the site and before removal from the site to prevent spread of invasive plants.
- Construction disturbance or removal of vegetation will be restricted to the minimum footprint necessary to complete the work. The work area will be delineated where necessary to minimize impacts to vegetated habitats beyond the work limit, or to protected vegetation within the work area.
- Staging and storage areas for equipment, materials, fuels, lubricants and solvents, will be located outside of the stream channel banks.
- Stationary equipment such as motors, pumps, and generators, located adjacent to aquatic features will be positioned over secondary containment sufficient to arrest a catastrophic failure.
- All activities performed near aquatic features will have absorbent materials designated for spill containment and cleanup activities on-site for use in an accidental spill.
- Stockpiles of excavated soil or other will be covered when not in active use (i.e., will not be used, or moved for 72 hours). All trucks hauling soil, sand, and other loose materials will be covered.
- No construction debris of any type will be allowed to enter or be placed where they may be washed into any aquatic features.
- At the end of the project all temporary flagging, fencing, or other materials will be removed from the project site and vicinity of the channel.
- No equipment shall be washed down where runoff could enter the creek.
- No motorized equipment shall be left within the channel overnight.
- All refuelling and maintenance of equipment, other than stationary equipment, shall occur outside of the top-of-bank. Refuelling of stationary equipment within the channel (top of bank to top of bank) shall only occur when secondary containment sufficient to eliminate escape of all potential fluids is in place.

2.4.2 Avoidance and Minimization Measures for Protected Riparian Trees

- Preserved trees will be tagged with high visibility flagging and/or fencing (i.e. construction fencing). Fencing will be established at the outer limit of each trees' root zone or the outer limits of the tree cluster.
- Areas to be replanted will be done in consideration of existing, preserved trees.
- Any riparian trees removed shall be replanted within the Project Areas at ratios prescribed by the RWQCB and CDFW permits (minimum 3:1 ratio).
- During replanting, the Project Area shall be the priority zone for revegetation efforts. If planting must occur outside of the Project Area to meet specified numbers of trees, then replanting will occur in other portions of the Action Area which lack a riparian overstory.

2.4.3 Avoidance and Minimization Measures for NMFS Species

Avoidance and minimization measures specific to NMFS species addressed in this BA that will be implemented during the proposed Action are outlined below.

- Any work below the top of bank shall be completed during the dry season, between June 15 and October 31.
- To prevent the spread of turbidity that might be caused by sediment removal and excavation of the banks, all work within the wetted channel shall be completed in a dewatered environment (with a temporary creek bypass), and erosion control measures shall be implemented upon completion of floodplain expansion construction.

2.4.4 Avoidance and Minimization Measures for USFWS Species

Avoidance and minimization measures specific to USFWS listed species addressed in this BA that will be implemented during the proposed Action are outlined below.

CALIFORNIA RED-LEGGED FROG

The following measures will be implemented to protect CRLF:

- Prior to construction commencing, a CRLF relocation plan will be prepared for USFWS approval. The relocation plan will detail methodologies for handling and relocating any encountered CRLF that cannot be avoided. Suitable relocation areas located within Arroyo Las Positas but outside of the construction area will also be identified in the plan.
- Within 48 hours prior to commencement of initial construction activities, a biologist approved by USFWS (Approved Biologist) will conduct a preconstruction survey for CRLF in and adjacent to the Project Area.
- Prior to the commencement of work with wheeled or tracked equipment in vegetated areas, vegetation that could conceal CRLF shall be surveyed by an Approved Biologist. If vegetation is too dense to be adequately surveyed (e.g. thick blackberry bushes, etc.), an Approved Biologist will observe vegetation removal until vegetation is cleared sufficiently for the Approved Biologist to survey the area and verify the presence or absence of CRLF. If no CRLF are found, the vegetation shall be fully removed. If CRLF are observed, they will be relocated as specified in the Service-approved relocation plan.

- An exclusion fence will be installed around staging and upland work areas and along portions of the creekbank after vegetation removal is complete. Exclusion fencing will also be installed around the perimeter of floodplain excavation work area which encompasses the sediment and debris removal area as well. A biological monitor will oversee the installation of the fence.
- If conditions prevent an exclusion fence from being able to be fully enclose the Project Area for any reason (e.g. conditions such as the presence of open waters prevents installation of a fence around part of the work area), the Project Area shall be surveyed by an Approved Biologist before the commencement of work each day. An Approved Biologist is defined as a biologist with sufficient experience identifying, surveying, and handling CRLF. The Approved Biologist shall be reviewed and approved by the USFWS. If a CRLF is observed within the Project Area during the daily inspection, the Approved Biologist will halt work and shall relocate the animal according to the protocol above. The Approved Biologist shall have stop work authority.
- Erosion control structures shall not include monofilament or be of types that may entrap and kill wildlife.
- All construction activities shall cease one half hour before sunset and shall not begin prior to one half hour before sunrise.
- Construction activities shall not occur for 24 hours after rain events projected to deliver >0.25 inches of rain without the presence of a full time Approved Biologist.
- Any open holes or trenches shall be covered or have escape ramps no steeper than 45 degrees installed at the end of each working day to prevent wildlife from becoming entrapped.

NORTHWESTERN POND TURTULE

The measures implemented for CRLF will also provide protection for NPT. In addition, the following measures will be implemented for the protection of NPT:

- A NPT relocation plan will be prepared prior to construction commencing for USFWS approval. Similar to the CRLF relocation plan, the NPT relocation plan will detail relocation methods and suitable relocation areas in the event NPT are encountered and cannot be avoided.
- No more than 24 hours prior to any work activities within each of the Project Areas, a pre-construction survey for NPT will be conducted by a USFWS-approved biologist. The survey will consist of walking the Project limits and within each of the Project Areas to ascertain the possible presence of the species. The USFWS-approved biologist will investigate all potential areas that could be used by NPT for feeding, breeding, sheltering, nesting, movement, and other essential behaviors. This includes an adequate examination of potential nest sites. If any adults, subadults, juveniles, are found, the USFWS-approved biologist will relocate the NPT to a suitable area where construction activities will not harm them. Any detected nests of NPT will be flagged and avoided. If nests cannot be avoided, the USFWS-approved biologist will contact the USFWS to determine next steps. The USFWS will be notified within 48 hours if NPT are moved. Only USFWS-approved biologists will capture, handle, and monitor NPT. Mark confirmed and suspected turtle nests with temporary flagging and surround with silt fence or similar exclusion barrier to prevent

disturbance by heavy equipment. The temporary barrier shall be configured to prevent access to the nest site by construction personnel and equipment, but also allow access between the nest site and suitable aquatic habitat. Known nest sites shall not disturbed unless otherwise authorized by USFWS. Temporary nest markers and barricades should be removed as soon as possible after nesting is complete to minimize possible attraction of predators.

2.5 Project Schedule

Work associated with the out of channel flood walls, berms, and raising the existing pedestrian bridge is anticipated to commence June 15, 2025, and be completed by November 30, 2025, with the exception of replanting work which may extend beyond this date.

Work associated with the floodplain bench expansion, installation of culverts, and modifications to the existing golf cart pathways is anticipated to commence June 15, 2026, and is expected to require 6 months to complete. All sediment and debris removal and floodplain expansion work is expected to be completed by October 31, 2026. Replanting within the floodplain expansion area may continue outside of these dates. Project timing may fluctuate depending on coordination with FEMA; however, sediment and debris removal and floodplain expansion work will not extend beyond October 31 of any year.

3 ENVIRONMENTAL BASELINE OF THE ACTION AREA

A list of Federal endangered, threatened, and candidate species that have been documented in the vicinity of the Action Area is provided in Appendix C This list was generated from a review of the California Natural Diversity Database (CNDDB; CDFW 2024) and the USFWS Information, Planning, and Conservation System Official Species List (USFWS 2024; Appendix C). Biological studies and related observations previously conducted in the Action Area are described in Section 3.1.

3.1 Surveys for Federal Listed Species and Habitat

WRA searched the CNDDB (CDFW 2024) for documented occurrences of Federal-listed species near the Action Area. Previous habitat assessments and survey reports for Federal-listed plant and wildlife species prepared by HDR and SWCA Environmental Consultants were also reviewed. The list below outlines surveys and habitat assessments for listed species that have been conducted in various portions of the Action Area and proposed Arroyo Las Positas Restoration and Maintenance Project between 2013 and 2022.

- Biological Survey Report, Arroyo Las Positas Restoration and Maintenance Project, prepared by HDR (2022)
- Habitat assessment for special-status wildlife, conducted on May 9, 2024, by a WRA biologist

3.2 Steelhead – central California coast DPS – Threatened

The central California coast DPS includes all naturally spawned populations of steelhead (and their progeny) in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), excluding the Sacramento-San Joaquin River Basin. Two artificial propagation programs are included in the central California coast DPS: the Kingfisher Flat Hatchery/Scott Creek, and the Don Clausen Fish Hatchery (NMFS 2007).

3.2.1 Life History and Habitat Requirements

The life history patterns for steelhead are both highly variable and flexible (Moyle 2002). While similar to most pacific salmonids (*Oncorhynchus* spp.) in their anadromous life history, steelhead exhibit a greater variation in timing for each component of their life history (NMFS 2007). Steelhead typically migrate to marine waters after spending two years in freshwater, though they may stay up to seven. They then reside in marine waters for two or three years prior to returning to their natal stream to spawn as four or five year-olds. In addition to the anadromous life history, a resident freshwater life history known as rainbow trout exists for the species. Both of these life history types often exist in the same populations, and genetically these types are indistinct from each other with resident rainbow trout capable of producing steelhead and steelhead progeny sometimes becoming resident rainbow trout (Moyle 2002).

Steelhead are generally classified into two groups based on their timing in returning from the ocean to freshwater systems and their state of sexual maturity at that time (NMFS 2007). “Summer-run” steelhead are sexually immature when they enter freshwater in the spring and early summer. They then hold in suitable freshwater habitat, preferring deep (three meters or more)

cold (10 to 15 degrees Celsius) pools, for several months while they sexually mature. "Winter-run" steelhead enter freshwater systems during late fall or early winter and are either at or near sexual maturity.

Steelhead adults typically return to their natal streams to spawn between December and June. Unlike other Pacific salmonids, steelhead are iteoparous, meaning adults do not always die after spawning (NMFS 2007). Spawning redds or nests generally occur in gravel substrate ranging from 0.5 to six inches and are dominated by two to three inch gravels (CDFG 1998). Steelhead can spawn in relatively small pockets of gravel, with redd surface areas ranging from 2.4 to 11.2 square meters (Gallagher and Gallagher 2005). Redds usually are found in pool tail-outs or riffles, where water velocities range from 20 to 155 centimeters per second and at depths of 10 to 150 centimeters (Moyle 2002).

Eggs deposited in redds lie within interstitial spaces in the gravel where flowing water brings in dissolved oxygen, helps to regulate the temperature of the eggs, and removes waste products from the redd (USDA 1979). The amount of time for eggs to hatch and fry to emerge from the gravel is dependent upon water temperature, habitat, and spawning season (USFWS 1986). When temperatures range from 10 to 15° Celsius, eggs typically hatch in three to four weeks, and fry emerge from the gravel two to three weeks later (Moyle 2002).

Juvenile steelhead prefer to rear in eddies and along velocity breaks where they can exert minimal energy holding in one position while being in close proximity to forage on terrestrial and aquatic invertebrates washed downstream. Instream cover such as large woody debris and undercut banks in deep pools, along with sufficient riparian cover form important rearing habitat (USFWS 1986). Growth rate varies based on temperature, with optimal growth thought to occur between 15 and 19 degrees Celsius (Hayes et al 2008). Ephemeral floodplain habitat has been shown to be particularly important foraging and refuge for juvenile Salmonids (Jeffres et al 2008). Sommer (2001) found significantly higher growth rates for salmonids rearing in floodplain habitat then with those rearing in adjacent stream habitat. Survival rates for juveniles and smolts is higher for larger and older steelhead, which demonstrates the importance of productive juvenile rearing habitat for the survival of the species (USFWS 1986).

Smolting occurs when juvenile steelhead out-migrate to the ocean. A process of morphological, behavioral, and biochemical changes occur that prepares the individual for a pelagic life in the ocean (USFW 1986). While in the ocean, a rapid growth phase occurs where individuals feed on the nutrient rich marine ecosystem and become much larger than resident rainbow trout.

3.2.2 Habitat Assessment and Survey Results

Steelhead are not known to occur in Arroyo Las Positas. Arroyo Las Positas has been heavily altered for flood control and historically did not have a surface connection to the San Francisco Bay, making it inaccessible to anadromous fish, except during periods of extreme flooding when surface flow from Arroyo Las Positas may have reached Arroyo de Laguna (Lagoon) which connects to Alameda Creek and then the San Francisco Bay (Hanson et al. 2004). Channelization of the Livermore Valley for flood control and agriculture in the early 1900s led to increased flow within local tributaries and connected the previously disparate intermittent streams into the storm conveyance channels that exist today. This channelization altered the historic character and connectivity of Arroyo Las Positas such that it is now a perennial stream connected to Arroyo Mocho, and ultimately flowing to San Francisco Bay.

Numerous studies and assessments of Arroyo Las Positas over the years have come to the conclusion that Arroyo Las Positas is not suitable habitat for steelhead. Many of these studies are system focused and were completed in support of efforts to restore anadromy to the Alameda Creek watershed. Current restoration efforts are focused on other waterways within the watershed, omitting Arroyo Las Positas because of the unsuitable habitat conditions. A reconnaissance-level survey for steelhead within Arroyo Las Positas by Hanson et al. revealed that the reach does not provide suitable habitat for steelhead (Hanson et al. 2004). The survey found that the creek does not support suitable spawning conditions and/or juvenile rearing habitat for steelhead due to elevated temperature levels, low elevation and stream gradient, patchy riparian cover, fine sediment substrate, and historical and ongoing disturbance. These findings are consistent with conclusions made by Gunther, Hager, and Salop (Gunther et al. 2000) in a report titled "An Assessment of the Potential for Restoring a Viable Steelhead Trout Population in the Alameda Creek Watershed". The Gunther, et. al study included a detailed assessment and survey of steelhead within Arroyo Las Positas, and found no steelhead present within the system and no potential suitable steelhead habitat. These conclusions are based both on the geological conditions of fine clay substrates lacking suitable spawning substrates within Arroyo Las Positas and its tributaries, in combination with high temperatures and lack of riparian canopy within the majority of the creek.

A number of passage barriers and impediments exist along Arroyo Las Positas and within the Arroyo Mocho watershed. These barriers inhibit successful upstream migration of steelhead within these watersheds (Hanson et al. 2004). A combination fish ladder and sediment control structure was constructed within Arroyo Las Positas, approximately 1 mile downstream of the project site, some time between July and October 2003 which was designed to enable fish to migrate upstream. However, a multitude of vegetative and structural barriers to fish passage exist downstream of the fish ladder likely preventing upstream migration. Furthermore, no adult steelhead have been observed in Arroyo Las Positas or Arroyo Mocho based on a review of available literature (Hanson et. al 2004, Leidy et al. 2005).

Despite the lack of adult steelhead observations, and migration barriers, Arroyo Las Positas is part of a connected channel network that connects with Alameda Creek downstream, which does support steelhead migration and spawning. This downstream presence means that there is a very limited potential for stray adult steelhead to enter into Arroyo Las Positas during the winter months. However, given that Arroyo Las Positas does not support any spawning or rearing habitat, successful spawning would not occur within the creek. If an adult stray was able to survive migration into Arroyo Las Positas, the individual would die or return to the Bay to escape unsuitable habitat conditions prior to the dry summer months.

3.2.3 Current Threats

The primary driving factor identified in the decline of central California coast steelhead is the loss and degradation of natural habitat and flow conditions (NMFS 2007). Factors contributing to this include urbanization, changes in watershed drainage, agriculture, forestry, channel realignment, water withdrawal, diversions, and fish passage barriers. Critical areas identified by NMFS (2007) for the recovery of central California coast steelhead include:

- *freshwater spawning sites* with good water quality and quantity, and suitable substrate for spawning;
- *freshwater rearing sites* with good water quality and quantity, forage, and natural cover;

- *freshwater migration corridors* that are unobstructed, have good water quality and quantity, natural cover, and afford safe passage conditions for migration.

3.3 California red-legged frog – Threatened

The California red-legged frog was listed as Federally Threatened on May 23, 1996 (61 FR 25813-25833) and is a candidate for listing under CESA (USFWS 1996). Critical Habitat for the CRLF was designated on April 13, 2006 (71 FR 19243-19346) (USFWS 2006), and the revised designation was finalized on March 17, 2010 (75 FR 12815-12959) (USFWS 2010). A Recovery Plan for the CRLF was published by the USFWS on May 28, 2002 (USFWS 2002).

3.3.1 Life History and Habitat Requirements

The CRLF has prominent dorsolateral folds, long legs with incompletely webbed toes and eyes that are oriented outwards (Stebbins 2003). Coloring is reddish -brown or brown, gray, or olive, with small black flecks and spots on the back and sides and dark banding on the legs. The hind legs are red underneath extending onto the belly and sides of older individuals. Dark blotches on the back typically have light coloring in the center. There is a dark mask on the head and a stripe extending from the shoulder to the front of the upper jaw (Stebbins 2003).

The historical range of the CRLF extended along the coast from the vicinity of Point Reyes National Seashore, Marin County, California and inland from Redding, Shasta County southward to northwestern Baja California, Mexico (Jennings and Hayes 1985, Hayes and Krempels 1986). The current distribution of this species includes only isolated localities in the Sierra Nevada, northern Coast and Northern Traverse Ranges. It is still common in the San Francisco Bay area and along the central coast. It is now believed to be extirpated from the southern Transverse and Peninsular Ranges (USFWS 2002).

There are four physical and biological features that are considered to be essential for the conservation or survival of a species. The features for the CRLF include: aquatic breeding habitat; non-breeding aquatic habitat; upland habitat; and dispersal habitat (USFWS 2010).

Aquatic breeding habitat consists of low-gradient freshwater bodies, including natural and manmade (e.g., stock) ponds, backwaters within streams and creeks, marshes, lagoons, and dune ponds. It does not include deep water habitat, such as lakes and reservoirs. Aquatic breeding habitat must hold water for a minimum of 20 weeks in most years. This is the average amount of time needed for egg, larvae, and tadpole development and metamorphosis so that juveniles can become capable of surviving in upland habitats (USFWS 2010).

Aquatic non-breeding habitat may or may not hold water long enough for this species to hatch and complete its aquatic life cycle, but it provides shelter, foraging, predator avoidance, and aquatic dispersal for juvenile and adult CRLF. These waterbodies include plunge pools within intermittent creeks; seeps; quiet water refugia during high water flows; and springs of sufficient flow to withstand the summer dry period. CRLF can use large cracks in the bottom of dried ponds as refugia to maintain moisture and avoid heat and solar exposure (Alvarez 2004). Non-breeding aquatic features enable CRLF to survive drought periods and disperse to other aquatic breeding habitat (USFWS 2010).

Upland habitats include areas within 300-feet of aquatic and riparian habitat and are comprised of grasslands, woodlands, and/or vegetation that provide shelter, forage, and predator avoidance. These upland features provide breeding, non-breeding, feeding, and sheltering habitat for juvenile and adult frogs (e.g., shelter, shade, moisture, cooler temperatures, a prey base, foraging opportunities, and areas for predator avoidance). Upland habitat can include structural features such as boulders, rocks and organic debris (e.g. downed trees, logs), as well as small mammal burrows and moist leaf litter (USFWS 2010).

Dispersal habitat includes accessible upland or riparian habitats between occupied locations within 1-mile of each other that allow for movement between these sites. Dispersal habitat includes various natural and altered habitats such as agricultural fields, which do not contain barriers to dispersal. Moderate to high-density urban or industrial developments, large reservoirs and heavily travelled roads without bridges or culverts are considered barriers to dispersal (USFWS 2010). Although CRLF is highly aquatic, this species has been documented to make overland movements of several hundred meters and up to one mile during a winter-spring wet season in Northern California (Bulger et al. 2003, Fellers and Kleeman 2007) and 2,860 meters (1.8 miles) in the central California coast (Rathbun and Schneider 2001). Frogs traveling along water courses can exceed these distances.

CRLF consume a wide variety of prey. Adults typically feed on aquatic and terrestrial insects, crustaceans and snails (Stebbins 2003, Hayes and Tennant 1985), as well as worms, fish, tadpoles, smaller frogs (e.g., Pseudacris sierra), and occasionally small mammals (USFWS 2002). Aquatic larvae are herbivorous, grazing on algae. Feeding generally occurs along the shoreline of ponds or other watercourses and on the water surface.

Breeding takes place from November through April (Storer 1925, USFWS 2002). Males usually appear at the breeding sites 2 to 4 weeks before females who are attracted to calling males. Females lay egg masses containing about 2,000 to 5,000 eggs, which hatch in 6 to 14 days, depending on water temperatures (USFWS 2002). Larvae metamorphose in 3.5 to 7 months, typically between July and September (Storer 1925, Wright and Wright 1949, USFWS 2002). Sexual maturity is usually attained by males at 2 years of age and females at 3 years of age.

3.3.2 Habitat Assessment and Survey Results

Arroyo Las Positas and the ornamental ponds within the Action Area have the potential to support CRLF. Arroyo Las Positas is generally slow-flowing and narrow with moderately sloped muddy banks that provide suitable ingress and egress for CRLF dispersal. The substrate is clay to silt with little or no rocks. Along some stretches, there is open water with little to no emergent vegetation and in other areas the creek supports dense emergent vegetation including cattails (*Typha* sp.), bulrush (*Schoenoplectus* sp.), and sedges (*Cyperus* sp.). CNDDB records of CRLF occur in Arroyo Las Positas, downstream of the Action Area but the only recorded occurrence of CRLF within the Project Area was in 1997 with no subsequent occurrences noted (CDFW 2024). Grassland and riparian areas in the Project Area provide suitable upland refugia habitat for CRLF due to their proximity to aquatic habitat. The golf course has potential to be utilized for dispersal but would not be considered suitable habitat for refugia due to the ongoing, regular maintenance and disturbance.

One of the three constructed ornamental ponds in close proximity to the Project Area is kept full year-round with very limited emergent vegetation. These ponds are not likely to provide suitable breeding habitat for CRLF due to the shallow depths and limited vegetation for breeding adults to attach egg masses. The ponds have the potential to provide suitable habitat for bullfrogs (*Lithobates catesbeianus*) which are known to predate on CRLF egg masses though no adult bullfrogs or tadpoles were observed in the ponds during the field visit. The upland areas surrounding the riparian corridor and the ponds are disturbed and heavily managed (routinely mowed and frequently traversed paved trails), and urbanized (heavily travelled roads and commercial use). The degree of disturbance and management in these surrounding areas is a hindrance to movement of CRLF from the suitable aquatic habitat within the Project Area. Substantial physical migration barriers, such as Interstate I-580, exist to the north and east of the Project Area and prevent dispersal of CRLF from the Project Area to known critical breeding habitat approximately one mile north of the Project Area (CNDDB; CDFW 2024).

As a result of the lack of recent occurrences within or in close proximity to the Action Area, poor quality of potential breeding habitat within the onsite ponds, and major barriers to dispersal from suitable upland and breeding habitat, the Action Area is not likely to support suitable breeding habitat for CRLF. However, the riparian corridor of Arroyo Las Positas supports suitable dispersal for CRLF within the Arroyo Las Positas tributary, and CRLF have been observed within Arroyo Las Positas, including the creek reach within Las Positas Golf Course.

3.3.3 Current Threats

CRLF populations are threatened by numerous human activities that often act synergistically and cumulatively with natural disturbances (i.e., droughts or floods) (USFWS 2002). Human activities that negatively affect CRLF include agriculture, urbanization, mining, overgrazing, recreation, timber harvesting, nonnative plants, impoundments, water diversions, degraded water quality, and introduced predators.

Over 90 percent of the historic wetlands in the Central Valley have been lost due to conversion for agriculture or urban development (USFWS 1978). This has resulted in a significant loss of frog habitat throughout the species' range (USFWS 2002). Habitat along many stream courses has also been isolated and fragmented, resulting in reduced connectivity between populations and lowered dispersal opportunities.

Isolated populations are now more vulnerable to extinction through stochastic environmental events (i.e. drought, floods) and human-caused impacts (i.e., grazing disturbance, contaminant spills) (Soulé 1998). Isolated populations suffer from increased predation by nonnative predators, changes in hydroperiod due to variable wastewater outflows, and increased potential for toxic runoff.

3.4 Northwestern Pond Turtle – Proposed Threatened

The northwestern pond turtle, was proposed for federal Threatened status on October 3, 2023 (88 FR Vol 190, 68370) with a rule under section 4(d) of the Endangered Species Act. Critical Habitat for NPT has not been designated, nor has a Recovery Plan been completed.

3.4.1 Life History and Habitat Requirements

The northwestern pond turtle (NPT) and the southwestern pond turtle are the only native freshwater turtles in California. Pond turtles are uncommon to common in suitable aquatic habitat throughout California, west of the Sierra-Cascade crest and Transverse Ranges. Pond turtles inhabit annual and perennial aquatic habitats, such as lagoons, lakes, ponds, marshes, rivers, and streams from sea level to 5,500 feet in elevation. Pond turtles also occupy man-made habitats such as stock ponds, wastewater storage, percolation ponds, canals, and reservoirs. These species require low-flowing or stagnant freshwater aquatic habitat with suitable basking structures, including rocks, logs, algal mats, mud banks, and sand. Warm, shallow, nutrient-rich waters are ideal as they support prey items, which include aquatic invertebrates and occasionally fish, carrion, and vegetation. Turtles require suitable aquatic habitat for most of the year; however, they often occupy creeks, rivers, and coastal lagoons that become seasonally unsuitable. To escape periods of high water flow, high salinity, or prolonged dry conditions, pond turtles may move upstream and/or take refuge in vegetated, upland habitat for up to four months. Although upland habitat is utilized for refuging and nesting, this species preferentially utilizes aquatic and riparian corridors for movement and dispersal. Northwestern pond turtles establish nests between late April and July. This species requires open, dry upland habitat with friable soils for nesting and prefers to nest on unshaded slopes within 15 to 330 feet of suitable aquatic habitat (Rathbun et al. 2002). Females venture from water for several hours in the late afternoon or evening during the nesting season to excavate a nest, lay eggs, and bury the eggs to incubate and protect them. Nests are well-concealed, though predators are occasionally able to locate and predate upon eggs. Hatchlings generally emerge in late fall but may overwinter in the nest and emerge in early spring of the following year.

3.4.2 Habitat Assessment and Survey Results

Habitat within the Action Area is suitable for all life-stages of NPT. An adult NPT was detected east of Airway Boulevard on May 9, 2024, during WRA's habitat assessment within Arroyo Las Positas. Stream habitat in this eastern reach of the stream contains ponded water, vegetation mats, ample basking structures and low sloping sandy banks which provide good ingress and egress for the species. The eastern reach of the stream is also situated adjacent to suitable upland habitat which consists of non-native grasslands that are not heavily managed. Suitable aquatic habitat exists in select portions of the stream within the golf course, including areas of deep ponded water, basking structures, and sandy, muddy banks. Potential NPT nesting habitat is extremely limited within the golf course portion of Arroyo Las Positas as it is heavily managed by golf course operations. Areas within the golf course reach that are not manicured are predominately shaded by riparian vegetation. Some very limited sunny areas along the creek support marginal suitable nesting habitat for NPT. There are CNDDB occurrences for NPT in Arroyo Las Positas upstream of the Project Area (CDFW 2024).

3.4.3 Current Threats

The threats to NPT are mainly anthropogenic. Major factors cited as limiting their populations include loss and degradation of aquatic habitats, reduced availability of nest habitat, elevated hatchling and nest predation, and disease. Declines have been most severe in the northern and southern parts of the range, specifically in Washington, Southern California, and Baja California.

- Habitat loss, degradation, and fragmentation are the biggest threats to NPT. Extensive losses have occurred in the past and continue as land is converted for human use such as

urbanization and agriculture. Drought, intense wildfire, and invasive vegetation continue to increase and are a direct threat to NPT, as well as altering the habitats they require. NPT populations are also becoming increasingly isolated because upland travel corridors are blocked by barriers such as roads, urbanized areas, and extensive agricultural lands.

- Predation of hatchlings by introduced American bullfrogs (*Rana catesbeiana*), smallmouth bass (*Micropterus dolomieui*), crayfish (e.g, *Procambarus clarkii*) and largemouth bass (*Micropterus salmoides*) is significant in some areas. Predation of nests may be greater than historical levels in human-altered landscapes due to an increase in medium-sized predators, such as raccoons (*Procyon lotor*), that thrive in these situations.
- Disease in NPT is not well-understood but is of great concern in WA and could threaten the species locally or range-wide, including upper respiratory disease and shell disease.
- Road mortality is a threat, particularly in urban and recreational areas. The effects of road mortality, along with the effects of nest habitat degradation, nest predation, and increasing temperatures, has led to skewed demographic ratios in many NPT populations.
- Release of pet turtles to the wild is a growing threat and may result in increased competition and disease transmission.
- Past exploitation and current illegal collection has reduced NPT numbers at many sites.
- Recreational activities such as hiking, biking, fishing, boating, and off-highway vehicles, and the associated disturbance within or adjacent to aquatic and nest habitats are an important concern in some parts of the species' range. NPT will rapidly flee from their basking sites into water when disturbed by the sight or sound of people and are sensitive to human disturbance even at relatively long distances (≥100 m, ≥328 ft) (Bury and Germano 2008).
- Climate change is expected to alter hydrology, increase temperatures, and increase the range of non-native species. Climate change could also impact turtle sex ratios, resulting in skewed populations and ultimate population decline.
- Small population sizes can lead to inbreeding depression, Allee effects, and increased risk from stochastic events.

Threats to breeding individuals pose threats to populations because the species takes years to become sexually mature, has low fecundity, and low survival rates for juveniles. Annual survivorship of breeding adults is critical for population persistence. Small losses to breeding age adults that are sexually mature can irreversibly drive local extirpations.

4 EFFECTS ANALYSIS

The sections below discuss effects including cumulative effects from the proposed Action on steelhead central California DPS. Effects to species covered in this BA may occur as a result of in-channel excavation and floodplain expansion work. A detailed effects analysis for each species is discussed below along with the specific actions that may result in effects.

4.1 Steelhead – Central California coast DPS

4.1.1 Direct Effects

Direct effects are those effects caused directly by the proposed Action that occur on-site within the Action Area and during implementation (i.e., ground disturbance) within the Action Area.

Vegetation Removal

In order to complete the Project, riparian vegetation will need to be removed so that channel banks can be excavated, and sediment and debris can be removed from within and adjacent to Arroyo Las Positas. This action further exposes the stream reach to direct sunlight which may affect temperature levels and impact suitability of the stream for steelhead. Vegetation removal work will occur during dry months when fish are expected to be entirely absent. The Action Area also does not support any cold, deep, shaded pools that may provide refuge for adult steelhead to persist through summer. As discussed above, the potential for steelhead to be present at all in Arroyo Las Positas is extremely minimal. There is no potential for successful spawning within Arroyo Las Positas and so the Project will have no effect on fry and smolts. Stray adult steelhead have a very limited potential to be present in Arroyo Las Positas during the winter migration months, but do not have the potential to be present during the summer due to unsuitable flows and high temperatures. All Project activities would occur between June 15 and October 31, outside of any period with any potential for steelhead occurrence. Therefore, timing of Project work, including vegetation removal work is not likely to adversely affect adult steelhead. Riparian replanting will also provide added benefits to Arroyo Las Positas by creating added shade and vegetation structure comprised of newly added native species. Spreading of wood chips that result from vegetation removal would occur in remote areas of the golf course with respect to the creek and would have no effect on steelhead.

Excavation, Sediment Removal, and Turbidity

The Project will excavate sediments from both banks of the stream and within the channel as part of the floodplain expansion and sediment and debris removal efforts. Sediments to be encountered are composed of a mixture of clay and soft silt and could result in erosion and sediment deposition within the stream channel. Sediment removal within the stream and from the bank will occur in a dewatered environment which will minimize turbidity such that it won't affect areas where steelhead might be present. Erosion control BMPs will be implemented which will prevent erosion and sedimentation from the bank excavation.

Work within and immediately to the channel has been timed to occur during the dry season between June 15 and October 31 when steelhead are expected to be entirely absent from the Action Area. Additionally, the Action Area does not support any spawning habitat given the lack of shade, substrate, and unsuitably warm temperatures all of which preclude the potential for any juveniles to occur within. As such, the timing for project activities ensures no living steelhead will

be encountered and minimizes potential effects to this species. Excavation, sediment removal and turbidity from the Project is not likely to adversely affect steelhead.

Golf Course Infrastructure Relocation

The Project will remove and replace a pedestrian bridge spanning the width of the stream within the Action Area with an elevated bridge. Construction on the bridge will involve drilling and installation of new bridge abutments which will occur after the area has been dewatered and no fish are present. Other infrastructure activities include relocating golf cart paths within the Action Area. Relocated paths will be constructed outside of the riparian area and construction activities will avoid the active stream. The infrastructure changes to the golf course will also occur during the dry season between June 15 and October 31 when steelhead are expected to be absent from the Action Area. Bridge construction and relocation of the golf cart paths within the Project Area are not likely to adversely affect steelhead due to the timing of Project work and dewatering around bridge abutments, which will ensure that no living steelhead will be encountered during Project activities.

Spills

Heavy equipment including excavators, loaders, dump trucks etc. will need to work along the channel bank to perform vegetation clearing, sediment removal work and flood wall construction. Oil based fluids such as gasoline, diesel or hydraulic fluid are toxic to aquatic organisms and even in sub-lethal levels have deleterious effects to fish physiology (Thomas and Rice 1979). The close proximity between working equipment and the stream could potentially introduce toxic substances affecting fish and other aquatic organisms within the stream.

The Project will use a number of measures to prevent spills, leaks or other sources of contamination from occurring including inspecting equipment daily, having spill kits on hand and following measures specified in the spill prevention and control plan. Measures outlined in section 2.4 will also be used to prevent impacts to fish and aquatic organisms within the Action Areas. Finally, work will occur in areas that are distant from areas where steelhead are present, with many sources of urban stormwater entering the creek downstream of the Project. Given the equipment being used for the Project, even if a spill occurred, any deleterious materials released would be undetectable by the time it reached downstream areas with the potential to support steelhead. Spills are not likely to adversely affect steelhead.

4.1.2 Indirect Effects

Indirect effects are those caused by or those that will result from the proposed Action later in time but are still reasonably certain to occur.

Velocity Refugia

As part of the Project both banks will be set back and terraced. Outward terracing is proposed so that flood waters can more easily pass through Arroyo Las Positas by increasing the available within-bank cross section through the stream reach within the Action Area.

Widening the streambanks in this fashion will help minimize flooding, keeping water and fish within the stream channel. Terracing the banks also creates areas of velocity refugia near the tops of the streambanks. Replanted vegetation aids in enhancing velocity refugia by shifting the velocity profile of floodwaters upward, away from the bank, allowing small fish to hold in these

peripheral areas (Arizpe et al 2008). Additionally, as the riparian vegetation matures, new additions of woody debris, and mature tree trunks will further aid in the creation of velocity refugia during flood events. While this Project related change will not alter the habitat conditions for steelhead within Arroyo Las Positas, the addition of high velocity refugia would have a beneficial effect for fish during flood events. This is a negligible benefit for steelhead given the lack of suitable habitat present in the creek.

Downstream Turbidity

Excavation work within and adjacent to the channel will be conducted during the dry season and the work area will be isolated from any flow via cofferdams and a temporary bypass. Therefore, there is no potential for the Project to result in turbid conditions downstream. As such, there will be no effect to steelhead.

4.1.3 Cumulative Effects

Cumulative effects are those effects of future State, Tribal, local or private actions that are reasonably certain to occur within and in the vicinity of the Action Area.

The Vulcan Quarry Bank Stabilization Project is an ongoing project located on Arroyo Mocho. Neither Arroyo Las Positas nor Arroyo Mocho have the potential to support steelhead during the summer months when active construction is occurring. It is anticipated that the Vulcan Quarry Bank Stabilization Project will be completed prior to the start of in-water work for this project in 2026. As such, the effects of the two projects' construction disturbance would not be cumulatively considerable. Neither project would result in the loss of suitable habitat for steelhead.

4.2 California red-legged frog

CRLF have been previously observed within the Project Area, but suitable aquatic breeding habitat is not present. The proposed Action will result in vegetation removal and excavation along the banks and within the stream bed which will affect approximately 8.5 acres of riparian and stream habitat that may support movement and aquatic non-breeding habitat for CRLF. Riparian habitat will be replanted in areas where impacts occur, and the Project will ultimately increase the size of suitable habitat. Thus, it is considered a temporary loss of CRLF aquatic habitat in exchange for a long-term increase in suitable habitat.

4.2.1 Direct Effects

Direct effects are those effects caused directly by the proposed Action that occur on-site within the Action Area and during implementation (i.e., ground disturbance) within the Action Area.

Vegetation Removal

Waters of Arroyo Las Positas and riparian vegetation along the stream are likely to support CRLF non-breeding aquatic habitat, as well as dispersal habitat. Non-breeding aquatic habitat is typically used by the species during the summer and fall months after breeding features have dried up. Therefore, if CRLF use this portion of Arroyo Las Positas as non-breeding aquatic habitat, they would be expected to be present during the summer and fall when the Project is scheduled to occur (i.e. during the dry season). In order to complete the Project, riparian vegetation will need to be removed so that sediments can be excavated from the banks and limited portions of the channel within the Action Area. The Project will implement a number of measures including

preconstruction surveys and exclusion fencing to prevent CRLF from entering the Action Area during the earth moving phases of work.

Vegetation removal would result in generation of wood chips which are planned to be disposed of at the periphery of the golf course along Interstate 580. These areas do not contain suitable CRLF habitat and are unlikely to be used by CRLF for dispersal because they would require CRLF to travel across the manicured golf course grounds in a direction away from aquatic areas. The activity of spreading the wood chips in these relatively distant areas is not likely to adversely affect CRLF. During vegetation removal an Approved Biologist will inspect vegetation before removal operations proceed. However, due to the variety of vegetation types, and microhabitats beneath woody debris, or within the banks, it is likely that some individuals would evade detection if they are present. Individuals that escape detection would be potentially injured or die from project related operations including: falling debris (e.g. by trees as they are felled), landslides along unstable slopes, being crushed or entombed within interstitial spaces or by removal of debris (e.g. logs or rocks that are extracted). In addition, the proposed minimization measures involve the potential for handling of individuals by the Approved Biologist, which can in and of itself have deleterious effects on CRLF. Therefore, while all reasonable efforts will be made to survey for and exclude animals, if frogs are present in the work area, the Project may affect and is likely to adversely affect CRLF during vegetation removal activities.

Excavation, Sediment Removal, and Turbidity

The Project will excavate sediments from both banks of the stream and within the channel as part of the floodplain expansion and sediment and debris removal efforts. Sediments to be encountered are composed of clay and soft silt and have the potential to result in erosion when disturbed. Work within and immediately adjacent to the channel has been timed to occur during the dry season between June 15 and October 31 and outside of rain events to minimize the potential for CRLF dispersing into the work site. The streambank work may affect and is likely to adversely affect CRLF during the active construction period but, overall, floodplain expansion within the Action Area will increase suitable riparian habitat for CRLF and result in a beneficial effect to the species in the long term.

Golf Course Infrastructure Relocation

The Project will remove an existing pedestrian bridge spanning the width of the stream and a new, elevated bridge will be constructed in its place. Bridge construction will involve excavation in the channel banks and drilling of new bridge abutments. Other infrastructure activities include relocating golf cart paths within the Action Area. Relocated paths will be constructed outside of the riparian area in locations that were already in use by the golf course. Exclusion fencing will be placed around the active work area after vegetation has been removed to prevent CRLF from re-entering the work area. An Approved Biologist will be present during bridge construction and relocation of the golf cart paths to detect any individual CRLF that may have migrated into the work area after exclusion. The proposed minimization measures involve the potential for the Approved Biologist to handle and relocate CRLF that are detected in the work area, which can in and of itself have deleterious effects on CRLF. Reasonable efforts to exclude CRLF from the Action Area will be made prior to these Project activities but, if CRLF individuals are found within the Action Area, the Project may affect and is likely to adversely affect CRLF during golf course infrastructure repairs and relocation.

Spills

Potential aquatic habitat for CRLF could be degraded if the proposed project resulted in a spill of fuel or other hazardous materials or increased sedimentation in Arroyo Las Positas. The Project will minimize the potential for the degradation of aquatic habitat from a spill or sedimentation by implementing water quality and erosion control BMPs, fuelling equipment away from all aquatic habitat, implementing a spill prevention plan, and limiting in-channel work to the dry season. With implementation of the proposed conservation measures, potential spills from the Project are not likely to adversely affect CRLF.

Replanting

Part of the Project will involve replanting riparian trees to meet required tree replacement ratios. Replanting within the Action Areas would occur when the site is expected to be fully isolated from surrounding areas via an installed exclusion fence and denuded of vegetation after several weeks of earthwork. Therefore, it is anticipated that no CRLF will be encountered during this activity and effects are not anticipated. Replanting of riparian vegetation within the widened floodplain would have a long-term beneficial effect on CRLF by increasing the area of potential movement and refugia habitat.

4.2.2 Indirect Effects

Indirect effects are those caused by or those that will result from the proposed Action later in time but are still reasonably certain to occur.

Replanting

Following completion of the Project the banks of the stream throughout the Action Area will be restored and replanted. Because these areas will be replanted, riparian vegetation and cover for CRLF along non-breeding aquatic habitat will be restored, and prolonged negative impacts to habitat quality are not anticipated.

Various native trees, shrubs and forbs will be replanted to meet requirements specified in Project permits. However, it is also anticipated that replanted cover will be thinner, with less foliage and ground vegetation for a short period of time. Despite being replanted, the thinner vegetation and foliage may expose CRLF that use the area following restoration to increased detection by predators in the area. This temporary lack of cover may result in indirect adverse effects on CRLF.

4.2.3 Cumulative Effects

Cumulative effects are those effects of future State, Tribal, local or private actions that are reasonably certain to occur within and in the vicinity of the Action Area.

The Vulcan Quarry Bank Stabilization Project is an ongoing project located on Arroyo Mocho. Neither Arroyo Las Positas nor Arroyo Mocho has the potential to support steelhead during the summer months when active construction is occurring. It is anticipated that the Vulcan Quarry Bank Stabilization Project will be completed prior to the start of in-water work for this project in 2026. As such, the effects of the two projects' construction disturbance would not be cumulatively considerable.

4.3 Northwestern Pond Turtle

NPT have been previously observed within the Project Area. The proposed Action will result in vegetation removal and excavation along the banks and within the stream bed which will affect approximately 8.5 acres of riparian and stream habitat that may support aquatic habitat for NPT. Riparian habitat will be replanted in areas where impacts occur, and the Project will ultimately increase the size of suitable habitat. Thus, it is considered a temporary loss of NPT aquatic habitat in exchange for a long-term increase in suitable habitat.

4.3.1 Direct Effects

Direct effects are those effects caused directly by the proposed Action that occur on-site within the Action Area and during implementation (i.e., ground disturbance) within the Action Area.

Vegetation Removal

For NPT, the proposed Project will result in temporary disturbance to aquatic habitat within the portion of stream running through the Action Area located in the golf course. In order to complete the Project, riparian vegetation will need to be removed so that sediments can be excavated from the banks and limited portions of the channel within the Action Area. The Project will implement a number of measures including preconstruction surveys and exclusion fencing to prevent NPT from entering the Action Area during the earth moving phases of work. Removal of riparian vegetation would also result in the creation of wood chips that are planned to be spread along the periphery of the golf course along Interstate 580. Dispersal of NPT into these peripheral areas is highly unlikely and NPT is not likely to be adversely affected by the placing of wood chips within the portion of the Project Area along Interstate 580.

During vegetation removal an Approved Biologist will inspect vegetation for turtles and their nests before removal operations proceed. However, due to the variety of vegetation types, and microhabitats beneath woody debris, or within the banks, it is likely that some individuals or their nests would evade detection if present. Individuals or nests that are not detected would be potentially injured or die from project related operations including: falling debris (e.g. by trees as they are felled), landslides along unstable slopes, being crushed or entombed within interstitial spaces or by removal of debris (e.g. logs or rocks that are extracted). Therefore, while all reasonable efforts will be made to survey for and exclude animals, if turtles or their nests are present in the area work is expected to pose a direct risk.

Flood Wall Construction

Potential upland habitat for NPT adjacent to aquatic habitat within the Action Area to the east of Airway Boulevard will be temporarily disturbed during off-road access by heavy equipment during flood wall construction along Airway Boulevard. In areas where an exclusion fence is installed (if needed), NPT will be unable to access the excluded areas. The disturbance of potential upland habitat will temporarily remove habitat that NPT could use for nesting and could increase the risk of predation on NPT if any individual NPT are present and displaced and are subsequently not able to find shelter; however, these effects will be discrete and temporary. Once construction is complete, the flood wall will provide an additional barrier to prevent NPT from accessing areas that could expose individuals to injury or death from vehicles. As such, there is a post-construction beneficial effect to NPT.

Excavation and Sediment Removal

Any NPTs present within the Action Area during access by heavy equipment could be injured or killed if they were run over by the heavy equipment or sheltering in burrows that are collapsed during excavation and sediment removal. NPTs could also be crushed if they are in the stream during excavation of the channel or installation of the over-water pedestrian bridge abutments. The Project will minimize the potential for injury and mortality of NPTs during construction by: having a USFWS-approved biologist conduct pre-construction surveys of the work areas of the Project to look for any signs of NPTs; having a UFWS-approved biologist onsite to supervise initial ground disturbing activities where NPT have potential to occur; requiring all proposed Project construction staff be trained in the identification of the NPT and their habitats and the implementation of the avoidance and minimization measures; limiting in-channel work and construction activities to the dry season; in the event a NPT enters the work area, the USFWS-approved biologist will have the authority to stop activities if necessary; and the USFWS-approved biologist will relocate any NPTs from the Action Area that are in danger of being injured or killed. An exclusion fence will be installed around areas of potential NPT aquatic and upland habitat prior to work in these areas. An Approved Biologist will be present during construction activities to stop work and relocate NPT if NPT are detected in the work area. Handling of NPT can have a deleterious effect on individual animals. Even with these measures in place, the Project may adversely affect NPT during floodplain excavation and sediment removal if an individual NPT is present in the work area.

Golf Course Infrastructure Relocation

The Project will remove an existing pedestrian bridge spanning the width of the stream and a new, elevated bridge will be constructed in its place. Bridge construction will involve excavation in the channel banks and drilling of new bridge abutments. Other infrastructure activities include relocating golf cart paths within the Action Area. Relocated paths will be constructed outside of the riparian area in locations that were already in use by the golf course. Exclusion fencing will be placed around the active work area after vegetation has been removed to prevent NPT from re-entering the work area. An Approved Biologist will be present during bridge construction and relocation of the golf cart paths to detect any individual NPT that may have migrated into the work area after exclusion. The proposed minimization measures involve the potential for the Approved Biologist to handle and relocate NPT that are detected in the work area, which can in and of itself have deleterious effects on NPT. Reasonable efforts to exclude NPT from the Action Area will be made prior to these Project activities but, if NPT individuals are found within the Action Area, the Project may affect and is likely to adversely affect NPT during golf course infrastructure repairs and relocation.

Spills

Potential aquatic habitat for NPT could be degraded if the proposed project resulted in a spill of fuel or other hazardous materials or increased sedimentation in Arroyo Las Positas. The Project will minimize the potential for the degradation of aquatic habitat from a spill or sedimentation by implementing water quality and erosion control BMPs, fuelling equipment away from all aquatic habitat, implementing a spill prevention plan, and limiting in-channel work to the dry season. With implementation of the proposed conservation measures, potential spills from the Project are not likely to adversely affect NPT.

Replanting

Part of the Project will involve replanting riparian trees to meet required tree replacement ratios. Replanting within the Action Areas would occur when the site is expected to be fully isolated from surrounding areas via an installed exclusion fence and denuded of vegetation after several weeks of earthwork. Therefore, it is anticipated that no NPT will be encountered during this activity and effects are not anticipated. Replanting of riparian vegetation within the widened floodplain would have a long-term beneficial effect on NPT by increasing the area of potential movement and refugia habitat.

4.3.2 Indirect Effects

Indirect effects are those caused by or those that will result from the proposed Action later in time but are still reasonably certain to occur.

Replanting

Following completion of the Project the banks of the stream throughout the Action Area will be restored and replanted. Because these areas will be replanted, riparian vegetation and cover for NPT along aquatic habitat will be restored, and prolonged negative impacts to habitat quality are not anticipated.

Various native trees, shrubs and forbs will be replanted to meet requirements specified in Project permits. However, it is also anticipated that replanted cover will be thinner, with less foliage and ground vegetation for a short period of time. Despite being replanted, the thinner vegetation and foliage may expose NPT that use the area following restoration to increased detection by predators in the area. This temporary lack of cover may result in indirect adverse effects on NPT.

4.3.3 Cumulative Effects

Cumulative effects are those effects of future State, Tribal, local or private actions that are reasonably certain to occur within and in the vicinity of the Action Area.

The Vulcan Quarry Bank Stabilization Project is an ongoing project located on Arroyo Mocho. Neither Arroyo Las Positas nor Arroyo Mocho has the potential to support steelhead during the summer months when active construction is occurring. It is anticipated that the Vulcan Quarry Bank Stabilization Project will be completed prior to the start of in-water work for this project in 2026. As such, the effects of the two projects' construction disturbance would not be cumulatively considerable.

5 DETERMINATION OF EFFECT

The conclusions of this Biological Assessment for Federal-listed species with potential to occur within the Action Area are as follows:

- Steelhead, Central California Coast DPS – May Affect, Not Likely to Adversely Affect
- California red-legged frog – May Affect, Likely to Adversely Affect
- Northwestern pond turtle – May Affect, Likely to Adversely Affect

5.1 Steelhead – Central California coast DPS

The portion of Arroyo Las Positas within the Action Area does not support spawning and/or juvenile rearing. In the rare event that adult fish are present they are expected to be present in very low numbers, especially during the dry season. For any fish that are present, they may be subject to Project related impacts from turbidity, spills or other habitat related modifications. In the event that the Project does not go forward, fish within the stream are still subject to continued flood events, by additional emergency flood control measures, or by exposure to pollution from floodwaters which affect surrounding urban landscapes and re-enter the stream. However, with the implementation of the project's schedule and minimization measures outlined in section 2.4, all effects to fish are expected to be minimized greatly. For these reasons, the Project **may affect but is not likely to adversely affect** steelhead.

5.2 California red-legged frog

The Action will be initiated following confirmation that all exclusion fencing is installed and all upland refugia, if present within the fenced areas, have been inspected for CRLF, excavated, and all CRLF have had the opportunity to leave the Action Area on their own volition or been relocated by a service-approved biologist. If there are CRLF remaining after these avoidance efforts in the Project Area, these CRLF may be harmed, harassed, or killed during ground disturbing activities such as topsoil removal, grading, or excavation. In addition, handling of CRLF individuals, if necessary, by an Approved Biologist, would constitute harassment as defined by the ESA. As such, the proposed Action **may affect and is likely to adversely affect** CRLF within the Project Area.

5.3 Northwestern Pond Turtle

Project activities will commence upon the completion of pre-construction avoidance and minimization measures for NPT including exclusion fencing, pre-construction surveys for individual turtles and their nests within the Action Area, and monitoring during initial ground-disturbance activities. If NPT individuals or their nests remain following these avoidance efforts, these NPT and their nests may be harmed, harassed/disturbed, or killed/destroyed during ground disturbing activities such as vegetation removal, topsoil removal, equipment access construction, grading, or excavation. In addition, handling of NPT individuals, if necessary, by an Approved Biologist, would constitute harassment as defined by the ESA. As such, the proposed Action **may affect and is likely to adversely affect** NPT within the Project Area.

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This biological assessment was prepared by WRA with supplemental information provided by the Applicant. The addresses and telephone numbers are:

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Additional information provided for the preparation of this document includes engineering information from Schaaf and Wheeler Consulting Civil Engineers. The addresses and telephone numbers are:

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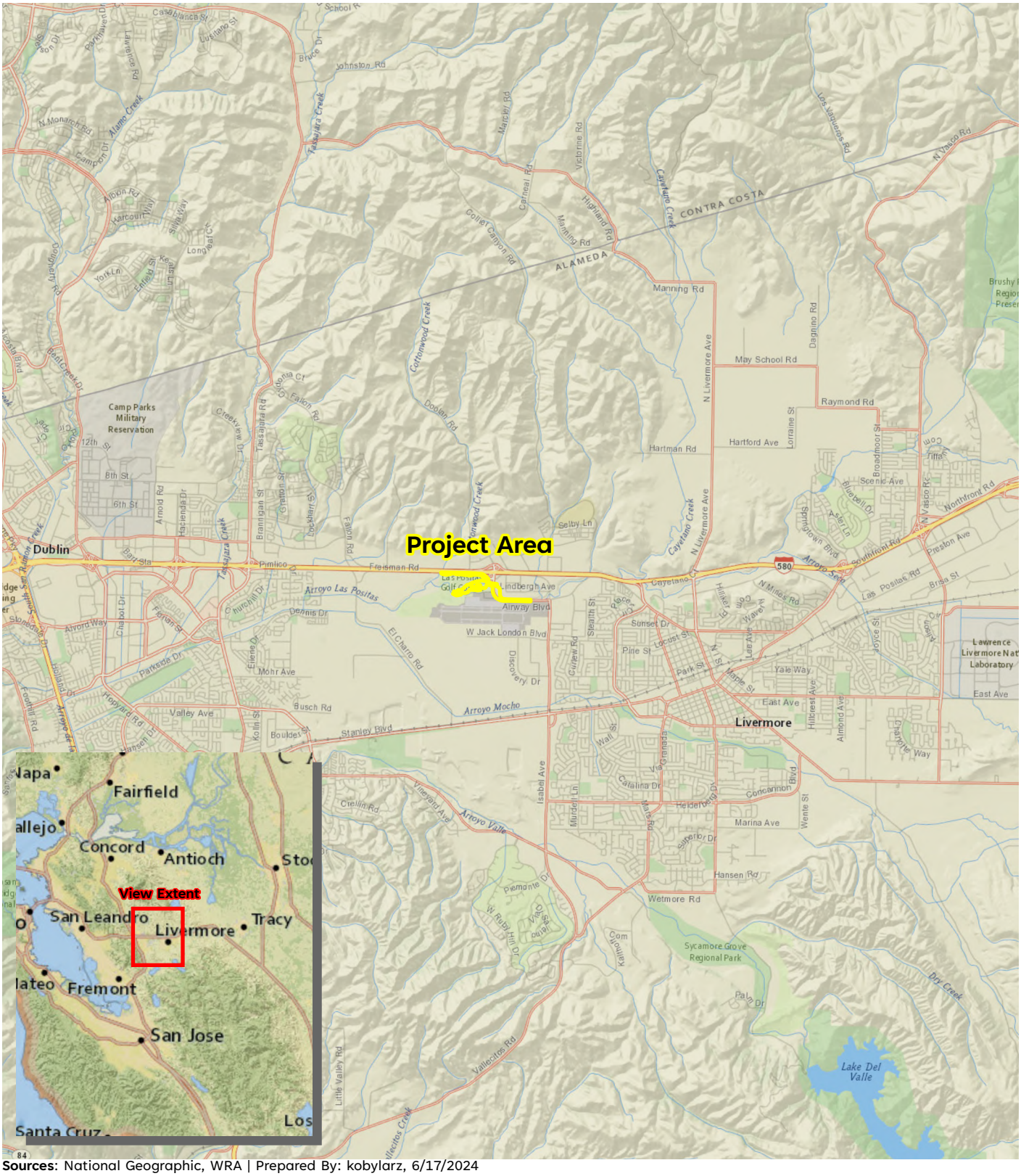
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APPENDIX A. PROJECT FIGURES



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Sources: National Geographic, WRA | Prepared By: kobylarz, 6/17/2024

Figure 1. Project Area Location Map

City of Livermore Stream Maintenance
Livermore, California

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wra Environmental Consultants



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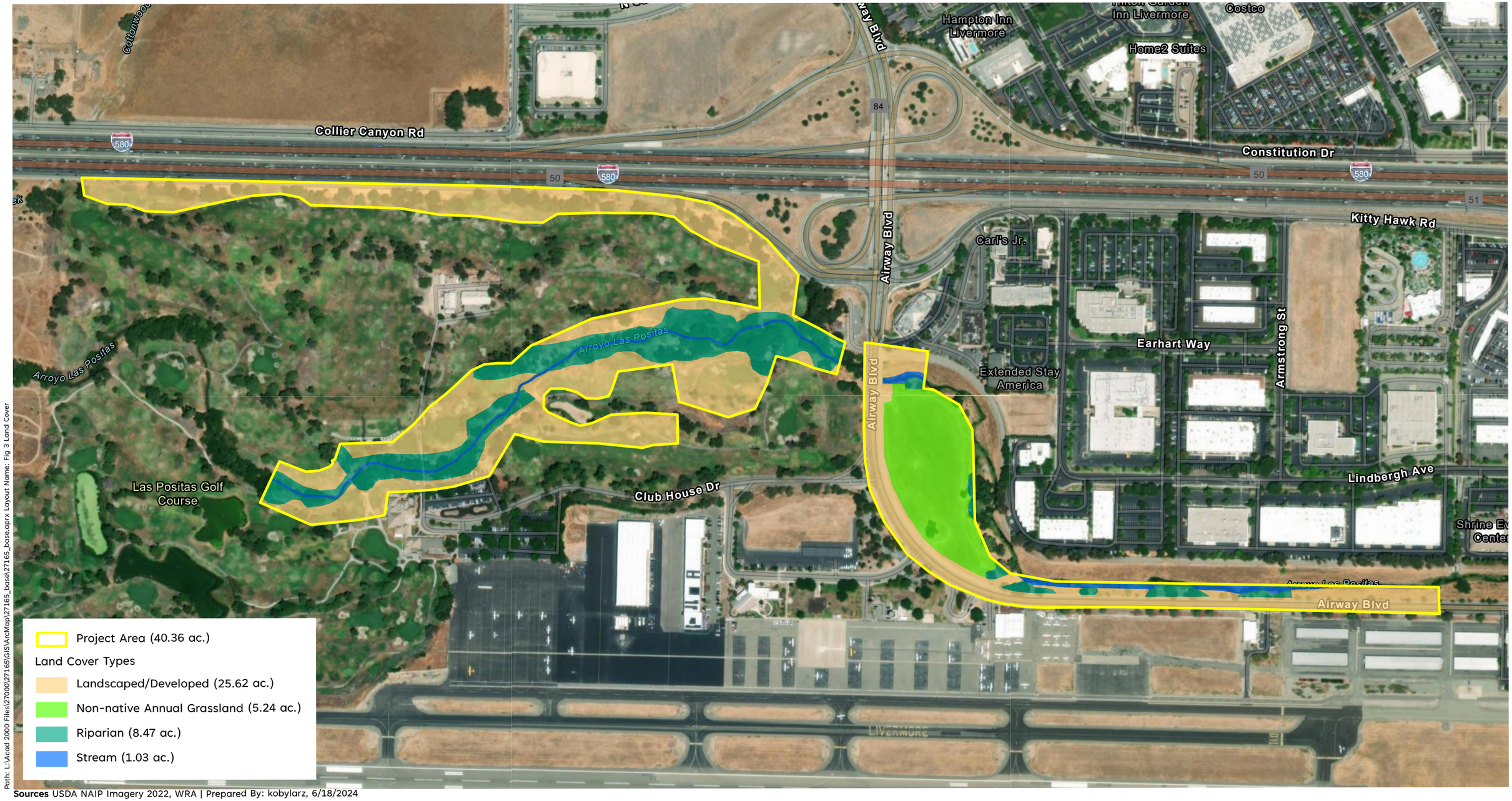
Sources USDA NAIP Imagery 2022, WRA | Prepared By: kobylarz, 6/17/2024

Figure 2. Action Area and Project Area Details

City of Livermore Stream Maintenance
Livermore, California

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wra Environmental Consultants



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Sources USDA NAIP Imagery 2022, WRA | Prepared By: kobylarz, 6/18/2024

Figure 3. Land Cover Types

City of Livermore Stream Maintenance
Livermore, California

wra Environmental Consultants

APPENDIX B. PROJECT PLANS



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GRAPHIC SCALE (IN FEET)

150 0 75 150 300

1" = 150'

NOTES:

1. LOCATION OF HAUL ROUTES AND DISPOSAL AREAS ARE APPROXIMATE AND WILL BE FIELD VERIFIED BY THE ENGINEER.
2. RESTORE CONDITIONS OF ROUTES TO PRE-PROJECT CONDITION WHEN CONSTRUCTION IS COMPLETE.
3. DO NOT REMOVE ANY TREES NOT LABELED FOR REMOVAL ON THE GRADING PLANS

LEGEND	
	DISPOSAL AREAS
	CONSTRUCTION STAGING AREAS
	HAUL ROUTES (10' WIDTH)

REGISTERED PROFESSIONAL ENGINEER
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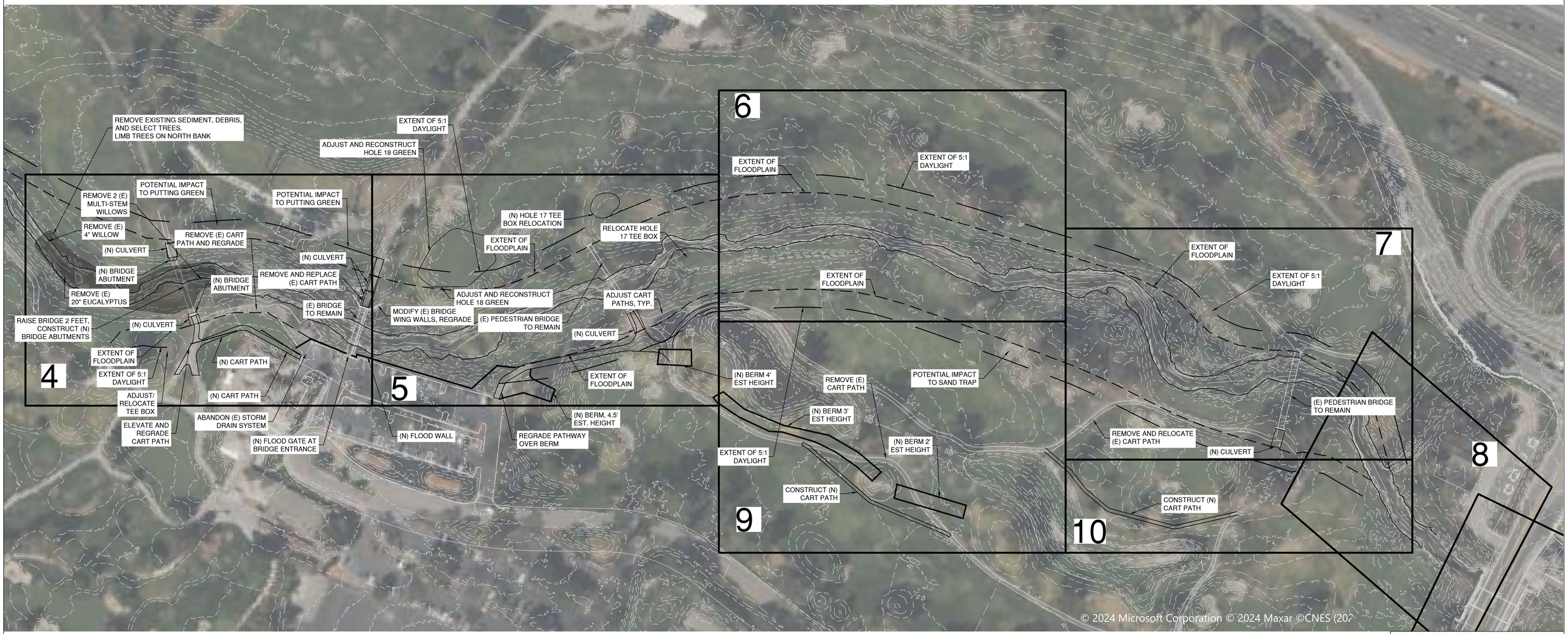
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ARROYO LAS POSITAS GOLF COURSE FLOOD PROTECTION PROJECT HAUL ROUTES AND DISPOSAL AREAS

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Of	13
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GRAPHIC SCALE (IN FEET)

80 0 40 80 160

1" = 80'

REGISTERED PROFESSIONAL ENGINEER
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ARROYO LAS POSITAS GOLF COURSE FLOOD PROTECTION PROJECT KEY PLAN

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2. RESTORE CONDITIONS OF ROUTES TO PRE-PROJECT CONDITION WHEN CONSTRUCTION IS COMPLETE.
3. DO NOT REMOVE ANY TREES NOT LABELED FOR REMOVAL ON THE GRADING PLANS

REGISTERED PROFESSIONAL ENGINEER
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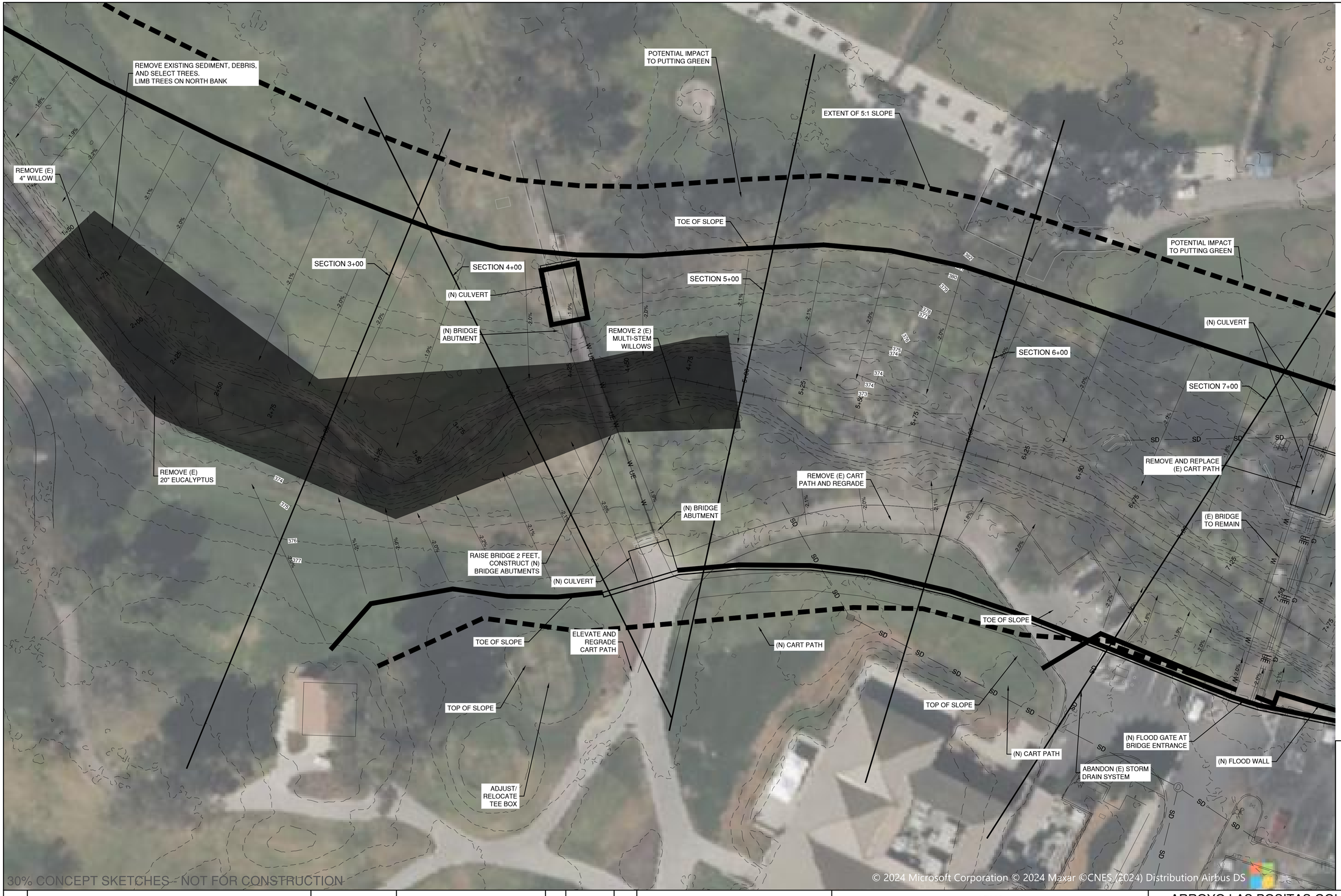
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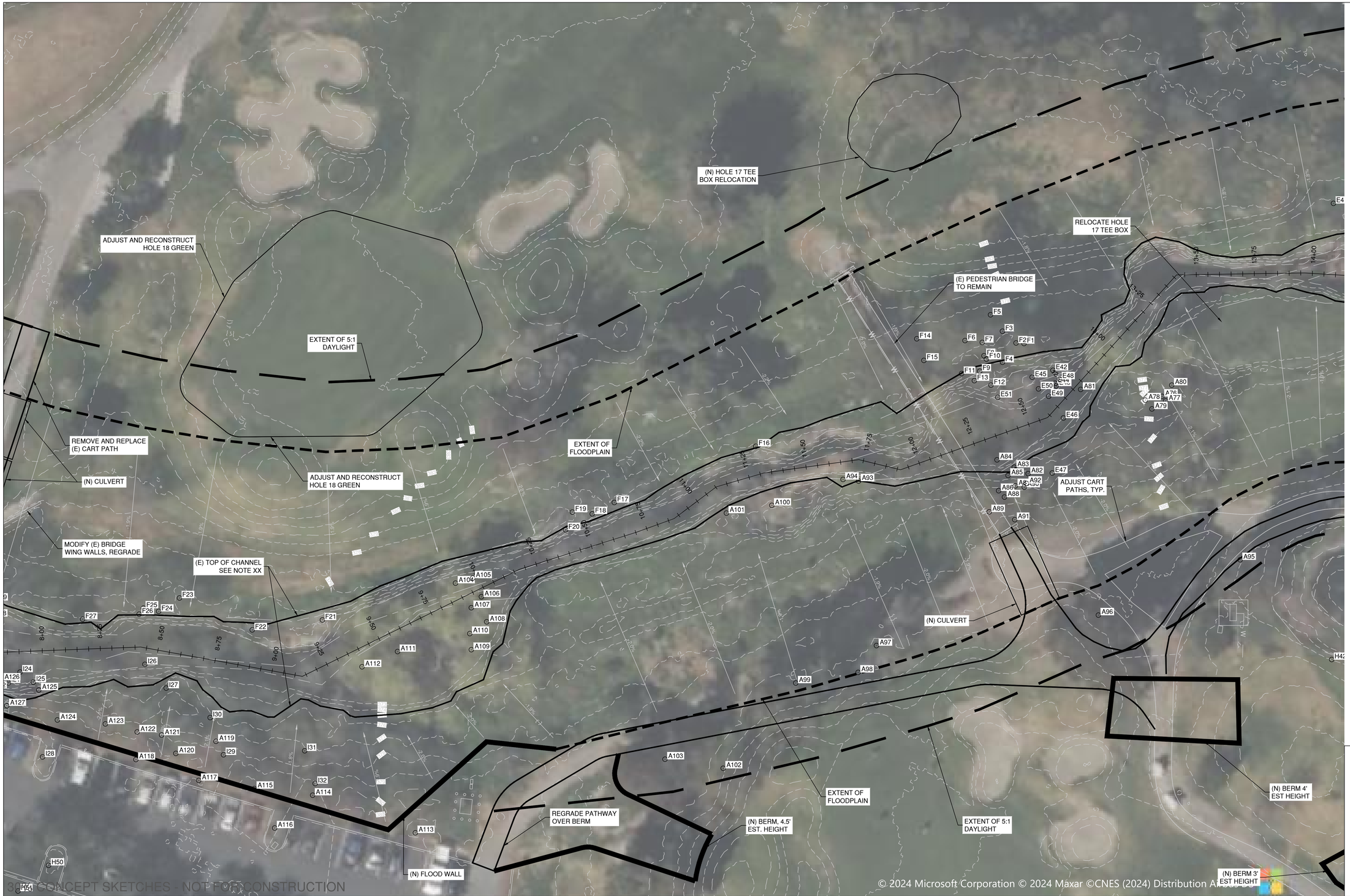
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ARROYO LAS POSITAS GOLF COURSE FLOOD PROTECTION PROJECT IMPROVEMENT PLAN - CHANNEL

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REGISTERED PROFESSIONAL ENGINEER
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1" = 20'

REGISTERED PROFESSIONAL ENGINEER
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ARROYO LAS POSITAS GOLF COURSE FLOOD PROTECTION PROJECT IMPROVEMENT PLAN - CHANNEL

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Of	13
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1" = 20'

REGISTERED PROFESSIONAL ENGINEER
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NO. C 83121
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STATE OF CALIFORNIA

DRAFT

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1" = 20'

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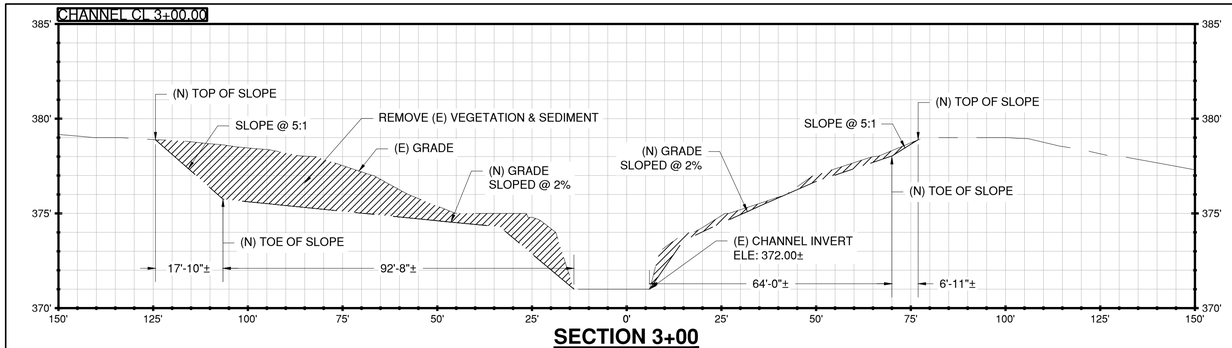
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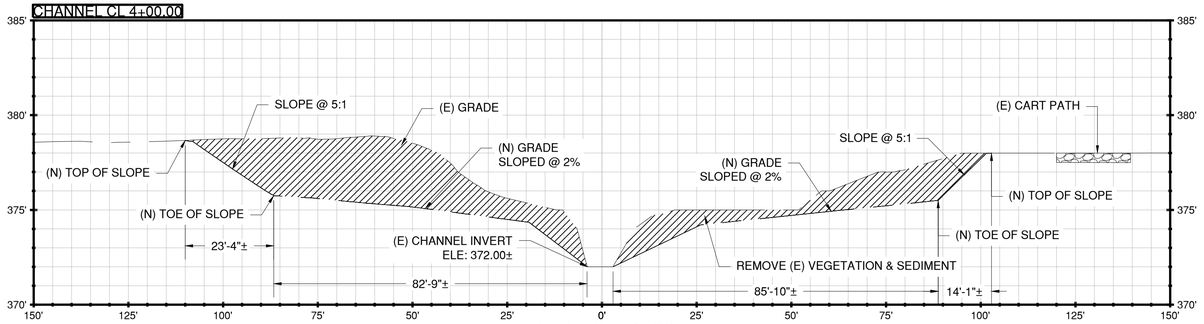
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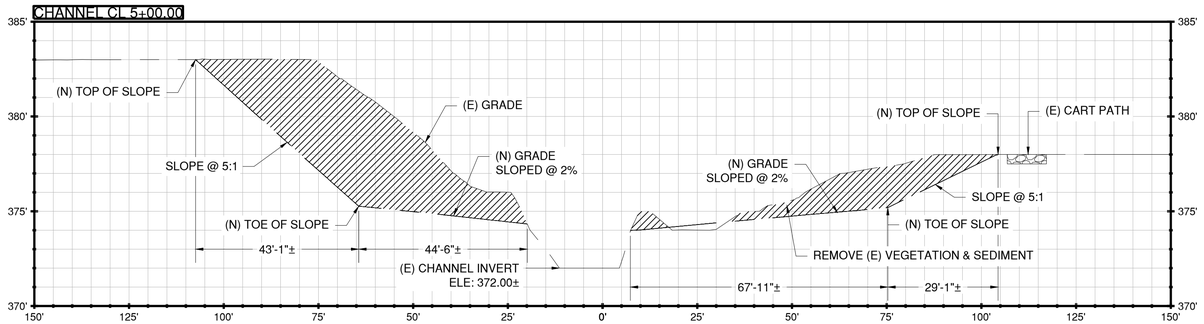
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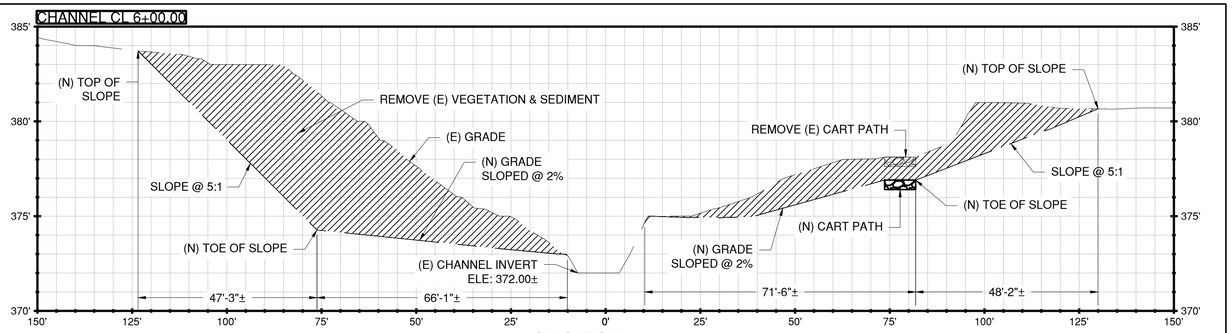
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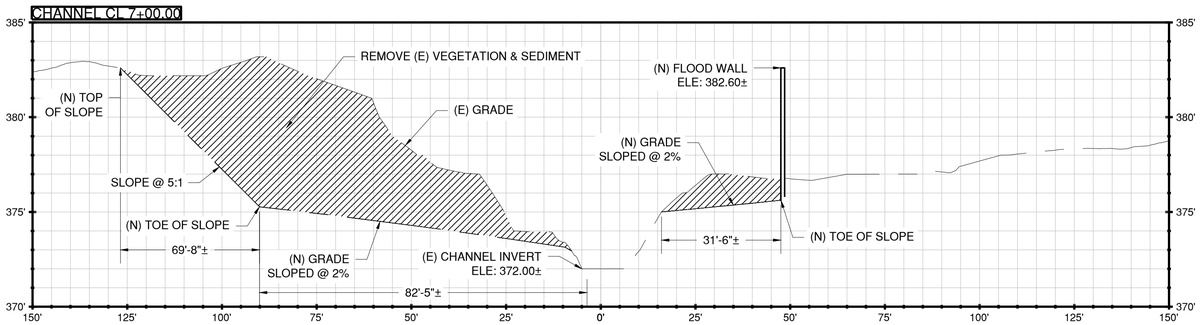
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SECTION 7+00

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ARROYO LAS POSITAS GOLF COURSE FLOOD PROTECTION PROJECT

SECTION VIEWS

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Of 22
Scale: AS SHOWN



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GRAPHIC SCALE (IN FEET)

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ARROYO LAS POSITAS GOLF COURSE FLOOD PROTECTION PROJECT

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REGISTERED PROFESSIONAL ENGINEER
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City Project No. S202300A

ARROYO LAS POSITAS GOLF COURSE FLOOD PROTECTION PROJECT IMPROVEMENT PLAN - CHANNEL

Sheet	10
Of	13
Scale:	AS SHOWN



30% CONCEPT SKETCHES - NOT FOR CONSTRUCTION

N

GRAPHIC SCALE
(IN FEET)

20 0 10 20 40

1" = 20'

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN L. SHICK
No. C81...
CIVIL
STATE OF CALIFORNIA

DRAFT

Inch
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		NO.	DATE	BY	REVISIONS
	06/19/24				
APPROVED BY	DATE				
DESIGNED BY	JFO				
DRAWN BY	JFO				
CHECKED BY	BLS				

CITY OF
LIVERMORE
CALIFORNIA
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City Project No. S202300A

ARROYO LAS POSITAS GOLF COURSE FLOOD PROTECTION PROJECT IMPROVEMENT PLAN - FLOODWALL

Sheet	11
Of	13
Scale:	AS SHOWN



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GRAPHIC SCALE
(IN FEET)

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1" = 20'

30% CONCEPT SKETCHES - NOT FOR CONSTRUCTION

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City Project No. S202300A

ARROYO LAS POSITAS GOLF COURSE FLOOD PROTECTION PROJECT

Sheet	12
Of	13
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GRAPHIC SCALE
(IN FEET)
20 0 10 20 40
1" = 20'

30% CONCEPT SKETCHES - NOT FOR CONSTRUCTION

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APPROVED BY	DATE
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DRAWN BY	JFO
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NO.	DATE	BY	REVISIONS

CITY OF
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City Project No. S202300A

ARROYO LAS POSITAS GOLF COURSE FLOOD PROTECTION PROJECT

Sheet	13
Of	13
Scale:	AS SHOWN

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GRAPHIC SCALE
(IN FEET)

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1" = 20'

30% CONCEPT SKETCHES - NOT FOR CONSTRUCTION

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COMMUNITY DEVELOPMENT DEPARTMENT-ENGINEERING DIVISION
City Project No. S202300A

ARROYO LAS POSITAS GOLF COURSE
FLOOD PROTECTION PROJECT

Sheet	14
Of	13
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APPENDIX C. SPECIAL-STATUS SPECIES EVALUATION

Appendix C. Potential for Special-status Plant and Wildlife Species to Occur within the Project Area

List Compiled from the California Department of Fish and Wildlife California Natural Diversity Database (CDFW 2024), U.S. Fish and Wildlife Service Information for Planning and Consultation (IPaC) Report (USFWS 2024), and California Native Plant Society Rare Plant Inventory (CNPS 2024) search of the Livermore and surrounding nine USGS 7.5' quadrangles.

SPECIES	STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE
Flower Plants			
Palmate-bracted Bird's Beak *Cordylanthus palmatus*	1B.1, FE	Found in seasonally flooded, saline-alkali soils in lowland plains and basins at elevations of less than 500 feet in the Sacramento and San Joaquin Valleys. It is partially parasitic, obtaining water and nutrients from the roots of other plants.	**No Potential.** The Project Area is heavily managed and consists primarily of a riparian corridor surrounded by manicured lawns. There is no suitable habitat within the Project Area for this species.
Mammals			
San Joaquin Kit Fox *Vulpes macrotis mutica*	FE	Annual grasslands or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing, and suitable prey base.	**No Potential.** The Project Area is surrounded by urban development and does not contain suitable habitat or a wildlife corridor passage from suitable habitat north of the I-580 barrier to the Project Area..
Birds			
California Condor *Gymnogyps californianus*	FE	Year-round resident in vast expanses of open savannah, grasslands, and foothill chaparral in mountain ranges of moderate altitude. Deep canyons containing clefts in the rocky walls provide nesting sites. Forages up to 100 miles from roost/nest.	**No Potential.** The Project Area does not contain suitable nesting habitat for this species.
California Least Tern *Sternula antillarum browni*	FE	Summer resident along the coast from San Francisco Bay south to northern Baja California; inland breeding also very rarely occurs. Nests colonially on barren or sparsely vegetated areas with sandy or gravelly substrates near water, including beaches, islands, and gravel bars. In San Francisco Bay, has also nested on salt pond margins	**No Potential.** The Project Area is outside of the known range of this species.
Reptiles and Amphibians			
Alameda Whipsnake *Masticophis lateralis euryxanthus*	FT	Inhabits chaparral and foothill-hardwood habitats in the eastern Bay Area. Prefers south-facing slopes and ravines with rock outcroppings where shrubs form a vegetative mosaic with oak trees and grasses and small mammal burrows provide basking and refuge.	**No Potential.** The Project Area does not contain suitable habitat for this species.

SPECIES	STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE
Northwestern Pond Turtle *Actinemys marmorata*	PFT	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Require basking sites such as partially submerged logs, vegetation mats, or open mud banks, and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	**High Potential.** Observed May 9, 2024immediately adjacent to the Project Area in the portion of stream habitat east of Airway Boulevard. No significant barriers to movement within Arroyo Las Positas from observed location. Suitable aquatic habitat including basking structures, mud banks, and sandy banks present within some portions of stream running through the golf course. No breeding habitat present for NPT as adjacent uplands are heavily managed for golf course maintenance. No NPT were observed within the Project Area.
California Red-legged Frog *Rana draytonii*	FT	Associated with quiet perennial to intermittent ponds, stream pools and wetlands. Prefers shorelines with extensive vegetation. Documented to disperse through upland habitats after rains.	**High Potential.** Arroyo Las Positas runs through the Project Area and provides suitable aquatic (non-breeding) habitat for CRLF. One documented occurrence of an adult CRLF was also recorded in 1997 immediately adjacent to the Project Area where significant dispersal barriers are absent. The Project Area lacks suitable breeding habitat and is surrounded by urban development and heavily managed uplands that hinder dispersal of adult CRLF from suitable breeding habitat north of I-580.The suitable habitat within the Project Area and lack of dispersal barriers from known occurrence area result in a high potential to encounter this species. .
California Tiger Salamander *Ambystoma californiense*	FT	Inhabits annual grassland habitat and mammal burrows. Seasonal ponds and vernal pools crucial to breeding. Federal Endangered status limited to populations in Sonoma and Santa Barbara counties	**Unlikely.** Ornamental ponds adjacent to the Project Area provide still water habitat for CTS but are not suitable for breeding as they are not located near suitable upland habitat for CTS dispersal. Upland habitat within and adjacent to the Project Area is heavily managed by the golf course and small mammal burrows are absent. The nearest CNDDB record for CTS is within a mile of the Project Area but north of I-580 which serves as a significant barrier for dispersal. There have been no recorded CTS occurrences south of I-580 where the Project Area is defined.

SPECIES	STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE
Foothill Yellow-legged Frog *Rana boylii*	FT	Found in or adjacent to rocky streams in a variety of habitats. Prefers partly-shaded, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Feeds on both aquatic and terrestrial invertebrates.	**No Potential.** Stream sediment and characteristics of Arroyo Las Positas are not suitable for FYLF habitat.
Western Spadefoot *Spea hammondii*	PFT	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Shallow temporary pools formed by winter rains are essential for breeding and egg-laying.	**Not Present.** The Project Area does not contain suitable upland habitat. All upland habitat is heavily managed by the golf course.
Fish			
Steelhead – Central California Coast DPS *Oncorhynchus mykiss irideus*	FT	Occurs from the Russian River south to Soquel Creek and Pajaro River. Also in San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean.	**Unlikely.** Arroyo Las Positas runs through the Project Area and is a tributary of the Arroyo Mocho watershed and Alameda Creek. Multiple barriers to fish migration exist along Arroyo Las Positas and there is no suitable spawning habitat for steelhead within the stream. There are no records of spawning or juvenile rearing within the reach of stream in the Project Area and there are no current records of steelhead in Arroyo Las Positas. However, stray adult individuals may be present in rare instances. Timing of project activities render it unlikely to encounter any live steelhead.
Insects			
Monarch Butterfly *Danaus Plexippus*	FC	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, Monterey cypress), with nectar and water sources nearby.	**No Potential.** The Project Area does not contain expansive tree groves. Project activities will occur in the summer months of the dry season when overwintering monarchs will not be present.
Crustaceans			
Conservancy Fairy Shrimp *Branchinecta conservatio*	FE	Endemic to the grasslands of the northern two-thirds of the Central Valley; found in large, turbid pools. Inhabit astatic pools located in swales formed by old, braided alluvium; filled by winter/spring rains, last until June.	**No Potential.** The Project Area does not contain suitable habitat for this species.
Vernal Pool Fairy Shrimp *Branchinecta lynchi*	FT	Endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	**No Potential.** The Project Area does not contain suitable vernal pool habitat that the species requires.

[1] **Federal Endangered Species Act (ESA) Listing Codes: the listing status is current as of 2024.**

FC:	Federal Candidate for Listing
FE:	Federal Endangered
FT:	Federal Threatened
PFT:	Proposed Federal Threatened

APPENDIX D. ESSENTIAL FISH HABIAT ASSESSMENT

Appendix D.

ESSENTIAL FISH HABITAT ASSESSMENT FOR THE LAS POSITAS FLOOD HAZARD MITIGATION PROJECT

Action Agency
Federal Emergency Management Agency (FEMA)

Project Name
Las Positas Flood Hazard Mitigation Project, Livermore, Alameda County, California

Introduction
This assessment of Essential Fish Habitat (EFH) is prepared for the City of Livermore (City; Applicant) for the Las Positas Flood Hazard Mitigation Project (Project) in accordance with amendments to the regulations implementing the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (FR 62(244): December 19, 1997). Protection of EFH is mandated through changes implemented in 1996 to the Magnuson-Stevens Act to protect the loss of habitat necessary to maintain sustainable fisheries in the United States. Under regulatory guidelines issued by the National Marine Fisheries Service (NMFS), any federal agency that authorizes, funds, or undertakes action that may affect EFH is required to consult with NMFS (50 CFR 600.920).

Table 1. EFH within the Action Area and the Anticipated Effect of the Action

Essential Fish Habitat	Effect Determination
Pacific Salmon	***No effect***

Project Background
The approximately 40.36-acre Project Area, where the Project will be constructed, is located in the Las Positas Golf Course and an adjacent land parcel to the east, within the City of Livermore, Alameda County, California (Figure 1, Appendix A).

FEMA is the Federal Action Agency for Section 7 Consultation for the Project. The Action Area is comprised of the Project Area (i.e. the location where Project activities will physically occur) as well as a buffer of 300 feet beyond the Project Area in aquatic and upland areas to account for potential effects resulting from project activities that include vegetation removal, sediment and debris removal, and excavation in and adjacent to Arroyo Las Positas (Figure 2, Appendix A).

Work along Arroyo Las Positas will primarily be focused on expanding the channel overbank areas to increase channel conveyance and to restore and increase the riparian habitat along the channel. A small portion of the project includes work within the low flow channel for sediment and debris removal. One golf cart bridge will be raised approximately 2-3 feet from its current height and will require new bridge footings, which will be placed outside the top of bank of Arroyo Las Positas. The bridge will remain in the same location.

Channel overbank expansion work will occur along approximately 2,700 linear feet of channel. Sediment and debris removal will occur within 400 linear feet of the creek, included within the 2,700 linear foot area of overbank expansion. The primary focus of this work is to increase flood conveyance while expanding the riparian habitat along the channel. Work within the channel will

be timed to coincide with the dry season (June 15 – October 31) to minimize impacts to water quality and wildlife. Understory within the excavation limits will be removed. Excavation work will prioritize preserving existing riparian trees to the maximum extent feasible, targeting non-natives first. It is estimated up to 75 riparian native trees will be required to be removed. Trees to be removed will be reused within the channel to the extent feasible to protect the channel bank stability and migration while also creating habitat (large woody debris). Removed trees not utilized for overbank work will be chipped and spread within the upland areas of the golf course.

The objective of this EFH assessment is to determine whether the Project may adversely affect designated EFH for commercial, federally managed fisheries species. The EFH assessment also describes measures proposed to avoid and minimize potential adverse effects to designated EFH resulting from Project activities.

Essential Fish Habitat Background

The Magnuson-Stevens Act (as amended by the Sustainable Fisheries Act) requires Fishery Management Plans (FMP) to "describe and identify essential fish habitat, minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat" (§303(a)(7)). The Magnuson-Stevens Act defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." NMFS interpreted this definition in its regulations as follows: "waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means "the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem"; and "spawning, breeding, feeding, or growth to maturity" covers the full life cycle of a species (§303(a)(7)).

A brief description of FMP in the Action Area is provided below.

Pacific Salmon FMP

The Pacific Salmon Fisheries Management Plan (PFMC 2022b) is designed to protect habitat for commercially important salmonid species, and specifically Chinook and coho salmon which may occur within the Action Area. While coho salmon are extirpated from San Francisco Bay and its tributaries (NMFS 2012), Chinook salmon including: fall-run, late-fall run, spring-run and winter-run, would be considered seasonally present within waters of the Action Area. Therefore, effects to salmonid EFH are assessed because commercially important species regulated under the FMP are known to occur.

Analysis of Effects to EFH

Direct Effects

Pacific Salmon FMP

The Project will excavate sediments from both banks of the river and within the channel and the material being removed is composed of soft silt and sand. Sediment is expected to be impacted within the channel and may slide down the bank during excavation and enter the creek. Work within the entire Project Area will occur during the dry season between July 15 and October 15. Timing work during this period makes it less likely that stray adult fish will be present in the

Project Area or Arroyo Mocho tributaries of Alameda Creek. Any in-water work below the Ordinary High Water Mark (OHWM) will utilize appropriate best management practices (BMPs), such as the use of turbidity curtains downstream of sediment removal activities, to prevent impacts to aquatic habitat. Therefore, the combination of exclusion work, and timing of work is anticipated to minimize potential effects to Pacific Salmon EFH by the Project

Indirect Effects

Pacific Salmon FMP

The Action Area is subject to regular flooding. Each flood event reintroduces urban waste and toxic substances into the stream. Addressing flooding at this time allows for work to occur once, and at a time when effects can be most effectively minimized. Therefore, not conducting the Project has an indirect effect to water quality and resulting in continual emergency responses within and adjacent to the creek. Addressing flood control issues at this time is likely to minimize future effects on the stream by preventing additional impacts from floods and further creek degradation.

Cumulative Effects

The Project is not anticipated to contribute to substantially adverse effects to EFH.

Conclusion

The Las Positas Flood Hazard Mitigation Project will result in increases to turbidity of the stream during bank widening activities. Conservation Measures specified in the Biological Assessment will be implemented to minimize Project-related impacts to protected species and habitats, including EFH. With the use of Conservation Measures and timing Project activities during the dry season, the Project will have no effect on EFH and warrants the following finding for EFH FMPs:

Pacific Salmon: No effect

APPENDIX D. CULTURAL RESOURCES STUDY

The Cultural Resources Study is available for review at the City by qualified individuals only.