ALVARADO CREEK AFFORDABLE HOUSING PROJECT
BIOLOGICAL SURVEY REPORT

CITY OF SAN DIEGO, SAN DIEGO COUNTY, CALIFORNIA

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January 26, 2021

Revised May 2, 2022

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ATTACHMENTS

1.0 SUMMARY

The Alvarado Creek Affordable Housing Project (Project) proposes 227 100-percent affordable residential rental apartment units in one 5-story type III-A building, over one level of type I-A above ground podium structure. The 227 residential units include 54 studios, 53 one-bedroom units, 60 two-bedroom units and 60 three-bedroom units. Primary access is provided via a driveway off of Mission Gorge Road to drop-off, turnaround and garage parking areas. A total of 67 parking spaces are provided. Common area amenities include a pool area and access to the proposed Alvarado Creek trail. Architectural style and design features are described in the attached design package.

Project implementation requires that the development pad be elevated above the Alvarado Creek 100-year floodplain elevation and that Alvarado Creek channel slope erosion protection be constructed. A community trail is proposed to be constructed along the onsite portion of Alvarado Creek within the proposed development. An existing sewer line and easement is proposed to be relocated southerly across Alvarado Creek to an existing point of connection near the Grantville Trolley Station. A total of 15,600 cubic yards (CY) of fill will be required for the pad and sewer line. In order to ensure that the 100-year floodplain water surface elevation does not increase due to the proposed project, an additional 2,900 CY of cut is required within the onsite portion of the Alvarado Creek floodplain. Grading and development of the Project site will require an additional 12,700 CY of import.

Project construction will require multiple cranes to lift prefabricated project units and other project materials into place. Crane set up and decommissioning is planned to occur at night, utilizing one lane of Mission Gorge Road. Project grading and construction is proposed to be completed in 18 months.

The Project site is located within Reach 2 of the Grantville Trolley Station/Alvarado Creek Revitalization Study, which requires the relocation and construction of the Alvarado Creek channel, creek trails and habitat restoration/creation. A restoration plan has been prepared for the Alvarado Creek portion of the Project site and is included in Attachment D. The proposed channel slope erosion protection and restoration discussed above is an interim measure until the ultimate Alvarado Creek channel improvements and habitat restoration are completed in the future.

The Project is located outside MHPA lands. Significant direct, indirect, or cumulative impacts to listed, sensitive or MSCP-covered species are not anticipated.

The Project will impact 0.283 acre of City wetland habitat which is considered significant. The Project is seeking deviation from City wetland regulations as the Biologically Superior Option (BSO). The Project has incorporated on-site habitat restoration which is expected to exceed City required wetland mitigation ratios through the on-site restoration, creation, and enhancement of 0.599 acre of wetlands. On site restoration and creation will account for 0.4 acre of the total 0.599 acre of proposed mitigation, in excess of a 1:1 ratio to the proposed impacts to wetlands for "no-net loss." By adhering to the mitigation measures proposed in this report, no significant direct, indirect or cumulative adverse impacts would occur to sensitive biological resources.

2.0 INTRODUCTION

This Biological Survey Report (Report) was prepared by Blackhawk Environmental, Inc. (Blackhawk) biologists Kris Alberts, Ian Maunsell, Lorena Bernal, Katie Quint, and Seth Reimers in accordance with the City of San Diego's (City) Biology Guidelines (2018) and is intended to satisfy requirements set forth in the City's Environmentally Sensitive Lands Regulations (ESL) and San Diego Land Development Code (LDC). The studies detailed herein were conducted to identify the locations of sensitive natural resources, identify the potentials for occurrences (PFOs) of special-status plant and wildlife species, and to develop mitigation measures to offset potential direct, indirect, and cumulative impacts to any such resources on and/or adjacent to the proposed Project alignment. Additionally, this Report serves to illustrate the baseline conditions for which the determination of impacts and mitigation under the California Environmental Quality Act (CEQA) should be analyzed during the environmental review process.

2.1 Project Location

The proposed Project is located on 3.86-acres southeast of Mission Gorge Road, south of Mission Gorge Place, and north of Interstate 8 (I-8) and the Grantville Trolley station (Figure 1). The project is located within the following Assessor Parcel Numbers (APNs): 416-320-06, 461-320-08 and 461-320-09. Existing onsite and surrounding land uses include a variety of industrial and commercial businesses, with Alvarado Creek bisecting the Project site.

2.2 Background

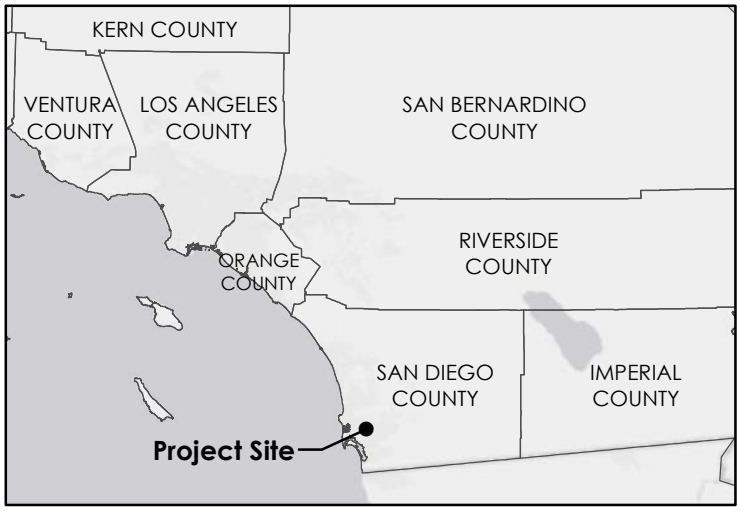
The proposed Project will include the addition of over 227 100-percent affordable housing units. The Project is proposed under an addendum to the Grantville Community Plan Implementation Overlay Zone (CPIOZ) Amendment Final Environmental Impact Report (EIR) (City of San Diego 2015).

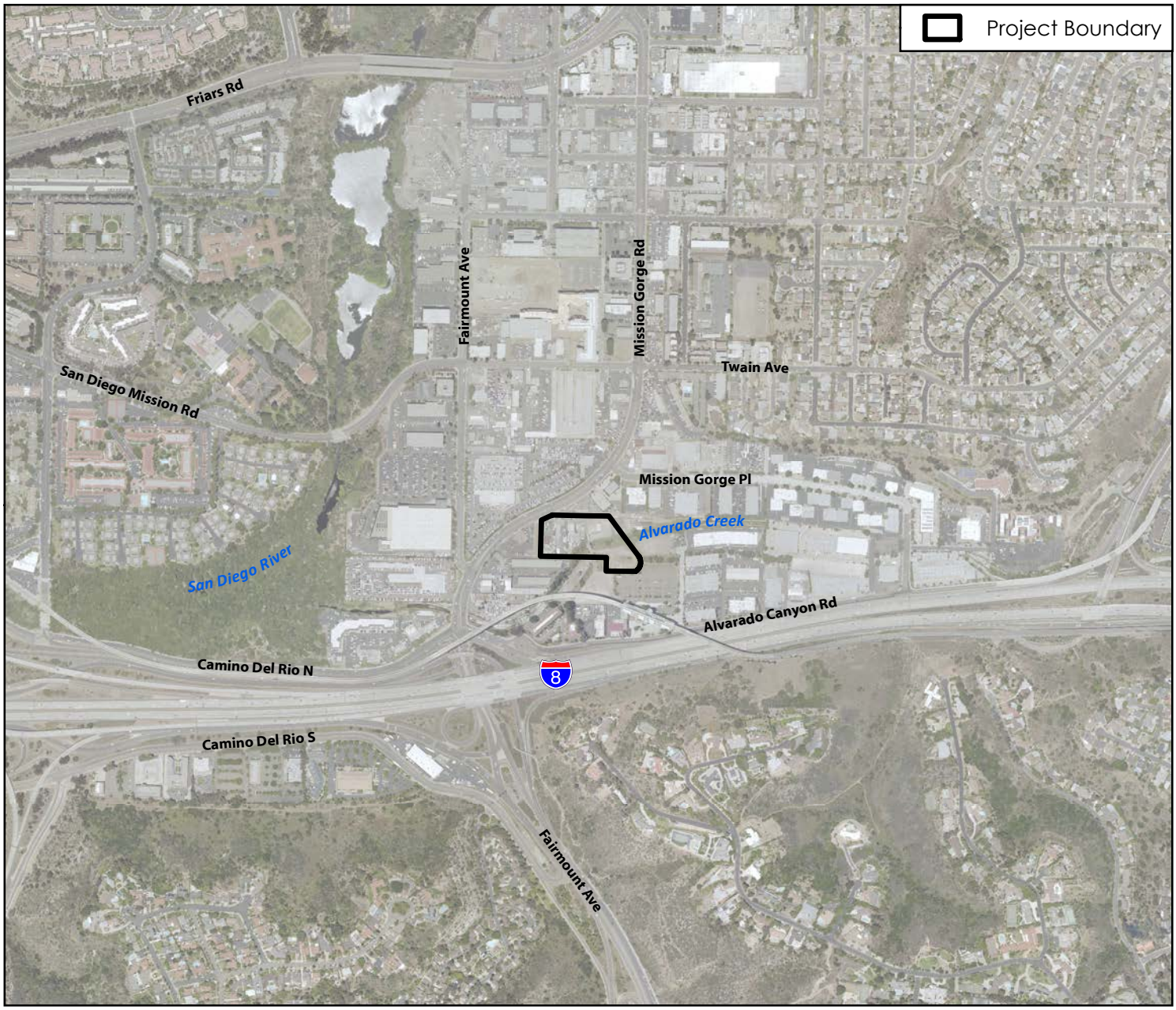
2.3 Project Description

The proposed 227 residential units include 54 studios, 53 one-bedroom units, 60 two-bedroom units and 60 three-bedroom units. Primary access is provided via a driveway off of Mission Gorge Road to drop-off, turnaround and garage parking areas. A total of 67 parking spaces are provided. Common area amenities include a pool area and access to the proposed community trail. A community trail is proposed to be constructed along the onsite portion of Alvarado Creek. Perimeter fencing will be installed along the southern boundary of the development between the development and proposed multi-use trail. Architectural style and design features are described in the Project design package.

The structures will incorporate an underground stormwater vault with incorporated onsite treatment. The stormwater vault will be designed to capture onsite runoff and treat water prior to discharging runoff into Alvarado creek via an outfall located south of the development at the southern Project boundary. One additional stormwater outfall has been designed to convey stormwater and urban runoff from Mission Gorge Road along the east and south perimeter of the development, discharging into Alvarado Creek. Stormwater outfalls will be installed with concrete headwalls. Both outfalls have been designed to include permanent erosion control at the outfall locations.

An existing sewer line and easement is proposed to be relocated southerly across Alvarado Creek to an existing point of connection near the Grantville Trolley Station.





Source: SANDAG & SanGIS 2017; Esri

Figure 1

Project Vicinity and Location

Alvarado Creek Affordable Housing Project

BLACKHAWK Environmental

N

0 1,000 Feet

The new sewer connection would extend from an existing line located approximately 100 feet northwest of the southeast corner of parcel 461-320-08-00. The new sewer easement will support a decomposed granite substrate and extend from the connection point along the eastern Project boundary, cross Alvarado Creek, and connect to an existing sewer line approximately 300 feet north at Friars Road. Relocation of the sewer line and easement would include the installation of a permanent concrete encasement at the crossing within Alvarado Creek at the eastern Project boundary. The concrete encasement is designed to prevent erosion and damage to the utility.

Project implementation requires that the development pad be elevated above the Alvarado Creek 100-year floodplain elevation and that Alvarado Creek channel slope erosion protection be constructed. In order to ensure that the 100-year floodplain water surface elevation does not increase due to the proposed Project, Alvarado Creek is proposed for widening to increase the capacity of the channel. Widening of the channel will entail excavation of a new channel bank on the non-development side of Alvarado Creek (south). The margin between the new channel slope and existing channel will be excavated to increase the overall capacity of the channel. To offset proposed impacts to City designated sensitive areas, the new channel slope is proposed for habitat creation to provide onsite mitigation. Although no modifications to the northern channel slope are proposed as part of the Project, adjacent developed concrete pads would be removed and allowed to revegetate with native habitat following construction, providing additional habitat buffer and opportunity for natural wetland recruitment.

A total of 15,600 cubic yards (CY) of fill will be required for the pad and sewer line. In order to ensure that the 100-year floodplain water surface elevation does not increase due to the proposed project, an additional 2,900 CY of cut is required within the onsite portion of the Alvarado Creek floodplain. Grading and development of the Project site will require an additional 12,700 CY of import.

The Project has incorporated on site landscaping which will include plantings of native upland species in the on-site margin between the proposed community trail and area north of the creek designated for wetland enhancement. These landscaped areas will be managed as part of the long-term occupation of the site. Project landscaping is further planned to re-vegetate temporary impact areas which are proposed for use between the permanent development pad and Alvarado Creek. These areas currently consist of developed concrete pads and would be revegetated with native upland and riparian transitional species following construction. Long term management of restored temporary impact areas within this upland-transitional margin is not proposed following the initial establishment period.

The Project site is located within Reach 2 of the Grantville Trolley Station/Alvarado Creek Revitalization Study, which requires the relocation and construction of the Alvarado Creek channel, creek trails and habitat restoration/creation. A restoration plan has been prepared for the Alvarado Creek portion of the Project site and is included in Attachment D. Implementation of the ultimate onsite portion of the Alvarado Creek improvements outlined in the revitalization study will require additional engineering and environmental design, and coordination with upstream and downstream property owners, and will be implemented following construction of the proposed Project. The proposed channel slope erosion protection and restoration discussed above is an interim measure until the ultimate Alvarado Creek channel improvements and habitat restoration are completed in the future.

2.3.1 Phasing

No "phasing" is proposed for Project completion, and construction is anticipated to occur in a single project phase.

2.3.2 Staging Areas

Project construction will require multiple cranes to lift prefabricated project units and other project materials into place. Crane set up and decommissioning is planned to occur at night, utilizing one lane of Mission Gorge Road.

2.3.3 Equipment

Equipment required to complete the Project will include, at a minimum; excavators, scrapers, loaders, forklifts, cranes, drills, and support vehicles, dump trucks, pickup trucks and intermittent concrete trucks. Some work may include the need for concrete pumping, via a truck-towed line pump or a standalone boom pump rig. Additional equipment may include that required for stream diversions during work within Alvarado Creek, such as stationary pumps and tanks.

2.3.4 Schedule and Duration

The Project schedule is dependent upon the document finalization and permit approval processes. Therefore, a specific construction timeline cannot be reasonably estimated at this time. The Project duration is estimated to require 18 months to complete.

3.0 METHODS

3.1 Literature Review

Prior to conducting the biological surveys, California Natural Diversity Database (CNDDB), United States Fish & Wildlife Service (USFWS) species occurrence records, and California Native Plant Society (CNPS) Rare and Endangered Plant Inventory records searches were conducted to assess the Project site for its potential to contain State and/or federally listed threatened, endangered and/or otherwise special-status plant and animal species, as well as endemic species and species provided take coverage under the City of San Diego Multiple Species Conservation Plan (MSCP) (CDFW CNDDB, accessed January 2020). In addition, information from the *Grantville Trolley Station/Alvarado Creek Enhancement Project* prepared by RECON Environmental was also reviewed (2016). Soil type data from the Natural Resources Conservation Service (NRCS) were also reviewed to assist with identifying suitable habitat for sensitive species potentially present. The results of the literature review were used to focus biological survey efforts for any special-status species perceived to have some potential to occur on and/or adjacent to the Project site.

3.2 Survey Methods

The initial biological survey was conducted on January 15, 2020 by Blackhawk biologists Katie Quint and Lorena Bernal. A follow up survey was performed on January 15, 2021 by Lorena Bernal and Ryan Quilley to verify site conditions were consistent with the initial assessment, and further evaluate areas proposed for habitat "enhancement." All biological surveys were performed according to the latest protocols and MSCP guidelines for biological surveys and reporting, specifically the Subarea Plan (City of San Diego 1997). Survey dates and conditions are included in Table 1.

Table 1. Wildlife Survey Dates and Personnel

Date	Personnel	Survey Times	Temperature (F°)	Weather
January 15, 2020	Katie Quint and Lorena Bernal	08:30-14:30	46-63	Partly Cloudy - Clear
January 15, 2021	Lorena Bernal and Ryan Quilley	08:00-11:30	62-74	Clear

Several tasks were accomplished during the biological surveys. Onsite and adjacent areas were characterized for their existing conditions and current land uses. In order to inform analyses of indirect impacts and proposed off-site uses, the survey included all proposed Project parcels as well as an additional 100 feet surrounding the Project (Survey Area). The onsite vegetation communities were identified by dominant species present for Geographic Information System (GIS) extrapolation. Potentials for occurrence (PFO) of sensitive plant and animal species resulting from the literature review were assessed in relation to the existing conditions of the Project site. Representative photographs were collected to document current conditions of the parcels as well as the general surroundings (Attachment A). All plant species observed within the Project Site, plus all wildlife observed by sight, sign and/or sound within the vicinity of the Project site, were cataloged in the field notes of the biologist to compile species lists (Attachment B). The Project site and its immediately adjacent area were assessed for the presence/absence of potentially jurisdictional waters of the United States Army Corps

of Engineers (USACE), Regional Water Quality Control Board (RWQCB), California Department of Fish & Wildlife (CDFW) and/or City of San Diego Resource Protection Ordinance (RPO) defined wetlands, including vernal pools.

3.2.1 Vegetation Mapping – Winter 2020 and 2021

On January 15, 2020, vegetation mapping was conducted to map all vegetation communities within the Survey Area (Figure 6). Vegetation mapping was conducted by Blackhawk biologists Katie Quint and Lorena Bernal. Prior to conducting the biological survey, Blackhawk reviewed the City guidelines (City of San Diego 2018) and the vegetation community classifications according to Holland (1986) and Oberbauer (2008) to determine those resources that were applicable for use during the mapping effort.

Vegetation community mapping was completed according to City guidelines (City of San Diego 2018). Vegetation community classifications and boundaries were made directly into the GIS mapping application, "Collector for ArcGIS" using a Trimble R2 external receiver. GIS software (i.e., ArcGIS) was used to calculate acreages and areas of the features within the Survey Area. Field forms and/or datasheets were prepared to document the dominant and subdominant plant species within the various communities. Plants were identified by visual observation. Nomenclature for common native plants follows Hickman (1993) as updated by the Jepson Online interchange (Jepson Flora Project 2016), and nomenclature for ornamental plants follows Brenzel (2001).

3.2.2 Wildlife Surveys – Winter 2020

During the January 15, 2020 site assessment, a general wildlife survey was completed within the Survey Area. Focused surveys were not conducted for special-status wildlife species; however, wildlife species observed or detected during field surveys by sight, calls, tracks, scat, or other signs were recorded. Binoculars were used when necessary to assist with wildlife species identification.

Potentials for occurrence (PFO) of special-status plant and wildlife species resulting from the literature review were assessed in relation to the existing conditions of the Project site and Survey Area. The ability to identify wildlife species was limited by seasonal and temporal factors. Nocturnal animals were not observed directly, as the survey was performed during the day. In addition, seasonally migratory species that are present within the area only at specified periods outside survey timing may not have been detected. Latin and common names of wildlife species followed the American Ornithologists' Union (2018) and Unitt (2004) for birds; Crother (2012) for amphibians and reptiles; and North American Butterfly Association (NABA) (2001) or SDNHM (2002) for butterflies.

3.2.3 Jurisdictional Delineation Survey and Report

Based on findings during the literature review and biological survey, a jurisdictional delineation was performed on January 31, 2020 by Blackhawk wetland specialists Ian Maunsell, Seth Reimers and Katie Quint. The delineation effort followed guidelines set forth by USACE (1987, 2008) and was performed to gather field data at potentially jurisdictional Waters of the U.S. and Waters of the State within the proposed Project area. To account for all potential Project impact areas and provide a greater

landscape context to sensitive aquatic resources, all areas within the larger Survey Area were assessed for jurisdictional resources, including all areas proposed for Project development and/or impact. Potential wetlands were then delineated within the Survey Area based on commonality among vegetation community characteristics and three-parameter testing methodology. To account for any changes in existing conditions and to ensure consistency with City guidelines for areas considered wetlands, the delineation effort refined, and updated vegetation mapping performed as part of the biological assessment (Figure 6).

Prior to conducting the field delineation, the following sources were consulted to identify land use history and provide additional context to potentially atypical and problematic jurisdictional wetlands within the Survey Area, including:

- USGS *La Mesa, California* quadrangle topographic map (USGS 2011)
- Historical aerial photographs (NETR 1947)
- Current and historical aerial photographs (Google 2020)
- National Wetland Inventory (USFWS 2020)
- California Natural Diversity Database (CNDDB) search for sensitive riverine, riparian and/or aquatic species (CDFW 2020)

Once on site, the potential wetland locations were examined to determine the presence of any of the three wetland parameters, drainage channels and/or water bodies. Soil type and classification data used in the delineation were provided by the Natural Resource Conservation Service's web soil survey (U.S. Department of Agriculture [USDA] 2010) (Figure 2).

Potential waters and wetland locations observed within the Survey Area were evaluated using the methodology set forth in the USACE Wetland Delineation Manual (USACE 1987) and the Arid West Supplement (USACE 2008). Wetland hydrology indicators may include evidence of inundation, saturation, water marks, drainage patterns, soil cracks, drift lines, sediment deposits, presence of aquatic invertebrates and other variables. Vegetation was analyzed using dominant species wetland indicator status (USDA 2018). Suspected non-wetland jurisdictional areas were evaluated for the presence of definable channels, ordinary high-water mark, and connectivity to a Traditional Navigable Water (TNW) or Relatively Permanent Water (RPW).

Table 2. 2020 Jurisdictional Delineation Survey Date and Personnel

Date	Personnel
January 31, 2020	Ian Maunsell, Seth Reimers and Katie Quint
March 13, 2020	Ian Maunsell

3.2.4 Limitations That May Influence Results

The vegetation mapping, jurisdictional delineation and wildlife surveys were conducted during the day and during months of the year when most blooming annuals and perennials were not evident or identifiable. Focused surveys for wildlife and plants were not conducted.

In addition, these surveys were conducted during the daytime, which usually results in few observations of mammals, many of which may be active at night. In addition, many species of reptiles and

amphibians are nocturnal or cryptic in their habits and are difficult to observe using standard survey methods. Therefore, conservative estimates regarding the PFOs of certain special-status plant and wildlife species have been considered with appropriate mitigation measures proposed herein.

4.0 REGULATORY SETTING

This section is divided into sub-sections that include Federal, State and Local regulations that apply to the Project as proposed.

4.1 State and Federal Take Authorizations for Listed Species

Federal or state authorizations of impacts to or incidental take of a listed species by a private individual or other private entity would be granted in one of the following ways:

- Section 7 of the FESA stipulates that any federal action that may affect a species listed as threatened or endangered requires a formal consultation with USFWS to ensure that the action is not likely to jeopardize the continued existence of the listed species or result in destruction or adverse modification of designated critical habitat. 16 U.S.C. 1536(a)(2).

- In 1982, the FESA was amended to give private landowners the ability to develop Habitat Conservation Plans (HCP) pursuant to Section 10(a) of the FESA. Upon development of an HCP, the USFWS can issue incidental take permits for listed species where the HCP specifies at minimum, the following: (1) the level of impact that will result from the taking, (2) steps that will minimize and mitigate the impacts, (3) funding necessary to implement the plan, (4) alternative actions to the taking considered by the applicant and the reasons why such alternatives were not chosen, and (5) such other measures that the Secretary of the Interior may require as being necessary or appropriate for the plan.

- Sections 2090-2097 of the California Endangered Species Act (CESA) require that the state lead agency consult with CDFW on projects with potential impacts on state-listed species. These provisions also require CDFW to coordinate consultations with USFWS for actions involving federally listed as well as state- listed species. In certain circumstances, Section 2080.1 of the California Fish and Game Code allows CDFW to adopt the federal incidental take statement or the 10(a) permit as its own based on its findings that the federal permit adequately protects the species under state law.

4.2 Federal

4.2.1 Federal Endangered Species Act (FESA)

The Federal Endangered Species Act of 1973 (FESA) defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of Section 9(a)(1)(B) of the FESA it is unlawful to "take" any listed species. "Take" is defined in Section 3(18) of FESA: "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the United States Fish and Wildlife Service (USFWS), through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification that result in injury to, or death of species as forms of "take." These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case

where a property owner seeks permission from a Federal agency for an action that could affect a federally listed plant and animal species, the property owner and agency are required to consult with USFWS. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants.

Federally-Designated Special-Status Species

All references to federally protected species in this Report (whether listed, proposed for listing, or candidate) include the most current published status or candidate category to which each species has been assigned by USFWS. Additionally, the USFWS *Birds of Conservation Concern 2008* report was published to identify the migratory and non-migratory bird species (beyond those already federally listed) that represent the highest conservation priorities for USFWS.

For this report, the following acronyms are used for federal special-status species:

- **FE**: Federally listed as Endangered
- **FT**: Federally listed as Threatened
- **FPE**: Federally proposed for listing as Endangered
- **FPT**: Federally proposed for listing as Threatened
- **FC**: Federal Candidate species (Former Category 1 candidates)
- **BCC**: USFWS Birds of Conservation Concern

4.2.2 Migratory Bird Treaty Act (MBTA)

The Migratory Bird Treaty Act (PL 65-186, as amended; 16 USC §§ 703 et seq.) protects most birds, whether or not they migrate. Birds, their nests, eggs, parts, or products may not be killed or possessed. Game birds are listed and protected except where specific seasons, bag limits, and other features govern their hunting. Exceptions are made for some agricultural pests, which require a USFWS permit (yellow-headed, red-winged, bi-colored, tri-colored, rusty and Brewer's Blackbirds, cowbirds, all grackles, crows and magpies). Some other birds that injure crops in California may be taken under the authority of the County Agricultural Commissioner (meadowlarks, horned larks, golden-crowned sparrows, white- and other crowned sparrows, goldfinches, house finches, acorn woodpeckers, Lewis' woodpeckers and flickers). Permits may be granted for various non-commercial activities involving migratory birds and some commercial activities involving captive-bred migratory birds. The Project will comply will MBTA protections for birds, and this regulation is not further discussed in this report.

4.2.3 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (PL 95-616; 16 USC §§ 668 et seq.) provides for protection of the bald and golden eagles by prohibiting taking, possession, and commerce in the birds.

4.2.4 Fish and Wildlife Conservation Act of 1980

The Fish and Wildlife Conservation Act of 1980 (PL 96-366; 16 USC §§2901 et seq.) provides for conservation, protection, restoration and propagation of certain species, including migratory birds threatened with extinction.

4.2.5 Federal Clean Water Act (CWA)

The Clean Water Act (CWA) regulates the discharge of pollutants to Waters of the United States to

protect water quality and the beneficial uses of these waters. Through a permit application process, CWA Section 404 regulates dredge and fill discharges to waters of the United States.

4.2.5.1 USACE Waters of the U.S.

According to the USACE Wetland Delineation Manual, wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions."

Regulatory Definition
In accordance with Section 404 of the Clean Water Act (CWA), USACE regulates the discharge of dredged or fill material into Waters of the United States. The term "Waters of the United States" is defined as:

- All Traditional Navigable Waters (TNW) currently used, or used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide;
- All interstate waters, including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds; the use, degradation, or destruction of which could affect foreign commerce including any such waters, (1) which could be used by interstate or foreign travelers for recreational or other purposes; or (2) from which fish or shellfish are, or could be, taken and sold in interstate or foreign commerce; or (3) which are used or could be used for industries in interstate commerce;
- All other impoundments of waters otherwise defined as Waters of the United States under the definition;
- Tributaries of waters identified above;
- The territorial seas; and
- Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in the paragraphs above (33 Code of Federal Regulations [CFR] Part 328.3[a]).

Non-navigable tributaries that do not constitute Relatively Permanent Waters (RPW; exhibit at least seasonal flow, typically three months) may be considered Waters of the U.S. based on significant nexus standards, which may include assessment of downstream hydrologic and ecological functions of the tributary, as well as connectivity to receiving waters (RPWs and/or TNWs).

Wetland Parameters

Wetlands are delineated using three parameters: hydrophytic vegetation, wetland hydrology and hydric soils. According to USACE, indicators for all three parameters must normally be present to qualify as a wetland.

Hydrophytic Vegetation

Hydrophytic vegetation is defined as "the sum total of macrophytic plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content" (USACE 1987). The potential wetland areas within the Survey Area were surveyed by walking through the Project site and making observations of those areas exhibiting characteristics of jurisdictional waters or wetlands. Vegetation units with potential wetland areas were examined, and data for each vegetation stratum (i.e., tree, shrub, herb and vine) were recorded on the datasheet provided in the Arid West Supplement (USACE 2008). The percent absolute cover of each species present was visually estimated and recorded.

The wetland indicator status of each species recorded was determined by using the National Wetland Plant Inventory (Lichvar, et. al. 2016). An obligate (OBL) indicator status refers to plants that are almost always hydrophytic and rarely in uplands. A facultative wet (FACW) indicator status refers to plants that usually are hydrophytic but are occasionally found in non-wetlands. A facultative (FAC) indicator status refers to plants that commonly occur as either a hydrophyte or non-hydrophyte. Facultative upland (FACU) species occasionally are hydrophytic but usually occur in uplands. Upland (UPL) species almost always occur in uplands and are rarely hydrophytic. A not indicated (NI) status refers to species that have insufficient data available to determine an indicator status at this time for the local region.

Plant species nomenclature follows that contained in *the Jepson Online Interchange* (Jepson Flora Project 2014). Dominant species with an indicator status of NI or not listed in the 2014 list were evaluated as either wetland or upland indicator species based on local professional knowledge of where the species are most often observed in habitats characteristic of southern California.

Hydric Soils

A hydric soil is a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation (USACE 1987). Hydric soil indicators are formed predominantly by the accumulation or loss of iron, manganese, sulfur or carbon compounds (USACE 2008). The hydric soil criterion is considered fulfilled at a location if soils in the area can be inferred to have a high groundwater table, evidence of prolonged soil saturation exists, or any indicators suggesting a long-term reducing environment in the upper 18 inches of the soil profile are present.

A sampling point is typically selected within a potential wetland area where the apparent boundary between wetland and upland is inferred based on changes in the composition of the vegetation and topography. Soil pits are dug to a depth of at least 18 inches or to a depth necessary to determine soil color, evidence of soil saturation, depth to groundwater, and indicators of a reducing soil environment (e.g., mottling, gleying, sulfidic odor).

Wetland Hydrology

The presence of wetland hydrology indicators can confirm that inundation or saturation has occurred on a site, but may not provide information about the timing, duration or frequency of the events. Hydrology features are generally the most ephemeral of the three wetland parameters (USACE 2008).

Hydrologic information for the site was obtained by reviewing USGS topographic maps, historic and current aerial photographs, and by directly observing hydrology indicators in the field. The wetland hydrology criterion is considered fulfilled at a location if, based upon the conclusions inferred from the field observations, an area has a high probability of being periodically inundated or has soils saturated to the surface at some time during the growing season to develop anaerobic conditions in the surface soil environment, especially the root zone (USACE 1987). If at least one primary indicator or at least two secondary indicators are found at a sample point, the wetland hydrology criterion is considered fulfilled.

Atypical Situations

Because there are situations in which one or more of the wetland parameters has been removed or altered as a result of recent natural events or human activities, the definition of a wetland includes the phrase "under normal circumstances" (USACE 1987). To describe these conditions, USACE uses definitions for atypical situations and problem areas. They are as follows:

> Atypical situation: . . . refers to areas in which one or more parameters (vegetation, soil, and/or hydrology) have been sufficiently altered by recent human activities or natural events to preclude the presence of wetland indicators of the parameter (USACE 1987).
>
> Problem areas: . . . wetland types in which wetland indicators of one or more parameters may be periodically lacking due to normal seasonal or annual variations in environmental conditions that result from causes other than human activities or catastrophic natural events. Representative examples of problem areas include seasonal wetlands, wetlands on drumlins, prairie potholes, and vegetated flats (USACE 1987).

Atypical situations and problem areas may lack one or more of the three criteria, yet still may be considered wetlands. Background information on the previous condition of the area, field observations and/or the identification of undisturbed reference sites adjacent to atypical sites may indicate that the site met the wetland criteria prior to disturbance. Additional delineation procedures would be employed if normal circumstances did not occur on a site.

Vernal Pools

Vernal pools are considered "problem areas" because vegetation or hydric soils may be lacking due to seasonal filling by rainfall and eventual drying. As described in the Arid Supplement, "the species composition of some wetland plant communities in the Arid West can change in response to seasonal weather patterns and long-term climatic fluctuations. Wetland types that are influenced by these shifts include vernal pools, playa edges, seeps and springs. Lack of hydrophytic vegetation during dry periods should not immediately eliminate a site from further consideration as a wetland." In addition, since they support seasonally ponded soils, when soil investigations are performed within vernal pools, they may lack hydric soil indicators. The USACE includes problem soils as "seasonally ponded, depressional wetlands (that) occur in basins and valleys throughout the Arid West. Most are perched systems, with water ponding above a restrictive soil layer, such as a hardpan or clay layer, that is at or near the surface (e.g., in Vertisols). Some of these wetlands lack hydric soil indicators due to limited saturation depth, saline conditions or other factors."

4.2.5.2 USACE Non-Wetland Waters of the U.S.

The USACE also requires the delineation of non-wetland jurisdictional Waters of the U.S. These waters must have strong hydrology indicators, such as the presence of seasonal flows and an ordinary high watermark (OHWM). An ordinary high watermark is defined as:

> . . . that line on the shore established by the fluctuations of water and indicated by physical characteristics such as [a] clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR Part 328.3).

Areas delineated as non-wetland jurisdictional waters may lack wetland vegetation or hydric soil characteristics. Hydric soil indicators may be missing because topographic position precludes ponding and subsequent development of hydric soils. Absence of wetland vegetation can result from frequent scouring due to rapid water flow. These types of jurisdictional waters are delineated by the lateral and upstream/downstream extent of the OHWM of the particular drainage or depression.

4.3 State

4.3.1 State of California Endangered Species Act (CESA)

California's Endangered Species Act (CESA) defines an endangered species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that is in danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease." The State defines a threatened species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an Endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985 is a threatened species." Candidate species are defined as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list." Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the Fish and Game Commission. Unlike the Federal Endangered Species Act (FESA), CESA does not list invertebrate species.

Article 3, Sections 2080 through 2085, of the CESA addresses the taking of threatened, endangered, or candidate species by stating "No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided." Under the CESA, "take" is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Exceptions authorized by the state to allow "take" require permits or memoranda of understanding and can be authorized for

endangered species, threatened species, or candidate species for scientific, educational, or management purposes and for take incidental to otherwise lawful activities. Sections 1901 and 1913 of the California Fish and Game Code provide that notification is required prior to disturbance.

State-Designation Special-Status Species

Some mammals and birds are protected by the state as Fully Protected (FP) Mammals or Fully Protected Birds, as described in the California Fish and Game Code, Sections 4700 and 3511, respectively. California Species of Special Concern (SSC) are species designated as vulnerable to extinction due to declining population levels, limited ranges, and/or continuing threats. This list is primarily a working document for the CDFW's California Natural Diversity Database (CNDDB) project. Informally listed taxa are not protected but warrant consideration in the preparation of biotic assessments. For some species, the CNDDB is only concerned with specific portions of the life history, such as roosts, rookeries, or nest sites.

For this report the following acronyms are used for State special-status species:

- **SE**: State-listed as Endangered
- **ST**: State-listed as Threatened
- **SCE**: State candidate for listing as Endangered
- **SCT**: State candidate for listing as Threatened
- **FP**: State Fully Protected
- **SSC**: Species of Special Concern

California Rare Plant Rank

The CNPS is a private plant conservation organization dedicated to the monitoring and protection of special-status species in California. The California Native Plant Society's *California Native Plant Society's Inventory of Rare and Endangered Plants of California* separates plants of interest into five categories. CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of Rare, Threatened, or Endangered vascular plant species of California. The list serves as the candidate list for listing as threatened and endangered by CDFW.

4.3.2 California Environmental Quality Act (CEQA)

Shortly after the United States federal government passed the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA) was passed in 1970 to institute a statewide policy of environmental protection. CEQA does not directly regulate land uses, but instead requires state and local agencies within California to follow a protocol of analysis and public disclosure of environmental impacts of proposed projects and adopt all feasible measures to mitigate those impacts. CEQA makes environmental protection a mandatory part of every California state and local agency's decision-making process.

CEQA Thresholds of Significance

Environmental impacts relative to biological resources are assessed using impact significance threshold criteria, which reflect the policy statement contained in CEQA, Section 21001(c) of the California Public Resources Code. Accordingly, the State Legislature has established it to be

the policy of the State of California to:

> *"Prevent the elimination of fish or wildlife species due to man's activities, insure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities..."*

Determining whether a project may have a significant effect, or impact, plays a critical role in the CEQA process. According to CEQA, Section 15064.7 (Thresholds of Significance), each public agency is encouraged to develop and adopt (by ordinance, resolution, rule, or regulation) thresholds of significance that the agency uses in the determination of the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant. In the development of thresholds of significance for impacts to biological resources CEQA provides guidance primarily in Section 15065, Mandatory Findings of Significance, and the CEQA Guidelines, Attachment G, Environmental Checklist Form. Section 15065(a) states that a project may have a significant effect where:

> *"The project has 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 wildlife community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, ..."*

Therefore, for the purpose of this analysis, impacts to biological resources are considered potentially significant (before considering offsetting mitigation measures) if one or more of the following criteria discussed below would result from implementation of the proposed Project.

Criteria for Determining Significance Pursuant to CEQA

Attachment G of the 1998 State CEQA guidelines indicate that a project may be deemed to have a significant effect on the environment if the project is likely to:

> ***a)*** *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.*
>
> ***b)*** *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.*
>
> ***c)*** *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.*

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.*

CEQA Guidelines Section 15380

The CEQA requires evaluation of a project's impacts on biological resources and provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts. Sections 5.1.1 and 5.2.2 below set forth these thresholds and guidelines. Furthermore, pursuant to the CEQA Guidelines Section 15380, CEQA provides protection for non-listed species that could potentially meet the criteria for state listing. For plants, CDFW assigns California Rare Plant Ranks (CRPR) to species categorized as List 1A, 1B, or 2 of the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Plants in California* may meet the criteria for listing and should be considered under CEQA. CDFW also recommends protection of plants, which are regionally important, such as locally rare species, disjunctive populations of more common plants, or plants on the CNPS Lists 3 or 4.

4.3.3 California Fish & Game Codes 3500 Series

California Fish & Game Codes 3500, 3503, 3503.5, 3505, 3511 and 3513 are State regulations that cover resident and non-resident game birds, protected bird nests, protected raptor nests, egrets, ospreys, Fully Protected bird species, and take considerations for Migratory Bird Treaty Act birds. The Project will comply will CDFW Code 3500 series protections for non-resident game birds, and this regulation is not further discussed in this report.

- **Code 3500:** "(a) Resident game birds are as follows:

  (1) Doves of the genus Streptopelia, including, but not limited to, spotted, ringed turtledoves, and Eurasian collared-doves.

  (2) California quail and varieties thereof.

  (3) Gambel's or desert quail.

  (4) Mountain quail and varieties thereof.

  (5) Sooty or blue grouse and varieties thereof.

  (6) Ruffed grouse.

  (7) Sage hens or sage grouse.

  (8) Hungarian partridges.

(9) Red-legged partridges including the chukar and other varieties.

(10) Ring-necked pheasants and varieties thereof.

(11) Wild turkeys of the order Galliformes.

(b) Migratory game birds are as follows:

(1) Ducks and geese.

(2) Coots and gallinules.

(3) Jacksnipe.

(4) Western mourning doves.

(5) White-winged doves.

(6) Band-tailed pigeons

(c) Reference in this code to "game birds" means both resident and migratory game birds."

- **Code 3503:** "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."
- **Code 3503.5:** "It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."
- **Code 3505:** "It is unlawful to take, sell, or purchase any aigrette or egret, osprey, bird of paradise, goura, numidi, or any part of such a bird."
- **Code 3511:** "(a) (1) Except as provided in Section 2081.7 or 2835, fully protected birds or parts thereof may not be taken or possessed at any time. No provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected bird, and no permits or licenses heretofore issued shall have any force or effect for that purpose. However, the department may authorize the taking of those species for necessary scientific research, including efforts to recover fully protected, threatened, or endangered species, and may authorize the live capture and relocation of those species pursuant to a permit for the protection of livestock. Prior to authorizing the take of any of those species, the department shall make an effort to notify all affected and interested parties to solicit information and comments on the proposed authorization. The notification shall be published in the California Regulatory Notice Register and be made available to each person who has notified the department, in writing, of his or her interest in fully protected species and who has provided an e-mail address, if available, or postal address to the department. Affected and interested parties shall have 30 days after notification is published in the California Regulatory Notice Register to provide any relevant information and comments on the proposed authorization.

(2) As used in this subdivision, "scientific research" does not include any actions taken as part of specified mitigation for a project, as defined in Section 21065 of the Public Resources Code.

(3) Legally imported fully protected birds or parts thereof may be possessed under a permit issued by the department.

(b) The following are fully protected birds:

(1) American peregrine falcon (*Falco peregrinus anatum*).

(2) Brown pelican (*Pelican occidentalis*).

(3) California black rail (*Laterallus jamaicensis coturniculus*).

(4) California Ridway's rail (*Rallus longirostris obsoletus*).

(5) California condor (*Gymnogyps californianus*).

(6) California least tern (*Sterna albifrons browni*).

(7) Golden eagle (*Aquila chrysaetos*).

(8) Greater sandhill crane (*Grus Canadensis tabida*).

(9) Light-footed Ridgway's rail (*Rallus longirostris levipes*).

(10) Southern bald eagle (*Haliaeetus leucocephalus leucocephalus*).

(11) Trumpeter swan (*Cygnus buccinator*).

(12) White-tailed kite (*Elanus leucurus*).

(13) Yuma Ridgway's rail (*Rallus longirostris yumanensis*).

- **Code 3513: "**It is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Treaty Act."

4.3.4 Native Plant Protection Act

The Native Plant Protection Act (NPPA) was enacted in 1977 and allows the California Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants, but includes some exceptions for agricultural and nursery operations, emergencies, and/or with proper notification to the CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations.

4.3.5 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code §§13000 et seq.) is the State's primary water law. It gives the State Water Resources Control Board (SWRCB) and the nine regional water quality control boards substantial authority to regulate water use of surface and sub-surface waters.

4.3.6 CDFW Jurisdictional Waters

Under Sections 1600–1607 of the Fish and Game Code, CDFW regulates activities that would divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. CDFW has jurisdiction over riparian habitats (e.g., riparian woodland) associated with watercourses. CDFW jurisdictional waters are delineated by the distances between the outer edges of wetland/riparian vegetation or at the tops of the banks of streams or lakes, whichever is wider. Although CDFW does not regulate vernal pools under Section 1602 of the Fish and Game Code, CDFW will assert jurisdiction over isolated riparian features (including vernal pools) if California state threatened and/or endangered species are present via the California Endangered Species Act, or which provide resources directly or indirectly to fish and wildlife of the region. CDFW may also assert jurisdiction over modified or man-made waterways; such jurisdiction is generally based on the value of such features to support riparian or aquatic plant or animal species. For clarification, of features that may be subject to CDFW jurisdiction, the CDFW Legal Advisor has prepared the following opinion (CDFG 1994):

- Natural waterways that have been subsequently modified and which have the potential to contain fish, aquatic insects, and riparian vegetation will be treated like natural waterways.
- Artificial waterways that have acquired the physical attributes of natural stream courses and which have been viewed by the community as natural stream courses should be treated by [CDFW] as natural waterways.
- Artificial waterways without the attributes of natural waterways should generally not be subject to Fish and Game Code provisions.

CDFW jurisdictional limits may also include artificial stock ponds and irrigation ditches constructed within uplands, and outer drip line limits of adjacent riparian habitat supported by a river, stream, or lake regardless of the riparian area's federal wetland status or its location beyond the defined bed, bank or channel.

4.3.7 RWQCB Jurisdictional Waters

RWQCB is the regional agency responsible for protecting water quality in California. The jurisdiction of this agency includes Waters of the State as mandated by the federal CWA Section 401. When CWA Section 404 jurisdiction is not present for isolated water, the RWQCB may assert jurisdiction via the California Porter-Cologne Water Quality Control Act. Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state". The Porter-Cologne Water Quality Control Act provides a regulatory framework to provide comprehensive protections for surface and groundwater within the State of California. Waters subject to jurisdiction under the Porter-Cologne Water Quality Control Act require that any discharge that may negatively impact or

otherwise affect a Water of the State must coordinate with RWQCB. During coordination, RWQCB may require implementation of mitigation measures or other requirements to protect overall water quality.

4.4 Local

4.4.1 City of San Diego Multiple Species Conservation Plan (MSCP)

The Multiple Species Conservation Program (MSCP) of the City of San Diego was developed to preserve a network of habitat and open space, protect bio-diversity and enhance the region's quality of life. The MSCP covers 85 species, including State and Federally-listed plant and wildlife species, narrow endemic species, and other species considered locally sensitive and/or otherwise prone to decline due to urbanization. Core biological resource areas necessary to sustain covered species populations are identified within the City's Multi-Habitat Planning Areas (MHPA). The City has entered into an Implementing Agreement with the Federal and State Wildlife Agencies to ensure implementation of the MSCP for projects that occur on and/or adjacent to lands included in the MSCP (City of San Diego 1998).

4.4.2 City of San Diego Environmentally Sensitive Lands (ESL)

The ESL regulations were adopted in order to protect, preserve, and, where damaged, restore the environmentally sensitive lands of San Diego. Under the ESL regulations, upland habitats are classified into four tiers in descending order based on sensitivity. Wetlands and riparian habitats are also subject to ESL regulations but are not divided into tier levels. Infringement into non-wetland ESL is not restricted outside of the Multiple Habitat Planning Area (MHPA) but impacts to ESL must be mitigated. Steep hillsides are also considered ESL and are bound by a set of specific development guidelines (City of San Diego 1998).

5.0 RESULTS

This section is divided into sub-sections that include environmental setting, soil types, hydrologic features, vegetation communities, special-status plant species and special-status wildlife species.

5.1 Physical Characteristics/Environmental Setting

The Project site is located on three previously developed parcels. Parcels north of Alvarado Creek are actively used for light industrial use and commercial uses such as auto repairs and sales, metal fabrication, convenience stores, etc. The area surrounding the Project to the north and east includes similar commercial and industrial land uses, characterized by single and multi-story buildings with paved hardscaped surfaces and landscaping.

The Project parcel south of Alvarado Creek includes previously graded areas with relic outbuildings that have been idle and are in disrepair. Existing land uses appear to include illegal dumping, fill material storage, and homeless encampments. Areas surrounding the Project to the south include commercial space, business centers, and transit hubs, including the Grantville Trolley Station.

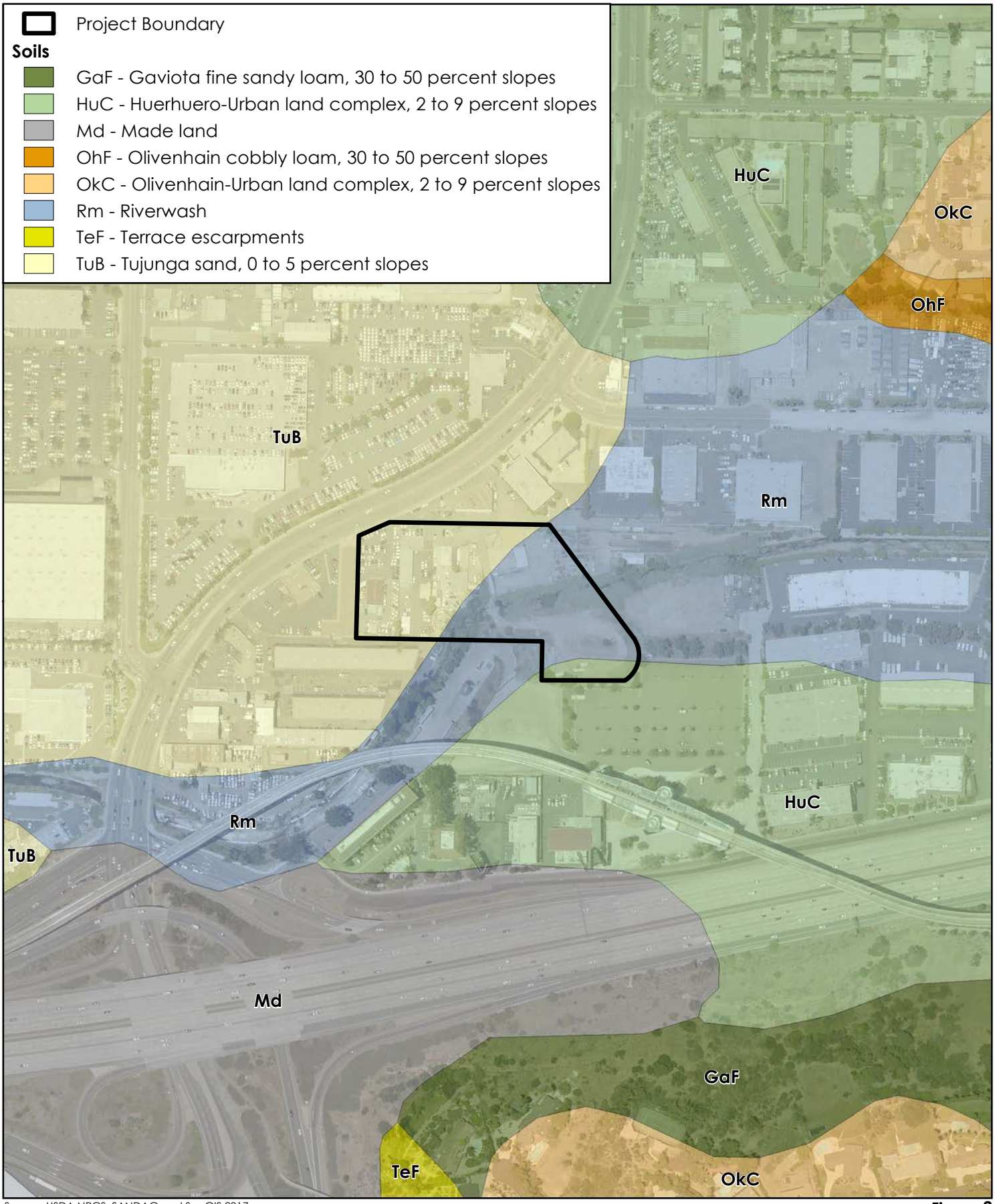
Due to the heavily developed nature of the surrounding areas, the Project is isolated from surrounding MHPA Reserve areas, which include portions of the San Diego River approximately 0.35 miles to the west and northwest, and canyons south of Interstate-8 approximately 0.36 miles. Portions of Alvarado Creek within the Project show signs of vegetation management, including removal of giant reed (*Arundo donax*) and Mexican fan palm (*Washingtonia robusta*).

5.2 Soils

A total of three distinct soil series mapped by USDA (1973) occur in the Project area: Tujunga sand, 0 to 5 percent slopes, Riverwash, and Huerhuero-Urban land complex, 2 to 9 percent slopes (Figure 2). Both the Tujunga sand and Riverwash soil series are described as hydric according to USDA. Total acreages of each soil series within the Project site are represented in Table 2 below.

Table 3. Soils Occurring Within the Project Site

Soil Series	Acre(s)
Tujunga sand, 0 to 5 percent slopes (TuJ)	1.90
Riverwash (Rm)	1.76
Huerhuero-Urban land complex, 2 to 9 percent slopes (HuC)	0.20
Total	**3.86**



Source: USDA NRCS; SANDAG and SanGIS 2017

Figure 2

Soils

Alvarado Creek Affordable Housing Project

BLACKHAWK Environmental

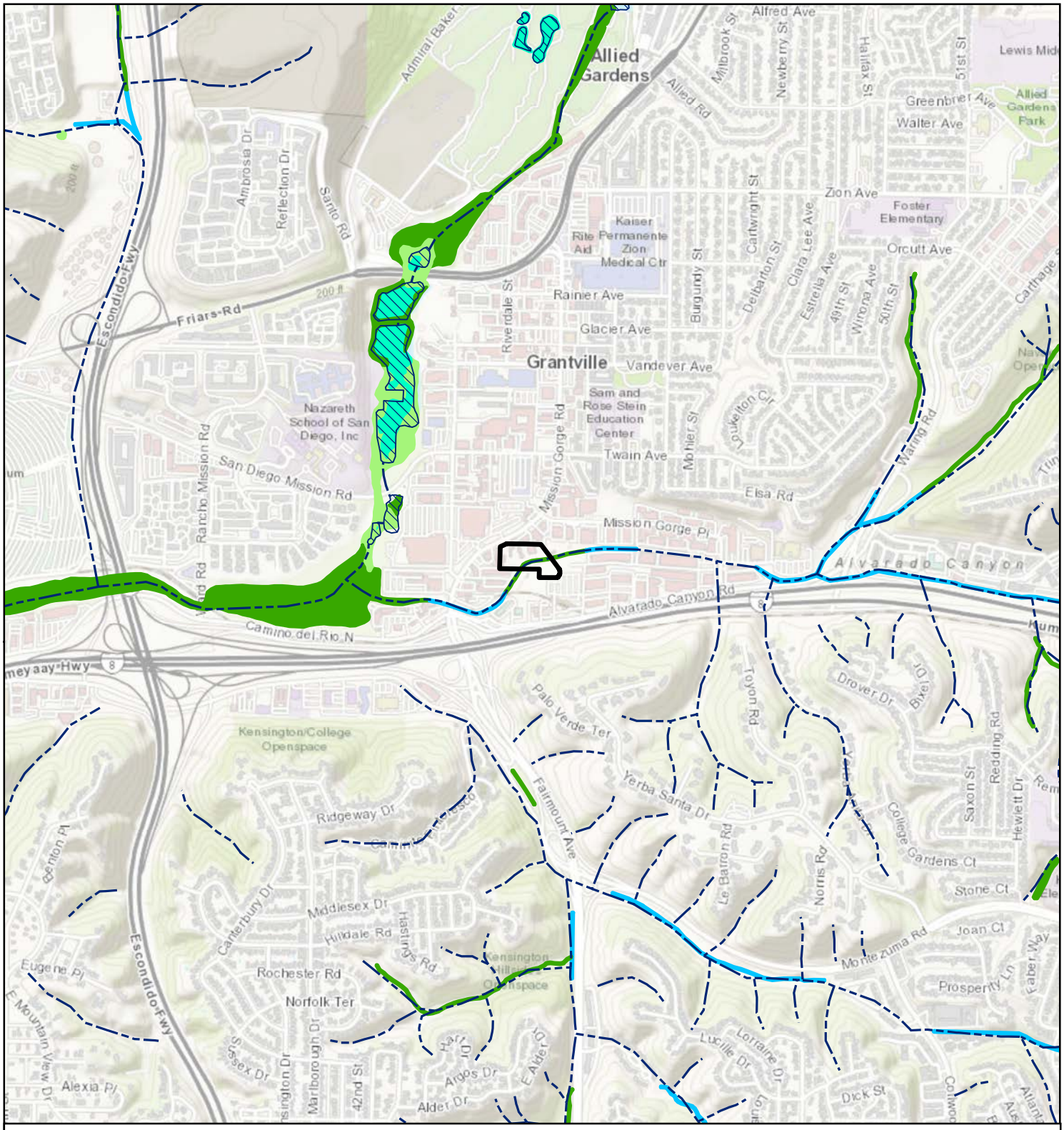
N

0 300 Feet

5.3 Hydrologic Features

Elevations within the Project site range from 64 to 96 feet above mean sea level (AMSL) and generally drain towards the center of the Project area, where the site is bisected by Alvarado Creek. Within the Project, Alvarado Creek flows on to the site near the center of the eastern parcel boundary, flowing in a generally west-southwest direction through the south-central portion of the Project area, and leaving the site along the southern boundary. Surface water and storm water flow within the various Project parcels is highly modified, but overall becomes concentrated in various locations before discharging directly into Alvarado Creek. Surface water entering Alvarado creek from parcel 416-320-06-00 generally flows south to the parcel boundary, where surface water is redirected by a cinder block wall and diverted into low-capacity non-vegetated concrete swale, flowing east and discharging directly into the Alvarado Creek. Similarly, surface water from parcel 461-320-09-00, a paved lot, generally flows south to the parcel boundary located immediately adjacent to Alvarado Creek. At the southern boundary of parcel 461-320-09-00 water is restricted from entering Alvarado Creek by a man-made concrete wall, which redirects water along the property boundary to the west, before intercepting an existing road and Arizona crossing at the interface between parcels 416-320-06-00 and 416-320-09-00. The existing road carries surface water from both adjacent parcels directly to Alvarado Creek. Surface water from parcel 416-320-08-00 generally follows topographic contours flowing from the southeast of the parcel to the northwest of parcel, concentrating along graded unpaved roads and discharging into Alvarado Creek at an established Arizona crossing. Additional surface water from parcel 416-320-08-00 is directed along the western boundary within a vegetated unlined swale (Figure 3).

Based on the presence of naturally occurring drainages and potentially jurisdictional wetland and non-wetland areas, a formal jurisdictional delineation effort was performed. The results of this effort are included in the *Alvarado Creek Affordable Housing Project Jurisdictional Delineation Report* as Attachment C.



Source: USFWS NWI, USGS NHD, Esri

Figure 3

Hydrology

Alvarado Creek Affordable Housing Project

BLACKHAWK Environmental

5.4 Vegetation Communities/Land Use Cover Types

A total of six vegetation communities/land use cover types were described and mapped within the Survey Area. With the exception of the Urban/Developed Area and Disturbed Lands, the remaining four vegetation communities are considered ESL and City wetland habitats. Vegetation communities were described according to Holland (1986) and Oberbauer (2008); corresponding classification codes are provided in parentheses. The vegetation communities/land use cover types, associated acreages and Tier levels are shown in Table 4:

Table 4. Vegetation Communities Within the Survey Area

Vegetation Community/ Land Use Type	Area (Acres)
Disturbed Land (Tier IV)	*1.87*
Urban/Developed Area (Tier IV)	*6.05*
Subtotals: Tier IV Communities	**7.92**
Arundo-dominated Wetland	*0.29*
Disturbed Wetland/Un-vegetated Channel	*0.21*
Non-native Riparian	*0.26*
Southern Riparian Woodland	*0.11*
Subtotals: Environmentally Sensitive Lands (Wetlands)	**0.87**
TOTAL	**8.79**

Temporary and permanent Project-related impacts to ESL types outside the MHPA area of the Reserve would require compensatory mitigation at ratios based on the acreage of the impacts; impacts to Tier IV habitat types or developed areas would require no mitigation. Each vegetation community/land use cover type is described in the following sub-sections.

5.4.1 Arundo-dominated Wetland (Holland Code 65100)

Arundo-dominated wetland is a type of non-native riparian community that consists almost exclusively of a dense thicket of giant reed. Although dominated by a non-native, invasive species, this vegetation community is a wetland and generally treated as a sensitive vegetation community by CDFW and may also be regulated as a wetland by USACE, RWQCB. These areas are considered City of San Diego wetlands.

Arundo-dominated wetland is restricted to the eastern boundary of the Project and Survey Area, totaling 0.29 acre bisected by open water. Although overall vegetation coverage is dense, the area has undergone a recent non-Project-related cut and treatment for management of the invasive giant reed. Therefore, the area is now open and devoid of a canopy or understory.

5.4.2 Disturbed Lands (Holland Code 11300)

Disturbed Land may result from anthropogenic or natural causes and can take on many forms in context of the surrounding vegetation communities, available seed banks, and disturbance factors. These areas can result from previous grading, vehicle traffic, or temporary land uses such as project staging. If disturbance variables are removed, and Disturbed Land is left to natural processes, these areas have the capacity to revegetate in the short term, but do not function as native vegetation communities. This contrasts with Urban/Developed Areas described herein, that do not have the capacity to revegetate in the short term or consist of maintained landscaping. Disturbed Land is considered a Tier IV (other upland) vegetation community by the City of San Diego (2012)

A total of 1.87 acres of Disturbed Land occurs within the Project Survey Area in the form of non-native plant communities. These areas are generally restricted to parcel 416-320-08-00, south of Alvarado Creek and the adjacent Survey Area. Portions of the lot are completely devoid of vegetation, consisting of hard-packed soil from previous earth moving/development. Additional observed land uses include illegal dumping and homeless encampments. Where vegetation was observed, dominant species included cheeseweed (*Malva parviflora*), sweet fennel (*Foeniculum vulgare*), smilo grass (*Stipa miliacea var. miliaceae*), Bermuda grass (*Cynodon dactylon*), castor bean (*Ricinus communis*), and filaree (*Erodium sp.*). Vegetation density within this habitat type was variable, ranging from over 100-percent total ground cover in herbaceous-dominated areas along the eastern Project boundary and Survey Area, to sparse areas in the margins of graded areas that were nearly devoid of herbaceous species.

5.4.3 Disturbed Wetland/Un-vegetated Channel (Holland Code 11200)

Within the Survey Area, Disturbed Wetlands/Un-vegetated Channel are restricted to the channel bottom of Alvarado Creek. These areas are described collectively due to the disturbed and modified nature of the channel, where presence of installed rip-rap and concrete lined areas blend with natural scouring and sediment deposits, obscuring the expected natural boundaries between vegetated and un-vegetated areas. This vegetation community is typically described as permanently or periodically inundated by water and significantly modified by human activity (Oberbauer 2008). Although often unvegetated, these areas may contain scattered native or non-native vegetation (Oberbauer 2008). Such areas, despite the presence of artificial structures or prevalence of non-native species, may be considered sensitive if determined to be USACE, CDFW, and/or RWQCB. These areas are considered City of San Diego wetlands due to its association with Alvarado Creek and wetland functionality.

A total of 0.21 acre of Disturbed Wetlands/Un-vegetated Channel occurs within the Survey Area. This community is largely un-vegetated and inundated by water; however, where vegetation is present, the dominant species include southern cattail (*Typha domingensis*), umbrella sedge (*Cyperus* sp.), giant reed, California bulrush (*Schoenoplectus californicus*) and common threesquare (*Schoenoplectus pungens*). Within vegetated areas, overall coverage was dense with mostly open canopies. Additionally, anthropogenic disturbances, such as trash and debris, were present throughout this vegetation community.

5.4.4 Non-native Riparian (Holland Code 65000)

Non-native riparian areas of the Project consist of a densely vegetated riparian thicket dominated by non-native, invasive species. Generally, non-native species account for greater than 50 percent of total cover. This vegetation community typically occurs in wetland areas and along streams and creeks where disturbance has occurred (Oberbauer 2008). Although dominated by non-native invasive species, non-native riparian is a potential wetland and generally treated as a sensitive vegetation community by CDFW and may also be regulated as a wetland by USACE, and/or RWQCB. These areas are considered City of San Diego wetlands due to its association with Alvarado Creek and wetland functionality.

A total of 0.26 acre of non-native riparian occurs within the Project area. Within the Project area, this community is dominated by a relatively dense canopy cover of Mexican fan palm, arroyo willow (*Salix lasiolepis*), black willow (*Salix goodingii*) and giant reed. The creek in this area is earthen-lined, with rip-rap banks. The understory was primarily vegetated by herbaceous ground cover in areas where the canopy was not complete. Understory species in these areas include non-natives, such as sprouting Mexican fan palm, castor bean, smilo grass, and occasional salt cedar (*Tamarix ramosissima*). This habitat lacked a shrub canopy or multi-tiered canopy. Trash and debris were readily apparent throughout the habitat with evidence of vegetation management observed in the form of giant reed and fan palm removal.

5.4.5 Southern Riparian Woodland (Holland Code 52400)

Southern riparian woodland is a riparian community dominated by broad-leaved trees such as coast live oak (*Quercus agrifolia*) and willows, often with scattered cottonwoods (*Populus* spp.) and California sycamores (*Platanus racemosa*). This plant community is typically found along upland creek banks and drainages. The high density of the cover provided by mature trees typically prevents development of a substantial understory of smaller plants in some areas. Southern riparian woodland is a potential wetland and generally treated as a sensitive vegetation community by CDFW and may also be regulated as a wetland by USACE, and/or RWQCB. These areas are considered City of San Diego wetlands due to its association with Alvarado Creek and wetland functionality.

Within the Project and Survey Area, this community is restricted to approximately 0.11 acre located at the southern Project boundary. Riparian canopy within this habitat is dominated by coast live oak, Fremont cottonwood (*P. fremontii*) and black willow, with occasional small Mexican fan palms. Where understory was present, the vegetative cover ranges from light to moderate and is largely dominated by giant reed, smilo grass and other non-native herbaceous species. Tree species forming a canopy within this habitat on the south and east side of the channel appear planted.

5.4.6 Urban/Developed Area (Holland Code 12000)

The majority of the Survey Area is best characterized as developed, with 6.05 acres of overall coverage. Developed areas are nearly or entirely devoid of native vegetation and show significant evidence of intentional, human-caused conversion of previously existing natural habitats into development. Developed land is characterized by permanent or semi-permanent structures, pavement or hardscape, and landscaped areas that often require irrigation. This vegetation community typically

includes unvegetated or landscaped areas with a variety of ornamental (usually non-native) plants (Oberbauer 2008).

Developed areas within the Survey Area include Mission Gorge Road and its road shoulders, parking lots, numerous commercial and business property buildings, Grantville Station parking lot and its landscaped grounds. Vegetated areas within this community largely consist of ornamental shrub and tree species, and ground cover planted for landscaping including silk oak (*Grevillea robusta*), California sycamore, Indian hawthorn (*Rhaphiolepis indica*), Bermuda grass, and annual blue grass (*Poa annua*). Overall, vegetative cover ranges from light to moderate with a relatively open canopy outside of larger landscaped trees.

5.5 Sensitive Species

5.5.1 Literature Review

A total of 13 special-status plant species and nine special-status wildlife species occurrences were found within one mile of the Project Site through the CNDDB, USFWS occurrence record, and CNPS review (Figures 4 and 5). These include the following:

Source: CDFW; SANDAG & SanGIS 2017

Figure 4

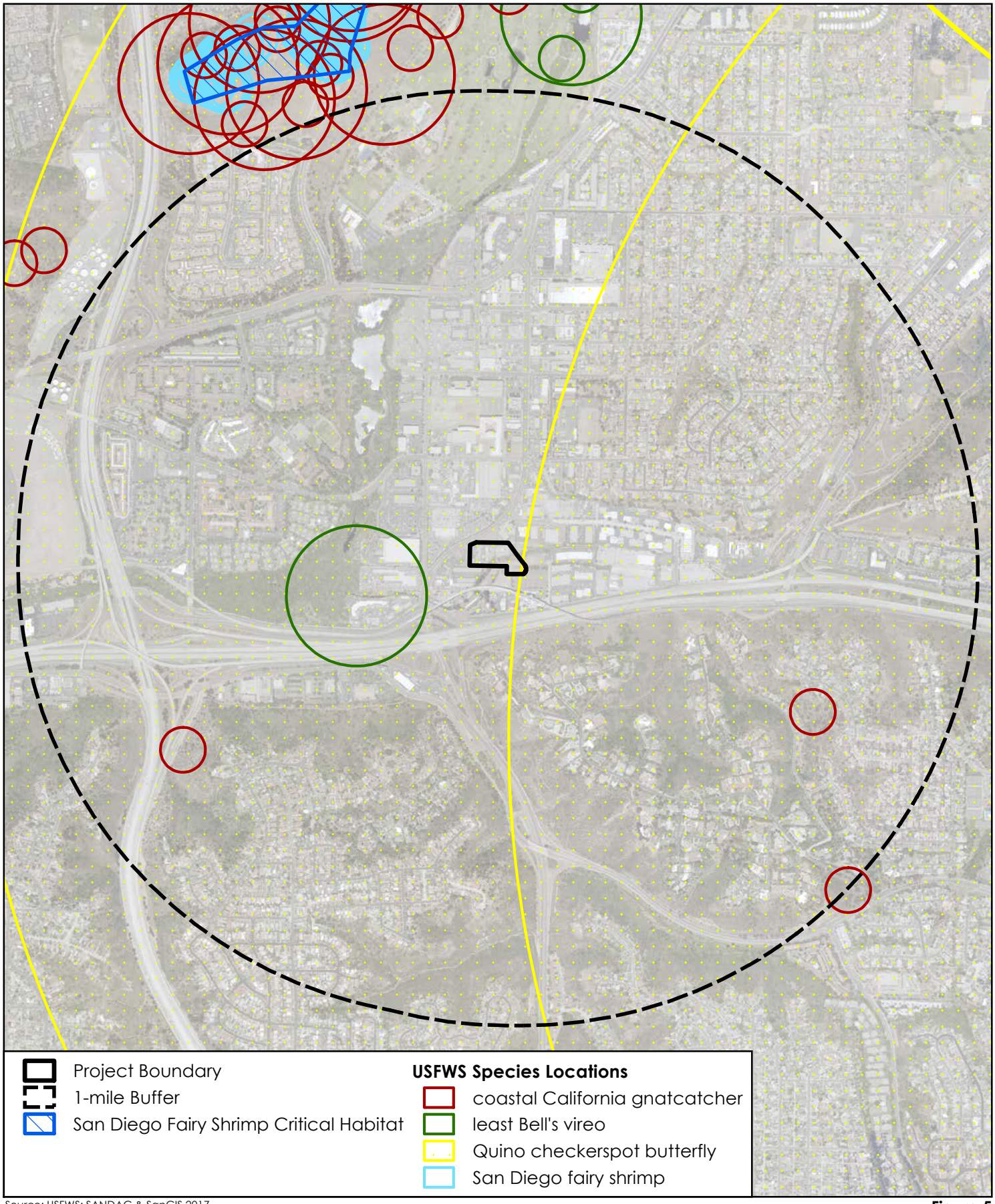
CNDDB Results

Blackhawk Environmental

N

0 1,500 Feet

Alvarado Creek Affordable Housing Project



Source: USFWS; SANDAG & SanGIS 2017

Figure 5

USFWS Species Occurrence Results

Alvarado Creek Affordable Housing Project

BLACKHAWK Environmental

N

0 1,500 Feet

Plants

- **California adolphia** (*Adolphia californica*)
- **Nuttall's scrub oak** (*Quercus dumosa*)
- **Oil neststraw** (*Stylocline citroleum*)
- **Otay mesa mint** (*Pogogyne nudiuscula*)
- **Palmer's goldenbush** (*Ericameria palmeri* ssp. *palmeri*)
- **San Diego ambrosia** (*Ambrosia pumila*)
- **San Diego barrel cactus** (*Ferocactus viridescens*)
- **San Diego mesa mint** (*Pogogyne abramsii*)
- **San Diego thorn-mint** (*Acanthomintha ilicifolia*)
- **Singlewhorl burrobrush** (*Ambrosia monogyra*)
- **Summer holly** (*Comarostaphylis diversifolia ssp. diversifolia*)
- **Variegated dudleya** (*Dudleya variegata*)
- **Wart-stemmed ceanothus** (*Ceanothus verucossus*)

Wildlife

- **California glossy snake** (*Arizona elegans occidantalis*)
- **Coastal California gnatacatcher** (*Polioptila californica californica*)
- **Least Bell's vireo** (*Vireo bellii pusillus*)
- **Orange-throated whiptail** (*Aspidoscelis hyperythra*)
- **Quino checkerspot butterfly** (*Euphydryas editha quino*)
- **San Diego horned lizard** (*Phrynosoma coronatum ssp. blainvilii*)
- **Southern California legless lizard** (*Anniella stebbinsi*)
- **Western mastiff bat** (*Eumops perotis californicus*)
- **Western spadefoot** (*Spea hammondii*)

The results of the literature review were utilized during the biological surveys conducted for this Project to ascertain presence/absence and potentials for occurrence (PFOs) of each of these species. The habitat requirements, listing statuses and PFOs for each of these species are described below in Table 4.

5.5.2 Special-Status Species

In addition to the species identified by the literature review, a total of 46 plant species and 38 wildlife species are covered under the MSCP. The biological survey considered potential for each of these MSCP-covered species; of these, one MSCP-covered species was determined to have a low potential to occur within the Survey Area, Cooper's hawk (*Acipiter cooperii*). One additional non-covered species not identified by the literature review, yellow warbler (*Setophaga petchia*), was determined to have a low potential to occur. Each of these species, along with their listing statuses, relative abundances, habitat associations and general locations within the Survey Area, are described in Table 4, below. The remaining 46 plants species and 37 wildlife species covered under the MSCP were determined to be absent and are not discussed further in this report. No MCSP, narrow endemic, federal or state listed, or CNPS-listed plant species were documented within the Survey Area.

A total of 25 wildlife species were observed on or within the vicinity of the Project Site. Among vertebrate species, the total includes one reptilian, 22 avian, one insect species and one fish species. A total of 57 plant species were observed on or within the vicinity of the Project site, 36 of which are non-native. Complete lists of all species observed on site are included in Attachment B. Many of the species observed are common to the region and are to be expected in terrestrial and aquatic habitats present in the Survey Area. None are State or Federally listed and/or on the MSCP narrow endemic species list.

Table 5. Special-Status Species Potentials for Occurrence

PLANTS			
Species Name	**Listing Status**	**Habitat Requirements** [1, 2]	**Potential for Occurrence**
California adolphia *Adolphia californica*	**Federal**: None **State**: None **CRPR**: 2B.1 **City**: MSCP-covered	Perennial, deciduous shrub. Occurring in chaparral coastal scrubs, valley foothill grasslands. Primarily in clay soils. Blooms: Dec-May Elevation: 10-740 m	**Presumed Absent.** Suitable clay soils and vegetation communities do not occur within the Survey Area. Known occurrences are separated from the Survey Area; located south of Interstate 8 (I-8) within maritime succulent scrub along a steep and undeveloped slope. Additionally, this is a perennial shrub that would likely have been detected if present.
Nuttall's scrub oak *Quercus dumosa*	**Federal**: None **State**: None **CRPR**: 1B.1 **City**: Not Covered	Perennial evergreen shrub. Occurring primarily in chaparral and coastal scrub and closed cone coniferous forest. Prefers sandy and clay loam soils. Blooms: Feb-Apr Elevation: 15-400 m	**Presumed Absent.** Suitable soils and vegetation communities do not occur within the Survey Area. Known occurrences are separated from the Survey Area; located south of I-8 within undeveloped chaparral habitat. Additionally, this is a large perennial shrub that would likely have been detected if present.

Oil neststraw *Stylocline citroleum*	**Federal**: None **State**: None **CRPR**: 1B.1 **City**: Not covered	Perennial herb; marshes and swamps, playas, and riparian areas with clay soils. Blooms March–April; Elevation: less than 1,300 feet	**Presumed Absent.** Although the CNDDB indicates one record of this species from 1883 and is mapped in the general area of San Diego, it has since been presumed extirpated from the County. While the Project supports heavily disturbed riparian areas, soils within the Project consist of sediment deposits not suitable for this species.
Otay Mesa mint *Pogogyne nudiuscula*	**Federal**: **FE** **State**: **SE** **CRPR**: 1B.1 **City**: MCSP-NE	Annual herb; vernal pools; In California, known from approximately 10 occurrences in Otay Mesa in San Diego County. Additional populations occur in Baja California, Mexico. Blooms: May–July; Elevation 300–820 feet	**Presumed Absent.** Suitable soils and vernal pool habitats do not occur within the Survey Area. Known occurrences are separated from the Survey Area; located north of I-8 and east of the Project within undeveloped habitat.
Palmer's goldenbush Ericameria palmeri ssp. palmeri	**Federal**: None **State**: None **CRPR**: 1B.1 **City**: MSCP-covered	Perennial, evergreen shrub. Occurring in chaparral and coastal scrub. Found in mesic soils. Prefers seasonally wet/moist soils. Blooms: Sep-Nov Elevation: 98-1,970 feet	**Presumed Absent.** Suitable vegetation communities do not occur within the Survey Area. Seasonally wet/moist soils do occur within the Project Area, however soils are limited and highly disturbed. Historical occurrences are separated from the Survey Area; located south of I-8 within an undeveloped area. Additionally, this is a large perennial shrub that would likely have been detected if present.

San Diego ambrosia *Ambrosia pumila*	**Federal**: **FE** **State**: None **CRPR**: 1B.1 **City**: MSCP-NE	Perennial herb (rhizomatous); chaparral, coastal sage scrub, valley and foothill grasslands, creek beds, vernal pools, often in disturbed areas; Many occurrences extirpated in San Diego County. Blooms May–September Elevation: less than 1,400 feet.	**Presumed Absent.** Although the CNDDB indicates one record of this species from 1936 near the San Diego River west of the Project, the species was surveyed for and attempted to be relocated in 2006, with no observations and has since been presumed extirpated. While the Project supports minimal stream terraces which, in a natural state may have supported the species, habitat within the Project is heavily disturbed and, in combination with the isolated nature of the site, is unlikely to support this species.
San Diego barrel cactus *Ferocactus viridescens*	**Federal**: None **State**: None **CRPR**: 2B.1 **City**: MSCP-covered	Perennial stem succulent. Found in chaparral, coastal scrub, valley and foothill grasslands, and vernal pool habitats. Blooms: May-Jun Elevation: less than 1,476 feet	**Presumed Absent.** Suitable habitats do not occur within the Survey Area. Known occurrences are separated from the Survey Area; located south of I-8 within chaparral and maritime succulent scrub habitat. Additionally, this is a large succulent that would likely have been detected if present.
San Diego mesa mint *Pogogyne abramsii*	**Federal**: **FE** **State**: **SE** **CRPR**: 1B.1 **City**: MSCP-NE	Annual herb; vernal pools; San Diego County endemic. Blooms: April–July Elevation: 300-700 feet	**Presumed Absent.** Suitable soils and vernal pool habitats do not occur within the Survey Area. Known occurrences are separated from the Survey Area; located north of I-8 and east of the Project, and south of

			I-8 south of the Project within undeveloped habitat.
San Diego thorn-mint *Acanthomintha ilicifolia*	**Federal**: **FT** **State**: **SE** **CRPR**: 1B.1 **City**: MSCP-NE	Annual herb. Occurs in clay soils within openings of chaparral, coastal scrub, valley foothill grasslands, and vernal pool habitats. Blooms: Apr-June Elevation: less than 3,200	**Presumed Absent.** Suitable soils and vegetation communities do not occur within the Survey Area. Historical occurrences are separated from the Survey Area; located south of I- 8 along undeveloped slopes.
Singlewhorl burrobrush *Ambrosia monogyra*	**Federal**: None **State**: None **CRPR**: 2B.2 **City**: Not Covered	Perennial shrub. Occurs in sandy soils within chaparral, cismontane woodland habitats, and Sonoran Desert scrub habitats. Blooms: Aug-Nov Elevation: 30-1,650 feet	**Presumed Absent.** Suitable vegetation communities do not occur within the Survey Area. Historical occurrences are separated from the Survey Area; located south of I-8. Three observances identified in the *Grantville Trolley Station/Alvarado Creek Enhancement Project Existing Conditions Report* (RECON 2016) occur in two locations within one-half mile of the Survey Area. However, this is a large perennial shrub that would likely have been detected if present.
Summer holly *Comarostaphylis diversifolia ssp. diversifolia*	**Federal**: None **State**: None **CRPR**: 1B.2 **City**: Not Covered	Perennial, medium to large sized shrub found in chaparral habitats, often near the coast. Features bright red fruits and grayish twigs with bark that shreds. Blooms: Apr-June Elevation: 100-2,600 feet	**Presumed Absent.** Chaparral habitat is not present within the Survey Area. Known occurrences are separated from the Survey Area; located south of I-8 within an undeveloped area. Additionally, this is a medium to large shrub

			that would likely have been detected if present.
Variegated dudleya *Dudleya variegata*	**Federal**: None **State**: None **CRPR**: 1B.2 **City**: MSCP-covered	Perennial succulent herb. Occurs in clay soils within openings of chaparral, coastal scrub, valley foothill grasslands, cismontane woodlands, and vernal pool habitats. Blooms: Apr-June Elevation: 3-580 m	**Presumed Absent.** Suitable vegetation communities do not occur within the Survey Area. Historical occurrences are separated from the Survey Area; south of I-8, within an undeveloped mesa.
Wart-stemmed ceanothus *Ceanothus verrucosus*	**Federal**: None **State**: None **CRPR**: 2B.2 **City**: MSCP-covered	Perennial, medium-to large-sized evergreen shrub found in chaparral habitats, often near the coast, occasionally on rocky slopes. Blooms: Dec-May Elevation: 1-380 m.	**Presumed Absent.** Chaparral habitat does not occur within the Survey Area. Historical occurrences are separated from the Survey Area; located south of I-8 within chaparral habitat. Additionally, this is a large shrub that would likely have been detected if present.
WILDLIFE			
Species Name	**Listing Status**	**Habitat Requirements [2]**	**Potential for Occurrence**
INVERTEBRATES			
Quino checkerspot butterfly *Euphydryas editha quino*	**Federal**: **FE** **State**: None **City**: Not covered	This species is associated with coastal sage scrub and chaparral communities, generally requiring openings with relative woody ground cover below 100-percent. Adults typically emerge and begin flying in February or early March. The species is strongly associated within its host plant, dot-seed plantain (*Plantago erecta*), but will also associate with secondary host plants such	**Presumed Absent.** USFWS records indicate historical occurrences of this species within one mile of the Project. However, the Project site lacks suitable scrub, grassland, and open habitats to support this species. Additionally, topographic relief at the Project site lacks hilltops and is situated adjacent to a creek, atypical of

		as stiffbranch birds-beak (*Cordylanthus rigidus*), purple owl's clover (*Castilleja exserta*), and Coulter's snapdragon (*Anterrhinum coulterianum*). Away from larval host plants, the species will utilize suitable nectar patches on hilltops for nectaring and dispersing.	suitable habitat for the species. Lastly, the site is isolated from surrounding areas by urban development, and the species is not expected to occupy the site for dispersal.
VERTEBRATES			
Bats			
Western mastiff bat *Eumops perotis californicus*	**Federal**: None **State**: SSC **City**: Not covered	Occurs in desert scrub, chaparral, oak woodland, ponderosa pine and mixed conifer forests and meadows. Strongly tied to areas with cliffs and other significant rock features for roosting	**Presumed Absent.** No potential to roost, but low potential to forage within the Project area. No suitable cliffs are present for roosting, and this species does not normally roost in bridges or overpasses. Foraging habitat is abundant within Alvarado Creek. The CNDDB has one record of this species from 1946 at San Diego State University, approximately 1.5 miles east of the Project.
Reptiles			
California glossy snake *Arizona elegans occidantalis*	**Federal**: None **State**: None **City**: Not covered	This nocturnal species inhabits a variety of grassland, sage scrub, dry wash and chaparral habitats from sea level to over 7,000 feet in elevation. Tends to prefer sandy, loose soils. It remains in its burrow by day.	**Presumed Absent.** Some burrows exist within the Survey Area however sandy, loose soils and suitable vegetation communities are absent near these burrows. Historical occurrences are separated from the Survey Area; located northeast of the Project Site.

San Diego horned lizard *Phrynosoma coronatum* ssp. *blainvilii*	**Federal**: None **State**: SSC **City**: MSCP-covered	Chaparral, coastal sage scrub with fine, loose soil. Partially dependent on harvester ants for forage.	**Presumed Absent.** The CNDDB includes two records of this species within one mile of the Project. However, suitable scrub communities do not occur within the Project site. Furthermore, the site is isolated from surrounding undeveloped habitat and Reserve areas known to support the species.
Orange-throated whiptail *Aspidoscelis hyperythra*	**Federal**: None **State**: SSC **City**: MSCP-covered	Chaparral, coastal sage scrub with coarse sandy soils and scattered brush.	**Presumed Absent.** The CNDDB includes two records of this species within one mile of the Project. However, suitable scrub communities do not occur within the Project site. Furthermore, the site is isolated from surrounding undeveloped habitat and Reserve areas known to support the species.
Southern California legless lizard *Anniella stebbinsi*	**Federal**: None **State**: SSC **City**: Not covered	Occurs in a variety of habitats where warm moist soils and plant cover persist, including beach dunes, montane forests, stream terraces, sandy washes, and desert scrub. May occupy suburban gardens and other disturbed areas.	**Low.** The CNDDB includes one record of this species from 1976 mapped non-specifically over a 5-kilometer area of San Diego centered around Balboa Park. Suitable moist soils in sediment deposits occur on site. However, the site is isolated from surrounding undeveloped habitat and Reserve areas which more likely support this species, and potential for occurrence is low.

Western spadefoot *Spea hammondii*	**Federal**: None **State**: SSC **City**: Not covered	This species is associated with seasonal water sources such as vernal pools, floodplains, and alkali flats within areas of open vegetation.	**Presumed Absent.** The CNDDB includes one record for this species from 1946 mapped within the general San Diego area. Although areas of flood plains occur within the Project, heavily incised banks and high velocity flow regimes do not provide suitable habitat for this species.
Birds			
Coastal California gnatcatcher *Polioptila californica californica*	**Federal**: **FT** **State**: SSC **City**: MSCP-covered	Resident species occupying coastal sage scrub, maritime scrub, and coastal sage-chaparral mixed scrub communities. This species is strongly associated with California sagebrush (*Artemesia californica*) and generally occupies habitat with openings in canopy cover and moderate shrub height.	**Presumed Absent.** The Project site lacks suitable coastal sage scrub or similar scrub communities suitable for this species.
Cooper's hawk *Accipiter cooperii*	**Federal**: None **State**: None **City**: MSCP-covered	Mature forest, open woodlands, wood edges, river groves. Nests in coniferous, deciduous, and mixed woods, typically those with tall trees and with openings or edge habitat nearby. Also found along trees along rivers through open country, and increasingly in suburbs and cities where some tall trees exist for nest sites. Year-round resident.	**Low.** CNDDB does not have any records of this species within 1 mile of the Project Site. Some potentially suitable tall trees (for nesting) with adjacent openings are present within the Survey Area. Adjacent openings are largely within Urban/Developed Areas, comprised mostly of pavement and hardscape, lacking high activity of prey species. However, some edge habitat does exist within range of potentially suitable nesting habitat.

Least Bell's vireo *Vireo bellii pusillus*	**Federal**: **FE** **State**: **SE** **City**: MSCP-covered	Occupies riparian habitats that typically feature dense cover within 1-2 meters of the ground and a dense, stratified canopy. It inhabits low, dense riparian growth along water or along dry parts of intermittent streams. Primarily associated with willows and mule fat. Summer resident.	**Presumed Absent.** CNDDB has records of this species from 2012 and 2010 on the San Diego River within 1 mile of the Project Area. Habitat on site is generally characterized by the absence of a dense scrub understory which this species commonly inhabits. The absence of this key component reduces suitability of habitat and the Project site does not provide suitable nesting substrate or breeding territories for the species. Furthermore, historic occurrences of the species are isolated from the Project by large areas of urban development and non-contiguous riparian stretches, and the riparian habitat onsite is thin and ribbon-like, atypical of selected breeding areas.

Yellow warbler *Setophaga petechia brewsteri* [*Dendroica petechia brewsteri*]	**Federal**: None **State**: SSC **City**: Not covered	Breeding primarily restricted to riparian corridors on the coastal slope. Prefers mature riparian woodlands. Spring and fall migrant, localized summer resident, rare winter visitor.	**Low.** A small patch of marginally suitable riparian habitat occurs within the Project Area. Few mature trees exist within the riparian habitat, which is largely dominated by non-native species. Additionally, the riparian habitat is largely disturbed by human activities and vegetation maintenance. CNDDB does not have any records of this species within 1 mile of the Project.

Notes

[1]Plant bloom period months in parentheses are extreme beginnings/endings known to occur on occasion, usually in very wet or dry years. Months not in parentheses are the typical bloom period.

[2]Only habitat requirements for the species range in California are listed here.

5.6 Jurisdictional Waters

The biological survey and assessment identified waters which likely fall under the jurisdiction of USACE, RWQCB and CDFW. In follow-up, a formal jurisdictional delineation was performed to determine if specific areas of the Project site meet either 1) criteria to be considered a RPW or tributary of a TNW meeting significant nexus standards to fall under the jurisdiction of the USACE, RWQCB and/or CDFW as a non-wetland water and streambed, 2) meet the three-parameter criteria of a wetland to fall under the jurisdiction of the USACE, RWQCB and/or CDFW as wetland areas, or 3) exhibit habitat characteristics of a riparian area that meets City criteria for wetland areas or CDFW criteria for riparian habitat adjacent to streambed areas. The jurisdictional assessment identified jurisdictional water occurring within the Project Survey Area summarized in Table 6, below. The complete Jurisdictional Delineation Report is included as attachment to this report.

Table 6. Jurisdictional Waters

Jurisdictional Waters	Acres (Linear Feet) Within Survey Area	Acres (Linear Feet) Within Project Boundary
USACE Jurisdiction		
Wetland Waters of the U.S.	*0.25*	*0.15*
Non-Wetland Waters of the U.S.	*0.21 (593)*	*0.13 (373)*
USACE Total Jurisdiction	**0.46**	**0.28**
RWQCB Jurisdiction		
Wetland Waters of the State	*0.25*	*0.15*
Non-Wetland Waters of the State	*0.21 (593)*	*0.13 (373)*
RWQCB Total Jurisdiction	**0.46**	**0.28**
CDFW Jurisdiction		
Riparian Only	*0.42*	*0.31*
Streambed (Bank-to-Bank)	*0.46 (593)*	*0.29 (373)*
CDFW Total Jurisdiction	**0.88**	**0.60**
City Wetlands		
City Wetlands	*0.88*	*0.60*
Total City Wetlands	**0.88**	**0.60**

5.6.1 Existing Wetland Buffers

Existing conditions on the Project site include the direct abutment of developed impervious concrete areas and commercial work activities to City wetland habitats. This interface has resulted in no existing functional buffer between the wetlands and existing development.

Furthermore, existing conditions on site do not provide management for urban runoff and contribute to the direct discharge of run-off from the surrounding developed areas directly to Alvarado Creek.

6.0 PROJECT IMPACTS - THRESHOLDS OF SIGNIFICANCE, DIRECT/INDIRECT IMPACTS & TEMPORARY/ PERMANENT IMPACTS

This section includes a discussion of the potential direct, indirect, and cumulative impacts to onsite special-status biological resources that may result upon the construction and implementation of the Project. Direct impacts include those involving the loss, alteration and/or disturbance of plant communities, and consequently, the flora and fauna of the affected area. Direct impacts also include the destruction of individual plants and/or wildlife. Direct impacts may adversely affect regional populations of certain species, or result in isolated populations, reducing genetic diversity and range-wide population stability; conversely, direct impacts may also have intended or unintended positive effects in some cases.

Indirect impacts include a variety of effects related to areas or habitats that are not directly removed by Project development, such as loss of foraging habitat, increased ambient noise, artificial light, introduced predators (e.g., domestic cats, dogs, and other non-native animals), competition with exotic plants and animals, increased human presence and associated disturbances (e.g., trash, green waste, physical intrusion). Indirect impacts may include long and/or short-term daily activities associated with Project build-out, such as increased traffic, permanent barriers or fences, buildings, exotic seed-bearing ornamental plantings, irrigated landscapes, and human presence, among others. These types of impacts are known as edge effects and over time, may result in some encroachment on native plants by exotic plants, altered behavioral wildlife patterns, reduced wildlife diversity, and decreased wildlife abundance in habitats adjacent to a given project site. However, as is the case with direct impacts, indirect impacts may also have intended or unintended positive effects for certain species.

The potential for significant adverse effects, either directly or indirectly through habitat modification or conversion, on any special-status vegetation community, plant species or wildlife species, or that could occur as a result of the development of this Project is discussed within this section.

6.1 Impacts to Sensitive Habitats

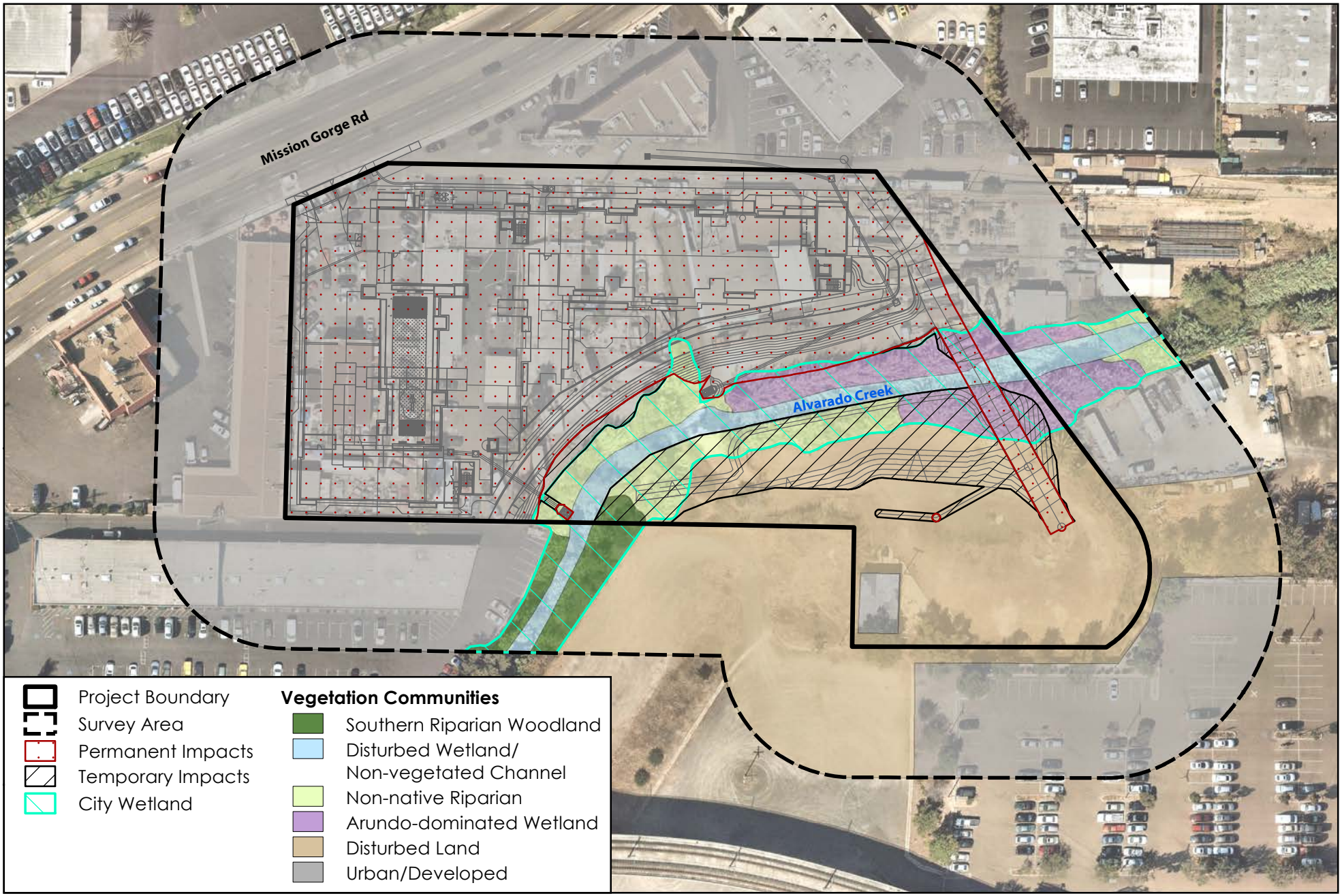
6.1.1 Direct Impacts to Sensitive Habitats

"Permanent" and "temporary" terminology is used below to distinguish permanent structures and project features compared to areas that will be vegetated following Project implementation. However, the City requires the same mitigation for all anticipated impacts, refer to Section 7.0 Mitigation Program.

The Project would include impacts associated with the permanent footprint of the proposed housing development and associated facilities such as stormwater outflow headwalls, concrete creek crossings, installed erosion control, and sewer manholes and access roads with decomposed granite substrate. These areas are shown on Figure 6 as "Permanent Impact". Permanent impact areas include 2.306 acres of Tier IV vegetation communities, including 2.270 Urban/Developed Area and 0.036 acre of Disturbed Land; and 0.070 acre of City wetlands including 0.008 acre of Disturbed Wetland/Un-vegetated Channel, 0.015 acre Non-native riparian and 0.047 acre Arundo Dominated Wetland.

Construction of the proposed Project will result in temporary habitat loss and short-term disturbances

to 0.476 acre of habitat. Temporary impacts to habitat are associated construction buffers for construction of the new housing development, installation of new storm water facilities and sewer connections. These include all areas proposed for ground disturbance, clearing, grading (including widening of the flood plain), equipment staging, materials laydown and storage. These areas are shown on Figure 6 as "Temporary Impact Areas." Temporary impact areas include 0.263 acre of Tier IV vegetation communities, including 0.030 acre Urban/Developed Area and 0.233 acre of Disturbed Land, and 0.213 acre of City wetlands including 0.002 acre Disturbed Wetland/Un-vegetated Channel, and 0.137 acre Non-native riparian, 0.060 acre Arundo Dominated Wetland, and 0.014 acre Southern Riparian Woodland.



Source: Nearmap 2019

Figure 6

Vegetation Communities

Alvarado Creek Affordable Housing Project

Blackhawk Environmental

N

0 100 Feet

The estimated acreages of proposed impacts to habitat resulting from implementation as described above are summarized in Table 7. No upland vegetation communities designated as Environmentally Sensitive Lands (i.e., Tier I, Tier II, and Tier IIIA) would be subject to Project-related impacts.

Table 7. Summary of Proposed Project Impacts to Vegetation Communities/Land Use Types

Vegetation Community/ Land Use Type	Impact	
	Temporary (Acres)	Permanent (Acres)
Disturbed Land (Tier IV)	*0.233*	*0.036*
Urban/Developed Area (Tier IV)	*0.030*	*2.270*
Subtotals: Tier IV Communities	**0.263**	**2.306**
Arundo-dominated Wetland	*0.060*	*0.047*
Disturbed Wetland/Un-vegetated Channel	*0.002*	*0.008*
Non-native Riparian	*0.137*	*0.015*
Southern Riparian Woodland	*0.014*	*0.000*
Subtotals: Environmentally Sensitive Lands (Wetlands)	**0.213**	**0.070**
TOTAL	**0.476**	**2.376**

The proposed Project includes direct impacts to a total of 0.283 acre (i.e., 0.213 acre of temporary impacts and 0.070 acre of permanent impacts) of City wetland/ESL habitats. These areas are covered under the City Environmentally Sensitive Lands Ordinance and will require mitigation according to Table 2a of the Biology Guidelines (City of San Diego 2018). These impacts exceed 0.01 acre and are considered a significant impact under the City's Biology Guidelines (City of San Diego 2018).

6.1.2 Indirect Impacts to Sensitive Habitats

Temporary indirect impacts to sensitive habitats may result from sediment or other non-stormwater discharges into Alvarado Creek, which has downstream connectivity to MHPA areas of the San Diego River which in turn support a host of special-status and MSCP-covered species. The Project will implement a Stormwater Pollution Protection Plan (SWPPP) which is expected to minimize and avoid potential impacts; Therefore, indirect impacts to sensitive habitats are not anticipated.

The site supports giant reed, a designated "Class B" "invasive weed" by the County of San Diego. Off-site transport of giant reed either by equipment or seed transport within Alvarado Creek, to other areas may result in indirect impacts due to habitat degradation. Measures to control the off-site transport of invasive species are included in the Project Habitat Monitoring and Mitigation Plan (HMMP) and significant indirect impacts to sensitive habitats as a result of invasive species are not anticipated.

6.2 Impacts to Jurisdictional Waters

6.2.1 Direct Impacts to Jurisdictional Waters

As described in Section 6.1, the Project includes direct impacts to City wetlands that are considered sensitive. A total of 0.283 acre of impacts (0.213 acre of temporary impacts and 0.070 acre of permanent impacts) to City wetland areas are proposed. These areas were further assessed as part of a formal jurisdictional delineation and include areas likely subject to regulation by USACE, RWQCB and CDFW[1]. Potential impacts to these areas include those discussed in Sections 6.0 above. Direct impacts to jurisdictional waters are summarized in Table 8.

Table 8. Summary of Proposed Project Impacts to Jurisdictional Resources

Jurisdictional Waters	Impacts Acres (Linear Feet)	
	Temporary	Permanent
USACE Jurisdiction		
Wetland Waters of the U.S.	*0.051*	*0.012*
Non-Wetland Waters of the U.S.	*0.002 (5)*	*0.008 (21)*
Likely USACE Total Jurisdiction	**0.053**	**0.020**
RWQCB Jurisdiction		
Wetland Waters of the State	*0.051*	*0.012*
Non-Wetland Waters of the State	*0.002 (5)*	*0.008 (21)*
Likely RWQCB Total Jurisdiction	**0.053**	**0.020**
CDFW Jurisdiction		
Riparian Only	*0.160*	*0.050*
Streambed (Bank-to-Bank)	*0.053 (5)*	*0.020 (21)*
Likely CDFW Total Jurisdiction	**0.213**	**0.070**
City Wetland		
City Wetland	*0.213*	*0.070*
Total City Wetlands Areas	**0.213**	**0.070**

Direct impacts to jurisdictional waters and City wetlands are considered significant.

6.2.2 Indirect Impacts to Jurisdictional Waters

Temporary indirect impacts to City wetland habitats may result from degradation of waterways through the accidental discharge or oil, grease, and chemicals and/or temporary impounding of flow within Alvarado Creek during construction. The Project will implement a Stormwater Pollution Protection Plan (SWPPP) which is expected to minimize and avoid potential impacts; Therefore, significant temporary indirect impacts to jurisdictional waters are not anticipated.

[1] Final determination of agency jurisdiction will be made by the agency during the regulatory permitting review process.

Permanent indirect impacts include downstream habitat loss or conversion which may result from the widening and alteration of the flow regime within Alvarado Creek and non-storm discharges from urban run-off. However, the Project does not propose permanent modification of on-site hydrology and downstream conveyance. Urban run-off will continue in its existing manner with additional pollutant controls provided by an on-site stormwater basin with outfalls into Alvarado Creek incorporated as part of the Project design. Therefore, significant permanent indirect impacts to jurisdictional waters are not anticipated as a result of hydrology modification or urban run-off.

The site is host to invasive species such as giant reed which, if transported off site, may result in long-term conversion or degradation of off-site jurisdictional waters. Measures to control the off-site transport of invasive species are included in the Project HMMP and significant indirect impacts to jurisdictional waters as a result of invasive species are not anticipated.

6.2.3 Deviation from Wetland Regulations

The City Biology Guidelines (2018) and the ESL Regulations state that impacts to wetlands should be minimized and avoided to the extent feasible. Although wetland buffers do not have minimum set-back distances outside of the Coastal Overlay Zone, City Biology Guidelines state that wetland buffers shall be maintained as appropriate to protect the functions and values of the wetland.

The Project proposes impacts to wetlands outside the Coastal Overlay Zone. These proposed impacts to wetland habitat require a deviation from the wetland regulations. Deviations from the wetland regulations shall not be granted unless the development qualifies to be processed as one of these three options: 1) Essential Public Projects Option, 2) Economic Viability Option and 3) Biologically Superior Option.

The proposed Project does not qualify as an essential public project and this Project is not proposed as the Economic Viability Option. However, with the inclusion of on-site mitigation proposed, the Project represents the Biologically Superior Option.

In order to qualify as the Biologically Superior Option, a project deviating from wetland regulations must: (1) fully describe and analyze a no project alternative, a wetlands avoidance alternative, and a biologically superior alternative demonstrating that the proposed project would result in the conservation of a biologically superior resource compared to strict compliance with the provisions of the ESL; (2) demonstrate that the wetland resources being impacted by the project shall be limited to wetlands of low biological quality; (3) demonstrate that the project and associated mitigation conform to the requirements for this option that include avoidance, minimization, and compensatory measures which would result in a biologically superior net gain in overall function and values of the type of wetland resource being impacted and/or the biological resources to be conserved; and (4) obtain concurrence from the USFWS and the CDFW (Wildlife Agencies). Evaluation of these criteria are discussed in the section below.

6.2.3.1 No Project Alternative

Under the no project alternative, the Project would not be constructed and no impacts to wetlands would occur, accounting for an overall reduction of 0.283 acre of impacts to wetlands. The widening and recontouring of the Alvarado Creek channel to increase capacity would also not occur.

The site would remain in its current condition with developed commercial and industrial operations occurring directly adjacent to City wetland areas with no functional buffer. Wetlands on site would most likely continue to sustain regular human disturbances through unregulated stormwater discharge, dumping and encampments. Furthermore, without widening of the channel, flow velocities would remain high, resulting in sediment loading, scouring and routine flooding of the areas which generally limit the quality of the on-site wetlands and downstream areas. Additionally, the on-site wetland restoration (0.217 acre), enhancement (0.199 acre) and creation (0.183 acre) proposed as mitigation for this project would not occur and non-native species would likely continue to dominate the majority of the site.

6.2.3.2 Wetland Avoidance Alternative

Under the wetland avoidance alternative, all (0.283 acre) City wetland areas would be avoided (Figure 6). The Tier IV upland areas of the Project would be developed, but core elements of the proposed Project would not be completed, including the installation of stormwater outfalls, increased capacity of the Alvarado Creek channel and connection to underground sewer lines south of Alvarado Creek.

Without connection to existing sewer south of Alvarado Creek, critical components of the project would be eliminated, and the proposed Project would not be feasible.

Without recontouring and grading of the southern bank of Alvarado Creek to increase capacity, the site will continue to sustain periodic flooding and the Project would not be feasible. The avoidance alternative also would forgo 0.183 acre of wetland creation as a component of mitigation for impacts to wetlands areas.

6.2.3.3 Demonstration of the Proposed Project as a Biologically Superior Option

Conservation of a Biologically Superior Resource

The proposed Project would impact approximately 0.283 acre of City wetland habitat. However, the proposed Project proposes to create, retore, enhance, and ultimately conserve a total of 0.599 acre of wetlands of higher quality than those which currently exist on site, resulting in a net increase of approximately 0.316 acres of a biologically superior resource.

Wetland Buffers

Existing conditions on the Project site include the direct abutment of developed impervious concrete areas and commercial work activities to City wetland habitats. This interface has resulted in no existing functional buffer between the wetlands and existing development. Further, these conditions do not provide management for urban runoff and contribute to the direct discharge of run-off from the

surrounding developed areas directly to Alvarado Creek. The Project provides a Biologically Superior Option through the creation of wetland buffers ranging from 27 to 45 feet in width (Figure 7).

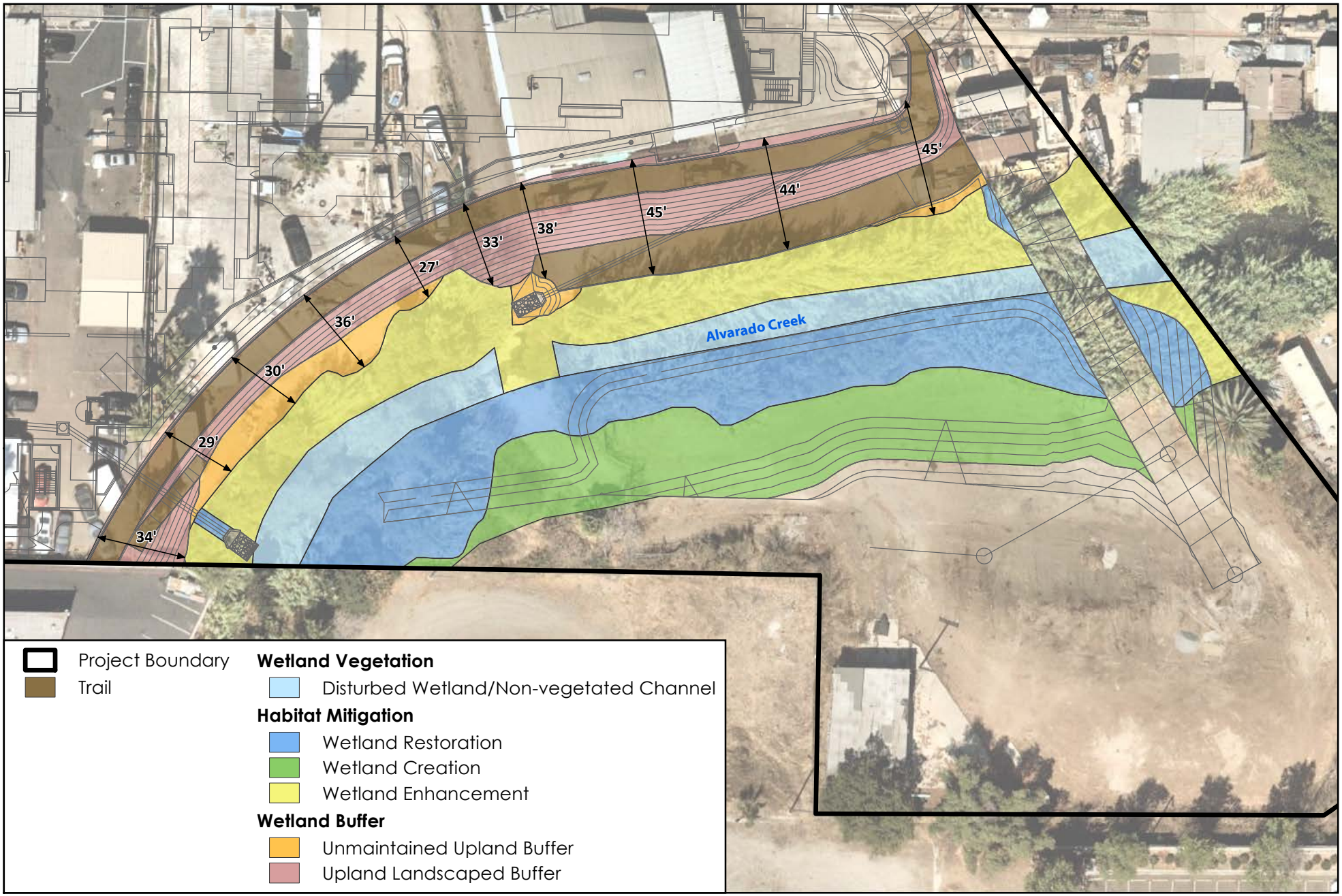
Currently, wetland habitat quality on the site is poor. Wetland restoration, creation and enhancement as described in Habitat Mitigation and Monitoring Plan (Blackhawk Environmental Inc., February 1, 2021) would substantially increase onsite wetland habitat value, foraging habitat and create suitable habitat for listed and sensitive species known to occur in riparian communities.

The creation of a wetland buffer and implementation of proposed wetland creation, restoration and enhancement will protect other functions and values of wetland areas including absorption and slowing of flood waters for flood and erosion control, sediment filtration, water purification, ground water recharge, and the need for upland transitional habitat, meeting the requirements of the City of San Diego Biology Guidelines (2018). In addition, engineered stormwater controls associated with Project development are expected to improve the quality of surface water runoff compared the urban runoff that currently enters the creek and lacks water pollution controls.

The proposed Project will incorporate native upland landscaping between the new community trail and proposed wetland areas (Figure 7). Landscaping would incorporate components of both coastal sage scrub, chaparral, and riparian fringe communities to form a more natural upland transitional zone above the wetland areas. To maximize the effectiveness of the wetland buffer, shrubs, small trees, and large tree species will be planted. Suggested species include black elderberry (*Sambucus nigra*), western sycamore, Fremont cottonwood (*Populus fremontii*), toyon (*Heteromeles arbutifolia*), lemonadeberry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), coyote brush (*Baccharis pilularis*). These species provide a multi-tiered canopy and thick understory that will maximize the benefit of the wetland buffer per the requirements of the City Biology Guidelines (2018) and the ESL Regulations.

These landscaped buffer areas will be managed as part of on-site landscaping, with a continuation of unmaintained native upland landscaping for the remaining buffer between the community trail and the creek. These upland areas are not proposed as upland mitigation and are not subject to conditions outlined in the HMMP that are specific to wetland mitigation (Figure 7). Unmaintained uplands between the community trail and creek will provide additional physical and visual buffers between development and the wetlands. These areas will be permanently or temporarily irrigated until vegetation is developed and self-sufficient. The maintained upland buffer may be subject to minimal trimming or hedging and weed eradication, while the unmaintained upland buffer will be allowed to fully mature and only subject to weed eradication activities.

Wetland mitigation areas planned for management and maintenance will be delineated by a permanent, split-rail fence located between the trail and wetland mitigation areas (north perimeter), and a 6-foot chain link fence that will be installed along the southern boundary of the Mitigation Site, which will prevent encroachment of management activities on wetlands as well as create a physical barrier for human encroachment.



Source: Nearmap 2019

Figure 7

Wetland Buffer Analysis

Alvarado Creek Affordable Housing Project

Blackhawk Environmental

N

0 50 Feet

Wetland Quality

According to the City's Biology Guidelines (2012), in order to determine if a project is the Biologically Superior Option, it should be demonstrated that the wetlands proposed to be impacted are of low biological quality. The section below provides Project-specific discussion of on-site wetland quality as evaluated using each of the prescribed City criteria and Section 320.4(b)(2) of USACE 33CFR 320.

1. *Use of the wetland by federal and/or state endangered, threatened, sensitive, rare and/or other indigenous species.*

   During the 2020 habitat assessment, Blackhawk Environmental evaluated the potential for federal and/or state endangered, threatened, sensitive, rare and/or other indigenous species to occur on site. Based on the condition of City wetlands proposed for impacts and isolation from surrounding contiguous wetland areas, the site is not expected to support sensitive species and sensitive species were not observed. Further discussion of the factors contributing to degradation of wetland quality based on hydrological regime and water quality which have resulted in sensitive species not being expected to occur are provided in items 6 through 8, below.

2. *Diversity of native flora and fauna present (characterizations of flora and fauna must be accomplished during the proper season, and surveys must be done at the most appropriate time to characterize the resident and migratory species).*

   During the 2020 surveys, an array of both native and non-natives species were observed. The majority of these species were upland- or disturbance-adapted resident avian species observed to utilize the wetland and adjacent disturbed habitats for foraging (e.g. California towhee, bushtit, house finch and northern mockingbird). Occasional wetland-associated species such as belter-kingfisher, great blue heron and mallard were observed utilizing the site for foraging. However, these species are generally associated with open water/aquatic habitat types utilized for foraging. Overall, the site was not observed to support wildlife species associated with riparian habitats (e.g. riparian scrub, riparian forest, emergent wetlands, etc.) The majority of habitat value contributed by aquatic habitats resulting from perennial water sources but limited by disturbance.

   Native vegetation diversity was observed to be low, with large portions of the wetland habitats dominated by monotypic giant reed, which provides negligent habitat value to native riparian species. Where native riparian canopy persists, the quality of habitat has been degraded by the establishment of non-native sub-canopy and understory of herbaceous and woody shrub species (e.g. smilo grass, castor bean, pampas grass, umbrella sedge, etc.).

3. *Enhancement or restoration potential.*

   The wetlands proposed for impacts by the Project are comprised primarily of non-native riparian and Arundo-dominated wetland habitats. While the site has enhancement and restoration potential, the wetlands here would be considered relatively low quality. Following construction of the Project, these areas are proposed for restoration with higher quality native wetlands. By

implementing the proposed Project impacts, the on-site restoration potential will be improved as the increased channel width provides the opportunity for an additional 0.186 acre of wetland habitat creation from disturbed upland habitats.

Existing habitats along the north channel slope of Alvarado Creek are comprised of 75 to 100 percent cover of non-native species. These areas would not be impacted but enhanced by the Project through the removal of non-native species and revegetation with native species as part of the proposed Habitat Restoration Plan (Blackhawk 2021).

4. *Habitat function/ecological role of the wetland in the surrounding landscape, considering − the current functioning of the wetland in relation to historical functioning of the system; and − rarity of the wetland community in light of the historic loss and remaining resource.*

   The wetlands proposed for Project impacts serve little ecological function when compared to historic function or undisturbed riparian communities of the region. The low function of the site is a result of a poorly developed sub canopy comprised primarily of non-native and/or invasive species. In particular, the site is unlikely to support nesting riparian associated bird species such as yellow warbler or least Bell's vireo. These areas are largely isolated from the surrounding riparian areas of the region due to undergrounding and lining of other reaches of Alvarado Creek upstream and downstream of the Project, which has fragmented and degraded on-site habitat. The site does not contribute significant ecological functions such as food chain production, general habitat, spawning or rearing and nesting sites.

   Historically, the creek meandered within the valley dispersing hydrology over a much wider area. However, development within the larger San Diego River Valley region has resulted in channelization of the San Diego River and its tributaries, such as Alvarado Creek. This channelization on site causes high volume periodic flooding which in turn creates scouring and removal of vegetation to a greater degree than would naturally occur. These scouring events are likely the cause of the relatively underdeveloped riparian community.

   In historical context, the loss of large portions of natural wetland and riparian communities within the San Diego River Valley and tributaries has increased the importance of maintaining and preserving the remaining fragments. Although the wetlands on-site are of low ecological function than otherwise undisturbed or natural communities, this historic loss of habitat means that any loss of wetlands would be considered significant. However, in the absence of the Project these areas would continue to function with low ecological value.

5. *Connectivity to other wetland or upland systems (including use as a stopover or stepping-stone by mobile species), considering − proximity of the wetland resource to larger natural open spaces, and − long-term viability of resource, if avoided and managed.*

   The Project site has been ecologically isolated from larger surrounding riparian communities of the region as a result of channel lining, undergrounding and routine vegetation maintenance both up and downstream. Although the site is located approximately 0.31 miles west of larger riparian habitats associated with the San Diego River, the creek west of the site has been lined

with concrete for an approximately 0.25-mile reach, which has eliminated riparian habitat connectivity.

If avoided and managed, the channel would not be widened, and the creek would continue to sustain high velocity and high-volume flooding events. Over time, these events would be expected to continually remove riparian understory at regular intervals as well as occasionally cause destruction of the few remaining relic native tree species that persist on site. As these species/individuals are removed it is likely that the site would continue to recruit Arundo and other non-native species more adapt to disturbed environments, and site degradation would increase. These factors reduce long-term viability of the site.

6. *Hydrologic function, considering – whether the volume and retention time of water within the wetland is sufficient to aid in water quality improvements, and – whether there is significant flood control value or velocity reduction function; and – whether there is an opportunity to restore the hydrologic functions.*

   The current condition on the site is not conducive to water retention, and therefore water purification functions, or flood management. Surrounding development has resulted in heavy channelization of the creek, including in upstream and downstream reaches. The constricted nature of the creek results in high velocity flow. Furthermore, portions of the creek have been lined with concrete, creating impervious surfaces.

7. *Status of watershed considering whether the watershed is partially developed, irrevocably altered, or inadequate to supply water for wetland viability*.

   The San Diego River Watershed, which includes Alvarado Creek, is partially developed, primarily in the western downstream portion of the watershed. These areas include those surrounding the Project within the Mission Valley area. The watershed maintains adequate water supply to sustain wetland community viability in the downstream reaches of the watershed. However, tributaries of the main river system have been irrevocably altered through portions of the watershed through concrete lining and channelization. Restoration of these areas would require substantial grading to restore natural function.

8. *Source and quality of water, considering – whether the urban runoff is from a partially developed watershed; − whether the water source is in part or exclusively from human- caused runoff which could be eliminated by diversion; and – whether there is an opportunity to restore the water quality or flood control value.*

   Urban runoff from Mission Gorge Road and the developed parcels north of the wetlands are responsible for the majority of hydrologic input to Alvarado Creek within the Project site. Upstream hydrologic input is provided by urban runoff from similar areas include Mission Gorge Place and Alvarado Canyon Road. Due to the majority of hydrology occurring from urban run-off and anthropogenic sources, the water quality is presumed poor.

   The Project will update storm water systems to improve storm water run-off water quality originating from within the site. The Project will also increase flood capacity, reduce flow

velocity, and remove impervious surfaces, which are expected to increase wetland function and improve water quality by reducing erosion and sediment loading and increasing water retention time.

Anthropogenic water sources both within and upstream of the Project have the potential to be eliminated in the future as a result in updates to stormwater facilities, as well as overall run-off reduction through reductions in irrigation of surrounding areas. Such changes would result in elimination and/or reductions in water sources which could modify existing wetlands on site. In the event that water sources are reduced, water quality would likely remain low due to sources from urban run-off.

As discussed in item 6, above, on site wetlands afford opportunities to restore water quality and flood control functions through proposed reductions in flow velocities via channel widening and habitat restoration.

Concurrence from Wildlife Agencies

The request for a deviation from wetland regulations based on the proposed project being a Biologically Superior Option described above would be submitted to and reviewed by the Wildlife Agencies and require their concurrence for project approval.

6.3 Impacts to Sensitive Species

This section provides definitions and discussion of the various potential Project-related impacts to special status species that are anticipated to occur.

6.3.1 Direct Impacts to Special Status Species

Potential direct impacts to special status species which may occur as a result of construction of the proposed Project, include wildlife entrapment, killed or injured wildlife, and unauthorized grading or vegetation removal. These activities have the potential to occur for any number of reasons, including lack or absence of Project design staking, inadequate or unmaintained demarcation of proposed impacts areas, misinterpretation of Project designs, and human error in operating equipment. Dependent on construction methodology and sequencing, impacts resulting from wildlife entrapment may occur at any Project site where excavations remain open and un-sealed for extended periods. Wildlife injuries and mortalities have the potential to occur as a result of any of the previously discussed reasons but are also an inherent risk when working in proximity to undisturbed areas during activities such as initial vegetation clearing and ground disturbance.

As described in Section 5.5.2 above, the Project area has been largely developed and isolated from surrounding native habitat and Reserve areas. As such, the potential to support special-status species is considered low for Cooper's hawk, yellow warbler, and southern California legless lizard. All other special-status species are presumed absent from the Project. Due to low potential for occurrence, direct impacts to special status species are not anticipated.

6.3.2 Indirect Impacts to Special Status Species

Temporary Indirect impacts to special status and MSCP-covered species such as Cooper's hawk can occur as a result of increased noise, lighting, construction dust, and loss of foraging habitat. Permanent indirect impacts associated with the long-term development of the Project may include similar impacts to those resulting from construction, such as noise generated by occupancy, site lighting, and increased anthropogenic activities at the development site. However, due to low potential for occurrence, indirect impacts to special status species are not anticipated.

The proposed Project has limited potential for temporary indirect impacts on wildlife movement which may be deterred from the Project due to increased noise, human activity, and temporary disturbances to habitat. Impacts to wildlife movement would only be considered for impacts within Alvarado Creek, which will be minimized and occur over a short duration relative to the overall Project construction. These temporary impacts to wildlife movement are not anticipated due to low potential for special status species and relatively short Project duration.

Long-term indirect impacts to wildlife movement would likely be similar to temporary impacts, and result from human activity, lighting and noise as a result of long-term occupancy of the Project. However, given the high level of existing disturbances at the site and surrounding ambient conditions, these impacts are not expected to increase beyond ambient levels and are likely considered less than significant.

6.4 Cumulative Impacts

The proposed Project will conform with the County MSCP (1998) and City of San Diego's MSCP Subarea Plan (1997). These Plans have been designed to compensate for the cumulative regional loss and/or impacts to sensitive biological resources. By conforming to the MSCP, no cumulative impacts are anticipated.

7.0 MITIGATION PROGRAM

Mitigation is required for all proposed Project-impacts that would be considered significant under CEQA.

7.1 Mitigation for Impacts to City Wetlands

The City guidelines do not distinguish temporary and permanent impacts to wetland communities, and therefore all impacts to wetland habitats are proposed for mitigation according to habitat type. Three of the four City wetland habitat types (Disturbed Wetland/Unvegetated Channel, Non-native Riparian, and Arundo-dominated Wetland) impacted are considered "disturbed wetlands" and would be mitigated at a 2:1 ratio according to Table 2a of the Biology Guidelines (San Diego Municipal Code, 2018). The fourth (Southern Riparian Woodland) is considered an Environmentally Sensitive Land and would be mitigated at a 3:1 ratio. Thus, total impacts to 0.283 acre of City wetlands would be mitigated through 0.58 acre of mitigation. A minimum of 1:1 ratio (0.283 acre) of the overall mitigation is required to occur either via creation or restoration, with the remaining 2:1 provided through a combination of either creation, restoration, and/or enhancement. Total mitigation required to offset Project impacts is detailed in Table 8.

The Project has incorporated on-site restoration and habitat creation as part of the increased capacity of the Alvarado Creek channel and 100-year flood plain. Proposed new channel slopes will be vegetated with native wetland/riparian species and/or natural channel bottom substrate to provide a total of 0.183 acre of on-site habitat "creation". This would provide mitigation in the form of creation for impacts to 0.283 acre of wetland at a 0.6:1 ratio. An additional 0.1 acre of restoration via the revegetation of proposed temporary impacts to existing City wetland areas would be provided to fulfill on-site mitigation requirements at a 1:1 ratio for "no-net loss."

The Project proposes 0.117 acre of additional restoration of impacts to City wetlands. This would provide mitigation in the form of restoration for 0.283 acre of wetlands at a ratio of 0.4:1. An additional 0.199 acre of existing wetland habitat within the site would be included as an "enhancement" area, providing mitigation for 0.283 acre of impacts to wetlands at a ratio of 0.7:1. Within the enhancement area, the acreage available for mitigation is based on the percentage of invasive/weed species relative to total cover. The invasive/weed coverage percentage in these areas relative to the total area was considered to determine the total acreage available via enhancement on site. This combination of restoration and enhancement will provide mitigation at a 1.1:1 ratio thereby exceeding on-site mitigation requirements.

The total combination of on-site habitat creation, restoration and enhancement is expected to total 0.599 acre of wetland habitat, in excess of the 0.58 acre required to offset impacts to City wetland areas resulting from the Project (Table 8). A HMMP has been prepared and developed detailing proposed mitigation approach, target habitat types, monitoring, weed management, success criteria and reporting. The HMMP is provided as Attachment D to this report.

In addition to on-site restoration and prior to impacting wetland/riparian areas potentially under the jurisdiction of the USACE, RWQCB and CDFW, the Applicant will prepare the following documents

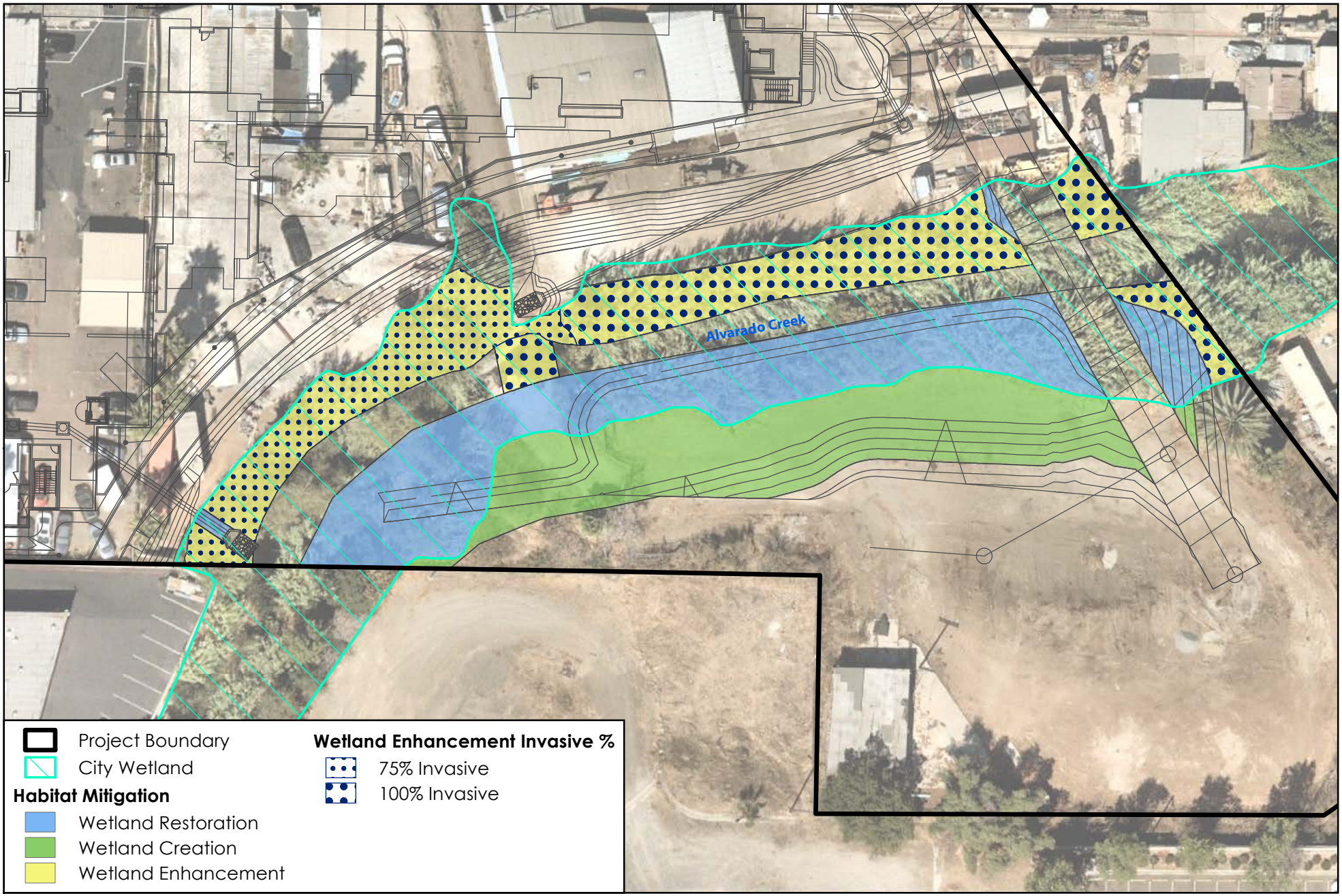
and/or obtain the following permit authorizations as identified in the Jurisdictional Delineation Report (Attachment C):

- Obtain Clean Water Act Section 404 permit issued by USACE for all proposed impacts to Waters of the U.S.
- Obtain Porter-Cologne Water Quality Control Act Section 401 permit issued by RWQCB for all proposed impacts to Waters of the State.
- Obtain Lake and Streambed Alteration Section 1602 permit issued by CDFW for all proposed impacts to Streambeds.

Table 8. Summary of Impacts to City Wetlands and Required Mitigation

	Impacts (acres)[2]			Mitigation Ratio	Mitigation Required (acres)	Total Mitigation Required	Proposed Mitigation			
City Wetlands	**Temporary**	**Permanent**	**Total**				**Restoration**	**Creation**	**Enhancement**	**Total**
Disturbed Wetlands/Un-Vegetated Channel	0.002	0.008	0.010	2:1	**0.020**	**0.58 required wetland mitigation credit**	**0.217[3]**	**0.183[4]**	**0.199[5]**	**0.599**
Non-native Riparian	0.137	0.015	0.152	2:1	**0.304**					
Arundo-dominated Wetland	0.060	0.047	0.107	2:1	**0.214**					
Southern Riparian Woodland	0.014	0.000	0.014	3:1	**0.042**					
Totals	**0.213**	**0.070**	**0.283**		**0.58[6]**					

[2] Under City guidelines temporary and permanent impacts are mitigated at the same ratio and mitigation ratio is dependent on habitat type
[3] Includes restoration of temporary impacts to City wetlands on site
[4] Includes conversion of upland Tier IV communities to wetland/riparian habitat as part of channel widening restoration
[5] Refer to discussion of wetland enhancement
[6] A minimum of 1:1 ratio (0.283 acre) of the total mitigation is required to be achieved through restoration or enhancement for no-net loss



Source: Nearmap 2019

Figure 8

Proposed Habitat Mitigation

Alvarado Creek Affordable Housing Project

BLACKHAWK Environmental

N

0 50 Feet

7.2 Mitigation for Impacts to Sensitive Species

Potential direct and indirect impacts to sensitive plant and wildlife species as a result of the Project were analyzed. Due to low potential for occurrence, direct impacts to special status species are not anticipated and no additional mitigation is proposed.

7.3 Resource Protections for Biological Resources

The Project will comply with Biological Resources Protections included as Conditions of Approval provided by the City.

I hereby certify that the statements furnished above present the data and information required for this biological survey results report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Seth Reimers
Senior Biologist

8.0 REFERENCES

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors
2012 The Jepson Manual: Vascular Plants of California, Second Edition. University of California Press, Berkeley, California.

Blackhawk Environmental, Inc.
2021 Alvarado Creek Affordable Housing Project: Habitat Mitigation and Monitoring Plan. San Diego, San Diego County, CA. February, 2021.

Calflora
2020 Information on California plants for education, research and conservation, based on data contributed by dozens of public and private institutions and individuals, including the Consortium of Calif. Herbaria. [web application]. Berkeley, California: The Calflora Database [a non-profit organization]. Available at http://www.calflora.org/ (Accessed: January 2020).

2020 Information on California plants for education, research and conservation. [web application]. Berkeley, California: The Calflora Database [a non-profit organization]. Available: http://www.calflora.org/. Accessed January 2020.

California Department of Fish and Game (CDFG)
1994 Environmental Services Division (ESD). A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607, California Fish and Game Code.

California Department of Fish and Wildlife (CDFW)
2008 CEQA Guidelines. Statutes and Guidelines for Implementation of the California Environmental Quality Act as amended.

2009 Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. Sacramento, CA: California Department of Fish and Game, November 24, 2009.

2014 California Natural Diversity Database (CNDDB). GIS Data, CNDDB Subscription.

2020 California Natural Diversity Database (CNDDB). RareFind Version 3.1.0. Database Query for the *La Mesa*, California, USGS 7.5-minute quadrangles. Wildlife and Habitat Data Analysis Branch. Accessed January 2020.

California Native Plant Society (CNPS)
2020 Rare Plant Program. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Available at http://www.rareplants.cnps.org (accessed January 2020).

2020 Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society. Sacramento, California. http://www.cnps.org/inventory. Accessed January 2020.

California State Assembly
2018 California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000 – 15387. Available from http://ccr.oal.ca.gov/

California State Water Resources Control Board
2018 Porter-Cologne Water Quality Control Act, Water Code Division 7 and Related Sections (As amended, including Statutes 2017). California State Water Resources Control Board. Sacramento, California. https://www.waterboards.ca.gov/laws_regulations/docs/portercologne.pdf

City of San Diego
1998 Final Multiple Species Conservation Plan. MSCP Plan. August 1998.

2018 San Diego Municipal Code Land Development Code Biology Guidelines. Amended February 1, 2018.

Cypher, E.A.
2002 General Rare Plant Survey Guidelines. California State University, Stanislaus. Endangered Species Recovery Program, Revised July 2002.

Google
2017 Google Earth. US Department of State Geographer. Data SIO, U.S. Navy, NGA, GEBCO. *earth.google.com/*.

Hickman, J.C. (Ed.).
1993 The Jepson Manual, Higher Plants of California. University of California Press, Berkeley and Los Angeles, California.

Holland, Robert F.
1986 Preliminary Descriptions of the Terrestrial Natural Communities of California. State of California, the Resources Agency. Department of Fish and Game.

Jepson Flora Project (eds.)
2014 Jepson eFlora. http://ucjeps.berkeley.edu/eflora/.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin
2016 *The National Wetland Plant List: 2016 wetland ratings.* Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X

Oberbauer, T., Kelly, M. and J. Buegge
2008 Draft Vegetation Communities of San Diego County. Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California". Holland.

San Diego County
2012 San Diego County Code of Regulatory Ordinances Chapter 6 Resource Protection Ordinances. San Diego, California.

San Diego County Department of Planning and Land Use Department of Public Works

2010a Biological Mitigation Ordinance. An Excerpt from The San Diego County Code of Regulatory Ordinances. San Diego, California.

San Diego County Department of Planning and Land Use Department of Public Works
2010b Guidelines for Determining Significance and Report Format and Content Requirements. Biological Resources. Fourth Revision. San Diego, California.

San Diego County Department of Planning and Land Use. Department of Public Works.
2010b Biological Mitigation Ordinance. An Excerpt from The San Diego County Code of Regulatory Ordinances. San Diego, California

San Diego County Department of Planning and Land Use Department of Public Works
2010c Report Format and Content Requirements. Biological Resources. Fourth Revision. San Diego, California.

Sawyer, J.O., T. Keeler-Wolf, J.M. Evens
2009 A Manual of California Vegetation, Second Edition. California Native Plant Society. Sacramento, California.

Sproul, F., T. Keeler-Wolf, P. Gordon-Reedy, J. Dunn, A. Klein, K. Harper
2011 Vegetation Classification Manual for Western San Diego County (VCMWSDC), First Edition. AECOM, California Department of Fish and Game, Vegetation Classification and Mapping Program, Conservation Biology Institute. February 2011.

United States
1972 Federal Water Pollution Control Act Amendments of 1972 (U.S.C. 1251 et seq.)

U.S. Army Corps of Engineers (USACE)
1987 Corps of Engineers Wetlands Delineation Manual. Environmental Laboratory U.S. Army Corps of Engineers, Waterways Experiment Station, Wetlands Research Program Technical Report Y-87-1. Vicksburg, Mississippi.

2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*, ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)
2010 Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions. http://soils.usda.gov/technical/classification/osd/index.html

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed [January 2019].

2018 Natural Resources Conservation Service. Wetland Indicator Status Plants Database. https://plants.usda.gov/wetinfo.html

United States Fish and Wildlife Service (USFWS)

1996 Guidelines for conducting and reporting botanical inventories for federally listed, proposed, and candidate plants. Sacramento, California.

2016 U.S. FWS Threatened & Endangered Species Active Critical Habitat Report. https://ecos.fws.gov/ecp/report/table/critical-habitat.html

2019 National Wetlands Inventory (NWI). https://www.fws.gov/wetlands/.

United States Geological Survey (USGS)
2020 7.5-minute topographic quadrangle map for *La Mesa*, California.

ATTACHMENT A

Photo Pages

Blackhawk Environmental

Photo 1: Northeast-facing view of the interface between Urban/Developed, Disturbed Wetland/ Non-vegetated Channel, and Southern Riparian Woodland habitats. New stormwater outflow headwall proposed for installation to the north of the current stormwater outflow pipe (light blue) visible next to the concrete wall. Photo taken from within the 100-ft Survey Area, south of the Project Boundary (Parcel 461-320-06-00).

Photo 2: North-facing view of the Disturbed Wetland/ Non-vegetated Channel surrounded by Non-native Riparian habitat and Southern Riparian Woodland (top right). Rip-rap and debris visible within the channel bottom. This photo was taken near the southern portion of the Project Boundary (parcel 461-320-06-00).

Photo 3: Northeast-facing view of Non-native Riparian habitat bisected by the Disturbed Wetland/ Non-vegetated Channel within the Project Area (parcel 461-320-06-00). Some examples of the anthropogenic disturbances (trash and debris) observed on-site, are represented in this photo.

Photo 3: East-facing view of Non-native Riparian and Arundo-dominated Wetland habitats at the northwestern boundary of parcel 461-320-08-00. Existing road and Arizona crossing (visible at the bottom of this photo) are located at the intersection of all three parcels, 461-320-06-00 (to the west), 461-320-09-00 (to the northeast), and 461-320-08-00 (to the southeast).

Photo 4: North northwest-facing photo of the existing road and Arizona crossing which intersect all three parcels. Temporary stormwater outflow headwall and permanent impacts proposed include installation of rip-rap for erosion control are proposed within Alvarado Creek.

Photo 5: East-facing view of the commercial lot within parcel 461-320-09-00, northeast of the Arizona crossing. Temporary underground stormwater pipe will run east to west within this lot, and will terminate to the right, into Alvarado Creek. Arundo-dominated Wetland visible along the right side of the photo.

Photo 6: East-facing photo within the southeast corner of parcel 431-320-09-00, north of Alvarado Creek. Approximate location of a permanent stormwater outflow headwall into Alvarado Creek shown right of frame.

Photo 7: West-facing view of recently treated giant reed (*Arundo donax*) within the Arundo-dominated Wetland habitat, located at the eastern end of the Project (parcel 461-320-08-00) and the Survey Area. Untreated sections of giant reed with Project visible in the background of the photo.

Photo 8: Northwest-facing view of where the sewer line relocation is proposed to cross Alvarado Creek. Permanent impacts proposed for this area include a concrete crossing. This photo was taken within the Project Boundary in the northeast corner of parcel 461-320-08-00.

Photo 9: Northwest-facing view of the proposed sewer line to meet existing sewer line connection within parcel 461-320-08-00. Approximate sewer connection point and manhole location visible in the center foreground of this photo.

Photo 10: Northwest-facing overview of the Disturbed Land within parcel 461-320-08-00. Area shown is proposed for grading of new channel to expand the 100-year flood plain of Alvarado Creek. Area would be revegetated with wetland habitat following construction.

Photo 12: Southwest-facing view of the Disturbed Land within the Survey Area and south of the Project Boundary (parcel 461-320-06-00). Green Line trolley route visible in the background.

Photo 11: Southeast-facing view of the Disturbed Land and Urban/Developed habitats south of the Project Boundary (parcel 461-320-08-00). Grantville Trolley Station, parking lot, landscaped trees and vegetation visible in the photo background.

Photo 12: Northeast-facing photo of idle commercial lots and businesses within the Project Boundary; adjacent ESL visible beyond the palm trees in background. This photo was taken at the southern boundary of parcel 461-320-06-00; the concrete wall visible in the bottom right of the photo is the edge of the Project Boundary.

Photo 15: Southeast-facing view of the idle business parking lots and buildings within parcel 461-320-06-00; photo taken from the northwest corner of the parcel and the road shoulder of Mission Gorge Road.

Photo 16: Southeast-facing view of parcel 461-320-09-00; the northern boundary of this parcel runs through the center of road/alley. Northernmost sewer line connection point is located to the right of the parking spaces and commercial office building (photo left).

ATTACHMENT B

Observed Plant & Wildlife Species Lists

Blackhawk Environmental

OBSERVED PLANT SPECIES LIST

MONOCOTS

CYPERACEAE	**Sedge Family**
*Cyperus sp.**	umbrella sedge
Schoenoplectus californicus	California bulrush
Schoenoplectus pungens	common threesquare
JUNCACEAE	**Rush Family**
Juncus effusus	common rush
POACEAE	**Grass Family**
*Arundo donax***	giant reed
Cortaderia sp.**	pampas grass
*Cynodon dactylon**	Bermuda grass
*Poa annua**	annual blue grass
*Polypogon monspeliensis**	annual beard grass
*Stipa miliacea***	smilo grass

DICOTS

ADOXACEAE	**Moschatel Family**
Sambucus nigra ssp.	blue elderberry
ANACARDIACEAE	**Sumac Family**
Malosma laurina	laurel sumac
Rhus integrifolia	lemonade berry
*Schinus molle***	Peruvian pepper tree
APIACEAE	**Carrot Family**
*Apium graveolens**	common celery
*Foeniculum vulgare***	sweet fennel
ARECACEAE	**Palm Family**
*Phoenix canariensis***	Canary Island date palm
*Washingtonia robusta***	Mexican fan palm
ASTERACEAE	**Aster Family**
Ambrosia psilostachya	western ragweed
Baccharis salicifolia	mule fat
Baccharis sarothroides	broom baccharis
*Centaurea melitensis***	tocalote
Erigeron sumatrensis	tropical horseweed
*Glebionis coronaria***	crown daisy
*Helmintotheca echioides***	bristly ox-tongue
Heterotheca grandiflora	telegraph weed
*Pulicaria paludosa**	Spanish false fleabane

*Xanthium strumarium**	rough cocklebur
BORAGINACEAE	**Borage Family**
Heliotropium curassavicum	salt heliotrope
BRASSICACEAE	**Mustard Family**
*Brassica nigra***	black mustard
*Raphanus sativus***	wild radish
CACTACEAE	**Cactus Family**
*Echinopsis sp.**	golden torch cactus
CARICACEAE	**Papaya Family**
*Carica papaya**	papaya
CHENOPODIACEAE	**Amaranth Family**
*Salsola tragus***	Russian thistle
EUPHORBIACEAE	**Spurge Family**
*Ricinus communis***	castor bean
FABACEAE	**Pea Family**
*Medicago polymorpha***	burclover
FAGACEAE	**Oak Family**
Quercus agrifolia	coast live oak
GERANIACEAE	**Geranium Family**
*Erodium sp.***	filaree
LAURACEAE	**Laurel Family**
*Persea americana**	avocado
MALVACEAE	**Mallow Family**
*Malva parviflora**	cheeseweed
MUSACEAE	**Banana Family**
*Musa sp.**	Banana
MYRSINACEAE	**Myrsine Family**
*Lysimachia arvensis**	scarlet pimpernel
NYCTAGINACEAE	**Four O'clock Family**
Mirabilis laevis	wishbone bush
OXALIDACEAE	**Oxalis Family**
*Oxalis pes-caprae***	Bermuda buttercup
PLANTANACEAE	**Sycamore Family**
*Kickxia elatine**	sharpleaf cancerwort
Platanus racemosa	California sycamore
POLYGONACEAE	**Buckwheat Family**
*Rumex crispus***	curly dock

PROTEACEAE	**Protea Family**
*Grevillea robusta**	silk oak
RHAMNACEAE	**Buckthorn Family**
Frangula sp.	coffeeberry
ROSACEAE	**Rose Family**
Rosa californica	California rose
*Rhaphiolepis indica**	Indian hawthorn
RUTACEAE	**Rue Family**
*Citrus sp.**	citrus tree
SALICACEAE	**Willow Family**
Populus fremontii	Fremont cottonwood
Salix exigua	sandbar willow
Salix gooddingii	black willow
Salix lasiolepis	Arroyo willow
SAPINDACEAE	**Soapberry Family**
*Koelreuteria bipinnata**	Chinese flame tree
SOLANACEAE	**Nightshade Family**
*Solanum sp.**	non-native nightshade
TAMARICACEAE	**Tamarix Family**
*Tamarix ramosissima***	salt cedar
TOPAEOLACEAE	**Nasturtium Family**
*Tropaeolum majus**	garden nasturtium
TYPHACEAE	**Cat-tail Family**
Typha domingensis	cattail
ULMACEAE	**Elm Family**
*Ulmus parvifolia**	Chinese elm
URTICACEAE	**Nettle Family**
*Urtica urens**	common dwarf nettle

Key to Symbols: * Non-native; ** Non-native and Invasive according to the California Invasive Plant Council

OBSERVED WILDLIFE SPECIES LIST

ACTINOPTERYGII	RAY-FINNED FISH
CENTRARCHIDAE	**Sunfish**
Lepomis cyanellus	green sunfish

AVES	BIRDS
ACCIPITRIDAE	**Kites, Hawks, Eagles and Allies**
Buteo lineatus	red-shouldered hawk
Buteo jamaicensis	red-tailed hawk
AEGITHALIDAE	**Bushtits**
Psaltriparus minimus	bushtit
ANATIDAE	**Ducks, Geese, Swans**
Anas platyrhynchos	mallard
ARDEIDAE	**Herons, Egrets, Bitterns**
Ardea herodias	great-blue heron
ALCEDINIDAE	**Kingfishers**
Megaceryle alcyon	belted kingfisher
APODIDAE	**Swifts**
Aeronautes saxatalis	white-throated swift
COLUMBIDAE	**Pigeons and Doves**
Columba livia	rock dove
Zenaida macroura	mourning dove
CORVIDAE	**Jays, Magpies and Crows**
Corvus brachyrhynchos	American crow
EMBERIZIDAE	**Sparrows and Buntings**
Pipilo crissalis	California towhee
EMBERIZIDAE	**New World Sparrows & Buntings**
Pipilo maculatus	spotted towhee
FRINGILLIDAE	**Finches and Allies**
Haemorhous mexicanus	house finch
Spinus psaltria	lesser goldfinch
HIRUNDINIDAE	**Swallows**
Stelgidopteryx serripennis	northern rough-winged swallow
LARIDAE	**Gulls**
Larus californicus	California gull
MIMIDAE	**Mockingbirds and Thrashers**
Mimus polyglottos	northern mockingbird
PARULIDAE	**New World Warblers**
Geothlypis trichas	common yellowthroat
Setophaga coronata	yellow-rumped warbler

PASSERELLIDAE	**New World Sparrows**
Melospiza melodia	song sparrow
Zonotrichia leucophrys	white-crowned sparrow
RALLIDAE	**Rails**
Fulica americana	American coot
REGULIDAE	**Kinglets**
Regulus calendula	ruby-crowned kinglet
STURNIDAE	**Starlings and Mynas**
**Sturnus vulgaris*	European starling
TROCHILIDAE	**Hummingbirds**
Calypte anna	Anna's hummingbird
TROGLODYTIDAE	**Wrens**
Thryomanes bewickii	Bewick's wren
TYRANNIDAE	**Tyrant Flycatchers**
Sayornis nigricans	black phoebe
Tyrannus vociferans	Cassin's kingbird

INSECTA	**INSECTS**
NYMPHALIDAE	**Brush-footed Butterflies**
Nymphalis antiopa	mourning cloak

REPTILIA	**REPTILES**
HYLIDAE	**Tree Frogs & Allies**
Pseudacris hypochondriaca	Baja California tree frog

**Non-native*

ATTACHMENT C

Jurisdictional Delineation Report

Blackhawk Environmental

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ALVARADO CREEK AFFORDABLE HOUSING PROJECT
JURISDICTIONAL DELINEATION REPORT

CITY OF SAN DIEGO, SAN DIEGO COUNTY, CALIFORNIA

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March 18, 2020

Revised May 2, 2022

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EXECUTIVE SUMMARY

Blackhawk Environmental, Inc. (Blackhawk Environmental) aquatic resource specialists conducted a jurisdictional delineation in support of the proposed Alvarado Creek Affordable Housing Project (Project) in the City of San Diego, California. The Project is located on three previously developed parcels (APNs 416-320-06-00, 461-320-08-00 and 461-320-09-00). The Project proposes to permit and construct a 315-unit multi-family affordable housing complex and associated improvements on the 3.86-acre site.

A habitat assessment for the Project was performed by Blackhawk Environmental in January of 2020 and identified non-native riparian, disturbed wetlands, unvegetated channels, southern riparian woodland, and Arundo-dominated habitats (Blackhawk 2020). A jurisdictional assessment was conducted by Blackhawk Environmental on January 31, 2020 in follow up to the Biological Survey Report to delineate potentially jurisdictional areas within the Project development footprint. Methods for delineating wetlands followed guidelines set forth by the U.S. Army Corps of Engineers ([USACE] 1987), including the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Arid Supplement; USACE 2008). All figures depicting the Survey Area and delineation results are shown in Attachment A. Representative photographs of the Survey Area are shown in Attachment B. Data forms are included in Attachment C.

The assessment identified one drainage feature, Alvarado Creek, which supports likely jurisdictional streambed, wetland and riparian areas. The portion of Alvarado Creek within the Project site is best characterized as an intermittent stream and tributary of the San Diego River. The San Diego River is recognized as a Traditional Navigable Water (TNW). No additional natural drainage features were observed. Within the Project site, Alvarado Creek is best characterized as a Relatively Permanent Water (RPW) with regular flow expected for at least three months of the year under normal conditions. Additional non-seasonal flow likely occurs due to irrigation runoff and other anthropogenic input sources. The Ordinary High Water Mark (OHWM) of Alvarado Creek within the Project site ranges from approximately 10 feet to 25 feet in width. The primary channel of the creek is generally rip-rap lined, with occasional areas of native channel or areas of silt/sediment overlaying concrete channel lining. Beyond the OHWM, the bank-to-bank streambed widths range from approximately 25 feet to 43 feet. Substrate of the northern streambed is highly variable, consisting of wire formed rip-rap banks within parcel 416-320-06-00, wire formed shotcrete walls within parcel 461-320-09-00, and eroded native substrate at the extreme east boundary. Substrate of the southern streambed appears native and consists of nearly vertical banks incised in excess of 10 vertical feet. Evidence of short-term high volume and high velocity flow were evident in the form of drift deposits, scouring and water marks. Drift deposits were observed at and above the top of the streambed, indicating that the creek within the Project site is subject to flooding during rain events. Additional evidence of hydrology included sediment deposits occurring on shelfs within the channels, trapped in benches above and within installed rip-rap, and in flood prone areas of the adjacent developed lots.

In addition to strong hydrological indicators, a variety of wetland and riparian-associated vegetation communities were mapped within the Survey Area. These areas included conditions considered both "disturbed" and "problematic" due to flood control and vegetation maintenance and Arid West riparian communities, but generally indicated a dominance of hydrophytic plant species meeting the vegetation requirements for the United States Army Corps of Engineers (USACE) and Regional Water Quality Control Board (RWQCB) Hydrophytic Indicators Dominance Test.

The Project site further presents various disturbed and problematic soil conditions that were evaluated for potential of hydric soil indicators. A total of 14 Sample Points were evaluated to determine the presence and extent of hydric soils within the Project site. Where necessary due to "disturbed" conditions, hydric soils were assumed present based on review of adjacent areas on site, reference locations, observation of local relief, expected function under normal circumstances, and review of historic aerial photographs.

The Project proposes 227 100-percent affordable residential rental apartment units including 54 studios, 53 one-bedroom units, 60 two-bedroom units, and 60 three-bedroom units. Primary access is provided via a driveway off of Mission Gorge Road to drop-off, turnaround and garage parking areas. A total of 67 parking spaces are provided. Common area amenities include a pool area and access to the proposed Alvarado Creek trail. Architectural style and design features are described in the attached design package.

Project implementation requires that the development pad be elevated above the Alvarado Creek 100-year floodplain elevation and that Alvarado Creek channel slope erosion protection be constructed. A community trail is proposed to be constructed along the onsite portion of Alvarado Creek within the proposed development. An existing sewer line and easement is proposed to be relocated southerly across Alvarado Creek to an existing point of connection near the Grantville Trolley Station. A total of 15,600 cubic yards (CY) of fill will be required for the pad and sewer line. In order to ensure that the 100-year floodplain water surface elevation does not increase due to the proposed project, an additional 2,900 CY of cut is required within the onsite portion of the Alvarado Creek floodplain. Grading and development of the Project site will require an additional 12,700 CY of import.

Project construction will require multiple cranes to lift prefabricated project units and other project materials into place. Crane set up and decommissioning is planned to occur at night, utilizing one lane of Mission Gorge Road. Project grading and construction is proposed to be completed in 18 months.

The Project site is located within Reach 2 of the Grantville Trolley Station/Alvarado Creek Revitalization Study, which requires the relocation and construction of the Alvarado Creek channel, creek trails and habitat restoration/creation. Implementation of the onsite portion of the Alvarado Creek improvements outlined in the revitalization study will require additional engineering and environmental design, and coordination with upstream and downstream property owners, and will be implemented following construction of the proposed project. The proposed channel slope erosion protection discussed above is an interim measure until the ultimate Alvarado Creek channel improvements and habitat restoration are completed in the future.

Construction of the Project is expected to directly impact a total of 0.073 acre (0.053 temporary and 0.020 permanent) of likely USACE Waters of the U.S. and an equivalent amount of RWQCB Waters of the State. Construction of the Project is also expected to directly impact a total of 0.283 acre of California Department of Fish & Wildlife (CDFW) riparian habitat and streambeds (0.213 temporary and 0.070 permanent). No indirect impacts to jurisdictional waters are anticipated.

As proposed, the Project would require permit authorizations through the USACE, RWQCB and CDFW for proposed impacts to Waters of the U.S., Waters of the State, streambeds and riparian habitats.

1.0 INTRODUCTION

Blackhawk Environmental was contracted by Ascent Environmental, Inc. (Ascent) to provide a Jurisdictional Delineation Report (JDR) for the proposed Alvarado Creek Affordable Housing Project (Project) located on previously developed Assessor Parcel Numbers (APNs): 416-320-06-00, 461-320-08-00 and 461-320-09-00 in the City of San Diego, California.

A Biological Survey Report was prepared by Blackhawk Environmental in 2020, and revised in 2022, identifying potential Project-related impacts and habitat types (Blackhawk 2022). The Biological Survey Report identified various riparian and wetland habitat types associated with Alvarado Creek within and adjacent to the proposed Project site. The Biological Survey Report included an assessment of habitats and potential mitigation required for the Project development but did not include a formal jurisdictional delineation of the site. In follow-up, Blackhawk Environmental performed a formal jurisdictional delineation of the Project site on January 31, 2020. The jurisdictional delineation survey effort focused on documenting existing site conditions, such as soils, topography, hydrology, vegetation and potentially jurisdictional aquatic resources, in the areas proposed for Project development and/or direct and indirect impacts.

The purpose of the jurisdictional delineation was to document waters occurring within the Project site that may be considered jurisdictional by the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and/or the California Department of Fish and Wildlife (CDFW), and to provide necessary background information for avoidance measures by engineering and for analysis by USACE, CDFW and the RWQCB, if permits are required.

1.1 Project Description

The proposed Project is located on 3.86-acres southeast of Mission Gorge Road, south of Mission Gorge Place, and north of Interstate 8 (I-8) and the Grantville Trolley station (Appendix A – Figure 1). The project is located within the following Assessor Parcel Numbers (APNs): 416-320-06-00, 461-320-08-00 and 461-320.09-00. Existing onsite and surrounding land uses include a variety of industrial and commercial businesses, with Alvarado Creek bisecting the Project site.

The proposed Project will include the addition of over 227 100-percent affordable housing units. The Project is proposed under an addendum to the Grantville Community Plan Implementation Overlay Zone (CPIOZ) Amendment Final Environmental Impact Report (EIR) (City of San Diego 2015).

The proposed 227 residential units include 54 studios, 53 one-bedroom units, 60 two-bedroom units and 60 three-bedroom units. Primary access is provided via a driveway off of Mission Gorge Road to drop-off, turnaround and garage parking areas. A total of 67 parking spaces are provided. Common area amenities include a pool area and access to the proposed community trail. A community trail is proposed to be constructed along the onsite portion of Alvarado Creek. Perimeter fencing will be installed along the southern boundary of the development between the development and proposed multi-use trail. Architectural style and design features are described in the Project design package.

The structures will incorporate an underground stormwater vault with incorporated onsite treatment. The stormwater vault will be designed to capture onsite runoff and treat water prior to discharging runoff into Alvarado creek via an outfall located south of the development at the southern Project boundary. One additional stormwater outfall has been designed to convey stormwater and urban

runoff from Mission Gorge Road along the east and south perimeter of the development, discharging into Alvarado Creek. Stormwater outfalls will be installed with concrete headwalls. Both outfalls have been designed to include permanent erosion control at the outfall locations.

An existing sewer line and easement is proposed to be relocated southerly across Alvarado Creek to an existing point of connection near the Grantville Trolley Station.

The new sewer connection would extend from an existing line located approximately 100 feet northwest of the southeast corner of parcel 461-320-08-00. The new sewer easement will support a decomposed granite substrate and extend from the connection point along the eastern Project boundary, cross Alvarado Creek, and connect to an existing sewer line approximately 300 feet north at Friars Road. Relocation of the sewer line and easement would include the installation of a permanent concrete encasement at the crossing within Alvarado Creek at the eastern Project boundary. The concrete encasement is designed to prevent erosion and damage to the utility.

Project implementation requires that the development pad be elevated above the Alvarado Creek 100-year floodplain elevation and that Alvarado Creek channel slope erosion protection be constructed. In order to ensure that the 100-year floodplain water surface elevation does not increase due to the proposed Project, Alvarado Creek is proposed for widening to increase the capacity of the channel. Widening of the channel will entail excavation of a new channel bank on the non-development side of Alvarado Creek (south). The margin between the new channel slope and existing channel will be excavated to increase the overall capacity of the channel. To offset proposed impacts to City designated sensitive areas, the new channel slope is proposed for habitat creation to provide onsite mitigation. Although no modifications to the northern channel slope are proposed as part of the Project, adjacent developed concrete pads would be removed and allowed to revegetate with native habitat following construction, providing additional habitat buffer and opportunity for natural wetland recruitment.

A total of 15,600 cubic yards (CY) of fill will be required for the pad and sewer line. In order to ensure that the 100-year floodplain water surface elevation does not increase due to the proposed project, an additional 2,900 CY of cut is required within the onsite portion of the Alvarado Creek floodplain. Grading and development of the Project site will require an additional 12,700 CY of import.

The Project has incorporated on site landscaping which will include plantings of native upland species in the on-site margin between the proposed community trail and area north of the creek designated for wetland enhancement. These landscaped areas will be managed as part of the long-term occupation of the site. Project landscaping is further planned to re-vegetate temporary impact areas which are proposed for use between the permanent development pad and Alvarado Creek. These areas currently consist of developed concrete pads and would be revegetated with native upland and riparian transitional species following construction. Long term management of restored temporary impact areas within this upland-transitional margin is not proposed following the initial establishment period.

The Project site is located within Reach 2 of the Grantville Trolley Station/Alvarado Creek Revitalization Study, which requires the relocation and construction of the Alvarado Creek channel, creek trails and habitat restoration/creation. Implementation of the onsite portion of the Alvarado Creek improvements outlined in the revitalization study will require additional engineering and environmental design, and coordination with upstream and downstream property owners, and will be implemented following construction of the proposed project. The proposed channel slope erosion protection

discussed above is an interim measure until the ultimate Alvarado Creek channel improvements and habitat restoration are completed in the future.

1.1.1 Phasing

No "phasing" is proposed for Project completion, and construction is anticipated to occur in a single project phase.

1.1.2 Staging Areas

Project construction will require multiple cranes to lift prefabricated project units and other project materials into place. Crane set up and decommissioning is planned to occur at night utilizing one lane of Mission Gorge Road.

1.1.3 Equipment

Equipment required to complete the Project will include, at minimum; excavators, scrapers, loaders, forklifts, cranes, drills, and support vehicles, dump trucks, pickup trucks and intermittent concrete trucks. Some work may include the need for concrete pumping, via a truck-towed line pump or a standalone boom pump rig. Additional equipment may include that required for stream diversions during work within Alvarado Creek, such as stationary pumps and tanks.

1.1.4 Schedule and Duration

The Project schedule is dependent upon the document finalization and permit approval processes. Therefore, a specific construction timeline cannot be reasonably estimated at this time. The Project duration is estimated to require 18 months to complete.

2.0 REGULATORY SETTING

2.1 USACE Waters of the U.S.

According to the USACE Wetland Delineation Manual, wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions."

2.1.1 Regulatory Definition

In accordance with Section 404 of the Clean Water Act (CWA), USACE regulates the discharge of dredged or fill material into Waters of the United States. The term "Waters of the United States" is defined as:

- All traditional navigable waters (TNW) currently used, or used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds; the use, degradation, or destruction of which could affect foreign commerce including any such waters, (1) which could be used by interstate or foreign travelers for recreational or other purposes; or (2) from which fish or shellfish are, or could be, taken and sold in interstate or foreign commerce; or (3) which are used or could be used for industries in interstate commerce;
- All other impoundments of waters otherwise defined as waters of the United States under the definition;
- Tributaries of waters identified above;
- The territorial seas; and
- Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in the paragraphs above (33 Code of Federal Regulations [CFR] Part 328.3[a]).

Non-navigable tributaries that do not constitute relatively permanent waters (RPW; exhibit at least seasonal flow, typically three months) may be considered Waters of the U.S. based on significant nexus standards, which may include assessment of downstream hydrologic and ecological functions of the tributary, as well as connectivity to receiving waters (RPWs and/or TNWs).

2.1.2 Wetland Parameters

Wetlands are delineated using three parameters: hydrophytic vegetation, wetland hydrology and hydric soils. According to USACE, indicators for all three parameters must normally be present to qualify as a wetland.

2.1.2.1 Hydrophytic Vegetation

Hydrophytic vegetation is defined as "the sum total of macrophytic plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content" (USACE 1987). Potential wetland areas were surveyed by walking through the Survey Area and making observations of those areas exhibiting characteristics of jurisdictional waters or wetlands. Vegetation units with potential wetland areas were examined, and data for each vegetation stratum (i.e., tree,

shrub, herb and vine) were recorded on the datasheet provided in the Arid West Supplement (USACE 2008). The percent absolute cover of each species present was visually estimated and recorded.

The wetland indicator status of each species recorded was determined by using the National Wetland Plant List (Lichvar, et. al. 2016). An obligate (OBL) indicator status refers to plants that are almost always hydrophytic and rarely in uplands. A facultative wet (FACW) indicator status refers to plants that usually are hydrophytic but are occasionally found in non-wetlands. A facultative (FAC) indicator status refers to plants that commonly occur as either a hydrophyte or non-hydrophyte. Facultative upland (FACU) species occasionally are hydrophytic but usually occur in uplands. Upland (UPL) species almost always occur in uplands and are rarely hydrophytic. A not indicated (NI) status refers to species that have insufficient data available to determine an indicator status at this time for the local region.

Plant species nomenclature follows that contained in *the Jepson Online Interchange* (Jepson Flora Project 2018). Dominant species with an indicator status of NI or not listed in the 2016 National Wetland Plant List were evaluated as either wetland or upland indicator species based on local professional knowledge of where the species are most often observed in habitats characteristic of southern California.

2.1.2.2 Hydric Soils

A hydric soil is a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation (USACE 1987). Hydric soil indicators are formed predominantly by the accumulation or loss of iron, manganese, sulfur or carbon compounds (USACE 2008). The hydric soil criterion is considered fulfilled at a location if soils in the area can be inferred to have a high groundwater table, evidence of prolonged soil saturation exists, or any indicators suggesting a long-term reducing environment in the upper 18 inches of the soil profile are present. Additionally, soils mapped by the United States Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) as hydric were referenced prior to field verification.

A sampling point is typically selected within a potential wetland area where the apparent boundary between wetland and upland is inferred based on changes in the composition of the vegetation and topography. Soil pits are dug to a depth of at least 18 inches or to a depth necessary to determine soil color, evidence of soil saturation, depth to groundwater, and indicators of a reducing soil environment (e.g., mottling, gleying, sulfidic odor).

2.1.2.3 Wetland Hydrology

The presence of wetland hydrology indicators confirm that inundation or saturation has occurred on a site, but may not provide information about the timing, duration, or frequency of the event. Hydrology features are generally the most ephemeral of the three wetland parameters (USACE 2008). Hydrologic information for the site was obtained by reviewing USGS topographic maps, historic and current aerial photographs, and by directly observing hydrology indicators in the field. The wetland hydrology criterion is considered fulfilled at a location if, based upon the conclusions inferred from the field observations, an area has a high probability of being periodically inundated or has soils saturated to the surface at some time during the growing season to develop anaerobic conditions in the surface soil environment, especially the root zone (USACE 1987). If at least one primary indicator or at least two secondary indicators are found at a sample point, the wetland hydrology criterion is considered fulfilled.

2.1.3 Atypical Situations

Because there are situations in which one or more of the wetland parameters has been removed or altered as a result of recent natural events or human activities, the definition of a wetland includes the phrase "under normal circumstances" (USACE 1987). To describe these conditions, USACE uses definitions for atypical situations and problem areas. They are as follows:

> Atypical situation: . . . refers to areas in which one or more parameters (vegetation, soil, and/or hydrology) have been sufficiently altered by recent human activities or natural events to preclude the presence of wetland indicators of the parameter (USACE 1987).
>
> Problem areas: . . . wetland types in which wetland indicators of one or more parameters may be periodically lacking due to normal seasonal or annual variations in environmental conditions that result from causes other than human activities or catastrophic natural events. Representative examples of problem areas include seasonal wetlands, wetlands on drumlins, prairie potholes, and vegetated flats (USACE 1987).

Atypical situations and problem areas may lack one or more of the three criteria, yet still may be considered wetlands. Background information on the previous condition of the area, field observations and/or the identification of undisturbed reference sites adjacent to atypical sites may indicate that the site met the wetland criteria prior to disturbance. Additional delineation procedures would be employed if normal circumstances did not occur on a site.

2.1.4 Vernal Pools

Vernal pools are considered "problem areas" because vegetation or hydric soils may be lacking due to seasonal filling by rainfall and eventual drying. As described in the Arid Supplement, "the species composition of some wetland plant communities in the Arid West can change in response to seasonal weather patterns and long-term climatic fluctuations. Wetland types that are influenced by these shifts include vernal pools, playa edges, seeps and springs. Lack of hydrophytic vegetation during dry periods should not immediately eliminate a site from further consideration as a wetland." In addition, since they support seasonally ponded soils, when soil investigations are performed within vernal pools, they may lack hydric soil indicators. The USACE includes problem soils as "seasonally ponded, depressional wetlands (that) occur in basins and valleys throughout the Arid West. Most are perched systems, with water ponding above a restrictive soil layer, such as a hardpan or clay layer, that is at or near the surface (e.g., in Vertisols). Some of these wetlands lack hydric soil indicators due to limited saturation depth, saline conditions or other factors."

2.2 USACE Non-Wetland Waters of the U.S.

The USACE also requires the delineation of non-wetland jurisdictional Waters of the U.S. These waters must have strong hydrology indicators, such as the presence of seasonal flows and an ordinary high watermark (OHWM). An ordinary high watermark is defined as:

> . . . that line on the shore established by the fluctuations of water and indicated by physical characteristics such as [a] clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR Part 328.3).

Areas delineated as non-wetland jurisdictional waters may lack wetland vegetation or hydric soil characteristics. Hydric soil indicators may be missing because topographic position precludes ponding and subsequent development of hydric soils. Absence of wetland vegetation can result from frequent scouring due to rapid water flow. These types of jurisdictional waters are delineated by the lateral and upstream/downstream extent of the OHWM of the particular drainage or depression.

2.3 CDFW Jurisdictional Waters

Under Sections 1600–1607 of the Fish and Game Code, CDFW regulates activities that would divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. CDFW has jurisdiction over riparian habitats (e.g., riparian woodland) associated with watercourses. CDFW jurisdictional waters are delineated by the distances between the outer edges of riparian vegetation or at the tops of the banks of streams or lakes, whichever is wider. Although CDFW does not regulate vernal pools under Section 1602 of the Fish and Game Code, CDFW will assert jurisdiction over isolated riparian features (including vernal pools) if California state-threatened and/or endangered species are present via the California Endangered Species Act, or which provide resources directly or indirectly to fish and wildlife of the region. CDFW may also assert jurisdiction over modified or man-made waterways; such jurisdiction is generally based on the value of such features to support riparian or aquatic plant or animal species. For clarification, of features that may be subject to CDFW jurisdiction, the CDFW Legal Advisor has prepared the following opinion (CDFG ESD 1994):

- Natural waterways that have been subsequently modified and which have the potential to contain fish, aquatic insects, and riparian vegetation will be treated like natural waterways.
- Artificial waterways that have acquired the physical attributes of natural stream courses and which have been viewed by the community as natural stream courses should be treated by [CDFW] as natural waterways.
- Artificial waterways without the attributes of natural waterways should generally not be subject to Fish and Game Code provisions.

CDFW jurisdictional limits may also include artificial stock ponds and irrigation ditches constructed within uplands, and outer drip line limits of adjacent riparian habitat supported by a river, stream, or lake regardless of the riparian area's federal wetland status or its location beyond the defined bed, bank or channel.

2.4 RWQCB Jurisdictional Waters

RWQCB is the regional agency responsible for protecting water quality in California. The jurisdiction of this agency includes Waters of the State as mandated by the federal CWA Section 401. When CWA Section 404 jurisdiction is not present for isolated water, the RWQCB may assert jurisdiction via the California Porter-Cologne Water Quality Control Act. Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state". The Porter-Cologne Water Quality Control Act provides a regulatory framework to provide comprehensive protections for surface and groundwater within the State of California. Waters subject to jurisdiction under the Porter-Cologne Water Quality Control Act require that any discharge that may negatively impact or otherwise affect a Water of the State must coordinate with RWQCB. During coordination, RWQCB may require implementation of mitigation measures or other requirements to protect overall water quality.

3.0 METHODS

A jurisdictional delineation, following the guidelines set forth by USACE (1987, 2008), was performed to gather field data at potentially jurisdictional Waters of the U.S. and Waters of the State within the proposed Project site. To account for all potential Project impact areas and provide a greater landscape context to sensitive aquatic resources, the Survey Area was established to include the Project site and a 100-foot buffer (Figure 2). Potential wetlands were then delineated within the Survey Area based on commonality among vegetation community characteristics and three-parameter testing methodology. To account for any changes in existing conditions, the delineation effort refined, and updated vegetation mapping performed as part of the habitat assessment (Figure 4). Blackhawk Environmental wetland specialists Ian Maunsell and Seth Reimers, with assistance from Blackhawk Environmental biologist Katie Quint, delineated potentially jurisdictional waters within the proposed Project footprint on January 31, 2019. A follow-up site visit was conducted on March 13, 2020 by Ian Maunsell and Lorena Bernal to collect additional sample points used to delineate potentially jurisdictional waters. Updates to this report occurred on May 2, 2022 following design changes involving the relocation of a planned community trail.

Prior to conducting the field delineation, the following sources were consulted to identify land use history and provide additional context to potentially atypical and problematic jurisdictional wetlands within the Survey Area, including:

- USGS *La Mesa, California* quadrangle topographic map (USGS 2011)
- Historical aerial photographs (NETR 1947)
- Current and historical aerial photographs (Google 2020)
- National Wetland Inventory (USFWS 2020)
- California Natural Diversity Database (CNDDB) search for sensitive riverine, riparian and/or aquatic species (CDFW 2020)

Once on site, the potential wetland locations were examined to determine the presence of any of the three wetland parameters or drainage channels. Soil type and classification data used in the delineation were provided by the Natural Resource Conservation Service's web soil survey (United States Department of Agriculture [USDA] 2010) (Figure 3).

Potential waters and wetland locations observed within the Survey Area were evaluated using the methodology set forth in the USACE Wetland Delineation Manual (USACE 1987) and the Arid West Supplement (USACE 2008). Wetland hydrology indicators may include evidence of inundation, saturation, water marks, drainage patterns, soil cracks, drift lines, sediment deposits, presence of aquatic invertebrates and other variables. Vegetation was analyzed using dominant species wetland indicator status (USDA 2018). Suspected non-wetland jurisdictional areas were evaluated for the presence of definable channels, OHWM, and connectivity to a TNW or RPW.

4.0 RESULTS

A discussion of the local hydrology in the Survey Area, description of the major vegetation units observed in delineated areas within the Project site, and soil types encountered are presented below. Copies of the field Sampling Point (SP) data forms summarizing information on hydrology, vegetation and soils observed at each SP are provided in Attachment C. The locations of SPs are shown on Figures 4 through 7.

4.1 Hydrology

Elevations within the Project site generally drain toward the center of the Survey Area, where the site is bisected by Alvarado Creek. Within the Project site, Alvarado Creek flows on to the site near the center of the eastern site boundary, flowing in a generally west-southwest direction through the south-central portion of the Project site, and leaving the site along the southern boundary. Surface water and storm water flow within the various Project parcels is highly modified, but overall becomes concentrated in various locations before discharging directly into Alvarado Creek. Surface water entering Alvarado Creek from parcel 416-320-06-00 generally flows south to the parcel boundary, where surface water is redirected by a cinder block wall and diverted into a low capacity non-vegetated concrete swale, flowing east and discharging directly into Alvarado Creek. Similarly, surface water from parcel 416-320-09-00 (a paved lot), generally flows south to the parcel boundary located immediately adjacent to Alvarado Creek. At the southern boundary of parcel 416-320-09-00, water is restricted from entering Alvarado Creek by a man-made concrete wall, which redirects water along the property boundary to the west, before intercepting an existing road and Arizona crossing at the interface between parcels 416-320-06-00 and 416-320-09-00. The existing road carries surface water both from the parcel 416-320-09-00 wall and 416-320-06-00 parcel directly to Alvarado Creek. Surface water from parcel 416-320-08-00 generally follows topographic contours flowing from the southeast of the parcel to the northwest of parcel, concentrating along graded, unpaved roads and discharging into Alvarado Creek at an established Arizona crossing. Additional surface water from parcel 416-320-08-00 is directed along the western boundary within a vegetated, unlined, upland swale.

4.1.1 Tributaries & Natural Drainages

Approximately 373 linear feet of Alvarado Creek, a RPW and tributary of the San Diego River (TNW), occur within the Project site. No additional natural drainage features were observed. Within the Project site, Alvarado Creek is best characterized as an intermittent stream with regular flow expected for at least three months of the year under normal conditions. Additional non-seasonal flow likely occurs due to irrigation runoff and other anthropogenic input sources. The OHWM of Alvarado Creek within the Project site ranges from approximately 10 feet to 25 feet in width. The primary channel of the creek is generally rip-rap lined, with occasional areas of native channel or areas of silt/sediment overlaying the concrete channel lining. Beyond the OHWM, bank-to-bank streambed widths range from approximately 25 feet to 43 feet. The substrate of the northern streambed is highly variable, consisting of wire formed rip-rap walls within parcel 416-320-06-00, wire formed shotcrete walls within parcel 416-320-09-00, and eroded native substrates at the extreme east boundary. The substrate of the southern streambed appears native and consists of nearly vertical banks incised in excess of 10 vertical feet. Evidence of short-term high volume and velocity flows were evident in the form of drift deposits, scouring and water marks. Drift deposits were observed at and above the top of the streambed, indicating that the creek within the Project site is subject to flooding during rain events. Additional evidence of hydrology included sediment deposits occurring on shelfs within the channels, trapped in benches above and within installed rip-rap, and in flood prone areas of the adjacent developed lots.

4.1.2 Man-made Features

Man-made drainage features within the Project include a concrete-lined swale at the southern boundary of parcel 416-320-06-00 and a vegetated un-lined upland swale along the eastern boundary of parcel 416-320-08-00. The concrete lined swale is approximately two feet in width and conveys surface water from parcel 416-320-06-00 directly to Alvarado Creek. The vegetated un-lined swale is approximately four feet in width and conveys surface water from parcel 416-320-08-00 along the eastern Project boundary and adjacent areas to the south and east directly to Alvarado creek.

Both features are man-made and constructed entirely in uplands. Neither feature was observed to exhibit OHWMs or defined streambeds.

4.2 Vegetation

A total of six vegetation communities and land cover types in the Survey Area were identified in the 2022 *Biological Survey Report*: Urban/Developed Areas, Disturbed Lands, Disturbed Wetland/Un-vegetated Channel, Arundo-dominated Wetland, Southern Riparian Woodland and Non-native Riparian. Vegetation communities were described according to *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). Of the six vegetation communities/land cover types in the Survey Area, four support hydrophytic vegetation and/or riparian vegetation: Disturbed Wetland/Un-vegetated Channel, Arundo-dominated Wetland, Southern Riparian Woodland and Non-native Riparian.

4.2.1 Areas Supporting Hydrophytic Vegetation and/or Open Water

4.2.1.1 Arundo-dominated Wetland (Holland Code 65100)

Arundo-dominated Wetland is a type of non-native riparian community that consists almost exclusively of a dense thicket of giant reed (*Arundo donax*). Although dominated by a non-native, invasive species, this vegetation community is a potential wetland and generally treated as a sensitive vegetation community by CDFW and may also be regulated as a wetland by USACE, RWQCB and the City of San Diego (2012).

Arundo-dominated Wetland is restricted to the eastern boundary of the Project site and Survey Area, totaling 0.29 acre bisected by open water. This area has undergone a recent non-Project-related cut and treatment for management of the invasive giant reed. These disturbed vegetation conditions are represented by SP4-A.

4.2.1.2 Disturbed Wetland/Un-vegetated Channel (Holland Code 11200)

Within the Survey Area, Disturbed Wetland/Un-vegetated Channel is restricted to the channel bottom of Alvarado Creek. These areas are described collectively due to the disturbed and modified nature of the channel, where presence of installed rip-rap and concrete-lined areas blend with natural scouring and sediment deposits, obscuring the expected natural boundaries between vegetated and un-vegetated areas.

A total of 0.21 acre of Disturbed Wetland/Un-vegetated Channel occurs within the Survey Area. Un-vegetated areas within this habitat type within the Survey Area consist of sediment benches, scoured channels, open water, concrete and rip-rap channel walls. Where vegetation is present, it is generally

dominated by emergent wetland, herbaceous species, including southern cattail (*Typha domingensis*; OBL), umbrella sedge (*Cyperus* sp.; FACW), giant reed (*Arundo donax*; FACW), California bulrush (*Schoenoplectus californicus*; OBL), common threesquare (*Schoenoplectus pungens*; OBL). These areas fall primarily within the USACE OHWM and exclusively within the channel (bed and bank) of Alvarado Creek. Vegetation within this habitat type was determined to meet criteria for dominance of wetland vegetation represented by SP1-D, SP1-E, and the herbaceous strata of SP3-A.

4.2.1.3 Non-native Riparian (Holland Code 65000)

Non-native Riparian areas of the Project site consist of a densely vegetated riparian thicket dominated by non-native, invasive species. Generally, non-native species account for greater than 50 percent of total cover. This vegetation community typically occurs in wetland areas and along streams and creeks where disturbance has occurred (Oberbauer 2008). Although dominated by non-native invasive species, Non-native Riparian is a potential wetland and generally treated as a sensitive vegetation community by CDFW and may also be regulated as a wetland by USACE, RWQCB and the City of San Diego (2012) due to its association with Alvarado Creek and wetland functionality.

A total of 0.26 acre of Non-native Riparian occurs within the Survey Area. Within the Survey Area, this community is dominated by a canopy cover of Mexican fan palm (*Washingtonia robusta*; FACW), arroyo willow (*Salix lasiolepis*; FACW), black willow (*Salix goodingii*; FACW) and giant reed. The creek in this area is earthen-lined, with rip-rap banks. The understory was primarily vegetated in areas where the canopy was not complete. Understory species in these areas include non-natives such as sprouting Mexican fan palm, castor bean (*Ricinus communis*; FACU), smilo grass (*Stipa miliacea var. miliaceae*; FAC[1]), and occasional salt cedar (*Tamarix ramosissima*; FACW). Vegetation within this habitat type was determined to meet criteria for dominance of wetland vegetation represented by SP1-A, SP2-A, SP2-B, SP2-C, and SP3-A.

4.2.1.4 Southern Riparian Woodland (Holland Code 52400)

Southern Riparian Woodland is a riparian community dominated by broad-leaved trees such as coast live oak (*Quercus agrifolia*; FACU) and willows, often with scattered cottonwoods (*Populus* spp.) and California sycamores (*Platanus racemosa*). This plant community is typically found along upland creek banks and drainages. The high density of the cover provided by mature trees typically deters development of a substantial understory of smaller plants in some areas.

Within the Project site and Survey Area, this community is restricted to approximately 0.11 acre located at the southern Project boundary. Riparian canopy within this habitat is dominated by coast live oak, cottonwood (*Populus freemontii*; FAC) and black willow, with occasional small fan palms. Where understory was present, it was observed to be largely dominated primarily by giant reed, smilo grass, and other non-native herbaceous species. Tree species forming a canopy within this habitat on the south and east side of the channel appear planted. These vegetation conditions are represented by SP1-C.

4.2.2 Areas Lacking Hydrophytic Vegetation or Hydric Soils

Two upland vegetation community and/or land cover types occur within the Survey Area: Urban/Developed Areas and Disturbed Lands. These vegetation communities/land cover types are

1

generally composed of upland plant species or bare ground and do not meet the hydrophytic vegetation criteria for wetlands. Complete descriptions of these vegetation communities/land cover types are provided in the *Biological Survey Report* (Blackhawk 2022).

At the time of the survey, no vegetation was present in the concrete-lined swale along the south boundary of parcel 461-320-06-00, however review of historic aerials indicates that this area may be subject to castor bean, fan palm, and giant reed infestation at irregular intervals (in excess of five-year periods), which is subsequently managed. At the time of the survey, vegetation within the un-lined swale at the east boundary of 461-320-08-00 was dominated by smilo grass and fennel, with relic native upland species including lemonade berry (*Rhus integrifolia*; UPL) (SP4-B).

4.3 Soils

A total of three distinct soil series mapped by USDA (1973) occur in the Survey Area: Tujunga sand, 0 to 5 percent slopes, Riverwash, and Huerhuero-Urban land complex, 2 to 9 percent slopes (Figure 3). Both the Tujunga sand and Riverwash soil series are described as hydric according to USDA. Total acreages of each soil series within the Project site are represented in Table 2 below.

Table 2. Soils Occurring Within the Project Site

Soil Series	Acre(s)
Tujunga sand, 0 to 5 percent slopes (TuJ)	1.90
Riverwash (Rm)	1.76
Huerhuero-Urban land complex, 2 to 9 percent slopes (HuC)	0.20
Total	3.86

During the January 31, 2020 delineation, 12 Sample Points were evaluated to determine if conditions for hydric soils existed on site. A follow-up site visit was conducted on March 13, 2020, resulting in collection of an additional two Sample Points. Locations of Sample Points are shown on Figures 5-7. Field data sheets for all Sample Points describing field soils conditions are included in Attachment C. Presence of hydric soils were determined to occur on site through a variety of indicators. In general, hydric soils corresponded to the channel formed by the streambed of Alvarado Creek.

4.3.1 Hydric Soils

Hydrogen Sulfide Odor (A4) was a primary indicator of hydric soils encountered at the south and east portions of Alvarado Creek within the Project site and adjacent areas represented by SP1-D, SP1-E and SP2-C. Additional hydric soil indicators at SP2-C included Stratified Layers (A5). These Sample Points are representative of soil conditions encountered immediately adjacent to the OHWM from the Arizona crossing extending west. The extent of these hydric soil conditions south of the channel were determined by SP1-C, where soils were determined to be non-hydric, and is representative of soils occurring above the channel at the top of the streambed from the south Project boundary, east to the Arizona crossing.

Presence of hydric soils east of the Arizona crossing were determined through assessment of SP3-A, where Sandy Redox (S5) and Depleted Matrix (F3) were observed present. Due to the inability to

directly access the north side of the channel in this area, as well as uniform conditions in vegetation and hydrological indicators, hydric soil conditions from SP3-A were applied to both the north and south side of the channel extending from the Arizona crossing east to the Project boundary. The extent of these hydric soil conditions south of the channel were determined by SP3-B, where soils were determined to be non-hydric, and is representative of soils occurring above the channel at the top of the streambed from the Arizona crossing east to the Project boundary.

4.3.2 Problematic and Disturbed Hydric Soils

Problematic and disturbed soils were generally encountered along the northern channel of Alvarado Creek. These areas, represented by SP1-A and SP2-A, exhibited large volumes of installed rip-rap for channel maintenance and erosion control, constituting disturbed conditions making direct observation and assessment of soils infeasible. Furthermore, where accessible in this area, soil types were considered problematic due to coarse-textured sandy soils deposited within a floodplain. Additional disturbed soils included SP3-D located at the Arizona crossing between parcels 416-320-06-00 and 416-320-09-00. Criteria for determining the presence of hydric soils followed the general procedure of 1) verification that vegetation at these SPs was present[2], 2) verification of multiple secondary hydrological indicators for riverine systems, 3) landscape positioning within a floodplain and adjacent to a water body. Based on these criteria, soils were assumed hydric for SP1-A and SP2-A, which are representative of soils occurring north and Adjacent to Alvarado Creek from the Project's southern boundary to the Arizona crossing. Determination for hydric soils at SP3-D followed the same criteria, and presumed similar soil conditions as the adjacent sampling location, SP3-A.

4.3.3 Non-Hydric Soils

The extent of hydric soil conditions north of the channel were determined by SP1-B, SP2-B, and SP3-C that are representative of adjacent developed areas occurring above the historic channel (CDFW Streambed). Review of historic aerials of the Project site indicates development and grading of the Project site in these areas occurred prior to 1964, and hydric soils were presumed absent based on disturbed conditions occurring above natural drainage areas within a floodplain.

[2] Note that vegetation throughout the Project was generally considered problematic due to emphasis of dominance in the tree strata in Arid West riparian community, as well as disturbed due to evidence of vegetation management for flood control.

5.0 JURISDICTIONAL DELINEATION

Figures 5, 6 and 7 identify the locations of likely USACE, CDFW and RWQCB jurisdictional waters within the Survey Area. Table 2 summarizes the acreages of each jurisdiction within the Project Site.

Table 3. Potential Jurisdictional Waters Within the Project Site

Jurisdictional Waters	Acres (Linear Feet)
Likely USACE Jurisdiction	
Wetland Waters of the U.S.	0.15
Non-Wetland Waters of the U.S.	0.13 (373)
Likely USACE Total Jurisdiction	**0.28**
Likely RWQCB Jurisdiction	
Wetland Waters of the State	0.15
Non-Wetland Waters of the State	0.13 (373)
Likely RWQCB Total Jurisdiction	**0.28**
Likely CDFW Jurisdiction	
Riparian Only	0.31
Streambed (Bank-to-Bank)	0.29 (373)
Likely CDFW Total Jurisdiction	**0.60**

5.1 USACE Jurisdiction

Likely USACE jurisdictional waters within the Project site total 0.28 acre of Waters of the U.S. within Alvarado Creek. Alvarado Creek includes 0.13 acre (373-linear feet) of assumed USACE-jurisdictional non-vegetated channel and 0.15 acre of adjacent wetlands. Project-related impacts to Alvarado Creek and associated wetlands are likely subject to regulation under the Clean Water Act.

5.2 RWQCB Jurisdiction

Likely RWQCB jurisdictional waters within the Project site total 0.28 acre of Waters of the State within Alvarado Creek. Alvarado Creek includes 0.13 acre (373-linear feet) of assumed RWQCB-jurisdictional non-vegetated channel and 0.15 acre of adjacent wetlands. Project-related impacts to Alvarado Creek and associated wetlands are likely subject to regulation under the Porter Cologne Water Quality Control Act.

5.3 CDFW Jurisdiction

CDFW jurisdictional waters within the Project site total 0.60 acre of naturally occurring and modified streambed of Alvarado Creek and its associated wetlands. Within the Project site, Alvarado Creek includes 0.29 acres (373 linear feet) of likely CDFW-jurisdictional streambed. An additional 0.31 acre of adjacent Arundo-dominated Wetland, Non-native Riparian, and Southern Riparian Woodland habitats are likely considered CDFW-jurisdictional riparian habitat. Project-related impacts to Alvarado Creek and its associated riparian habitats would likely be subject to the terms and conditions of a CDFW Section 1602 Streambed Alteration Agreement.

6.0 PROJECT IMPACTS

This section provides definitions and discussion of the various Project-related impacts that are anticipated to occur.

6.1 Direct Impacts

Impacts to jurisdictional features associated with the Project would include impacts associated with the following activities:

1) Construction and development of the permanent development pad north of Alvarado Creek.
2) Grading and recontouring of the existing 100-year flood plain to increase capacity of Alvarado Creek to prevent flooding.
3) Construction of storm water outflows from the Project site into Alvarado Creek.
4) Installation of permanent erosion control (rip-rap) at storm water outflows.
5) Construction of a new sewer line extending from an existing line on parcel 461-320-08-00 extending across Alvarado Creek.
6) Installation of a permanent concrete crossing within Alvarado Creek.
7) Habitat restoration/enhancement of temporarily impacted portions of Alvarado Creek.

Additionally, the Project would include habitat creation/enhancement within the newly constructed channel as part of on-site mitigation for direct impacts to jurisdictional waters.

The Survey Area was analyzed for both direct and indirect impacts to potentially jurisdictional wetlands and waters that would be associated through the construction and long-term use of the proposed Project. Direct impacts are correlated with the construction footprint, while indirect impacts are correlated with the hydrological regimes that the Project would entail for Alvarado Creek and associated downstream features.

Direct impacts to Alvarado Creek include the installation of two storm water outflows with permanent headwalls located on parcel 416-320-06-00, one adjacent to the southern Project boundary, and the boundary between parcel 417-320-06-00 and 417-320-09-00 near the location of an existing concrete Arizona crossing. Installation of storm water facilities will involve the temporary excavation and installation of underground pipes, backfilled with native material or clean fill. These areas are shown as temporary impacts. Permanent concrete headwalls will be installed at the outflow locations and are considered permanent impacts. The second outflow will include installed erosion control, which will remain in place and is considered permanent.

Direct impacts to Alvarado Creek further include the establishment of a new channel within parcel 417-320-08-00. Development of the channel to increase the capacity of the 100-year flood plain and prevent flooding of the Project site will include grading (dredge and fill) of the southern bank of Alvarado Creek located near the southern boundary of parcel 416-320-06-00, at the eastern portion of the creek on parcel 417-320-09-00. Impacts associated with the new channel within jurisdictional areas are proposed for on-site restoration and are considered temporary.

The remaining direct impacts to Alvarado Creek proposed for the Project would include the installation of a new sewer line from parcel 417-320-08-00, extending north across Alvarado Creek to parcel 417-320-09-00 connecting to the new development. Impacts associated with the new sewer line would involve the temporary excavation (dredge and fill) to install new underground sewer lines, backfilled with native material or clean fill. Permanent manholes will be installed along the new sewer easement,

with one location occurring within the existing riparian habitat associated with the creek. A permanent concrete crossing will be installed within the new sewer easement across Alvarado Creek to provide long term access between the parcels. The footprints of the proposed manholes and concrete crossing associated with the new sewer line are considered permanent impacts.

As shown in Table 4, construction of the Project is expected to directly impact a total of 0.073 acre (0.053 temporary and 0.020 permanent) of likely USACE Waters of the U.S. and an equivalent amount of RWQCB Waters of the State. Construction of the Project is also expected to directly impact a total of 0.283 acre of CDFW riparian habitat and streambeds (0.213 temporary and 0.070 permanent). No indirect impacts to jurisdictional waters are anticipated.

Table 4. Summary of Proposed Direct Project Impacts to Jurisdictional Resources

Jurisdictional Waters	Impacts Acres (Linear Feet)	
	Temporary	Permanent
Likely USACE Jurisdiction		
Wetland Waters of the U.S.	0.051	0.012
Non-Wetland Waters of the U.S.	0.002 (5)	0.008 (21)
Likely USACE Total Jurisdiction	**0.053**	**0.020**
Likely RWQCB Jurisdiction		
Wetland Waters of the State	0.051	0.012
Non-Wetland Waters of the State	0.002 (5)	0.008 (21)
Likely RWQCB Total Jurisdiction	**0.053**	**0.020**
Likely CDFW Jurisdiction		
Riparian Only	0.160	0.050
Streambed (Bank-to-Bank)	0.053 (5)	0.020 (21)
Likely CDFW Total Jurisdiction	**0.213**	**0.070**

6.2 Indirect Impacts

The Project has been designed to incorporate stormwater filtration facilities in the form of an onsite underground vault with treatment, which is expected to manage urban runoff and pollutant discharge during long-term operation. Temporary indirect impacts result from potential discharges and downstream water quality affects will be managed through the implementation of in-construction Best Management Practices (BMPs). Proposed new channel contours have been designed to increase capacity of the creek during 100-year flood events, to result in short duration flooding of the surrounding area while not significantly altering or impacting the normal hydrologic regime. Further, downstream flow will be maintained throughout construction of the Project. With these considerations, indirect impacts to both on-site and off-site jurisdictional waters are not anticipated.

6.3 Permit Authorization

USACE, RWQCB and CDFW jurisdictional waters are regulated by the U.S. and State of California governments. To avoid permitting requirements of these agencies, all impacts to jurisdictional waters would need to be avoided. Impacts proposed for the Project would require the following permit authorizations prior to Project development:

1) Impacts to Waters of the U.S. would require a CWA Section 404 permit issued by USACE.
2) impacts to Waters of the State would require a Porter-Cologne Water Quality Control Act Section 401 permit issued by RWQCB.
3) Impacts to CDFW-jurisdictional streambeds and riparian areas would require a Lake and Streambed Alteration Act Section 1602 permit issued by CDFW.

7.0 SURVEYOR CERTIFICATION

This report was prepared for Ascent Environmental, Inc. All data, statements, analyses, findings and attachments within this report are accurate and truthful in terms of describing the existing conditions and the Project as proposed to Blackhawk Environmental and are based on best available knowledge at the time of the report. Any use that a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Blackhawk Environmental accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Seth Reimers
Senior Biologist

REFERENCES

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors.
2012 The Jepson Manual: Vascular Plants of California, Second Edition. University of California Press, Berkeley, CA.

Blackhawk Environmental, Inc.
2022 Alvarado Creek Affordable Housing Project: Biological Summary Report. San Diego, San Diego County, CA. May, 2022.

Calflora
2020 Information on California plants for education, research and conservation. [web application]. Berkeley, California: The Calflora Database [a non-profit organization]. Available: http://www.calflora.org/. Accessed April 2020.

California Department of Fish and Game (CDFG) Environmental Services Division (ESD)
1994 A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607, California Fish and Game Code.

California Department of Fish and Wildlife (CDFW)
2020 California Natural Diversity Database (CNDDB). RareFind Version 5.0. Database Query for the *La Mesa*, USGS 7.5-minute quadrangles. Wildlife and Habitat Data Analysis Branch. Version dated January, 2020.

Google
2019 Google Earth. US Department of State Geographer. Data SIO, U.S. Navy, NGA, GEBCO. *earth.google.com/*

Holland, R.
1986 Preliminary descriptions of the terrestrial natural communities of California. Unpublished document, California Department of Fish and Game, Natural Heritage Division. Sacramento, California.

Jepson Online Interchange
2018 Jepson Flora Project 2018. http://ucjeps.berkeley.edu/jepson_flora_project.html.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List: 2016 wetland ratings.* Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X

Munsell Color
2009 Munsell Soil Color Charts. X-rite. Grand Rapids, Michigan.

NETR Online
1947 Available on www.historicaerials.com. Accessed April 2020.

United States Army Corps of Engineers (USACE)
1987 *Wetlands Delineation Manual, Technical Report* Y-87-1, U.S. Army Engineer Waterways Experiment Station Vicksburg, MS.

2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*, ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

2018 Navigable Waters in Los Angeles District. Available URL: https://www.spl.usace.army.mil/Missions/Regulatory/Jurisdictional-Determination/Navigable-Waterways/ [Accessed September 2018].

United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)

2010 Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions. Available URL: "http://soils.usda.gov/technical/classification/osd/index.html" [Accessed August 2018].

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed [August 2018].

2018 Natural Resources Conservation Service. Wetland Indicator Status Plants Databse. https://plants.usda.gov/wetinfo.html

United States Fish & Wildlife Service (USFWS)

2019 National Wetlands Inventory. https://www.fws.gov/wetlands/data/mapper.html.

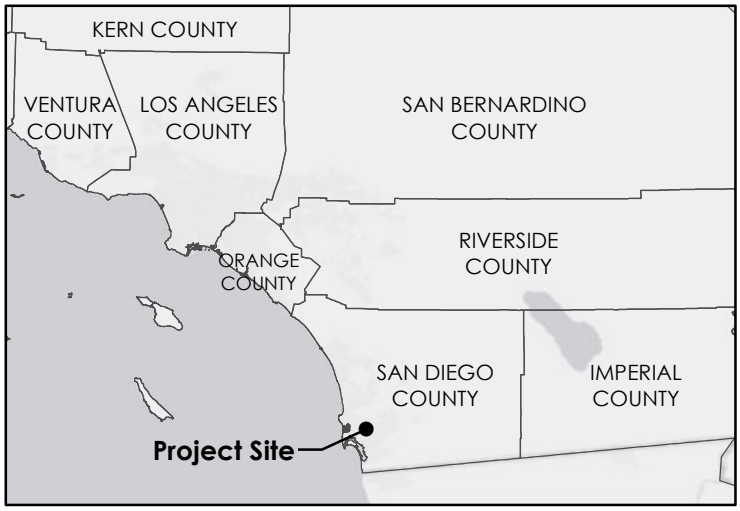
United States Geological Survey (USGS)

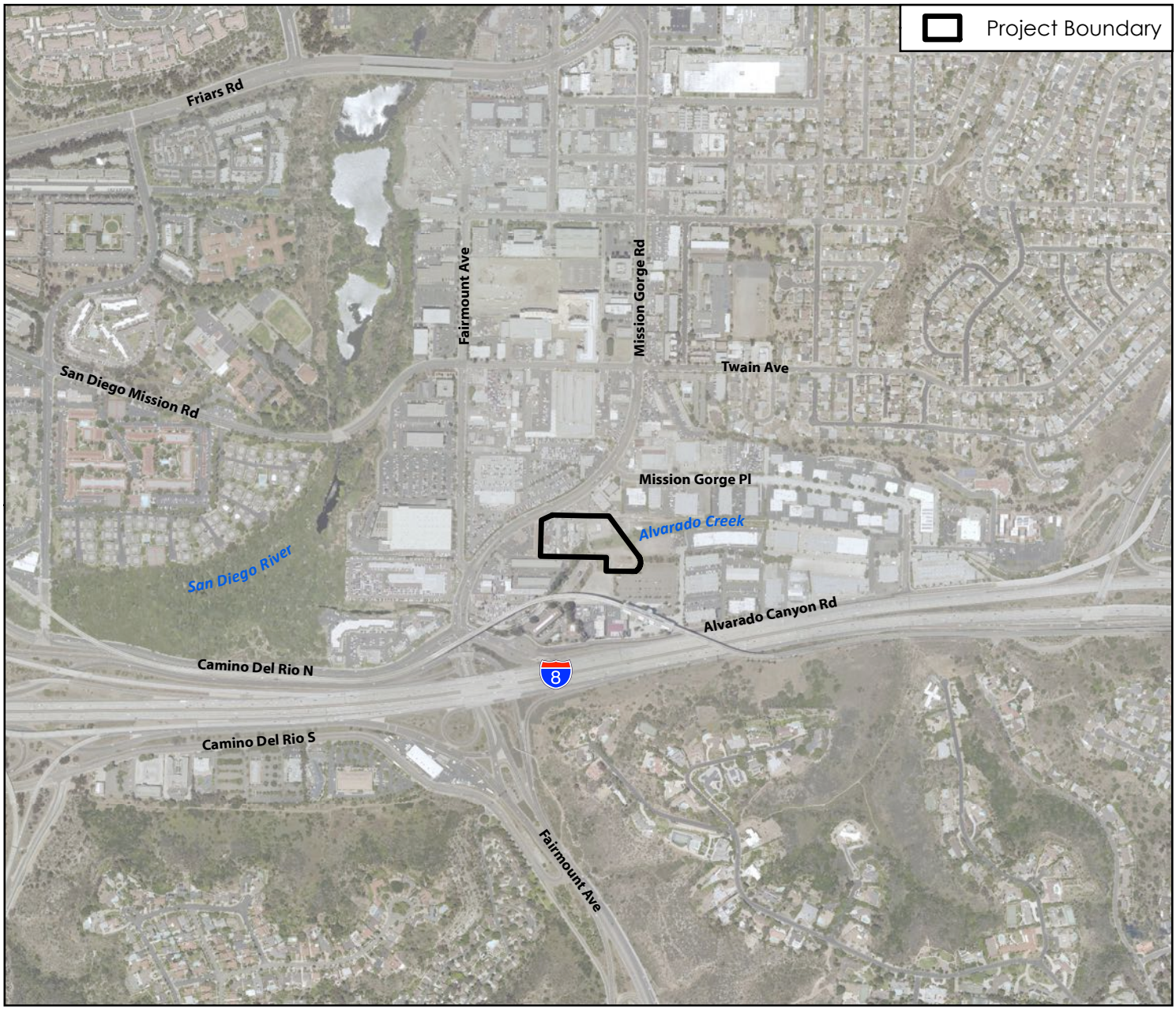
2011 7.5-minute topographic quadrangle map for *La Mesa*, California.

ATTACHMENT A

Figures

Blackhawk Environmental





Source: SANDAG & SanGIS 2017; Esri

Figure 1

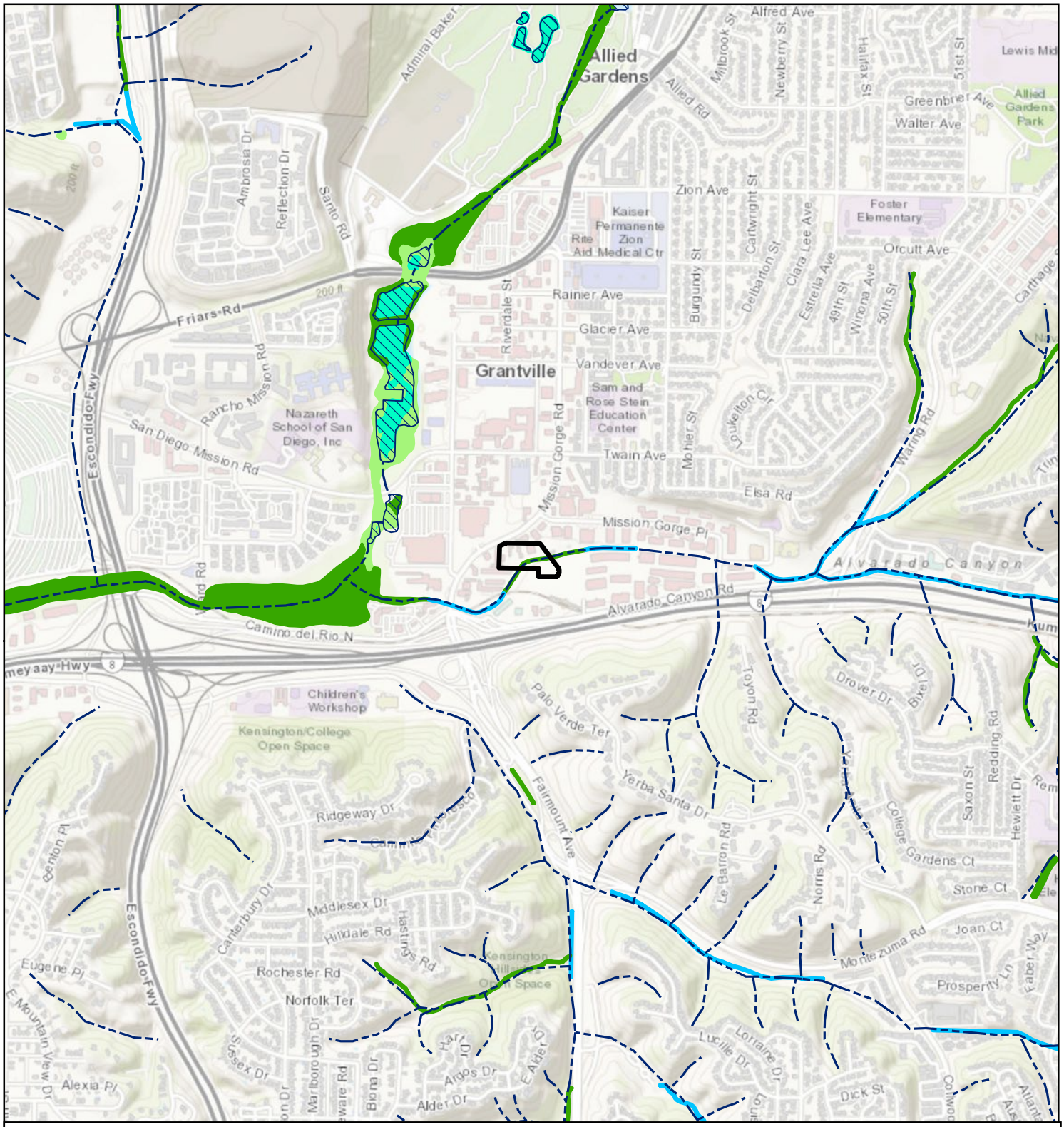
Project Vicinity and Location

Alvarado Creek Affordable Housing Project

BLACKHAWK Environmental

N

0 1,000 Feet



Source: USFWS NWI, USGS NHD, Esri

Figure 2

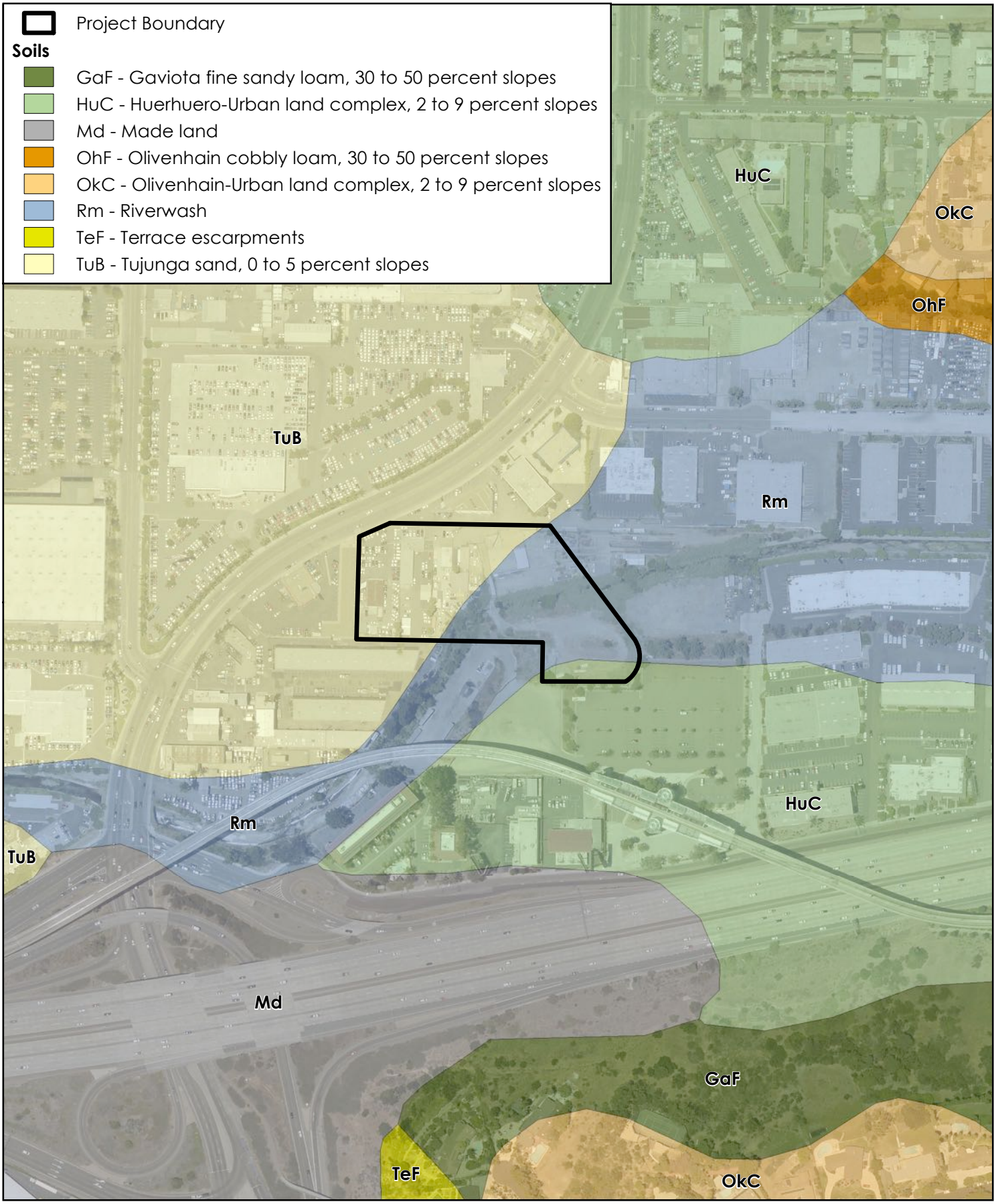
Hydrology

BLACKHAWK Environmental

N

0 1,500 Feet

Alvarado Creek Affordable Housing Project



Source: USDA NRCS; SANDAG and SanGIS 2017

Figure 3

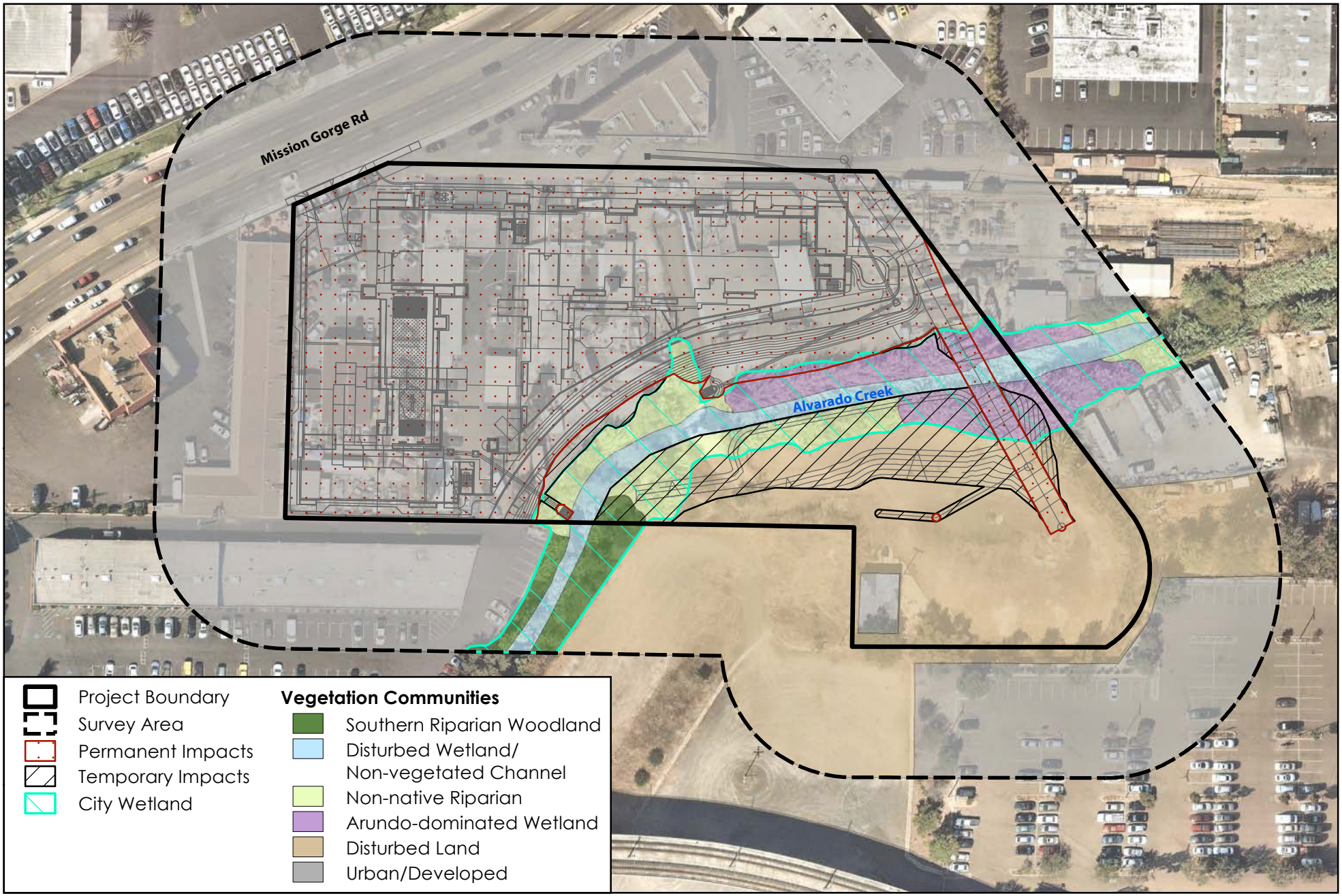
Soils

Blackhawk Environmental

N

0 300 Feet

Alvarado Creek Affordable Housing Project



Source: Nearmap 2019

Figure 4

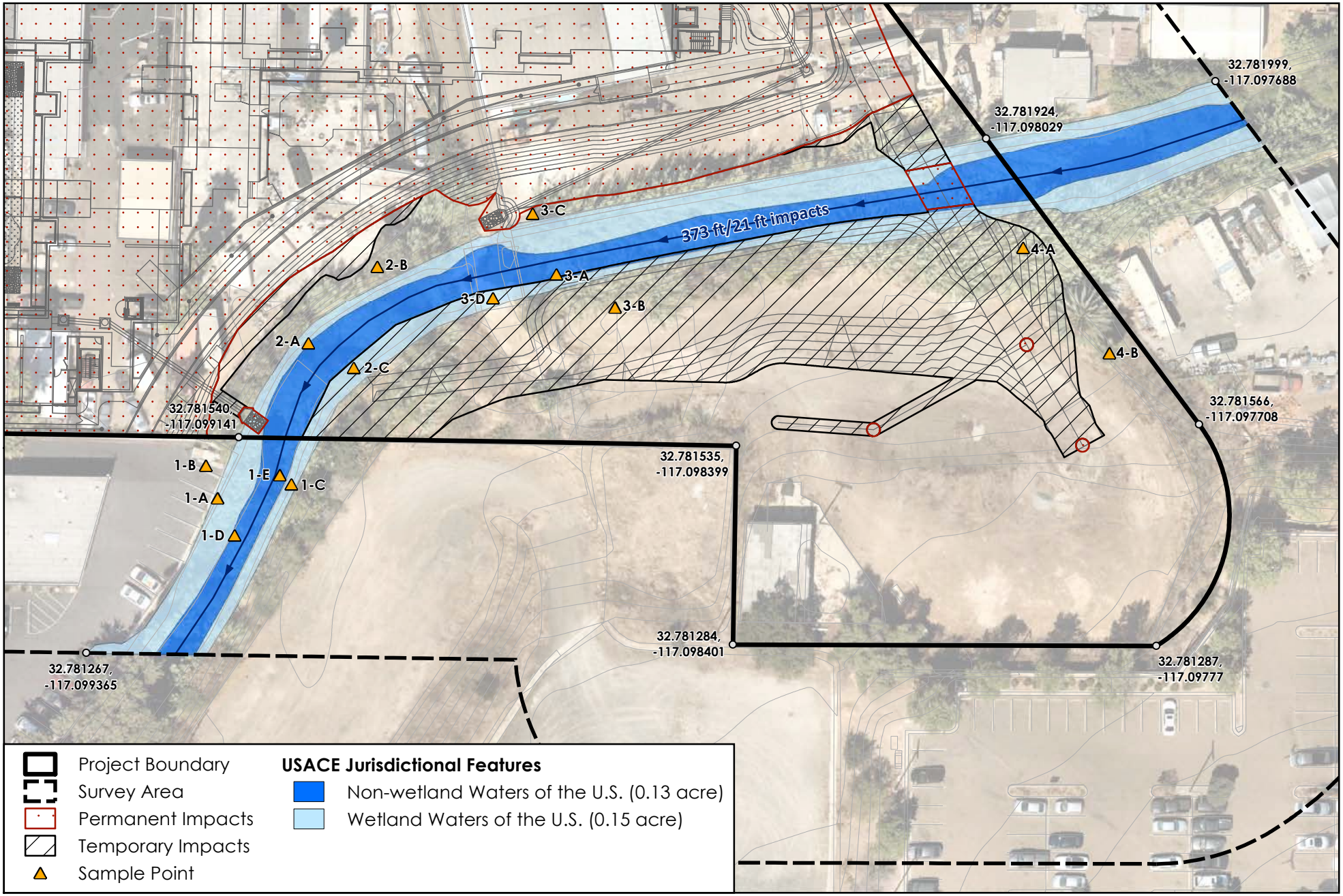
Vegetation Communities

Blackhawk Environmental

N

0 100 Feet

Alvarado Creek Affordable Housing Project



Source: Nearmap 2019

Figure 5

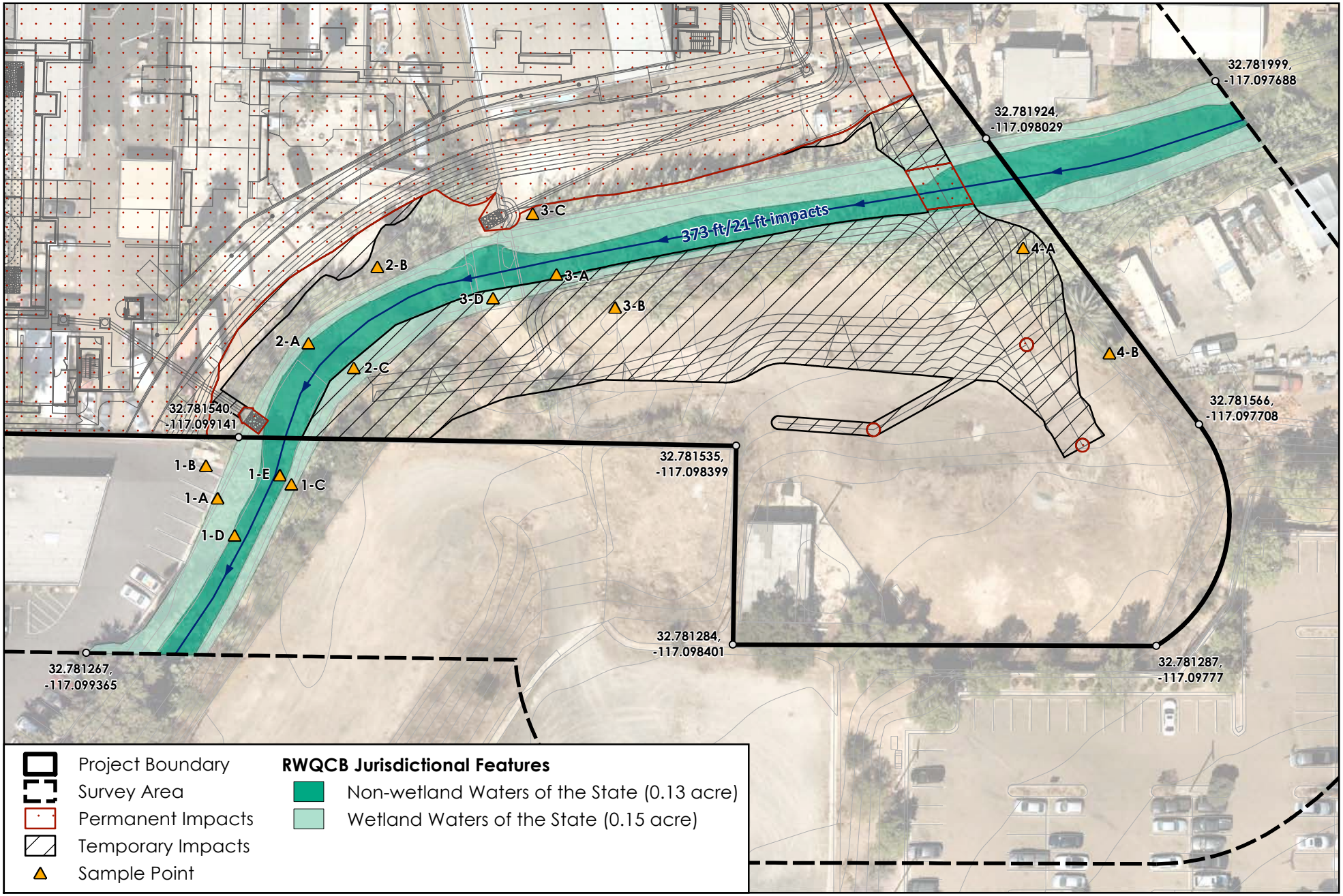
USACE Jurisdiction

BLACKHAWK Environmental

N

0 60 Feet

Alvarado Creek Affordable Housing Project



Source: Nearmap 2019

Figure 6

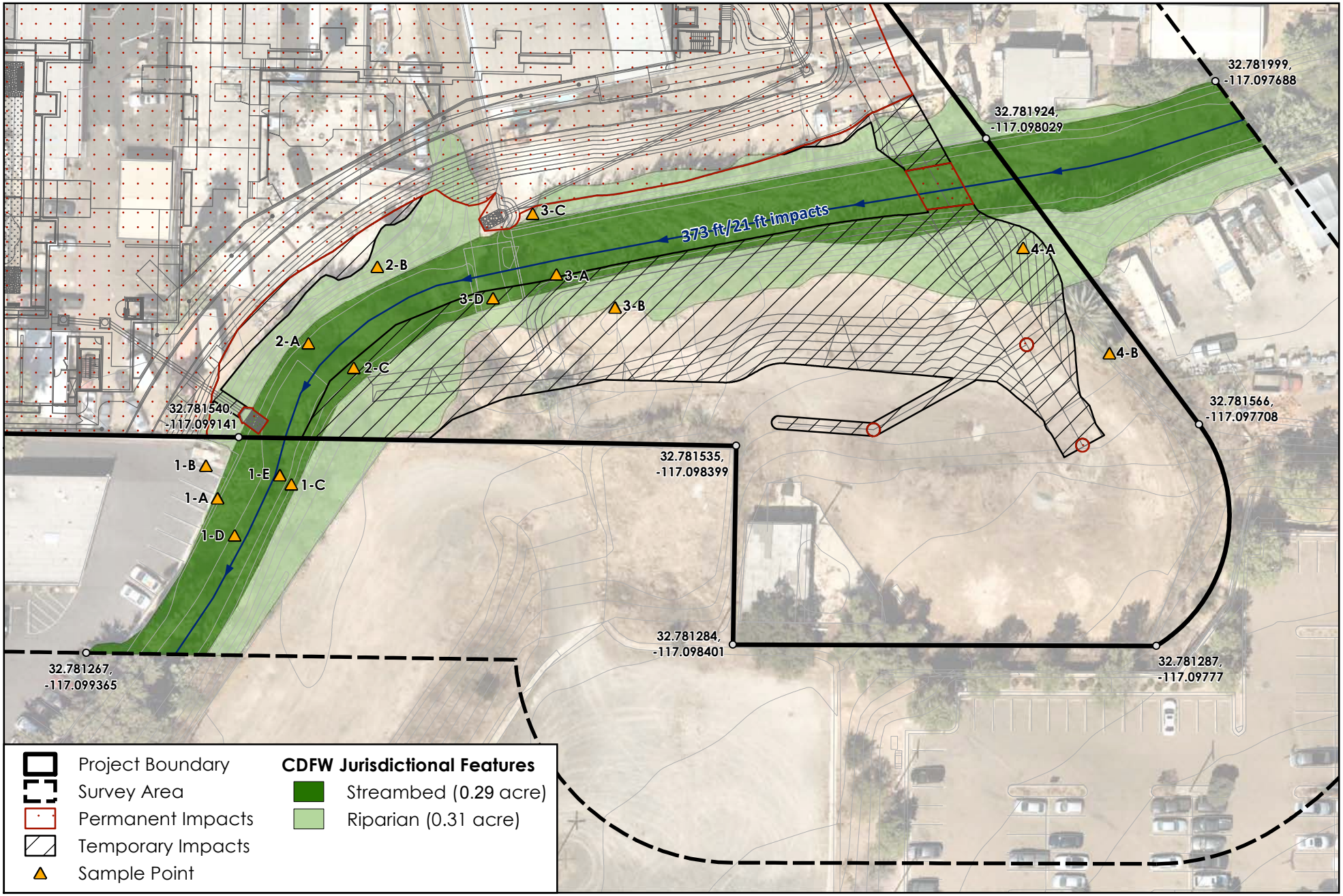
RWQCB Jurisdiction

Blackhawk Environmental

N

0 60 Feet

Alvarado Creek Affordable Housing Project



Source: Nearmap 2019

Figure 7

CDFW Jurisdiction

Blackhawk Environmental

N

0 60 Feet

Alvarado Creek Affordable Housing Project

ATTACHMENT B

Site Photographs

Blackhawk Environmental

Photo 1: Sample Point 1-A

Photo 2: Sample Point 1-B

Photo 3: Sample point 1-C

Photo 4: Sample Point 1-D

Photo 5: Sample Point 1-E

Photo 6: Sample Point 2-A

Photo 7: Sample Point 2-C

Photo 8: Sample Point 3-A

Photo 9: Sample Point 3-B

ATTACHMENT C

Jurisdictional Delineation Data Forms

Blackhawk Environmental

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Alvarado Creek Affordable Housing Project | City/County: San Diego/San Diego | Sampling Date: 1/31/20

Applicant/Owner: Pacific West Communities | State: CA | Sampling Point: SP1-A

Investigator(s): Ian Maunsell, Katie Quint, Seth Reimers | Section, Township, Range: 16S, 2W, Mission SB Land Grant

Landform (hillslope, terrace, etc.): Riverine | Local relief (concave, convex, none): Slope | Slope (%): 3%

Subregion (LRR): C - Mediterranean California | Lat: 32.781463 19 | Long: -117.09971119 | Datum: NAD83

Soil Map Unit Name: Riverwash (Rm) | NWI classification: PUSAx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◉ (If no, explain in Remarks.)

Are Vegetation ■ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◉

Are Vegetation ■ Soil ■ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ●	No ○	
Hydric Soil Present?	Yes ●	No ○	Is the Sampled Area within a Wetland? Yes ● No ○
Wetland Hydrology Present?	Yes ●	No ○	

Remarks: Soil has large amounts of fill and appears to be largely sediment deposits within restrictive layer.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix sp.	5	Yes	FACW
2.			
3.			
4.			
Total Cover:	5 %		
Sapling/Shrub Stratum			
1. Washingtonia robusta	1	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	1 %		
Herb Stratum			
1. Arundo donax	20	Yes	FACW
2. Cynodon dactylon	20	Yes	FACU
3. Cyperus sp.	3	No	FAC
4. Ambrosia psilostachya	2	No	FACU
5. Apium graveolens	1	No	FACW
6.			
7.			
8.			
Total Cover:	46 %		
Woody Vine Stratum			
1. N/A			
2.			
Total Cover:	0 %		

% Bare Ground in Herb Stratum 53 % | % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ■ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ▩ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: AW riparian conditions w/rip. associated tree species, herb strata likely 'mute' in indicative of hydrophytic veg. However flood channel maintenance has removed W. robusta & A. donax. Undisturbed conditions likely support prevalence of facultative herbaceous veg.

SOIL

Sampling Point: SP1-A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-4	10YR 3/1	100	n/a	0	n/a	n/a	Sand	
4-8	10YR 2/2	100	n/a	0	n/a	n/a	sandy loam	
8-11	10YR 4/2	90	2.5YR 4/8	10	RM	M	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: riprap

Depth (inches): 11 in.

Hydric Soil Present? Yes ● No ○

Remarks: Soils consist of apparent deposition of new material occurring in active channel. New material generally lacks stratified layers and redox features. presence of installed riprap fill for erosion control prevents examination of lower deposits/older material. soils assumed based on problematic conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches): _____

Water Table Present? Yes ○ No ● Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches): _____

Wetland Hydrology Present? Yes ● No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: strong riverine hydrologic indicators.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Alvarado Creek Affordable Housing Project City/County: San Diego/San Diego Sampling Date: 1/31/202

Applicant/Owner: Pacific West Communities State: CA Sampling Point: SP1-B

Investigator(s): Ian Maunsell, Katie Quint, Seth Reimers Section, Township, Range: Mission SD Teach Grant, 16S, 2W

Landform (hillslope, terrace, etc.): Riverine Local relief (concave, convex, none): level Slope (%): 0%

Subregion (LRR): C - Mediterranean California Lat: 32.781504107 Long: -117.099185931 Datum: NAD 83

Soil Map Unit Name: Riverwash (Rm) NWI classification: RIFSW

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ■ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ■ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	Is the Sampled Area within a Wetland? Yes ○ No ◉
Wetland Hydrology Present?	Yes ●	No ○	

Remarks: paved parking lot

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: 0 %			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover: 0 %			
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover: 0 %			
Woody Vine Stratum			
1.			
2.			
Total Cover: 0 %			

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: (A)

Total Number of Dominant Species Across All Strata: (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ■ Dominance Test is >50%
- ■ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: adjacent vegetation in equivalent adjacent reference areas problematic based on sparse riparian trees tending to dom. of hydrophytes, herbaceous cover of reference areas presumed xeric based on AW riparian areas.

SOIL

Sampling Point: SP1-B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: pavement
Depth (inches): 0"

Hydric Soil Present? Yes ○ No ●

Remarks: paved lot located above channel, presumed natural conditions non-hydric based on short term inundation, rapidly draining, following flood events.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☒ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches):
Water Table Present? Yes ○ No ● Depth (inches):
Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches):

Wetland Hydrology Present? Yes ○ No ●

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: area subject to flooding during rain events

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Alvarado Creek Affordable Housing Project City/County: San Diego/San Diego Sampling Date: 1/31/20

Applicant/Owner: Pacific West Communities State: CA Sampling Point: SP1-C

Investigator(s): Ian Maunsell, Katie Quint, Seth Reimers Section, Township, Range: Mission San Luis Rey, T15S, R3W

Landform (hillslope, terrace, etc.): Riverine Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): C - Mediterranean California Lat: 32.78148130 Long: -117.0496519 Datum: NAD83

Soil Map Unit Name: Riverwash (Rm) NWI classification: PUFSW

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [x] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes (●) No ( )

Hydric Soil Present? Yes ( ) No (●)

Wetland Hydrology Present? Yes ( ) No (●)

Is the Sampled Area within a Wetland? Yes ( ) No (●)

Remarks: Sample point representative of benched area at top of stream rise occurring on S & E sides of channel from 100-foot survey area to south parcel boundary, and NE to Arizona crossing / SP3-B

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus agrifolia	70	Yes	FACU
2. Pinus fremontii	50	Yes	FAC
3.			
4.			
Total Cover:	120 %		
Sapling/Shrub Stratum			
1. n/a	0		
2.			
3.			
4.			
5.			
Total Cover:	0 %		
Herb Stratum			
1. Stipa miliacea	80	Yes	FAC
2. other	12	No	—
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	92 %		
Woody Vine Stratum			
1. n/a	0		
2.			
Total Cover:	0 %		

% Bare Ground in Herb Stratum 8 % % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: (A)

Total Number of Dominant Species Across All Strata: (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: S. miliacea not included in AW indicator status; Occurrence on site split between channel & areas of relic flooding / beyond top of bank, therefore presumed FAC, QUEAGR appear planted, veg problematic due to AW riparian. Vegetation assumed based on nearly monotypic STIMIL

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Sampling Point: SP 1-C

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	10YR 3/3	100	n/a	-	-	-	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: none

Depth (inches): n/a

Hydric Soil Present? Yes ○ No ●

Remarks:

Uniform throughout. Soils appear native w/no sediment deposits or similarly "new" material

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches):

Water Table Present? Yes ○ No ● Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches):

Wetland Hydrology Present? Yes ○ No ●

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: no hydrological indicators observed.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Alvarado Creek Affordable Housing Project City/County: San Diego/San Diego Sampling Date: 11/21/20

Applicant/Owner: Pacific West Communities State: CA Sampling Point: SP1-D

Investigator(s): Ian Maunsell, Katie Quint, Seth Reimers Section, Township, Range:

Landform (hillslope, terrace, etc.): Riverine Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR): C - Mediterranean California Lat: 32.781493105 Long: Datum:

Soil Map Unit Name: Riverwash (Rvm) NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○			
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?**	Yes ◉	No ○
Wetland Hydrology Present?	Yes ◉	No ○			

Remarks: small patch of TYPDOM adjacent to OHWM

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0 %		
Herb Stratum			
1. Typha domingensis	110	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	110 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	110 %		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☑ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: approx 9'x45' of Typha, adjacent OHWM 2' wide

SOIL

Sampling Point: SP1-D

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: hydrogen sulfide odor detected walking in sampled area

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 5"

Water Table Present? Yes ○ No ○ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ○ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: surface water present

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Alvarado Creek Affordable Housing Project City/County: San Diego/San Diego Sampling Date: 1/31/20

Applicant/Owner: Pacific West Communities State: CA Sampling Point: SP1-F

Investigator(s): Ian Maunsell, Katie Quint, Seth Reimers Section, Township, Range: Mission SD and Part [illegible]

Landform (hillslope, terrace, etc.): Riverine Local relief (concave, convex, none): Concave Slope (%): 1%

Subregion (LRR): C - Mediterranean California Lat: 32.7514634 Long: -117.0491454 Datum: NAD 83

Soil Map Unit Name: Riverwash (Rm) NWI classification: PUFSC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes (●) No ( )

Hydric Soil Present? Yes (●) No ( )

Wetland Hydrology Present? Yes (●) No ( )

Is the Sampled Area within a Wetland? Yes (●) No ( )

Remarks: small patch of SCHCAL adjacent to OTHER

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0 %		
Herb Stratum			
1. Schoenoplectus californicus	110	YES	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	0 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0 %		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: approximate 1'x15' of bulrush

SOIL

Sampling Point: SP1-F

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ● No ○

Remarks: hydrogen sulfide odor detected walking in area

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ● No ○ Depth (inches): 6"

Water Table Present? Yes ○ No ○ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ○ Depth (inches): _____

Wetland Hydrology Present? Yes ● No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: surface water present

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Alvarado Creek Affordable Housing Project | City/County: San Diego/San Diego | Sampling Date: 1/31/20

Applicant/Owner: Pacific West Communities | State: CA | Sampling Point: SP2-A

Investigator(s): Ian Maunsell, Katie Quint, Seth Reimers | Section, Township, Range: Mission Trails Land Grant, T15S, R2W

Landform (hillslope, terrace, etc.): Riverine | Local relief (concave, convex, none): slope (channel) | Slope (%): 15%

Subregion (LRR): C - Mediterranean California | Lat: 32.7816543 | Long: -117.0990373 | Datum: NAD 83

Soil Map Unit Name: Riverwash (Rvm) | NWI classification: PUSAx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ■ Soil ■ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ■ Soil ■ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ◉	No ○	Is the Sampled Area within a Wetland? Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Sample representative of lower shelf of channel extending ~~[illegible]~~ to project boundary & ENE along channel to Arizona crossing, generally situated adjacent to & immediately above OHWM.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. n/a	0		
2.			
3.			
4.			
Total Cover:	0 %		
Sapling/Shrub Stratum			
1. Salix lasiolepis	2	no	FACW
2. Washingtonia robusta	10	Yes	FACW
3. Ricinus communis	10	yes	FACU
4. Tamarix ram	1	no	
5.			
Total Cover:	15%		
Herb Stratum			
1. Arundo donax	55	Yes	FACW
2. Rumex crispus	2	no	FACW
3. Juncus effusus	1	no	OBL
4. Rhaphanus sativus	5	no	FACU
5. Stipa miliacea	14	no	FAC
6. Tropaeolum majus	3	no	
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1. n/a	0		
2.			
Total Cover:	0 %		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ■ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: evidence of channel maintence, recent vegetation trimming

SOIL

Sampling Point: SP2-A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0	—	—	—	—	—	—	—	—

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: riprap

Depth (inches): 0

Hydric Soil Present? Yes ● No ○

Remarks: unable to dig pit due to rip rap fill. Soils assumed based on problematic and disturbed conditions likely subject to prolonged inundation under normal circumstances and likely presence of hydric soils underlying rip rap.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches): _____

Water Table Present? Yes ○ No ● Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches): _____

Wetland Hydrology Present? Yes ● No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: strong riverine indicators, extended periods of flooding/inundation indicated by water marks on rip-rap.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Alvarado Creek Affordable Housing Project | City/County: San Diego/San Diego | Sampling Date: 1/21/20

Applicant/Owner: Pacific West Communities | State: CA | Sampling Point: SP#1-W

Investigator(s): Ian Maunsell, Katie Quint, Seth Reimers | Section, Township, Range: Mission SD Land Grant, 16, 2W

Landform (hillslope, terrace, etc.): Riverine | Local relief (concave, convex, none): Slope (bench) | Slope (%): 5%

Subregion (LRR): C - Mediterranean California | Lat: 32.78175661 | Long: -117.09893554 | Datum: NAD-83

Soil Map Unit Name: Riverwash (Rm) | NWI classification: PUSCh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ▩ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ▩ Soil ▩ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ○	No ◉	Is the Sampled Area within a Wetland? Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Sample point representative of disturbed riparian habitat occurring on upper shelf of channel (N side) extending E to project boundary & ENE to Arizona crossing. Shelf on N side of channel vertical/steep, w/ elevation ~8' above OHWM.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus agrifolia	7	Yes	FACW
2. Populus fremontii	3	Yes	FAC
3. Washingtonia robusta	1	No	FACW
4. Salix gooddingii	2	No	FACW
Total Cover:	13 %		
Sapling/Shrub Stratum			
1. Sambucus nigra	2	No	FACW
2. Ricinus communis	10	Yes	FACU
3.			
4.			
5.			
Total Cover:	12 %		
Herb Stratum			
1. Arundo donax	60	Yes	FACW
2. Stipa miliacea	40	Yes	FAC
3. Rhus ovata	3	No	
4. Sonchus asper	1	No	
5.			
6.			
7.			
8.			
Total Cover:	120 %		
Woody Vine Stratum			
1. n/a			
2.			
Total Cover:	0 %		

% Bare Ground in Herb Stratum 5 % | % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ▩ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: Veg problematic due to riparian AW conditions, POPFRE likely incidental/established during high water years, QUEAGR appear planted. Vegetation disturbed due to channel maintenance w/apparent ARUDON removal. Veg assumed dominant based on prevalence of ARUDON herbaceous understory in undisturbed conditions

SOIL

Sampling Point: SP2-B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture[3]	Remarks
0-4	10YR 2/1	99	—	—	—	—	Silty loam	1% organic material
4-18	10YR 2/2	100	—	—	—	—	Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: none

Depth (inches): NA

Hydric Soil Present? Yes ○ No ●

Remarks: Sample point representative of bench/shelf above rip-rap channel wall. Problematic due to new material. General absence of redox features w/ occasional organic deposits. Generally uniform. Occasional large material in B horizon obs. for potential redox; none obs. Soils non-hydric likely due to elevation above typical water table/flow and rapid receding of flow.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☑ Sediment Deposits (B2) (**Riverine**)
- ☑ Drift Deposits (B3) (**Riverine**)
- ☑ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches):

Water Table Present? Yes ○ No ● Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches):

Wetland Hydrology Present? Yes ● No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Strong riverine indicators showing evidence of intermittent high velocity flow & flooding

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Alvarado Creek Affordable Housing Project | City/County: San Diego/San Diego | Sampling Date: 1/31/20

Applicant/Owner: Pacific West Communities | State: CA | Sampling Point: SP2-C

Investigator(s): Ian Maunsell, Katie Quint, Seth Reimers | Section, Township, Range: Mission San Luis Rey, 15S, 2W

Landform (hillslope, terrace, etc.): Riverine | Local relief (concave, convex, none): slope | Slope (%): 1%

Subregion (LRR): C - Mediterranean California | Lat: 32.7816862 | Long: -117.0939647 | Datum: NAD 83

Soil Map Unit Name: Riverwash (Rvm) | NWI classification: PUSCh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (X) No ( ) (If no, explain in Remarks.)

Are Vegetation [■] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (X) No ( )

Are Vegetation [ ] Soil [■] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	Is the Sampled Area within a Wetland? Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Sample point taken representative of south side of channel from paved boundary to S and SW to Arizona crossing to ENE ~100'. Area on inside of channel bank, and appears subject to less scouring than N channel.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	20	Y	FACW
2. Salix lasiolepis	20	Y	FACW
3. Washingtonia robusta	5	N	FACW
4.			
Total Cover:	45%		
Sapling/Shrub Stratum			
1. Baccharis salicifolia	7	Y	FAC
2. Ricinus communis	4	Y	FACU
3.			
4.			
5.			
Total Cover:	11 %		
Herb Stratum			
1. Apium graveolens	15	N	FACW
2. Sonchus asper	1	N	FAC
3. Helminthotheca echioides	2	N	FAC
4. Arundo donax	30	Y	FACW
5. Foeniculum vulgare	25	Y	FACU
6. Stipa miliacea	15	N	FAC
7. Oxalis sp.	1	N	FACU
8.			
Total Cover:	89%		
Woody Vine Stratum			
1. n/a			
2.			
Total Cover:	0 %		

% Bare Ground in Herb Stratum 5 % | % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.6 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- [■] Dominance Test is >50%
- [*] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: Evidence of flood channel maintenance, vegetation clearing

SOIL

Sampling Point: SR2-C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-1	10YR 5/2	100					Sand	
1-1.5	10YR 2/1	100					Sand	
1.5-3	10YR 5/2	100					Sand	
3-3.5	10YR 3/1	100					Sand	
3.5-5	10YR 5/2	100					Sand	
5-10	7.5YR 5/2	100					Sand	
10-18	10YR 2/1	100					Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☒ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: none

Depth (inches):

Hydric Soil Present? Yes ○ No ○

Remarks: Stratified organic matter and inorganic/trash deposits in pit, hydrogen sulfide odor in deeper soils, soils indicate stratified layers in sand (A5)

HYDROLOGY

*Found as L-10

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches):

Water Table Present? Yes ○ No ● Depth (inches):

Saturation Present? (includes capillary fringe) Yes ● No ○ Depth (inches): 16

Wetland Hydrology Present? Yes ● No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: strong riverine indicators

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Alvarado Creek Affordable Housing Project City/County: San Diego/San Diego Sampling Date: 1/31/20

Applicant/Owner: Pacific West Communities State: CA Sampling Point: SP3-A

Investigator(s): Ian Maunsell, Katie Quint, Seth Reimers Section, Township, Range: [illegible]

Landform (hillslope, terrace, etc.): Riverine Local relief (concave, convex, none): [illegible] Slope (%): [illegible]

Subregion (LRR): C - Mediterranean California Lat: 32.78172882 Long: -117.04566360 Datum: NAD 83

Soil Map Unit Name: Riverwash (Rm) NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ●	No ○	
Hydric Soil Present?	Yes ●	No ○	Is the Sampled Area
Wetland Hydrology Present?	Yes ●	No ○	within a Wetland? Yes ● No ○

Remarks: Sample point representative of disturbed riparian community occurring w/in streambed N & S of channel from Arizona crossing ~50' W & extending E, area generally characterized by low gradual bench interfacing steep/vertical banks.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	3	Y	FAC
2. Washingtonia robusta	1	N	FACW
3. Koelreuteria bipinnata	1	N	FACU
4.			
Total Cover:	5 %		
Sapling/Shrub Stratum			
1. Washingtonia robusta	5	Y	FACW
2. Ricinus communus	2	Y	FACU
3.			
4.			
5.			
Total Cover:	7 %		
Herb Stratum			
1. Stipa miliacea	70	yes	FAC
2. Arundo donax	20	yes	FACW
3. Apium graveolens	5	no	FACU
4. Cynadon dactylon	10	no	FACU
5. Tropaeolum majus	2	no	FACU
6. Oxalis pescaprae	3	no	FACU
7. Schoenoplectus californica	10	no	OBL
8. Schoenoplectus pungens	12	no	OBL
Total Cover:	192 %		
Woody Vine Stratum			
1. n/a			
2.			
Total Cover:	0 %		

% Bare Ground in Herb Stratum 2 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	80 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ■ Dominance Test is >50%
- ▪ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: Dense herbaceous understory

SOIL

Sampling Point: SP3-A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-5	7.5YR 3/2	80	7.5YR 4/6	20	C	M	Sandy Clay	
5-18	10YR 2/1	80	7.5YR 4/6	20	C	M	Clay [illegible]	[illegible], [illegible] appear [illegible] [illegible]

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ■ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ■ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: N/a
Depth (inches):

Hydric Soil Present? Yes ● No ○

Remarks: sandy redox apparent in layer 1 w/ redox concentrations, layer 2 indicates depleted matrix, soil allowed to dry from saturated to moist, as exposed to air reduced matrix evident

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ■ Sediment Deposits (B2) (**Riverine**)
- ■ Drift Deposits (B3) (**Riverine**)
- ■ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ●	Depth (inches):
Water Table Present?	Yes ○	No ●	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ●	No ○	Depth (inches): 12

Wetland Hydrology Present? Yes ● No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Alvarado Creek Affordable Housing Project City/County: San Diego/San Diego Sampling Date: 1/3/20

Applicant/Owner: Pacific West Communities State: CA Sampling Point: SP3-B

Investigator(s): Ian Maunsell, Katie Quint, Seth Reimers Section, Township, Range: Mission SD Land Grant, 16S, 2W

Landform (hillslope, terrace, etc.): Riverine Local relief (concave, convex, none): slope Slope (%): 1%

Subregion (LRR): C - Mediterranean California Lat: 32.781707853 Long: -117.0985 Datum: NAD 83

Soil Map Unit Name: Riverwash (Rm) NWI classification: FWFSW

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◉ (If no, explain in Remarks.)

Are Vegetation ■ Soil ■ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◉

Are Vegetation ■ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ●	Is the Sampled Area within a Wetland? Yes ○ No ●
Hydric Soil Present?	Yes ○	No ●	
Wetland Hydrology Present?	Yes ○	No ●	

Remarks: Sample point representative of top of streambed/channel on south side of channel, extending from Arizona crossing to W, to arundo dominated habitat (SP4-A) area to E.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. Salix lasiolepis	4	Yes	FACW
2. Ricinus communis	6	Yes	FACU
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. Arundo donax	10	No	FACW
2. Foeniculum vulgare	13	No	FACU
3. Melilotus polymorpha	25	Yes	FACU
4. Ambrosia psilostachya	45	Yes	FACU
5. Raphanus sativus	15	No	FACU
6. Urtica urens	7	No	FAC
7. Stipa miliacea	20	No	FAC
8. Malva parviflora	4	No	FAC
Total Cover:	139 %		
Woody Vine Stratum			
1. none			
2.			
Total Cover:	0 %		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	25 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ■ Dominance Test is >50%
- ■ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ●

Remarks: Vegetation disturbed based on historic land use & channel maintenance. Problematic based on AW riparian. Assumed undisturbed conditions would support mixed riparian canopy w/ xeric understory, likely non-hydrophytic dominant

SOIL

Sampling Point: SP3-B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	10YR3/3	100					clay-sand	possible fill material

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ●

Remarks: soil may consist of fill material, however no indication of prolonged anaerobic conditions observed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches):

Water Table Present? Yes ○ No ● Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches):

Wetland Hydrology Present? Yes ○ No ●

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: no hydrological indicators observed under normal conditions

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Alvarado Creek Affordable Housing Project City/County: San Diego/San Diego Sampling Date: 1/31/20

Applicant/Owner: Pacific West Communities State: CA Sampling Point: SP3-C

Investigator(s): Ian Maunsell, Katie Quint, Seth Reimers Section, Township, Range: Mission San Diego Grant, 16S, 2W

Landform (hillslope, terrace, etc.): Riverine Local relief (concave, convex, none): graded lot Slope (%): 1%

Subregion (LRR): C - Mediterranean California Lat: 32.78183495 Long: -117.04505510 Datum: NAD-83

Soil Map Unit Name: Riverwash (Rm) NWI classification: FWFSW

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ☒ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☒ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉
Hydric Soil Present?	Yes ○	No ◉
Wetland Hydrology Present?	Yes ○	No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks: graded lot

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. Ricinus communis	1	Yes	FACU
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. Stipa miliacea	5	Yes	FAC
2. Foeniculum vulgare	5	Yes	FACU
3. Sonchus asper	2	No	FAC
4. Oxalis sp.	3	No	FACU
5. Medicago polymorpha	2	No	FACU
6.			
7.			
8.			
Total Cover:	17%		
Woody Vine Stratum			
1. none			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33.3 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: paved parking/developed area separated from adjacent wetland by man-made wall, vegetation disturbed & isolated from channel by man-made headwall. Based on reference areas, vegetation assumed to support AW riparian canopy w/ xeric understory, likely non-hydrophytic dominant, in undisturbed conditions

SOIL

Sampling Point: SP3-C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: pavement

Depth (inches): 0

Hydric Soil Present? Yes ○ No ◉

Remarks: paved/developed lot, soils assumed absent based on lack of evidence of prolonged anaerobic conditions/inundation, reference SP1-C, SP2-B, & SP3-B

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☑ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: sediment deposits on pavement, no other secondary indicators, likely result of intermittent short period flooding during rain events.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Alvarado Creek Affordable Housing Project City/County: San Diego/San Diego Sampling Date: 1/21/20

Applicant/Owner: Pacific West Communities State: CA Sampling Point: SP3 C

Investigator(s): Ian Maunsell, Katie Quint, Seth Reimers Section, Township, Range: Mission San Diego Grant, 16S, 2W

Landform (hillslope, terrace, etc.): Riverine Local relief (concave, convex, none): concave Slope (%): 4%

Subregion (LRR): C - Mediterranean California Lat: 32.7816912 Long: -117.0991691 Datum: NAD 83

Soil Map Unit Name: Riverwash (Rm) NWI classification: FWFSW

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◉ (If no, explain in Remarks.)

Are Vegetation ☒ Soil ☒ or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◉

Are Vegetation ☒ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ◉	No ○	Is the Sampled Area
Wetland Hydrology Present?	Yes ◉	No ○	within a Wetland? Yes ◉ No ○

Remarks: Disturbed/developed Arizona crossing w/in channel, concrete

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
Total Cover:	– %		
Sapling/Shrub Stratum			
1. none			
2.			
3.			
4.			
5.			
Total Cover:	– %		
Herb Stratum			
1. none			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	– %		
Woody Vine Stratum			
1. none			
2.			
Total Cover:	– %		

% Bare Ground in Herb Stratum NA % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: (A)

Total Number of Dominant Species Across All Strata: (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☒ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: Vegetation disturbed due to installation of concrete Arizona crossing w/in channel. Vegetation assumed continuous between SP2-C & SP3-A

SOIL

Sampling Point: SP3-D

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
—	—	—	—	—	—	—	—	—

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: concrete

Depth (inches): 0"

Hydric Soil Present? Yes ◉ No ○

Remarks: Sample taken at concrete Arizona crossing in similar relief/topo/contour as SP3-A. Unable to dig pit, soils assumed due to disturbed conditions & adjacent strong hydrophytic indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): ____

Water Table Present? Yes ○ No ◉ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): ____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Strong riverine indicators such as stained water marks on concrete, sediment deposits in expansion seams, and flow lines

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Alvarado Creek Affordable Housing Project | City/County: San Diego/San Diego | Sampling Date: 3/13/20

Applicant/Owner: Pacific West Communities | State: CA | Sampling Point: SU1-A

Investigator(s): Ian Maunsell, Katie Quint, Seth Reimers | Section, Township, Range: Mission San Luis Rey, 18S, 2E

Landform (hillslope, terrace, etc.): Riverine | Local relief (concave, convex, none): Slope | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 32.781778687 | Long: -117.053697352 | Datum: NAD83

Soil Map Unit Name: Riverwash (Rm) | NWI classification: PUBGx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ▨ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ○	No ◉	Is the Sampled Area within a Wetland? Yes ○ No ◉
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks: Sample point representative of top of ~~streamside~~ riparian corridor on south side of channel, extending from disturbed areas represented by SP3-B

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:	0 %		
Sapling/Shrub Stratum			
1. Ricinus communis	4	Y	FACU
2.			
3.			
4.			
5.			
Total Cover:	5 %		
Herb Stratum			
1. Arundo donax	60	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	60 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0 %		

% Bare Ground in Herb Stratum 10 % | % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: (A)

Total Number of Dominant Species Across All Strata: (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ▨ Dominance Test is >50%
- ▨ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ▨ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: Area has recently undergone vegetation maintenance with arundo cut to near ground level, wetland vegetation assumed based on aerial imagery & observed disturbance

SOIL

Sampling Point: SP4-A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	10YR 3/3	100					clay sand	same as SP3-B

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ●

Remarks: same as SP3-B, soil may consist of fill, however no indication of prolonged anaerobic conditions observed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches):

Water Table Present? Yes ○ No ● Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches):

Wetland Hydrology Present? Yes ○ No ●

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrological indicators observed. Bank is at higher elevation than north side of creek & unlikely to flood

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Alvarado Creek Affordable Housing Project   City/County: San Diego/San Diego   Sampling Date: 3/13/20

Applicant/Owner: Pacific West Communities   State: CA   Sampling Point: SP4-B

Investigator(s): Ian Maunsell, Katie Quint, Seth Reimers   Section, Township, Range: Mission San Diego Land Grant, 16S, 2W

Landform (hillslope, terrace, etc.): Riverine   Local relief (concave, convex, none): slope   Slope (%): 4

Subregion (LRR): C - Mediterranean California   Lat: 32.78165523   Long: -117.0973485   Datum: [illegible]

Soil Map Unit Name: Riverwash (Rm)   NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed?   Are "Normal Circumstances" present? Yes ◉ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic?   (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉
Hydric Soil Present?	Yes ○	No ◉
Wetland Hydrology Present?	Yes ○	No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks: Sample point representative of un-lined vegetated swale [illegible] [illegible] water along E Project limits to Alvarado Creek. Represents [illegible] [illegible] between SP4-A & adjacent disturbed areas

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Washingtonia robusta	4	Y	FACW
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. Rhus integrifolia	2	Y	UPL
2. Ricinus communis	5	Y	FACU
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. Stipa miliacea	60	Y	FAC
2. Foeniculum vulgare	35	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ___ %   % Cover of Biotic Crust ___ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	40 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ■ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: Area predominately herbaceous species with relic upland shrubs. Dominance skewed to hydrophytics due to assumed FAC indication of Stipa & occurrence of W. robusta. Despite these factors, vegetation in non-dominant and not considered a wetland or riparian community

SOIL

Sampling Point: SP4-B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
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- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ●

Remarks: soils assumed same as SP3-A & SP4-A, not accessible due to location beyond fence

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ○ Depth (inches):

Water Table Present? Yes ○ No ○ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ○ Depth (inches):

Wetland Hydrology Present? Yes ○ No ●

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrologic indicators observed, but area appears to carry surface water runoff from adjacent developed areas based on increased vegetation density relative to adjacent areas and convex landform

ATTACHMENT D

Habitat Mitigation and Monitoring Plan

Blackhawk Environmental

BLACKHAWK Environmental

1720 Midvale Drive
San Diego, CA, 92105
Phone: 619.972.7932
Phone: 619.972.8714
www.blackhawkenv.com

ALVARADO CREEK AFFORDABLE HOUSING PROJECT

HABITAT MITIGATION AND MONITORING PLAN

CITY OF SAN DIEGO, SAN DIEGO COUNTY, CALIFORNIA

Prepared for:

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February 1, 2021
Revised June 2, 2022

TABLE OF CONTENTS

1.0 INTRODUCTION

The Habitat Mitigation and Monitoring Plan (Plan) herein provides direction for implementing a program to restore, create and enhance native habitats to offset temporary and/or permanent impacts to native habitat as a result the Alvarado Creek Affordable Housing Project (Project). The Project proposes 227, 100-percent, affordable residential rental apartment units in one 5-story type III-A building, over one level of type I-A above ground podium structure within the 3.86-acre Project. The 227 residential units include 54 studios, 53 one-bedroom units, 60 two-bedroom units and 60 three-bedroom units. Common area amenities include a pool area and access to the proposed Alvarado Creek trail.

A community trail is proposed to be constructed along the onsite portion of Alvarado Creek within the proposed development. An existing sewer line and easement is proposed to be relocated southerly across Alvarado Creek to an existing point of connection near the Grantville Trolley Station.

In order to ensure that the 100-year floodplain water surface elevation does not increase due to the proposed Project, Alvarado Creek is proposed for widening to increase the capacity of the channel. Widening of the channel will entail excavation of a new channel bank on the non-development side of Alvarado Creek (south). The margin between the new channel slope and existing channel will be excavated to increase the overall capacity of the channel. To offset proposed impacts to City designated sensitive areas, the new channel slope is proposed for habitat creation to provide onsite mitigation. Although no modifications to the northern channel slope are proposed as part of the Project, adjacent developed concrete pads would be removed and allowed to revegetate with native habitat following construction, providing additional habitat buffer and opportunity for natural wetland recruitment.

Development of the Project will result in direct impacts to a total of 0.283 acre (i.e., 0.213 acre of temporary impacts and 0.070 acre of permanent impacts) to City wetland/ESL habitats including the following wetland habitat types: Arundo-dominated wetland (0.060 acre temporary and 0.047 acre permanent impacts), disturbed wetland/unvegetated channel (0.002 acre temporary and 0.008 acre permanent impacts), Non-native riparian (0.137 acre temporary and 0.015 acre permanent impacts) and Southern Riparian Woodland (0.014 acre temporary and no permanent impacts).

These areas met City or San Diego (City) Biology Guidelines criteria as wetlands and are considered Environmentally Sensitive Lands (ESL) protected under City of San Diego Environmentally Sensitive Lands Ordinance. Additionally, impacts to wetland vegetation requires mitigation for impacts to the United States Army Corps of Engineers (USACE) jurisdictional waters under Section 404 of the federal Clean Water Act, Regional Water Quality Control Board (RWQCB) jurisdictional waters under Section 401 of the Porter Cologne Water Quality Control Act and California Department of Fish and Wildlife (CDFW) riparian habitat under Section 1602 of the California Fish and Wildlife Code.

This Plan includes (1) the Project purpose, restoration, habitat creation and enhancement goals and objectives, (2) A detailed description of the existing conditions, environmental setting, revegetation site characteristics, hydrology and regulatory requirements of the Alvarado Creek Affordable Housing

Project Mitigation Site (Mitigation Site), (3) roles and responsibilities of relevant parties involved in the Project, (4) a plan to create, restore or otherwise enhance 0.599 acre (Mitigation Site) of wetland habitat types of similar or increased function to those proposed for impacts. Restoration activities are expected to generate 0.599 acre of onsite mitigation credit in excess of a 2:1 ratio in order to offset impacts from development of the Project, in accordance with regulatory requirements, in order to achieve no net loss of wetland function as a result of Project impacts, (5) guidance on initial Mitigation Site installation including Mitigation Site preparation, irrigation, plant installation, and (6) the 5-year maintenance and monitoring program.

The goal of the proposed Mitigation Site is to establish 0.416 acres of southern riparian scrub and 0.183 acres of southern riparian scrub – transition habitat within the five-year monitoring period, that will eventually mature into a mixture of southern riparian forest and southern riparian scrub. The mitigation aims to create, restore and enhance the existing habitat onsite, currently comprised mostly of non-native riparian, Arundo-dominated, and disturbed lands that will be impacted by the Project. The restoration design will involve initial grading of the Mitigation Site to expand the existing floodplain in order to establish conditions suitable for self-sustaining southern riparian scrub and southern riparian forest habitats.

This Plan includes maintenance and monitoring recommendations and associated performance standards in order to provide quantitative and qualitative data that will aid in assessing the success of the restoration effort. This Plan has been developed in conjunction with findings of the Alvarado Creek Affordable Housing Biological Survey Report and has been designed to be consistent with the City of San Diego's ESL Regulations and San Diego Land Development Manual – Biological Guidelines, 2018. It is anticipated that this Restoration Plan will also fulfill requirements under 1600, 401, 404 permits which are anticipated as a requirement for Project implementation.

2.0 EXISTING CONDITIONS

2.1 Environmental Setting of Impacted Areas

The proposed Alvarado Creek Affordable Housing Project is located on 3.86-acres southeast of Mission Gorge Road, south of Mission Gorge Place, and north of Interstate 8 (I-8) and the Grantville Trolley station (Figure 1). The Project is located within the following Assessor Parcel Numbers (APNs): 416-320-06, 461-320-08 and 461-320-09. Alvarado Creek bisects portions of the 3.86-acre Project development and includes jurisdictional wetland and non-wetland areas. A formal jurisdictional delineation effort was conducted, and results of this effort are included in the *Alvarado Creek Affordable Housing Project Jurisdictional Delineation Report* (Blackhawk 2021). As a component of the affordable housing project development, onsite mitigation for impacts to ESL habitat was determined to be necessary, and subsequent restoration, enhancement and habitat creation will be implemented concurrently with development and following grading activities.

Existing onsite and surrounding land uses include a variety of industrial and commercial businesses, with Alvarado Creek bisecting the Project. The Project is located on three previously developed

parcels. Parcels north of Alvarado Creek are actively used for light industrial use and commercial uses such as auto repairs and sales, metal fabrication, convenience stores, etc. The area surrounding the Project to the north and east includes similar commercial and industrial land uses, characterized by single and multi-story buildings with paved hardscaped surfaces and landscaping.

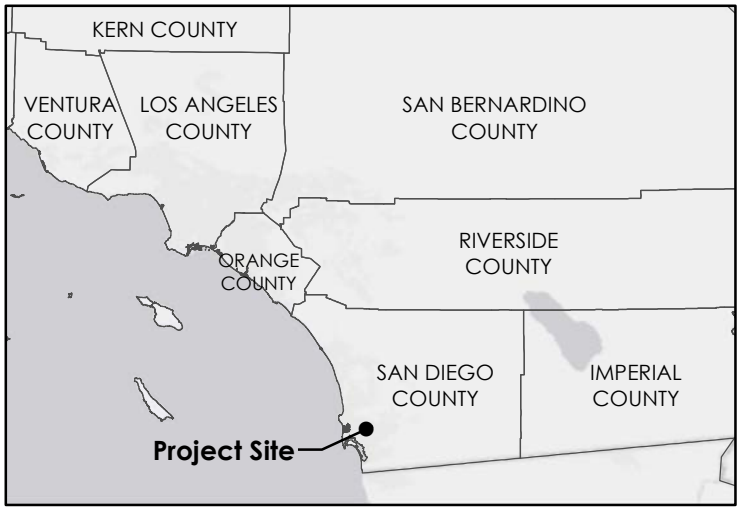
The Project parcel south of Alvarado Creek includes previously graded areas with relic outbuildings that have been idle and are in disrepair. Existing land uses appear to include illegal dumping, fill material storage, and homeless encampments. Areas surrounding the Project to the south include commercial space, business centers, and transit hubs, including the Grantville Trolley Station.

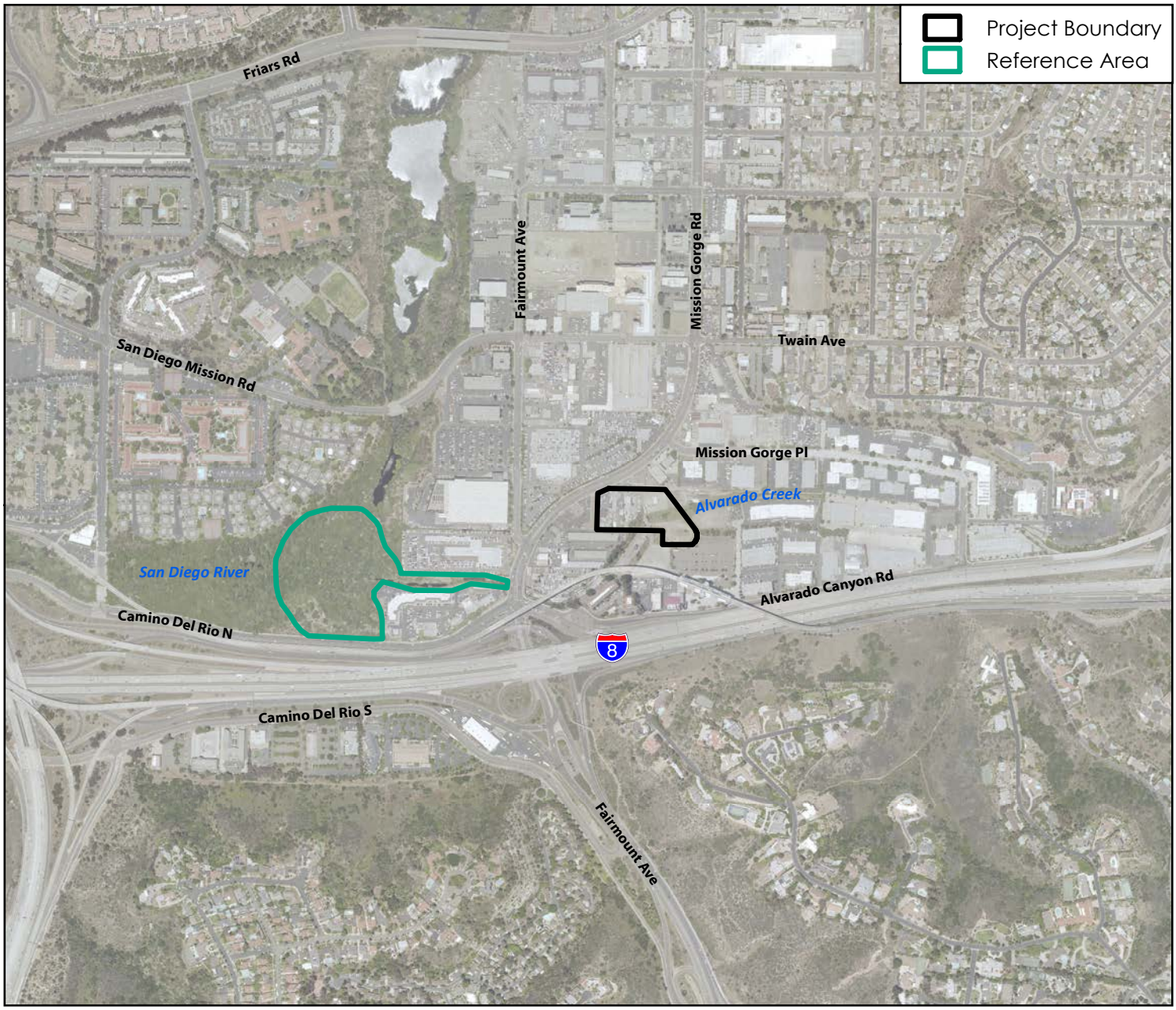
Due to the heavily developed nature of the surrounding areas, the Project is isolated from surrounding MHPA Reserve areas, which include portions of the San Diego River approximately 0.35 miles to the west and northwest, and canyons along Interstate-8 approximately 0.36 miles to the south. Portions of Alvarado Creek within the Project show signs of vegetation management, including removal of giant reed (*Arundo donax*) and Mexican fan palm (*Washingtonia robusta*).

Existing native vegetation within the Mitigation Site provides guidance on suitable species to be included in revegetation efforts. Though, currently the Mitigation Site is largely disturbed and dominated by non-native species, the presence of natives such as California sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii*), Gooding's black willow (*Salix gooddingii*), sandbar willow (*Salix exigua*) and coast live oak (*Quercus agrifolia*) among others, provides evidence that these species would proliferate if used during revegetation efforts. In addition, higher quality riparian habitats exist within downstream portions of the creek, which host a higher density of the aforementioned species varying from 60 to over 100 percent absolute cover. Multiple strata are also characteristic of these native communities and include a diversity of low-growing annuals and herbs, shrubs and larger trees. An evaluation of native species composition in nearby riparian habitats (San Diego River in the vicinity of Fairmont Ave. and North Camino Del Rio), in addition to an evaluation of native species naturally occurring within the Mitigation Site was utilized to inform all elements of the revegetation design, distribution and diversity. The Mitigation Site success criteria, specifically absolute cover and relative cover of wetland native species were developed from observations of mature native riparian habitat along the San Diego River. These areas were referenced for site design and species to be included in the plant palette; success criteria provided herein reflect anticipated canopy development and natural recruitment during the 5-year monitoring period.

Based on findings of the *Alvarado Creek Affordable Housing Project Biological Survey Report,* suitable portions of the undeveloped Project are targeted for restoration activities (Blackhawk 2021). The Mitigation Site will include 0.183 acre of habitat creation, 0.217 acre of habitat restoration and 0.199 acre[1] of habitat available for enhancement that will result in a net gain of 0.316 acre of wetland habitat and will enhance existing riparian habitat that is severely degraded due to a high abundance of noxious weed species.

[1]Within 0.283 acre of proposed areas, it was determined that 0.199 acre is available for mitigation through enhancement





Source: SANDAG & SanGIS 2017; Esri

Figure 1

Project Vicinity, Location, and Reference Area

Alvarado Creek Affordable Housing Project

BLACKHAWK Environmental

N

0 1,000 Feet

2.2 Environmental Setting and Mitigation Site Characteristics

A total of six vegetation communities/land use cover types were described and mapped within the Project. With the exception of the Urban/Developed Area and Disturbed Land, the remaining four vegetation communities are considered ESL and are subject to restoration, creation and/or enhancement. Vegetation communities were described according to Holland (1986) and Oberbauer (2008). The vegetation communities/land use cover types, associated impact acreages and MSCP Tier levels are shown in Table 1:

Table 1. Summary of Proposed Project Impacts to Vegetation Communities/Land Use Types

Vegetation Community/ Land Use Type	Impact	
	Temporary (Acres)	Permanent (Acres)
Disturbed Land (Tier IV)	*0.233*	*0.036*
Urban/Developed Area (Tier IV)	*0.030*	*2.270*
Subtotals: Tier IV Communities	**0.263**	**2.306**
Arundo-dominated Wetland	*0.060*	*0.047*
Disturbed Wetland/Un-vegetated Channel	*0.002*	*0.008*
Non-native Riparian	*0.137*	*0.015*
Southern Riparian Woodland	*0.014*	*0.000*
Subtotals: Environmentally Sensitive Lands (Wetlands)	**0.213**	**0.070**
TOTAL	**0.476**	**2.376**

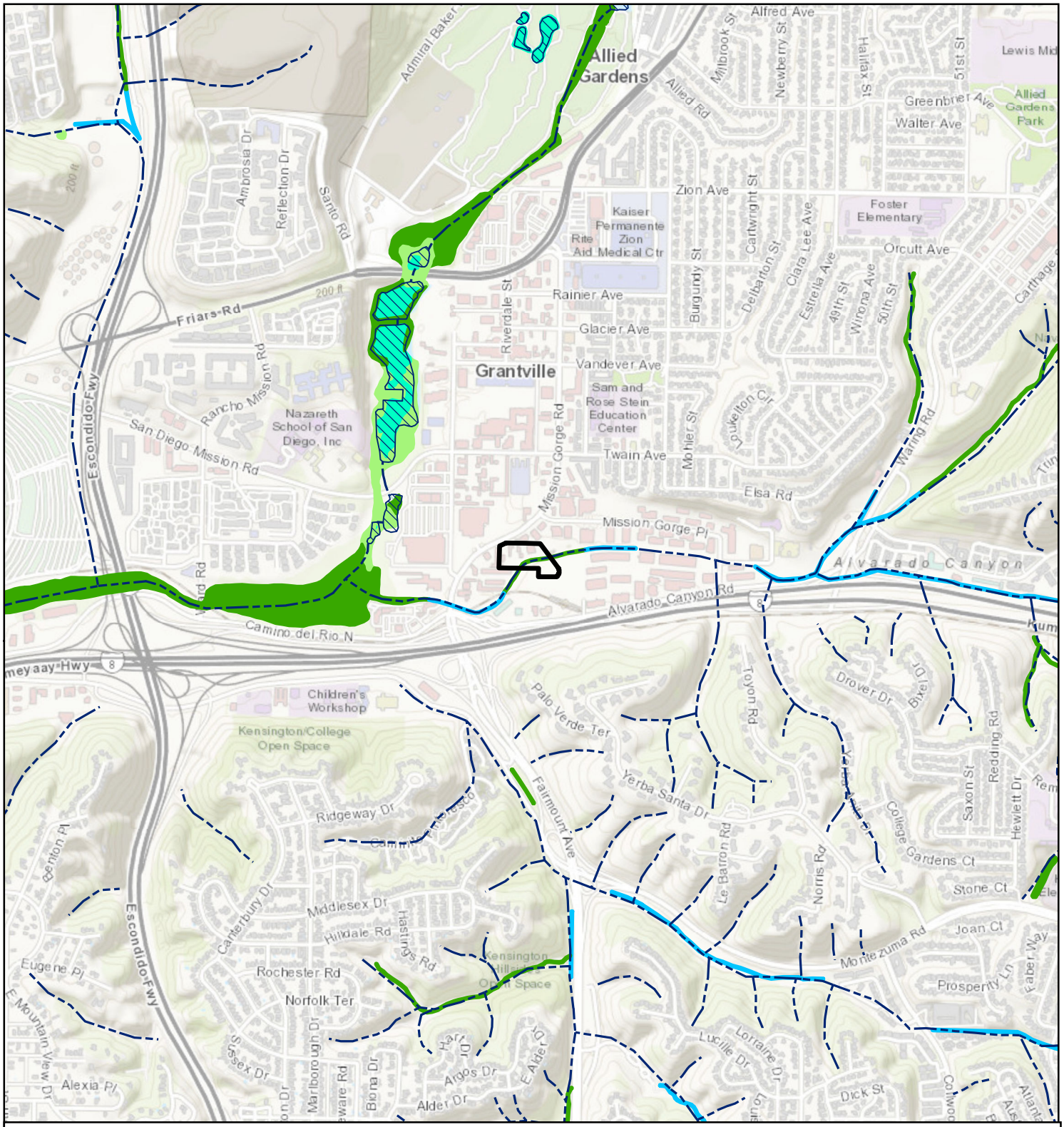
Project-related impacts to ESL types outside the MHPA area of the Reserve would require compensatory mitigation at ratios based on the acreage of the impacts as established in the City Biology Guidelines (2018); impacts to Tier IV habitat types or developed areas would require no mitigation. Each vegetation community/land use cover type is described in detail in the Alvarado Creek Affordable Housing Project Biological Survey Report (Blackhawk, 2021).

The Project consists of mostly flat developed/disturbed areas on the north and south side of Alvarado Creek. Steep banks on the north side of the creek directly abut developed parking lots; the south edge of the creek is bordered by more moderate slopes that gradually transition into disturbed upland habitat, dominated by non-native plant species.

Elevations within the Project generally drain towards the center of the Project area, where the Project is bisected by Alvarado Creek. Alvarado Creek flows on to the Project near the center of the eastern parcel boundary, flowing in a generally west-southwest direction through the south-central portion of the Mitigation Site, and leaving the site along the southern boundary.

Surface water and storm water flow within the various parcels is highly modified, but generally becomes concentrated before discharging directly into Alvarado Creek. Surface water entering Alvarado Creek from parcel 416-320-06-00 generally flows south to the parcel boundary, where surface water is redirected by a cinder block wall and diverted into a low-capacity non-vegetated

concrete swale, flowing east and discharging directly into the Alvarado Creek. Similarly, surface water from parcel 461-320-09-00, a paved lot, generally flows south to the parcel boundary located immediately adjacent to Alvarado Creek. At the southern boundary of parcel 461-320-09-00 water is restricted from entering Alvarado Creek by a man-made concrete wall, which redirects water along the property boundary to the west, before intercepting an existing road and Arizona crossing at the interface between parcels 416-320-06-00 and 416-320-09-00. The existing road carries surface water from both adjacent parcels directly to Alvarado Creek. Surface water from parcel 416-320-08-00 generally follows topographic contours flowing from the southeast of the parcel to northwest of the parcel, concentrating along graded unpaved roads and discharging into Alvarado Creek at an established Arizona crossing. Additional surface water from parcel 416-320-08-00 is directed along the western boundary within a vegetated unlined swale (Figure 2).



Source: USFWS NWI, USGS NHD, Esri

Figure 2

Hydrology

BLACKHAWK Environmental

N

0 1,500 Feet

Alvarado Creek Affordable Housing Project

A total of three distinct soil series mapped by USDA (1973) occur in the Project: Tujunga sand, 0 to 5 percent slopes, Riverwash, and Huerhuero-Urban land complex, 2 to 9 percent slopes (Figure 3). Both the Tujunga sand and Riverwash soil series are described as hydric according to USDA. Total acreages of each soil series within the Project are represented in Table 2 below.

Table 2. Soils Occurring Within the Project

Soil Series	Acre(s)	Percent of Project
Tujunga sand, 0 to 5 percent slopes (TuJ)	1.90	49
Riverwash (Rm)	1.76	46
Huerhuero-Urban land complex, 2 to 9 percent slopes (HuC)	0.20	5
Total	**3.86**	**100**

The Project proposes 307, 100-percent affordable, residential rental apartment units in one 5-story type III-A building, over one level of type I-A above ground podium structure. Primary access is provided via a driveway off Mission Gorge Road to drop-off, turnaround and garage parking areas. The structure will incorporate an underground stormwater vault with incorporated onsite treatment. The stormwater vault will be designed to capture onsite runoff and treat water prior to discharging runoff into Alvarado creek via an outfall located south of the development at the southern Project boundary. One additional stormwater outfall has been designed to convey stormwater and urban runoff from Friars Road along the east and south perimeter of the development, discharging into Alvarado Creek. Stormwater outfalls will be installed with concrete headwalls. The outfall associated with the re-routing of the stormwater system from Friars Road has been designed to include permanent erosion control at the outfall location.

The Project is located within Reach 2 of the Grantville Trolley Station/Alvarado Creek Revitalization Study, which requires the relocation and construction of the Alvarado Creek channel, creek trails and habitat restoration/creation. Implementation of the onsite portion of the Alvarado Creek improvements outlined in the revitalization study will require additional engineering and environmental design, and coordination with upstream and downstream property owners, and will be implemented following construction of the proposed Project. The proposed channel slope erosion protection discussed above is an interim measure until the ultimate Alvarado Creek channel improvements and habitat restoration are completed in the future.

2.3 Regulatory Requirements

The *Alvarado Creek Affordable Housing Project Jurisdictional Delineation Report* and *Alvarado Creek Affordable Housing Project Biological Survey Report* (Blackhawk 2021) summarizes all applicable regulatory requirements as a result of development of the Project. In summary of findings from the aforementioned biological and jurisdictional reports, the Project includes impacts to City wetlands and riparian areas that are considered sensitive. Riparian habitat within the Project would be impacted during construction; however, no upland vegetation communities designated as Environmentally Sensitive Lands under the MSCP (i.e., Tier I, Tier II, and Tier IIIA) would be subject to Project-related disturbance.

As estimated, 0.283 acre of total impacts (i.e., 0.213 acre of temporary impacts and 0.070 acres of permanent impacts) would occur to wetland/riparian ESL habitats and be considered a significant impact under the City's LDC Biology Guidelines (City of San Diego 2018) (Figure 4). Proposed restoration, creation and enhancement procedures described herein will constitute compensation in the form of restoration/revegetation for all Project-related potential habitat loss.

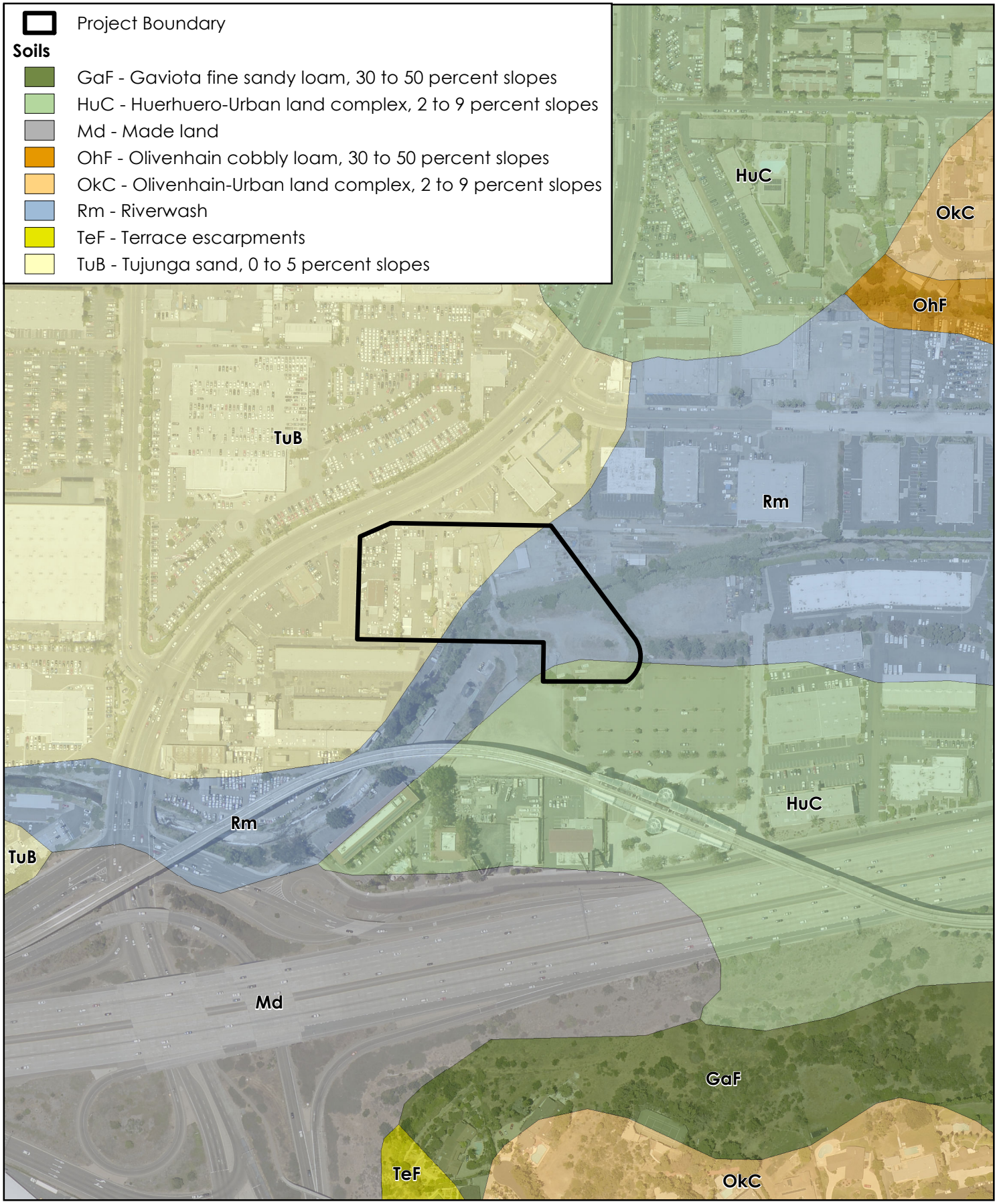
Per the City Biology Guidelines (2018) and the ESL Regulations, wetland buffers do not have minimum set-back distances outside of the Coastal Overlay Zone, City Biology Guidelines state that wetland buffers shall be maintained as appropriate to protect the functions and values of the wetland. The proposed Project will incorporate native upland landscaping between the development and new community trail and proposed wetland areas (Figure 6). Landscaping would incorporate components of both chaparral, and riparian fringe communities to form a more natural upland transitional zone above the wetland areas. To maximize the effectiveness of the wetland buffer, shrubs, small trees and large tree species will be planted. Suggested species include black elderberry (*Sambucus nigra*), Western sycamore, Fremont cottonwood (*Populus fremontii*), toyon (*Heteromeles arbutifolia*), lemonadeberry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), coyote brush (*Baccharis pilularis*). These species provide a multi-tiered canopy and thick understory that will maximize the benefit of the wetland buffer per the requirements of the City Biology Guidelines (2018) and the ESL Regulations. These areas will be permanently or temporarily irrigated until vegetation is developed and self-sufficient. The maintained upland buffer may be subject to minimal trimming or hedging and weed eradication, while the unmaintained upland buffer will be allowed to fully mature and only subject to weed eradication activities. These landscaped buffer areas will be managed as part of on-site landscaping and are not subject to conditions outlined in herein and are not discussed further.

A summary of acreage of proposed restoration types is provided in Table 3 below. Determination of required mitigation acreages and proposed mitigation is detailed in the *Alvarado Creek Affordable Housing Project Biological Survey Report* (Blackhawk 2021).

Table 3. Proposed Mitigation Site

Total Wetland Mitigation Required	Proposed Mitigation			
	Restoration	Creation	Enhancement	Total
0.580[1]	**0.217**[2]	**0.183**[3]	**0.199**[4]	**0.599**[5]

[1] A minimum of 1:1 ratio (0.283 acre) of the total mitigation is required to be achieved through restoration or enhancement for no-net loss.
[2] Includes restoration of temporary impacts to City wetlands on site.
[3] Includes conversion of upland Tier IV communities to wetland/riparian habitat as part of channel widening restoration.
[4] Refer to discussion of wetland enhancement.
[5] Exceeds total wetland mitigation required under City Guidelines



Source: USDA NRCS; SANDAG and SanGIS 2017

Figure 3

Soils

BLACKHAWK Environmental

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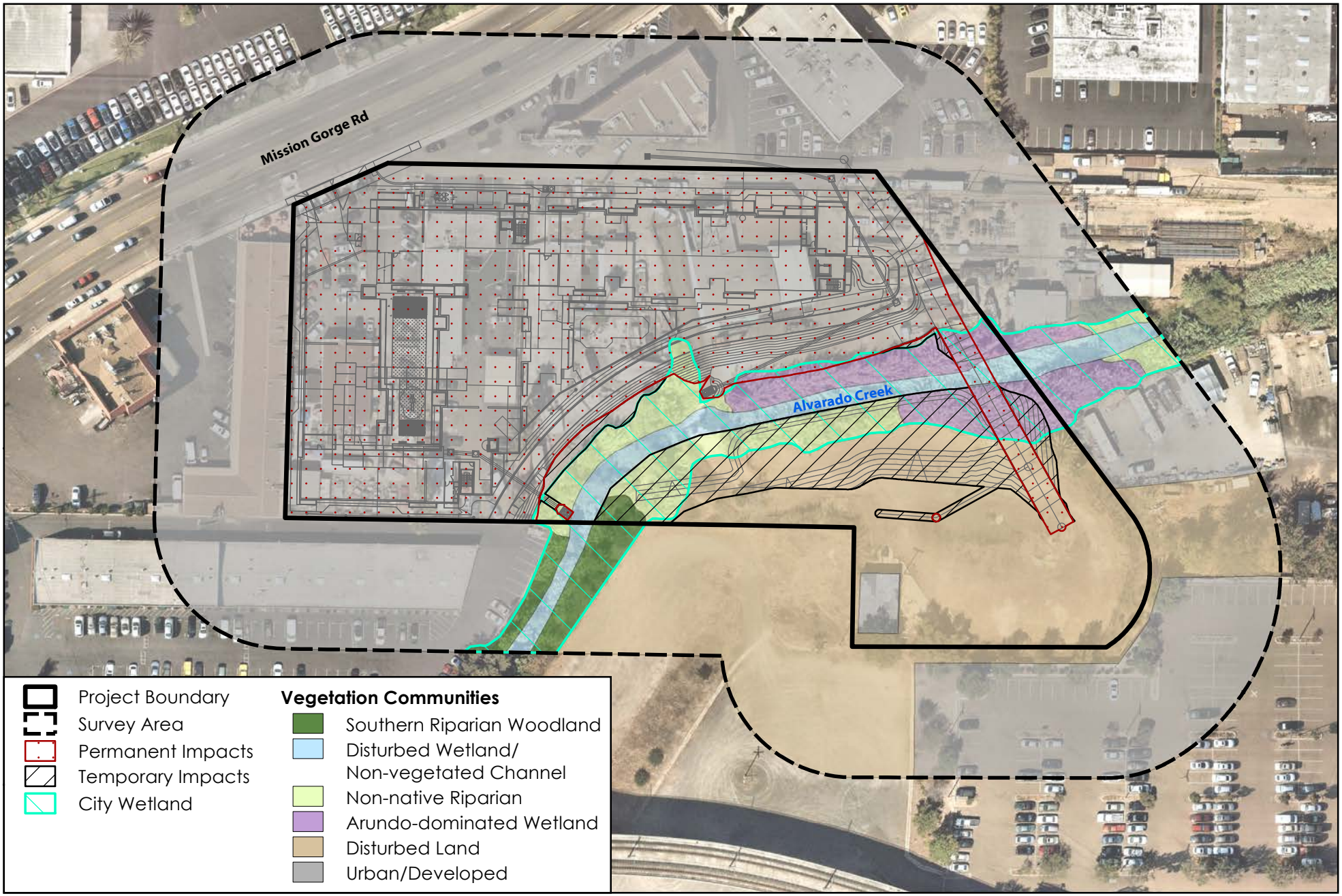
0 300 Feet

Alvarado Creek Affordable Housing Project



Source: Nearmap 2019

Figure 4

Vegetation Communities

BLACKHAWK Environmental

N

0 100 Feet

Alvarado Creek Affordable Housing Project

3.0 MITIGATION ROLES AND RESPONSIBILITIES

3.1 Financially Responsible Party

The financially responsible party for the successful restoration of the Site will be the Project Applicant, The Pacific Companies, Inc. (Pacific Companies). Upon approval, this Mitigation Plan will constitute a commitment to the City of San Diego that the Applicant will complete all proposed actions contained herein.

3.2 Project Restoration Team

The Project Restoration Team will consist of the following entities: Project Applicant, Restoration Installation Contractor, Restoration Maintenance Contractor, Project Restoration Specialist and Nursery. This section summarizes the responsibilities of each member of the Restoration Team.

3.2.1 Project Applicant

Pacific Companies will retain a qualified Habitat Restoration Specialist to oversee installation and monitoring portions of the restoration Program. The Project Habitat Restoration Specialist will have at least five years of experience monitoring wetland mitigation and restoration programs. Pacific Companies will also retain qualified restoration contractors to perform initial installation and maintenance activities consistent with the Plan. The restoration contractors will have documented experience related to the installation and maintenance of native plant installation and establishment.

3.2.2 Project Restoration Specialist

Pacific Companies will retain a Project Restoration Specialist who will be responsible for the overarching responsibility of overseeing the successful preparation, installation and maintenance of the restoration in coordination with designated representatives of Pacific Companies. The Restoration Specialist will further oversee the proper installation and management of appropriate erosion control as necessary for compliance with regulatory permits and/or Plan specifications. The Restoration Specialist will be responsible for inspection of container plants, seeds and/or pole cuttings prior to installation, and will not allow for installation of individuals which are in unsatisfactory condition such as disease, infestation, dead, stunted or other reasons. As necessary, the Restoration Specialist will redirect restoration and maintenance crews in order to meet the goals set out by this Plan.

The Restoration Specialist may be an individual or group of individuals who meet the following minimum requirements:

1) A Bachelor's degree in biology, ecology, botany, horticulture or landscape architecture
2) A minimum of five years of experience with restoration projects in southern California, preferably in wetland habitats
3) Knowledge of the vegetation communities proposed as part of the Plan effort, including species composition, understory and overstory components, and soil conditions
4) Well-versed in plant species identification necessary to complete monitoring assessments

5) Experience with plant installation and maintenance activities not limited to fertilization, pruning, weeding, irrigation and pest maintenance.

3.2.3 Restoration Installation Contractor

Pacific Communities will retain a qualified installation contractor who will be responsible for the initial planting and establishment of the restoration effort. The restoration installation contractor will hold a valid C-27 Landscape Contracting License from the State of California, Maintenance Gardener Pest Control Business License or Pest Control Business License, and a Qualified Applicator Certificate or Qualified Applicator License, with Category B. The restoration contractors will have documented experience related to the installation and maintenance of native plant installation and establishment. Work performed by the Installation Contractor will be overseen by a full-time supervisor who will be onsite while installation is in progress. All work will be completed by a competent work crew trained in standard practices related to native habitat restoration and establishment. The crew supervisor will work closely with the Restoration Specialist to meet the goals of the Plan. The installation contractor's term of work will conclude following the initial 120-day establishment period outlined in the Plan.

3.2.4 Restoration Maintenance Contractor

Pacific Communities will retain a qualified maintenance contractor. This contractor may be the same as the installation contractor. The maintenance contractor will hold all required licenses and qualifications as the installation contractor. Following the initial 120-day establishment period, the maintenance contractor will perform routine maintenance of the restoration efforts until restoration is determined complete by the Restoration Specialist and City representative. The maintenance contractor will perform all required components of restoration related to maintaining materials installed during the establishment period such as irrigation, weed management, erosion control, pest eradication, trash removal, exclusion fencing and/or plant replacement. The maintenance contractor will be responsible for addressing any areas of concern identified by the Restoration Specialist in progress reports. The level of work required by the maintenance contractor will be such that the success criteria of the Project remain on schedule within the prescribed five-year monitoring period. If progress reports indicate that success criteria are not on schedule or unlikely to be met within the five-year monitoring period, the maintenance contractor will implement measures such as additional seeding, plantings or cutting installations. Remedial actions will be coordinated with the Restoration Specialist and City as necessary.

4.0 MITIGATION SITE PREPARATION

Following final grading and grubbing associated with the Project development, the temporarily unvegetated Mitigation Site will be prepared for restoration activities. Various pre-restoration activities will be conducted in order to ensure successful restoration of targeted areas identified within this Plan and are presented in detail below.

4.1 Mitigation Site and Resource Protection

Prior to restoration activities, the Mitigation Site will be adequately delineated with stakes or fencing to ensure that impacts to all sensitive habitats, outside of the limits of habitat restoration work limits, will be avoided. Delineation will be installed using survey-grade equipment (sub-meter) to ensure accurate delineation. Following initial restoration activities, the Mitigation Site will be protected by a permanent split-rail fence and posted with signage to prevent human use on the northern perimeter between the trail and wetland buffer and a 6-foot chain link fence that will be installed along the southern boundary of the site.

4.2 Erosion Control

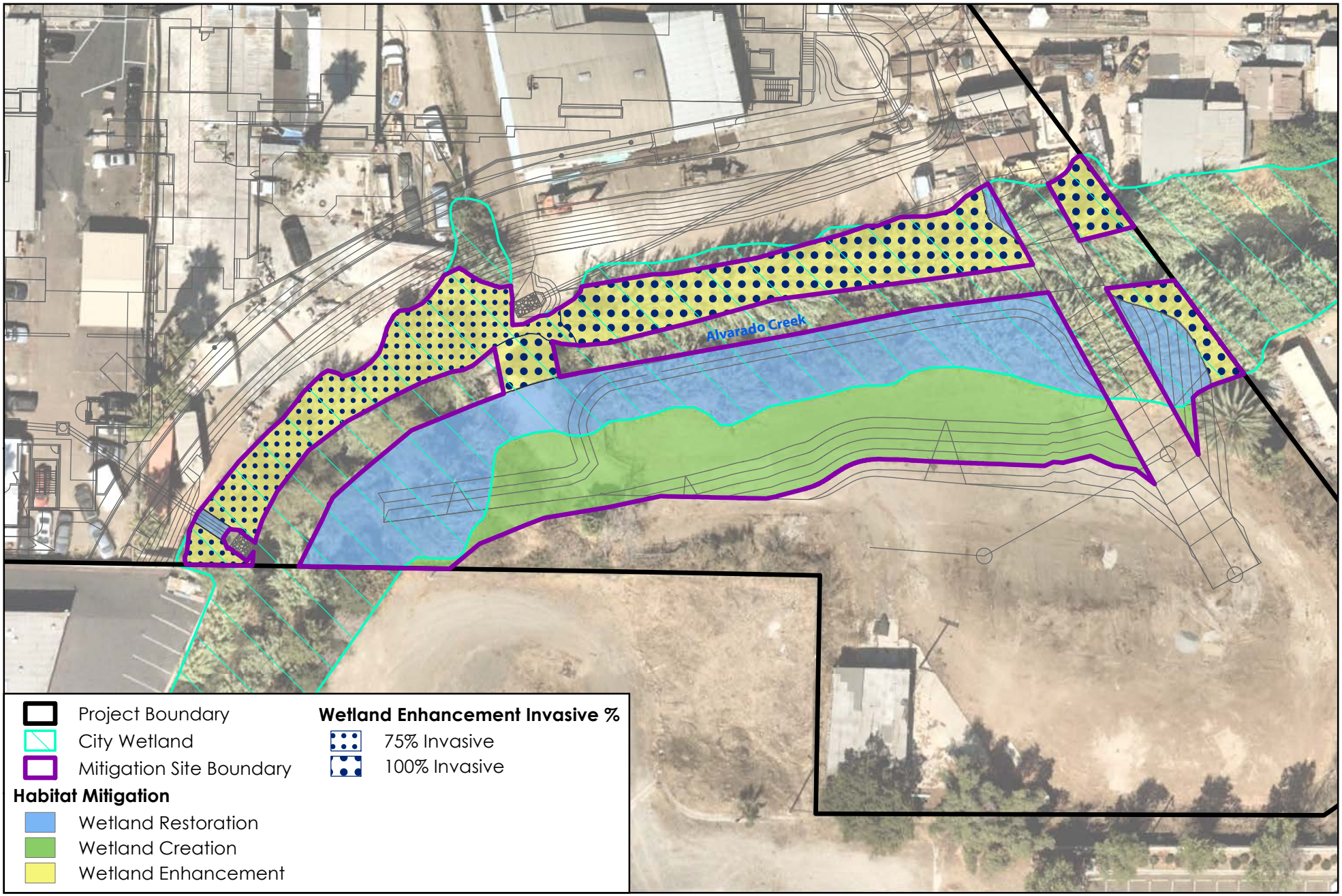
Eliminating erosion and downstream sedimentation is an important component of site preparation and maintenance throughout the life of the Project. Alvarado Creek is located within the Mitigation Site and therefore best management practices (BMPs) will be necessary to ensure sediment is not discharged into the onsite portions of the creek and carried off of the Mitigation Site. Silt fencing, fiber roll, coco-fiber matting, jute netting or other acceptable sediment and erosion control methods will be utilized until the Mitigation Site is sufficiently vegetated to no longer warrant use of BMPs. The Mitigation Site has been sufficiently stabilized for erosion control purposes once it has reached 70 percent of pre-construction vegetation cover levels.

BMPs shall be installed immediately following initial Mitigation Site preparation. Erosion control measures are expected to be minimal and only anticipated for early stages of the Project when recently disturbed soils are exposed. An adaptive approach should be implemented when determining the most effective location and types of BMPs to employ, with a particular focus on slopes, pre-existing drainage features, and loose, unvegetated soils where run-on or run-off is anticipated based on site topography. A discussed in section 4.0, existing native riparian tree species will be preserved to the maximum extent feasible and will provide additional bank stabilization.

4.3 Weed Eradication

As a result of grading operations associated with Mitigation Site preparation, non-native weeds are expected to be at low levels immediately prior to restoration activities; however, there is a moderate to high potential for new weeds to sprout within newly disturbed soil. After all existing non-native shrubs and annual plants are removed from the Mitigation Site during Project development, any newly established weeds shall be removed through herbicide application, hand removal, or cut stump treatment using an approved herbicide.

Giant reed, documented primarily within the enhancement areas, is a prolific noxious weed that can be difficult to treat (Figures 4 and 5). Giant reed can spread through rhizomatous growth and therefore, treatment that targets subsurface portions of the plants is necessary to effectively control this species. Cut-stump treatment of giant reed is the most effective methodology for removing this species, when physical removal is not possible. Giant reed shall be cut to the base of the plant, immediately treated with an herbicide concentrate at the cut location, and the remaining plant roots will be left in place until killed. It is critical that cut stump treatment is performed in a manner in which herbicide is applied to each cut stump within 120 seconds of cutting to ensure the maximum absorption of herbicide. Failure to do so will result in continued resprouting of this species and potential development of resistance to certain herbicide formulations. Treated giant reed should be inspected in the months following initial treatment, particularly during the growth season to assess if additional treatments are necessary.



Source: Nearmap 2019

Figure 5

Proposed Habitat Mitigation

Alvarado Creek Affordable Housing Project

BLACKHAWK Environmental

N

0 50 Feet

4.4 Topsoil/Plant Salvage

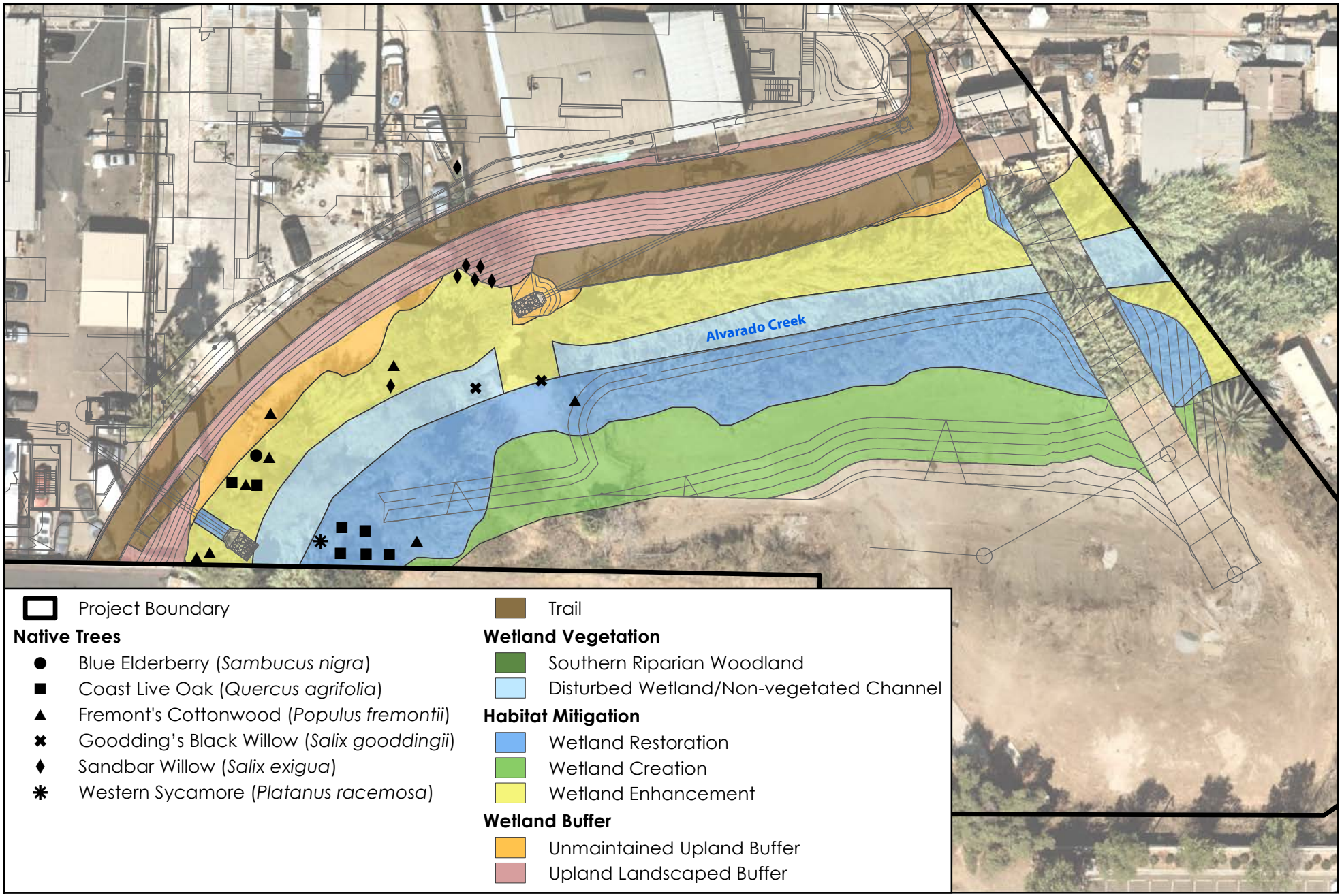
Existing topsoil has a high potential to contain seeds from invasive weed species and therefore should be removed or mixed deep within fill soils. Topsoil salvage is not recommended for this Project to minimize potential for invasive species growth. Instead, clean (i.e., weed-free) topsoil should be imported to the Mitigation Site. Once Project grading activities are complete within the proposed mitigation areas, weed-free topsoil shall be installed. It is important that topsoil is installed shortly after grading activities have been completed to reduce growth of non-native species.

Currently, the Mitigation Site supports numerous mature beneficial native riparian tree species, including California sycamore, Fremont cottonwood, Gooding's black willow, sandbar willow and coast live oak. These tree locations are shown on Figure 6. The developer/maintenance contractor should preserve all trees located outside of permanent impact areas to the greatest extent feasible. Preservation of native riparian tree species will assist the restoration effort in multiple ways: expedite vegetative cover goals (particularly multi-tiered canopy structure), provide natural erosion control, especially along steep embankments subject to flood-scouring, provide a native seed source for natural recruitment of the aforementioned species, and contribute to soil quality through deposition of leaf litter and other organic materials that promote plant growth.

4.5 Clearing, Grubbing, Grading, Recontouring and Decompacting

The Mitigation Site will be cleared and grubbed as a component of Project development before onsite mitigation activities occur. Soil condition is a crucially important component of a successful restoration effort; in particular, soil nutrient levels and soil compaction that have direct effects on soil permeability and plant vigor. Topsoil from this particular Mitigation Site has a high potential to contain seeds from invasive weed species and therefore, within graded areas, topsoil should be removed or mixed deep within fill soils. Clean topsoil should be imported to the Mitigation Site. Imported topsoil should not be heavily compacted to ensure proper soil drainage and aeration. Topsoil is expected to contain sufficient amounts of nutrients required for native plant growth, therefore added fertilizers are not necessary and will only be applied during plant installation if determined to be beneficial by the Restoration Specialist. The Project Restoration Specialist should evaluate compaction and topsoil of the Mitigation Site during the final stages of grading to provide recommendations and ensure the site has met adequate site preparation prior to restoration activities commencing. The contractor shall ensure that all soils within mitigation areas are adequately de-compacted.

To eliminate the potential to transport invasive weed species to or from the Mitigation Site, all equipment should be adequately cleaned (free of mud, debris, brush, or seeds) prior to being mobilized to the Project and again prior to use at other Project sites.



Source: Nearmap 2019

Figure 6

Native Trees

Blackhawk Environmental

N

0 50 Feet

Alvarado Creek Affordable Housing Project

5.0 IRRIGATION

Irrigation techniques may involve hand-watering, overhead sprayers, soaker hoses, or drip irrigation techniques. Automated or manually operated methods are acceptable, provided that watering regimes provide enough water directly to the installed plants to maximize the chances of success. The Project design will incorporate temporary, above-ground water lines that will deliver water from the north side of the creek to the restoration site. The maintenance contractor will be responsible for maintenance of this system and ensure that water is adequately delivered to all plants.

Each zone shall be watered sufficiently, on a regular basis, to promote establishment of planted species. At the outset, and if no natural rainfall occurs, a general recommended watering frequency is twice per week. A shrub is sufficiently watered when applied surface water at each shrub "ponds" for several seconds before sinking down, indicating that the soils are saturated and draining. This frequency may be increased or decreased as necessary, based on direction given by the Restoration Specialist, and is expected to vary by season and drought conditions. For example, if sufficient natural rainfall occurs and sufficient residual soil moisture is retained, watering may not be necessary during the rainy seasons; conversely, more frequent watering cycles or longer durations may be needed during the hottest, driest times of the year.

Watering events should occur during the early morning hours to maximize watering depths while minimizing evapotranspiration loss. Watering in the late evening or at nighttime is not recommended as it can promote the growth of harmful fungi. It will be the responsibility of the maintenance contractor to maintain watering regimes. An automatic system may be installed to facilitate this process, though manual watering is acceptable, provided it occurs regularly under direction of the Restoration Specialist.

Deep pipe irrigation should be utilized for higher elevation portions of the site where wetland species are being planted. Deep pipe irrigation involves the installation of a perforated pipe (typically PVC or similar material) that is installed 2-3 feet below grade level when plants are first installed. This method encourages deep root growth and can drastically improve the long-term success of the Project once supplemental irrigation has been shut off.

The maintenance monitoring visits discussed in the following section will include any recommendations to adjust watering regimes over the next monitoring period and will consider both current weather conditions and forecasted weather projections.

6.0 PLANT INSTALLATION SPECIFICATIONS

A variety of container plants, cuttings and seeding will be installed as part of this Plan. Specific plant palettes and seed mixes for the restoration, creation and enhancement areas are provided below in Tables 3 and 4. The proposed species mixes have been determined based on known conditions at the Mitigation Site and native species dominating the Project and vicinity prior to development. Habitat creation areas are intended to develop into a riparian transitional community, and restoration and enhancement areas are intended to develop into Southern Riparian Scrub during the Monitoring and Maintenance period. Both habitat types are intended to be dominated by riparian species and qualify as City Wetlands. It is anticipated that these habitat types will continue to mature during long-term management and ultimately develop into mixture of riparian scrub and riparian forest habitats over time.

Though, many of the species occurring within the Mitigation Site were non-native (i.e., giant reed), evaluation of the ecological requirements of non-native species is informative for determining which native species would be most suitable. Other factors that were taken into consideration when determining the most appropriate species included soil moisture and adjacent native habitat types.

All plants shall be from local sources or collected from nearby regions of San Diego County within 50 miles of the Project. Using local plant sources ensures minimal genetic variation from the native plants that naturally occur within Alvarado Creek. All container plants and seeds shall be acquired from a reputable supplier. Seed will be labeled with species, purity and quantity of seed in pounds.

Table 4. Proposed Initial Native Plant Species Palette and Number of Individuals by Species

CREATION (0.183 acre) – RIPARIAN SCRUB TRANSITION		
Common Name	**Scientific Name**	**Number of Individuals[1]**
Arroyo willow	*Salix lasiolepis*	15 PC
Coast goldenbush[1]	*Isocoma menziesii*	15 CP
Coast live oak[1]	*Quercus agrifolia*	8 CP
Coyote brush[1]	*Baccharis pilularis*	12 CP
Goodding's black willow	*Salix gooddingii*	35 PC
Mulefat	*Baccharis salicifolia*	50 PC
Sandbar willow	*Salix exigua*	20 PC
TOTAL		**155**
RESTORATION (0.217 acre) – SOUTHERN RIPARIAN SCRUB		
Arroyo willow	*Salix lasiolepis*	40 PC
Fremont cottonwood	*Populus fremontii*	20 CP
Goodding's black willow	*Salix gooddingii*	35 PC
Mulefat	*Baccharis salicifolia*	55 PC
Sandbar willow	*Salix exigua*	32 PC
TOTAL		**182**
ENHANCEMENT (0.199 acre) – SOUTHERN RIPARIAN SCRUB		
Arroyo willow	*Salix lasiolepis*	35 PC
Fremont cottonwood	*Populus fremontii*	20 CP
Goodding's black willow	*Salix gooddingii*	25 PC
Mulefat	*Baccharis salicifolia*	32 PC
Sandbar willow	*Salix exigua*	25 PC
TOTAL		**137**

Adjustments to plant number and location may be altered in the field under the direction of Restoration Specialist. Container plants can be substituted for any pole cuttings.
[1] Species to be planted within upper elevation of the site (transitional area)
CP = container plants
PC = pole cuttings

6.1 Container Plants

The Restoration Specialist will evaluate the health of all container plants prior to planting. Any plants that are determined to be dead, diseased, stunted, rootbound, pest-infested, or inadequate for

other reasons will be rejected. Specific container plant placement will be under the direction of the Restoration Specialist and determined in the field. More detailed planting recommendations for container plants are provided below in Section 6.4. Deep pipe irrigation devices should be installed for riparian species that are planted along the southern cut slope of the Mitigation Site (southern edge of the Wetland Creation area).

6.2 Cuttings

Willow and mulefat cuttings can be particularly successful and cost-effective in restoration, enhancement and habitat creation when adequate water is available and can provide rapid native growth. Alvarado Creek has been identified as a suitable location for this methodology to be employed based on a variety of factors including, but not limited to seasonal water source, elevation and surrounding species composition. Cuttings consist of the cut portion of willow or mulefat species that have been taken from an existing mature specimen. Cuttings can be taken from existing, healthy individuals without causing harm to the mother plant, provided care is taken to avoid over-pruning while harvesting cuttings. This methodology offers the added economic benefit of being sourced for free from existing plants. Source material should be from trees found onsite or adjacent to the Mitigation Site whenever possible, and this should be considered when preparing the construction specification documents. Cuttings should be installed in locations that contain appropriate soil moisture and/or where the water table is close to the ground surface. Since portions of the Mitigation Site contain slopes, it is recommended that larger poles (7–10 feet tall) are used in upper transitional areas of the site and are deeply planted (4 - 6 feet) within the ground to promote deep root growth reaching moist soils by the end of the 5-year maintenance period. Pole cuttings should be installed during the fall and early winter months. If cuttings are installed in the fall, planting should occur after the first significant rain event. Areas which require deeper planting will be determined by the Restoration Specialist. Container plants can be substituted for pole cuttings at the discretion of the Restoration Specialist.

6.3 Seeding

The Mitigation Site will be seeded with native seeds in order to provide vegetative cover in addition to container plants and pole cuttings. Prior to seeding, the Restoration Specialist will verify that the appropriate seed quantities and species has been delivered. Seeding will be conducted through hand-application or with a seed grinder-type applicator. At the discretion of the Restoration Specialist, the top one to two inches of soil may need to be hand raked to properly mix and stabilize seed. Volunteer recruitment of native species is anticipated within the Mitigation Site. Seed transported from the upstream portions of the watershed should result in germination of volunteer plants over time, particularly due to increased water availability as a result of the grading plan and irrigation of the Mitigation Site.

Table 5. Proposed Seed Palette

CREATION (0.183 acre) – RIPARIAN SCRUB TRANSITION		
Common Name	**Scientific Name**	**Total Pounds**
California rose	*Rosa californica*	0.75
Coast goldenbush	*Isocoma menziesii*	2.2
Coyote bush	*Baccharis pilularis*	2.5
Douglas mugwort	*Artemisia douglasiana*	1.5
Giant wild rye	*Elymus condensatus*	1.0
San Diego sagewort	*Artemisia palmeria*	0.25
San Diego sedge	*Carex spissa*	0.5
Western ragweed	*Ambrosia psilostachya*	0.5
TOTAL		**9.2**
RESTORATION & ENHANCEMENT (0.416 acre) – SOUTHERN RIPARIAN SCRUB		
Beardless wild rye	*Elymus triticoides*	2.0
California rose	*Rosa californica*	1.5
Douglas mugwort	*Artemisia douglasiana*	2.5
Mexican rush	*Juncus mexicana*	1.0
San Diego marsh elder	*Iva hayesiana*	2.0
San Diego sagewort	*Artemisia palmeria*	0.5
San Diego sedge	*Carex spissa*	1.0
Southern cattail	*Typha domingensis*	4.0
Tall flatsedge	*Cyperus eragrostris*	3.0
TOTAL		**17.5**

6.4 Planting Design, Methodology and Timing

The success of the restoration effort hinges on conducting planting and seeding following specific protocols and during appropriate times of the year. This section outlines specific planting methodologies, recommended locations, irrigation and seasonal limitations for successful restoration. Prior to seeding, container planting and installation of cuttings, the Restoration Specialist will verify that the Mitigation Site is properly free from weeds, litter, debris, sufficiently decompacted, and with the soil surface scarified. Additionally, all erosion control measures should be in place, with the exception of hydromulch, if this is a chosen BMP.

6.4.1 Planting Design

Container plants and cuttings should be installed in a generally uniform fashion to provide the highest native vegetation cover throughout the Mitigation Site. Specific planting locations for each species will be implemented in the field as directed by the Restoration Specialist. Site-specific characteristics will be taken into consideration when determining planting locations, including but not limited to soil type, soil moisture, existing vegetation on site and sun exposure. At the discretion of the Restoration Specialist, planting locations and quantities can be modified or adjusted as needed based on specific site conditions. Container plants and cuttings will be installed in a generally uniform manner with equal spacing between plants. The species recommended in plant palettes above are capable of growing in proximity to one another and therefore, overcrowding of plantings is not anticipated.

6.4.2 Planting Methodology and Timing

The selected planting locations should maximize the growth potential of each installed plant, anticipate growth rates and mature states, and also consider its relationship to the adjacent vegetation. Should mortality occur within two years, dead individuals should be replaced at or near the original location, whichever is more appropriate. Year 5 success criteria aims to achieve total absolute cover of native species equal to, or greater than 75 percent, calculated from a weighted average of 65 percent native cover within the Habitat Creation area (Riparian Scrub Transition) and 80 percent native cover in the Habitat Restoration and Enhancement areas (Southern Riparian Scrub). In order to meet success criteria, modifications to plant locations and quantities, supplemental planting and/or other amendments may be prescribed by the Restoration Specialist at any time for areas lacking sufficient native growth.

Based on the historical rainfall regime in the San Diego region where the majority of annual rainfall occurs in the late fall, winter and early spring, installation of native plants should occur between November to March. Remedial plantings should occur between the months of November and March, but can occur at any time, provided supplemental irrigation is provided. Plants can be installed outside of the aforementioned time period, provided that adequate irrigation is provided.

6.4.2.1 Container Plants

There are several steps involved in the installation of native plant container shrubs, and container plant installation will follow the specifications outlined below to the greatest extent feasible:

- **Step 1)** A hole is to be dug at each selected planting location about twice as wide and twice as deep as the parent container. If the excavated holes result in sides and/or bottoms with sheer edges, such edges should be roughened to facilitate root growth after planting. Some loose native soil should be left at the bottom of each hole. The excavated spoils shall be temporarily placed at the edge for later backfilling.
    - **Transitional Locations**: In locations identified by the Restoration Specialist to have slightly higher elevation and presumed lower water table, tree and perennial shrub species should be installed with a deep pipe irrigation system. The deep pipe irrigation apparatus should be installed during this step.

- **Step 2)** The bottom of the hole should be thoroughly soaked with water until "ponding" occurs and then allowed to drain or mostly drain before planting.
- **Step 3)** Water the container-bound plant enough to bind any dry or loose soil particles within.
- **Step 4)** Loosen the plant from its container by gently rolling the container along the ground, or gently squeezing the plant upward from the container bottom and edges, until the plant is free. Take care not to loosen much or any soil from the root.
- **Step 5)** Cut, untangle or otherwise separate any root-bound portions visible on the exterior of the removed container shrub and its parent soil such that occasional root extensions are free from the parent soil.
- **Step 6)** Gently place the shrub into its hole, leaving the base of the shrub/top of the rootball slightly above ground level. Backfill as necessary during this process to ensure that the base of the shrub in its final position will be placed approximately 1-2 inches above the grade of the surrounding ground.
- **Step 7)** Backfill with the excavated adjacent native soils around all sides of the planted shrub and its parent soil. During backfilling, a basin should be left around the plant capable of holding surface water around the base of the shrub. Do not over-compact.
- **Step 8)** Using hands or hand tools, lightly compact and fill in any air spaces with native soil.
- **Step 9)** Water the container shrub again following planting.
- **Step 10)** Cover the area around the plant (generally a 2-foot radius) with an acceptable mulch to a depth of about 4-6 inches. This is to retain moisture for the plant while also inhibiting weed and grass growth.
- **Step 11)** Mark the location of each installed container plant with pin flagging or some other visible marker. This will aid in monitoring of plant health throughout the maintenance period.

6.4.2.2 Seeding

Seeding will be conducted after Mitigation Site preparation and following installation of cuttings and container plants. Seeding should also be conducted after all erosion control measures have been installed. The following specification for seeding shall be followed to the greatest extent feasible:

- **Step 1)** The Restoration Specialist or maintenance contractor will verify that quantities, purity, species and source location follow seed specifications outlined in Section 6 above. Seed application rates are provided in Table 5. If the delivered seed differs from the total pounds per acre, rates will be adjusted to achieve the specified application quantities.
- **Step 2)** The specified seed mixes, listed above, will be applied as dry-seed mixes. In areas that are receiving hydromulch or bonded fiber matrix BMPs, seed should be installed prior to application of hydromulch or mixed in with hydromulch during application.

- **Step 3)** Seed will be applied evenly by hand or using a seed spreader throughout all specified locations.

- **Step 4)** Following seed application, the top one to two inches of soil will be lightly raked by hand.

- **Step 5)** Seeded areas should be irrigated following seeding to ensure seed remains in target areas and to promote rapid germination. Irrigation of seeded areas shall be maintained until it is determined by the Restoration Specialist that the Mitigation is self-sustaining and no longer requires supplemental watering.

6.4.2.3 Cuttings

Willow and mulefat cutting collection and planting procedures are critical to ensure long-term survivorship. Cuttings should be sourced from local, healthy populations free of pests and disease. Cuttings should be installed in the late fall or winter following the first significant rains of the season. Cuttings can be installed in the spring; however, survivorship is drastically decreased if willows and mulefat are installed late in the growing season or during dry conditions. In addition, collection of pole cuttings during the spring has the potential to impact protected nesting birds. Cuttings are the most successful when they are collected while the mother plant is dormant (i.e., lacking the majority of foliage).

- **Step 1) Obtain cuttings**:
    - Cuttings should be chosen based on the size, age and general health of the mother tree. No more than 30% of any one plant shall be removed to eliminate damage to existing trees.
    - Branches of willow and mulefat should be cut from portions of the tree that are approximately 2–7 years in age. Branches younger than 2 years (whips) should be avoided as they have a lower success rate. Whips to be avoided can be identified by very small diameter (<1 inch) and thin, green, bark.
    - Cuttings should be at least 3 feet long and at least 1-inch in diameter. Larger, 4 to 10-foot poles should also be collected for installation within the upper transitional portions of the Mitigation Site.
    - Cut branches are to be removed at a 45-degree angle. This method ensures the bottom of the plant is installed in the ground during planting.
    - Once cuttings are removed from the mother plant, cut a small piece off of the top of each pole with a horizontal cut. This cut removes the apical meristem and promotes the plant diverting energy into root growth rather than into foliar growth. This flat cut can also assist if poles need to be gently hammered into the soil. If the cutting contains small branches with leaves, the lower 90% of branches with leaves should be removed with only the upper portion remaining.

- **Step 2) Soak Cuttings**
    - Soaking cuttings prior to installation can increase survivorship substantially and eliminate the need for additional planting later in the maintenance period. Willows naturally produce a growth hormone, and collectively soaking cuttings can concentrate the rooting hormone and maximize rooting potential.

- Cuttings should be grouped together into a large watertight drum. It is critical that cuttings are placed upright, with the 45-degree cut at the bottom of the drum.
- The drum will then be filled with fresh water.
- Cuttings should be soaked for 5-10 days prior to planting and stored in the shade during this period.

- **Step 3) Excavate for Planting**
  - For each cutting, a hole will be dug to at least ½ the total length of the cutting and at least as wide as the widest diameter of the cutting. Additional widening of the hole is not necessary.
  - Once the hole is complete, it should be sufficiently watered prior to planting.
  - If rocky soils are encountered and digging to a depth of 50% of the cutting length is not possible, cuttings can be installed at an angle. It is critically important that at least 50% of the cutting is covered and making good contact with the soil to promote root development and prevent desiccation.
  - If feasible, cuttings can be installed simply by lightly hammering them into the ground. This method can only be implemented in very soft or saturated soils. If soils are not appropriate, hammering cuttings will not result in adequate planting depth and may severely damage the cutting.
- **Step 4) Backfill.** Backfill with the excavated adjacent native soils around all sides of the planted cutting. During backfilling, a slight basin should be left around the base of the cutting that is capable of ponding water. Ensuring good soil contact with the subsurface of the cutting is important to promote root growth.

- **Step 5) Water.** Once the cutting is backfilled, water the cutting a second time.

- **Step 6) Maintain Irrigation.** Planted areas should be irrigated following installation. Irrigation of cuttings areas shall be maintained until it is determined by the Restoration Specialist that the Mitigation Site is self-sustaining and no longer requires supplemental watering.

7.0 MAINTENANCE PROGRAM AND SCHEDULE

7.1 120-Day Plant Establishment Period (PEP)

The 120-day plant establishment period will begin after initial planting and seeding has been completed. The PEP plays a critical role in the success of restoration efforts and provides oversight to ensure that the majority of container plants, cuttings, and seed become effectively established. This period provides an assurance period where the installation contractor is contractually obligated to guarantee their workmanship. During this period, the installation contractor is required to conduct remedial measures to correct any issues that threaten plant establishment within the Mitigation Site. This period is critical for identifying issues which may inhibit revegetation efforts in early stages of the Project and provides an effective means of eliminating many problems that could affect long-term success of the Mitigation Site. The Restoration Specialist will visit the Mitigation Site at least once per month during the PEP and, if issues inhibiting plant establishment are observed, will provide specific action items to the restoration team. Adequate implementation of the PEP is integral to increase the likelihood of long-term success of the Mitigation Site. In order for the PEP to be considered complete, the Mitigation Site must be free of all trash and debris, all target non-native plants have been eradicated, at least 95 percent of cuttings and container plants have survived, and the Mitigation Site is de-compacted.

7.2 Schedule of Activities

Following the120-day plant establishment period, the 5-year maintenance period is initiated once the installation has been certified by the Restoration Specialist. The 5-year maintenance period is intended to allow adequate time for the Mitigation Site to become self-sustaining. The Project is considered self-sustaining when it has met the 5th year success standards outlined below. This period may be reduced if the 5th year success standards are met sooner as confirmed by resource agency sign-off. Once agency sign-off is received, the Mitigation Site would be subject to long-term management and maintenance through protection of the Mitigation Site for the remainder of the 5-year period and on an ongoing basis thereafter. Maintenance should minimally occur on a quarterly basis, where routine maintenance will be conducted, and a general site assessment will be performed. Newly established sites require typically more frequent maintenance, and therefore, maintenance visits should occur monthly the first year, every other month during year 2 and quarterly during year 3 through year 5. At the discretion of the Restoration Specialist, the frequency of visits may be altered, depending on the progression of the Mitigation Site as determined by the success standards.

7.3 Weed Control

Control of non-native plants (weeds) requires accurate and timely identification of harmful weed species. During the first two years of Mitigation Site establishment, weed control will be a critically important component for the success of the Project. If allowed to become abundant, non-native plants can outcompete natives and reduce the overall ecological health of a site. Weeds that are encountered during maintenance visits will be removed promptly before they are allowed to set seed within the Mitigation Site. This requires diligent monitoring of the Mitigation Site by the

Restoration Specialist to identify specific problem areas and high priority weed species (noxious weeds). The Restoration Specialist will coordinate with the maintenance contractor following each visit and provide a monitoring memorandum that will summarize the health of the Mitigation Site and recommend remedial measures to be implemented by the maintenance contractor. If weeds are left to take over the Mitigation Site, the maintenance contractor will be liable to conduct supplemental seeding and planting to ensure the Mitigation Site meets success standards.

Weeds will be controlled at least once per quarter at a minimum and should occur more frequently during the first two years of the 5-year maintenance period. Generally speaking, weed treatments should be concentrated during the late winter, spring and early summer when weeds are most likely to proliferate and timed effectively to remove weeds before setting seed. The specific schedule should be flexible and based on specific plant recruitment and infestation patterns. The Restoration Specialist may recommend more frequent control measures or clustered visits to maintain weeds at manageable levels. The goals of the weed control program are to (1) comply with permit conditions; (2) reduce maintenance costs; and (3) achieve performance standards.

Weed control during the maintenance period will involve several key components:

1. Identify and eliminate resprouting weeds that were initially treated during the installation phase and 120-day performance period
2. Eliminate weeds that establish during the maintenance period
3. Identify and eliminate particularly noxious species

The primary species that occur or have the potential to occur onsite are identified in Table 6. This table also includes relevant species information and prescriptive weed treatment techniques that maximize the efficiency of weed control.

Table 6. Anticipated Weeds and Treatment Methods

Name	Scientific Name	Life Form	Reproduction	Treatment Methods[1, 2]
Bermuda grass	*Cynadon dactylon*	Perennial grass	Seed and rhizomes	Apply post-emergent herbicide to leaves and stems when they are growing vigorously from spring to late summer. Grass-selective Fusilade can be used if native broadleaf species are in close proximity. Glyphosate is most effective when applied while plants are NOT water stressed.
Black mustard	*Brassica nigra*	Annual herbs	Seed	Hand removal is effective when feasible. Glyphosate foliar application during rapid growth but before flowering. For mature plants, Triclopyr is effective at higher rates for mature plants. Ester formulation of Triclopyr (Garlon 4 Ultra) is more effective than amine formulation, may not be approved for aquatic applications.
Bristly ox tongue	*Helmintotheca echioides*	Annual herb	Seed	Post emergent foliar application of glyphosate prior to bolting stage

Name	Scientific Name	Life Form	Reproduction	Treatment Methods[1, 2]
Bur clover	*Medicago polymorpha*	Annual or biennial	Seed	Triclopyr provides best treatment. Imazapyr or foliar treatment with Glyphosate with surfactant during stages of rapid growth provides good control.
Canary island date palm	*Phoenix canariensis*	Perennial tree	Seed	cutting main stem to remove apical meristem and cut-stump treatment with undiluted Glyphosate or Triclopyr
Castor bean	*Ricinus communis*	Perennial shrub	Seed	Hand removal is effective if the majority of root system is removed, or cut-stump treatment with application of 25% glyphosate
Cheeseweed	*Malva parviflora*	Perennial herb	Seed	Mallow is one of the few weeds that Glyphosate is ineffective in controlling. Triclopyr may be effective in foliar applications.
Crown daisy	*Glebionis coronaria*	Annual herb	Seed	Foliar treatment with Glyphosate with surfactant during stages of rapid growth. Glyphosate mixed with Diquat may reduce seed production if applied after plant has bolted.
Curly dock	*Rumex crispus*	Perennial	Seed	Hand removal is effective when feasible. Foliar application during rapid growth with glyphosate mixed with surfactant. Glyphosate is more effective when mixed with ammonium sulfate.
Fennel	*Foeniculum vulgare*	Perennial herb	Seed or root crown	Foliar treatment with triclopyr in combination with glyphosate late Feb. to Mar. Glyphosate can be applied as foliar treatment, but less effective after plant has bolted. For persistent plants, cut-stump treatment with undiluted glyphosate is effective
Filaree	*Erodium sp.*	Winter annual or biennial herb	Seed	Post-emergence applications of glyphosate to rapidly growing plant with increased efficacy by addition of ammonium sulfate. Repeat applications may be needed for control.
Garden nasturtium	*Tropaeolum majus*	Perennial	Seed	Foliar application of Glyphosate with surfactant.
Giant reed	*Arundo donax*	Perennial grass	Roots, rhizomes, and seed	Undiluted Glyphosate applied as a cut stum treatment within 1-2 minutes after stem cutting. Regardless of timing, provides excellent control with no resprouting
Mexican fan palm	*Washingtonia robusta*	Perennial tree	Seed	Cut-stump treatment with 50-100% Triclopyr is most effective. Undiluted Glyphosate cut-stump treatments are also effective.
Pampas grass	*Cordaderian selloana*	Perennial grass	Seed (root crown	Physically remove the entire crown and top sections of roots, or treatment with a post-

Name	Scientific Name	Life Form	Reproduction	Treatment Methods[1, 2]
			resprouts)	emergent application of glyphosate at about a 2% solution with surfactant. Provides good control when applied in both fall and early summer
Peruvian pepper tree	*Schinus molle*	Perennial tree	Seed	Cut stump treatment with undiluted Glyphosate or Garlon 3A (Triclopyr) is most effective. Treatment with Glyphosate or Triclopyr may be effective, but resprouting is possible.
Russian thistle	*Salsola tragus*	Annual herb	Seed	Hand removal is effective when feasible. Glyphosate foliar application with surfactant during rapid growth but before seeds set. Mixture with ammonium sulfate is more effective.
Salt cedar	*Tamarix ramosissima*	Perennial shrub/tree	Seed	Hand pulling is effective if root is removed. Cut-stump treatment with 50-100% Triclopyr is most effective. Undiluted Glyphosate may be used for cut-stump but is not as effective for foliar application due to reaction with salts on leaves.
Smilo grass	*Stipa miliacea*	Perennial grass	Seed	Foliar application of Glyphosate with surfactant during rapid plant growth.
Tocalote	*Centaurea melitensis*	Annual herb	Seed	Foliar application of Glyphosate with surfactant. Provides good late season control
Umbrella sedge	*Cyperus involucratus*	Perennial herb	Seed	Foliar application of Glyphosate with surfactant prior to setting seed.
Wild radish	*Raphanus sativus*	Annual herb	Seed	Hand removal is effective when feasible. Glyphosate foliar application during rapid growth but before flowering. For mature plants, Triclopyr is effective at higher rates for mature plants.

[1] Methods listed here are based on information from the University of California Statewide Integrated Pest Management Project. Site-specific treatment methods and formulations must be based on recommendations provided by a licensed Pest Control Advisor and follow all local, state and federal regulations.
[2] Garlon 4 Ultra and certain formulations of Glyphosate are not approved for aquatic use.

In some cases, weeds may be physically cut or removed by hand, particularly when plants are small and entire root system can be removed; however, many species will require application of herbicides in order to effectively control. For many of the species expected, or documented to occur within the Mitigation Site, cutting weeds at the base of the plant followed by application of an herbicide concentrate will be the most effective means for long-term removal of these species. Specific herbicide types, application rates and concentrations must be approved by a licensed Pest Control Advisor, and application shall be under the supervision of a Pest Control Applicator to ensure the Project abides by all applicable laws.

Generally, weed treatment should occur each season before seed set, unless otherwise specified by the Restoration Specialist. All debris collected during weed control activities shall be disposed of properly offsite. Crews should take care when transporting weed debris from or within the Mitigation Site to ensure seeds are not accidentally spread within the Mitigation Site (i.e., use burlap sacks or other means to effectively bag weeds when moving them from the Mitigation Site to proper disposal areas). Weed debris shall not be stored on the Mitigation Site after removal and should be removed daily.

Weed control methods should include the following:

- When possible, weeds should be removed by hand, and the restoration contractor should make every effort to ensure root systems are completely eliminated when removed by hand to prevent resprouting.
- Apply herbicide to weed species when hand removal is not feasible or ineffective. Herbicides such as RoundUp Custom are generally acceptable, but all herbicides used within the Mitigation Site should be evaluated by a PCA and applied only under the supervision of a licensed applicator as required by law. All herbicides should be evaluated to ensure that the appropriate amount of surfactant is incorporated to herbicide mixes.
- Weed seedlings and early growth should be removed on a periodic basis before they produce seed. Weeds that are in flower or contain seed heads should be removed by hand, as systemic herbicides such as Roundup can allow viable seeds to continue to mature following application.
- The Restoration Specialist will monitor weed removal activities and evaluate effectiveness of control methods periodically throughout each year and at a minimum, should provide oversight during or after each weed treatment visit. The Restoration Specialist may determine that alternate control methods are necessary to control weeds. The Restoration Specialist will monitor for potential resistance of weed species to herbicides and suggest alternatives if resistance is apparent.

Table 6 above lists the most likely weeds that will be encountered on the Mitigation Site; however, this list is not intended to represent the only weeds to be controlled. The Restoration Specialist may recommend eradication of other weed species if they are identified on Mitigation Site and have the potential to degrade the Mitigation Site.

7.4 Horticultural Treatments

Horticultural treatments can include a variety of methods to promote healthy native plant growth and more rapid plant establishment such as pruning, mulching, disease control and soil amendments. These treatments may be necessary during the 5-year maintenance period, if native plants within the Mitigation Site show signs of disease or slow growth and establishment. All native perennial plants will be periodically monitored during regularly scheduled maintenance visits for potential signs of damage resulting from disease, insect infestations and herbivory. Plant health, particularly for young shrubs, will be monitored by the Restoration Specialist and maintenance contractor to determine if pest control measures or other horticultural treatments are required. The Restoration Specialist will prescribe site-specific protocols to ensure positive progression of native plant establishment. When significant plant pests and/or plant diseases are identified or plant growth is inhibited, plants will be treated as necessary; soil amendments, fertilizers or mulching may be

recommended for young plants showing slow growth, and establishment and installation of protective barriers such as screening may be required to prevent severe herbivory when observed to be significant. Under the direction of the Restoration Specialist, plants that show signs of severe disease may be pruned or removed entirely to prevent diseases from spreading to other healthy plants on the Mitigation Site. All plants that are removed due to disease will be replaced as necessary. In some cases, species substitution may be required if replacement plants become re-infected by the same pest. Pest control will follow an Integrated Pest Management approach that promotes pest control through preventative measures and natural controls in combination with conventional plant treatments. Active pest control measures will be necessary if pest species pose a significant threat to native plant establishment.

7.5 Trash and Debris Removal

The maintenance contractor will be responsible for removing all trash and debris observed within the Mitigation Site during each maintenance visit. Trash and debris removal should be conducted in a manner that does not cause adverse impacts to native plants within the Mitigation Site. Native plant debris, dead limbs, or fallen trees should be left in place. Weed debris must be collected and removed from the Mitigation Site during each maintenance visit and disposed of at the appropriate facilities. At no time will weed debris be left on the Mitigation Site or disposed of in unapproved areas.

7.6 Replanting and Reseeding

In order to meet success standards, dead or diseased plant material will be replaced by the maintenance contractor at the direction of the Restoration Specialist. Dead plant replacements or reseeding will be documented by the Restoration Specialist. Replanting and reseeding will be the responsibility of the maintenance contractor. Plant substitutions may be recommended by the Restoration Specialist, if deemed appropriate.

7.7 Mitigation Site Protection, Signage and Vandalism

During the 120-day plant establishment period and subsequent 5-year maintenance and period, the Site will be adequately protected from outside disturbance within signage and/or fencing. Protection measures must be adequate to ensure that the Mitigation Site is free from outside disturbances such as vandalism, illegal dumping, etc. If vandalism is identified at any point during the PEP or 5-year maintenance period, remedial measures may be required based on the severity of site damage.

7.8 Irrigation Maintenance

The maintenance contractor will be responsible for ensuring the irrigation system is functioning as intended and making any necessary adjustments or repairs throughout the PEP and 5-year maintenance period. The irrigation system should be inspected during each maintenance visit, and any components that are not operational will be replaced immediately to ensure plantings are not damaged as a result.

8.0 FIVE-YEAR MAINTENANCE PERIOD

The 5-year maintenance period is initiated once the installation has been certified by the Restoration Specialist, following the 120-day PEP. The 5-year maintenance period is intended to allow adequate time for the Mitigation Site to become self-sustaining. The Mitigation Site is considered self-sustaining when it has met the 5th year success standards outlined below. This period may be reduced if the 5th year success standards are met sooner as confirmed by resource agency sign-off. Once agency sign-off is received, the Site would be subject to long-term management and maintenance that would continue protect the Mitigation Site for the remainder of the 5-year period and on an ongoing basis thereafter.

The success of restoration efforts depends heavily on diligent monitoring and maintenance of the Mitigation Site. Monitoring and maintenance activities are instrumental in ensuring proper soil conditions, low non-native plant cover, proper irrigation, and maintaining the Site free of significant pests and/or disease. The Restoration Specialist will play a key role in monitoring the Mitigation Site from the initial installation period, 120-day PEP and subsequent 5-year maintenance period. During the initial 120-day plant establishment period, monitoring will be qualitative, followed by a combination of qualitative and quantitative monitoring during the 5-year maintenance period.

8.1 Monitoring and Reporting Schedule

For the purposes of this Plan, the monitoring schedule will be based on the calendar year; each monitoring period will begin on January 1.

8.1.1 Quantitative Monitoring

Quantitative monitoring will consist of collecting transect data and photographic documentation of the Mitigation Site. Quantitative monitoring including container plant counts and point intercept data collection should be conducted once per maintenance year during the spring or summer (April – August) and at approximately the same month of each year. Following each annual quantitative monitoring visit, an annual report will be produced to summarize findings with sufficient information to assess the health of the Mitigation Site. The report should contain enough evidence to evaluate the extent to which the Mitigation Site is meeting or deviating from the required success standards and recommend remedial measures if necessary.

The annual report for a given monitoring year will be submitted to applicable agencies by April 1 following the monitoring year. Though the maintenance term is expected to be five years, this period may be reduced if the Mitigation Site meets the outlined performance standards prior to the end of year 5. The City and all resource agencies overseeing applicable Project permits must concur that the Mitigation Site has met or exceeded performance standards before the Project transitions into the long-term maintenance phase.

8.1.2 Qualitative Monitoring

Qualitative monitoring will include a site assessment by the Restoration Specialist to be conducted during maintenance activities. Qualitative monitoring should occur monthly during year 1, every

other month during year 2 and quarterly during years 3 through 5. A progress report will be completed within one week of each qualitative monitoring visit and submitted to the City for review and comment.

9.0 MONITORING METHODS

Mitigation Site monitoring methodology will include a combination of qualitative and quantitative monitoring techniques as specific below. The monitoring period will begin immediately following the 120-day plant establishment period. Qualitative monitoring will be conducted each month for the first six months of the monitoring period, then once every other month until the end of year two and each quarter, beginning of year three through five. Quantitative monitoring will occur once annually during the spring or summer (April – August) and at approximately the same month of each year. Quantitative monitoring will include transect data collection, planting survivorship assessment and photo-documentation. Annual reports will be submitted to the City and all applicable agencies within three months following the completion of annual monitoring.

The monitoring term is based on a five-year period; however, if performance standards have been met or exceeded prior to year five, the monitoring period may be reduced accordingly, following agency sign-off. The Mitigation Site must have undergone at least two years without supplemental irrigation before requesting early sign off. Until the Mitigation Site has met all success criteria, short-term responsibilities continue.

9.1.1 Qualitative Methods

The Restoration Specialist will conduct qualitative horticultural monitoring that will focus on plant health and expansion, seed germination, identification of potential problems that may affect overall site success and evaluate presence of native and non-native species. The goal of qualitative monitoring is to proactively evaluate conditions of the Mitigation Site and provide timely recommendations to resolve any observed issues with intended progress. An important component of qualitative monitoring is to coordinate with the maintenance contractor in a timely manner in order to ensure that issues observed with Mitigation Site progression are addressed as soon as possible.

At a minimum, each qualitative monitoring visit should include the following:

- Survivorship assessment of all plantings
- Visually estimate percentage of non-native plant species
- Visually estimate native species cover, diversity, vertical structure, and overall ecological health of the Mitigation Site
- Provide representative photographs of Mitigation Site conditions
- Coordinate with the maintenance contractor to provide recommendations for necessary treatment, remedial planting/seeding and focus areas/species for weed treatment
- Evaluate potential pest or disease problems
- Assess impacts to the Mitigation Site from erosion, vandalism, or littering
- Provide list of all plant species observed on the Mitigation Site
- Assess irrigation schedule and maintenance needs

Following the qualitative evaluation, the Restoration Specialist will summarize findings in a qualitative memorandum that will be submitted to the City that will assess the need for any remedial action. Any time-sensitive corrective measures, including, but not limited to additional planting or seeding, adjustments to non-native control methods or schedule, irrigation schedule or volume, must be communicated with the maintenance contractor and City as soon as possible and ideally within less than two weeks of the visit to ensure issues are remediated prior to becoming a more serious threat to the success of the Mitigation Site.

9.1.2 Quantitative Methods

Quantitative monitoring will provide numerical data for assessing the progress of the Mitigation Site that can be directly compared to success standards. Quantitative monitoring should be conducted once per maintenance year during the spring or summer (April – August) and at approximately the same month of each year in order to provide a consistent comparison of data between years.

Methodology will consist of counting container plants and cutting survival and conducting 50-meter point-intercept transects. All point-intercept transects will follow the vegetation sampling protocol outlined by the California Native Plant Society (Sawyer and Keeler-Wolf 1995). Photographic documentation of site progression will also be a component of quantitative monitoring. Data collected during quantitative assessments will be summarized in an annual report, specifics of which are provided in Section 9.1.2.3 below.

9.1.2.1 Point-Intercept Transects

A total of six permanent 50-meter point-intercept transects will be determined prior to the start of installation. Of the six transects, two transects will occur within each Project zone; (1) habitat creation, (2) habitat restoration and (3) habitat enhancement (i.e., two transects in southern riparian scrub transition and four transects in southern riparian scrub). The start and end points of each permanent transect will be recorded with a global positioning system (GPS), documented on the Mitigation Site map and staked in the field. Photographs will be taken at the start point of each transect, facing toward the end point. Photographs will aid in relocating permanent transects in the event that stakes are lost and will also provide a visual comparison of vegetative characteristics of the start of each transect.

Point-intercept transect sampling is intended to provide an estimate of native species cover within the Mitigation Site that can be compared to the success standards. Additionally, the use of three height classes at each point-intercept also provides information about habitat strata. As this method determines native species cover from six linear subsamples of the Mitigation Site, there is the potential for data bias with this estimate. For years 1 through 4, point-intercept data will act as a general reference to inform restoration activities and maintenance. At the end of year 5 (or earlier if all success criteria are met), point-intercept data will be utilized to provide an inferred comparison of the native species cover to the Project success standards.

Point-intercept data will be collected using the following methodology:

- At each 0.5-meter interval, a vertical line will be used perpendicular to the transect. Every species that intersects the vertical line will be recorded.

- Species will be recorded in three height classes:
  - 0–0.5m = herb
  - 0.5–2m = shrub
  - >2.0m = tree
- Absolute native cover will be calculated for each transect by adding the number of points intercepted by native species within any height class on each transect where at least one native species was recorded to intercept the transect within any height class. Total absolute native cover will be calculated as the average native cover of all six study transects.

Non-native cover will be calculated in the same manner as native cover for each transect and averaged. Species that are observed during sampling that are outside of the 0.5-meter transect sampling intervals will be included in the list of species observed on the Mitigation Site.

Total absolute cover of native species will be calculated from a weighted average of native cover in the riparian transitional scrub and southern riparian scrub habitats. Southern riparian scrub accounts for 69.4 percent of the Mitigation Site (restoration and enhancement areas), and the riparian transitional scrub accounts for 30.6 percent of the Mitigation Site (creation area). The following calculation can be used to determine the weighted average absolute cover:

Overall Absolute Cover = [(0.306 * % cover in riparian transitional) + (0.694 * % cover in southern riparian scrub)]

9.1.2.2 Cuttings and Container Plant Survival Counts

During monitoring, container plants and cuttings will be counted to the greatest extent feasible. Plant counts should occur once per year in the spring or summer and can be conducted concurrently with point-intercept transects. Quantitative container plant counts are in addition to general survivorship evaluations that will occur as a component of Qualitative Monitoring (see Section 9.1.1 above). This approach has a tendency to be more successful during year 1 and 2 while container plants and cuttings can be easily identified and distinguished from volunteers of the same species. As the Mitigation Site progresses, it can become difficult to differentiate planted species versus those that have naturally established within the Mitigation Site. Therefore, all planted cuttings and container plants will be demarcated with pin flags or an alternative method in order to aid in identifying individuals.

During annual quantitative monitoring efforts, demarcation of planted specimens should be refreshed to aid in subsequent annual monitoring efforts. All container plants and cuttings will be inspected, and a list of dead plants will be provided. The Restoration Specialist will determine if dead or damaged plants require replacement based on surrounding cover of native vegetation. In general, if native plant recruitment is observed within approximately 3 feet of a dead container plant and providing a similar ecological value, dead plants may not require replacement.

9.1.2.3 Photographic Documentation

Photographic documentation of Mitigation Site progression will also be a component of quantitative monitoring. As described above, photographs will be taken for each transect, and an additional six permanent photograph points will be recorded to be repeated each year.

Permanent photograph points should be placed at locations within or adjacent to the Mitigation Site that provide the best general overview of each Project area and recorded with a GPS for reference. Permanent markers can be installed at each photograph point to improve photograph replication. Photograph points will be taken at the same vantage point and in the same direction to provide a visual comparison of site characteristics over time. In addition to photographic documentation, high-resolution imagery may also be used to document progress and can provide annual comparison of vegetative properties of the Mitigation Site from year to year.

Table 8. Monitoring Schedule

Monitoring Year[1]	Time Period[1] (months)	Qualitative Monitoring Frequency	Quantitative Monitoring Frequency
Year 1	1 – 6	once per month	once per year
Year 2	6 – 24	every two months	once per year
Years 3 – 5	24 – 60	quarterly	once per year

[1] Beginning at completion of 120-day plant establishment period.

10.0 MONITORING AND PERFORMANCE STANDARDS

Performance standards provide a means of assessing the progress of the Mitigation Site toward intended conversion of degraded habitat into a native-dominated ecosystem within the five-year period. Performance standards are based on the typical composition of native habitats and realistic expectations of the restored habitat in relation to comparable native habitats within the geographical region. Performance standards are also designed to be consistent with the requirements of habitat mitigation required by Project permits and City guidelines for Environmentally Sensitive Lands. By achieving these performance standards, intended species composition and density is expected to provide a net improvement of habitat function.

Annual performance standards are provided as target measures to determine if the Mitigation Site is progressing toward the overall goal of providing adequate mitigation to offset impacts from development of the Alvarado Creek Affordable Housing Project. Performing periodic evaluation of the Mitigation Site toward success standards will aid in determining if remedial measures are necessary to meet final performance standards. Performance standards outlined for each phase of the Project are provided below in Table 7.

The Project will be considered successful at the end of year 5 maintenance period once the following performance standards have been met:

- Total absolute cover of native species is equal to, or greater than 75 percent, calculated from a weighted average of 65 percent native cover in the riparian transitional scrub (habitat creation; 30.6 percent of total area) and 80 percent native cover in the riparian scrub (habitat restoration and enhancement areas; 69.4 percent of total area).
- Each wetland vegetation community will contain at least four species from the corresponding plant palette (container plants, cuttings, and/or seeding), excluding western ragweed; and the combined relative cover these four species will be equal to or greater than 45 percent of the relative native vegetation cover of that community.

- All container plant species from the corresponding plant palette will be present in each wetland vegetation community.
- Contain less than 15 percent total relative cover of non-native species.
- Contain less than 1 percent of noxious invasive species (as defined by the California Department of Food and Agriculture – California Noxious Weeds List).
- Native habitats are self-sufficient without the use of supplemental irrigation (Absolute native cover is sustained and/or expanding during years 4 and 5 without supplemental watering).
- Vegetation on site is expanding by the end of year 4 without additional seeding or planting.

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Table 7. Restoration Performance Standards

Target Period	Performance Standards	Remedial Measures
Site preparation – removal of seed and plant installation	- All noxious weeds have been treated and or removed - Site is free of debris - Site is decompacted and clean topsoil has been installed	- Control remaining non-native species - Remove remaining trash/debris - Adapt erosion control methods if necessary
120-day plant establishment period	- 95% of container plants have survived - All noxious weeds have been treated and/or removed - All initial seeding, container planting, or cutting installation has been completed - Erosion control measures are in place	- Continued weed control - Replace dead or diseased plants as prescribed by Restoration Specialist - Adapt erosion control methods if necessary
Year 1	- Absolute cover of natives is greater than 25% - Relative cover of planted wetland species is greater than 10 - 15% (seed, poles, or container plants in combination). - Control non-natives and maintain relative cover at less than 15% - No significant erosion or trash. - 85% of container plants and cuttings have survived - Germination of seeded species is evident in seeded areas	- Focus on weed control - Replace dead or diseased plants as prescribed by Restoration Specialist - Adapt erosion control methods if necessary
Year 2	- Absolute cover of natives is greater than 30% - Relative cover of planted wetland species is greater than 15 – 20%. - Control non-natives and maintain relative cover at less than 10% - No significant erosion or trash - 85% of container plants and cuttings have survived - Germination of seeded species is evident in seeded areas	- Focus on weed control - Perform supplemental seeding, if germination of seeded species is absent - Adapt erosion control methods if necessary - Perform container plant or cuttings installation if site is underperforming native cover standards

Target Period	Performance Standards	Remedial Measures
Year 3	- Absolute cover of natives is greater than 45% - Relative cover of planted wetland species is greater than 25 - 35% - Control non-natives and maintain relative cover at less than 10% - No significant erosion or trash - Germination of seeded species, including volunteers, is evident in seeded areas	- Continued focus on weed control - Adapt erosion control methods if necessary - Turn off irrigation at end of year 3
Year 4	- Absolute cover of natives is greater than 60% - Relative cover of planted wetland species is greater than 25 – 35%. - Control non-natives and maintain relative cover at less than 10% - Noxious weed species controlled to less than 5% - No significant erosion or trash - Supplemental watering is no longer required	- Same measures as prescribed for year 3

Target Period	Performance Standards	Remedial Measures
Year 5	- Total absolute cover of native species is equal to, or greater than 75%, calculated from a weighted average of 65% native cover in the southern riparian scrub – transition areas (habitat creation) and 80% native cover in the southern riparian scrub areas (habitat restoration and enhancement areas). - Each wetland vegetation community will contain at least four species from the corresponding plant palette (container plants, cuttings, and/or seeding), and the combined relative cover these four species will be equal to or greater than 45% of the relative native vegetation cover of that community. - Contain less than 10 percent total relative cover of non-native species. - Contain less than 1 percent of noxious invasive species - All container plant species from the corresponding plant palette will be present in each wetland vegetation community. - Vegetation is self-sufficient without the use of supplemental irrigation - No significant erosion or trash	- Same measures as prescribed for year 3

Remedial measures may be altered at the direction of the Restoration Specialist to achieve success standards.

11.0 REPORTING PROGRAM

Following each qualitative monitoring visit, the Restoration Specialist will provide a memorandum summarizing conditions of the Mitigation Site and maintenance recommendations. An annual monitoring report will be provided after each monitoring year. Both the qualitative monitoring memoranda and annual reports will be submitted to the City Development Services Department - Mitigation and Monitoring Coordination (City DSD-MMC) and Owner and once approved, the annual report will be submitted to applicable agencies. Qualitative memoranda will be included as an appendix to each annual report.

11.1 Maintenance Monitoring Memoranda

Within one month of each maintenance and monitoring visit, the Project Restoration Specialist will provide a memorandum to the City that summarizes site progress and is intended to help identify any remedial actions required to maintain the trajectory of the restoration effort. Each memorandum will focus on general survivorship of all plantings, estimate percentage of non-native and native plant species, diversity and overall ecological health of the Mitigation Site, and provide representative photographs of site conditions.

Determinations made by the Restoration Specialist will be coordinated with the maintenance contractor and the City in order to provide recommendations for weed treatment, remedial planting/seeding and focus areas/species for weed treatment, assess impacts to the Mitigation Site from erosion, vandalism, or littering, assess irrigation schedule and maintenance needs. All remedial measures will be developed with oversight from the City DSD-MMC.

Any time-sensitive corrective measures must be communicated with the maintenance contractor and the City DSD-MMC as soon as possible and ideally within less than two weeks of the visit to ensure issues are remediated prior to becoming a more serious threat to the Mitigation Site's success.

11.2 Annual Reporting

Annual monitoring reports will include both a quantitative and qualitative summary of the Mitigation Site and will be submitted to the owner, City DSD-MMC and applicable agencies. The report will include transect monitoring results, photographic documentation, cuttings and container plant survival assessment, a horticultural checklist, a performance evaluation and a summary of maintenance activities and remedial measures performed during the year. A key component to this report will be the performance evaluation that provides an assessment of site progress toward performance standards of the Plan. The report will identify key recommendations from the Restoration Specialist to address any potential issues such as pests, native cover deficiencies, non-native cover growth/control, vandalism, erosion, or any other issues that may hinder the success of the Mitigation Site. Monitoring and maintenance memorandums shall be included as attachments to each annual report along with transect sampling results and photographic documentation.

12.0 COMPLETION OF MITIGATION

12.1 Notification of Completion

The Project proponent will coordinate and notify the City DSD-MMC and all applicable resource agencies in order to gain concurrence that final performance standards have been met. This will be accomplished through the submittal of a final monitoring report (end of year 5, or sooner if success criteria thresholds have been met) and a request for Notification of Completion. An analysis of quantitative sampling data will be included in the report to demonstrate that the Mitigation Site has met year-5 success standards. At this point, all temporarily installed materials such as staking, fencing, irrigation and erosion control must be removed prior to receiving the Notification of Completion. Applicable agencies that are required to provide concurrence that the Mitigation Site has met performance standards have not yet been determined; however, it is anticipated that concurrence from the City DSD-MMC, U.S. Army Corps of Engineers and Regional Water Quality Control Board will be required.

12.2 Agency Confirmation

Following the submission of the final annual report and receipt of the Notification of Completion, the City DSD-MMC and the resource agencies may visit the Mitigation Site for confirmation. Maintenance and monitoring of the Mitigation Site will cease once the City DSD-MMC and the agencies confirm the completion of the mitigation program in writing.

12.3 Long-Term Management

Specifics of long-term management of the Mitigation Site have not yet been coordinated with the appropriate resource agencies (CDFW, CCC, USFWS, USACE, RWQCB). Once coordination with applicable agencies has been completed, a separate long-term management plan will be provided for the Project and will supersede measures outlined in this section once approved.

Pacific West Communities is the current owner of the property used as mitigation for Project implementation. All restoration, enhancement and creation areas are part of the MSCP and are within the City's preserved MHPA lands. As such, applicable regulations include required development restrictions. Once the Mitigation Site has met the five-year success standards and has been signed by all applicable regulatory agencies, the owner will review the final annual report and accept long-term management responsibility. The owner will manage the 0.616-acre Mitigation Site which will include long-term maintenance and monitoring, non-native vegetation control, wildlife habitat monitoring, and trash removal as listed below as required by the MSCP Subarea Plan (City 1997).

The Mitigation Site owner will provide long-term protection of the Mitigation Site through a real estate instrument or other long-term protection mechanism, partially or fully funded through HOA fees. The owner is responsible for protection and management of the Mitigation Site for the purposes of native habitat and species conservation in accordance with the MSCP Implementing Agreement, which requires the City to preserve lands within the MHPA.

According to the City of San Diego MSCP, Section 21.3 of the Implementing Agreement states that "notwithstanding the stated term as herein set forth, the Parties agree and recognize that once Take of a Covered Species has occurred and/or their habitat modified within the Subarea, such Take, and habitat modification will be permanent. The Parties, therefore, agree that the preservation and maintenance of the habitat provided for under this Agreement shall likewise be permanent and extend beyond the term of this Agreement." Though the MSCP term is from 1997 to 2047, preservation of lands within the MHPA is defined as permanent and will extend in perpetuity beyond 2047.

The Mitigation Site will be maintained in conformance with the Implementing Agreement of MSCP which will ensure long-term sustainability for the Mitigation Site and will act as a conservation easement or deed restriction. The Mitigation Site owner will be required to provide a report summary of management actions completed each year. This report will be submitted to the City for review and approval. If management actions are determined to be insufficient to address long-term management of the Mitigation Site under requirements of the MSCP, the City may request additional remedial actions. Long-term management will include the following:

12.3.1 Non-native and Invasive Species Control

Non-native species will be controlled through a variety of methods that may include hand removal, herbicide treatment, and/or mechanical removal. A particular focus of non-native control will focus on species known to occur within the Mitigation Site and vicinity that are listed as highly invasive by the CAL-IPC. All herbicide applications will be under the supervision of a Qualified Applicator (QAL) or under the direction of a Pest Control Advisor (PCA). Herbicide application must adhere to all local, state and federal regulations. Debris from removal of non-native species must be removed from the Mitigation Site and disposed of at approved facilities. Non-native removal activities will be conducted in a manner to prevent spreading of seed, roots, and shoots around the Mitigation Site or adjacent areas. Non-native biomass may only be temporarily stored onsite if contained within a fully sealed containers; however, generally speaking all non-native biomass should be removed at the end each workday whenever feasible.

Habitat management within created, enhanced or restored habitat that has the potential to effect special status wildlife will be evaluated prior to initiating maintenance activities. This may include pre-activity surveys for MBTA-covered, nesting birds during the breeding season (March 1 through September 1).

12.3.2 Access

Personnel requiring access to the Mitigation Site for the purposes of implementing long-term management (biologists, restoration ecologists, City staff, etc.) will have access to the Mitigation Site. Staff hired by Ascent will be responsible for conducting long-term monitoring and provide direction for potential remedial actions that may be required. All remedial actions conducted must be consistent with MSCP and MHPA guidelines.

12.3.3 Trash Removal

At least annually, trash and inorganic debris will be removed from the Mitigation Site. All materials removed from the Mitigation Site must be disposed of offsite at appropriate facilities per local, state

and federal regulations. Materials from native species (leaf litter, dead branches, etc.) can be beneficial for habitat function of the Mitigation Site and is not considered trash. All debris from native plant species will be left onsite.

12.3.4 Unforeseen Environmental Impacts

Additional remediation measures may be required in addition to management activities listed above if determined at the discretion of the monitoring team. Potential unforeseen impacts to the site could occur in the form of flooding, fire, erosion, or effects from adjacent land uses. Monitoring will identify if unforeseen impacts are causing habitat degradation within the Site. If identified, additional remedial actions may be required and, in some cases, may require coordination regulatory agencies to resolve.

13.0 CONTINGENCY MEASURES AND ADAPTIVE MANAGEMENT

Contingency measures may be necessary if the all or a portion of the Mitigation Site does not meet performance standards in any given year of the 5-year maintenance period. In the event that performance standards are not met, maintenance and monitoring requirements will continue until standards are met and the resource agencies issue final Project approval.

13.1 Initiating Procedures

In the event that performance standards are not met, the Project proponent will consult with the Restoration Specialist and maintenance contractor to determine additional remedial measures that can be implemented to further promote the success of the Project. If the City and applicable resource agencies do not accept that wetland enhancement, creation and restoration has been sufficiently conducted, the Restoration Specialist will provide an analysis of the cause(s) of Site deficiencies and develop a supplemental mitigation strategy. This analysis should be coordinated with applicable City staff (DSD and MMC) and the resource agencies, and the supplemental strategy should be approved prior to implementation.

13.2 Funding Mechanism

The Project owner is responsible for all costs associated with the planning, implementation and monitoring of contingency measures, if required due to failure of the Site to meet success standards. Long-term maintenance will be funded through HOA fees collected annually.

14.0 REFERENCES

Blackhawk Environmental, Inc.
2020 Alvarado Creek Affordable Housing Project: Biological Survey Report. San Diego, San Diego County, CA. January 2021.

Blackhawk Environmental, Inc.
2020 Alvarado Creek Affordable Housing Project: Jurisdictional Delineation Report. San Diego, San Diego County, CA. January 2021.

Calflora
2021 Information on California plants for education, research and conservation. [web application]. Berkeley, California: The Calflora Database [a non-profit organization]. Available: http://www.calflora.org/. Accessed February 2021.

City of San Diego's Environmentally Sensitive Lands Regulations (ESL) and San Diego Land. Land Development Manual – Biological Guidelines, 2012. Vegetation community classifications are described according to Holland (1986) and Oberbauer (2008).

City of San Diego. Multiple Species Conservation Program – City of San Diego MSCP Subarea Plan. March 1997. Accessed at http://www.sandiego.gov/planning/programs/mscp/pdf/subareafullversion.pdf

California Department of Fish and Game (CDFG)
1994 Environmental Services Division (ESD). A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607, California Fish and Game Code.

DiTomaso, J.M., G.B. Kyser et al. 2013. Weed Control in Natural Areas in the Western United States. Weed Research and Information Center, University of California. 544 pp.

Hoag, C. J. 2007. Technical Note – How to Plant Willows and Cottonwoods for Riparian Restoration. USDA Natural Resources Conservation Service. 2-18 pp.

Sawyer, J. O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society. 472 pp.

URS. 2014. Final El Cuervo Del Sur Wetland Habitat Mitigation and Monitoring Plan. 14-62pp.

ATTACHMENT E

Long-Term Management Plan

Blackhawk Environmental

Long-Term Management Plan
Alvarado Creek Affordable Housing Project
San Diego, CA

PTS 671912

Prepared for
Ascent Environmental
Eric Ruby, Project Manager

Prepared by
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Christina Schaefer, Principal Biologist

June 30, 2022

schaefer ecological solutions

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ALVARADO CREEK AFFORDABLE HOUSING PROJECT
Long-Term Management Plan

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1.0 INTRODUCTION

1.1 Overview

This Long-Term Management Plan (LTMP) for the Alvarado Creek Affordable Housing Project (Project) was prepared to guide the long-term management of the Project's 0.599-acre onsite habitat mitigation site (Mitigation Site). Wetland habitat creation and enhancement would occur as mitigation for impacts to wetlands from construction of the Project as described in the Habitat Mitigation and Monitoring Plan (HMMP) (Blackhawk 2022); restoration activities are expected to generate 0.599 acre of onsite mitigation credit. The habitat Mitigation Site and directly associated buffer areas would be conserved and managed in perpetuity following the directives outlined in this LTMP.

Long-term management of the Mitigation Sites would commence upon the five-year post-restoration acceptance by the resources agencies and City of San Diego and the availability of annual management funds. Long-term management would be conducted by an accredited and California Department of Fish and Wildlife (CDFW)-approved land management entity upon availability of the management funds invested by the Owner in form of a non-wasting endowment.

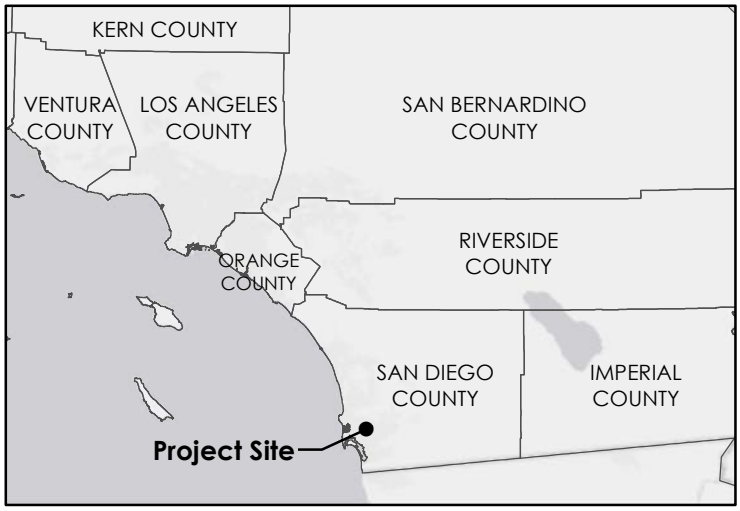
Long-term management is part of the Project's mitigation and permit requirements, pursuant to federal, state and local regulations, policies, and guidelines and approved by the Regulatory Agencies (U.S. Army Corps of Engineers (Corps), CDFW, and Regional Water Quality Control Board (RWQCB)). Long term management is also required by the City of San Diego Biology Guidelines (City of San Diego 2018). In addition to Project permits, this LTMP must also be compliant with regulations pertaining to the long-term management of Project mitigation lands as defined by the City of San Diego. It should be noted that while it is the intent of this LTMP to comply with federal, state and local permits, if any discrepancies between this LTMP and the permits exist, the permits shall override the LTMP stipulations unless written approval is received from the agency exerting the appropriate jurisdiction.

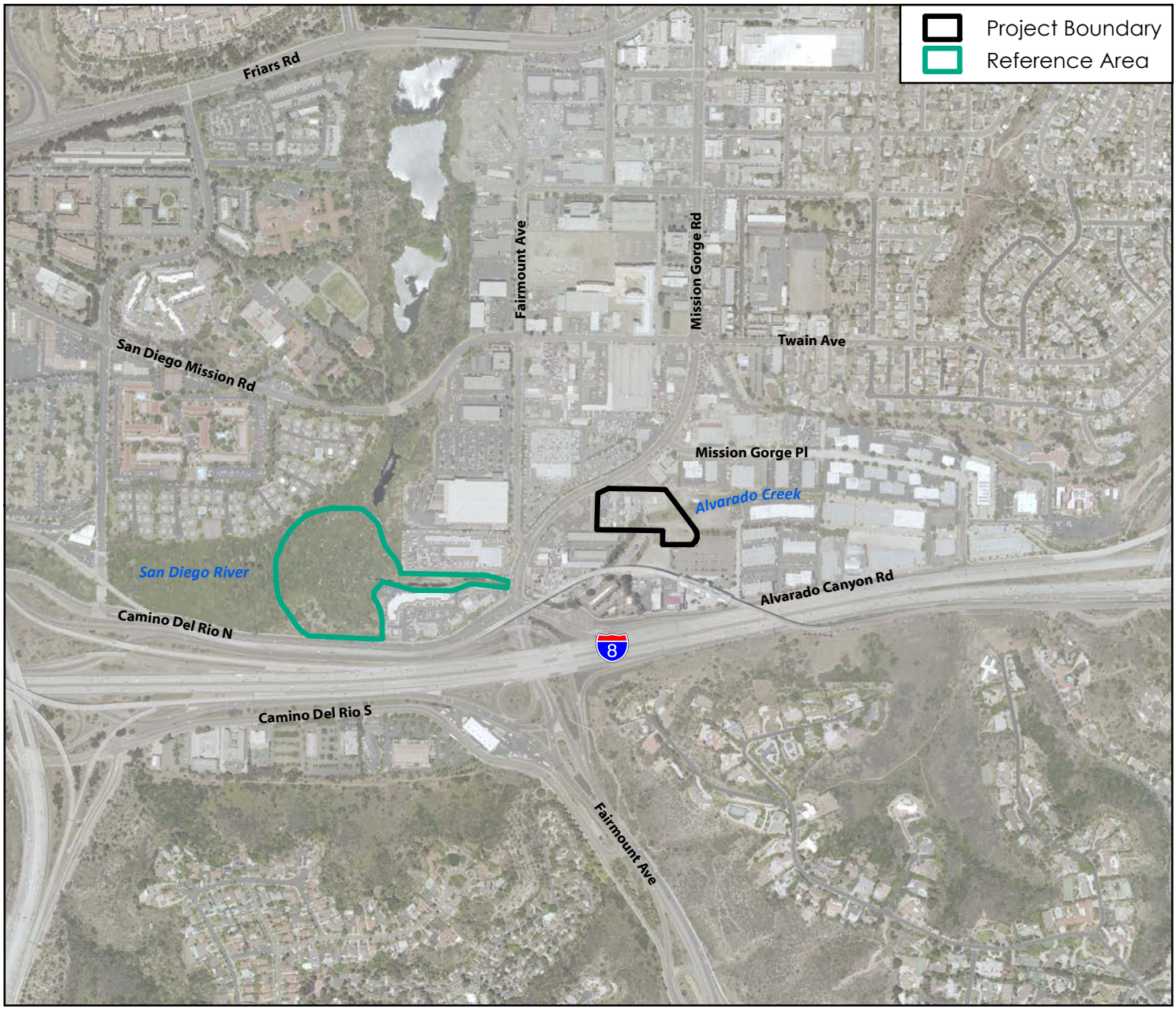
1.2 Purpose of Long-term Management

The purpose of this LTMP is to ensure that the conserved Mitigation Site is managed, monitored, and maintained in perpetuity to preserve biological and wetlands functions and values along with any sensitive biological resource they support. This LTMP describes the methods, schedule, and means necessary to manage and monitor the Mitigation Site by providing a framework that is consistent with the goals of the City's Environmentally Sensitive Lands and Biology Guidelines (City of San Diego 2018). The ultimate goal of this LTMP is to ensure the long-term viability and function of habitats on-site. The LTMP shall be implemented as new information and scientific data permit.

1.3 Project Location

The proposed Alvarado Creek Affordable Housing Project is located on 3.86 acres southeast of Mission Gorge Road, south of Mission Gorge Place, and north of Interstate 8 (I-8) and the Grantville Trolley station (Figure 1). The Mitigation Site is part of the Project site (Figure 2).





Source: SANDAG & SanGIS 2017; Esri

Figure 1

Project Location

Alvarado Creek Affordable Housing Project

BLACKHAWK Environmental

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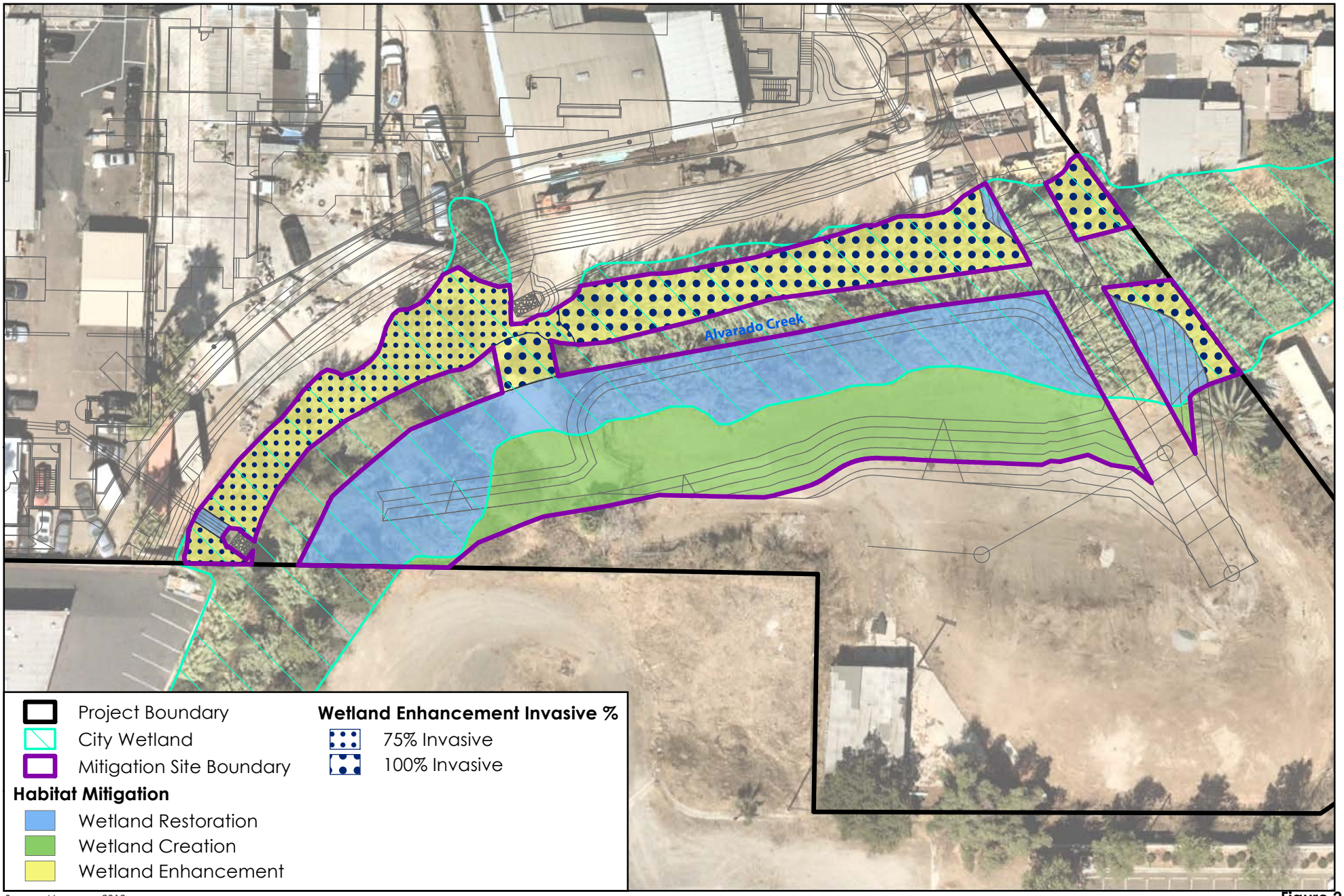
0 1,000 Feet



Source: Nearmap 2019

Figure 2

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N

0 50 Feet

Mitigation Site

Alvarado Creek Affordable Housing Project

The Project is located within the following Assessor Parcel Numbers (APNs): 461-320-06-00, 461-320-08-00 and 461-320-09-00. Alvarado Creek bisects portions of the 3.86-acre Project development and includes jurisdictional wetlands and non-wetland areas.

1.4 Project Summary

The Project proposes 227 100-percent affordable residential rental apartment units in one five-story building. The 227 residential units include 54 studios, 53 one-bedroom units, 60 two-bedroom units and 60 three-bedroom units. Common area amenities include a pool area and access to the proposed Alvarado Creek trail, which would be constructed above the wetlands buffer along the onsite portion of Alvarado Creek within the proposed development. An existing sewer line and easement is proposed to be relocated southerly across Alvarado Creek to an existing point of connection near the Grantville Trolley Station.

Development of the Project will result in direct impacts to a total of 0.283 acre (i.e., 0.213 acre of temporary impacts and 0.070 acre of permanent impacts) to City wetland/ESL habitats including the following wetland habitat types: arundo-dominated wetland (0.060 acre temporary and 0.047 acre permanent impacts), disturbed wetland/unvegetated channel (0.002 acre temporary and 0.008 acre permanent impacts), non-native riparian (0.137 acre temporary and 0.015 acre permanent impacts) and southern riparian woodland (0.014 acre temporary and no permanent impacts).

1.5 Habitat Restoration

The 0.599-acre Mitigation Site is part of the 3.86-acre Project site and includes 0.183 acre of habitat creation, 0.217 acre of habitat restoration and 0.199 acre of habitat enhancement that will result in a net gain of 0.316 acre of wetland habitat and will enhance the existing degraded riparian habitat that is dominated by noxious weed species (Figure 2). The Project is located within Reach 2 of the Grantville Trolley Station/Alvarado Creek Revitalization Study, which requires the relocation and construction of the Alvarado Creek channel, creek trails and habitat restoration/creation. Implementation of the onsite portion of the Alvarado Creek improvements outlined in the revitalization study will require additional engineering and environmental design, and coordination with upstream and downstream property owners, and will be implemented following construction of the proposed Project.

Habitat restoration as mitigation for the Project will occur in form of habitat creation by widening Alvarado Creek. Habitat creation areas are intended to develop into a riparian transitional community, and restoration and enhancement areas are intended to develop into southern riparian scrub. Both of these habitat types are intended to be dominated by riparian species and would qualify as City-regulated wetlands and also as jurisdictional resource to satisfy regulatory permit requirements. It is anticipated that these habitat types will continue to mature during long-term management and ultimately develop into mixture of riparian scrub and riparian forest habitats over time, and may also exhibit some form of freshwater marsh or ephemeral wetlands along the fringes of the Alvarado Creek channel.

2.0 MITIGATION SITE DESCRIPTION

2.1 Existing Conditions

The 0.599-acre Mitigation Site consists of mostly flat developed/disturbed areas on the north and south side of Alvarado Creek. Steep banks on the north side of the creek directly abut developed parking lots; the south edge of the creek is bordered by more moderate slopes that gradually transition into disturbed upland habitat, dominated by nonnative plant species. The Mitigation Site is dominated by non-native and invasive species. Portions of Alvarado Creek within the Project show signs of vegetation management, including removal of giant reed (*Arundo donax*) and Mexican fan palm (*Washingtonia robusta*). No sensitive flora or fauna occur on the site, although the existing habitats may provide nesting habitat for migratory bird and raptors.

Once restored, the Mitigation Site will contain a functioning and sustainable riparian and wetland ecosystem. The restoration plan calls for the removal of all non-native species, and planting with native wetland and riparian species that are currently thriving on the site, such as California sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii*), Gooding's black willow (*Salix gooddingii*), sandbar willow (*Salix exigua*) and coast live oak (*Quercus agrifolia*) among others. In addition, higher quality riparian habitats exist and will remain within downstream portions of the creek, which host a higher density of the aforementioned species.

2.2 Surrounding Land Use

Existing onsite and surrounding land uses include a variety of industrial and commercial businesses, with Alvarado Creek bisecting the Project site. The Project site is located on three previously developed parcels. Parcels north of Alvarado Creek are actively used for light industrial use and commercial uses such as auto repairs and sales, metal fabrication, convenience stores, etc. The area surrounding the Project to the north and east includes similar commercial and industrial land uses, characterized by single and multi-story buildings with paved hardscaped surfaces and landscaping. The Project parcel south of Alvarado Creek includes previously graded areas with relic outbuildings that have been idle and are in disrepair. Existing land uses appear to include illegal dumping, fill material storage, and homeless encampments. Areas surrounding the Project to the south include commercial space, business centers, and transit hubs, including the Grantville Trolley Station. Due to the heavily developed nature of the surrounding areas, the Project is isolated from surrounding MHPA Reserve areas, which include portions of the San Diego River approximately 0.35 miles to the west and northwest, and canyons south of Interstate-8 approximately 0.36 miles.

2.3 Topography and Hydrology

Elevations within the Project site generally drain towards the center of the Project area, where the site is bisected by Alvarado Creek. Within the Project, Alvarado Creek flows on to the site near the center of the eastern parcel boundary, flowing in a generally west-southwest direction through the south-central portion of the Project area, and leaving the site along the southern boundary.

Surface water and storm water flow is highly modified, but generally becomes concentrated before discharging directly into Alvarado Creek. Surface water entering Alvarado Creek from parcel 416-320-06-00 generally flows south to the parcel boundary, where surface water is redirected by a cinder block wall and diverted into a low-capacity non-vegetated concrete swale, flowing east and discharging directly into the Alvarado Creek. Similarly, surface water from parcel 461-320-09-00, a paved lot, generally flows south to the parcel boundary located immediately adjacent to Alvarado Creek. At the southern boundary of parcel 461-320-09-00 water is restricted from entering Alvarado Creek by a man-made concrete wall, which redirects water along the property boundary to the west, before intercepting an existing road and Arizona crossing at the interface between parcels 416-320-06-00 and 416-320-09-00. The existing road carries surface water both from both adjacent parcels directly to Alvarado Creek. Surface water from parcel 416-320-08-00 generally follows topographic contours flowing from the southeast of the parcel to northwest of the parcel, concentrating along graded unpaved roads and discharging into Alvarado Creek at an established Arizona crossing. Additional surface water from parcel 416-320-08-00 is directed along the western boundary within a vegetated unlined swale (Figure 2).

2.4 Soils

Three distinct soil series mapped by USDA (1973) occur in the Project area: Tujunga sand, 0 to 5 percent slopes, Riverwash, and Huerhuero-Urban land complex, 2 to 9 percent slopes (Figure 3). Both the Tujunga sand and Riverwash soil series are described as hydric according to USDA.

2.5 Vegetation Communities

Prior to habitat restoration and enhancement, the Mitigation Site contained the following vegetation communities.

Arundo-dominated Wetland (Holland Code 65100)

Arundo-dominated wetland is a type of non-native riparian community that consists almost exclusively of a dense thicket of giant reed or arundo. Although dominated by a non-native, invasive species, this vegetation community is a wetland and generally treated as a sensitive vegetation community by CDFW and may also be regulated as a wetland by USACE, RWQCB. These areas are considered City of San Diego wetlands. Arundo-dominated wetland is restricted to the eastern boundary totaling 0.29 acre. Although overall vegetation coverage is dense, the area has undergone a recent non-Project-related cut and treatment for management of the invasive giant reed. Therefore, the area is now open, bisected by open water, and devoid of a canopy or understory.

Disturbed Lands (Holland Code 11300)

Disturbed land occur within the Mitigation Site in the form of non-native plant communities. Dominant species included cheeseweed (*Malva parviflora*), sweet fennel (*Foeniculum vulgare*), smilo grass (*Stipa miliacea* var. *miliaceae*), Bermuda grass (*Cynodon dactylon*), castor bean (*Ricinus communis*), and filaree (*Erodium* sp.).

Disturbed Wetland/Un-vegetated Channel (Holland Code 11200)

Disturbed wetlands/un-vegetated channel are restricted to the channel bottom of Alvarado Creek and include the disturbed and modified channel, where presence of installed rip-rap and concrete lined areas blend with natural scouring and sediment deposits. This vegetation community is permanently or periodically inundated by water and significantly modified by human activity, but may contain scattered native or non-native vegetation. Such areas, despite the presence of artificial structures or prevalence of non-native species, may be considered sensitive if determined to be USACE, CDFW, and/or RWQCB, and are considered City of San Diego wetlands due to its association with Alvarado Creek and wetland functionality. Where vegetation is present, the dominant species include southern cattail (*Typha domingensis*), umbrella sedge (*Cyperus* sp.), giant reed, California bulrush (*Schoenoplectus californicus*) and common threesquare (*Schoenoplectus pungens*).

Non-native Riparian (Holland Code 65000)

Non-native riparian areas consist of a densely vegetated riparian thicket dominated by non-native, invasive species. Although dominated by non-native invasive species, non-native riparian is a potential wetland and generally treated as a sensitive vegetation community by CDFW and may also be regulated as a wetland by USACE, and/or RWQCB. These areas are considered City of San Diego wetlands. Onsite, this vegetation community is dominated by a relatively dense canopy cover of Mexican fan palm, arroyo willow, black willow, and giant reed. The creek in this area is earthen-lined, with rip-rap banks. The understory was primarily vegetated by herbaceous ground cover in areas where the canopy was not complete. Understory species in these areas include non-natives, such as sprouting Mexican fan palm, castor bean, smilo grass, and occasional salt cedar (*Tamarix ramosissima*). Evidence of vegetation management was observed in the form of giant reed and fan palm removal.

Southern Riparian Woodland (Holland Code 52400)

Southern riparian woodland is a riparian community typically found along upland creek banks and drainages. The high density of the cover provided by mature trees typically prevents development of a substantial understory of smaller plants in some areas. Southern riparian woodland is a potential wetland and generally treated as a sensitive vegetation community by CDFW and may also be regulated as a wetland by USACE, and/or RWQCB, and is considered City of San Diego wetlands. This community is restricted to approximately 0.11 acre located at the southern portion of the site. Riparian canopy within this habitat is dominated by coast live oak, Fremont cottonwood, and black willow, with occasional small Mexican fan palms. Where understory was present, the vegetative cover ranges from light to moderate and is largely dominated by giant reed, smilo grass and other non-native herbaceous species. Tree species forming a canopy within this habitat on the south and east side of the channel appear planted.

According to the HMMP, the plantings on the Mitigation Site are expected to mature, evolve, and transition to southern willow scrub (description below) and southern riparian woodland (description above) post-restoration and five-year monitoring and maintenance.

Southern Willow Scrub (Holland Code 61320)

Southern willow scrub consists of dense, broad-leaved, winter-deciduous stands of trees dominated by shrubby willows (specifically arroyo willow (*Salix lasiolepis*) in association with mule fat (*Baccharis salicifolia*), and with scattered emergent cottonwood (*Populus fremontii*) and western sycamores (*Platanus racemosa*). This vegetation community occurs on loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows. Frequent flooding maintains this early seral community, preventing succession to a riparian woodland or forest. Willow scrub is considered a sensitive vegetation community.

3.0 RESPONSIBILITIES AND ASSURANCES

3.1 Responsible Parties

3.1.1 Project Proponent / Property Owner

The Project Proponent, Pacific Companies, shall be responsible for providing funding for long term management in perpetuity. Section 4.2 discusses funding in more detail. Pacific Companies shall also be responsible for securing permanent conservation for the Mitigation Sites (see Section 4.1) and establishing long-term management funding and agreements for the Mitigation Sites. All funding shall be secured prior to issuance of the grading permit for the Project.

3.1.2 Habitat and Easement Managers

The Habitat Manager must be an accredited (i.e. Land Trust Alliance Accreditation) and CDFW-approved land management entity with documented experience managing local native habitats, including wetlands and riparian habitats, and be approved in writing by the City of San Diego and Regulatory Agencies. The Habitat Manager shall be responsible for implementing the management directives and biological monitoring pursuant to this LTMP. To this end, the SDHC shall:

- Be an advocate of the preserved open space and its protection
- Be responsible for implementing the requirements outlined in the CE that has been placed over the Preserve
- Maintain all documents transferred by the Project Proponent and Wildlife Agencies
- Be knowledgeable about the resources addressed in these reports
- Document all field visits and management actions and submit an annual report to the Wildlife Agencies.
- Coordinate with the manager(s) of adjacent preserves or neighboring land owners on management practices and tasks related to preservation and maintenance of the subregional open space system, specifically the removal of invasive species.
- Educate the surrounding community about the value of open space conservation and management and respond to community concerns.
- Apply pertinent adaptive management recommendations and ensure compatibility with the MSCP Subarea Plan and SDMMP Management Strategic Plan (MSP) (SDMMP 2013).

Furthermore, a separate CDFW-approved entity shall be retained by Pacific Companies to manage the Conservation Easement (CE). The Easement Manager shall implement all management requirements specific to the CE, and outlined in the CE or similar instrument attached to the management lands. The Easement Manager shall not be responsible for providing habitat management as described in this LTMP.

3.2 Land Protection Instrument

The Mitigation Site will be conserved and protected from future unauthorized uses as identified in the Project regulatory permits and the City's Biology Guidelines (City 2018). The mitigation lands shall be managed in perpetuity for the long-term preservation of native species and habitats, and no developments incompatible with habitat protection and preservation shall be allowed (see

Section 4.3.2). Pacific Companies shall protect the Mitigation Site through a CE placed on the entire Mitigation Site and deeded to the Habitat Manager, with the appropriate agency as a third-party beneficiary (this could be CDFW, Corps, or RWQCB). The habitat protection mechanism shall be approved by the City and Regulatory Agencies per permit requirements. The Project permits will be attached to the CE in the County's records to ensure the permit's restrictions (including those related to long-term protections) are included on the CE.

3.3 Funding Assurances

The Pacific Companies shall fund the long-term management and the implementation of this LTMP through an "impact fee". Long-term management includes monitoring, management, and preservation of the mitigation lands in perpetuity. The funding mechanism shall be in effect prior to issuance of a grading permit for the Project, or as approved by the City of San Diego and the Regulatory Agencies. An impact fee in form of a non-wasting endowment shall be invested by the Pacific Companies, and held by an independent third party financial institution accepted and approved by the Regulatory Agencies (e.g., The San Diego Foundation). This account shall provide funding on an annual basis for monitoring and management pursuant to this LTMP. The full amount of endowments and annual management funds needed to manage the Mitigation Site is included in the Property Record Analysis (PAR) appended to this LTMP (Appendix A). The preliminary long-term management funding estimate identifies the total management funds and annual funds (generated by the interest from the invested funds). The PAR reports the initial investment and annual long-term monitoring and management activities, including administrative and contingency fees and emergency funds. Annual funding of LTMP activities shall be generated through net interest earned on the account; the account's principal shall never be used to fund management, monitoring, or preservation activities.

Long-term management shall begin immediately after the post-restoration monitoring and management period or after the restoration project has been accepted by the Regulatory Agencies as successful and the management funds have been transferred to and approved by the Habitat Manager.

4.0 LONG-TERM MANAGEMENT AND MONITORING

This section discusses the goals and objectives of this LTMP, and establishes a framework for adaptive management. If discrepancies occur between this LTMP and the regulatory permits, the permit requirements shall supersede this LTMP.

Long-term management shall be the responsibility of the Project Proponent and Habitat Manager and shall be performed as identified in this LTMP and in the work plan outlined in Table 1 (at the end of Chapter 4). Long-term management shall ensue immediately following the City's and Regulatory Agencies' acceptance of the restoration projects and shall be funded by the interest generated from the endowment invested by the Project Proponent.

Baseline conditions post-restoration are assumed to be of high quality as the site would have been maintained and monitored throughout the post-restoration period as described in the Project's HMMP (Blackhawk 2021).

4.1 Management Goals and Targets

The main goal of long-term management as identified in this LTMP is to conserve the Mitigation Site and the biological and wetlands resources contained within, to contribute to the biological diversity in the region, and conserve the functions and values of wetlands and waters, including water quality, and viable populations of key sensitive species and their habitats. This shall be accomplished through regular monitoring and the implementation of adaptive management to ensure ecological and wetlands function in perpetuity.

The management goals for native vegetation communities are as follows:

1) Maintain the ecological functions and values of the Mitigation Site
2) Maintain the functions and values of waters and wetlands.
3) Maintain and enhance overall biological diversity of the Mitigation Sites.
4) Prevent impacts to habitat or species from invasive species, artificial hydrological changes, and anthropogenic threats and stressors.

4.1.1 Threats and Stressors

Threats (direct impacts) and stressors/pressures (indirect impacts) occur from edge effects and habitat modifications. Edge effects include anthropogenic and natural threats, such as international border security, trash dumping, trampling, and other mechanic disturbance. Stressors (pressures) include altered hydrology, exposure to pesticides, invasion by nonnative plant and animal species, habitat fragmentation, water and air pollution, and fire. The Mitigation Site is surrounded by urbanization, and therefore, edges surround the restored habitats, including trails. The identification of threats and stressors shall be conducted at least once annually during a qualitative monitoring visit.

Edge Effects: The Mitigation Site is surrounded by development, which may result in edge effects such as trespassing, vandalism, compaction, floods, fires, adjacent trail use, and invasive species. Access controls will be in place.

Erosion/Soils: Intact soils are fundamental to the sustained function of wetlands ecosystems. Damage to the substrate, erosion, scour, sedimentation, and siltation would significantly impact wetlands functions. Minimal scour, sedimentation, and changes of the floodway are expected in dynamic riparian systems.

Altered Hydrology: Wetland hydrology provides the foundation for wetlands ecosystem function. Native riparian and marsh species rely on proper hydrology and the functionality of the micro-watershed. Topographic alterations through trespassing, or storm events may significantly alter these functions. Access controls will be in place.

Litter: The site may be impacted by wind-blown debris, litter, illegal dumping and illegal encampments. Access controls, management, and enforcement will be in place.

Trespass: The Mitigation Site is surrounded by urban land uses. Trespass in form of unauthorized encampments currently occurs and may occur in the future. Access controls will be in place.

Fire and Fire Suppression: The site may be impacted as a result of emergency fire suppression activities in the event of fire or aviation accidents.

Invasive Species: Nonnative invasive species currently occur on the site. While invasive species will be removed as part of the management within the Mitigation Site, sources of invasion outside the Mitigation Site boundaries may be difficult to control (and are not part of this plan).

Pests and Diseases: Regional infestations may have the potential to affect the Mitigation Site, including mosquito-borne diseases and plant pests. Management may require emergency funds.

4.1.3 Adaptive Management

Adaptive management is a cyclic, goal-drive process that is tested and revised as new information becomes available, specifically to adapt to the effects of climate change. Over time, the understanding of the status and conditions of the Mitigation Sites, their habitats and species, and ability to manage stressors will increase. Following the Atkinson et al. (2004) model for adaptive management, the monitoring data will be collected, analyzed, and then used in the decision-making on next steps to determine management actions, survey protocols, and/or triggers. Conceptual models feed and scientific principles and information are evaluated against the objectives identified in this LTMP, and feed back to conservation strategies and management decisions, and any adaptations that may need to be made to monitoring and management methods.

Adaptive management program shall include regular coordination with the San Diego Management and Monitoring Program (SDMMP) as part of the Management Strategic Plan for Conserved Lands in Western San Diego County (SDMMP 2014). Adaptive management shall be conducted as needed in coordination with the Regulatory Agencies, City of San Diego, and in participation with SDMMP, as feasible. Adaptive management measures that are not identified in and funded by this LTMP will require the use of emergency funds or additional funding (e.g., grant or emergency funding).

4.1.4 Management Targets and Triggers

The Mitigation Site will be managed to benefit the following management targets.

Riparian and Wetland Habitat

Status: federally and state-protected; considered jurisdictional wetlands by the Corps, RWQCB, CDFW, and City of San Diego.

Habitat: The restored and enhanced riparian and wetland habitats surround Alvarado Creek, which runs intermittently based on stormwater input and natural precipitation events. These habitats hold water either after heavy rains or with dry weather flows; Alvarado Creek naturally flows intermittently, but drains hard surfaces from developed areas in the watershed that contribute to the flows in the creek. These wetlands may periodically dry up, often in mid to late summer or following long periods of drought. The water source is infiltrated water from stream flows. The restored habitats consist mainly of willow riparian forest that include coast live oaks and mulefat and southern willow scrub habitats. Ephemeral wetlands may develop at the edges of the creek as a result of natural succession.

Threats: Habitat destruction, invasive species, fragmentation, changes in hydrological regime including groundwater withdrawal or stream flow blockage, pollutants, and sedimentation. Although ephemeral wetlands filtrate out some pollutants, heavy pollution such as airplane fuels may affect water quality and wetlands vegetation.

The impetus behind monitoring data collection is to determine long-term trends and identify adaptive management triggers and provide feedback loops. These triggers may increase or decrease management and monitoring needs or suggest adaptive management studies necessary to identify threats, stressors and their remediation. Triggers shall be identified in annual reports and adaptive management or remediation recommended (feedback loop). Adaptive management strategies may need to be employed based on the following triggers:

- an average decline of native riparian and wetland plant species for more than two to three consecutive years regardless of rainfall;
- an average increase of non-native plant species over five years;
- a change in hydrology that significantly and permanently affects the health and function of the native habitats on the Mitigation Site.

Adaptive management should occur as soon as a management trigger criterion has been reached (over two to three years of monitoring), as indicated by the monitoring data. The LTMP may have to be updated accordingly.

4.2 One-Time Baseline Inspections

Baseline inspections and biological surveys will provide the Habitat Manager with documentation of the baseline condition of the Mitigation Site, and are considered one-time tasks (i.e. they will not be performed annually for the purpose of long-term monitoring). Baseline survey results will serve as a reference to which future monitoring can be compared, which can then be used to establish management triggers and inform future management. Because created and restored habitat

areas would have been carefully monitored prior to the initiation of long-term management, the purpose of the baseline surveys is confirm the conditions reported in the final post-restoration monitoring and maintenance report.

4.2.1 Baseline Survey

Objective: *Conduct baseline inspection of the property, including general conditions and access controls.*

Objective: *Conduct a biological inventory within the first year of long-term management to document the baseline conditions.*

Task: baseline inspection. Prior to conducting long-term management, the Habitat Manager shall inspect the Mitigation Site to confirm baseline conditions (including habitat boundaries, erosion and scour, photo documentation markers), access controls (fencing, gates, signage), and confirm that management conditions are compatible with those described in the LTMP and PAR.

Task: invasive species mapping. During the first year of long-term management, the Habitat Manager shall map invasive species and qualitatively estimate the percent cover to establish a baseline. The baseline mapping shall be used to compare long-term conditions of the Mitigation Sites. Mapping may be accomplished through use of available technologies, such as GIS and aerial photography.

Task: biological resources inventory. During the first year of long-term management, the Habitat Manager shall conduct a general biological resources survey to confirm baseline conditions and detect any potentially sensitive plant and animal species. The surveys shall be conducted in the spring to capture the blooming window of native plant species and the time of highest detectability for sensitive wildlife species.

4.2.2 Public Outreach

Acceptance of the Mitigation Site as a valuable amenity by the community is an important consideration for the long-term viability of associated open space resources. To that end, steps will be taken to encourage participation by local residents and community members in the stewardship of the mitigation site. It is a goal of this plan that community members take pride in the maintenance and protection of the Preserves, and function as stewards of the Preserve in coordination and consultation with the Habitat Manager.

Objective: *Educate public and inform of habitat management, stewardship opportunities, and prohibited acts.*

Task: installation of signage: At the onset of habitat management activities, the Habitat Manager shall install two signs identifying the Mitigation Site as a managed preserve, prohibiting access, and providing the Habitat Manager's contact information. The signs shall be installed in locations visible to the public.

Task: public outreach. Within three months of the onset of habitat management, the Habitat Manager shall inform the public about the mitigation site and habitat management to be conducted on the site (see Section 4.5.3).

4.3 Long-Term Monitoring

Monitoring methods shall be specifically designed for long-term management rather than post-restoration management and shall include trend monitoring methods. Following the Atkinson et al. (2004) model for adaptive management, the monitoring data should be collected, analyzed, and then used in the decision-making on next steps and any necessary revisions to the LTMP. Adaptive management shall consist of providing feedback loops that lets the Habitat Manager adapt monitoring and management methods to scientific outcomes, study results, successes and failures, and new threats and stressors. Management activities in form of a work plan are summarized in Table 2 at the end of Section 4. Many of the tasks identified below may be combined during one monitoring or maintenance visit.

4.3.1 General Conditions Monitoring

This section discusses the general monitoring directives (tasks) that apply to the general long-term stewardship of the onsite Mitigation Site. The Mitigation Site shall not be open to the public and shall be fenced off from the adjacent pedestrian trail. Educational access might be permitted as authorized by the Habitat Manager. The Mitigation Sites are intended to serve as a long-term preservation areas for sensitive habitats and wildlife species, and as such, are not compatible with the following activities:

- Off-road vehicle use
- Hunting
- Dumping
- Construction activities and staging
- Unauthorized recreational use or camping
- Unauthorized vegetation clearing or mowing
- Removal of natural resources.

The Habitat Manager shall control access to prevent unauthorized dwellings and other unauthorized access. Vehicular access shall be limited to management or emergencies. Exceptions to these prohibitions include specific activities related to habitat restoration and biological resources monitoring and management pursuant to this LTMP.

Objective: *Conduct regularly scheduled site assessments to identify potential management issues.*

Task: qualitative site visits. Quarterly site visits shall be conducted to assess the overall condition of the Mitigation Site and to identify threats and stressors (e.g., signage, fencing, trash, unauthorized access/vandalism, habitat degradation/erosion, vegetation loss, invasive species, erosion, edge effects, pests and diseases, etc.). During these visits, incidental observations of sensitive plants and animals shall be mapped and recorded. A log shall be kept during each visit

describing the observations, actions taken, and recommended future actions. The Habitat Manager shall coordinate with neighboring land owners on any issues related to trespass and other damages.

Task: vehicle access control. No vehicle access shall remain at the Mitigation Sites after successful restoration. Access for the purpose of monitoring and management shall be limited to pedestrian access. Should vehicle access be necessary to maintain the Mitigation Sites, access should be temporary, not impact any of the sensitive resources for which the Mitigation Sites were restored, and be restored to pre-existing conditions as necessary.

Task: emergency access. Emergency access (e.g., for the purpose of accident recovery or fire suppression) shall be granted to the Mitigation Site, and shall be coordinated with the Habitat Manager as feasible. The Mitigation Site shall be restored to pre-existing conditions should emergency access cause disturbance to the Mitigation Sites.

Habitat-specific monitoring and management will be performed to maintain riparian and wetlands functions and services. The Mitigation Site will receive basic stewardship management as described in Section 4.4. Management activities shall begin immediately upon satisfaction of habitat restoration success criteria and the availability of management funds.

4.3.2 Vegetation Mapping

The Mitigation Site experiences edge effects from surrounding developments. This and other effects (e.g., climate change, site disturbances, etc.) may cause a change in the vegetation types and composition of the vegetation communities on the sites. Vegetation mapping will assist in the monitoring of vegetation trends and inform the Habitat Manager of any adaptive management tasks that might be necessary to maintain the desired vegetation communities to benefit the native floral and faunal communities for which the site were restored and preserved.

Objective: *Maintain or increase the value of the native vegetation communities, including species integrity, diversity, and richness.*

Task: vegetation community mapping. Every five years, the vegetation communities of the Preserve shall reviewed and updated to identify any changes. Mapping will be conducted on foot with the aid of a current vegetation map, aerial photograph, and GPS unit with sub-meter accuracy. The survey method will consist of surveying meandering transects on foot throughout the site to classify vegetation communities. In addition, all observations of plant and animal species will be recorded. The location of sensitive species observed on site will be recorded with a global positioning (GPS) unit with sub-meter accuracy. The Habitat Manager shall use the Vegetation Classification Manual for Western San Diego County (SANDAG 2011) and crosswalk to Holland (1986)/Oberbauer (2008), unless otherwise directed by the City or Regulatory Agencies. The revised maps will be submitted to the City MMC and Regulatory Agencies. A revised map will be included in the annual report. If significant vegetation community changes are noted, the cause of vegetation changes shall be determined, the City of San Diego and regulatory agencies notified, and adaptive management methods applied to enhance or restore any lost riparian vegetation communities.

4.3.3 Invasive Species Monitoring and Mapping

Post-restoration, all Mitigation Sites are expected to be 95% weed-free in perpetuity. Special attention shall be given to high and moderate threat Cal-IPC species, and new invasive species that may not be included in the Cal-IPC lists.

Objective: *The Mitigation Sites shall be mostly (95%) free of invasive and non-native species as defined by Cal-IPC or other regional guidance; this includes newly introduced species that may not have been listed by Cal-IPC. Cover of invasive species shall not exceed 5 percent greater than the baseline condition established during the first year of long-term monitoring.*

Task: annual invasive species mapping. The Habitat Manager shall map invasive species twice per year in the spring to target specific problem areas and collect an invasive species inventory. In addition, the Habitat Manager shall qualitatively assess the Mitigation Sites at each scheduled site visit for signs of exotic species invasion. During these site visits, the Habitat Manager shall identify potential problem areas, map infestations and estimate the relative cover of target invasive species to determine extent and location of invasive species control. Cover estimates shall occur during the quantitative vegetation surveys; non-native species shall be assigned their own cover class to allow for trend monitoring and targeted removal. In addition, the Habitat Manager shall assess previously treated areas for one to three years after removal to ensure that invasive species have not re-emerged or been replaced by new invasive species. Invasive species identification may occur during the quarterly patrols.

4.3.4 Habitat Monitoring

The restored and enhanced native riparian and wetlands habitats on the Mitigation Site provides functions and services to improve water quality and benefit the local flora and fauna. The Mitigation Site was restored to mitigate for wetlands functions lost from the construction of the Project. Habitat monitoring will assist in the evaluation of these continued functions and services.

Objective: *The riparian habitat shall have similar species composition, frequency and species richness of plant species in high functioning riparian ecosystems.*

Task: annual photographic documentation. During one of the qualitative site visits in the spring, the Habitat Manager shall conduct photodocumentation of the riparian and wetlands habitat on the Mitigation Site. Permanent photo points (15) were established during the post-restoration monitoring period. These 15 photo points shall be used for annual photo monitoring. Photo points shall be marked using sub-meter accuracy GPS units; permanent markers may be placed, or existing markers reused. Photographs shall be taken at the same time each year from the same locations, angle, and vantage point to monitor change over time. Direction, height and angle of photographs shall be recorded to assure that the same vantage point is used repeatedly over the monitoring period. Photos shall be compared between each sampling event to document changes and trends.

4.4 Long Term Management

Management and maintenance of the Mitigation Site shall consist of invasive species control, trash removal, and access control maintenance. Management activities in form of a work plan are summarized in Table 2 at the end of Section 5.

4.4.1 Habitat Maintenance

General maintenance of the site should occur on a regular basis, at least twice per year. Litter, trash (including wind-blown trash) and dumping, homeless camps and other unauthorized uses are potential threats to the biological resources throughout the Mitigation Sites. The Habitat Manager shall remove trash, repair structures and access controls, maintain the functions of the creek and maintain the habitats for which the Mitigation Site was restored and protected.

Objective: *Collect and remove trash, repair vandalized structures and access controls, and rectify trespass impacts. Work with City enforcement to remove homeless camps.*

Task: general habitat maintenance. Conduct trash pick-up, erosion repairs, and access control. The as-needed maintenance requirements and schedule is dictated by the monthly qualitative site visits described above.

Task: trash removal. The Habitat Manager shall collect and remove industrial waste, trash, or other debris encountered within the restoration areas, including encampments. All materials shall be disposed of in a legal manner. Natural materials such as duff, leaf litter and wooden debris from broken tree limbs, etc., shall be left in place to provide wildlife habitat.

Task: sign installation. Signs would have been posted during the restoration of the Mitigation Site. Signs shall be maintained in perpetuity.

Task: fence and barrier installation. Fencing would have been installed during the restoration effort. The southern portion of the property is fenced with a chain link fence. Fencing north of the creek is included as part of the riding/walking trail and total approximately 350 linear feet. The Mitigation Site shall remain fenced as required in the mitigation plans. Fences shall be maintained in perpetuity; however fence maintenance is assumed to be minimal.

Task: homeless encampments: The Habitat Manager will report the location of encampments and those individuals who refuse to discontinue illegal activities, such as collecting natural resources and directing lighting from adjacent developments into the Preserve, to the City's Code Enforcement and applicable law enforcement agencies.

4.4.2 Invasive Species Control

Invasive species threaten the diversity and abundance of native species through competition for resources, predation, and parasitism, interbreeding with native populations, transmitting diseases, or causing physical or chemical changes to the invaded habitat. "Invasive species" are those identified as moderate or high risk by the California Invasive Plant Council (Cal-IPC 2006) or other species determined to be locally invasive.

Invasive species removal shall occur at least twice per year in the early and late spring, starting with invasive species emergence, and as directed through invasive species mapping and qualitative site visits. All workers conducting invasive plant removal activities shall be able to distinguish between native and non-native species, with special attention to rare plant species. Invasive species removal shall be conducted by personnel holding valid pesticide application licenses.

Objective: *Control invasive species that diminish the sensitive biological resources for which the Mitigation Site was established and restored.*

Task: general invasive species control. If an invasive species is determined to be a threat, appropriate control methods shall be employed, including hand removal, the use of mechanical equipment (e.g., weed whackers and mowers), or application of an appropriate herbicide. Spot-spraying with herbicides approved for use in California shall be conducted only by a licensed pesticide applicator and all label instructions shall be followed. Invasive species removal should be conducted before seed-set at the appropriate time of year based on the biology of a given species and potential impacts to sensitive plants and breeding birds.

Herbicide applications near or in water shall be conducted using water-safe materials. Invasive species may need to be removed manually. All invasive species material will be carefully removed from the site and legally disposed of at an appropriate facility. If an extensive treatment is needed, a detailed invasive species control plan shall be prepared and discussed with the City and Regulatory Agencies. Newly discovered invasive species should be targeted and removed as research prescribes.

4.5 Coordination and Reporting

4.5.1 Fire Management Coordination

Fire is an important element in the ecology of southern California, but may cause damage to native habitat and species if it burns too hot or too frequently. If a native habitat is affected by fire, there are general expectations for recovery, but also invasion by weeds. Following a fire, quantitative data should be carefully evaluated to identify short- and long-term impacts and adaptive management methods. The mitigation area is not in a City-required brush management zone and brush management (vegetation thinning) would not be conducted within the mitigation site.

Objective: *Coordinate with San Diego Fire Department on an as-needed basis to protect or restore the property from the effects of fires.*

Task: coordination. In the event of a fire, all necessary measures to protect lives and property will be utilized by the San Diego Fire Department. The City will coordinate with City fire staff to discuss appropriate access locations and measures to minimize impacts to sensitive biological resources in the event of a wildfire on site. Evidence of fire or disturbance from fire suppression shall be evaluated for impacts to the site (loss of native habitat, weed invasion, erosion, etc.). Following a fire, the habitat is allowed to recover naturally unless quantitative data identify short- and long-term impacts, the remediation of which should employ adaptive management methods such as habitat restoration.

Task: fire management. Any damage resulting from fire suppression (fencing damage, vehicle damage, contamination from fire suppressant chemicals, etc.) will be addressed immediately. Evidence of fire or disturbance from fire suppression shall also be evaluated for impacts to the site (loss of native habitat, weed invasion, erosion, etc.). Based on quantitative data, appropriate adaptive management measures such as repairs and restoration will be undertaken (emergency fund).

4.5.2 Reporting

An annual report summarizing the status of the Mitigation Site, results of the surveys and inspections, and all major actions taken since the last assessment shall be prepared by the Habitat Manager and provided to the City and Regulatory Agencies no later than December 31 of each year. The report shall be concise and focus on methods, results with quantitative analysis, discussion of correlations and management triggers, changes in monitoring and management methods, recommendations for adaptive management measures, and a summary of expenses and year-end balance of funds. This annual report shall include a discussion of the following:

1. Summary of management and monitoring tasks and issues addressed during the previous year;
2. Overall conditions and functions of the Mitigation Site, including any changes to the health or distribution of sensitive species, hydrological changes, damage resulting from natural or anthropogenic causes, problems with invasive species, trespass, dumping, etc.;
3. Results of qualitative and quantitative monitoring and comparison to previous results;
4. Description of measures to remove invasive and non-native plant/animal species.
5. Site maps of areas of concern (e.g., invasive species, trespass, trash dumping, erosion, etc.)
6. Discussion of trends, correlations, and feedback loops;
7. Problems encountered, and recommendations for management and monitoring identified for the upcoming year;
8. Management triggers and any adaptive management;
9. Status of endowments, funds generated, expenses incurred, and year-end balance.

4.5.3 Public Outreach and Coordination

As described in Section 4.2.2, public outreach and education is an important task to continue community relations relative to preserve management, safety, and enforcement. Public outreach will include, but is not limited, to maintenance of signs, and coordination with neighboring land owners and the community.

Objective: *Educate public and inform of habitat management, stewardship opportunities, and prohibited acts.*

Task: signage. The Habitat Manager will maintain signage as discussed in Section 4.4.1. The signs shall be in English and Spanish and inform of code violations relative to trespassing and property

damage, including fences and gates. The signs should also include contact information of the Habitat Manager and the City of San Diego Code Enforcement.

Task: education of neighboring community. The Habitat Manager shall provide education to the neighboring community and the public regarding the sensitivity of riparian habitats and conserved open space. The Habitat Manager may also reach out to landowners of surrounding properties to inform them about edge effect management, such as access controls, trespass, littering, and invasive species invasion concerns. Coordination may include reporting of trespassing, poaching, and vandalism, and other violations. Contact information shall be provided.

Table 1. Summary of Long-term Monitoring and Management Tasks

TASK	PURPOSE	FREQUENCY
Habitat Monitoring		
Qualitative habitat monitoring; general conditions assessment	Assess overall condition of Mitigation Site (e.g., fencing, trash, trespassing, invasive species, need to vegetation trimming, habitat degradation, topography, etc.) and map incidental observations of sensitive species. Evaluate threats and stressors and adaptive management responses.	Quarterly
Vegetation mapping	Map vegetation communities to track changes in boundaries and composition over time.	Once every five years
Invasive species monitoring and mapping	Map infestations of invasive species and estimate percent cover of non-native species.	Twice per year in early and late spring
Habitat monitoring	Conduct photo documentation at approximately 15 photo points across the site to assess changes in vegetation conditions and habitat functions.	Annually in spring
Habitat Management		
Habitat Maintenance	Remove invasive species and trash, maintain access protection and signs, repair erosion and vandalism problems, , etc.	Twice per year or as needed
Invasive species control	Control and remove non-native and invasive species per LTMP requirements.	Twice per year in early and late spring
Reporting		
Annual reports	Prepare annual report summarizing all management and monitoring activities, continued threats, and other pertinent information for submittal to the City and Regulatory Agencies. Coordinate with neighbors, City, Regulatory Agencies as needed (including fire management).	Annually, submitted to resource agencies and City of San Diego on or before December 31
Public Outreach	Prepare brochures and conduct public outreach to neighboring landowners and residences	At the onset of habitat management and as-needed.

5.0 REFERENCES

Atkinson, A.J., P.C. Trenham, R.N. Fisher, S.A. Hathaway, B.S. Johnson, S.G. Torres, Y.C. Moore. 2004. Designing monitoring programs in an adaptive management context for regional multiple species habitat conservation plans. USGS Western Ecologist Research Center, Sacramento, CA.

Blackhawk Environmental, Inc. 2021. Alvarado Creek Affordable Housing Project Habitat Mitigation and Monitoring Plan. Submitted to Ascent Environmental and City of San Diego. In progress.

California Invasive Plant Council (Cal-IPC). 2006. California Invasive Plant Inventory. Berkeley, CA. Available online: http://www.cali-ipc.org.

City of San Diego. 2018 as amended. San Diego Municipal Code, Land Development Manual, Biology Guidelines. February 2018.

Holland, R. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California.

Oberbauer, T., and M. Kelly based on Robert Holland. 2007. Vegetation Communities of San Diego County based on "Preliminary Descriptions of the Terrestrial Natural Communities of California", Robert F. Holland, Ph.D. October 1986.

SANDAG. 2011. Vegetation Classification Manual for Western San Diego County. First Edition. February 2011.

San Diego Management and Program (SDMMP). 2014. Management Strategic Plan (MSP) for Conserved Lands in Western San Diego County. San Diego Management and Monitoring Program.

United States Department of Agriculture (USDA). 1973. San Diego County Soil Survey, Natural Resources Conservation Service (NRCS), Washington, D.C.

Appendix A: Property Analysis Record (PAR)

Property Analysis Record
Habitat Management Endowment Report
For Alvarado Creek Affordable Housing Project
Mitigation Site

Project Information

Preparer:

PAR Preparer: Schaefer Ecological Solutions
Christina Schaefer (certified CNLM PAR Preparer)
Address: 815 Madison Avenue
San Diego, CA 92116
Phone: 619-991-8968
Email: christina@schaeferecology.com

Date: June 30, 2022

Project and Mitigation Site Owner:

Contact: The Pacific Companies
ATTN: Darren Berberian
Address: 4330 East State Street
Eagle, Idaho, 836161155
Phone: (949) 599-6069
Email: darrenb@tpchousing.com

Habitat Preserve Property:

Type: Mitigation Site
APN: portions of 461-320-06, 461-320-08, and 461-320-09
Acreage: 0.599 acre (mitigation site only)

Habitat Manager: TBD

1.0 Introduction

The purpose of the Alvarado Creek Affordable Housing Property Analysis Record (PAR) is to prepare a cost estimate for the long-term management and monitoring of the Alvarado Creek Affordable Housing Mitigation Site (Mitigation Site), which is owned by the Project Proponent, The Pacific Companies. The 0.599-acre Mitigation Site is located southeast of Mission Gorge Road, south of Mission Gorge Place, and north of Interstate 8 (I-8) and the Grantville Trolley station.

This PAR is built upon the requirements set forth in the Alvarado Creek Affordable Housing Long-Term Management Plan (LTMP) that was prepared by SES in October 2021 and last updated on June 30, 2022, to ensure the long-term management of the Project's Mitigation Site. The cost analysis is based on the assumptions described below. Although this PAR may be used as a stand-alone document, it should be considered in association with the detail provided in the LTMP.

2.0 Preserve Details

1. The PAR was prepared exclusively for the Alvarado Creek Affordable House Mitigation Site.
2. The Mitigation Site is owned by The Pacific Companies. It is currently not conserved, but will be conserved in perpetuity through a Conservation Easement granted by The Pacific Companies to the Habitat Manager.
3. A Habitat Manger or Easement Manager has not yet been identified. Per the requirements by the CDFW, the Habitat Manager and Easement Managers must be separate entities. Easement management is identified as a line item in the annual PAR costs.
4. The Mitigation Site will have been restored and completed a five-year post-restoration monitoring and maintenance period at the onset of the long term management schedule.
5. The installation of gates and fencing will have been completed as part of the project construction and habitat restoration efforts. Therefore, costs for the installation of perimeter controls are not included in the PAR; long-term management will be limited to perimeter control maintenance and fence repair/replacement.
6. Signage will be installed during at the beginning of the long-term management to identify the Habitat Manager and site protection. The PAR assumes two signs, the location of which will be determined. The PAR includes repair and replacement of both signs every five years.
7. Baseline surveys and initial public outreach will be conducted at the onset of management activities. Baseline surveys will form the baseline for ongoing monitoring and management.
8. Ongoing efforts include management in perpetuity pursuant to provisions of the LTMP and in the table at the end of this document.

3.0 Cost Assumptions

The cost assumptions detained in the PAR are based on the following, and as detailed in this document:

1. The Project Proponent (The Pacific Companies) is responsible for funding the LTMP (impact fee) and success of the long term management. The Habitat Manager is responsible for habitat management pursuant to the LTMP. The City of San Diego and the Regulatory Agencies will ensure through receipt of annual reports that monitoring and management are conducted in

perpetuity in a manner consistent with the LTMP. Identity of Habitat Manager will be provided prior to the issuance of the grading permit.

2. Funding for long-term management will occur through the investment of an endowment identified in this PAR. The land manager will commence management as soon as funds are available and the restoration of the Mitigation Site has been accepted as completed by the City of San Diego Development Services Department (DSD) and Mitigation Monitoring Coordination (MMC), and Regulatory Agencies.
3. Costs for maintenance, monitoring and surveys are based on standard land trust/land management rates.
4. Costs are expected to increase annually due to inflation. The PAR provides an average per year estimated cost over 50 years, assuming a 3% inflation.
5. Cost for easement management are included in the PAR. The easement manager is a separate entity and may request that a separate PAR be prepared specific to the easement manager's conditions.
6. The habitat manager may conduct a separate PAR based on the habitat manager's conditions and fees. Slight adjustments may occur upon retention of a habitat manager.
7. The endowment will be managed by the San Diego Foundation based on a 4.25% rate of return.

4.0 Personnel

1. Management activities will be conducted by an accredited and CDFW-licensed Habitat Manager and their qualified personnel. To be "qualified," a habitat manager must have experience managing conserved lands with similar biological resources and be able to identify native plants.
2. Certain activities, such as trash removal, vegetation thinning and invasive species removal, may be conducted by maintenance staff or contractors; however, all maintenance activities will be supervised and managed by the Habitat Manager to ensure that native species and habitat are not damaged.
3. The PAR uses standard management, labor, and material rates provided by accredited conservancies and land trusts[1]. Labor rates are as follows (including overhead and fees):
    - Executive Director: $145/hour
    - Habitat Manager: $110/ hour
    - GIS Specialist: $105/ hour
    - Field Technician: $95/hour
    - Crew Supervisor/Pesticide Applicator: $97/hour
    - Field Technician: $45/hr.

5.0 Onetime and Ongoing Costs and Schedules

Management will consist of long-term management and monitoring of the Mitigation Site, and will continue indefinitely as identified in Table 1. Initial (Onetime) costs occur once only, typically at the beginning of the long-term management effort, and are identified separately on the first page of the PAR Output.

[1] The PAR costs are based on an average fee; each Habitat Manager may use a different cost analysis and will provide a revised PAR as part of the acceptance of the management contract.

Ongoing costs are estimated on an average annual basis and are identified on page 2 of the PAR Output. However, actual expenses will vary from year to year, as specific management and monitoring activities will occur at different frequencies and at times may require more or less intensive efforts. The frequencies (i.e. twice per year (=0.5), annually (=1), every five years (=5), etc.) are identified in the ”Year” column of the PAR Output. The cost estimate for habitat monitoring and maintenance activities includes travel time, preparation/submittal of monitoring logs, GIS data entry, analysis, administrative and contingency percentages, and emergency fund costs.

5.1 Baseline Surveys

5.1.1 Baseline Inspections

Baseline inspections and biological inventory will serve as a reference to which future monitoring can be compared, which can then be used to establish management triggers and inform future management. Because created and restored habitat areas would have been carefully monitored prior to the initiation of long-term management, the purpose of the baseline surveys is to confirm the conditions reported in the final post-restoration monitoring and maintenance report. Baseline inspections include a confirmation of site conditions and invasive species mapping and shall be conducted in the spring.

5.1.2 Public Outreach

Within three months of the onset of habitat management, the Habitat Manager shall install signs and inform the neighboring residences and/or business about the mitigation site and management.

5.2 Long-Term Monitoring

5.1.1 General Conditions Monitoring (Quarterly Patrol)

General conditions monitoring would be conducted quarterly to assess the general conditions of the Mitigation Site. This would include observations of invasive species, trash and debris, vandalism and trespassing, erosion, habitat degradation, vegetation management needs, and the integrity of all perimeter controls and access routes. Site visits will be documented with site visit logs and/or data spreadsheets, and information updated in GIS, as necessary. Specialized site visits as discussed below may occur concurrently.

5.1.2 Vegetation Mapping

Every five years, the vegetation communities of the Mitigation Site shall reviewed and updated to identify any changes. Mapping will be conducted on foot with the aid of a current vegetation map, aerial photograph, and GPS unit with sub-meter accuracy. The survey method will consist of surveying meandering transects on foot throughout the site to classify vegetation communities.

5.1.3 Invasive Species Monitoring

The Habitat Manager shall map invasive species twice per year in the spring to target specific problem areas and collect an invasive species inventory. This may occur concurrently with the general conditions monitoring site visits (quarterly patrols).

5.1.4 Habitat Monitoring

During one of the qualitative site visits in the spring, the Habitat Manager shall conduct photodocumentation of the riparian and wetlands habitat on the Mitigation Site. Permanent photo points

(15) were established during the post-restoration monitoring period. These 15 photo points shall be used for annual photo monitoring. This may occur concurrently with the spring visit of the quarterly patrols.

5.2 Long Term Management

5.2.1 Habitat Maintenance

General maintenance of the site should occur on a regular basis, at least twice per year. Litter, trash (including wind-blown trash) and dumping, homeless camps and other unauthorized uses are potential threats to the biological resources throughout the Mitigation Sites. The Habitat Manager shall remove trash and debris (except for duff, leaf litter and other natural, habitat-related debris), repair structures and access controls, maintain the functions of the creek and maintain the habitats for which the Mitigation Site was restored and protected. Trash identified during the quarterly visits will be removed with one larger removal effort planned on an annual basis. Any damage to or required replacement of the fencing will be reported to the City's Code Enforcement for repair or replacement. The Habitat Manager will report the location of encampments and those individuals who refuse to discontinue illegal activities, such as collecting natural resources and directing lighting from adjacent developments into the Preserve, to the City's Code Enforcement and applicable law enforcement agencies.

5.2.2 Invasive Species Control

Per the LTMP, Zero Tolerance (per CalIPC) and other non-native species will be removed and/or treated at least twice per year upon identification. These and other invasive species will be controlled in a seasonally timed manner that will prevent further invasion of the exotic species (i.e., before any new seed source matures) and allow for coordination of exotic species removal efforts with restoration measures if necessary. Removal of non-native species may be conducted using herbicides per specifications identified in the LTMP.

6.0 Planning, Reporting & Administration

This task includes coordination, administration, data analysis and the preparation and submittal of annual reports to the City of San Diego, and Regulatory Agencies.

1. Preserve Management, Planning and Coordination. The Preserve Manager will be responsible for coordination of all management and monitoring activities, including coordination with the San Diego Fire Department or local fire marshal to discuss access points and measures to minimize impacts in the event of fire damage, and coordination with the public.
2. Reporting. An annual report summarizing all management and monitoring activities, continued threats, and other pertinent information for submittal to the City and Regulatory Agencies, per the requirements of the LTMP. The Habitat Manager will update electronic files, photographs, hard copies, and GIS data annually.
3. Contingencies and Administration. Contingencies are included in the PAR at 12 percent over the overall budget and include emergencies and unforeseen events, such as floods, drought, fire, fallen trees, etc. Staff rates are 16 percent above raw rates. The 10 percent administrative expenses consist of the costs for contract administration, project management, etc. Adaptive management is anticipated over the life of the stewardship and the LTMP is expected to evolve and be updated as site conditions warrant. However, changes to the scope of annual stewardship as a result of adaptive management will be limited to available contingency funds.

PAR Summary

As detailed in the attached PAR Output, the onetime fee would amount to **$3,003.84**. The *average* annual allocation of approximately **$10,305.43** will be required for management and monitoring of the Mitigation Site. It is understood that some years may require more intensive management than others, specifically relative to invasive species removal and sensitive species surveys. The annual costs are generated by the interest earned from the endowment and may vary depending on market economies. Any remaining management funds for a given year may be rolled over to the next year. The total endowment, including legal fund, needed to manage the MAP Offsite North Mitigation Site amounts to **$251,235.39.** This amount is based on a 4.25 percent rate of return (specific to the San Diego Foundation), which varies annually depending on market volatility.

Summary of Long-term Monitoring and Management Tasks

TASK	PURPOSE	FREQUENCY
Habitat Monitoring		
Qualitative habitat monitoring; general conditions assessment	Assess overall condition of Mitigation Site (e.g., fencing, trash, trespassing, invasive species, need to vegetation trimming, habitat degradation, topography, etc.) and map incidental observations of sensitive species. Evaluate threats and stressors and adaptive management responses.	Quarterly
Vegetation mapping	Map vegetation communities to track changes in boundaries and composition over time.	Once every five years
Invasive species monitoring and mapping	Map infestations of invasive species and estimate percent cover of non-native species.	Twice per year in early and late spring, concurrently w/qualitative habitat monitoring
Habitat monitoring	Conduct photo documentation at approximately 15 photo points across the site to assess changes in vegetation conditions and habitat functions.	Annually in spring, concurrently with qualitative monitoring
Habitat Management		
Habitat Maintenance	Remove invasive species and trash, maintain access protection and signs, repair erosion and vandalism problems, , etc.	Twice per year or as needed
Invasive species control	Control and remove non-native and invasive species per LTMP requirements.	Twice per year in early and late spring
Reporting		
Annual reports	Prepare annual report summarizing all management and monitoring activities, continued threats, and other pertinent information for submittal to the City and Regulatory Agencies. Coordinate with neighbors, City, Regulatory Agencies as needed (including fire management).	Annually, submitted to resource agencies and City of San Diego on or before December 31
Public Outreach	Prepare brochures and conduct public outreach to neighboring landowners and residences	At the onset of habitat management and as-needed.

PAR OUTPUT

Initial Tasks and Costs

PROPERTY: Alvarado Creek Mitigation Site LAST UPDATED: 06/30/2022

TASK	ITEM	TITLE	#	UNIT	COST (Item)	COST (Title)	BASE COST	YRS	ANNUAL CONT	ANNUAL ADMIN	ANNUAL COST
Initial Property Inspection											
Site Visit/Inspection		Executive Director	1	Hour(s)		$ 145.00	$ 145.00	1	$ 17.40	$ -	$ 162.40
Site Visit/Inspection		Habitat Manager	1	Hour(s)		$ 110.00	$ 110.00	1	$ 13.20	$ -	$ 123.20
Document Preparation & Review		Habitat Manager	1	Hour(s)		$ 105.00	$ 105.00	1	$ 12.60	$ -	$ 117.60
							SUBTOTAL		$ 43.20	$ -	$ 403.20
Biotic Surveys											
Biological Inventory		Habitat Manager	4	Hour(s)		$ 110.00	$ 440.00	1	$ 52.80	$ -	$ 492.80
Biological Inventory		GIS Contractor	2	Hour(s)		$ 105.00	$ 210.00	1	$ 25.20	$ -	$ 235.20
							SUBTOTAL		$ 78.00	$ -	$ 728.00
Habitat/Site Maintenance											
Signs	Basic - 12"x16"		2	Item(s)	$ 42.00		$ 84.00	5	$ 2.02	$ -	$ 18.82
Signs	Hardware		2	Fee	$ 2.00		$ 4.00	5	$ 0.10	$ -	$ 0.90
Signs	Installation - Basic Sign	Field Technician	1	Hour(s)		$ 45.00	$ 45.00	5	$ 1.08	$ -	$ 10.08
							SUBTOTAL		$ 3.19	$ -	$ 29.79
General Coordination											
Coordinate - Neighboring Entities		Habitat Manager	1	Hour(s)		$ 110.00	$ 110.00	1	$ 13.20	$ -	$ 123.20
							SUBTOTAL		$ 13.20	$ -	$ 123.20
Field Equipment											
Mileage	Mileage - Initial Year		60	Mile(s)	$ 0.59		$ 35.40	1	$ 4.25	$ -	$ 39.65
							SUBTOTAL		$ 4.25	$ -	$ 39.65
Operations											
Project Management		Executive Director	1	Hour(s)		$ 145.00	$ 145.00	1	$ 17.40	$ -	$ 162.40
Audit	Audit - Flat Fee		1	Per Site	$ 730.00		$ 730.00	1	$ 87.60	$ -	$ 817.60
Track Endowment		Executive Director	1	Hour(s)		$ 145.00	$ 145.00	1	$ 17.40	$ -	$ 162.40
Insurance Liability			1	Fee	$ 315.00		$ 315.00	1	$ 37.80	$ -	$ 352.80
Terrafirma Insurance			1	Fee	$ 55.00		$ 55.00	1	$ 6.60	$ -	$ 61.60
Project Accounting		Accountant	1	Hour(s)		$ 110.00	$ 110.00	1	$ 13.20	$ -	$ 123.20
							SUBTOTAL		$ 180.00	$ -	$ 1,680.00

TOTAL $ 3,003.84

Annual Ongoing Tasks and Costs

PROPERTY: Alvarado Creek Mitigation Site LAST UPDATED: 06/30/22

TASK	ITEM	TITLE	#	UNIT	COST (Item)	COST (Title)	BASE COST	YRS	ANNUAL CONT	ANNUAL ADMIN	ANNUAL COST
Biotic Surveys											
Vegetation Communities Mapping		Habitat Manager	2	Hour(s)		$ 110.00	$ 220.00	5	$ 5.28	$ -	$ 49.28
Vegetation Communities Mapping		GIS Contractor	1	Hour(s)		$ 105.00	$ 105.00	5	$ 2.52	$ -	$ 23.52
Photodocumentation		Habitat Manager	2	Hour(s)		$ 110.00	$ 220.00	5	$ 5.28	$ -	$ 49.28
							SUBTOTAL		$ 13.08	$ -	$ 122.08
Habitat/Site Maintenance											
Quarterly Patrol	Invasives, Photodocumentation, etc.	Habitat Manager	8	Hour(s)		$ 110.00	$ 880.00	1	$ 105.60	$ -	$ 985.60
Invasives	Weeding - Hand Removal	Field Technician	4	Hour(s)		$ 45.00	$ 180.00	0.5	$ 43.20	$ -	$ 403.20
Invasives	Weeding - Manage & Direct	Field Supervisor	4	Hour(s)		$ 97.00	$ 388.00	0.5	$ 93.12	$ -	$ 869.12
Invasives	Weeding - Manage & Direct	Habitat Manager	4	Hour(s)		$ 110.00	$ 440.00	0.5	$ 105.60	$ -	$ 985.60
Invasives	Herbicide Concentrate		2	Gallon(s)	$ 125.00		$ 250.00	0.5	$ 60.00	$ -	$ 560.00
Trash	Dump Fee - Non-organic Debris		1	Item(s)	$ 300.00		$ 300.00	0.5	$ 72.00	$ -	$ 672.00
Signs	Basic - 12"x16"		2	Item(s)	$ 42.00		$ 84.00	5	$ 2.02	$ -	$ 18.82
Signs	Installation - Basic Sign	Field Technician	2	Hour(s)		$ 45.00	$ 90.00	5	$ 2.16	$ -	$ 20.16
Signs	Hardware		2	Fee	$ 2.00		$ 4.00	5	$ 0.10	$ -	$ 0.90
Fencing	Chain Link 6' Galvanized (Materials & Install)		350	Linear Feet	$ 18.00		$ 6,300.00	30	$ 21.00	$ 231.00	$ 462.00
Gate	Vehicle Access Gate		1	Item(s)	$ 200.00		$ 200.00	10	$ 2.00	$ 22.00	$ 44.00
Gate	Lock		1	Item(s)	$ 15.00		$ 15.00	5	$ 0.30	$ 3.30	$ 6.60
							SUBTOTAL		$ 507.09	$ 256.30	$ 5,027.99
Reporting											
Database Management Updates		Executive Director	1	Hour(s)		$ 145.00	$ 145.00	1	$ 17.40	$ -	$ 162.40
Collector Updates & Figures		GIS Contractor	1	Hour(s)		$ 105.00	$ 105.00	1	$ 12.60	$ -	$ 117.60
Annual Report - Preparation		Habitat Manager	8	Hour(s)		$ 110.00	$ 880.00	1	$ 105.60	$ -	$ 985.60
Annual Report - Preparation		GIS Contractor	2	Hour(s)		$ 105.00	$ 210.00	1	$ 25.20	$ -	$ 235.20
Annual Report - Review		Executive Director	2	Hour(s)		$ 145.00	$ 290.00	1	$ 34.80	$ -	$ 324.80
Photo	Aerial Photo		1	Photo(s)	$ 52.00		$ 52.00	1	$ 6.24	$ -	$ 58.24
HMP Update		Habitat Manager	1	Hour(s)		$ 110.00	$ 110.00	5	$ 2.64	$ -	$ 24.64
							SUBTOTAL		$ 204.48	$ -	$ 1,908.48
General Coordination											
Coordinate - Neighboring Entities		Habitat Manager	1	Hour(s)		$ 110.00	$ 110.00	1	$ 13.20	$ -	$ 123.20
Coordinate - Fire Dept.		Habitat Manager	1	Hour(s)		$ 110.00	$ 110.00	10	$ 1.32	$ -	$ 12.32
							SUBTOTAL		$ 14.52	$ -	$ 135.52
Field Equipment											
Mileage	Mileage - Annually		200	Mile(s)	$ 0.59		$ 118.00	1	$ 14.16	$ -	$ 132.16
							SUBTOTAL		$ 14.16	$ -	$ 132.16
Operations											
Easement_Management		Easement Manager	8	Hour(s)		$ 145.00	$ 1,160.00	1	$ 139.20	$ -	$ 1,299.20
Project Management		Executive Director	1	Hour(s)		$ 145.00	$ 145.00	1	$ 17.40	$ -	$ 162.40
Audit	Audit - Flat Fee		1	Per Site	$ 730.00		$ 730.00	1	$ 87.60	$ -	$ 817.60
Track Endowment		Executive Director	1	Hour(s)		$ 145.00	$ 145.00	1	$ 17.40	$ -	$ 162.40
Insurance Liability			1	Fee	$ 315.00		$ 315.00	1	$ 37.80	$ -	$ 352.80
Terrafirma Insurance			1	Fee	$ 55.00		$ 55.00	1	$ 6.60	$ -	$ 61.60
Project Accounting		Accountant	1	Hour(s)		$ 110.00	$ 110.00	1	$ 13.20	$ -	$ 123.20
							SUBTOTAL		$ 180.00	$ -	$ 2,979.20

TOTAL	**$**	**10,305.43**

Financial Summary

PROPERTY: Alvarado Creek Mitigation Site LAST UPDATED: 06/30/2022

Acreage =	0.599	
Contingency Rate =	12%	
Administrative Rate (Staff) =	16%	
Administrative Rate (Subs & Materials) =	10%	
Endowment per Acre =	$	353,009.76
Endowment per Acre per Year =	$	16,621.66

	Initial Year	Ongoing
Contingency	$ 321.84	$ 933.33
Administrative	$ -	$ 256.30

COSTS PER YEAR					**TOTAL ($)**
Initial & Capital Costs for Year 1 at 2021 rates					$ 3,003.84
Annual Ongoing Costs per Year from Year 2 to perpetuity at 2021 rates					$ 10,305.43
TOTAL INITIAL FINANCIAL REQUIREMENTS					
Initial & Capital Costs for Year 1					$ 3,003.84
Annual Ongoing Costs for Year 2					$ 10,305.43
Annual Ongoing Costs for Year 3					$ 10,305.43
Initial Financial Requirements for Years 1, 2,3					**$ 23,614.70**
ENDOWMENT REQUIREMENTS FOR ONGOING STEWARDSHIP					
Endowment to Provide Ongoing Income of	$	10,305.43	at Cap. Rate of	4.25%	$ 242,480.75
Less Total Initial Financial Requirements					$ (23,614.70)
Required Endowment*					**$ 218,866.05**
EMERGENCY & LEGAL FUND					
4% of Endowment					**$ 8,754.64**
TOTAL CONTRIBUTION					
(Initial Financial Requirements for Years 1,2,3 + Endowment + Emergency & Legal Fund)					**$ 251,235.39**

** Assumes the endowment will be paid in 2022 and returns from the endowment will start being used to support stewardship tasks in Year 4 (2027).*