Alvarado Trunk Sewer Phase IV Project

ARCHAEOLOGICAL RESOURCES REPORT FORM

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I. PROJECT DESCRIPTION

This letter report documents a cultural resources study for the proposed Alvarado Trunk Sewer Phase IV Project (project). The project is located east of Interstate (I-) 15 and north of I-8 within the Navajo and College Area Community Plan Areas of the City of San Diego, San Diego County, California (Figures 1 and 2, *Regional Location* and *USGS Topography*, respectively; Attachment C). The project is proposed along portions of Fairmont Avenue, Mission Gorge Road, Waring Road, Zephyr Lane, College Avenue, and Alvarado Road (Figure 3, *Aerial Photograph*). The project site is situated within an unsectioned portion of the Mission San Diego Land Grant, on the U.S. Geological Survey (USGS) 7.5' La Mesa topographic quadrangle (Figure 2).

The project proposes to improve the capacity and condition of the existing sewer infrastructure by installing approximately 5.2 miles of new gravity trunk sewer and slip-lined sewer pipelines. Four general construction methods are proposed:

- Installation of new pipelines using open trench construction;
- Installation of new pipelines using trenchless micro-tunneling construction;
- Slip line existing sewer pipelines; and,
- Slurry seal and abandon existing sewer and remove existing manholes.

New trunk sewer pipes would range from 27 to 42 inches in diameter. Open trench construction would primarily occur within developed right-of-way along Twain Avenue, Mission Gorge Road, Mission Gorge Place, Adobe Falls Road, and Alvarado Road. Approximately 950 linear feet of open trench construction is proposed to occur within the City Open Space urban canyon located east of the Smoke Tree Adobe Falls Subdivision. New 30-inch pipe would be installed along Alvarado Road and existing 27-inch and 30-inch pipes within the Alvarado Hospital Medical Center would be abandoned. Abandoned pipelines would be slurry-sealed, and existing manholes would be removed.

Trenchless methods are proposed near Waring Road, Mission Gorge Place, College Avenue, and a large private parking lot associated with San Diego State University. Jacking and receiving pits would primarily be located within parking lots or paved/developed areas.

Existing sewer mains located along Fairmount Avenue, within developed areas north of Alvarado Canyon Road, within the Mission Church of the Nazarene parking lot and adjacent canyon east of Waring Road, and along Zephyr Avenue within the Smoke Tree Adobe Falls Subdivision would be slip-lined with 12-inch high-density polyethylene (HDPE) pipe.

All existing sewer mains and laterals affected by the installation would be reconnected to the new trunk sewer. Roadways and parking lots temporarily disturbed during construction would be repaved. Temporary impact areas not located within road right-of-way or developed areas would be revegetated post-construction with appropriate native plants for mitigation and erosion control purposes. A revegetation plan for temporary impacts will be submitted concurrently with this report. Related work would also include potholing, traffic control, and best management practices, as well as geotechnical activities during design. Existing water, gas, electrical, and storm drain infrastructure would be protected during construction, with the exception of approximately 0.5-mile of water lines located within Mission Gorge Place and interior roadways associated with the Smoke Tree Adobe Falls Subdivision, which would be relocated. Staging and

access would occur within the project footprint. Access to the abandoned pipeline manhole locations would occur within existing maintenance access paths.

This report, prepared in compliance with Section 106 of the National Historic Preservation Act (NHPA) and the California Environmental Quality Act (CEQA), details the methods and results of the cultural resources study for the proposed project. The study included a records search, a Sacred Lands File (SLF) search by the Native American Heritage Commission (NAHC), a review of historic maps and aerial photographs, and an archaeological field survey with a Native American monitor. This report recommends measures to protect undetected historic resources that may be present on the parcels.

II. SETTING

REGULATORY SETTING

Cultural resources are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, and/or scientific importance (Office of Historic Preservation [OHP] 1995). Significant resources are those resources which have been found eligible for listing in the California Register of Historical Resources (CRHR) and/or National Register of Historic Places (NRHP), as applicable.

National Historic Preservation Act (NHPA)

Federal regulations that would be applicable to the project consist of the NHPA and its implementing regulations (16 United States Code 470 et seq., 36 CFR Part 800). Section 106 of the NHPA requires Federal agencies to take into account the effects of their undertakings on historic properties, defined as resources that are NRHP-eligible. To be eligible for the NRHP, a historic property must be significant at the local, state, or national level under one or more of the following four criteria. Eligible properties are those:

A. That are associated with events that have made a significant contribution to the broad patterns of our history;

B. That are associated with the lives of persons significant in our past;

C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; and,

D. That have yielded or may be likely to yield, information important in prehistory or history.

To qualify for the NRHP, resources must retain integrity. As defined by the Advisory Council on Historic Preservation (ACHP), integrity is the ability of a property to convey its significance through physical features and context, including location, design, setting, materials, workmanship, feeling, and association. Under Section 106 of the NHPA, actions that alter any of the characteristics that qualify a property for eligibility for listing in the NRHP "in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association" (36 CFR 800.5[a]) constitute an adverse effect to the historic property.

California Environmental Quality Act (CEQA)

The CEQA, Public Resources Code 21084.1 and CEQA Guidelines, California Code of Regulations Title 14 Section 15064.5 defines a "historical resource" as follows:

- Resource(s) listed or determined eligible by the State Historical Resources Commission for listing in the CRHR (14 CCR Section 15064.5[a][1]);

- Resource(s) either listed in the NRHP or in a "local register of historical resources" or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless "the preponderance of evidence demonstrates that it is not historically or culturally significant" (14 CCR Section 15064.5[a][2]);

- Resources determined by the Lead Agency to meet the criteria for listing on the CRHR (14 CCR Section 15064.5[a][3]).

For listing in the CRHR, a historical resource must be significant at the local, state, or national level under one or more of the following four criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

2. It is associated with the lives of persons important to local, California, or national history;

3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values;

4. It has yielded or has the potential to yield information important to the prehistory or history of the local area, California, or the nation.

Under 14 CCR Section 15064.5(a)(4), a resource may also be considered a "historical resource" at the discretion of the lead agency.

All resources that are eligible for listing must have integrity, which is the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Resources, therefore, must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. In an archaeological deposit, integrity is assessed with reference to the preservation of material constituents and their culturally and historically meaningful spatial relationships. A resource must also be judged with reference to the particular criterion or criteria under which it is proposed for nomination.

City of San Diego Historical Resources Guidelines

The purpose and intent of the City's Historical Resources Guidelines (HRG), located in the City's Land Development Manual (City of San Diego 2001) is to protect, preserve and, where damaged, restore the historical resources of San Diego. The HRG states that if a project will potentially impact a resource, the resource's significance must be determined, even if it is not listed in or previously considered eligible for the CRHR or a local register (Section II.D.5).

In order to be designated as a City of San Diego historically significant site, one or more of the following criteria must be met:

(A) Exemplifies or reflects special elements of the City's, a community's or a neighborhood's historical, archaeological, cultural, social, economic, political, aesthetic, engineering, landscaping, or architectural development;

(B) Is identified with persons or events significant in local, state or national history;

(C) Embodies distinctive characteristics of a style, type, period or method of construction or is a valuable example of the use of indigenous materials or craftsmanship;

(D) Is representative of the notable work of a master builder, designer, architect, engineer, landscape architect, interior designer, artist or craftsman;

(E) Is listed or has been determined eligible by the National Park Service for listing on the NRHP or is listed or has been determined eligible by the California Office of Historic Preservation for listing in the CRHR; or,

(F) Is a finite group of resources related to one another in a clearly distinguishable way or is a geographically definable area or neighborhood containing improvements which have a special character, historical interest or aesthetic value or which represent one or more architectural periods or styles in the history and development of the City.

Properties or sites are designated to the City's Register of Designated Historical Resources (City Register) by the City's Historical Resources Board (HRB) at a publicly noticed hearing.

NATURAL ENVIRONMENT

Elevations within the study area range from approximately 72 feet above mean sea level (amsl) to 382 feet amsl. Seven soil communities are mapped within the study area: Tujunga sand, Huerhuero urban land, Riverwash, Olivenhain-urban land, Friant rocky fine sandy loam, Redding-urban land, and Diablo-urban land. Tujunga series is defined as deep, somewhat excessively drained soils that formed in alluvium from granitic sources and is considered a hydric soil. Huerhuero series is defined as alluvium derived from sedimentary rock and is not considered a hydric soil. Riverwash series is defined as somewhat poorly drained and is considered a hydric soil. Olivenhain series is defined as gently sloping to strongly sloping and found on dissected marine terraces; this is not a hydric soil. Friant series is defined as shallow, well-drained soils that formed in material weathered from mica schist, quartz schist and gneiss, and is not considered a hydric soil. Redding series is defined as well- or moderately well-drained soils that formed in alluvium derived from mixed sources and is not considered a hydric soil. Diablo series is defined by mildly alkaline, silty clay and is not considered a hydric soil (US Department of Agriculture 2017).

A total of 14 vegetation communities or land use types occur within the study area for the proposed project: riparian forest (including disturbed), freshwater marsh, southern cottonwood-willow riparian forest (including disturbed), southern willow scrub, mule fat scrub, disturbed wetland (including arundo dominated), non-vegetated channel, coastal sage chaparral scrub, Diegan coastal sage scrub (including baccharis-dominated, disturbed), non-native grassland, eucalyptus woodland, non-native vegetation, disturbed habitat, and developed lands (HELIX 2018). Many of the plant species naturally occurring in the

project area and vicinity are known to have been used by native populations for food, medicine, tools, ceremonial and other uses (Christenson 1990; Hedges and Beresford 1986; Luomala 1978).

CULTURAL SETTING

Prehistoric Period

The earliest well-documented sites in the San Diego area belong to the San Dieguito Tradition, dating to over 9,000 years ago (Warren 1967; Warren et al. 1998). The San Dieguito Tradition is thought by most researchers to have an emphasis on big game hunting and coastal resources (Warren 1967). Diagnostic material culture associated with the San Dieguito complex includes scrapers, scraper planes; choppers; large blades, and large projectile points (Rogers 1939; Warren 1967). In the southern coastal region, the traditional view of San Diego prehistory has the San Dieguito Tradition followed by the Archaic Period, dating from circa 8600 years Before Present (B.P.) to circa 1300 B.P. (Warren et al. 1998).

A large number of archaeological site assemblages dating to this period have been identified at a range of coastal and inland sites. These assemblages, designated as the La Jolla/Pauma complexes, are considered part of Warren's (1968) "Encinitas tradition" and Wallace's (1955) "Early Milling Stone Horizon." The Encinitas tradition is generally "recognized by millingstone assemblages in shell middens, often near sloughs and lagoons" (Moratto 1984:147) and brings a shift toward a more generalized economy and an increased emphasis on seed resources, small game, and shellfish. The local cultural manifestations of the Archaic period are called the La Jollan complex along the coast and the Pauma complex inland. Pauma complex sites lack the shell that dominates many La Jollan complex site assemblages. Sites dating to the Archaic Period are numerous along the coast, near-coastal valleys, and around estuaries. In the inland areas of San Diego County, sites associated with the Archaic Period are less common relative to the Late Prehistoric complexes that succeed them (Cooley and Barrie 2004; Laylander and Christenson 1988; May 1971; Raven-Jennings and Smith 1999; True 1970). The La Jolla complex tool assemblage is dominated by rough cobble tools, especially choppers and scrapers (Moriarty 1966). The La Jolla complex tool assemblage also include manos and metates, terrestrial and marine mammal remains, flexed burials, doughnut stones, discoidals, stone balls, plummets, biface points, beads, and bone tools (True 1958, 1980).

While there has been considerable debate about whether San Dieguito and La Jollan patterns might represent the same people using different environments and subsistence techniques, or whether they are separate cultural patterns (e.g., Bull 1983; Ezell 1987; Gallegos 1987; Warren et al. 1998); abrupt shifts in subsistence and new tool technologies occur at the onset of the Late Prehistoric Period (1500 B.P. to A.D. 1769). The Late Prehistoric period is characterized by higher population densities and intensification of social, political, and technological systems. The Late Prehistoric period is represented by the San Luis Rey complex in the northern portion of San Diego County and the Cuyamaca complex in the southern portion. Late prehistoric artifactual material is characterized by Tizon Brownware pottery, various cobble-based tools (e.g., scrapers, choppers, and hammerstones), arrow shaft straighteners, pendants, manos and metates, and mortars and pestles. The arrow point assemblage is dominated by the Desert Side-notched series, but the Cottonwood series and the Dos Cabazas Serrated type also occur. Subsistence is thought to be focused on the utilization of acorns and grass seeds, with small game serving as a primary protein resource and big game as a secondary resource. Fish and shellfish were also secondary resources, except immediately adjacent to the coast where they assumed primary importance (Bean and Shipek 1978; Luomala 1978; Sparkman 1908). The settlement system is characterized by seasonal villages where people used a central-based collecting subsistence strategy.

Based on ethnographic data, including the areas defined for the Hokan-based Yuman-speaking peoples at the time of contact, it is now generally accepted that the Cuyamaca complex is associated with the Kumeyaay people, also known as Ipai, Tipai, or Diegueño (named for Mission San Diego de Alcalá). Agua Hedionda Creek is often described as the division between the territories of the Luiseño (Takic Shoshonean-speaking peoples) and the Kumeyaay people (Bean and Shipek 1978; Luomala 1978), although various archaeologists and ethnographers use slightly different boundaries.

Ethnohistoric Period

The project area is in the traditional territory of the Kumeyaay. The Kumeyaay lived in semi-sedentary, politically autonomous villages or rancherias. Most rancherias were the seat of a clan, although it is thought that, aboriginally, some clans had more than one rancheria and some rancherias contained more than one clan (Bean and Shipek 1978). Several sources indicate that large Kumeyaay villages or rancherias were located in river valleys and along the shorelines of coastal estuaries (Bean and Shipek 1978; Brackett 1951; Hoover et al. 1966; Kroeber 1925).

Historic Period

Spanish Period (1769–1821)

While Juan Rodriguez Cabrillo visited San Diego briefly in 1542, the beginning of the historic period in the San Diego area is generally given as 1769. During the mid-eighteenth century, Spain had escalated its involvement in California from exploration to colonization (Weber 1992), and it was that year that the Royal Presidio of San Diego was founded on a hill overlooking the San Diego River. There were three types of settlements in Spanish Alta California: presidial, mission, and civic. San Diego was the first and was the presidial type, that is, it was administered by the military based at the presidio (Rolle 1998). Initially, both a mission and a military presidio were located on Presidio Hill overlooking the San Diego River. A small pueblo, now known as Old Town San Diego, developed below the presidio. The Mission San Diego de Alcalá was constructed in its current location five years later.

The economy of Alta California during the Spanish period was based on cattle ranching at the missions and a few Spanish land grant ranchos. A minor amount of agriculture and commerce took place in and around San Diego.

Mexican Period (1821–1848)

Mexico, including Alta California, gained its independence from Spain in 1821, but Spanish culture and influence remained as the missions continued to operate as they had in the past, and laws governing the distribution of land were also retained for a period.

Following secularization of the missions in 1834, large ranchos were granted to prominent and well-connected individuals. Society made a transition from one dominated by the church and the military to a more civilian population, with people living on ranchos or in pueblos. With numerous new ranchos, cattle ranching expanded and prevailed over agricultural activities. These ranches put new pressures on California's native populations, as grants were made for inland areas still occupied by the Kumeyaay, forcing them to acculturate or relocate farther into the back country. In rare instances, former mission neophytes were able to organize pueblos and attempt to live within the new confines of Mexican governance and culture. The most successful of these was the Pueblo of San Pasqual, located inland along the

San Dieguito River Valley, founded by Kumeyaay who were no longer able to live at the Mission San Diego de Alcalá (Carrico 2008; Farris 1994).

American Period (1848–Present)

The Mexican period ended when Mexico ceded California to the United States after the Mexican-American War (1846–1848), which concluded with the Treaty of Guadalupe Hidalgo. Terms of the Treaty brought about the creation of the Lands Commission in response to the Homestead Act of 1851, which was adopted as a means of validating and settling land ownership claims.

A great influx of settlers to California and the San Diego region occurred during the American Period, resulting from several factors including the discovery of gold in the state in 1848, the end of the Civil War, the availability of free land through passage of the Homestead Act, and later, the importance of San Diego County as an agricultural area supported by roads, irrigation systems, and connecting railways. The increase in American and European populations quickly overwhelmed many of the Spanish and Mexican cultural traditions, and greatly increased the rate of population decline among Native American communities.

The 1880s saw "boom and bust" cycles that brought thousands of people to San Diego County. By the end of the decade, many had left, although some remained to form the foundations of small communities based on dry farming, orchards, dairies, and livestock ranching. During the late-nineteenth and early-twentieth centuries, rural areas of San Diego County developed small agricultural communities centered on one-room schoolhouses. Such rural farming communities consisted of individuals and families tied together through geographical boundaries, a common schoolhouse, and a church. The influence of military development, beginning in 1916 and 1917 during World War I, moved much of the population away from this life, and the need to fight a two-ocean war during World War II resulted in substantial development in infrastructure and industry to support the military and accommodate soldiers, sailors, and defense industry workers.

III. AREA OF POTENTIAL EFFECTS

The approximately 163.2-acre Area of Potential Effects (APE) for the project includes the proposed Alvarado Phase IV sewer alignment and an approximate 200-foot buffer (Figure 3). The APE includes both permanent and temporary areas of disturbance, including access routes.

IV. STUDY METHODS

Archival Research

HELIX archaeologist Stacie Wilson, M.A., RPA conducted a records search at the South Coastal Information Center (SCIC) on May 15, 2017 for the proposed project area and a one-mile buffer surrounding it. The records search included the identification of previously recorded cultural resources, locations and citations for previous cultural resources studies, and a review of the state Office of Historic Preservation (OHP) historic properties directory. A review of resources listed in the NRHP, CRHR, California Historical Landmarks (CHL), California Points of Historic Interest, and the City of San Diego Historical Landmarks Designations was also conducted. The records search maps can be found in Confidential Appendix A, bound separately.

Historical maps and aerial photographs were reviewed to assess the potential for historical structural resources and historical archaeological resources, including the 1903 1:62,500-scale USGS La Jolla quadrangle; the 1930 1:62,500-scale La Jolla quadrangle; the 1942 1:31,680-scale La Mesa quadrangle;

and the 1947, 1953, 1967, and 1975 1:24,000-scale La Mesa quadrangle. Aerial photographs of the property dating to 1928, 1953, 1964, 1966, and 1980 were also reviewed (NETR Online 2018).

Native American Contact Program

HELIX contacted the Native American Heritage Commission (NAHC) on September 19, 2017 to request a search of the SLF. NAHC provided a response on September 25, 2017 stating that a review of the SLF was negative but that the area is sensitive for cultural resources. The City will perform Native American consultation in compliance with Assembly Bill 52 for this project; a copy of NAHC's response and the list of Tribal contacts that can be solicited for more information are attached to this report as Confidential Appendix B.

Field Survey

The project was surveyed by HELIX archaeologist Kristina Davison and Kumeyaay Native American monitor Gabe Kitchen of Red Tail Monitoring and Research on May 15, 2017.

The majority of the project is within developed areas, generally consisting of paved roadways and concrete channels. As such, the cultural resources survey focused on undeveloped areas within the study area (Figure 4, *Cultural Resources Survey Area*; Attachment C). As such, four areas along the proposed alignment that have not been completely built over were visited as a part of this study; field observations for these areas are provided below. Within these undeveloped areas, accessible areas in which the ground surface is visible were subjected to intensive survey to identify the presence of archaeological remains. No cultural resources were observed during the survey, but ground visibility was low throughout a majority of the surveyed areas (Photographs of Project Area; Attachment D).

Mission Gorge Place/Mission Gorge Road

This asphalt, concrete, and gravel lot is located south of Mission Gorge Place, and east of Mission Gorge Road. Areas of exposed/unimproved ground were traversed in 5-meter (m) transects to the extent feasible. The majority of this portion of the project has very little ground visibility, with the central-most area having the best visibility (75 percent) but is covered in gravel and is apparently used as a parking area. No cultural resources were observed.

Waring Road

Ground visibility in this area varied from poor to good, with some areas along the southern and eastern portions of the study area having dense vegetation and others lacking any vegetation. The portion of the study area within which the proposed alignment will be located appears had fair to poor visibility. The area west of Waring Road and north of I-8/Alvarado Canyon Road was not surveyed. There is a fence surrounding this area, and the gates to the property were locked. The gates are situated on the west side of the property within the school parking lot and on the east side, within the Waring Lift Station outer fence. The property appears to have been somewhat disturbed by grading, but only the western and eastern edges were easily visible from the gates.

Adobe Falls

The Adobe Falls area of the proposed alignment had extremely low to no visibility due to dense vegetation; as such, the majority of the buffer area could not be surveyed by systematic transects. Visibility was

obscured by wood chips on the trail, but some patches of ground were visible. The granitic bedrock in Adobe Falls, east of the proposed alignment, are covered in graffiti, with nearly every bedrock surface having some form of graffiti on it. The bedrock along the eastern side of the alignment in this part of the project was surveyed to the extent possible and no milling was observed on the bedrock. The degree of graffiti coverage on the rock faces may be obscuring any milling features that might be present; no slicks, mortars, basins, or cupules were observed.

College Avenue

The undeveloped portions of the study area located on either side of College Avenue were visually surveyed from the northern edge of parking lots located on the south side of the drainages (Figure 4). Visibility within the drainage channels was zero, and the study area could not be traversed in this area.

V. RESULTS OF STUDY

ARCHIVAL RESEARCH

SCIC has a record of 218 cultural resource studies previously conducted within the one-mile search area (Confidential Appendix A, bound separately). Of these, 28 are located at least partially within the APE itself, and four had positive results (Table 1, *Previous Positive Cultural Resources Studies Occurring Within the Study Area*).

Table 1. Previous Positive Cultural Resources Studies Occurring Within the Study Area

Report No.	Author(s)	Year	Report Title
SD-02628	R. Carrico et al.	1990	Historic Properties Inventory Report for the Mission Valley Water Reclamation Project, San Diego, CA
SD-04450	H. Price	1980	11-SD-08 P.M.8.5/10.4 11203-189821 Auxiliary Lanes and Sound Barriers
SD-07892	Caltrans	2001	Historic Property Survey Report I15-SR67
SD-11185	L. Pierson	2007	A Cultural Resources Study for the SDSU 2007 Campus Master Plan Revision

A total of 21 cultural resources (15 sites, four built environment resources, and two isolates) have been recorded within the one-mile search area (Table 2, *Sites Located within a One-Mile Radius of the Study Area* and Confidential Appendix A, bound separately), three of which are located within the APE.

Table 2. Sites Located within a One-Mile Radius of the Study Area

Primary Number (P-37-#)	Trinomial (CA-SDI-#)	Site Type	Recorder(s) and Date
P-37-000035	CA-SDI-35	Historic refuse scatter dating to the 1930s-1967	Wolf and Schaefer 2013; Schaefer 1990; Phillips 1949
P-37-000202	CA-SDI-202	No site description included in site record; noted as southern portion of San Diego Mission	Treganza, n.d.
P-37-000208	CA-SDI-208	No site description included in site record, likely a prehistoric habitation site	Treganza, n.d.

Primary Number (P-37-#)	Trinomial (CA-SDI-#)	Site Type	Recorder(s) and Date
P-37-000239	CA-SDI-239	Prehistoric artifact concentration (multiple artifact categories; possible habitation site)	Hall 1951
P-37-008667	CA-SDI-8667	Sparse lithic scatter with associated historic glass	Goldberg 1981
P-37-09899	CA-SDI-9899	Shell scatter with associated ground stone	Kidder and Miller 1984
P-37-011081	CA-SDI-11081	Lithic scatter, possible quarry location	Berryman 1989
P-37-013708	CA-SDI-13717H	Circa 1933 Aztec Bowl football stadium; California Historic Landmark #798	Cashmere 1994 Markham 1993
P-37-014063	CA-SDI 14016	Shell scatter	Kyle et al. 1995
P-37-015591	---	Isolated quartzite core	Tift 1996
P-37-015654	---	Isolated quartzite flake tool (collected)	Kyle and Tift 1996
P-37-016024	---	Historic single-family property (Lake Murray Dam Keeper's House)	Van Wormer 1998
P-37-019016	CA-SDI-13708	Habitation with milling and lithic artifacts	Tift and Strudwick 1994
P-37-025491	---	Circa 1948 two-story historic apartment house	Pierson 2003
P-37-025492	---	Circa 1945 National Folk-style historic single-family property	Pierson 2003
P-37-028223	CA-SDI-18326	Bedrock milling feature with associated lithics	Pierson 2007
P-37-028224	CA-SDI-18327	Bedrock milling feature with associated lithics	Pierson 2007
P-37-029023	CA-SDI-18589	Historic can and bottle scatter dating to post-1945	Pigniolo 2007
P-37-032674	CA-SDI-20702	Historic trash deposit dating to the 1940s	Brodie 2007
P-37-033846	---	Prohibition era site; cement dance floor in canyon utilized for private parties and dances	Roy 2016; Graham and Campbell 2001
P-37-034147	CA-SDI-21357	Shell scatter	Tift 2013

The previously recorded sites situated within a one-mile radius of the project consist of two sites that were recorded by Treganza (likely prehistoric habitation sites), three historic refuse scatters, a possible prehistoric habitation site, a prehistoric habitation with milling and lithics, a lithic scatter with spatially associated historic glass, a lithic scatter possibly associated with quarrying, three shell scatters (one with associated ground stone), a California Historic Landmark (the San Diego State University [SDSU] Aztec Bowl), two prehistoric isolates, two bedrock milling sites with associated lithics, a prohibition era dance floor, two historic single-family properties, and one two-story historic apartment house.

Three of the previously recorded cultural resources are located within the APE: P-37-028223 (CA-SDI-18326), P-37-028224 (CA-SDI-18327), and P-37-015591. All three of the resources are located in the Adobe Falls area (Figure 5, *Cultural Resources*; Confidential Appendix C, bound separately). P-37-028223 (CA-SDI-18326) and P-37-029224 (CA-SDI-18327) are single bedrock milling features with multiple slicks on each milling station. Subsurface testing at the sites was conducted by Brian F. Smith & Associates in 2007 with minimal subsurface deposits encountered. Four surface flakes and three subsurface flakes were recovered at P-37-028223 (CA-SDI-18236) and two subsurface flakes were recovered at P-37-028224 (CA-SDI-18327). P-37-015591 is a single quartzite core that was recorded in 1996.

On the 1928 aerial photos, the APE and the area surrounding it are shown as being predominantly undeveloped, although both roads and structures are shown in the vicinity. There are also numerous areas that appear to have been under agriculture at this time. The San Diego River is clearly shown on the photos, and buildings that appear to be associated with Lake Murray are also present. It also appears that, based upon the layout of roadways shown, portions of the project area had been subdivided for future development as early as 1928. However, the project area is essentially undeveloped, and historic structures and features are not common on the images.

By 1953, a four-lane divided highway (the Camino Del Rio Alvarado Freeway) is located within the current route of I-8 on both the 1953 aerial photograph (NETR Online 2018) and the 1953 1:24,000-scale La Mesa quadrangle. Between 1953 and the late 1960s, a substantial increase in commercial and residential development is seen in the study area, and by 1980 the project APE and vicinity are developed to a similar degree as current conditions.

Native American Contact Program

The NAHC responded to the Sacred Lands File (SLF) search request on September 25, 2017. The SLF search did not identify any Tribal Cultural Resources or areas of Native American heritage significance within the project APE. A list of Tribal Contacts that can be solicited for additional information about the project area was provided with NAHC's response. The City of San Diego will be responsible for completing Tribal consultation for the project in compliance with Assembly Bill 52. The list of contacts HELIX obtained from NAHC is provided as Confidential Appendix B (bound separately) to this report.

Field Survey

On May 15, 2017, HELIX archaeologist Kristina Davison and Native American monitor Gabe Kitchen from Red Tail Monitoring and Research, surveyed the undeveloped areas of the project APE. This involved walking the study area and looking at areas with ground exposure to determine if cultural resources are present. As mentioned above, a majority of the surveyed area had little to no ground visibility due to dense vegetation cover. The pedestrian survey did not result in the identification of any newly identified cultural resources.

Based on the results of the records search, there are three known cultural resources located within the project APE (Figure 5). These resources include two bedrock milling stations with associated flake scatters and an isolated core. The core is mapped within the existing sewer line route but was not observed during the survey, and the two milling sites are at the edge of the APE, outside of the pipeline alignment and access road. During survey, the two sites were not relocated due to heavy vegetation cover.

VI. RECOMMENDATIONS

Based upon the results of the records search, which identified numerous prehistoric archaeological resources and a number of historic built environment resources located within a one-mile radius of the project, as well as the fact that the property is near the San Diego River, which is sensitive for cultural resources, and is also situated in an alluvial setting in proximity to known sites, the project area is sensitive for cultural resources. As such, archaeological and Native American monitoring should be performed during project development to ensure no impacts occur to significant cultural resources. Because much of the pipeline alignments are centered on paved roads and previously disturbed areas, the archaeological monitor, in conjunction with the Principal Investigator and Native American monitor, shall determine the frequency of monitoring in consultation with the City. In addition, Environmentally Sensitive Areas (ESAs)

should be established around the recorded locations of CA-SDI-18326 and CA-SDI-18327 to ensure avoidance of these cultural resources during project construction.

Although there is no evidence to suggest the presence of human remains in the APE, in the unlikely event that human remains are encountered during ground-disturbing activities, all work shall cease, and the county coroner shall be contacted, per the California Public Resources Code. Should the remains be identified as Native American, the NAHC shall be contacted by the county coroner within 48 hours to provide a most-likely descendant to determine appropriate actions.

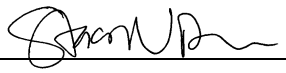
VII. SOURCES CONSULTED DATE

National Register of Historic Places	Month and Year: May 2017
California Register of Historical Resources Register	Month and Year: May 2017
Archaeological/Historical Site Records: South Coastal Information Center	Month and Year: May 2017

Other Sources Consulted:

- California Historical Landmarks (January 2018)

VIII. CERTIFICATION

Preparer: Stacie Wilson, MS	Title: Senior Archaeologist
Signature: 	Date: 04/11/2018

Preparer: Catherine A. Wright	Title: Cultural Resources Specialist
Signature: 	Date: 04/11/2018

IX. ATTACHMENTS

A National Archaeological Data Base Information
B Bibliography
C Maps/Figures
- Figure 1: Regional Location Map
- Figure 2: Project Vicinity Map (USGS Topography)
- Figure 3: Project Vicinity Map (Aerial Photograph)
- Figure 4: Cultural Resources Survey Area

D Photographs of Study Area

X. CONFIDENTIAL APPENDICES (BOUND SEPARATELY)

A Records Search Result Maps
B NAHC Correspondence
C Maps/Figures
- Figure 5: Cultural Resources

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Attachment A

National Archaeological Data Base Information

NATIONAL ARCHAEOLOGICAL DATA BASE INFORMATION

Authors:	Catherine A. Wright and Mary Robbins-Wade, RPA
Consulting Firm:	HELIX Environmental Planning, Inc., 7578 El Cajon Blvd., La Mesa, CA 91942, (619) 462-1515
Report Date:	April 2018
Report Title:	Cultural Resources Study, Alvarado Trunk Sewer Phase IV Project, San Diego, California
Submitted to:	City of San Diego, Development Services, 1222 First Avenue, San Diego, CA 92101
Prepared for:	KEH and Associates, 570 Rancheros Drive, Suite 200, San Marcos, CA 92069
Contract number:	HELIX Project No. KEH-02-02
USGS quadrangles:	La Mesa (7.5' series)
Acreage:	Approximately 163.2 acres
Keywords:	Archaeological study; City of San Diego; San Diego River; negative survey; CEQA; NEPA; Section 106; sewer replacement; P-37-028223 (CA-SDI-18326), P-37-028224 (CA-SDI-18327), P-37-015591.

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Attachment B

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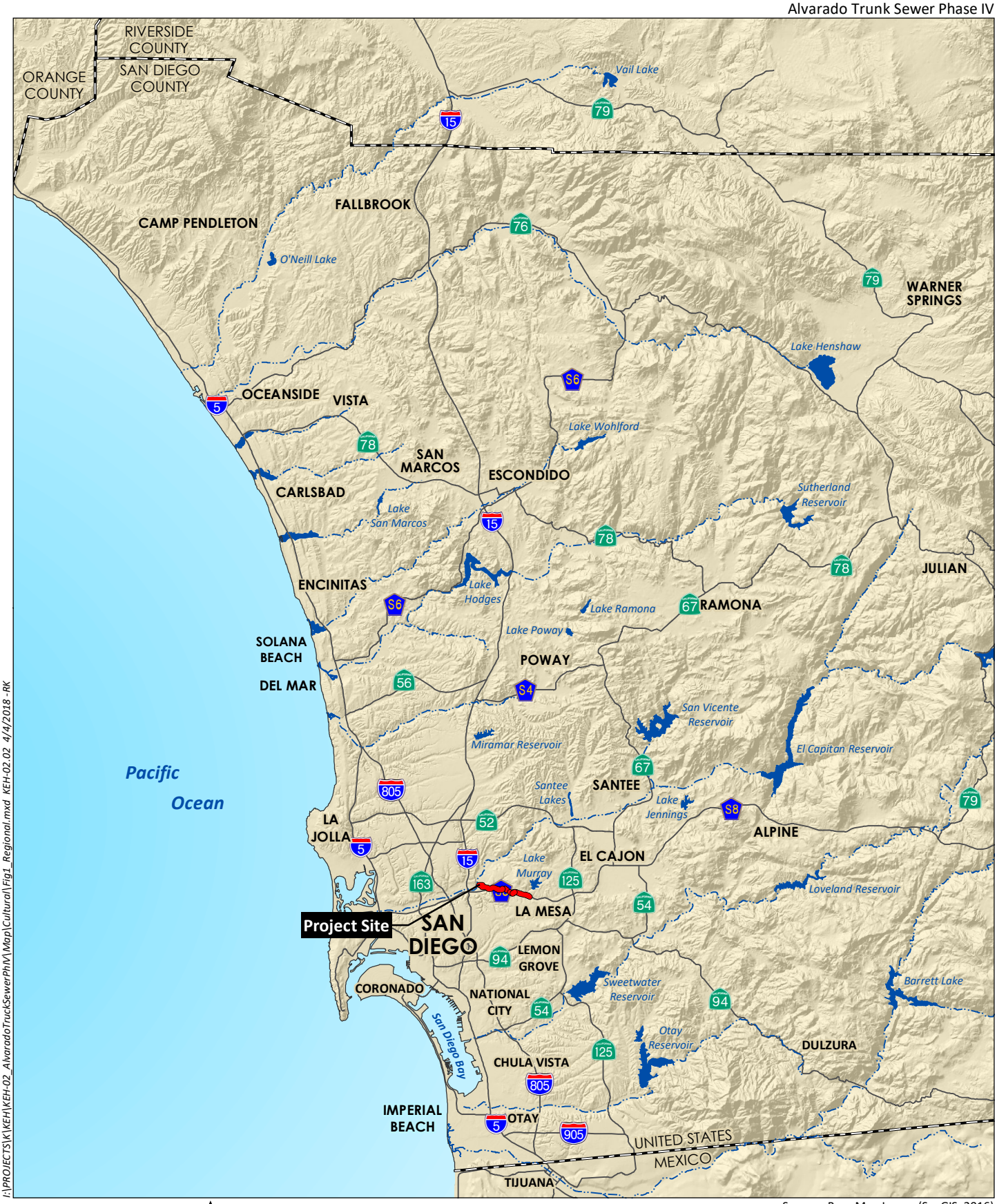
Attachment C

Maps/Figures



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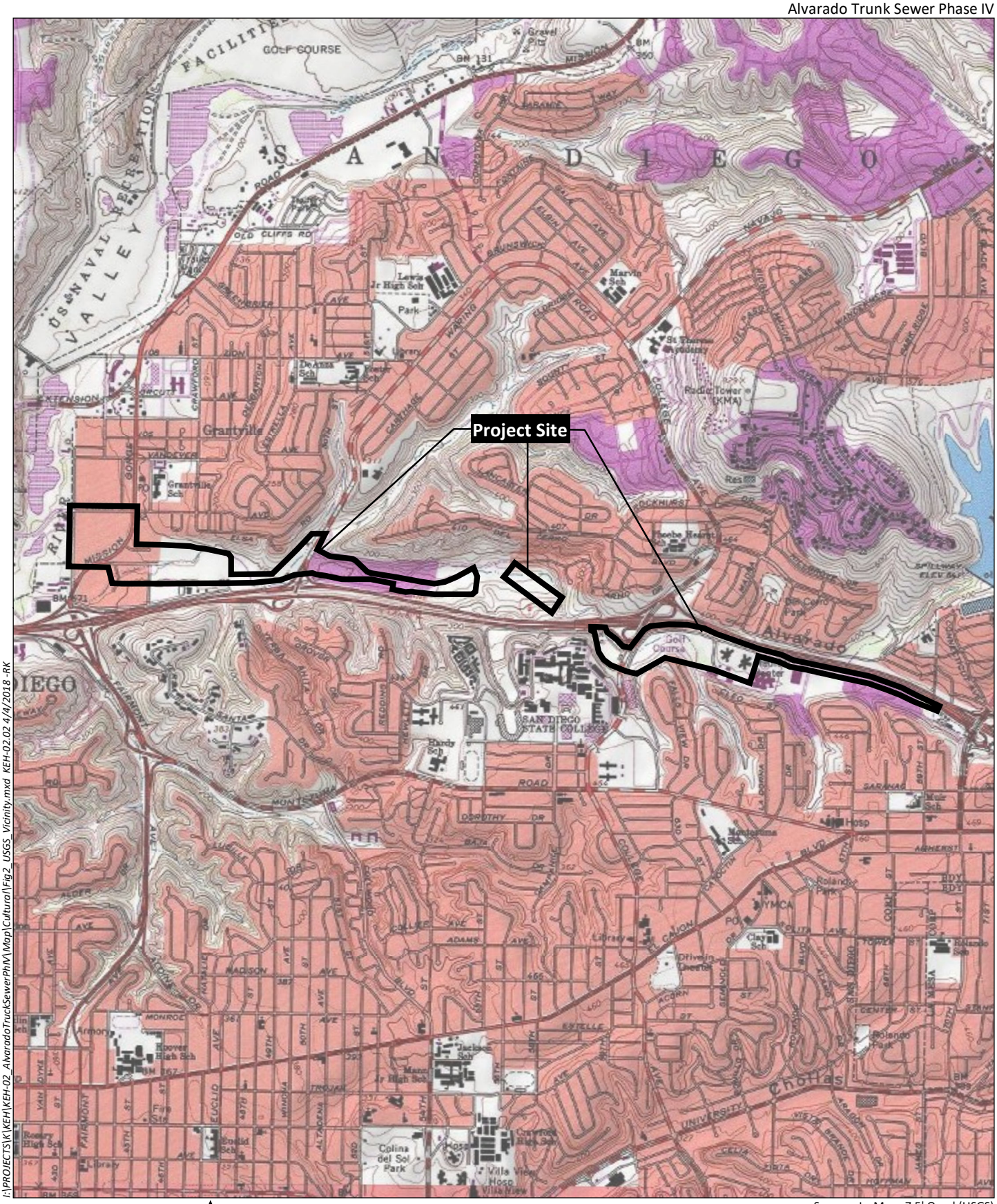
Source: Base Map Layers (SanGIS, 2016)

Regional Location

Figure 1



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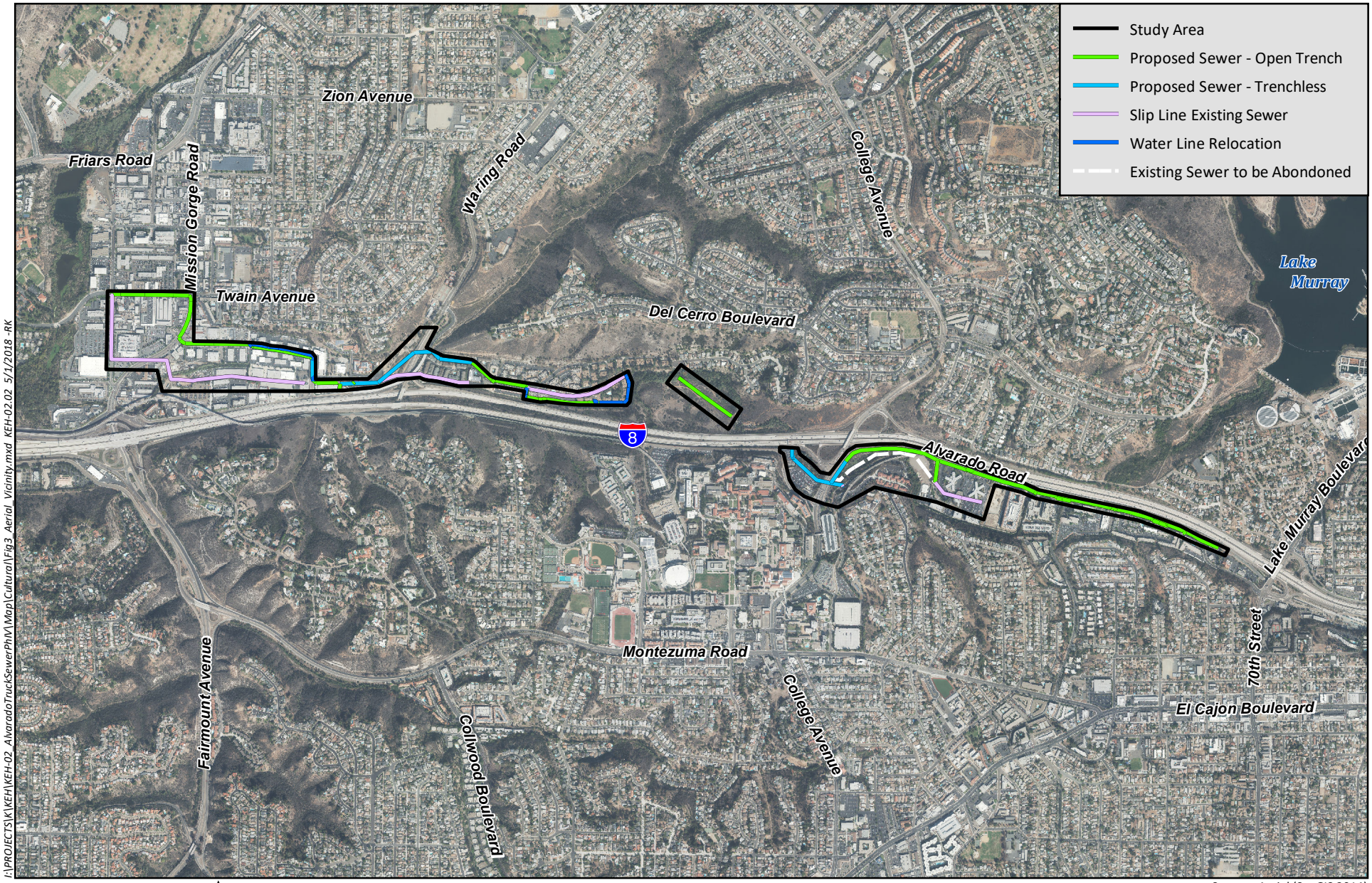
Source: La Mesa 7.5' Quad (USGS)

Project Vicinity (USGS Topography)

Figure 2



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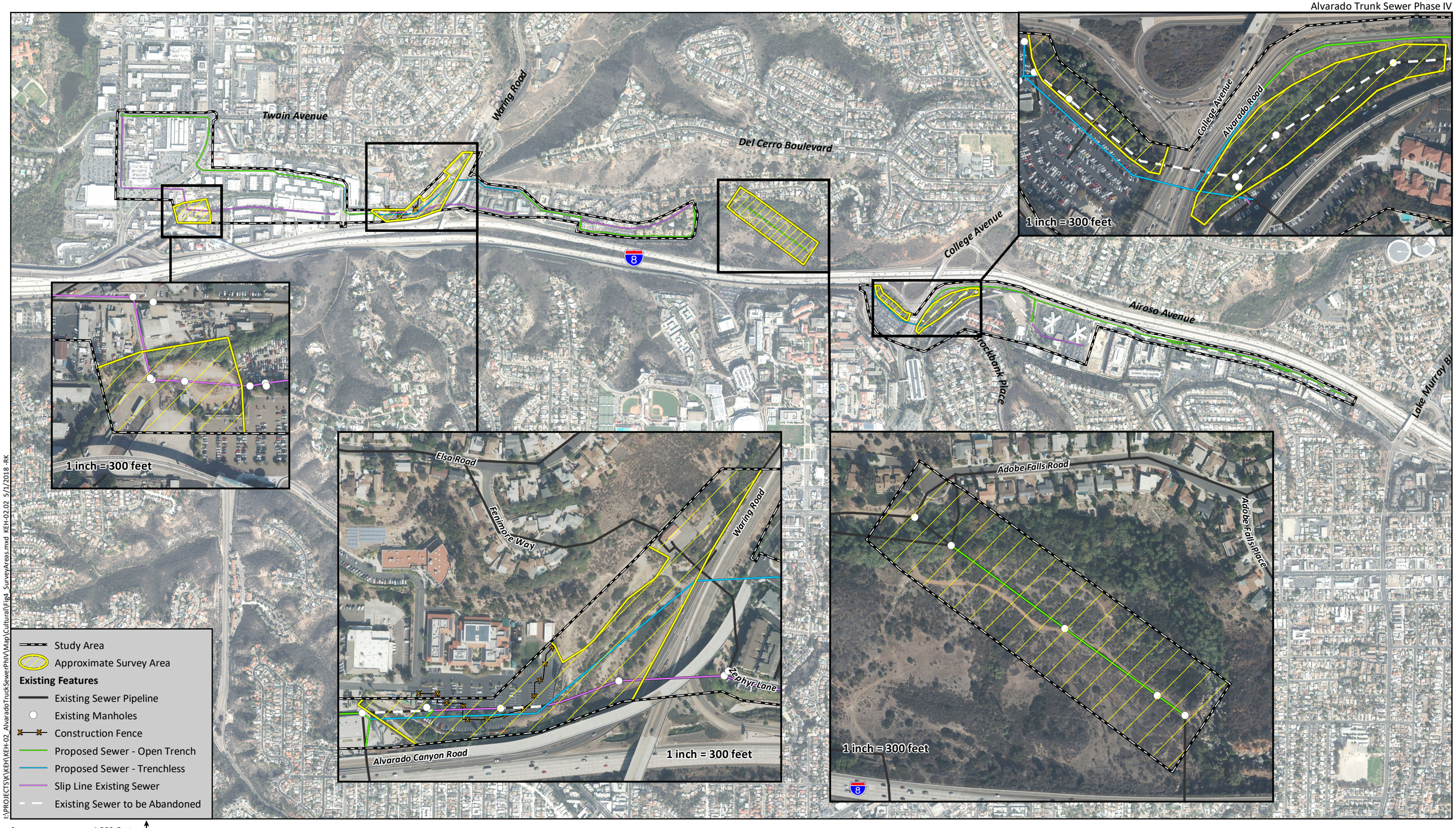
Source: Aerial (SanGIS 2014)

Project Vicinity Map (Aerial Photograph)

Figure 3



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Cultural Resources Survey Area

Figure 4

Attachment D

Photographs of Project Area

PHOTOGRAPHS OF PROJECT AREA

Photo 1. Overview of Waring Road portion of project (view towards northwest)

Photo 2. Locked gate to Waring Road portion of project (view towards northeast)

Photo 3. Overview of Waring Road portion of project (view towards northeast, from S of existing facility)

Photo 4. Overview of Waring Road portion of project (view towards northeast, showing drainage outlets in above photo)

Photo 5. Graffiti covered bedrock in Adobe Falls portion of project (view towards northwest)

Photo 6. Graffiti covered bedrock in Adobe Falls portion of project (view towards bottom of drainage, looking north

Photo 7. Graffiti on bedrock outcrops in Adobe Falls portion of project (view towards east)

Photo 8. Overview of Mission Gorge Road/Mission Gorge Place portion of project (view towards northwest)

Photo 9. Overview of Mission Gorge Road/Mission Gorge Place portion of project (view towards south, along access road to gravel area pictured above)

Photo 10. Overview of Mission Gorge Road/Mission Gorge Place portion of project (view towards north)

Photo 11. Overview of Mission Gorge Road/Mission Gorge Place portion of project (view towards west)

HELIX
Environmental Planning

Alvarado Trunk Sewer Phase IV

Biological Technical Report

May 17, 2018 | KEH-02.02

Prepared for:

KEH and Associates
570 Rancheros Drive, Suite 200
San Marcos, CA 92069

Prepared by:

HELIX Environmental Planning, Inc.
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La Mesa, CA 91942

Alvarado Trunk Sewer Phase IV

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La Mesa, CA 91942

May 17, 2018 | KEH-02.02

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1.0 INTRODUCTION

At the request of the City of San Diego (City), HELIX Environmental Planning, Inc. (HELIX) has completed this biological technical report for the Alvarado Trunk Sewer Phase IV Project (project), which is proposed in the Navajo and College Community Plan Areas (Council Districts 7 and 9) of the City of San Diego, San Diego County, California. The project proposes to upsize existing sewer infrastructure in order to improve capacity and condition.

The purpose of this report is to document the existing biological conditions within the project site and provide an analysis of potential impacts to sensitive biological resources with respect to local, state, and federal policies. All proposed project impacts were analyzed based on available information provided by KEH and Associates. This report provides the biological resources technical documentation necessary for review under the California Environmental Quality Act (CEQA) by the City and other responsible agencies for the project.

1.1 PROJECT LOCATION

The project is located east of Interstate (I-) 15 within both the Navajo and College Area Community Plan Areas (Council Districts 7 and 9) of the City of San Diego, San Diego County, California (Figure 1), along portions of the following roads: Fairmont Avenue, Mission Gorge Road, Waring Road, Zephyr Lane, Adobe Falls Road, College Avenue, and Alvarado Road (Figure 2). Land uses in the vicinity of the project alignment include single- and multi-family residential development, commercial and health care facilities, San Diego State University (SDSU), and open space. The project is situated within Mission San Diego land grant (Figure 3). The project is located within the limits of the City's Multiple Species Conservation Program (MSCP), adjacent to but outside of the Multi-Habitat Planning Area (MHPA; [Figure 3]). Portions of the project are located within the Open Space urban canyon managed by the City Parks and Open Space Division, located between the Smoke Tree Adobe Falls Subdivision to the north and I-8 to the south. An additional smaller undeveloped portion of the project alignment is located on the south side of I-8, within the jurisdiction of SDSU.

1.1.1 Project Description

The project proposes to improve the capacity and condition of the existing sewer infrastructure by installing approximately 5.0 miles of new gravity trunk sewer and slip-lined sewer pipelines, and abandoning approximately 1.6 miles of existing sewer. The following construction methods are proposed:

- Installation of new pipelines using open trench construction;
- Installation of new pipelines using trenchless microtunneling construction;
- Slip line existing sewer pipelines; and
- The slurry seal and abandonment of existing sewer and manholes.

New trunk sewer pipe diameters would range from 30 to 42 inches. Open trench construction would primarily occur within developed right-of-way along Twain Avenue, Mission Gorge Road, Mission Gorge Place, Adobe Falls Road, and Alvarado Road. Approximately 950 linear feet of open trench construction

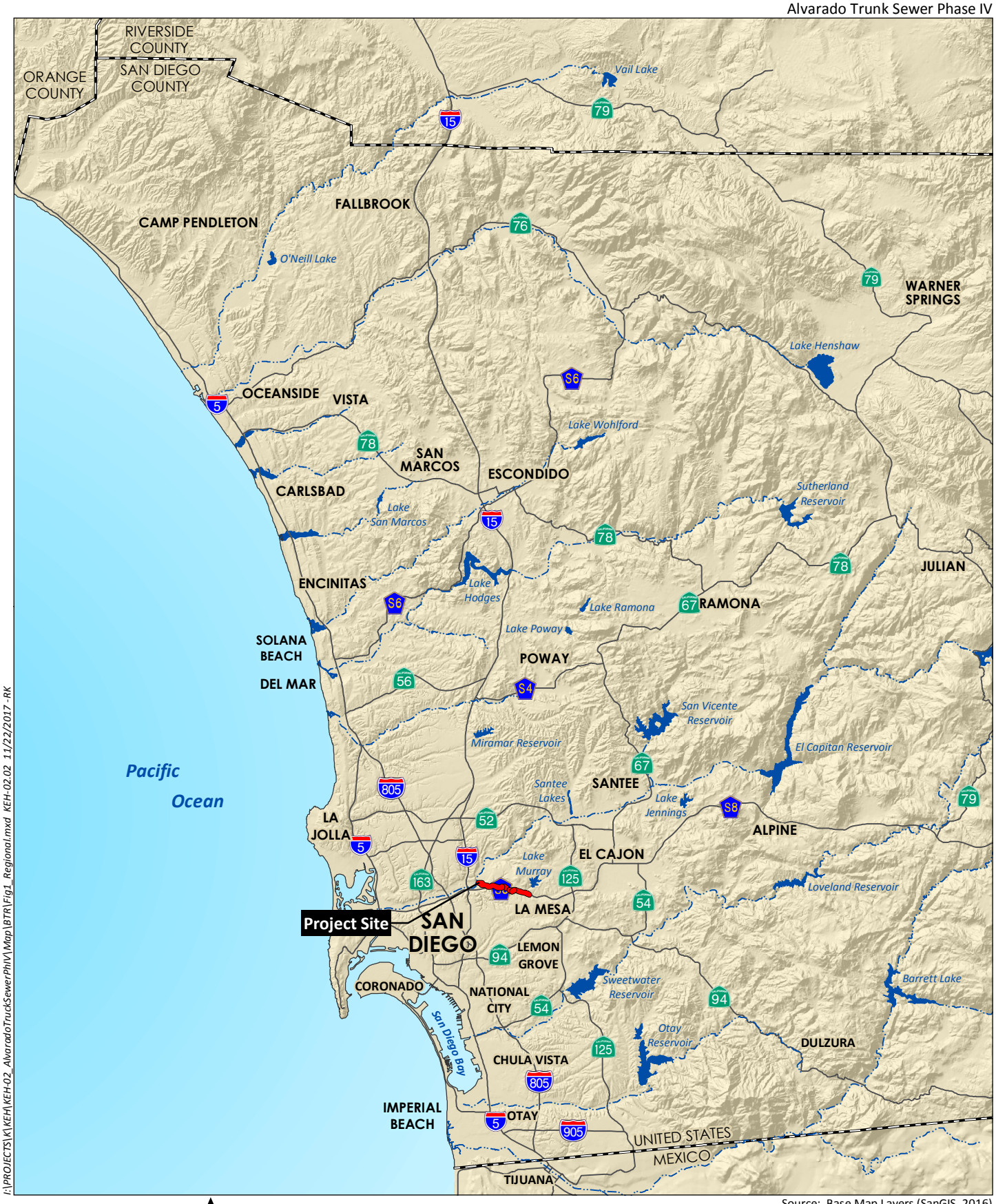
is proposed to occur within City Open Space located east of the Smoke Tree Adobe Falls Subdivision, south of Alvarado Creek. Where construction access in this location would span Alvarado Creek, a rail car bridge crossing would be implemented in order for heavy equipment to access the site without impacting the creek. New 30-inch pipe would be installed along Alvarado Road and existing 27-inch pipes within Alvarado Road, and approximately 500 feet within the Alvarado Hospital Medical Center would be abandoned. Abandoned pipelines would be slurry-sealed and existing manholes would be removed.

Trenchless microtunneling construction methods are proposed near Adobe Falls Road, Waring Road, Mission Gorge Place, College Avenue, Alvarado Road, and a large private parking lot associated with SDSU. Jacking and receiving pits would primarily be located within parking lots or paved/developed areas. With the exception of one location within an undeveloped area west of Waring Road, slip lining would be accomplished by locating slip line pits along existing pipeline locations within developed City easement areas. The size of each pit would vary based on the varying depths of existing pipelines and would be determined by the construction contractor. Slip lining at the existing manhole located within non-native vegetation west of Waring Road would be accessed on foot; no heavy equipment or ground disturbance would be required or allowed.

Existing sewer mains located along Fairmount Avenue, within developed areas north of Alvarado Canyon Road, within the Mission Church of the Nazarene parking lot and adjacent canyon east of Waring Road, and along Zephyr Avenue within the Smoke Tree Adobe Falls Subdivision would be slip lined with 12-inch high-density polyethylene (HDPE) pipe. Additional existing sewer mains located in the Alvarado Medical Center parking lot would be slip lined with 8-inch HDPE pipe. With the exception of one location within an undeveloped area west of Waring Road, slip lining would be accomplished by locating slip line pits along existing pipeline locations within developed City easement areas. The size of each pit would vary based on the varying depths of existing pipelines and would be determined by the construction contractor. Slip lining at the existing manhole located within non-native vegetation west of Waring Road would be accessed on foot; no heavy equipment or ground disturbance would be required.

All existing sewer mains and laterals affected by the installation would be reconnected to the new trunk sewer. Roadways and parking lots temporarily disturbed during construction would be repaved. Temporary impact areas not located within road right-of-way or developed areas would be revegetated post-construction with appropriate native plants for mitigation and erosion control purposes. A revegetation plan for temporary impacts will be submitted concurrently with this report. Related work would also include potholing, traffic control, and best management practices, as well as geotechnical activities during design. Existing site features and elevated signage that are removed or damaged during construction would be replaced. Existing water, gas, electrical, and storm drain infrastructure would be protected during construction.

The proposed sewer located along Mission Gorge Place would be installed below an existing triple box drainage culvert using microtunneling. This trenchless construction method was selected to control and minimize the risk of ground loss above the pipe installation that could potentially affect or damage the existing culvert. To monitor potential effects to the culvert, monitoring devices (e.g., optical target points to monitor for settlement, crack gauges to monitor increases in the width of existing cracks, and tiltmeters to monitor rotation of the culvert walls) would be temporarily installed inside the culvert to be monitored periodically during sewer installation. Monitoring intervals would vary from twice daily to once weekly depending on the proximity of construction and risk of movement. All measurements would require the surveyor to enter the culvert for a brief amount of time. If movement exceeds



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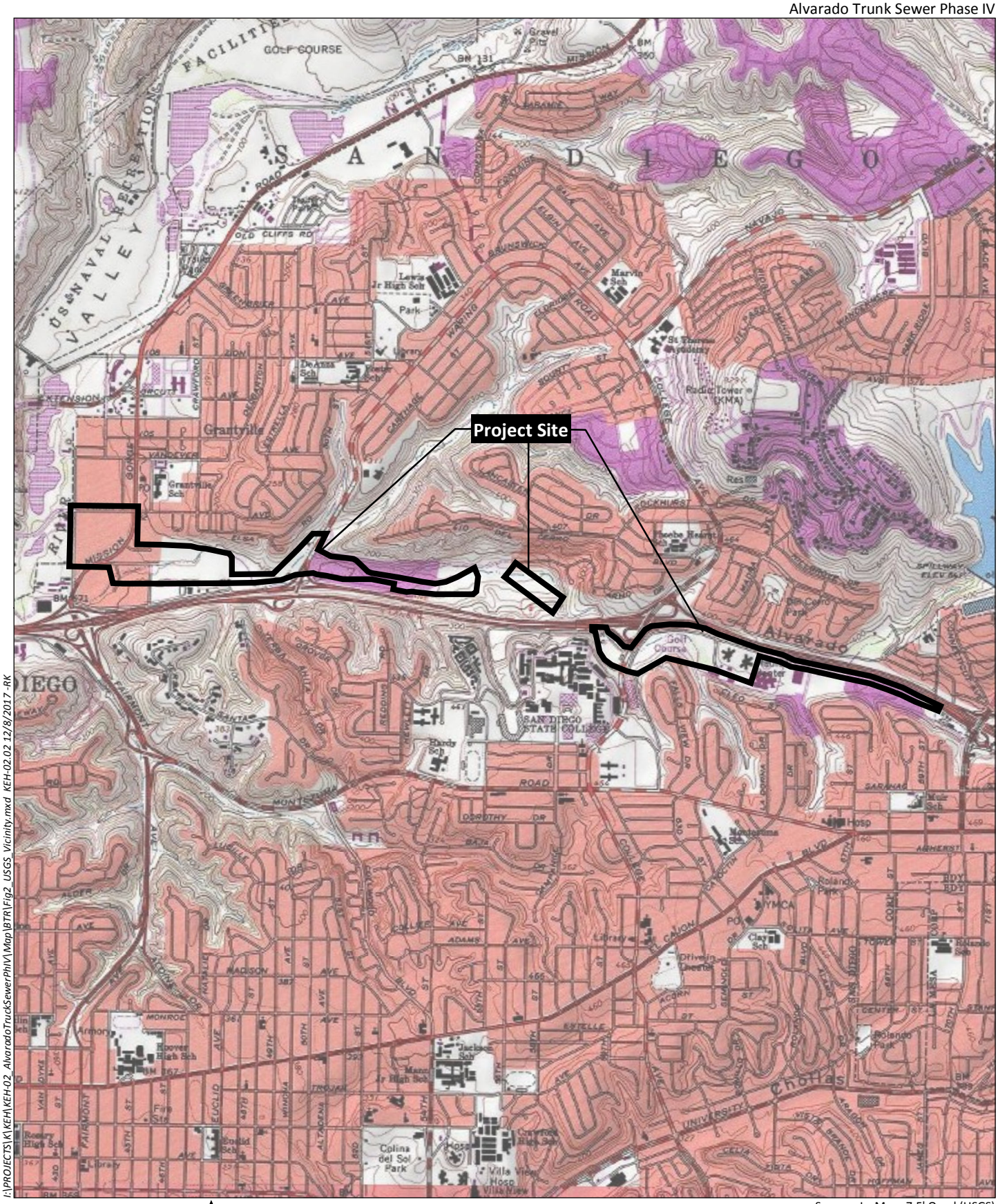
0 8 Miles

Source: Base Map Layers (SanGIS, 2016)

Regional Location

Figure 1



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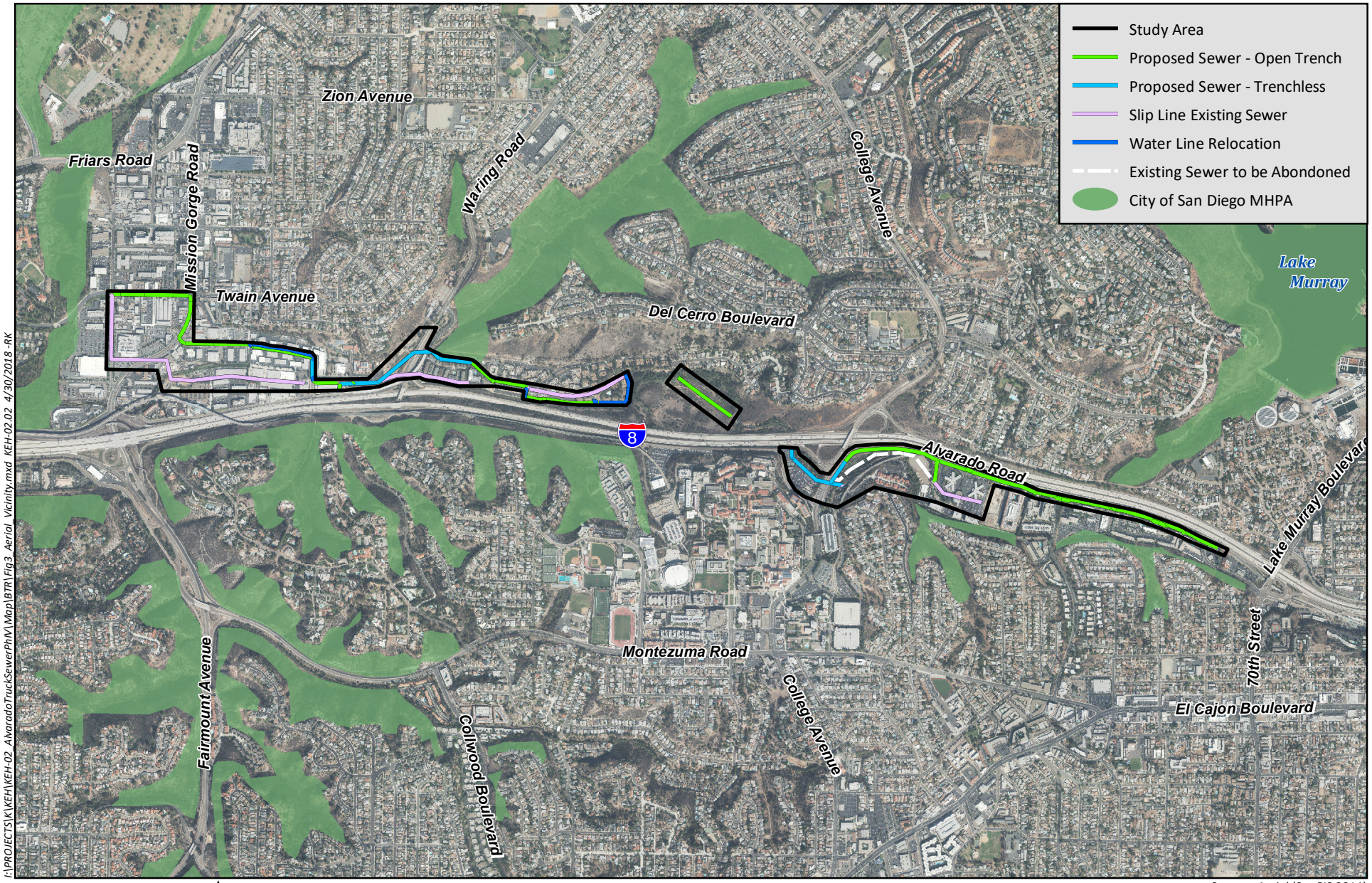
Source: La Mesa 7.5' Quad (USGS)

Project Vicinity (USGS Topography)

Figure 2



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Source: Aerial (SanGIS 2014)

Project Vicinity Map (Aerial Photograph)

Figure 3

specified limits or damage to the culvert is identified, work may be required to be stopped and remediation for damage (e.g., contact grouting, compensation grouting, and repairs) may need to be implemented. Once monitoring is no longer required, the monitoring devices would be removed.

Staging and access would occur within the project footprint. Access to the abandoned pipeline manhole locations and manholes that would be utilized to slip line existing pipelines would occur within existing maintenance access paths.

2.0 METHODS

2.1 LITERATURE REVIEW

Prior to conducting biological field surveys, HELIX conducted a search of aerial imagery, soil survey data (U.S. Department of Agriculture [USDA] 2017), U.S. Geological Survey topographic maps, U.S. Fish and Wildlife Service (USFWS) critical habitat maps (U.S. Fish and Wildlife Service [USFWS] 2017), City of San Diego MSCP Subarea Plan designations (City 1997), and sensitive species information from the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB; CDFW 2017a), Calflora (2017), California Native Plant Society (CNPS 2017), and USFWS database records (USFWS 2017).

2.2 GENERAL BIOLOGICAL SURVEY

Prior to conducting the general biological survey, HELIX principal planner Bruce McIntyre and HELIX biologist Benjamin Rosenbaum attended a design meeting with KEH and Associates staff (Nita Kazi and Devin Colyer) on April 27, 2017, to review site conditions and potential biological constraints. HELIX biologists Mr. Rosenbaum and Amy Mattson conducted a general biological survey of the proposed repair site on May 8, 2017, to map existing vegetation communities, document the locations of sensitive biological resources, and evaluate the potential for other sensitive biological resources associated with the project and immediate vicinity, such as potential waterways and wetlands (Table 1). The general biological survey included a rare plant survey. Mr. Rosenbaum and Ms. Mattson conducted a preliminary evaluation of jurisdictional resources within the study area. A formal jurisdictional delineation was completed by Mr. Rosenbaum and HELIX biologist Stacy Nigro on November 15, 2017. The approximately 163.2-acre study area for the site includes the proposed Alvarado Phase IV sewer alignment and an approximate 200-foot buffer (Figures 4a-4f). Vegetation was mapped on a 1 inch=50 feet scale aerial photograph. The site was surveyed on foot with the aid of binoculars. Animal identifications were made in the field by direct, visual observation, or indirectly by detection of calls, burrows, tracks, or scat. Plant identifications were made in the field or in the lab through comparison with voucher specimens or photographs. Plant and animal species observed or otherwise detected during the survey were recorded (Appendices A and B).

2.2.1 Nomenclature

Nomenclature follows Baldwin et al. (2012) for plants and Rebman et al. (2014) was used to augment common names, American Ornithologists' Union (2016) for birds, and Oberbauer (2008) for vegetation communities. Plant species status is taken from the California Native Plant Society (CNPS; CDFW 2017b).

Animal species status is from CDFW (2017a). Soils information was taken from the Natural Resource Conservation Service (U.S. Department of Agriculture [USDA] 2017a).

Table 1
HELIX SURVEY INFORMATION

Survey Date	Personnel	Purpose	Survey Times	Weather Conditions
4/27/2017	Nita Kazi and Devin Colyer (KEH & Associates) and Bruce McIntyre and Benjamin Rosenbaum (HELIX)	Initial project review meeting	N/A	N/A
5/08/2017	Benjamin Rosenbaum and Amy Mattson	General biological survey, rare plant survey, and jurisdictional delineation	0820-1230	Sunny
11/15/2017	Benjamin Rosenbaum and Stacy Nigro	Jurisdictional delineation	1000-1530	Sunny

3.0 RESULTS

3.1 REGIONAL CONTEXT

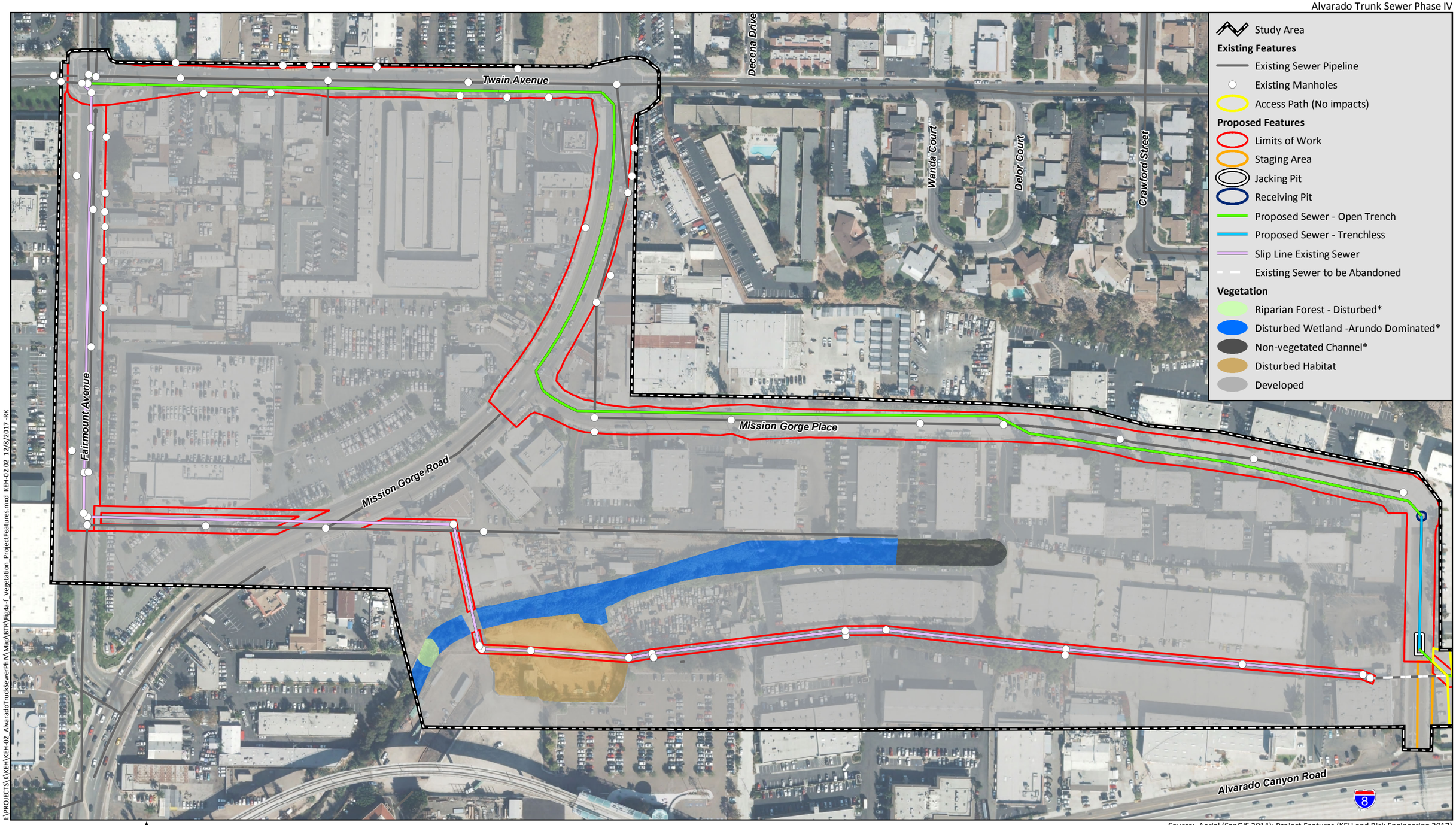
The project is within the boundary of the City's MSCP Subarea Plan, but is not within the MHPA. However, since MHPA lands occur within 300 feet of the project, the project would be considered by the City to be adjacent to the MHPA (Figure 3). The project is outside lands identified as critical habitat by the USFWS.

3.2 GENERAL LAND USES

Surrounding land uses in the vicinity of the project alignment include single- and multi-family residential development, commercial and health care facilities, SDSU, and open space. The northernmost portion of the project alignment south of Adobe Falls Road within the canyon is located partially within Adobe Falls Park and Open Space managed by the City Parks and Open Space Division. The remainder of the project within the canyon is located on land owned by SDSU.

3.3 DISTURBANCE

Much of the undeveloped study area has been subject to minor disturbance due to adjacent housing development, public roads, and hikers who use the canyon trails for recreational use near Adobe Falls. The majority of the flood channels contain non-native species with pockets of native habitat remaining. While the trails near Adobe Falls are fenced off, these areas currently appear to be in active use based on signs of foot traffic, trash, and graffiti.



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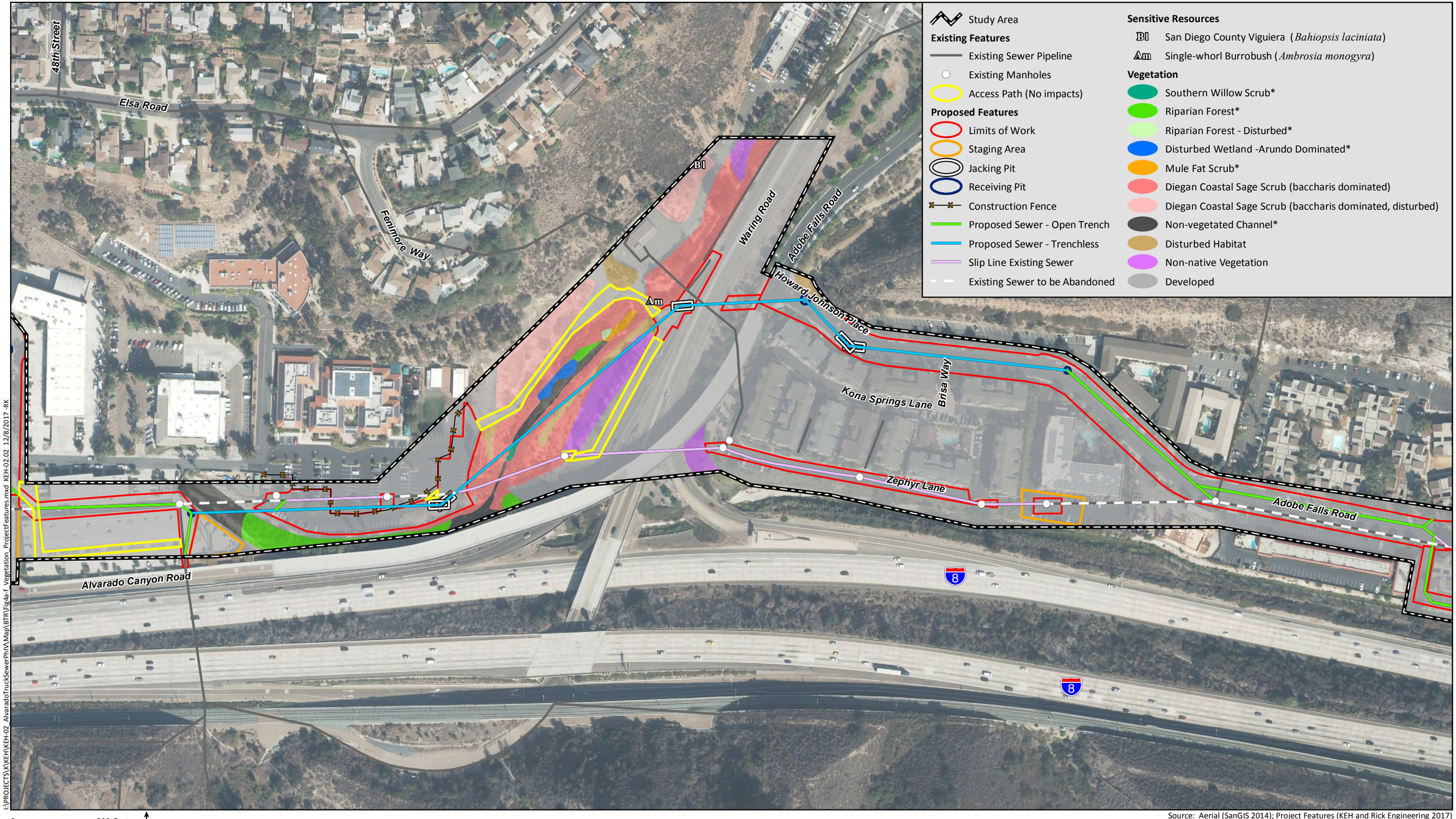
Source: Aerial (SanGIS 2014); Project Features (KEH and Rick Engineering 2017)

*CDFW habitat based on presence of riparian vegetation or stream channel.

Note: Formal delineation of USACE-jurisdictional areas and RWQCB-jurisdictional areas were limited to areas within or adjacent to the proposed limits of work. No USACE-jurisdictional areas or RWQCB-jurisdictional areas were delineated within the proposed limits of work.

Vegetation and Jurisdictional Features/Project Features

Figure 4a



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0 200 Feet

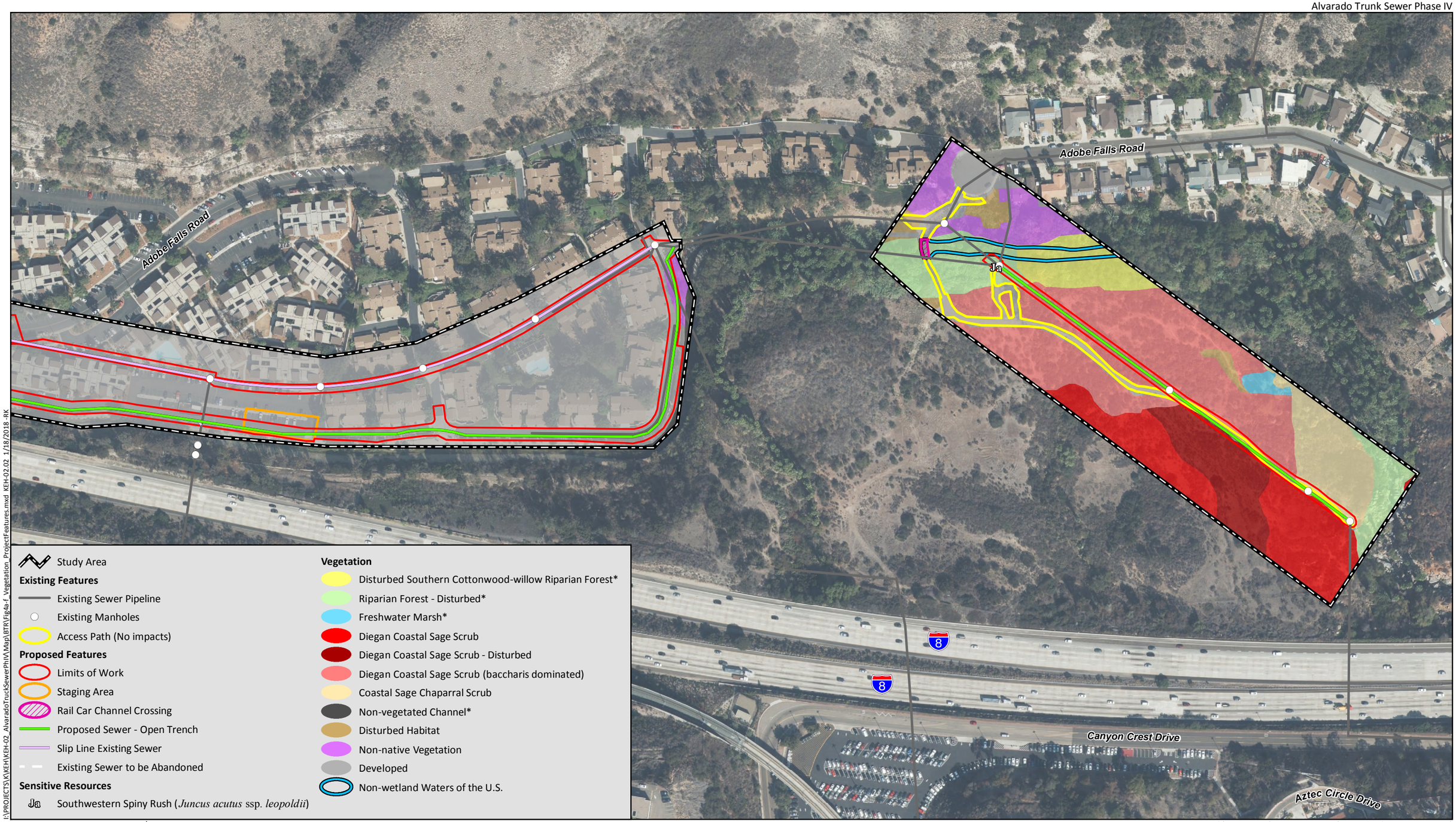
Source: Aerial (SanGIS 2014); Project Features (KEH and Rick Engineering 2017)

*CDFW habitat based on presence of riparian vegetation or stream channel.

Note: Formal delineation of USACE-jurisdictional areas and RWQCB-jurisdictional areas were limited to areas within or adjacent to the proposed limits of work. No USACE-jurisdictional areas or RWQCB-jurisdictional areas were delineated within the proposed limits of work.

Vegetation and Jurisdictional Features/Project Features

Figure 4b



I:\PROJECTS\KTK\KEH\KEH-02_AlvaradoTruckSewerPhIV\Map\BTR\Figs-f_Vegetation_ProjectFeatures.mxd KEH-02.02 1/18/2018 -RK

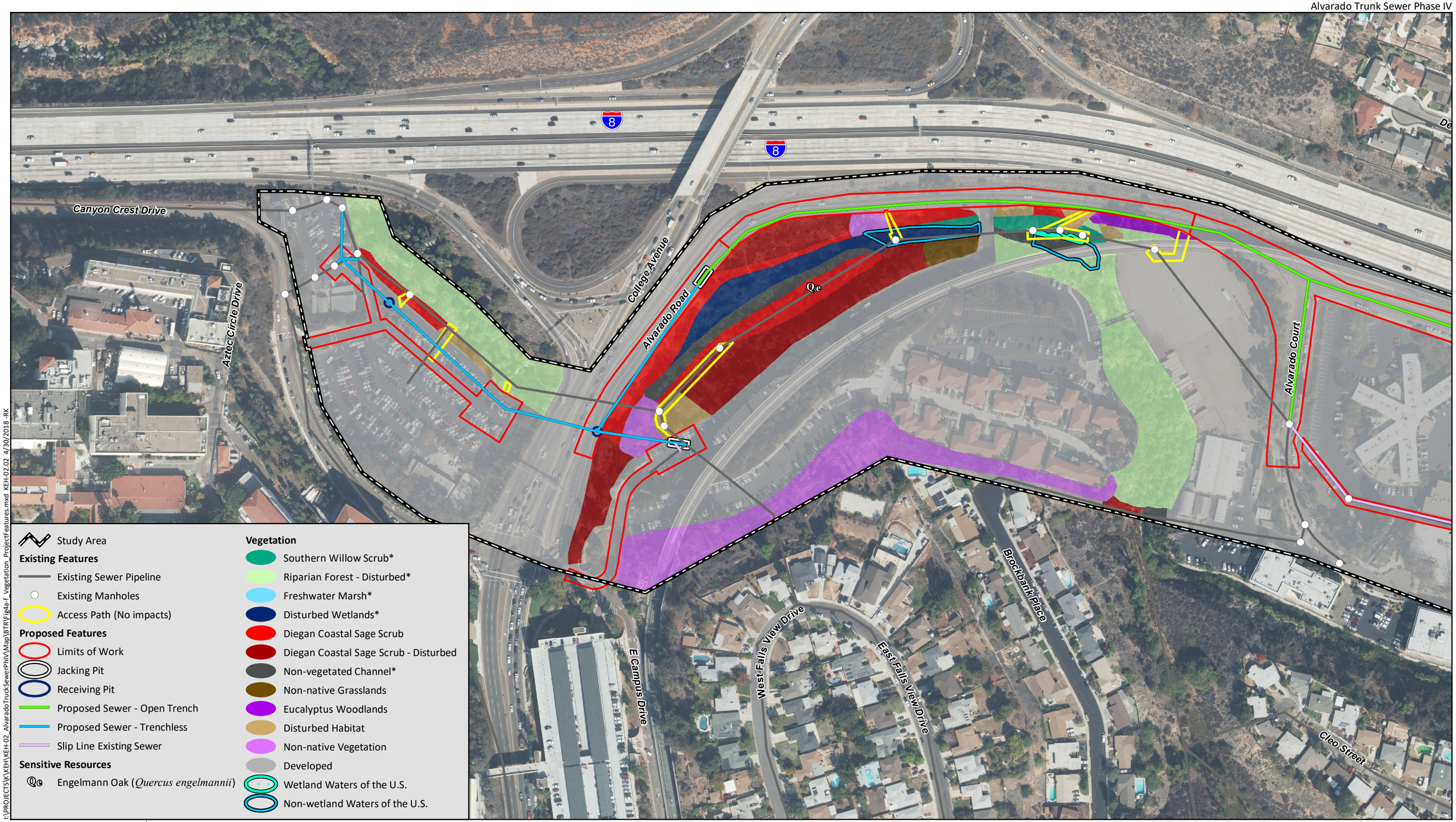
Source: Aerial (SanGIS 2014); Project Features (KEH and Rick Engineering 2017)

*CDFW habitat based on presence of riparian vegetation or stream channel.

Note: Formal delineation of USACE-jurisdictional areas and RWQCB-jurisdictional areas were limited to areas within or adjacent to the proposed limits of work. No USACE-jurisdictional areas or RWQCB-jurisdictional areas were delineated within the proposed limits of work.

Vegetation and Jurisdictional Features/Project Features

Figure 4c



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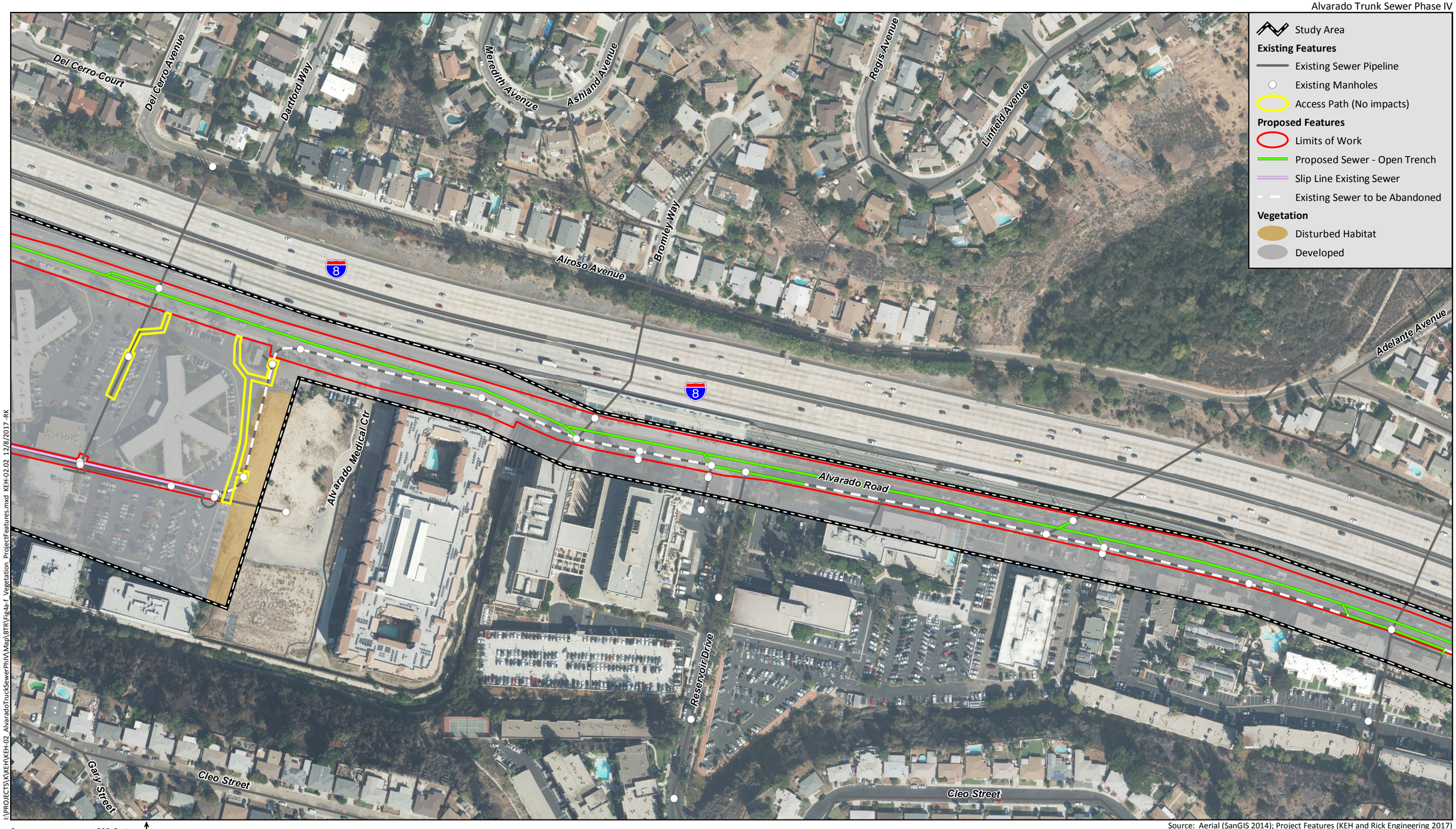
Source: Aerial (SanGIS 2014); Project Features (KEH and Rick Engineering 2017)

*CDFW habitat based on presence of riparian vegetation or stream channel.

Note: Formal delineation of USACE-jurisdictional areas and RWQCB-jurisdictional areas were limited to areas within or adjacent to the proposed limits of work. No USACE-jurisdictional areas or RWQCB-jurisdictional areas were delineated within the proposed limits of work.

Vegetation and Jurisdictional Features/Project Features

Figure 4d



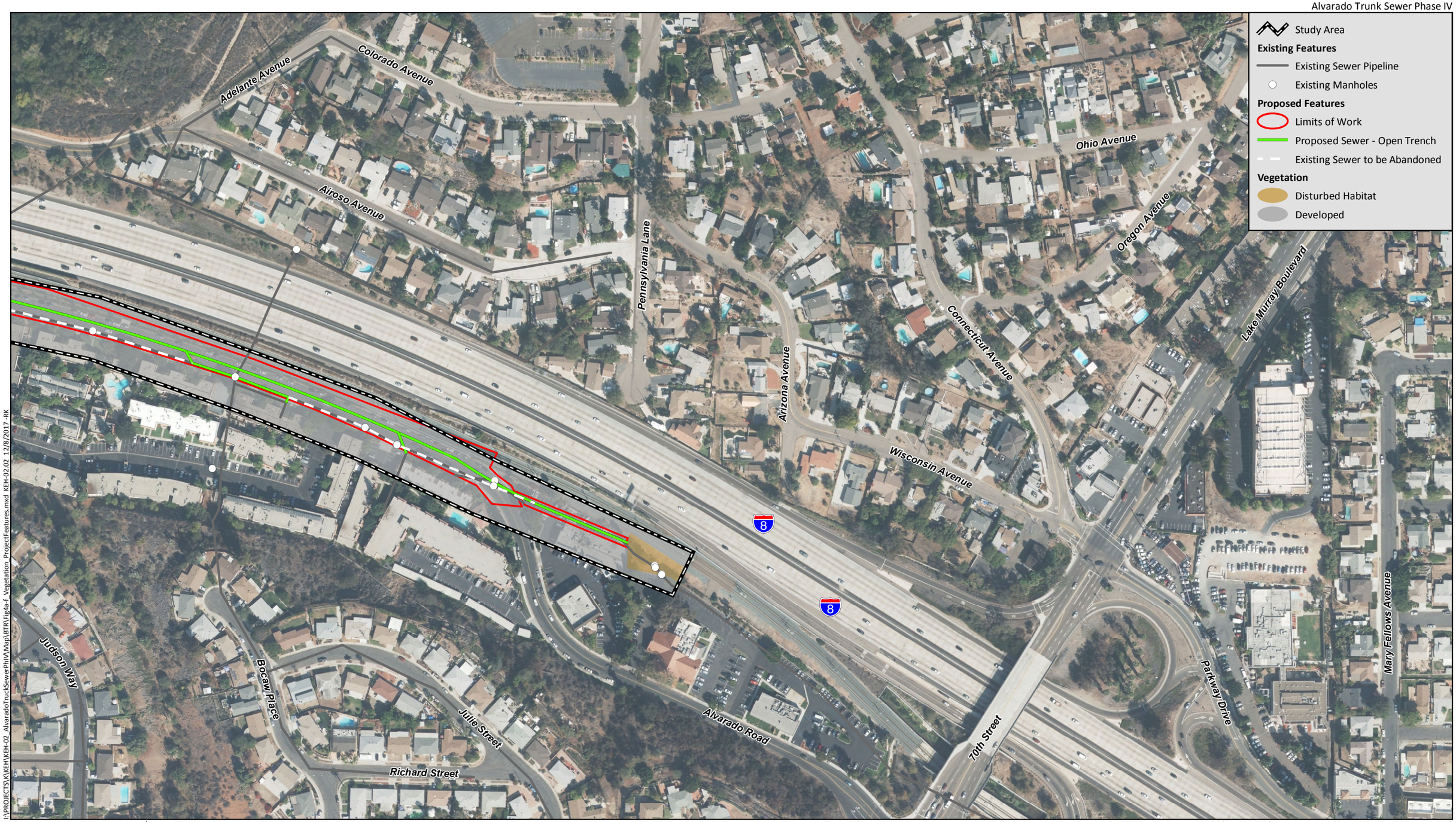
I:\PROJECTS\KJ\KEH\KEH-02_AlvaradoTrunkSewerPhIV\Map\BTR\Figda-f_Vegetation_ProjectFeatures.mxd KEH-02.02 12/8/2017 -RK

Source: Aerial (SanGIS 2014); Project Features (KEH and Rick Engineering 2017)

Note: Formal delineation of USACE-jurisdictional areas and RWQCB-jurisdictional areas were limited to areas within or adjacent to the proposed limits of work. No USACE-jurisdictional areas or RWQCB-jurisdictional areas were delineated within the proposed limits of work.

Vegetation and Jurisdictional Features/Project Features

Figure 4e



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0 200 Feet

Source: Aerial (SanGIS 2014); Project Features (KEH and Rick Engineering 2017)

Note: Formal delineation of USACE-jurisdictional areas and RWQCB-jurisdictional areas were limited to areas within or adjacent to the proposed limits of work. No USACE-jurisdictional areas or RWQCB-jurisdictional areas were delineated within the proposed limits of work.

Vegetation and Jurisdictional Features/Project Features

Figure 4f

3.4 TOPOGRAPHY AND SOILS

Elevations within the study area range from approximately 72 feet above mean sea level (amsl) to 382 feet amsl. Seven soil communities were mapped within the study area: Tujunga sand, Huerhuero urban land, Riverwash, Olivenhain-urban land, Friant rocky fine sandy loam, Redding-urban land, and Diablo-urban land. Tujunga series are defined as deep, somewhat excessively drained soils that formed in alluvium from granitic sources, and is considered a hydric soil. Huerhuero series are defined as alluvium derived from sedimentary rock, and is not considered a hydric soil. Riverwash series are defined as somewhat poorly drained, and are considered a hydric soil. Olivenhain series are defined as gently sloping to strongly sloping and are on dissected marine terraces, and is not a hydric soil. Friant series defined as shallow, well-drained soils that formed in material weathered from mica schist, quartz schist and gneiss, and is not considered a hydric soil. Redding series are defined as well- or moderately well-drained soils that formed in alluvium derived from mixed sources, and is not considered a hydric soil. Diablo series is defined by mildly alkaline, silty clay, and is not considered a hydric soil (USDA 2017).

3.5 VEGETATION COMMUNITIES/LAND USE TYPES

A total of 14 vegetation communities or land use types occur within the study area for the proposed project: riparian forest (including disturbed), freshwater marsh, southern cottonwood-willow riparian forest (including disturbed), southern willow scrub, mule fat scrub, disturbed wetland (including arundo-dominated), non-vegetated channel, coastal sage chaparral scrub, Diegan coastal sage scrub (including baccharis-dominated, disturbed), non-native grassland, eucalyptus woodland non-native vegetation, disturbed habitat, and developed lands (Table 2; Figures 4a-4f). Ten of these are considered sensitive habitats: riparian forest (including disturbed), freshwater marsh, southern cottonwood-willow riparian forest (including disturbed), southern willow scrub, mule fat scrub, disturbed wetland (including arundo-dominated), non-vegetated channel, coastal sage chaparral scrub, Diegan coastal sage scrub (including baccharis-dominated, disturbed), and non-native grassland. The communities/land use types are presented in Table 2 in order by MSCP tier.

Table 2
EXISTING VEGETATION COMMUNITIES/LAND USE TYPES
WITHIN THE PROJECT STUDY AREA

Multiple Species Conservation Program (MSCP) Tier[1]	Vegetation Community/ Land Use Type	Acreage[2]
Wetlands/Non-Vegetated Channel		
--	Riparian Forest (including disturbed)	4.33
--	Freshwater Marsh	0.09
--	Southern Cottonwood-Willow Riparian Forest (including disturbed)	0.59
	Southern Willow Scrub	0.24
--	Mule Fat Scrub	0.03
--	Disturbed Wetland (including arundo-dominated)	1.99
--	Non-Vegetated Channel	1.27
	Wetlands Subtotal	**8.54**

Table 2 (cont.)
EXISTING VEGETATION COMMUNITIES/LAND USE TYPES
WITHIN THE PROJECT STUDY AREA

Multiple Species Conservation Program (MSCP) Tier[1]	Vegetation Community/ Land Use Type	Acreage[2]
Uplands		
II	Coastal Sage Chaparral Scrub	0.8
II	Diegan Coastal Sage Scrub (including baccharis-dominated and disturbed)	11.0
IIIB	Non-native grassland	0.1
IV	Eucalyptus Woodland	0.1
IV	Non-native Vegetation	3.3
IV	Disturbed Habitat	2.9
IV	Developed Land	136.5
	Uplands Subtotal	**154.7**
	TOTAL	**163.2**

[1] Tiers refer to City of San Diego (City) MSCP Subarea Plan habitat classification system.
[2] Habitat rounded to the nearest 0.1 acre for uplands and 0.01 acre for wetlands/non-vegetated channel; total reflects rounding.

Riparian Forest (Including Disturbed)

Tall, open, broad-leafed winter-deciduous riparian forests are sub-irrigated and frequently overflowed lands along rivers and streams. The dominant species require moist, bare mineral soil for germination and establishment. This is provided after flood waters recede, leading to uniform-aged stands in this seral type. Approximately 4.33 acres of riparian forest (including disturbed) occur within the study area (Figures 4a-4d). Dominant species in this plant community within the study area include Goodding's willow (*Salix gooddingii*), cottonwood (*Populus fremontii*), and western sycamore (*Platanus racemosa*).

Freshwater Marsh

Freshwater marsh is dominated by perennial, emergent monocots, 5 to 13 feet tall, forming incomplete to completely closed canopies. This vegetation type occurs along the coast and in coastal valleys near river mouths, around the margins of lakes and springs, and freshwater or brackish marshes. Approximately 0.09 acre of freshwater marsh occurs within the study area (Figure 4c).

Southern Cottonwood-Willow Riparian Forest (including disturbed)

Southern cottonwood-willow riparian forest consists of tall, open, broad-leaved, winter-deciduous riparian species and is dominated by cottonwood species (e.g. *Populus fremontii* and *Populus trichocarpa*), with willow species (*Salix* spp.) comprising the main understory. Approximately 0.59 acre of southern cottonwood-willow riparian forest (including disturbed) occurs within the study area (Figure 4c).

Southern Willow Scrub

Southern willow scrub consists of dense, broadleaved, winter-deciduous stands of trees dominated by shrubby willows (*Salix* sp.) in associated with mule fat (*Baccharis salicifolia*), and with scattered emergent cottonwood 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. Approximately 0.24 acre of southern willow scrub occurs within the study area (Figure 4c).

Mule Fat Scrub

Mule fat scrub is a depauperate, shrubby riparian scrub community dominated by mule fat and interspersed with small willows. This vegetation community occurs along intermittent stream channels with a fairly coarse substrate and moderate depth to the water table. This early seral community is maintained by frequent flooding, the absence of which would lead to a cottonwood or sycamore dominated riparian woodland or forest. Approximately 0.03 acre of mule fat scrub occurs within the study area (Figure 4b).

Disturbed Wetland (Including Arundo-dominated)

This vegetation community is dominated by exotic wetland species that invade areas that have been previously disturbed or undergone periodic disturbances. These non-natives become established more readily following natural or human-induced habitat disturbances than the native wetland flora. Approximately 1.99 acres of disturbed wetland (including arundo-dominated) occur within the study area (Figures 4a and 4d). Dominant species in this plant community within the study area include giant reed (*Arundo donax*), California fan palm (*Washingtonia filifera*), and Brazilian pepper tree (*Schinus terebinthifolius*).

Non-vegetated Channel

Non-vegetated channel includes sandy, gravelly, or rocky fringe of waterways or flood channels. It remains unvegetated on a relatively permanent basis. Variable water lines inhibit the growth of vegetation, although some weedy species of grasses may grow along the outer edges of the wash. Vegetation may exist here but is usually less than 10 percent total cover. Approximately 1.27 acres of non-vegetated channel occurs within the study area (Figures 4a-4d).

Coastal Sage Chaparral Scrub

Chaparral is the most prominent vegetation type within the regions of California experiencing a Mediterranean climate. Evergreen shrubs with small, sclerophyllous (hard-leaved) leaves that are thick and heavily cutinized to reduce evapotranspirational water losses dominate the chaparral communities. Approximately 0.8 acre of coastal sage chaparral scrub occurs within the study area (Figures 4c). Within the study area, this habitat is dominated by California sagebrush (*Artemisia californica*), chamise (*Adenostoma fasciculata*), broom baccharis (*Baccharis sarothroides*), and flat-top buckwheat (*Eriogonum fasciculatum*).

Diegan Coastal Sage Scrub (Including Baccharis-dominated and Disturbed)

Diegan coastal sage scrub is the widespread coastal sage scrub in coastal southern California, typically occupying xeric sites characterized by shallow soils. Baccharis-dominated Diegan coastal sage scrub is typically on disturbed sites or those with nutrient poor soils. Approximately 11.0 acres of Diegan coastal sage scrub (including baccharis-dominated and disturbed) occur within the study area (Figures 4b-4d). Within the study area, this habitat is dominated by California sagebrush, laurel sumac (*Malosma laurina*), broom baccharis, and flat-top buckwheat.

Non-Native Grassland

Non-native grassland is dense to sparse cover of annual grasses, often occurring on gradual slopes with deep, fine-textured, usually clay soils. Characteristic species include oats (*Avena* sp.), foxtail chess (*Bromus madritensis rubens*), ripgut brome (*Bromus diandrus*), and mustard (*Brassica* sp). Approximately 0.1 acre of non-native grassland occurs within the study area (Figures 4d). Within the study area, this habitat is dominated by foxtail chess and ripgut brome.

Eucalyptus Woodland

Eucalyptus woodland is dominated by eucalyptus (*Eucalyptus* sp.), and introduced species that has often been planted purposefully for wind blocking, ornamental, and hardwood production purposes. Most groves are monotypic with the most common species being either blue gum (*Eucalyptus gunnii*) or red gum (*E. camaldulensis* ssp. *obtusa*). The understory within well-established groves is usually very sparse due to the closed canopy and allelopathic nature of the abundant leaf bark and litter. Approximately 0.1 acre of eucalyptus woodland occurs within the study area (Figures 4d).

Non-Native Vegetation

Non-native vegetation is a category describing stands of naturalized trees and shrubs such as acacia (*Acacia* sp.) and peppertree (*Schinus* sp.), which are also used in landscaping. Approximately 3.3 acres of non-native vegetation occurs within the study area (Figures 4b-4c). Within the study area, this habitat is dominated by garland daisy (*Glebionis coronaria*), Brazilian pepper tree, and African fountain grass (*Pennisetum setaceum*).

Disturbed Habitat

Disturbed habitat includes land cleared of vegetation (e.g., dirt roads), land containing a preponderance of non-native plant species such as ornamentals or ruderal exotic species that take advantage of disturbance (previously cleared or abandoned landscaping), or land showing signs of past or present animal usage that removes any capability of providing viable habitat. Dominant species in this plant community within the study area include garland daisy, fennel (*Foeniculum vulgare*), ripgut brome, and African fountain grass. Disturbed habitat totals 2.9 acres within the study area (Figures 4a-4f)

Developed Land

Developed land within the study area consists of residential housing, landscaped areas, commercial and health care facilities, and SDSU. Developed land totals 136.5 acres within the study area (Figures 4a-4f).

3.5.1 Flora

A total of 44 plant species were observed within the study area during the biological survey, of which 22 (50 percent) were non-native (Appendix A).

3.5.2 Fauna

A total of 16 animal species were observed or otherwise detected in the study area during the biological survey, including two invertebrate and 14 bird species (Appendix B).

3.5.3 Sensitive Vegetation Communities/Habitat Types

Sensitive vegetation communities/habitat types are defined as land that supports unique vegetation communities or the habitats of rare or endangered species or subspecies of animals or plants as defined by Section 15380 of the State CEQA Guidelines. The City's Environmentally Sensitive Lands (ESL) and Biology Guidelines (City 2012) define sensitive biological resources as: lands included in the MHPA; wetlands; Tier IIIB and higher vegetation types; and habitat for rare, endangered, threatened, or narrow endemic species. Within the study area, the following sensitive vegetation communities are present: riparian forest (including disturbed), southern cottonwood-willow riparian forest (including disturbed), southern willow scrub, mule fat scrub, freshwater marsh, disturbed wetland (including arundo-dominated), non-vegetated channel, coastal sage chaparral scrub, Diegan coastal sage scrub (including baccharis-dominated, disturbed), and non-native grassland.

3.5.4 Special Status Species

Special Status Plant Species

Special status plant species have been afforded special status and/or recognition by the USFWS, CDFW, and/or the City (e.g., MSCP narrow endemic species) and may also be included in the CNPS Inventory of Rare and Endangered Plants. Their status is often based on one or more of three distributional attributes: geographic range, habitat specificity, and/or population size. A species that exhibits a small or restricted geographic range (such as those endemic to the region) is geographically rare. A species may be more or less abundant but occur only in very specific habitats. Lastly, a species may be widespread but exists naturally in small populations.

Four special status plant species were observed within the study area: single-whorl burrobrush (*Ambrosia monogyra*), San Diego county sunflower (*Bahiopsis laciniata*), Engelmann oak (*Quercus engelmannii)*, and southwestern spiny rush (*Juncus acutus* ssp. leopoldii*).*

Single-whorl burrobrush (*Ambrosia monogyra*)
Listing: --/--; CNPS List 2.B2
Distribution: San Diego, Imperial, Riverside, and Kern Counties
Habitat: Chaparral sage scrub, and washes/dry riverbeds occurring below 500 meters in elevation.
Status on site: This plant species was observed southeast of the Waring Road Pump Station (Figure 4b). Ten individuals were observed at this location.

San Diego County sunflower (*Bahiopsis laciniata*)
Listing: --/--; CNPS List 4.3
Distribution: San Diego and Orange County; Baja California, Mexico
Habitat: Diegan coastal sage scrub. Generally, shrub cover is more open than at mesic, coastal locales supporting sage scrub. Occurs on a variety of soil types.
Status on site: This plant species was observed northeast of the Waring Road Pump Station (Figure 4b). Fifteen individuals were observed at this location.

Engelmann oak (*Quercus engelmannii*)
Listing: --/--; CNPS List 4.2
Distribution: Cismontane foothills of southern California (primarily from the Santa Ana Mountains to Baja California, Mexico) within an upper elevation limit of approximately 4,200 feet
Habitat: Oak woodland and southern mixed chaparral. Larger oaks sometimes occur in vast savannah grasslands. In foothills, may also occur as a shrubby element within the chaparral.
Status on site: This plant species was observed south of the I-8 freeway and east of Alvarado Road within the coast live oak vegetation community (Figure 4d). Three individuals were observed at this location.

Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*)
Listing: --/--; CNPS List 4.2
Distribution: San Diego and Orange County; Baja California, Mexico.
Habitat: Moist, saline places, salt marshes, alkaline seeps. Often found in the understory of southern willow scrub, southern cottonwood-willow riparian forest, freshwater marsh.
Status on site: This plant species was observed within Adobe Falls canyon, south of the channel within the previously established City maintenance access path, adjacent to riparian forest (disturbed) habitat (Figure 4c). Approximately 30 individuals were observed in this location.

A total of eight special status plant species known from within two miles of the project or included on the City's MSCP Narrow Endemic list were analyzed for their potential to occur within the study area (Appendix C). Aside from the four species observed within the study area, one other special status plant species has a moderate potential to occur: San Diego marsh-elder (*Iva hayesiana*).

San Diego marsh-elder (*Iva hayesiana*)
Listing: --/--; CNPS List 2.2
Distribution: San Diego County; Baja California, Mexico
Habitat: Creeks of intermittent streambeds are preferred habitat for this low-growing, conspicuous shrub. Typically, the riparian canopy is open, allowing substantial sunlight to reach this marsh-elder. Sandy alluvial embankments with cobbles are frequently utilized.
Status on site: Soils and habitat within the study area are suitable; however, this conspicuous species would have been observed if present.

Special Status Animal Species

Special status animal species include those that have been afforded special status and/or recognition by the USFWS, CDFW, and/or the City. In general, the principal reason an individual taxon (species or subspecies) is given such recognition is the documented or perceived decline or limitations of its population size or geographical extent and/or distribution, resulting in most cases from habitat loss.

No special status species were observed within the study area during the survey, but coastal California gnatcatcher (*Polioptila californica californica*) was observed outside the study area within Diegan coastal sage scrub habitat.

Coastal California gnatcatcher (*Polioptila californica californica*)
Status: FT/--; City MSCP
Distribution: Widespread resident species in San Diego County
Habitat(s): Diegan coastal sage scrub areas typically dominated by California sagebrush, flat-top buckwheat, and prickly-pear cactus (*Opuntia littoralis*).
Status on site: This species was observed outside the study area, but the Diegan coastal sage scrub within the study area is considered suitable to support nesting for the species.

A total of 10 special status animal species known from within two miles of the project were analyzed for their potential to occur within the study area (Appendix D). Five special status animal species have a moderate potential to occur: least Bell's vireo (*Vireo bellii pusillus*), Belding's orange-throated whiptail (*Aspidoscelis hyperythrus beldingi*), southern California rufous-crown sparrow (*Aimophila ruficeps canescens*), Bell's sage sparrow (*Amphispiza belli belli*), and yellow warbler (*Setophaga petechia*). No other special status animal species have moderate or high potential to occur due to lack of suitable habitat.

Least Bell's vireo (*Vireo bellii pusillus*)
Status: FE/SE, City MSCP
Distribution: Observed throughout much of San Diego County in the breeding season but in smaller numbers in foothills and mountains
Habitat(s): Riparian forest, riparian woodland, and riparian scrub
Status on site: This species was not observed, but suitable habitat is present and the species is known to occur within one mile of the site (CDFW 2017a).

Belding's orange-throated whiptail (*Aspidoscelis hyperythrus beldingi*)
Status: --/SSC, City MSCP
Distribution: Southern Orange County and southern San Bernardino County, south through Baja California
Habitat: Coastal sage scrub, chaparral, edges of riparian woodlands, and washes. Also found in weedy, disturbed areas adjacent to these habitats. Important habitat requirements include open, sunny areas, shaded areas, and abundant insect prey base, particularly termites (*Reticulitermes* sp.).
Status on site: This species was not observed, but suitable habitat occurs within the study area.

Southern California rufous-crown sparrow (*Aimophila ruficeps canescens*)
Status: --/WL; City MSCP
Distribution: Widespread resident species in San Diego County
Habitat(s): Potentially occurs in sage scrub and grassland areas.
Status on site: This species was not observed, but the Diegan coastal sage scrub is considered suitable habitat for the species.

Bell's sage sparrow (*Amphispiza belli belli*)
Status: BCC/WL; City MSCP
Distribution: Widespread resident species in San Diego County

Habitat(s): Potential to occur in native habitat areas. Prefers coastal sage scrub and chaparral, often in areas partially recovered following fires.
Status on site: This species was not observed, but the Diegan coastal sage scrub is considered suitable habitat for the species.

Yellow warbler (*Setophaga petechia*)
Status: --/SSC
Distribution: Widespread resident species in San Diego County
Habitat(s): Riparian forest, riparian woodland, and riparian scrub.
Status on site: This species was not observed, but suitable habitat is present and the species is known to occur within 1 mile of the site (CDFW 2017a).

Nesting Birds

Trees and shrubs both within and adjacent to the study area could provide suitable nesting habitat for numerous bird species known to the region.

Raptor Foraging

One raptor species was observed near the study area during the biological survey (red-tailed hawk [*Buteo jamaicensis*]). Raptor species that have shown the ability to adapt to suburban environments may use the area for foraging and could use on-site trees for nesting. These include red-shouldered hawk (not listed or MSCP-covered) and Cooper's hawk (*Accipiter cooperii*; State Watch List and MSCP-Covered). Suitable foraging habitat for these species are fallow fields or open lands greater than 5 acres that are characterized by fossorial activity and/or the presence of trees. Raptors typically utilize tall trees for nesting and perching. However, the area of potential foraging habitat for raptors is very limited within the study area. The habitat within the study area does not provide high-quality raptor habitat, as on-site trees with potential for nesting are located adjacent to freeways and roadways with heavy traffic, lack of adjacent potential foraging habitat (fallow fields/open lands with fossorial activity), and nearby disturbance such as hiking trails, roads, freeways, and proximity to human activity are also a deterrent for foraging raptors.

3.6 JURISDICTIONAL WATERS AND CITY WETLANDS

Mr. Rosenbaum and Ms. Mattson conducted a preliminary evaluation of jurisdictional resources within the study area on May 8, 2017 (Table 1). Mr. Rosenbaum and Ms. Nigro conducted a formal evaluation of jurisdictional resources within the study area that occurred within the project impact footprint on November 15, 2017 (Table 1). The formal evaluation was based on field interpretation and identified and mapped existing waters of the U.S. (WUS) under U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the federal Clean Water Act (CWA; 33 USC 1344). The Regional Water Quality Control Board (RWQCB) has jurisdiction over waters of the State according to Section 401 of the CWA. A Section 401 Water Quality Certification, which is administered by the RWQCB, must be obtained prior to the issuance of any 404 permit. The evaluation also identified habitats under CDFW jurisdiction pursuant to Section 1600 of the California Fish and Game Code, and City wetlands pursuant to Biological Guidelines of the Land Development Code. HELIX's jurisdictional delineation presents our best efforts to quantify the extent of WUS, waters of the State, CDFW, and City jurisdictional habitats within the project using current regulations, written policies, and guidance from regulatory agencies. The jurisdictional boundaries provided are subject to verification by the USACE, RWQCB, CDFW, and City. A summary is

provided below for each jurisdiction and Figures 4a-4f provide the general depiction of the jurisdictional boundaries within the study area that also occur within the project impact footprint.

3.6.1 Federal Jurisdiction

Based on HELIX's jurisdictional evaluation, WUS subject to USACE/RWQCB jurisdiction occur within the study area (Figures 4a-4d). Waters of the U.S., including wetland and non-wetland waters, occur in association with Alvarado Creek, which is considered to be a jurisdictional feature. The WUS include wetland and non-wetland waters which convey water flows that are tributaries to the San Diego River, ultimately leading to the Pacific Ocean.

3.6.2 State Jurisdiction

Areas subject to CDFW jurisdiction within the study area include southern cottonwood willow riparian forest (including disturbed), southern willow scrub, mule fat scrub, riparian forest (including disturbed), disturbed wetland (including arundo-dominated), freshwater marsh, and non-vegetated channel (Figures 4a-4d; Table 3). The CDFW jurisdiction is the same as City-defined wetlands (approximately 8.54 acres of habitat within the study area; Table 3).

3.6.3 City Wetlands

Wetlands, as defined by the City (2012), within the study area contain riparian/jurisdictional habitat, and are usually coterminous with CDFW jurisdictional wetlands. City-defined wetlands contain 8.54 acres of wetland habitat (Figures 4a-4d; Table 3), consisting of southern cottonwood willow riparian forest (including disturbed), southern willow scrub, mule fat scrub, riparian forest (including disturbed), disturbed wetland (including arundo-dominated), freshwater marsh, and non-vegetated channel. No vernal pools, road pools, or seasonal ponding was observed or detected within the study area.

Table 3
JURISDICTIONAL HABITATS WITHIN THE STUDY AREA AND PROJECT SITE

Habitat	Acreage*‡			
	CDFW		City	
	Study Area	Project Site	Study Area	Project Site
Southern Cottonwood-Willow Riparian Forest (including disturbed)	0.59	--	0.59	--
Southern Willow Scrub	0.24	--	0.24	--
Mule Fat Scrub	0.03	--	0.03	--
Riparian Forest (including disturbed)	4.33	0.05	4.33	0.05
Disturbed Wetland (including arundo-dominated)	1.99	--	1.99	--
Freshwater Marsh	0.09		0.09	--
Non-vegetated channel	1.27	--	1.27	--
TOTAL	**8.54**	**0.05**	**8.54**	**0.05**

* Rounded to the nearest 0.01; thus, totals reflect rounding

‡ The USACE/RWQCB delineation focused on the proposed limits of work and no USACE/RWQCB areas occur within the footprint and are therefore not included in this table.

3.7 HABITAT CONNECTIVITY AND WILDLIFE CORRIDORS

Wildlife corridors connect otherwise isolated pieces of habitat and allow movement or dispersal of plants and animals. Local wildlife corridors allow access to resources such as food, water, and shelter within the framework of their daily routine. Regional corridors provide these functions over a larger scale and link two or more large habitat areas, allowing the dispersal of organisms and the consequent mixing of genes between populations. A corridor is a specific route that is used for the movement and migration of species, and may be different from a linkage in that it represents a smaller or narrower avenue for movement. A linkage is an area of land that supports or contributes to the long-term movement of animals and genetic exchange by providing live-in habitat that connects to other habitat areas. Many linkages occur as stepping-stone linkages that are made up of a fragmented archipelago arrangement of habitat over a linear distance.

The study area does not occur within any known corridors or linkages. The project is located within areas adjacent to land designated as MHPA. North-south wildlife movement would likely follow the strip of MHPA designated to the west of Waring Road and north of I-8 (Figure 3). The study area is mainly surrounded by homes and urban development on the north, east, and south sides. Undeveloped land is located on City Open Space urban canyon areas adjacent to the Smoke Tree Apartment and within Adobe Falls canyon, and an additional smaller area located on the south side of I-8, within the jurisdiction of SDSU. These undeveloped parcels are also surrounded by homes and urban development, and are not connected to land designated within the MHPA. Wildlife may use Alvarado Creek as a movement area, but the creek is surrounded by urban development and portions are routed under roads and is not entirely contiguous.

4.0 APPLICABLE REGULATIONS

This section provides a summary of applicable regulations to the proposed project.

4.1 FEDERAL GOVERNMENT

Clean Water Act

Administered by the Environmental Protection Agency (EPA), the CWA establishes the basic structure for regulating discharges of pollutants into WUS and regulating quality standards for surface waters. Enacted in 1948 as the Federal Water Pollution Control Act, it was significantly reorganized and expanded in 1972 as the CWA. The CWA made it unlawful to discharge any pollutant from a point source into navigable waters, unless a permit was obtained.

Federal Endangered Species Act

Administered by the USFWS, the Federal Endangered Species Act (FESA) provides the legal framework for the listing and protection of species (and their habitats) that are identified as being endangered or threatened with extinction. Actions that jeopardize endangered or threatened species and the habitats upon which they rely are considered a “take” under the FESA. Section 9(a) of the FESA defines take as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any

such conduct." "Harm" and "harass" are further defined in federal regulations and case law to include actions that adversely impair or disrupt a listed species' behavioral patterns.

The USFWS designates critical habitat for endangered and threatened species. Critical habitat is defined as areas of land that are considered necessary for endangered or threatened species to recover. The ultimate goal is to restore healthy populations of listed species within their native habitats so they can be removed from the list of threatened or endangered species. Once an area is designated as critical habitat pursuant to the FESA, federal agencies must consult with the USFWS to ensure that any action they authorize, fund, or carry out is not likely to result in destruction or adverse modification of the critical habitat. Critical habitat is not present within the project site.

Sections 7 and 10(a) of the FESA regulate actions that could jeopardize endangered or threatened species. Section 7 generally describes a process of federal interagency consultation and issuance of a biological opinion and incidental take statement when federal actions may adversely affect listed species. Section 10(a) generally describes a process for preparation of a Habitat Conservation Plan and issuance of an incidental take permit. Pursuant to Section 10(a), the City was issued a take permit for their adopted MSCP Subarea Plan.

Migratory Bird Treaty Act

All migratory bird species that are native to the United States or its territories are protected under the federal Migratory Bird Treaty Act (MBTA), as amended under the Migratory Bird Treaty Reform Act of 2004 (FR Doc. 05-5127). The MBTA is generally protective of migratory birds but does not actually stipulate the type of protection required. In common practice, the MBTA is now used to place restrictions on disturbance of active bird nests during the nesting season. In addition, the USFWS commonly places restrictions on disturbances allowed near active raptor nests.

4.2 STATE OF CALIFORNIA

California Environmental Quality Act

Primary environmental legislation in California is found in CEQA and its implementing guidelines (State CEQA Guidelines), which require that projects with potential adverse effects (or impacts) on the environment undergo environmental review. Adverse environmental impacts are typically mitigated as a result of the environmental review process in accordance with existing laws and regulations.

California Endangered Species Act

The California Endangered Species Act (CESA) established that it is State policy to conserve, protect, restore, and enhance State endangered species and their habitats. Under State law, plant and animal species may be formally designated rare, threatened, or endangered by official listing by the California Fish and Game Commission. The CESA authorizes that private entities may "take" plant or wildlife species listed as endangered or threatened under the FESA and CESA, pursuant to a federal Incidental Take Permit if the CDFW certifies that the incidental take is consistent with CESA (CFG Code Section 2080.1[a]). For State-only listed species, Section 2081 of CFG Code authorizes the CDFW to issue an Incidental Take Permit for State listed threatened and endangered species if specific criteria are met. The City was issued a take permit for their adopted MSCP Subarea Plan pursuant to Section 2081.

California Fish and Game Code

California Fish and Game (CFG) code Section 1602 requires an entity to notify CDFW prior to commencing any activity that may do one or more of the following:

- Substantially divert or obstruct the natural flow of any river, stream, or lake;
- Substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or
- Deposit debris, waste or other materials that could pass into any river, stream, or lake.

The CFG Code provides specific protection and listing for several types of biological resources. Pursuant to CFG Code Section 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. Raptors and owls and their active nests are protected by CFG Code Section 3503.5, which states that it is unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird unless authorized by the CDFW. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA. These regulations could require that construction activities (particularly vegetation removal or construction near nests) be reduced or eliminated during critical phases of the nesting cycle unless surveys by a qualified biologist demonstrate that nests, eggs, or nesting birds will not be disturbed, subject to approval by CDFW and/or USFWS.

4.3 CITY OF SAN DIEGO

Environmentally Sensitive Lands

Impacts to biological resources in the City must comply with the City's ESL Regulations. The purpose of the regulations is to "protect, preserve, and, where damaged restore, the environmentally sensitive lands of San Diego and the viability of the species supported by those lands." The City's ESL and Biology Guidelines (City 2012) define sensitive biological resources as: lands included in the MHPA; wetlands; Tier IIIB and higher vegetation types; and habitat for rare, endangered, threatened, or narrow endemic species, steep hillsides, coastal beaches, sensitive coastal bluffs, and 100-year floodplains.

The ESL regulations require impacts to wetlands be avoided unless the activities meet specific exemption criteria established in the ordinance. Impacts to City-defined wetlands require approval of deviation findings as required by ESL regulations. Impacts to wetlands must be mitigated in accordance with Section III(B)(1)(a) of the Biology Guidelines (City 2012). The ESL regulations also require that buffers be maintained around all wetlands (as appropriate) to protect their functions and values. Buffer widths may either be increased or decreased as determined on a case-by-case basis, taking into consideration the size and type of project proposed, sensitivity of the wetland resource to detrimental edge effects, topography, specific functions and values of the wetland, as well as the need for transitional upland habitat (City 2012).

In addition to restricting impacts to wetland habitats, the ESL regulations also restrict development within the MHPA, including impact avoidance areas around raptor nesting locations (specifically, Cooper's hawk, northern harrier [*Circus cyaneus*], golden eagle [*Aquila chrysaetos*], and burrowing owl [*Athene cunicularia*]) and known locations of southern pond turtle (*Clemmys marmorata pallida*), and

also requires seasonal restrictions on grading where development may impact the following bird species: western snowy plover (*Charadrius alexandrinus nivosus*), southwestern willow flycatcher (*Empidonax traillii extimus*), least tern (*Sternula antillarum browni*), San Diego cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), least Bell's vireo, tricolored blackbird (*Agelaius tricolor*), and coastal California gnatcatcher.

Multiple Species Conservation Program

In July 1997, the USFWS, CDFW, and City adopted the Implementing Agreement for the MSCP. This program allows the incidental take of threatened and endangered species as well as regionally-sensitive species that are conserved by it (covered species). The MSCP designates regional preserves that are intended to be mostly void of development activities, while allowing development of other areas subject to the requirements of the program. Impacts to biological resources are regulated by the City's ESL regulations.

The City's MSCP Subarea Plan has been prepared to meet the requirements of the California Natural Communities Conservation Planning Act of 1992. This Subarea Plan describes how the City's portion of the MSCP Preserve, the MHPA, will be implemented.

5.0 ANALYSIS OF PROJECT EFFECTS

An analysis of project effects is presented below in accordance with the City's CEQA Significance Determination Thresholds (City 2012).

5.1 ISSUE 1

Would the project have a substantial adverse impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in the MSCP or other local or regional plans, policies, or regulations, or by CDFW or USFWS?

5.1.1 Issue 1 Impact Analysis

The project would not significantly impact listed plant species (Figures 4a-4f). Four sensitive plant species were observed within the study area only one species occurs within the project footprint. Approximately 30 southwestern spiny rush individuals occur within the project footprint, although these plants were located within a previously established City of San Diego maintenance access path. The southwestern spiny rush plants had recently germinated and were not considered established individuals. Southwestern spiny rush has a CNPS listing rank of 4.2. No special status plant species with a moderate to high potential to occur within the project site will be impacted due to lack of suitable habitat within the impact footprint; none are expected to be impacted by the project.

The project could result in significant direct impacts to bird species if clearing of vegetation occurs during the bird breeding season and if active nests are present. Direct impacts to active bird nests would be considered significant. Mitigation Measure **BIO-1** would ensure that no direct impacts occur to nesting birds.

No federally or state listed endangered or threatened plant or animal species have been documented within the study area. The Diegan coastal sage scrub habitat within the study area has moderate potential to support the federally threatened coastal California gnatcatcher and impacts to Diegan coastal sage scrub have a potential to directly impact this species. In addition, rufous-crowned sparrow Bell's sage sparrow, and Belding's orange-throated whiptail have potential to occur within the project area and have the potential to be impacted. The wetland habitats (including southern willow scrub, southern cottonwood-willow riparian forest, riparian forest, and mule fat scrub) have moderate potential to support the endangered least Bell's vireo, and removal of these habitats have the potential to impact the vireo if implemented during the breeding season and if the species is present. Impacts to listed and/or sensitive wildlife species would be considered significant and Mitigation Measure **BIO-1** would ensure that no direct impacts occur to least Bell's vireo. Mitigation Measure **BIO-2** would ensure that no indirect impact to bird species occurs.

5.1.2 Conclusion

Project implementation could result in potentially significant direct impacts. Implementation of Mitigation Measures **BIO-1** and **BIO-2** would reduce impacts to less than significant. Indirect noise impacts are addressed in Issue 6.

5.2 ISSUE 2

Would the project have a substantial adverse impact on any Tier I Habitats, Tier II Habitats, Tier IIIA Habitats, or Tier IIIB Habitats as identified in the Biology Guidelines of the Land Development manual or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS?

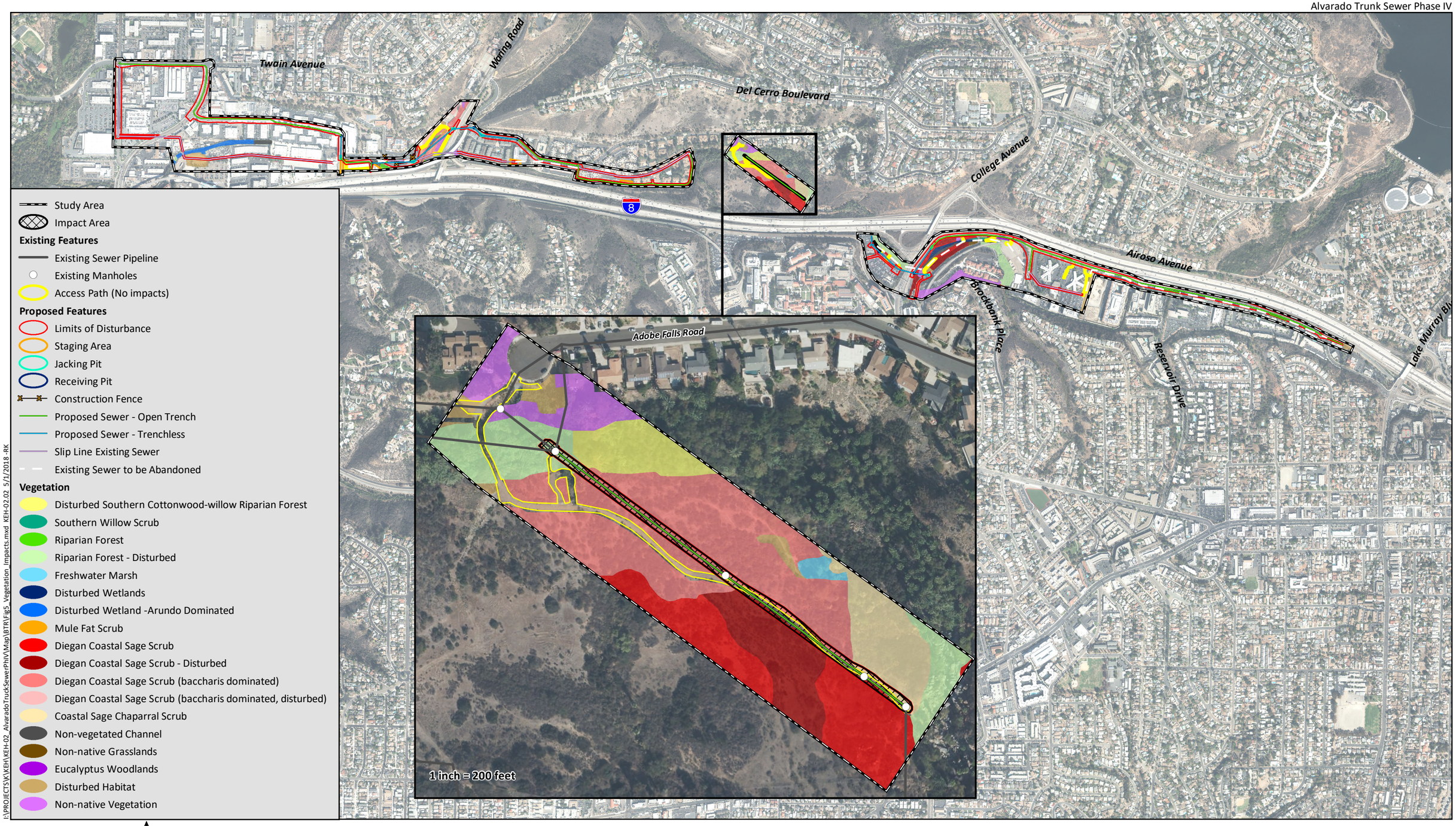
5.2.1 Issue 2 Impact Analysis

The project would result in temporary impacts to 0.038 acre of coastal sage chaparral scrub and .289 acre of Diegan coastal sage scrub, all of which occur outside of the MHPA (Figures 4c-4d, Figure 5; Table 4). Permanent impacts to sensitive upland habitat are not expected to occur. Impacts exceeding 0.1 acre of sensitive uplands are considered significant per the City of San Diego Biology Guidelines (City 2012).

Table 4
UPLAND HABITAT IMPACTS (ac)

Vegetation Community	Tier	Temporary Impacts*¥	Permanent Impacts
Coastal Sage Chaparral Scrub	II	0.038	--
Diegan Coastal Sage Scrub (including baccharis-dominated and disturbed)	II	0.289	--
Subtotal (Sensitive Vegetation)		0.327	--
Developed Land	IV	0.125	--
Subtotal (Non-sensitive Vegetation)		0.125	--
Subtotal		**0.5[ł]**	--
TOTAL		**0.452**	

* Impacts occur outside of the MHPA.
¥Habitat rounded to the nearest 0.001 acre; total reflects rounding.



Vegetation and Jurisdictional Features/Biological Resources Impacts

Figure 5

Implementation of Mitigation Measure **BIO-3** would provide compensatory mitigation for impacts to Diegan coastal sage scrub and coastal sage chaparral scrub habitat. Implementation of **BIO-1** would provide for monitoring during construction to help ensure that inadvertent impacts to sensitive Tier II habitat located within the project impact limits are minimized and sensitive habitats immediately adjacent to construction work areas are avoided.

5.2.2 Conclusion

The project would result in significant impacts to Tier II habitat, but Mitigation Measures **BIO-1** and **BIO-3** will reduce the impacts to a level less than significant.

5.3 ISSUE 3

Would the project have a substantial adverse impact on wetlands (including, but not limited to, marsh, vernal pool, riparian, etc.) through direct removal, filling, hydrological interruption, or other means?

5.3.1 Issue 3 Impact Analysis

The design team for the project worked to avoid and minimize impacts to wetlands as part of the design of this project. Much of the existing trunk sewer is located within the canyon bottoms and within wetland areas. As part of the design process, the alignment was designed within roadways, roadway shoulders, and disturbed areas, and drainage crossings were designed to occur at right angles. For example, construction activities will avoid impacts to the Arizona crossing of Alvarado Creek near Mission Gorge Road through implementation of slip line repairs of the existing trunk sewer (Figure 4a). Additionally, the use of trenchless microtunneling would be implemented in several locations to avoid impacts to drainages (e.g., Alvarado Creek north of I-8 [Figure 4b]; an unnamed tributary to Alvarado Creek [Figure 4b]; and Alvarado Creek south of I-8 [Figure 4d]. Construction access will also span the creek with the Adobe Falls Open Space (Figure 4c). A rail car bridge crossing will be implemented, thereby avoiding temporary and permanent wetland impacts within this area of the creek. Metal plates will be placed outside of the jurisdictional limits to avoid impacts to jurisdictional areas. Some vegetation trimming may be necessary to install this crossing, but is not considered a temporary impact because it would be limited to minor trimming of branches and would be completed under the direction of the monitoring biologist.

Manholes that will be condemned and sealed will be accessed by trimming a footpath or using existing sewer access paths through vegetation in order to minimize temporary impacts. A slurry hose will be brought to the existing manhole to seal/condemn the manhole. Footpaths may require minor trimming of branches to allow for access, and would be completed with hand tools, would be monitored by a qualified biologist, and revegetated following completion of the project.

To monitor potential effects on the culvert, monitoring devices (e.g., optical target points to monitor for settlement, crack gauges to monitor increases in the width of existing cracks, and tiltmeters to monitor rotation of the culvert walls) would be temporarily installed inside the culvert to be monitored periodically during sewer installation. The gauges would be installed without the use of mechanized equipment, and tracking machinery along the culvert/channel would be avoided. Dredging, fill, or discharge is not anticipated with this activity.

Despite the avoidance and minimization measures implemented to protect wetlands, the project cannot fully avoid wetlands because the existing trunk sewer occurs within and directly adjacent to Alvarado Creek. The project is expected to temporarily impact CDFW jurisdictional habitats based on HELIX's jurisdictional delineation and the analysis of the project footprint. The project would temporarily impact 0.052 acre of CDFW jurisdictional habitat (Figure 4d and Figure 5). Temporary impacts to CDFW jurisdictional habitat would include 0.05 acre of riparian forest (disturbed) (Table 5). It is expected that an application for a Streambed Alteration Agreement would be required for impacts to CDFW jurisdictional habitat pursuant to Section 1600 *et seq.* of the CFG Code.

The project would temporarily impact 0.05 acre of City Wetlands (Figure 5). Temporary impacts to City wetlands would include 0.05 acre of riparian forest (disturbed) (Table 5). Permanent impacts are not expected to occur during implementation of the project.

The project will not impact USACE/RWQCB jurisdictional areas, and a CWA Section 404 permit and a CWA Section 401 Certification would be not be required.

Impacts to CDFW-jurisdictional habitats, as well as City Wetlands, are considered significant and require mitigation.

Table 5
IMPACTS TO JURISDICTIONAL WETLANDS

Type	Temporary Impact (Acres)*‡¥	Permanent Impacts (Acres)
California Department of Fish and Wildlife (CDFW)		
Riparian Forest (disturbed)	0.052	--
Subtotal	**0.052**	**--**
City of San Diego (City) Wetlands		
Riparian Forest (disturbed)	0.052	--
Subtotal	**0.052**	--
TOTAL	**0.052**	**--**

* Impacts occur outside of the MHPA.
‡ City-defined wetlands are coterminous with CDFW jurisdictional wetlands
¥Habitat rounded to the nearest 0.001 acre; total reflects rounding.

5.3.1.1 Deviation from Environmentally Sensitive Lands Regulation for Impact to Wetland

The MSCP Subarea Plan (City 1997), City Land Development Code (LDC) Environmentally Sensitive Lands (ESL) Regulations, and Biology Guidelines (City 2012), require that impacts to wetlands shall be avoided, and that a sufficient wetland buffer shall be maintained to protect the functions and values of wetland resources. Wetland deviations outside the Coastal Overlay Zone may be granted only if the proposed project qualifies under one of the following three options: (1) Essential Public Projects (EPP), (2) Economic Viability, or (3) Biologically Superior Option.

Deviations from wetland requirements in Environmentally Sensitive Lands will be considered under the EPP Option when a proposed project(s) meets all the following criteria:

1. The project must be an EPP (i.e., circulation element road, trunk sewer, water main) that will service the community at large and not just a single development project or property. The project must meet the definition of an EPP as identified in Section IV and must be essential in both location and need. If the City has options on the location of an EPP, the City should not knowingly acquire property for an EPP that would impact wetlands.

2. The proposed project and all biological alternatives, both practicable and impracticable, shall be fully described and analyzed in an appropriate CEQA document. Alternatives to the proposed project shall be comprehensively included in the CEQA document (e.g., Mitigated Negative Declaration) and/or the biological technical report for the CEQA document. Alternatives must include the following: (1) a no project alternative; (2) a wetlands avoidance alternative, including an analysis of alternative sites irrespective of ownership; and (3) an appropriate range of substantive wetland impact minimization alternatives. Public review of the environmental document must occur pursuant to the provisions of CEQA. Projects proposing to utilize this deviation section of the Environmentally Sensitive Lands after initial CEQA public review must include the new information and recirculate the CEQA document.

3. The potential impacts to wetland resources shall be minimized to the maximum extent practicable and the project shall be the least environmentally damaging practicable biological alternative considering all the technical constraints of the project (e.g., roadway geometry, slope stability, geotechnical hazards, etc.). Recognizing the wetland resources involved, minimization to the maximum extent practicable may include, but is not limited to, adequate buffers and/or designs that maintain full hydrologic function and wildlife movement (e.g., pipeline tunneling, bridging, Arizona crossings, arch culverts). The project applicant will solicit input from the USFWS and the CDFW (e.g., Wildlife Agencies) prior to the first public hearing.

The proposed trunk sewer qualifies as an Essential Public Project (EPP), as it would service the community at large and not just a single development project or property, and is essential in both location and need. As discussed above, the majority of the construction work associated with the project is located within existing roadways, roadway shoulders, and disturbed areas. The existing 21-inch-diameter sewer pipeline in the canyon is located within an existing 20-foot-wide City sewer easement. The 960 feet of sewer connects from an existing manhole (Manhole No. 93) at the north end to an existing manhole (Manhole No. 316) at the south end of the canyon. This segment needs to be upsized to a 30-inch-diameter pipe to meet the future projected sewer flows. Most of the existing easement is either developed with an existing access road required for maintenance access to the existing sewer and manholes, or contains coastal sage chaparral scrub or Diegan coastal sage scrub habitat. Approximately 72 feet of the northerly segment of the existing sewer and the existing sewer manhole connection point is located within disturbed riparian forest habitat, which is a City-defined wetland and CDFW jurisdictional wetland. The project would temporarily impact 0.05 acre of CDFW-jurisdictional habitat and City Wetlands within this portion of the pipeline alignment.

The short segment of pipeline that would traverse disturbed riparian forest habitat would connect to relatively new sewer lines that were constructed by the City within the open space urban canyon as part of the Alvarado Trunk Sewer Phase 3 project (constructed in 2012-2013). The project would connect

with existing pipelines that have been upgraded as part of previous infrastructure capacity improvement projects and would provide an essential connection between these improvements and the trunk sewer improvements located south of I-8.

In addition to the proposed project (Option 1), the following alternatives (Options 2, 3, and 4) were considered to avoid impacts to wetlands and other sensitive habitat (Figure 6, Table 6). It should be noted that there are no feasible alternatives that could relocate the proposed sewer outside of the open space canyon without requiring the relocation/reconstruction of the newly constructed infrastructure from the Alvarado Trunk Sewer Phase 3 project. This alternative was considered but eliminated from further review due to infeasibility.

Option 1, Proposed Project. This option includes removal of existing pipe and installing new pipe in the existing alignment. The two intermediate existing manholes would need to be replaced. Connecting to the existing Manhole 93 at the northwestern end of the alignment would result in approximately 0.05 acre of temporary impacts to riparian forest (disturbed) habitat.

Option 2, Trenchless Construction Within Proposed Project Alignment. This option proposes trenchless construction within the proposed project alighment between existing Manhole 93 and Manhole 43. Trenchless construction would require large equipment to traverse Alvarado Creek via the proposed rail car crossing to reach Manhole 93. A work area of approximately 4,000 square feet would be required for equipment set up for microtunneling, which would temporarily impact approximately 0.104 acre of riparian forest (disturbed).

Trenchless construction at the southern end of the alignment from Manhole 316 to approximately 120 feet north is not feasible due to the steep slope and the concrete cut-off walls that would be required per City Design Standards. North of this steep slope area, a trenchless construction option locating the remaining 840 feet of new pipe approximately 10-feet parallel to the existing sewer (new easement acquisition) was reviewed. This 840 feet of pipe could be located along the east or west side of the existing sewer. Locating the pipe on either side of the existing alignment would still impact the riparian forest (disturbed) area when the final connection is made to the existing Manhole 93.

Option 3, Alternative Alignment – Open Trench Construction. This option includes locating the new sewer in an alternative alignment along the existing dirt access road from Manhole 93 to Manhole 43. This layout would require one new manhole to be added at the bend in the sewer pipe and would also require new utility easement acquisition. This alignment would temporarily impact approximately 0.04 acre of riparian forest (disturbed) when final connection is made to the existing Manhole 93 due to an additional minimum 20-foot-wide access required for construction equipment adjacent to the existing dirt path. In addition, Option 3 would result in 0.199 acre greater total impacts as compared to Option 1, including an additional 0.104 acre of impacts to sensisitve upland vegetation (Diegan coastal sage scrub; Table 6).

Option 4, No Project Alternative. Under this option, no infrastructure improvements or impacts to wetland vegetation would occur. The capacity and condition of the existing sewer infrastructure within the open space canyon would not occur and the essential connection in the trunk sewer infrastructure improvement for the Alvarado area would not be completed.

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0 200 Feet

Source: Aerial (SanGIS 2014)

Wetland Avoidance Alternatives

Figure 6

Table 6
ALTERNATIVE PROJECT IMPACTS (ac)

Habitat	Option 1 Impacts	Option 2 Impacts	Option 3 Impacts
Wetlands			
Riparian Forest–Disturbed	0.052	0.104	0.038
Subtotal	**0.052**	**0.104**	**0.038**
Uplands			
Coastal Sage Chaparral Scrub	0.038	0.038	0.038
Diegan Coastal Sage Scrub (baccharis dominated and disturbed)	0.289	0.289	0.398
Developed	0.125	0.129	0.229
Subtotal	**0.452**	**0.456**	**0.665**
TOTAL	**0.504**	**0.560**	**0.703**

*Habitat rounded to the nearest 0.001 acre for uplands and for wetlands/non-vegetated channel; total reflects rounding.

Option 4, No Project Alternative, is the only wetland avoidance alternative, since all alternative alignments considered would require connections to the existing Manhole 93, located within an area mapped as riparian forest (disturbed). Option 1 is considered the least environmentally damaging practicable biological alternative considering all the technical constraints of the project (e.g., slope stability, geotechnical constraints). Although Option 1 would result in approximately 0.014 acre greater temporary impacts to riparian forest (disturbed) than Option 3, Option 3 would result in approximately 0.104 acre greater temporary impacts to Diegan coastal sage scrub (baccharis dominated) and require construction of two new manholes and new easement acquisitions within the canyon.

Impacts to wetlands would be minimized to the maximum extent practicable using the smallest impact footprint feasible to complete connections at Manhole 93. There are no additional feasible measures that can further minimize the potential adverse effects on environmentally sensitive lands. The project would not have a significant adverse impact to the MSCP and all impacts would be mitigated according to the requirements of Table 2a of the City's Land Development Manual – Biology Guidelines (City 2012). Implementation of mitigation measures BIO-1 and BIO-4 would reduce temporary impacts to riparian forest (disturbed) habitat along the 72 feet of sewer south of Manhole 93 to below a level of significance. Per mitigation measure BIO-4, prior to issuance of a grading permit, the project shall obtain the necessary approval/permit from CDFW for impacts to riparian forest habitat. Impacts to 0.052 acre of CDFW-jurisdictional and City-defined wetlands (riparian forest) will be mitigated at a proposed 3:1 ratio. Enhancement credits (0.156 acre) are proposed to be purchased from the Lake Murray Mitigation Site. Temporarily impacted wetland habitat will be revegetated in accordance with the City's Landscape Standards and monitored for 25 months to ensure successful erosion control.

Based on the analysis provided above, the proposed project qualifies for a deviation from the ESL Regulations for impacts to wetlands under the EPP option.

5.3.2 Conclusion

The project would result in a significant impact to City wetlands and CDFW-jurisdictional habitat and mitigation is required. Compensatory mitigation is proposed at a 3:1 ratio, which is consistent with the City's Biology Guidelines and with what is typically required by the CDFW. With the implementation of Mitigation Measures **BIO-1** and **BIO-4**, impacts to riparian forest (including disturbed) would be reduced to less than significant.

5.4 ISSUE 4

Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, including linkages identified in the MSCP Plan, or impede the use of native wildlife nursery sites?

5.4.1 Issue 4 Impact Analysis

The project would not substantially impede the movement of any native, resident, or migratory fish or wildlife species or interfere with established native, resident, or migratory wildlife corridors. In addition, the project would not interfere with linkages identified in the MSCP Plan or use of native wildlife nursery sites. The project is mainly surrounded by residential development to the north, east, and south. Impacts are considered less than significant and no mitigation is required.

5.5 ISSUE 5

Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan, either within the MSCP plan area or in the surrounding region?

5.5.1 Issue 5 Impact Analysis

The project would not conflict with local, regional, or state habitat conservation plans. As stated above, the project would not result in potential significant impacts to wetlands, potential significant impacts to special status species, or potential significant impacts to Tier I, II, or III upland habitats with the inclusion of Mitigation Measures **BIO-1**, **BIO-2**, **BIO-3**, and **BIO-4**. The project involves improving the capacity and condition of the existing sewer infrastructure by installing approximately 5.0 miles of new gravity trunk sewer and slip-lined sewer pipelines, and abandoning approximately 1.6 miles of existing sewer. The work is proposed to be new pipeline alignment using the open trench construction method in several locations and the project is consistent with the City's MSCP.

5.5.2 Conclusion

The project would not conflict with provisions of local, regional, or state habitat conservation plans and would be reduced to levels less than significant with the implementation of Mitigation Measures **BIO-1**, **BIO-2**, **BIO-3**, and **BIO-4**.

5.6 ISSUE 6

Would the project introduce land use within an area adjacent to the MHPA that would result in adverse edge effects?

5.6.1 Issue 6 Impact Analysis

The project is located directly adjacent to the MHPA (north of Howard Johnson Place), and, therefore, the project is subject to MHPA Land Use Adjacency Guidelines designed to minimize indirect impacts to sensitive resources contained in the MHPA and thus maintain the value of the preserve. By conforming to the Land Use Adjacency Guidelines, the project addresses edge effects. The adjacency guidelines related to potential indirect impacts are listed below, along with a response as to how the proposed project conforms to each guideline:

5.6.1.1 Drainage

All new and proposed development adjacent to the MHPA must not drain directly into the preserve, and must prevent the release of toxins, chemicals, petroleum products, exotic plant materials, and other elements that might degrade or harm the natural environment or ecosystem processes within the MHPA.

The project proposes improving the capacity and condition of the existing sewer infrastructure by installing approximately 5.0 miles of new gravity trunk sewer and slip-lined sewer pipelines, and abandoning approximately 1.6 miles of existing sewer. The proposed project would be adjacent to the MHPA and installation of Best Management Practices during construction would prevent toxins and other materials from entering the MHPA. The project will also comply with the City's landscape regulations to prevent exotic plant materials from entering the MHPA. The project would not result in a significant drainage impact.

5.6.1.2 Toxins

Land uses such as recreation and agriculture that use chemicals or generate byproducts that are potentially toxic or harmful to wildlife, habitat, or water quality must incorporate measures to reduce the impact of application or drainage of such materials into the MHPA.

The proposed project would not involve recreation or agriculture, and the project would not use chemicals or generate toxic or harmful byproducts. The proposed project involves improving the capacity and condition of the existing sewer infrastructure by installing approximately 5.0 miles of new gravity trunk sewer and slip-lined sewer pipelines, and abandoning approximately 1.6 miles of existing sewer. There would not be a change to the baseline conditions and the project would not result in a significant impact due to toxins.

5.6.1.3 Lighting

Lighting must be directed away from the MHPA and, if necessary, adequately shielded to protect the MHPA and sensitive species from night lighting.

Construction activities will be limited to daylight time period and the project would not include any permanent lighting following construction. There is the potential for nighttime construction following

city evaluation and approval, if necessary. Any night lighting would be aimed away from undeveloped areas within the MHPA to avoid potential indirect impacts to the MHPA. Therefore, the project would not introduce night lighting to the MHPA and therefore would not be a significant impact.

5.6.1.4 Noise

Uses adjacent to the MHPA must be designed to minimize noise that might impact or interfere with wildlife utilization of the MHPA.

Construction of the Alvarado Phase IV trunk sewer would result in added noise during construction. Heavy equipment such as dozers, excavators, and loaders will be utilized during the project. Construction noise in coastal California gnatcatcher-occupied Diegan coastal sage scrub habitat within the MHPA near Adobe Falls Road and least Bell's vireo-occupied habitat within 300 feet that exceeds 60 dBA L_{EQ} or the ambient noise level would be considered significant. Implementation of Mitigation Measures **BIO-1** and **BIO-2** would reduce the impact below a level of significance. Potential impacts of construction noise nesting raptors within 500 feet and other nesting birds within 100 feet would be reduced to a level below significant by implementation of Mitigation Measures **BIO-1** and **BIO-2**. With incorporation of Mitigation Measures **BIO-1** and **BIO-2**, the impact due to construction noise would be reduced to a level below significance.

5.6.1.5 Barriers to Incursion

New development adjacent to the preserve may be required to provide barriers along MHPA boundaries to redirect public access to appropriate locations and reduce domestic animal predation in the preserve.

The project would be constructed adjacent to one portion of the MHPA, along Adobe Falls Road (Figure 3). Approximately 300 linear feet is directly adjacent to the MHPA, near the intersection of Adobe Falls Road and Alvarado Canyon Road. There is an existing trailhead to the Navajo Canyon Trail in this location. Project construction would be trenchless in this area and no additional barriers would be needed. Therefore, no impacts to the MHPA would occur.

5.6.1.6 Invasive Species

No invasive plant species shall be introduced into areas adjacent to the MHPA.

The proposed project includes temporary impacts associated with the construction. A revegetation plan is being prepared to address the temporary impact areas and will only include native species. A 25-month maintenance and monitoring period will be implemented to ensure native species establish and to eliminate any invasive species that may germinate. Therefore, the project would not result in a significant impact due to invasive species.

5.6.1.7 Brush Management

New residential development located adjacent to and topographically above the MHPA must be set back from slope edges to incorporate Zone 1 brush management areas on the development pad and outside of the MHPA. Zone 2 may be located in the MHPA upon granting of an easement to the City (or other acceptable agency) except where narrow wildlife corridors require it to be located outside of the MHPA.

New residential development is not proposed with this project, and installation of the new pipeline alignment does not require additional brush management.

5.6.1.8 Grading/Land Development

Manufactured slopes associated with project development must be included in the project footprint.

No manufactured slopes are associated with the proposed project.

5.6.2 Conclusion

Potential impacts of construction noise on gnatcatchers, vireos, raptors, and other nesting birds within the adjacent MHPA would be reduced to a level below significant by implementation of Mitigation Measures **BIO-1** and **BIO-2**. The project is consistent with the MHPA Land Use Adjacency Guidelines and would not result in significant impacts related to MHPA adjacency.

5.7 ISSUE 7

Would the project conflict with any local policies or ordinances protecting biological resources?

5.7.1 Issue 7 Impact Analysis

As described above, the project has been specifically designed to minimize impacts to biological resources addressed in the City's MSCP Subarea Plan and Land Development Code. In January 2002, the City Council policy 400-13 identified the need to provide maintenance access to all existing sewer lines to reduce the potential for sewer spills with environmental impacts from these paths minimized to the extent possible through a variety of methods.

The project would not conflict with any local policies or ordinances protecting biological resources; therefore, no significant impact would occur and no mitigation is required. Mitigation Measures **BIO-1**, **BIO-2**, **BIO-3**, and **BIO-4** would ensure that the project is consistent with the MSCP and that impacts to species and habitats are mitigated in accordance with Land Development Code and City Biology Guidelines requirements. Implementation of Mitigation Measures **BIO-1**, **BIO-2**, **BIO-3**, and **BIO-4** would ensure project consistency with the MSCP and Land Development Code pertaining to biological resources.

5.7.2 Conclusion

The project would not conflict with local policies or ordinances. Impacts to habitats and sensitive species addressed in the City's MSCP Subarea Plan and Land Development Code would be reduced to a level below significance with implementation of Mitigation Measures **BIO-1**, **BIO-2**, **BIO-3**, and **BIO-4**.

5.8 ISSUE 8

Would the project result in an introduction of invasive species of plants into a natural open space area?

5.8.1 Issue 8 Impact Analysis

As noted above under Issue 6, the project would not result in the introduction of invasive species or plants into a natural open space area. Revegetation and erosion control of temporarily impacted areas following completion of the project would consist of native species (non-native or invasive species would not be included). The project would not result in the introduction of invasive species of plants into a natural open space area; thus, no significant impact would occur.

5.8.1.1 Mitigation and Monitoring Requirements

The following mitigation measures shall be implemented to reduce potential impacts from the Alvarado Trunk Sewer Phase IV project to below the level of significance.

5.8.1.2 Biological Resource Protection During Construction

Implementation of Mitigation Measures **BIO-1, BIO-2**, **BIO-3**, and **BIO-4** would reduce potential impacts from construction to below the level of significance.

BIO-1 Prior to the issuance of any grading permit, the City Manager (or appointed designee) shall verify that the following project requirements are shown on the construction plans:

I. Prior to Construction

A. **Biologist Verification** – The owner/permittee shall provide a letter to the City's Mitigation Monitoring Coordination (MMC) section stating that a Project Biologist (Qualified Biologist), as defined in the City of San Diego's Biological Guidelines (2012), has been retained to implement the project's biological monitoring program. The letter shall include the names and contact information of all persons involved in the biological monitoring of the project.

B. **Pre-construction Meeting** – The Qualified Biologist shall attend the pre-construction meeting, discuss the project's biological monitoring program, and arrange to perform any follow up mitigation measures and reporting including site-specific monitoring, restoration or revegetation, and additional fauna/flora surveys/salvage.

C. **Biological Documents** – The Qualified Biologist shall submit all required documentation to MMC verifying that any special mitigation reports including but not limited to, maps, plans, surveys, survey timelines, or buffers are completed or scheduled per City Biology Guidelines, MSCP, ESL Ordinance, project permit conditions, CEQA, endangered species acts (ESAs), and/or other local, state, or federal requirements.

D. **Biological Construction Mitigation/Monitoring Exhibit** – The Qualified Biologist shall present a Biological Construction Mitigation/Monitoring Exhibit (BCME), which includes the biological documents in C above. In addition, it includes: restoration/revegetation

plans, plant salvage/relocation requirements (e.g., coastal cactus wren plant salvage, burrowing owl exclusions, etc.), avian or other wildlife surveys/survey schedules (including general avian nesting and USFWS protocol), timing of surveys, wetland buffers, avian construction avoidance areas/noise buffers/ barriers, other impact avoidance areas, and any subsequent requirements determined by the Qualified Biologist and the City Assistant Deputy Director (ADD)/MMC. The BCME shall include a site plan, written and graphic depiction of the project's biological mitigation/monitoring program, and a schedule. The BCME shall be approved by MMC and referenced in the construction documents.

E. **Avian Protection Requirements** – To avoid direct impacts to avian species identified as a listed, candidate, sensitive, or special status species in the MSCP, removal of habitat that supports active nests in the proposed area of disturbance should occur outside of the breeding season for these species (February 1 to September 15). If removal of habitat in the proposed area of disturbance must occur during the breeding season, the Qualified Biologist shall conduct a pre-construction survey to determine the presence or absence of nesting birds on the proposed area of disturbance. The pre-construction survey shall be conducted within 10 calendar days prior to the start of construction activities (including removal of vegetation). The applicant shall submit the results of the pre-construction survey to City Development Services Department for review and approval prior to initiating any construction activities. If nesting birds are detected, a letter report or mitigation plan in conformance with the City's Biology Guidelines and applicable state and federal law (i.e., appropriate follow up surveys, monitoring schedules, construction and noise barriers/buffers, etc.) shall be prepared and include proposed measures to be implemented to ensure that take of birds or eggs or disturbance of breeding activities is avoided. The report or mitigation plan shall be submitted to the City for review and approval and implemented to the satisfaction of the City. The City's MMC Section and Qualified Biologist shall verify and approve that all measures identified in the report or mitigation plan are in place prior to and/or during construction.

F. **Least Bell's Vireo Protection Requirement** – No clearing, grubbing, grading, or other construction activities shall occur between March 15 and September 15, the breeding season of the least Bell's vireo, until the following requirements have been met to the satisfaction of the City Manager:

A Qualified Biologist (possessing a valid endangered species act section 10(a)(1)(a) recovery permit) shall survey those wetland areas that would be subject to construction noise levels exceeding 60 decibels [dB(a)] hourly average for the presence of the least Bell's vireo. Surveys for this species shall be conducted pursuant to the protocol survey guidelines established by the USFWS within the breeding season prior to the commencement of construction. If the least Bell's vireo is present, then the following conditions must be met:

i. Between March 15 and September 15, no clearing, grubbing, or grading of occupied least Bell's vireo habitat shall be permitted. Areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist; and

ii. Between March 15 and September 15, no construction activities shall occur within any portion of the site where construction activities would result in noise levels exceeding 60 dB(a) hourly average at the edge of occupied least Bell's vireo or habitat. An analysis showing that noise generated by construction activities would not exceed 60 dB(a) hourly average at the edge of occupied habitat must be completed by a Qualified Acoustician (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by the City Manager at least two weeks prior to the commencement of construction activities. Prior to the commencement of any construction activities during the breeding season, areas restricted from such activities shall be staked or fenced under the supervision of a Qualified Biologist; or

iii. At least two weeks prior to the commencement of construction activities, under the direction of a qualified acoustician, noise attenuation measures described below in Mitigation Measure **BIO-2** shall be implemented to ensure that noise levels resulting from construction activities will not exceed 60 dB(a) hourly average at the edge of habitat occupied by the least Bell's vireo.

If least Bell's vireo are not detected during the protocol survey, the qualified biologist shall submit substantial evidence to the City Manager and applicable Resource Agencies that demonstrates whether or not mitigation measures such as noise walls are necessary between March 15 and September 15 as follows:

iv. If this evidence indicated the potential is high for least Bell's vireo to be present based on historical records or site conditions, then condition III shall be adhered to as specified above.

v. If this evidence concludes that no impacts to this species are anticipated, no mitigation measures would be necessary.

G. **Resource Delineation** – Prior to construction activities, the Qualified Biologist shall supervise the placement of orange construction fencing or equivalent along the limits of disturbance adjacent to sensitive biological habitats and verify compliance with any other project conditions as shown on the BCME. This phase shall include flagging plant specimens and delimiting buffers to protect sensitive biological resources (e.g., habitats/flora and fauna species, including nesting birds) during construction. Appropriate steps/care should be taken to minimize attraction of nest predators to the site.

H. **Education** – Prior to commencement of construction activities, the Qualified Biologist shall meet with the owner/permittee or designee and the construction crew and conduct an on-site educational session regarding the need to avoid impacts outside of the approved construction area and to protect sensitive flora and fauna (e.g., explain the avian and wetland buffers, flag system for removal of invasive species or retention of sensitive plants, and clarify acceptable access routes/methods and staging areas, etc.).

II. During Construction

A. **Monitoring** – All construction (including access/staging areas) shall be restricted to areas previously identified, proposed for development/staging, or previously disturbed as shown on "Exhibit A" and/or the BCME. The Qualified Biologist shall monitor construction activities as needed to ensure that construction activities do not encroach into biologically sensitive areas, or cause other similar damage, and that the work plan has been amended to accommodate any sensitive species located during the pre-construction surveys. In addition, the Qualified Biologist shall document field activity via the Consultant Site Visit Record (CSVR). The CSVR shall be e-mailed to MMC on the first day of monitoring, the first week of each month, the last day of monitoring, and immediately in the case of any undocumented condition or discovery.

B. **Subsequent Resource Identification** – The Qualified Biologist shall note/act to prevent any new disturbances to habitat, flora, and/or fauna on site (e.g., flag plant specimens for avoidance during access, etc.). If active nests or other previously unknown sensitive resources are detected, all project activities that directly impact the resource shall be delayed until species specific local, state, or federal regulations have been determined and applied by the Qualified Biologist.

III. Post Construction Measures

A. In the event that impacts exceed previously allowed amounts, additional impacts shall be mitigated in accordance with City Biology Guidelines, ESL and MSCP, State CEQA, and other applicable local, state, and federal law. The Qualified Biologist shall submit a final BCME/report to the satisfaction of the City ADD/MMC within 30 days of construction completion.

BIO-2: Implementation of Mitigation Measure BIO-2 would reduce potential noise impacts from construction to below the level of significance.

Noise levels for site grading and for construction would generate potentially significant noise levels if these activities occur during the coastal California gnatcatcher breeding season, if the habitat is occupied and within the MHPA. As will be seen in the following information, if construction were to occur during the breeding season adjacent to occupied habitat within the MHPA, it would require much more substantial mitigation for areas occupied by coastal California gnatcatcher than if activities were to occur outside of this time frame.

No grubbing or clearing of vegetation shall occur of occupied Diegan coastal sage scrub during the breeding season of the coastal California gnatcatcher (February 15 to August 31). All grading permits, improvement plans, and the final map shall state the same. If clearing or grading would occur during the breeding season for the gnatcatcher, a pre-construction survey shall be conducted to determine whether gnatcatchers occur within the impact area(s). The pre-construction survey shall consist of three site visits with each site visit occurring seven days apart. If there are no gnatcatchers nesting (includes nest building or other breeding/nesting behavior) within that area, grading and clearing shall be allowed to proceed. If, however, any gnatcatchers are observed, but no nesting or breeding behaviors are noted, additional surveys for breeding/nesting behaviors shall be conducted weekly. If any gnatcatchers are observed nesting or displaying breeding/nesting behavior during the pre-construction survey or additional

weekly surveys within the area, construction within 300 feet of any location at which birds have been observed shall be postponed until all nesting (or breeding/nesting behavior) has ceased or until after August 31. The following describes one potential method to achieve compliance if construction occurs during the breeding season and adjacent habitat is determined to be occupied. This method would eliminate the need for future bird surveys and noise analysis to identify required temporary attenuation requirements. If project-related construction is conducted outside of the breeding season, no associated significant noise impacts would occur within the adjacent MHPA habitat (or to related sensitive species), and no mitigation would be required.

To attenuate equipment noise levels during the coastal California gnatcatcher breeding season (if proposed), a barrier shall be erected at the edge of occupied habitat to reduce noise impacts to less than 60 dBA L_{EQ} or the ambient noise level.

A noise barrier would need to be installed at any location where noise generating activities would be more than 60 dBA L_{EQ} in adjacent habitat and would need to provide complete control of construction noise. The barrier would be designed by a qualified acoustician.

In addition, the following parameters should be incorporated into barrier design:

- Sound attenuation barriers should be a single, solid sound wall.
- The sound attenuation barriers should be constructed of masonry, wood, plastic, fiberglass, steel, or a combination of those materials, with no cracks or gaps through or below the wall. Any seams or cracks should be filled or caulked.
- If wood is used, it can be tongue-and-groove design and should be at least one inch thick or have a surface density of at least 3.5 pounds per square foot. Sheet metal of minimum 18-gauge may also be used, if it meets the other noted criteria and is properly supported and stiffened so that it does not rattle or create noise from vibration or wind.

5.8.1.3 Mitigation for Impacts to Upland Habitats

Implementation of Mitigation Measure BIO-3 would reduce the impacts to upland habitat to below the level of significance (Table 7).

Table 7
MITIGATION FOR UPLANDS IN THE PROJECT AREA

Habitat	Tier	Acres Impacted	Mitigation Ratio	Mitigation Required
Coastal Sage Chaparral Scrub	II	0.038	1:1	0.038
Diegan coastal sage scrub (including baccharis-dominated, disturbed)	II	0.289	1:1	0.289
			TOTAL MITIGATION	**0.327**

BIO-3: Prior to issuance of any land development permits, including clearing, grubbing, and grading permits, the project Applicant shall mitigate for direct impacts to 0.289 acre of Diegan coastal sage scrub (including baccharis-dominated and disturbed) habitat and 0.038 acre of coastal sage chaparral scrub (Figure 5). The mitigation ratio for temporary impacts to Diegan coastal sage scrub and coastal sage chaparral scrub are 1:1. Temporary impacts to Diegan coastal sage scrub and coastal sage chaparral scrub will be mitigated by the purchase of credits from the Marron Valley Mitigation Bank. Temporary impacts will be revegetated in accordance with the City Landscape Standards and monitored for 25 months to ensure successful erosion control.

5.8.1.4 Mitigation for Impacts to Wetland Habitats

Implementation of Mitigation Measure BIO-4 would reduce the impacts to CDFW and City wetlands to below the level of significance (Table 8).

Table 8
MITIGATION FOR JURISDICTIONAL WATERS AND CITY WETLANDS IN THE PROJECT AREA

Wetlands	Acres Impacted*	Mitigation Ratio	Mitigation Required
CDFW			
Riparian Forest (disturbed)	0.052	3:1	0.156
		Subtotal	0.156
City Wetlands			
Riparian Forest (disturbed)	0.052	3:1	0.156
		Subtotal	**0.156**
		TOTAL	**0.156**

* City-defined wetlands are coterminous with CDFW jurisdictional wetlands

BIO-4: Prior to issuance of a Grading Permit, the project shall obtain the necessary approval/permit from CDFW for impacts to riparian forest habitat (Figure 5). Impacts to 0.052 acre of CDFW-jurisdictional and City-defined wetlands (riparian forest) will be mitigated at a proposed 3:1 ratio using available credits from the PUD Lake Murray Mitigation Site. Final mitigation requirements for CDFW jurisdictional habitat will be determined during the permitting process. Temporarily impacted wetland habitat will be revegetated in accordance with the City's Landscape Standards and monitored for 25 months to ensure successful erosion control.

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Appendix A

Plant Species Observed

Appendix A
Plant Species Observed

Family	Species Name	Common Name	Habitat[1]
Native Species			
Anacardiaceae	*Malosma laurina*	laurel sumac	NNV, DCSS-BD, DCSS-D
	Rhus integrifolia	lemonadeberry	DH, NNV, DCSS-BD
Asteraceae	*Ambrosia monogyra†*	singlewhorl burrobrush†	DCSS-BD
	Artemisia californica	California sagebrush	NNV, DCSS-BD, DCSS-D
	Baccharis salicifolia	mule fat	DH, NNV, MFS
	Baccharis sarothroides	broom baccharis	DCSS-BD, DCSS-D
	Bahiopsis laciniata	San Diego sunflower†	NNV, DCSS-BD
	Eriophyllum confertiflorum	golden yarrow	DCSS-BD
Cactaceae	*Opuntia littoralis*	prickly pear	DCSS-D
Cucurbitaceae	*Marah macrocarpa*	wild cucumber	DCSS-BD
Cyperaceae	*Schoenoplectus sp.*	bulrush	RF
Fabaceae	*Acmispon glaber*	deerweed	DCSS-BD
Fagaceae	*Quercus agrifolia*	coast live oak	RF,
	Quercus engelmannii†	Engelmann's oak†	
Juncaceae	*Juncus acutus ssp. leopoldii†*	southwestern spiny rush†	
Montiaceae	*Claytonia perfoliata*	miner's lettuce	
Platanaceae	*Platanus racemosa*	western sycamore	RF
Poaceae	*Typha sp.*	cattail	RF
Polygonaceae	*Eriogonum fasciculatum*	flat-top buckwheat	DCSS-D
	Heteromeles arbutifolia	toyon	NNV
Salicaceae	*Populus fremontii*	cottonwood	DH, RF
	Salix lasiolepis	arroyo willow	DW-AR, SWC, SCWRF-D
	Salix gooddingii	Goodding's willow	RF, DCSS-BD, SWC, SCWRF-D
Non-native Species			
Aizoaceae	*Carpobrotus edulis*	hottentot-fig	DCSS-D
Anacardiaceae	*Schinus molle*	Peruvian peppertree	NNV, DCSS-BD
	Schinus terebinthifolius	Brazilian peppertree	DW-AR, RF, NNV
Apiaceae	*Foeniculum vulgare*	fennel	DH, RF
Apocynaceae	*Nerium oleander*	oleander	NNV
Arecaceae	*Washingtonia robusta*	Mexican fan palm	DW-AR, RF, NNV
Asparagaceae	*Agave americana*	century plant	NNV
Asteraceae	*Centaurea melitensis*	star thistle	NNV
	Glebionis coronaria	garland daisy	DH, NNV, DCSS-BD
	Hypochaeris glabra	smooth cat's ear	DH
	Lactuca serriola	prickly lettuce	DH
	Sonchus asper	prickly sow thistle	BS-D

Appendix A (cont.)
Plant Species Observed

Family	Species Name	Common Name	Habitat[1]
Non-native Species (cont.)			
Brassicaceae	*Brassica nigra*	black mustard	RF, NNV, DCSS-BD, NNG
Euphorbiaceae	*Ricinus communis*	castor bean	NNV
Fabaceae	*Acacia longifolia*	Sydney golden wattle	RF, NNV
	Melilotus indicus	sweet clover	DCSS-D
Lamiaceae	*Marrubium vulgare*	common horehound	NNV, DCSS-BD
Myrtaceae	*Eucalyptus sp.*	eucalyptus	DH, NNV, EW
Poaceae	*Arundo donax*	giant reed	DW-AR, RF
	Bromus diandrus	ripgut brome	DH, NNG
	Pennisetum setaceum	African fountain grass	DH, NNV, DCSS-BD, DCSS-D

[1]DCSS-D=Diegan coastal sage scrub - disturbed; DCSS-BD=Diegan coastal sage scrub – baccharis dominated; DH=disturbed habitat; NNV=non-native vegetation; RF= riparian forest; DW-AR=disturbed wetland-arundo dominated; MFS=mule fat scrub; SWC=southern willow scrub; SCWRF-d=southern cottonwood-willow riparian forest – disturbed; NNG=non-native grassland; EW=eucalyptus woodland

†Sensitive Species

Appendix B

Animal Species Observed or Detected

Appendix B
ANIMAL SPECIES OBSERVED OR DETECTED

Taxon		Scientific Name†	Common Name
Order	**Family**		
INVERTEBRATES			
Lepidoptera	Pieridae	*Phoebis sennae*	cloudless sulphur
		Pieris rapae	common white
VERTEBRATES			
Birds			
Accipitriformes	Accipitridae	*Buteo jamaicensis*	red-tailed hawk
Anseriformes	Anatidae	*Anas platyrhynchos*	mallard
Apodiformes	Trochilidae	*Calypte anna*	Anna's hummingbird
Columbiformes	Columbidae	*Columba livia*	rock dove
		Zenaida macroura	mourning dove
Falconiformes	Falconidae	*Falco sparverius*	American kestrel
Passeriformes	Aegithalidae	*Psaltriparus minimus*	bushtit
	Emberizidae	*Melospiza melodia*	song sparrow
	Fringillidae	*Haemorhous mexicanus*	house finch
	Icteridae	*Molothrus ater*	brown-headed cowbird
	Parulidae	*Geothlypis trichas*	common yellowthroat
	Polioptilidae	*Polioptila californica californica†*	coastal California gnatcatcher
	Sturnidae	*Sturnus vulgaris*	European starling
	Tyrannidae	*Tyrannus vociferans*	Cassin's kingbird

†Sensitive Species

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Appendix C

Sensitive Plant Species with Potential to Occur

Appendix C
Sensitive Plant Species with Potential to Occur

Common Name	Species Name	Status*	Habit, Ecology, and Life History	Potential to Occur on Site
San Diego thornmint	*Acanthomintha ilicifolia*	FT/SE CRPR List 1B.1 City MSCP City NE	Annual herb. Grassy openings in chaparral or sage scrub, or near vernal pools, with friable or broken clay soils being the preferred habitat. Elevation range: 10–960 meters. Flowering period: Apr.–Jun.	**Low.** Occurs on clay substrate in chaparral or sage scrub or near vernal pools. Clay soils and vernal pools do not occur within the study area. Likely would have been observed if present.
California adolphia	*Adolphia californica*	--/-- CRPR List 2B.1	Shrub. Occurs in sage scrub but occasionally occurs in peripheral chaparral habitats, particularly hillsides near creeks. Usually associated with xeric locales where shrub canopy reaches 4–5 feet. Elevation range: 45–740 meters. Flowering period: Dec.–Apr.	**Low.** Occurs on clay substrate in chaparral, coastal scrub, and grasslands. Clay soils do not occur. This conspicuous species would have been observed if present.
single-whorl burrobrush	*Ambrosia monogyra*	--/-- City NE CRPR 2B.2	Shrub. Occurs in chaparral and coastal sage scrub habitats. Elevation range: 10–500 meters. Flowering period: Aug.–Nov.	**Present.** This species was observed during the biological survey within Diegan coastal sage scrub habitat.
San Diego County sunflower	*Bahiopsis laciniata*	--/-- CRPR 4.3	Shrub. Occurs in coastal sage scrub and chaparral habitats. Elevation range: 20–1030 meters. Flowering period: Feb.–August.	**Present.** This species was observed during the biological survey within Diegan coastal sage scrub habitat.
San Diego goldenstar	*Bloomeria clevelandii*	--/-- CRPR 1B.1	Perennial herb. Occurs in clay soil within chaparral, coastal scrub, valley and foothill grassland, and vernal pools. Elevation range: 50–465 meters. Flowering period: Apr.–May.	**Low.** Suitable coastal scrub habitat occurs within the study area; however, clay soils are not present. This species was not observed during the biological survey and would likely have been observed if present.
snake cholla	*Cylindropuntia californica var. californica*	--/-- City NE CRPR 1B.1 City MSCP	Perennial herb (stem succulent). Occurs in chaparral and coastal sage scrub habitats. Elevation range: 15–770 meters. Flowering period: Apr.–Jul.	**Low.** Vegetation communities (coastal sage scrub) within the study area are suitable, but this conspicuous species was not observed, and would have been observed if present.

Appendix C (cont.)
Sensitive Plant Species with Potential to Occur

Common Name	Species Name	Status*	Habit, Ecology, and Life History	Potential to Occur on Site
Variegated dudleya	*Dudleya variegata*	--/-- CRPR 1B.2 City NE City MSCP	Perennial herb. Occurs in chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, and vernal pools with clay soil. Elevation range: 3–580 meters. Flowering period: Apr.–Jun.	**Low.** Vegetation communities within the study area are suitable; however, clay soils are not present. This species was not observed during the biological survey and would have been observed if present.
San Diego barrel cactus	*Ferocactus viridescens*	--/-- CRPR 2B.1 City MSCP	Perennial herb (stem succulent). Occurs in chaparral and coastal sage scrub habitats. Elevation range: 3–450 meters. Flowering period: May–Jul.	**Low.** Vegetation communities (coastal sage scrub) within the study area are suitable, but this conspicuous species was not observed, and would have been observed if present.
San Diego marsh-elder	*Iva hayesiana*	--/-- CRPR List 2B.2	Perennial herb. Occurs in creeks of intermittent streambeds. Typically, the riparian canopy is open, allowing substantial sunlight to reach this marsh-elder. Sandy alluvial embankments with cobbles are frequently utilized. Elevation range: 10–500 meters. Flowering period: Apr.–Oct.	**Moderate.** Soils and habitat in the study area are suitable; however, this conspicuous species would have been observed if present.
southwestern spiny rush	*Juncus acutus* ssp. *leopoldii*	--/-- CRPR List 4.2	Perennial grasslike herb (rhizomatous). Occurs in coastal dunes, meadows and seeps, and marshes and swamps. Elevation range: 0-300 meters. Flowering period: May – Jun.	**Present.** This species was observed during the biological survey within the established City access path within Adobe Falls canyon. This area is cleared during maintenance events and is surrounded by riparian forest (disturbed) habitat.
San Diego mesa mint	*Pogogyne abramsii*	FE/SE CRPR List 1B.1 City MSCP City NE	Annual herb. Occurs in vernal pools. Elevation range: 90–200 meters. Flowering period: Mar.–Jul.	**None.** Vernal pools do not occur on site.

Appendix C (cont.)
Sensitive Plant Species with Potential to Occur

Common Name	Species Name	Status*	Habit, Ecology, and Life History	Potential to Occur on Site
Engelmann oak	*Quercus engelmannii*	--/-- CRPR 4.2	Occurs in chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland. Elevation range: 70–1450 meters. Flowering period: Mar.–Jun.	**Present.** This species was observed during the biological survey within coast live oak woodland habitat.
purple stemodia	*Stemodia durantifolia*	--/-- CRPR List 2B.1	Perennial herb. Typically found growing in Sonoran Desert scrub with wet sand along minor creeks and seasonal drainages. Elevation range: 180–300 meters. Flowering period: Jan.–Dec.	**Low.** Appropriate habitat does not occur within the study area. This species was not observed within the study area during the biological survey.
oil neststraw	*Stylocline citroleum*	--/-- CRPR List 1B.1	Annual herb. Occurs in clay soils in chaparral, coastal scrub, and valley and foothill grassland. Elevation range: 50–400 meters. Flowering period: Mar.–Apr.	**Low.** Potentially suitable vegetation communities occur within the study area; however, clay soils do not occur. This species was last collected in 1935.

*Status codes are as follows: F = Federal; S = State of California; E = Endangered; T = Threatened; R = Rare; NE = Narrow Endemic; MSCP = Multiple Species Conservation Plan; CRPR = California Native Plant Society Lists: 1A–presumed extinct; 1B–rare, threatened, or endangered in California and elsewhere; 2–rare, threatened, or endangered in California but more common elsewhere; 3–more information needed; 4–watch list for species of limited distribution. Extension codes: .1-seriously endangered; .2–moderately endangered; .3–not very endangered.

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Appendix D

Sensitive Animal Species with Potential to Occur

Appendix D
Sensitive Animal Species with Potential to Occur

Common Name	Species Name	Status*	Habitat Associations	Potential to Occur
Reptiles				
California glassy snake	*Arizona elegans occidentalis*	**--/**SSC	Inhabits arid scrub, rocky washes, grasslands, chaparral. Preys mostly on sleeping diurnal lizards, but also eats small snakes, terrestrial birds, and mammals.	**Low.** This species has a restricted range with very few populations (often 20 or fewer).
Belding's orange-throated whiptail	*Aspidoscelis hyperythra beldingi*	**--**/SSC City MSCP	Potentially present in coastal sage scrub and maritime chaparral. Also, can be found in weedy, disturbed areas. Important habitat requirements include open, sunny areas, shaded areas, and abundant invertebrate prey base, particularly termites (*Reticulitermes* sp.).	**Moderate.** Suitable habitat occurs within the study area; however, this species was not observed during the field survey.
coast horned lizard	*Phrynosoma blainvillii*	**--/**SSC City MSCP	Northern California though coastal southern California into northern Baja California. Coastal sage scrub and open areas in chaparral, oak woodlands, and coniferous forests with sufficient basking sites, adequate scrub cover, and areas of loose soil; require native ants, especially harvester ants, and are generally excluded from areas invaded by Argentine ants.	**Low.** The range has now been severely fragmented due to land alteration. Threatened and eliminated from many areas due to habitat destruction from human development and agriculture, and the spread of non-native ants, such as Argentine ants, which displace the native ant food source.
Birds				
Cooper's hawk	*Accipiter cooperii*	--/WL City MSCP	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.	**Low.** Mature forest habitat within the study area is disturbed and fragmented. Higher quality breeding habitat occurs within off-site habitat. This species was not observed during the field survey.

Appendix D (cont.)
Sensitive Animal Species with Potential to Occur

Common Name	Species Name	Status*	Habitat Associations	Potential to Occur
Birds (cont.)				
sharp-shinned hawk	*Accipiter striatus*	--/WL	Mixed or coniferous forests, open deciduous woodlands, thickets, edges. Usually nests in groves of coniferous trees in mixed woods, sometimes in dense deciduous trees or in pure coniferous forest with brush or clearings nearby.	**Low.** Mature forest habitat within the study area is disturbed and fragmented. Higher quality breeding habitat occurs within off-site habitat. This species was not observed during the field survey.
rufous-crowned sparrow	*Aimophila ruficeps*	--/WL City MSCP	Live and breed in coastal sage scrub habitat. Prefer low shrubby scrub containing California sagebrush, California buckwheat, and bush sunflower.	**Moderate.** Suitable breeding habitat (Diegan coastal sage scrub) occurs in disturbed patches within the study site. Higher quality breeding habitat occurs within off-site habitat. This species was not observed during the field survey.
Bell's sage sparrow	*Artemisiospiza belli*	FT/SSC	Live and breed in coastal sage scrub habitat. Prefer low shrubby scrub containing California sagebrush, California buckwheat, and bush sunflower.	**Moderate.** Suitable breeding habitat (Diegan coastal sage scrub) occurs in disturbed patches within the study site. Higher quality breeding habitat occurs within off-site habitat. This species was not observed during the field survey.
cactus wren	*Campylorhynchus brunneicapillus*	--/SSC City MSCP	Found in mesquite brush, in towns, and locally in coastal chaparral where cactus grows. Suitable habitat consists of cactus, yucca, mesquite; arid brush, deserts. Lives in a variety of low dry habitats. Most numerous in desert, in areas with thorny shrubs and cactus, especially where cholla cactus is common.	**Low.** Suitable habitat does not occur on site. This species was not observed during the field survey.

Appendix D (cont.)
Sensitive Animal Species with Potential to Occur

Common Name	Species Name	Status*	Habitat Associations	Potential to Occur
Birds (cont.)				
white-tailed kite	*Elanus leucurus*	--/--	Found in a wide variety of open habitats in North America, including open oak grassland, desert grassland, farm country, marshes. Main requirements include trees for perching and nesting and open ground with high populations of rodents.	**Low.** Suitable habitat including grassland with high populations of rodents does not occur within the study area. This species was not observed during the field survey.
prairie falcon	*Falco mexicanus*	--/WL	Observed year-round in San Diego County but more commonly during winter. Nesting occurs on cliff or bluff ledges or occasionally in old hawk or raven nests; foraging occurs in grassland or desert habitats.	**Low.** Suitable habitat does not occur on site. This species was not observed during the field survey.
yellow-breasted chat	*Icteria virens*	--/SSC	Breeds in very dense scrub (such as willow thickets), often along streams and at the edges of swamps or ponds. Sometimes in dry overgrown pastures, and upland thickets along margins of woods.	**Low.** Dense scrub (such as willow thickets) within the study area is disturbed and fragmented. Higher quality breeding habitat occurs within off-site habitat. This species was not observed during the field survey.
coastal California gnatcatcher	*Polioptila californica californica*	FT/SSC City MSCP	Live and breed in coastal sage scrub habitat. Prefer low shrubby scrub containing California sagebrush, California buckwheat, and bush sunflower.	**Moderate.** Suitable breeding habitat (Diegan coastal sage scrub) occurs in disturbed patches within the study site. Higher quality breeding habitat occurs within off-site habitat. This species was observed outside the study area during the field survey.

Appendix D (cont.)
Sensitive Animal Species with Potential to Occur

Common Name	Species Name	Status*	Habitat Associations	Potential to Occur
Birds (cont.)				
yellow warbler	*Setophaga petechia*	--/SSC	Bushes, swamp edges, streams, gardens.	**Moderate.** Marginally suitable disturbed riparian habitat occurs in small scattered locations within the study area, but is not connected to larger riparian corridors. The habitat did not contain suitable willow tree cover. This species was not observed during the field survey.
least Bell's vireo	*Vireo bellii pusillus*	FE/SE City MSCP	Riparian woodland, typically with a dense understory. Suitable breeding habitat often includes mature willow trees (*Salix* sp.).	**Moderate.** Marginally suitable disturbed riparian habitat occurs in small scattered locations within the study area, but is not connected to larger riparian corridors. The habitat did not contain suitable willow tree cover. This species was not observed during the field survey.
Mammals				
San Diego pocket mouse	*Chaetodipus fallax*	--/SSC	A typical home range is composed of rocks, sand, and herbaceous vegetation for cover. Some common plants seen in these habitats include Yucca and desert scrub.	**Low.** Yucca and desert scrub habitat is not present within the study area. This species was not observed or detected during the survey.
western mastiff bat	*Eumops perotis californicus*	--/SSC	Chaparral and where coast live oaks are found. Also occurs in arid, rocky areas, cliffs, and canyons.	**Low.** Rocky areas, cliffs, and suitable canyons are not within the study area. Chaparral with coast live oaks are not within the study area. This species was not observed or detected during the survey.

*Listing codes are as follows: FE = Federally Endangered; FT = Federally Threatened; SE = State of California Endangered; Protected; WL = State of California Watch List; SSC = State of California Species of Special Concern; MSCP = Multiple Species Conservation Plan

Appendix E

Explanation of Status Codes for Plant and Animal Species

Appendix E
Explanation of Status Codes for Plant and Animal Species

FEDERAL, STATE, AND LOCAL CODES

U.S. Fish and Wildlife Service (USFWS)

FE Federally listed endangered

FT Federally listed threatened

BCC Bird of Conservation Concern (see more information below)

USFWS Birds of Conservation Concern (BCC)

The primary legal authority for Birds of Conservation Concern (2002) is the Fish and Wildlife Conservation Act of 1980 (FWCA), as amended. Other authorities include the Endangered Species Act, Fish and Wildlife Act (1956) and 16 USC §701. A FWCA 1988 amendment (Public Law 100-653, Title VIII) requires the Secretary of the Interior through the USFWS to "identify species, subspecies, and populations of all migratory non-game birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973." The BCC report is the most recent effort by the USFWS to carry out this proactive conservation mandate.

The BCC report aims to identify accurately the migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent the USFWS' highest conservation priorities and draw attention to species in need of conservation action. The USFWS hopes that by focusing attention on these highest priority species, the report will promote greater study and protection of the habitats and ecological communities upon which these species depend, thereby ensuring the future of healthy avian populations and communities. The report is available online at http://www.fws.gov/migratorybirds/reports/BCC2002.pdf.

California Department of Fish and Wildlife (CDFW)

SE State listed endangered

ST State listed threatened

SSC State species of special concern

WL Watch List

FP Fully Protected species refers to all vertebrate and invertebrate taxa of concern to the Natural Diversity Data Base regardless of legal or protection status. These species may not be taken or possessed without a permit from the Fish and Game Commission and/or CDFW.

OTHER CODES AND ABBREVIATIONS

California Rare Plant Rank (CRPR) Codes

Lists

1A = Presumed extinct.

1B = Rare, threatened, or endangered in California and elsewhere. Eligible for state listing.

2 = Rare, threatened, or endangered in California but more common elsewhere. Eligible for state listing.

3 = Distribution, endangerment, ecology, and/or taxonomic information needed. Some eligible for state listing.

4 = A watch list for species of limited distribution. Needs monitoring for changes in population status. Few (if any) eligible for state listing.

List/Threat Code Extensions

.1 = Seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)

.2 = Fairly endangered in California (20 to 80 percent occurrences threatened)

.3 = Not very endangered in California (less than 20 percent of occurrences threatened, or no current threats known)

A "CA Endemic" entry corresponds to those taxa that only occur in California.

All List 1A (presumed extinct in California) and some List 3 (need more information; a review list) plants lacking threat information receive no extension. Threat Code guidelines represent only a starting point in threat level assessment. Other factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Code.