## Appendix D

Biological Resources Assessment

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# BIOLOGICAL RESOURCES ASSESSMENT
# NORTH COAST SYSTEM REHABILITATION
# PHASE 3 - COAST SEGMENT

**City of Santa Cruz Water Department**

**Santa Cruz County, California**

LSA

June 2014

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# BIOLOGICAL RESOURCES ASSESSMENT
# NORTH COAST SYSTEM REHABILITATION
# PHASE 3 - COAST SEGMENT

**City of Santa Cruz Water Department**

**Santa Cruz County, California**

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# INTRODUCTION

This biological resources assessment provides an evaluation of the biological resources, including special-status species and sensitive habitats on and in the immediate vicinity of Phase 3 (Coast Segment) of the North Coast System Rehabilitation proposed project alignment and identified staging areas. The report additionally recommends mitigation measures to reduce significant biological resource impacts associated with project implementation to less than significant.

## PROJECT LOCATION

The Phase 3 segment is located along an approximate 3.3-mile stretch of Highway 1, north of the City of Santa Cruz in Santa Cruz County, California (Figure 1, Appendix A). The project alignment is situated within the *Santa Cruz, Calif.*, United States Geological Survey (USGS) 5- by 11-minute quadrangle.

The proposed pipeline alignment is located primarily next to an existing City of Santa Cruz Water Department (SCWD) pipeline within Wilder Ranch State Park, which is owned and managed by California Department of Parks and Recreation (State Parks). Wilder Ranch State Park encompasses approximately 5,000 acres of coastal habitat and recreational area with 900 acres in agriculture, some cattle grazing, and a cultural preserve. Additional applicable property ownerships include California Department of Transportation (Caltrans) Highway 1 right-of-way, Santa Cruz County Regional Transportation Commission (RTC) right-of-way, the City of Santa Cruz landfill, and the Graniterock Wilder Sand Quarry.

The proposed alignment is located entirely within the California Coastal Zone and would cross several creeks and drainages, as well as Caltrans and RTC railroad rights-of-way.

## PROJECT DESCRIPTION

SCWD proposes to replace approximately 18,500 linear feet of 16- to 22-inch diameter raw water main that runs along Highway 1 in Santa Cruz, California. The proposed project is Phase 3 (Coast Segment) of the North Coast System (NCS) Rehabilitation Project, a multi-phase program to replace or repair the piping and stream diversion infrastructure. The Phase 3 segment is 19,800 feet in total length. The overall project will:

- Install/replace 18,500 feet of new 16 to 22-inch pipeline;
- Use/retain 1,300 feet of existing pipeline; and
- Remove 800 feet of old, above ground pipeline.

The following sections provide an overview of the proposed project including project background, proposed improvements and construction.

## Project Background

The NCS consists of an 18-mile long network of pipes and stream diversion structures. The NCS was originally constructed in the 1880s and is currently operated and maintained by the SCWD. Diversion structures direct flows from Liddell, Reggiardo, Laguna, and Majors creeks into a pipe system, which conveys water, by gravity, to the Coast Pump Station adjacent to the City's San Lorenzo River intake. The Coast Pump station lifts water up to the Graham Hill Water Treatment Plant; it is then treated and delivered to SCWD customers. The NCS relies entirely on rainfall runoff and emergent groundwater to furnish approximately 30 percent of Santa Cruz's overall water production (IWP 2003).

A significant portion of the 18-miles of transmission pipeline is approaching, or has exceeded its design life, and must be replaced. Over the past decade, SCWD has made emergency repairs on many sections of the pipeline. The diversion and pipeline facilities have historically provided adequate service for the SCWD; however, the aging facilities are increasingly prone to leakage and failure, and now require increased routine maintenance and emergency repairs.

In 2005, a Preliminary Engineering Report (Carollo 2005) was prepared to assess the NCS, identify potential constraints, provide rehabilitation recommendations, and perform hydraulic modeling. Key findings and recommendations of the Preliminary Engineering Report include:

- A majority of the piping system needs to be replaced or rehabilitated in the next 15 to 20 years.
- In select locations, the existing pipeline alignment encroaches on environmentally and culturally sensitive areas.
- Certain segments could be replaced in alternate alignments; however easement/access issues and environmental impacts may limit the viability of the alternate alignments.
- In difficult to access, environmentally sensitive, and geologically active areas, piping may need to be installed above ground.
- In most locations, existing piping should be replaced with a similar pipe size. In some locations, pipes may need to be resized to preserve system capacity.
- System pressure and capacity requirements will reduce the number of choices for pipe material, and the feasibility of trenchless rehabilitation methods for the existing pipe such as pipe-bursting, sleeving, and lining.

In June 2004, the SCWD initiated the preparation of a programmatic Environmental Impact Report (PEIR, ENTRIX 2005) for the North Coast System Rehabilitation Project. The PEIR addressed the potential impacts and mitigation measures for the overall system repair, including diversion structures, and piping improvements. The PEIR analyzed replacement of the pipeline along the existing alignment, as well as alternative alignments identified in the Preliminary Engineering Report. The segment of pipeline to be replaced in Phase 3 – Coast Segment (the proposed project) would generally follow the existing pipeline alignment, which the PEIR determined to be the environmentally superior and preferred alignment. However, some modifications to that alignment have been incorporated into the proposed project to avoid sensitive environmental resources identified during project-level surveys conducted during the preparation of this document. The PEIR was certified by City Council at a Public Hearing held on November 8, 2005.

## Proposed Alignment

The section of system to be replaced consists primarily of 16- to 22-inch welded steel pipe that runs along Highway 1 from Scaroni Road to west of the entrance of Wilder Ranch State Park. The proposed alignment would generally follow the alignment of the existing water main. In most locations, the proposed pipeline (main alignment) would be located within 20 feet of the existing pipeline, which would be abandoned in place (below ground sections) or removed (aboveground sections). In one area, an alternate alignment (railroad alignment) is proposed to avoid difficult construction areas and sensitive archaeological and biological resources. The overall new alignment would be approximately 19,800 linear feet long with 18,500 linear feet of replaced pipeline. As described further below, approximately 90 percent of the proposed pipeline would be constructed employing standard open trench construction techniques. The remainder of the proposed pipeline would be built using a trenchless construction method such as horizontal directional drilling and jack and bore. These methods would be used at proposed crossings of Highway 1, Lombardi Gulch creek and riparian corridor, and the Santa Cruz Branch rail line where other open trench construction methods are impractical or would result in greater environmental impact.

The proposed pipeline alignment is described below.

**Scaroni Road to Little Baldwin Creek.** The proposed replacement pipeline would begin just east of the intersection of Scaroni Road with Highway 1 (Station 51+00). At the western end, the proposed replacement pipeline (16-inch PVC) would connect to an existing 16-inch PVC raw water main at Station 61+50 that would be reused. This existing pipe extends east and runs parallel to Highway 1 on the south side within Caltrans right-of-way for approximately 750 feet to Station 69+00. At Station 69+00, the proposed pipeline would begin again, connecting to and replacing the existing pipeline, and extending east within Wilder Ranch State Park to Little Baldwin Creek (Station 80+00).

**Little Baldwin Creek to the Railroad Alignment (Station 92+80).** At the creek, open trench construction would be used to install the pipe beneath the creek and the new pipeline would continue east from Little Baldwin Creek within State Park land and Caltrans right-of-way for approximately 880 feet to Station 92+80. Along this segment of the main alignment, approximately 150 feet of above ground 22-inch welded steel raw water main would be abandoned and removed (between Stations 90+00 and 91+50).

At Station 80+00, directional drilling would be used to place a section (approximately 190 feet long) of replacement line beneath Highway 1. The proposed pipeline would connect to an existing 14-inch welded steel raw water main on the north side of Highway 1. The existing water main would be cut, capped and abandoned in place.

**Railroad Alignment.** At Station 92+80, the proposed pipeline would turn south/southeast to follow an existing access road within Wilder Ranch State Park (Station 00+00 to Station 02+50). It would then cross under the Santa Cruz Branch line railroad tracks via jack and bore (Station 02+50 to Station 03+50) and turn east extending approximately 3,900 feet within Santa Cruz County Regional Transportation Commission (SCCRTC) right-of-way (Station 03+50 to Station 42+00). Near Baldwin Creek (between Stations 18+00 and 19+00), approximately 50 feet of above ground 22-inch welded steel raw water main would be abandoned and removed. At approximately Station 42+50, the proposed pipeline would turn north, cross under the railroad tracks via jack and bore and continue

north within State Parks land for approximately 750 feet to connect to the main alignment along the south side of Highway 1 (Station 50+94/133+50).

At the connection between the railroad alignment and the main alignment (Station 133+50 of the main alignment), a section of replacement line would extend west along the south side of Highway 1, then turn north and cross under Highway1 (via jack and bore) to connect to an existing PVC water main. The existing 6-inch welded steel main that extends beneath Highway 1 would be cut and capped prior to the existing water meter and abandoned in place. At the eastern tributary to Baldwin Creek (between Stations 32+50 and 36+50), approximately 300 feet of existing above ground raw water main would be abandoned and removed.

**Railroad Alignment to Lombardi Gulch.** From Station 133+50, the proposed pipeline would extend east within State Park and Caltrans right-of-way for approximately 1,100 feet to Lombardi Gulch (Station 145+00). At the creek, directional drilling would be used to install approximately 1,000 feet of pipe beneath the creek and associated riparian area (Station 156+00). Within the creek corridor (between Stations 151+00 and 152+00), approximately 100 feet of existing, above ground raw water main would be abandoned and removed.

At Station 167+00, approximately 160 feet of replacement line would be constructed under Highway 1 (via directional drilling) to connect to an existing 6-inch water main within the access road to the City of Santa Cruz sanitary landfill (Dimeo Lane).

**Lombardi Gulch to Old Dairy Gulch.** From Lombardi Gulch, the proposed pipeline would extend another 1,100 feet east within State Parks land (Station 156+00 to 167+00). The main alignment would then continue east through Caltrans, State Parks, and Graniterock lands for approximately 4,275 feet (Station 167+00 to Station 210+50) to Old Dairy Gulch.

**Old Dairy Gulch to Santa Cruz Sand Plant**[1]**.** At Old Dairy Gulch, an approximately 400 foot, existing above ground 24-inch high-density polyethylene (HDPE) line installed as part of an emergency repair, spans Old Dairy Gulch (Station 210+50 to Station 214+50). Where it crosses the creek, the line sits on a steel I-Beam that spans the creek. In this area two different construction options are under consideration. The preferred option is that the existing aboveground pipeline would be retained and no new construction would occur in this area except tying into the two ends of the existing pipeline located at Stations 211+00 and 215+00. The second option is that the existing aboveground pipeline would be removed and replaced with a pipeline installed underground via open trench construction. The City studied this as an area for potential directional drilling, but found that given the configuration, location of riparian areas, and geology of the site directional drilling was not practicable and would not reduce construction disturbance. For the purposes of the analysis in this document it is assumed that either method could be used. The impact analysis considers the worst case impacts (construction and operation) of both scenarios.

The replacement pipeline would continue east/northeast under Highway 1 within an existing reinforced concrete pipe casing located underneath an unused sand plant conveyor system tunnel (Station 214+50 to 216+00). It would then continue north/northeast within the sand plant property,

[1] The Santa Cruz Sand Plant is also known as Wilder Quarry. The Santa Cruz Sand Plant is owned and operated by Graniterock.

beneath the access road to tie into the existing system (Station 221+00). Within this area (at Station 214+00 and Station 217+00), two short lateral pipelines would be installed via open trench construction.

**Construction.** Ductile Iron Pipe (DIP-C151) or Poly Vinyl Chloride (PVC C905) pipe would be installed by open trench, horizontal drilling, or jack and bore, depending on the size of pipe and location, as described further below:

- *Trenching.* Most of the replacement pipeline would be placed in trenches with trench depths varying depending on the diameter of the pipe installed and ground conditions. Under the proposed project, trench depths would range between 3 to 6 feet. Trench widths would range between 3 and 5 feet. The trenching operation would be carried out with a chain trencher, a tracked or wheeled excavator, or backhoe.
- *Directional Drilling.* Directional drilling would be used in areas where trenching would need to be avoided (i.e., across wetlands and flowing watercourses). Through the control of a directional drill head, a boring can be made horizontally, or in an arc, to install the water pipe. Once a boring is completed, it is reamed to a desired diameter, and then the assembled piping system is pulled through the boring. Directional drills can operate over distances ranging from 100 to 5,000 feet, depending on size. Directional drilling requires installation of sending and receiving pits to allow the drilling fluid to be collected and reclaimed. For this project, drill pits would be located at both ends of the drilled segment and would range in width from approximately 34 to 55 feet.
- *Jack and Bore Construction.* Jack and bore would be used to complete relatively short (100 to 200 feet), trenchless crossings of the railway and Highway 1. Access pits would be excavated on either side of the feature to be crossed, and then an augur would be used to bore underneath the rail line. As the augur advances, a casing or carrier pipe would be pushed (jacked) behind the augur head. Jack and bore drill pits would be approximately 67 feet wide.

Access for construction and staging would occur via Highway 1. Construction equipment and materials would be staged in an area near Station 89+00 used for staging farm equipment and other agricultural-related materials. No staging areas would occur on the undeveloped marine terraces. Construction is expected to take approximately eight months and would take place from approximately April through November.

Anticipated equipment for the proposed project would consist of tracked excavators, soil compactors, ½-ton and ¾-ton trucks, a directional drill rig for the directional drilling and an augur for the jack and bore construction that will occur at the railroad crossings. Diesel fuel is required for machinery and heavy equipment; refueling such equipment would be limited to designated areas so as not to expose sensitive habitats to the possibility of a fuel spill.

**Proposed Work Areas.** The standard construction corridor would be 40 feet wide to accommodate installation of the proposed pipeline. This work area generally consists of an approximately 3- to 5-foot-wide trench, a 10-foot-wide zone for excavated material storage adjacent to the trench, and a 15-foot-wide travel way for construction access. In several areas the width of the proposed work area would be reduced to avoid sensitive resource(s), including riparian vegetation, wetlands, drainage areas, and other sensitive areas. In these locations, the construction footprint would be limited to 10 to 20 feet in order to minimize impacts to these resources. The reduced width construction area will be accomplished by using a combination of techniques applicable to the specific location such as having the travel way straddle the trench and/or transporting excavated material away from sensitive areas.

The locations of the reduced width work areas are provided in Table A below and shown on the project figures in Appendix B. For the purposes of a worst case impact analysis, it is assumed at this time that the construction footprint for the reduced width construction area would be 20 feet wide.

**Table A: Locations of Reduced Width Work Areas**

| Area | Beginning Station | Ending Station | Alignment |
|---|---|---|---|
| 1 | 56+00 | 58+50 | Main Alignment |
| 2 | 60+00 | 61+00 | Main Alignment |
| 3 | 61+00 | 81+00 | Main Alignment |
| 4 | 81+50 | 82+50 | Main Alignment |
| 5 | 03+00 | 42+50 | Railroad Alignment |
| 6 | 155+50 | 158+50 | Main Alignment |
| 7 | 210+50 | 214+50 | Main Alignment |

**Abandonment of Existing Pipeline.** Following completion of the proposed pipeline, aboveground sections of the existing pipeline would be removed and capped; below ground sections of the existing pipeline would be abandoned in place. At the Lombardi Gulch, Little Baldwin Creek, Baldwin Creek, and the eastern tributary to Baldwin Creek locations, the existing pipeline is located above ground to cross over a natural creek channel or highway drainage feature. At the eastern tributary of Baldwin Creek, approximately 360 feet of HDPE piping was installed above ground as a temporary repair. As described above, five segments of existing, above ground pipeline would be abandoned and removed. The length and location of these segments are shown in Table B below.

**Table B: Approximate Locations of Abandoned and Removed Segments**

| Area | Beginning Station | Ending Station | Approximate Length |
|---|---|---|---|
| 1 | 90+00 | 91+50 | 150 feet |
| 2 | 18+00 | 19+00 | 100 feet |
| 3 | 32+50 | 36+50 | 400 feet |
| 4 | 37+00 | 37+50 | 50 feet |
| 5 | 151+00 | 152+00 | 100 feet |

Using hand tools such as a concrete saw, the existing pipeline would be cut 6-12 inches below grade and removed with a small excavator or boom crane. Substantial concrete thrust blocks were installed where the pipe transitions from below to above grade, therefore complete removal of all facilities beyond 6-12 inches would be infeasible. The remaining pipe would be plugged or filled with a grout mixture, and the disturbed area would be restored. The pipe to be abandoned in place would also be severed and plugged at regular intervals (i.e., every 500-1000 feet) to prevent the piping of groundwater.

**Access Agreements and Easements.** Although the project is located in a relatively undeveloped setting, the project alignment is defined and constrained by easement and encroachment requirements, as well as existing land uses (agricultural, transportation), and environmental considerations (species habitat, riparian areas). The proposed alignment stays within 20 feet of the existing pipe except for the railroad alignment between Stations 92+00 and 133+00. The project bisects multiple parcels with different landowners, as shown in Table C.

**Table C: Landowners along the Proposed Alignment**

| Beginning Station | End Station | Landowner | Alignment |
|---|---|---|---|
| 45+00 | 61+33 | Caltrans | Main Alignment |
| 61+33 | 87+52 | State Parks | Main Alignment |
| 87+52 | 92+80 | Caltrans | Main Alignment |
| 0+00 | 0+25 | Caltrans | Railroad Alignment |
| 0+25 | 2+01 | State Parks | Railroad Alignment |
| 2+01 | 43+49 | SCCRTC | Railroad Alignment |
| 43+49 | 50+94 | State Parks | Railroad Alignment |
| 50+94 | 140+65 | State Parks | Main Alignment |
| 140+65 | 143+56 | Caltrans | Main Alignment |
| 143+56 | 147+44 | State Parks | Main Alignment |
| 147+44 | 152+75 | Caltrans | Main Alignment |
| 152+75 | 168+13 | State Parks | Main Alignment |
| 168+13 | 173+12 | Caltrans | Main Alignment |
| 173+12 | 214+27 | Granite Rock/State Parks | Main Alignment |
| 214+27 | 217+20 | Caltrans | Main Alignment |
| 217+20 | 221+03 | Granite Rock | Main Alignment |

Ten-foot-wide easements currently exist along the entire route of the existing pipeline. The existing pipeline utilizes the entire ten foot easement, making it impossible to construct a new line parallel to the existing line, and remain within the ten-foot corridor. In addition, the existing line would need to stay in service as long as possible while the new pipeline is being installed. For this reason and other construction-related issues, the entire pipeline cannot be removed and replaced in the same location and, instead, would be located next to the existing pipeline. For construction of the pipeline, new easements or access agreements would be required. Access agreements would also be needed for staging areas. Permanent agreements or easements would be necessary to provide ongoing access for inspection, and maintenance of the pipeline and the right-of-way, pipeline repairs, and other activities. Following abandonment of the existing pipeline, existing easements that are no longer needed would be transferred to the underlying landowner.

**Operation and Maintenance Activities.** Currently, the SCWD conducts various operation and maintenance activities on the NCS, including vegetation maintenance (e.g., clearing an 8-foot-wide access above the pipeline right-of-way using hand tools), pipeline monitoring by SCWD staff either on foot or by vehicle, and emergency response activities and repairs. Operation and maintenance activities associated with the proposed project would be the same as currently occur for the NCS.

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# EXISTING CONDITIONS

## METHODS

LSA reviewed the California Natural Diversity Database (CNDDB; CDFW 2012) for records of special-status species occurrences within 5 miles of the project alignment/study corridor. The California Native Plant Society (CNPS) On-line Inventory of Rare and Endangered Plants (CNPS 2013) was also reviewed for species in the *Santa Cruz*, *Davenport*, *Felton*, *Laurel*, and *Soquel* USGS quadrangles. LSA also reviewed the PEIR (ENTRIX 2005). Using these sources, lists of special-status plants and animals that have the potential to occur on or in the vicinity of the proposed project alignment were compiled (see Table B, Appendix C).

LSA also reviewed the following documents related to the project alignment:

- North Coast System Rehabilitation Program NCP – Phase 3 Coast Segment Mitigation and Monitoring Program (City of Santa Cruz 2005);
- Administrative Draft Habitat Conservation Plan for the Issuance of an Incidental Take Permit under Section 10(a)(1)(B) of the Endangered Species Act for the Operations and Maintenance Habitat Conservation Plan for the City of Santa Cruz (City of Santa Cruz 2012a) (referred to as Draft O&M HCP throughout this report);
- Draft City of Santa Cruz Habitat Conservation Plan Conservation Strategy for Steelhead and Coho Salmon (City of Santa Cruz 2011);
- Draft City of Santa Cruz Habitat Conservation Plan for Steelhead and Coho Salmon, Revised Conservation Strategy Flow Proposal Summary (City of Santa Cruz 2012b);
- Final Citywide Section 10 Permit Program Habitat Conservation Plan Existing Resources (ENTRIX 2004a);
- Final Appendix B – Physical Resources Report City of Santa Cruz Section 10 Program (ENTRIX 2004b);
- Final Appendix B – Aquatic Resources Report City of Santa Cruz Section 10 Program (ENTRIX 2004c);
- City of Santa Cruz Habitat Conservation Plan Draft Existing Conditions for Steelhead and Coho Salmon. (Hagar Environmental Science 2012);
- City of Santa Cruz Habitat Conservation Plan Terrestrial Resources Technical Report. (H.T. Harvey & Associates with Entomological Consulting Services 2004).
- Management of Frog Ponds on the Coast Dairies Property Draft Report (ESA Undated).
- Report of 2001 California Red-legged Frog (*Rana aurora draytonii*) Breeding Habitat Surveys at Wilder Ranch State Park and Natural Bridges State Beach. (Hernandez 2001).
- Report of 2005 California Red-legged Frog (*Rana aurora draytonii*) Breeding Habitat Surveys at Wilder Ranch State Park and Natural Bridges State Beach. (Hyland 2005a).
- 2005 Red Legged Frog Breeding Sites Wilder Ranch State Park and Natural Bridge State Beach (Hyland 2005b).

- North Coast System Rehabilitation Project - Coast Segment Habitat Evaluation of Possible Overwintering Roost Sites for Monarch Butterflies (ECS 2014).

LSA adapted and modified the habitat/land cover communities from the Draft O&M HCP (City of Santa Cruz 2012a) to develop a habitat map of the project alignment (Appendix B). Imagery for the habitat map was acquired from ESRI World Imagery (dated October 26, 2010) and has a 0.3 meter resolution. Streams were digitized from the aerial imagery. The habitat communities were verified in the field during LSA's December 14, 2012 field survey.

LSA conducted two reconnaissance surveys in November and December, 2012, two protocol-level plant surveys in March and August, 2013, and a preliminary wetland delineation in May, 2014. LSA Senior Biologist/Principal Steve Foreman initially visited the proposed project alignment on November 27, 2012 for an overview of the alignment and to preliminarily identify areas subject to special regulations, such as potential waters of the United States and/or areas which likely support or harbor rare, threatened, and endangered species, or other special-status species. More detailed field studies were conducted on December 14, 2012 by LSA Senior Biologist Dan Sidle to assess current habitat conditions and evaluate the alignment's potential to support special-status plant and animal species. The latter survey involved walking throughout the project alignment and the broader project survey corridor to ensure that all habitat types and features on the alignment were identified. Focused, species-specific surveys for wildlife were not conducted for the proposed project. LSA botanists Tim Milliken and Zoya Akulova conducted protocol-level plant surveys within the alignment on March 19 and August 6, 2013. Based on the results of the reconnaissance surveys, LSA soil scientist Chip Bouril conducted a preliminary wetland delineation within the project alignment and study corridor on May 29 and 30, 2014. All plants and animals observed were recorded in field notes.

For the purposes of this assessment, special-status species are defined as follows:

- Species that are listed, formally proposed, or designated as candidates for listing as threatened or endangered under the federal Endangered Species Act (ESA);
- Species that are listed, or designated as candidates for listing, as rare, threatened, or endangered under the California Endangered Species Act (CESA);
- Plant species given the California Rare Plant Ranking (CRPR) of 1A, 1B, 2, and 3 as assigned by a collaborative group of over 300 botanists in government, academia, non-governmental organizations, and the private sector. This group is sanctioned by, and jointly managed by the California Department of Fish and Wildlife (CDFW) and the CNPS;
- Animal species designated as Species of Special Concern or Fully Protected by the CDFW;
- Species that meet the definition of rare, threatened, or endangered under Section 15380 of the California Environmental Quality Act (CEQA) guidelines; or
- Species that are considered a taxa of special concern by local agencies.

Plant taxonomy and nomenclature in this report follow The Jepson Manual (Baldwin et al. 2012). Common and scientific names for animals are based on Crother (2012) for amphibians and reptiles, the American Ornithologists' Union (AOU) *Check-list of North American Birds* (AOU 1998) for birds, and Baker et al. (2003) for mammals.

## RESOURCE DESCRIPTIONS

The project survey corridor encompasses approximately 30 acres along an approximately 3.3-mile long stretch of Highway 101 north of Santa Cruz along Highway 1 in Santa Cruz County, California (Figures 1 and 2, Appendix A). The project survey corridor was defined to encompass the proposed project alignment, plus sufficient additional adjacent lands needed to ensure indirect impacts are fully accounted for in the biological resource evaluation. The project survey corridor lies adjacent and/or within agricultural structures and fields and Wilder Ranch State Park. Habitats and land cover types within the study corridor consist of: agriculture, ruderal (weedy)/landscaped/ornamental, developed, coastal scrub, riparian forest and scrub, mixed evergreen forest, seasonal wetland, seep wetland, non-native grassland/coastal terrace prairie, freshwater pond, and irrigation pond(Appendix B). The latter two habitat/land cover types (freshwater pond and irrigation pond) occur in the study corridor, but outside of the proposed project alignment. In addition to these habitat types, several creek channels, drainages, and irrigation ditches were observed on or in close proximity to the proposed project alignment (Appendix B).

### Soils

The soil units on the alignment are mapped as Watsonville loam, Bonnydoon loam, Elkhorn sandy loam, Soquel loam, Elder sandy loam, Pinto loam, Pfeiffer gravelly sandy loam, Baywood loamy sand, Bonnydoon-Rock outcrop complex, Fluvaquentic Haploxerolls-Aquic Xerofluvents complex, Pits-Dumps complex, and water (UC Davis Soil Resource Laboratory 2012).

### Vegetation Communities/Land Cover Types

Vegetation and land cover types on the study corridor consist of mostly plant species associated with the agricultural, non-native grassland, coastal scrub, riparian, and developed habitats. The approximate acreage of the habitat/land cover communities within the project alignment were derived and modified from the Draft O&M HCP habitat map data acquired from the City of Santa Cruz (2012a). Appendix B provides a habitat map of these communities along the broader project study corridor and within the area of potential impact for the biological resources analysis. The area of potential impact is the same as the proposed project alignment identified throughout this report, and is based on the proposed work areas identified in the Project Description (e.g., 40-foot and 20-foot width work areas). The Appendix B habitat mapping shows the area of potential impact, but due to scale limitations, cannot distinguish between the 40-foot and 20-foot work areas. These work areas, however, are accounted for in the habitat acreages shown below and considered in the impact evaluation.

The approximate acreage of the habitat/land cover communities within the project alignment/area of potential impact are listed below:

| Habitat/Land Cover Type | Acres |
|---|---|
| Agriculture | 6.76 |
| Ruderal/Landscaped/ Ornamental | 6.40 |
| Developed | 2.13 |
| Coastal Scrub | 0.91 |
| Riparian Forest and Scrub | 0.57 |
| Mixed Evergreen Forest | 0.35 |
| Seasonal Wetland | 0.14 |
| Seep Wetland | 0.10 |
| Non-Native Grassland/ Coastal Terrace Prairie | 0.03 |
| **Total** | **17.39** |

In addition to these habitat communities, the pipeline alignment contains 5,328 linear feet of creeks, drainages, and ditches within the area of potential impact[1]. The majority of these features are roadside or agricultural drainage ditches (see Figures 1-15, Appendix B).

A freshwater pond and three irrigation ponds occur outside of the project alignment within the study corridor.

The habitat/land cover communities identified within the proposed project alignment are provided below in the order listed in the above table. These designations are adapted and modified from the *City of Santa Cruz Habitat Conservation Plan Terrestrial Resources Technical Report* (H.T. Harvey & Associates with Entomological Consulting Services 2004) and the Draft O&M HCP (City of Santa Cruz 2012a). Appendix C provides a list of plant and animal species observed during the field surveys.

**Agriculture.** Row-crops, particularly cold-season vegetables such as globe artichoke (*Cynara cardunculus* subsp. *cardunculus*), Brussels sprouts (*Brassica oleracea*), culinary herbs, and other greens are the primary crops in the fields along the alignment at the time of the surveys. The North Coast Pipeline route generally skirts the edge of cropland along the Highway 1 corridor.

**Ruderal/ Landscaped/ Ornamental.** Ruderal areas (disturbed, non-native herbaceous communities) and ornamental and landscape plantings occur near the developed areas within the proposed project alignment (Appendix B). Eucalyptus (*Eucalyptus* spp.) trees are a particularly common and invasive non-native species.

**Developed.** Developed areas include buildings and paved surfaces, such as Highway 1, parking lots, driveways, and roads (Appendix B). These areas are mostly bare of native vegetation.

**Coastal Scrub.** Coastal scrub is a low-statured community dominated by the mat-forming evergreen shrub coyote brush (*Baccharis pilularis* subsp. *pilularis*). This community intergrades within non-native annual grassland and mixed evergreen forest (oak woodland) along the project alignment (Appendix B). Shrub densities vary with grazing regime, aspect, and soil characteristics, becoming very sparse in ecotonal areas. Coastal scrubs, like the grasslands they intergrade with, are xeric

[1] Note the acreages of these linear features are included in the respective Habitat/Land Cover Type in which they occur.

communities commonly found on fine-textured, sandy-loam soils. Common shrub species include poison oak (*Toxicodendron diversilobum*), coffeeberry (*Frangula californica*), coyote brush, and California sagebrush (*Artemisia californica*). Subshrubs and herbaceous species include California blackberry (*Rubus ursinus*), bracken fern (*Pteridium aquilinum*), naked stemmed buckwheat (*Eriogonum nudum*), California figwort (*Scrophularia californica*), and sticky monkeyflower (*Mimulus aurantiacus*). These sites are subject to near constant winds with high salt content, and soils are typically rocky and poorly developed.

**Riparian Forest and Scrub.** Riparian communities are assemblages of deciduous, broad-leaved trees that grow along stream courses and within the floodplains of rivers within the alignment (Appendix B). Several subtypes of riparian forest and riparian scrub occur in the Santa Cruz area. Central coast arroyo willow riparian forest, a taller, more stable riparian community, occurs along the proposed project alignment near Baldwin Creek.

**Mixed Evergreen Forest.** Mixed evergreen forest is a broadleaf tree association of madrone (*Arbutus menziesii*), coast live oak (*Quercus agrifolia*), and frequently California buckeye (*Aesculus californica*) (Figures 2 and 15 Appendix B). Another plant species of note is blue elderberry (*Sambucus nigra* subsp. *caerulea*). Poison oak, coyote brush, coffeeberry, and California blackberry often form a thick shrub layer within this community. Breaks in the canopy of the tree and shrub layers may contain a nearly continuous layer of native and non-native grasses and forbs. Common native herbs include yerba buena (*Clinopodium douglasii*), wild rye (*Elymus glaucus*), common chickweed (*Stellaria media*), wild cucumber (*Marah fabacea*), hedge nettle (*Stachys ajugoides*), and California brome (*Bromus carinatus*).

**Seasonal Wetland.** Seasonal wetlands are basins that support hydrophytic vegetation and are flooded for at least part of the growing season and dry out during the summer and fall. Seasonal wetlands are present in several areas along the alignment (Figures 4-10, and 15, Appendix B). One seasonal wetland was observed in the project area outside of the project alignment at the Graniterock Wilder Sand Quarry (Figure 15, Appendix B). Seasonal wetland vegetation, dominated by introduced hydric species such as Italian ryegrass, rabbitsfoot grass (*Polypogon monspeliensis*), annual willow herb (*Epilobium brachycarpum*), and curly dock (*Rumex crispus*) also occurs in drainage ditches and man-made channels along the alignment. Other common plant species in this habitat include toad rush (*Juncus bufonius*), nut sedge (*Cyperus eragrostis*), and common monkeyflower (*Mimulus guttatus*).

**Seep Wetland.** Seep wetlands are wet areas in which surface saturation and water is perennial. Four seep wetlands occur within the alignment (Figures 10 and 15, Appendix B). Plant species observed in the seep wetlands include water cress (*Rorippa nasturtium-aquaticum*), western water hemlock (*Cicuta douglasii*), and cattails. Other common plant species in this habitat include bulrush (*Schoenoplectus* and *Bolboschoenus* spp.).

**Non-Native Grassland/ Coastal Terrace Prairie.** Grassland on the alignment is a sparsely-to-densely vegetated community dominated by introduced annual grasses intermixed with occasional native grasses and native and non-native annual and perennial forbs, wildflowers, and shrubs (Appendix B). This community is typically found on well-developed, finely-textured soils that are moist or waterlogged during the winter and very dry in the summer and fall. Most plants germinate with the onset of winter rains and have set seed and senesced by mid-summer, although many native herbs in the sunflower family (Asteraceae) bloom through the fall. Species in this community include

a variety of non-native annual grasses, including, Italian ryegrass (*Festuca perennis*), bromes (*Bromus hordeaceus, B. diandrus,* and *B. madritensis* subsp. *rubens*), rattail fescue (*Festuca myuros*), wild oat (*Avena barbata*), and rattlesnake grasses (*Briza maxima* and *B. minor*). Associated forbs include a mixture of native and non-native species, including Italian thistle (*Carduus pycnocephalus*), California poppy (*Eschscholzia californica*), clovers (*Trifolium* spp.), and filaree (*Erodium cicutarium*). A rush meadow community occurs in patches along the existing pipeline on the marine terraces east of Majors Creek.

Coastal terrace prairie within the proposed project alignment is a dense grassland community dominated by non-native grasses with occasional stands of purple needle grass (*Stipa pulchra*) on comparatively dry sites. Patches of coastal terrace prairie intergrade with non-native grassland within and along the alignment (Appendix B). The percent composition of non-native annual grasses such as rattlesnake grass, Italian ryegrass, wild oat and rattail fescue is typically significant within these areas.

**Creeks/ Drainages/ Ditches.** Several creeks, drainages, and ditches occur within the proposed project alignment. These habitat features drain water from the hills northeast of the project alignment, stormwater from developed areas, and/or irrigation water from adjacent agriculture. The main creeks within the alignment, such as Baldwin Creek, Little Baldwin Creek, Old Dairy Gulch, and Lombardi Gulch, support riparian forest and scrub vegetation. These creeks and other vegetated drainages and ditches also support hydrophytic vegetation. Some of the ditches along the alignment are concrete-lined and unvegetated.

**Freshwater Pond.** Freshwater ponds (marshes) occur in areas permanently flooded by freshwater that lack a significant current (Appendix B). These ponds typically support deep, peaty soils that are colonized by perennial, emergent aquatic plants, such as cattail (*Typha latifolia*), California bulrush (*Schoenoplectus californicus*), and various sedges (*Carex* spp.) and rushes (*Juncus* spp.). A freshwater pond occurs outside of the project alignment, upstream of Little Baldwin Creek, northeast of Station 82+00 (Figure 4, Appendix B). Although not observed within the project area, marshes along the immediate coast often receive some input of salt water and may support brackish species such as common pickleweed (*Sarcocornia* [*Salicornia*] *pacifica*) and gumplant (*Grindelia stricta* var. *angustifolia*).

**Irrigation Pond.** Irrigation ponds are artificial ponds that are constructed ponds for irrigation. These ponds are often colonized by perennial, emergent aquatic plants, such as cattail and California bulrush. Three irrigation ponds occur adjacent to the proposed project alignment (Figures 10, 12, and 13, Appendix B) and will not be affected by the project.

## ANIMALS

The habitat types present on the proposed project alignment provide suitable habitat for many common native animals that have adapted to rural settings. Animal species observed on or near the alignment during the field survey consist of those typically associated with rural areas as listed in Table B of Appendix C.

## REGULATED COMMUNITIES

The following summarizes the applicable regulations and vegetation communities/features along the proposed project alignment that would likely be considered waters of the United States and/or of the State of California. As such, project activities affecting these features would be subject to regulations or special rules under Sections 404 and 401 of the Clean Water Act (CWA), the California Porter-Cologne Act, California Fish and Game Code, and the California Coastal Act (CCA). Please note that the identified boundaries of these features are preliminary; a formal jurisdictional determination of the features has not been completed and while there is overlap between the regulations, the types of activities triggering the need for permits and the boundaries of the regulated areas vary.

### Applicable Regulations

The following summarizes agencies and the associated laws and regulations administered by the agencies that are applicable to the proposed project.

**U.S. Army Corps Engineers (Corps)**. The Corps is responsible under Section 404 of the CWA to regulate the discharge of fill material into waters of the United States. Waters of the United States and their lateral limits are defined in Part 328.3(a) of Title 33 of the Code of Federal Regulations (CFR) and include streams that are tributaries to navigable waters and adjacent wetlands. The lateral limits of jurisdiction for a non-tidal stream are measured at the line of the Ordinary High Water Mark (OHWM) or the limit of adjacent wetlands. Any permanent extension of the limits of an existing water of the United States, whether natural or human-made, results in a similar extension of Corps jurisdiction.

Waters of the United States fall into two broad categories: wetlands and other waters. Other waters include water bodies and water courses such as rivers, streams, lakes, springs, ponds, coastal waters, and estuaries. Wetlands include marshes, wet meadows, seep areas, floodplains, basins, and other areas experiencing extended seasonal soil saturation. Seasonally- or intermittently-inundated features, such as seasonal pools, ephemeral streams, and tidal marshes, are categorized as wetlands if they have hydric soils and are dominated by wetland plants. Seasonally-inundated water bodies or watercourses that do not exhibit wetland characteristics are classified as other waters of the United States.

Waters and wetlands that cannot trace a continuous hydrological connection to a navigable water of the United States are not considered tributaries to waters of the United States. These are termed "isolated wetlands." Isolated wetlands are jurisdictional when their destruction or degradation can affect interstate or foreign commerce. The Corps may or may not take jurisdiction over isolated wetlands depending on the circumstances.

In general, a Corps permit must be obtained before an individual project can place fill or grade in wetlands or other waters of the United States and mitigation for such actions will be required based on the conditions of the Corps permit. The Corps will be required to consult with the U.S. Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act if the action being permitted under the CWA could result in a take of federally-listed species (see below).

**Regional Water Quality Control Board (RWQCB**). Pursuant to Section 401 of the CWA, projects that require a Corps permit for discharge of dredge or fill material must obtain a water quality certification or waiver that confirms the project complies with State water quality standards before the Corps permit is valid. State water quality is regulated and administered by the State Water Resources Control Board and its nine Regional Water Quality Control Boards (RWQCB). The NCS lies within the jurisdiction of the Central Coast RWQCB. In order for the applicable RWQCB to issue a 401 water quality certification, a project must demonstrate compliance with CEQA (e.g., negative declaration, EIR, notice of exemption).

In addition to its authority under the Section 401 of CWA, the RWQCB also maintains independent regulatory authority over the placement of waste, including fill, into waters of the State under the Porter-Cologne Act. The RWQCB currently employs the Corps procedures and definitions for defining the physical boundaries of wetlands and waters; however, there are differences in the State and federal ability to regulate these features. In order to be subject to federal regulation as waters of the United States, wetlands and waters must demonstrate that water is, or is adjacent to, a navigable waterway or a tributary to a navigable waterway, or have an interstate or foreign commerce connection. Under the Porter-Cologne Act, the State, in addition to waters of the United States, has regulatory authority over what are termed "isolated" waters and wetlands.

**United States Fish and Wildlife Service (USFWS).** The USFWS has jurisdiction over terrestrial and non-anadromous aquatic plant and animals species listed as threatened or endangered under the federal Endangered Species Act (FESA). This Act protects listed animal species from "take," which is broadly defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in such conduct." The term "harm" is further defined by USFWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. The term "harass" is further defined by USFWS as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. An activity can be defined as a "take" even if it is unintentional or accidental. Plants are legally protected under the FESA if take occurs on federal land or from federal actions, such as issuing a Section 404 permit. Activities that could result in take of a federally-listed species require an incidental take authorization resulting from an ESA Section 7 consultation or an ESA Section 10(a)(1)(B) permit.

The USFWS is also responsible for enforcing the Migratory Bird Treaty Act (MBTA), which prohibits the taking, hunting, killing, selling, purchasing, etc. of migratory birds, parts of migratory birds, or their eggs and nests. In addition, it contains a clause that prohibits baiting or poisoning these birds. As used in this Act, the term "take" is defined as "to pursue, hunt, shoot, capture, collect, kill, or attempt to pursue, hunt, shoot, capture, collect, or kill, unless the context otherwise requires." Most of the native bird species that occur in the region of the study corridor are covered by the MBTA.

**National Marine Fisheries Service (NMFS)**. The NMFS is responsible for administering FESA as described above for the USFWS and has jurisdiction over federally-listed anadromous animal species such as steelhead.

**California Department of Fish and Wildlife (CDFW)**. CDFW manages and protects the state's diverse fish, wildlife, plant resources, and native habitats under a variety of laws and regulations.

Section 2080 of the Fish and Game Code which contains the implementing regulations for the California Endangered Species Act (CESA) prohibits the "take" of any species that the California State Fish and Game Commission determines to be an endangered species or a threatened species. "Take" is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate mitigation planning to offset project-caused losses of listed species populations and their essential habitats. As with FESA, CESA provides broad protection for state-listed species from take. This protection extends to "development projects" and well as an individual's actions.

Under California Fish and Game Code Section 1600, CDFW also administers the issuance of Lake and Streambed Alteration Agreements (LSAA). LSAAs are required for any project activities that would substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated as such by CDFW. Similar to the water quality regulations administered by the RWQCB, a project must demonstrate compliance with CEQA before a permit may be issued.

Section 3503 of the Fish and Game Code makes it unlawful to take, possess, or needlessly destroy the nests or eggs of any bird. Section 3503.5 makes it unlawful to take or possess birds of prey (e.g., hawks, eagles, vultures, and owls), or destroy their nests or eggs.

**Santa Cruz County**. CCA compliance in the project area is under the Santa Cruz County General Plan and Local Coastal Plan Land Use Program (LCP) (Santa Cruz County 1994). Section 13.20.063 of the Santa Cruz County Code (2013) provides exemptions to the Coastal Zone permit requirements for maintenance and repair activities for electric utilities, telephone, cable TV, water, sewer, flood control, and public facilities. However, Section 13.20.063 (B) limits this exemption if the activity will include any of the following:

(1) Construction of any new roads to the site of work; or

(2) Grading exceeding 100 cubic yards; or

(3) Clearing in a sensitive habitat; or

(4) Any other clearing in excess of one acre; or

(5) Cutting of any significant tree as defined in Chapter 16.34 SCCC. [Ord. 4836 §§ 117, 118, 2006;* Ord. 3435 § 1, 1983].

* Code reviser's note: Ord. 4836 had two sections numbered "117" and "118."

The proposed project would not qualify for this exemption under Criteria 2, 3 and 4. Therefore, the project will need to obtain Coastal Zone approval from Santa Cruz County as part of a development permit. Per Section 13.20.110, the following findings must be made to obtain Coastal Zone approval:

(A) That the project is a use allowed in one of the basic zone districts, other than the special use (SU) district, listed in SCCC 13.10.170(D) as consistent with the General Plan and Local Coastal Program LUP designation.

(B) That the project does not conflict with any existing easement or development restrictions such as public access, utility, or open space easements.

(C) That the project is consistent with the design criteria and special use standards and conditions of this chapter pursuant to SCCC 13.20.130 et seq.

(D) That the project conforms with the public access, recreation, and visitor-serving policies, standards and maps of the General Plan and Local Coastal Program Land Use Plan, specifically Chapter 2: Section 2.5 and Chapter 7. [Ord. 4346 §§ 54, 55, 1994; Ord. 3435 § 1, 1983].

The proposed project will need to comply with the design criteria for Coastal Zone developments outlined in Section 13.20.130 of the Santa Cruz County Code, which include by reference all design criteria for the applicable zoning district. Areas along the project alignment are designated in the Santa Cruz County Zoning ordinance as PR (Parks, Recreation and Open Space), CA (Commercial Agriculture), and Special Use (SU). Additionally, all development in the Coastal Zone that is proposed by State or local public agencies is also subject to the policies, requirements, standards, and conditions of the General Plan and LCP and to all ordinances to which such development would be subject if it were privately originated, per Section 13.20.150 of the Santa Cruz County Code.

Therefore, in addition to the General Plan and LCP, the proposed project will need to comply with the Environmental and Resource Protection measures outlined in Title 16 of the Santa Cruz County Code, including Chapter 16.30 Riparian Corridor and Wetland Protection, Chapter 16.32 Sensitive Habitat Protection, and Chapter 16.34 Significant Tree Protection, which are intended to preserve and protect riparian corridors, biotic resources, significant trees and forest communities. These ordinances are further described and evaluated in the Project Impacts and Mitigation Measures section, below.

### Regulated Communities

As described above, wetlands and riparian habitats are regulated by various agencies and regulations and jurisdictional boundaries and responsibilities can vary. Wetlands in California's Coastal Zone are defined under CCA Section 30121 as:

> "lands within the Coastal Zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens."

CCC Administrative Regulations (Section 13577 (b)) provide a slightly broader and more explicit definition:

> "Wetlands are lands where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent or drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salt or other substance in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deepwater habitats."

Under the CCC definition, the boundary line between a wetland and an adjacent upland is determined by the extent of one or more of the key wetland characteristics of hydrology, hydric soils, and hydrophytic vegetation. This definition is similar to the USFWS definition and classification system and incorporates all five of the broad wetland categories defined by Cowardin et al. (1979) and discussed below.

The CCC has developed a wetland identification and delineation approach that relies on a single parameter indicative of wetland conditions to determine the presence of a wetland. A positive wetland determination is dependent on either a predominance of hydrophytic vegetation or the presence of hydric soils. CCC staff use methodology developed by the Corps.

The USFWS classification system (Cowardin et al.1979) defines wetlands as:

> "Lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For the purposes of this classification, wetlands must have one or more of the following three attributes: 1) at least periodically, the land supports predominantly hydrophytes; 2) the substrate is predominantly undrained hydric soil; and 3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year."

Under the USFWS definition, the term wetland includes a variety of areas which fall into one of the following five basic categories (Cowardin et al. 1979):

1. Areas with hydrophytes and hydric soils, such as those commonly known as marshes, swamps, and bogs;
2. Areas without hydrophytes but with hydric soils - for example flats where drastic fluctuation in water level, wave action, turbidity, or high concentrations of salts may prevent the growth of hydrophytes;
3. Areas with hydrophytes but nonhydric soils, such as margins of impoundments where hydrophytes have become established, but hydric soils have not yet developed;
4. Areas without soils but with hydrophytes such as seaweed covered portion of rocky shores; and
5. Wetlands without soil and hydrophytes, such as gravel beaches or rocky shores without vegetation.

Section 404 of the CWA, which is implemented by the Corps has a narrower definition for wetlands:

> "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

Under this definition, an area must contain "under normal circumstances" the presence of hydrophytic vegetation, hydric soils, and wetland hydrology to be considered a wetland by the Corps for regulatory purposes. The necessary presence of all three characteristics is commonly referred to as the three-parameter test. The Corps definition would consider areas falling under the above described USFWS broad categories of 1 (all three characteristics) and 3 (considering normal circumstances) to be wetlands. The key distinguishing parameter in these two categories from the other three categories

is the need for hydrophytic plants to be present and have roots into the substrate (e.g., category 4 hydrophytes such as seaweed do not technically have roots; seaweeds are anchored to the substrate by features called holdfasts).

The Corps or Section 404 wetland definition is often criticized as providing too narrow a definition of wetlands and excluding many communities which are functionally considered to be wetlands under the USFWS or CCC definition. While three of the broad wetland categories above (2, 4, and 5) are not technically considered as wetlands under the Corps definition, these three community types are typically subject to Section 404 jurisdiction as "other waters of the United States" as defined under 33 CFR Section 328.3 and are identified in Section 404 jurisdictional determinations from the Corps. The Corps wetland delineation manual (Environmental Laboratory 1987) acknowledges this difference and notes:

> "The FWS system includes all categories of special aquatic sites identified in the EPA Section 404b(1) guidelines. All other special aquatic sites are clearly within the purview of Section 404; thus, special methods for their delineation are unnecessary."

The definition of waters of the United States further expands the geographic reach of Section 404 to include other waters which may not meet be specifically identified as special aquatic sites in the Section 404 regulations. These other waters community types and corresponding USFWS category types include:

- All waters subject to the ebb and flow of the tide (categories 2, 4, and 5)
- Lakes, rivers, ponds, perennial and intermittent streams (categories 2 and 5)
- Mudflats, sandflats, playas, and salt pans (categories 2, 4, and 5)

The one primary difference between the Corps regulatory authority under the CWA and the USFWS and the CCA definitions is the treatment of riparian habitats. While riparian areas can be a wetland under the Corps definition, most riparian habitats are transitional communities between aquatic habitats and adjacent uplands. Under the CWA, transitional communities are not regulated as waters of the United States.

For the purposes of this assessment and given the proposed project's location within the Coastal Zone, LSA employed the broadest definition for defining wetland, streams, and riparian habitats. LSA further identified features that could be considered defined as "tributaries" under the CWA in light of the Supreme Court decision on Rapanos v. United States and subsequent Corps and Environmental Protection Agency guidance for implementing this decision. The following provides a discussion of the regulated communities in the study corridor.

**Creek Channels**. Five named and three unnamed creek channels flow through or beneath the proposed project alignment. Named streams include: Majors Creek, Little Baldwin Creek, Baldwin Creek, Lombardi Gulch, and Old Dairy Gulch (Appendix B). All of the creeks would be considered jurisdictional tributaries by the Corps, RWQCB, CDFW, and County's LCP, and therefore, they would be considered as waters of the United States, State, and CCA. Therefore, impacts to these creek channels would likely require a Corps nationwide permit, RWQCB 401 water quality certification, CDFW LSAA, and Coastal Development Permit approved by the County.

**Drainages and Ditches.** Several drainages and ditches occur within the project alignment (Appendix B). Some of these drainages and ditches have direct hydrological connectivity to the creek channels or are constructed in old stream channel areas. Activities within these waterways could affect the chemical, physical, and biological integrity of other traditionally covered waters and, as such, are likely to be considered tributaries subject to Corps, RWQCB, and CDFW jurisdiction and possibly the County's LCP. These potential tributaries include vegetated natural drainages, constructed roadside ditches, and some constructed agricultural ditches. Impacts to these drainages and ditches would likely require a Corps nationwide permit, RWQCB CWA Section 401 water quality certification, CDFW LSAA, and a Coastal Development Permit from the County. At this time, concrete-lined "v" ditches which discharge into tributaries were mapped as non-jurisdictional features. These features were considered to not be waters of the United States or State because they exhibit one or more of the following characteristics: constructed in uplands for drainage and erosion control purposes along the road or hillside; not part of a natural realigned stream channel; lack an OHWM; are not directly tributary to waters of the United States; and/or do not support any wetland vegetation. Impacts to these ditches are not expected to be regulated by the Corps, RWQCB, CDFW, and County.

**Irrigation Ponds.** Three irrigation ponds occur adjacent to the proposed project alignment (Figures 10, 12, and 13, Appendix B) and will not be affected by the project. These three ponds are not likely to be regulated water bodies under the Corps, RWQCB, or the Santa Cruz County LCP. All three of these irrigation ponds appear to have been constructed on dry land solely for irrigation and as such should be exempt from Corps or RWQCB jurisdiction. These irrigation ponds are also likely exempt from the Santa Cruz County LCP as the ponds appear to have less than 25 acre-feet of capacity (LCP Chapter 16.20).

**Freshwater Pond.** A freshwater pond occurs outside of the project area and would not be affected by the project. The pond is located upstream of Little Baldwin Creek, northeast of Station 82+00 (Figure 4, Appendix B). This pond is likely subject to Corps or RWQCB jurisdiction since it was created along the Little Baldwin Creek channel, which is an existing jurisdictional creek.

**Seasonal Wetland.** Four potentially jurisdictional seasonal wetlands occur along the proposed project alignment (Figures 4, 9, 10, and 15, Appendix B) and one potential seasonal wetland was observed outside of the proposed project alignment within the study corridor at the Graniterock Wilder Sand Quarry (Figure 15, Appendix B). Plant species observed in these seasonal wetlands include prostrate knotweed (*Polygonum aviculare* subsp. *depressum*), buckhorn plantain (*Plantago coronopus*), Hyssopp loosetrife (*Lythrum hyssopifolia*), toad rush, and rabbitsfoot grass. Impacts to these seasonal wetlands would likely require a permit from the Corps and RWQCB, and possibly a LSAA from the CDFW. Construction of the proposed pipeline within the wetlands and their buffers would also be regulated under the County's LCP.

Several other seasonal wetlands that are likely non-jurisdictional occur in ditches along the railroad tracks and downslope from irrigated agricultural fields between Stations 3+00 and 10+00 and Stations 34+00 and 43+00 of the railroad alignment (Figures 4-8, Appendix B). Plant species observed in these wetlands include northern willow herb (*Epilobium cilliatum*), water cress, cattails, and rabbitsfoot grass. These wetlands are likely non-jurisdictional since their observed hydrology appears to be dependent on irrigation runoff and therefore, impacts to these wetlands would likely not require a permit from the Corps, RWQCB, or CDFW.

**Seep Wetland.** Four seep wetlands occur along the alignment between Stations 149+50 and 151+50 and near Station 213+50 (Figures 10 and 15, Appendix B). Plant species observed in these seep wetlands include western water hemlock, water cress, cattail, and tall flatsedge. Impacts to the seep wetlands would likely require a permit from the Corps and RWQCB, and possibly a LSAA from the CDFW. Construction of the proposed pipeline within the seep wetlands and their buffer would also be regulated under the County's LCP.

**Riparian Forest and Scrub.** Riparian forest and scrub habitat are present along several of the project alignment's creeks and drainages. The majority of the riparian habitat is present along Little Baldwin Creek, Baldwin Creek, two of the unnamed creeks, Lombardi Gulch, and Old Dairy Gulch (Figures 2, 4, 6, 9, 10, and 15, Appendix B). Several other isolated stands of willow/riparian habitat are also located along the project alignment (Stations 60+50, 30+00 to 37+00 on the railroad alignment; 148+50; 151+00; 153+00 to 158+00; 212+00 to 214+00). Riparian forest and scrub is considered a sensitive habitat community by CDFW and impacts to this habitat may require a LSAA from CDFW. Additionally, the County LCP and Chapter 16.30 Riparian Corridor and Wetland Protection ordinance are applicable to these riparian areas.

## SPECIAL-STATUS SPECIES

### Special-Status Plant Species

The available background information identifies 56 special-status plant species (50 vascular plants, three mosses, two trees, and one lichen) that have potential to occur in the region based on records from the CNDDB (CDFW 2012) and the CNPS (2013) On-line Inventory of Rare and Endangered Plants and species lists in the PEIR (ENTRIX 2005) and Draft O&M HCP (City of Santa Cruz 2012a). Although marginal habitat for many of these species occurs within the proposed project alignment, prior and ongoing disturbances (including grading for construction and maintenance of Highway 1, agriculture, and the introduction of non-native invasive plants) may preclude their presence. Table C of Appendix C summarizes the special-status plants that have the potential to occur on the proposed project alignment. More detailed evaluation is provided below for the following special-status plant species that are listed as Covered Species in the O&M HCP (City of Santa Cruz 2012a) and which have the greatest potential to occur in the proposed project alignment. Surveys for these and other special-status plant species were conducted during the applicable blooming periods on March 19 and August 6, 2013. No special-status plant species were observed during the surveys.

**Robust Spineflower.** The robust spineflower (*Chorizanthe robusta* var. *robusta*; Federally Endangered/CRPR 1B) occurs in sandy terraces and bluffs or in loose sand in woodland, coastal dune, and coastal scrub habitats (CDFW 2012). The closest CNDDB occurrence (Occurrence #24) is approximately 2.9 miles from the proposed project alignment (CDFW 2012). The coastal scrub, mixed evergreen forest, and non-native grassland/ coastal terrace prairie habitats within the alignment provide suitable habitat for this species.

**Santa Cruz Tarplant.** The Santa Cruz tarplant (*Holocarpha macradenia*; Federally Threatened/State Endangered/CRPR 1B) occurs in coastal prairie and valley and foothill grassland in areas with light, sandy soil or sandy clay and is often associated with non-native annual grasslands (CDFW 2012). The closest CNDDB occurrence (Occurrence #21) is a population recorded east of Paradise Park and west of Graham Hill Road, north of the City of Santa Cruz. This species is also known to occur in the

Arana Gulch area of the City of Santa Cruz (CNDDB Occurrence #6), which is designated as critical habitat for the species (CDFW 2012). The non-native grassland and non-native grassland/ coastal terrace prairie habitats within the alignment provide suitable habitat for this species.

**San Francisco Popcornflower.** The San Francisco popcornflower (*Plagiobothrys diffusus*; State Endangered/CRPR 1B) occurs in grassy slopes with a marine influence in grassland and coastal prairie habitat. The closest CNDDB occurrence (Occurrence #9) is approximately 1 mile from the alignment in the Moore Creek Greenbelt along a dirt road on top of the terrace between Wilder Creek and the West Branch of Moore Creek (CDFW 2012). The non-native grassland and non-native grassland/ coastal terrace prairie habitats within the proposed project alignment provide suitable habitat for this species.

## Special-Status Animal Species

Based on the CNDDB search (and species lists in the PEIR and Draft O&M HCP), 46 special-status animal species were evaluated due to their potential to occur on or in the general vicinity of the alignment (Table C of Appendix C). Species previously determined to not be affected by construction of the pipeline in the PEIR and within technical studies prepared for the Draft O&M HCP based on lack of suitable habitat, known records, and/or species survey results include Mount Hermon June beetle (*Polyphylla barbata*; lack of suitable habitat); the Pacific lamprey (*Lampetra tridentate*; no records, not encountered during species surveys), and marbled murrelet (*Braychyramphus marmoratus*; lack of suitable breeding habitat).

More detailed evaluation is provided below for the following special-status species and/or species groups which are known or may occur in the project area and could be affected by project construction. However, no special-status animal species were observed during the surveys.

**Ohlone Tiger Beetle.** The Ohlone tiger beetle (*Cicindela ohlone*; Federally Endangered) occurs in poorly drained clay or sandy clay soil over bedrock of Santa Cruz mudstone within remnant native grasslands with California oatgrass (*Danthonia californica*) and purple needlegrass (*Stipa pulchra*) in Santa Cruz County (CDFW 2012). Within these grasslands, the beetle has been observed primarily on level ground, where the vegetation is sparse or bare ground is prevalent. All known beetle locations are mapped by the Soil Conservation Service (now Natural Resources Conservation Service) as Watsonville loams (City of Santa Cruz 2012a).

As part of the preparation of the Draft O&M HCP (City of Santa Cruz 2012a), presence-absence surveys for the Ohlone tiger beetle along the entire NCS Rehabilitation Project route were conducted during the spring of 2011 by Dr. Richard Arnold. The beetle was documented on the Moore Creek Open Space Preserve and Younger Ranch properties, approximately 0.8 mile east of the eastern end of the proposed project alignment. Although the non-native grassland and non-native grassland/ coastal terrace prairie habitats on Watsonville loams are present within the proposed project alignment, no Ohlone tiger beetles or grassland areas dominated by native grasses were found in this location during Dr. Arnold's 2011 survey (City of Santa Cruz 2012a). However, although not likely, over time conditions along the proposed project alignment could change and tiger beetles could re-occupy areas along the alignment.

**Monarch Butterfly.** Monarch butterfly **(***Danaus plexippus*) is a locally sensitive species at its winter roosting sites and could roost in wind-protected tree groves (blue gum eucalyptus [*Eucalyptus globulus*], Monterey pine [*Pinus radiata*], Monterey cypress [*Hesperocyparis macrocarpa*]) adjacent to the proposed project alignment. No high quality roost sites (i.e., wind-protected groves) were observed during LSA's field reconnaissance surveys conducted in November and December 2012 and there are no known roost sites in close proximity to the alignment. Furthermore, no suitable roosting habitat was observed within the proposed project alignment during a focused Monarch butterfly survey conducted by Dr. Arnold on March 5, 2014 (ECS 2014). Dr. Arnold determined that the lack of suitable roost sites is mainly due to the limited tree cover, since most of the trees present are solitary or few in number. A large stand of eucalyptus trees is located near the entrance to Graniterock Wilder Sand Quarry (Station 216+00, Figure 15, Appendix B), but these trees are arranged more as a wind row or for visual screening rather than a grove with the classic donut hole or horseshoe configuration that typically provide suitable roosting sites (ECS 2014). Although tree cover is present in the vicinity, no suitable roost sites were observed at the canyon near Station 47+00 (Figure 1, Appendix B). The trees in this area together with the canyon walls could provide suitable wind protection for Monarchs, but if a roost site is present, it would be located well outside of the project alignment and would not be impacted by the proposed project (ECS 2014).

**Tidewater Goby.** Tidewater goby (*Eucyclogobius newberryi*; Federally Endangered) could occur in the lower creek lagoons south of the proposed project alignment. This species is known to occur from the mouth to 0.25 mile upstream of Baldwin Creek (CNDDB Occurrence #29; CDFW 2012). Critical habitat for this fish species occurs in the lagoon downstream of Baldwin Creek. The tidewater goby, however, is unlikely to occur within the upstream segment of Baldwin Creek within the project alignment. Nor would this species occur in upstream portions of the other creeks within the alignment.

**Steelhead.** Steelhead - Central California Coast Distinct Population Segment (DPS) (*Oncorhynchus mykiss irideus*; Federally Threatened) are known to occur in Majors Creek and Baldwin Creek (CDFW 2012; Appendix B), but natural barriers to movement limit upstream migration to the lower sections of these creeks. In Majors Creek streams (CNDDB Occurrence #16), the spawning habitat is limited due to the persistently high sediment load, but rearing habitat, such as pools and cover, is considered adequate (CDFW 2012). Upstream migration of steelhead use in Majors Creek is limited by a complete barrier to migration approximately 0.71 miles upstream from the mouth of the creek (ENTRIX 1997, 2002, 2004; KES 2001). In Baldwin Creek streams (CNDDB Occurrence #16), spawning and rearing habitat was abundant in the 1960s due to perennial flows, pools, and cover. Juvenile trout were observed in 1981 and runs were observed in the 1930s, 1940s, and in 1960 (CDFW 2012). Steelhead likely occur from the mouth of Baldwin Creek to a barrier 1 mile upstream of Highway 1; a potential barrier to migration may also exist at agricultural pond near the creek mouth (KES 2001). The project alignment occurs within the accessible portions of these two streams.

The remaining streams along the alignment are not considered suitable steelhead streams due to a lack of access or their intermittent flow pattern (ENTRIX 2004c). Majors Creek and Baldwin Creek are designated as critical habitat for the Central California Coast DPS.

**Coho Salmon.** The Central California Coast Evolutionary Significant Unit (ESU) of coho salmon (*Oncorhynchus kisutch*; Federally Endangered) is known to occur in the project vicinity. The closest CNDDB records are within Vicente Creek approximately 3.4 miles north of the proposed project

alignment near Davenport (Occurrence #11) and a non-native hatchery population known from the San Lorenzo River and tributaries (Occurrence #4), approximately 3.6 miles northeast of the proposed project alignment. Critical habitat for coho salmon is located within all streams accessible to coho within the project area that support the constituent elements, such as spawning sites, food resources, water quality and quantity, and riparian vegetation (NOAA 1999). No recent records of coho salmon exist in any of the streams within the alignment. The City of Santa Cruz and NMFS have conducted surveys in the North Coast region for a number of years and the only observations of coho were from approximately 1 mile northwest of the project alignment in Laguna Creek, in which coho have not been observed in almost ten years (Chris Berry, pers. comm.). Although the probability of occurring within the alignment may be low, it may be appropriate to consider coho salmon as potentially co-occurring with steelhead in Majors and Baldwin creeks due to the potential presence of suitable habitat and the critical habitat designation for accessible streams within the project area. However, neither Majors nor Baldwin creeks are identified as streams with Focus Populations in the Recovery Plan for coho (NMFS 2012).

**California Red-legged Frog.** The California red-legged frog (*Rana draytonii*; Federally Threatened/California Species of Special Concern [CSC]) is known to occur in the creeks, drainages, and ponds throughout much of northern coastal Santa Cruz County. Within the proposed project alignment, red-legged frogs were observed during prior surveys in Majors Creek (Figure 3, Appendix B), Little Baldwin Creek (Chris Berry, pers. comm.), Lombardi Creek (Chris Berry, pers. comm.), and Baldwin Creek (Figure 12, Appendix B) (ENTRIX 2005), at the freshwater pond north of Highway 1, at an irrigation pond south of Highway 1 (Hyland 2005a and 2005b), and at roadside ditches and the railroad grade along Highway 1 (Chris Berry, pers. comm.). This species was also observed in 2005 at another irrigation pond immediately south of the project alignment (Hyland 2005a and 2005b). The closest CNDDB occurrences are in the Wilder Sand Quarry at the intersection of Sandy Flat Gulch and Dairy Gulch (Occurrence #622) and in an agricultural run-off ditch on the south side of Highway 1, 0.3 mile east of Old Dairy Gulch (Occurrence #324). There are also 14 additional CNDDB occurrences within approximately 2 miles of the proposed project alignment (CDFW 2012). The project alignment is located within designated California red-legged frog critical habitat unit SCZ-1 (USFWS 2010). All aquatic habitats and associated riparian and uplands, including agricultural fields, in the project meet the primary constituent elements for critical habitat. California red-legged frogs could be expected to occur sporadically along the entire alignment (except developed areas), although they are most likely to be regularly present in riparian and stream channel areas.

**Western Pond Turtle.** Habitat for the western pond turtle (*Actinemys marmorata*; CSC) is primarily associated with the creeks, drainage channels, and ponds on and adjacent to the proposed project alignment. Pond turtles also use uplands for breeding/construction of nests and for dispersal been aquatic habitats. Pond turtles have been documented south of the alignment in Wilder Creek and adjacent upland habitat within a mile of the creek (City of Santa Cruz 2012a). The pools and backwaters along the anadromous reaches of Majors Creek were rated moderate to favorable aquatic habitat for pond turtles because they support open canopy, complex cover, abundant forage, and appropriate depth (ENTRIX 2005).

**Birds.** The white-tailed kite (*Elanus leucurus*; California Fully Protected), golden eagle (*Aquila chrysaetos*; California Fully Protected), northern harrier (*Circus cyaneus*; CSC), American peregrine falcon (*Falco peregrinus anatum*; California Fully Protected), burrowing owl (*Athene cunicularia*;

CSC), loggerhead shrike (*Lanius ludovicianus*; CSC), Vaux's swift (*Chaetura vauxi*; CSC), black swift (*Cypseloides niger*; CSC), olive-sided flycatcher (*Contopus cooperi*; CSC), San Francisco common yellowthroat (*Geothlypis trichas sinuosa*; CSC), grasshopper sparrow (*Ammodramus savannarum*; CSC), and tricolored blackbird (*Agelaius tricolor*; CSC) could nest on or adjacent to the alignment. The large shrubs and trees on and adjacent to the alignment provide potential nesting habitat for white-tailed kite, loggerhead shrike, and olive-sided flycatcher. The northern harrier and grasshopper sparrow could nest in the grasslands on or adjacent to the alignment. The burrowing owl could breed, winter and/or forage in the grassland and agricultural habitats. The golden eagle could nest in the groves of tall tree groves adjacent to the proposed project alignment. Vaux's swift could nest in tree cavities if present on or adjacent to the alignment. The American peregrine falcon and black swift could nest in the cliff faces near the proposed project alignment. The San Francisco common yellowthroat could nest in the riparian vegetation near the creek channels and freshwater pond. Tricolored blackbird could nest near the freshwater pond on the proposed project alignment or in the ruderal vegetation on or adjacent to the alignment.

Nests of all native birds, regardless of their regulatory status, are protected by the federal MBTA and provisions of the California Fish and Game Code. Suitable nesting habitat is present on and adjacent to the proposed project alignment for both special-status and common bird species, and construction activities could result in the destruction and/or disturbance of active nests if conducted during the breeding season without implementation of applicable avoidance measures and monitoring (February through August).

**Bats.** The Townsend's western big-eared bat (*Corynorhinus townsendii townsendii*; CSC), pallid bat (*Antrozous pallidus*; CSC), and western mastiff bat (*Eumops perotis californicus*; CSC) may periodically fly or forage over the proposed project alignment, but no roosting habitat for these bat species occurs on or in close proximity to the alignment.

**American Badger.** Although unlikely due to the alignment's location near Highway 1 and agricultural development, suitable foraging habitat for the American badger (*Taxidea taxus*; CSC) is present within the proposed project alignment, and therefore, this species could occur along the alignment.

# PROJECT IMPACTS AND MITIGATION MEASURES

The SCWD designed the project in a manner that will avoid and/or reduce significant impacts to the extent possible. The discussion follows the standard CEQA Initial Study Checklist Questions for Biological Resources. Recommended mitigation measures identified to ensure that impacts are reduced to less than significant were adapted where applicable from the Draft O&M HCP (City of Santa Cruz 2012a), *Draft City of Santa Cruz Habitat Conservation Plan Conservation Strategy for Steelhead and Coho Salmon* (City of Santa Cruz 2011), and the PEIR (ENTRIX 2005). For the purposes of this assessment, the applicable mitigation measures have been incorporated or revised from these documents to address the proposed project.

The new alignment will impact up to approximately 17.4 acres of habitat along an 18,500 foot-long area of potential impact. These impacts include the areas with full-width trenching, reduced-width trenching, trenchless-crossing pits, and abandoned/removed pipeline and are listed below by habitat:

| Habitat/Land Cover Type | Acres |
|---|---|
| Agriculture | 6.76 |
| Ruderal /Landscaped/ Ornamental | 6.40 |
| Developed | 2.13 |
| Coastal Scrub | 0.91 |
| Riparian Forest and Scrub | 0.75 |
| Mixed Evergreen Forest | 0.35 |
| Seasonal Wetland | 0.14 |
| Seep Wetland | 0.10 |
| Non-Native Grassland/ Coastal Terrace Prairie | 0.03 |
| **Total** | **17.39** |

In addition to these habitat communities, the pipeline alignment contains 5,328 linear feet of creeks, drainages, and ditches within the area of potential impact[1]. The majority of these features are roadside and agricultural drainage ditches (see Figures 1-15, Appendix B).

The impact area would be up to 40 feet wide to accommodate installation of the proposed pipeline. This area generally consists of an approximately 5-foot-wide trench, a 10-foot-wide zone for excavated material storage adjacent to the trench, and a 15-foot-wide travel way for construction access. In several areas the width of the impact area would be reduced to avoid sensitive resource(s), including riparian vegetation, wetlands, drainage areas, and other sensitive areas. In these locations, the construction footprint would be limited to 20 feet wide in order to minimize impacts to these resources. The reduced width area would be accomplished by using a combination of techniques applicable to the specific location such as having the travel way straddle the trench and/or transporting excavated material away from sensitive areas. The locations of the reduced width impact

[1] Note the acreages of these linear features are included in the respective Habitat/Land Cover Type in which they occur.

areas are provided in Table A in the Project Description and are shown on the project figures in Appendix B.

Following completion of the proposed pipeline, aboveground sections of the existing pipeline would be removed and capped, while below ground sections of the existing pipeline would be abandoned in place. The acreage of the abandoned and removed pipeline totals approximately 0.33 acre. Approximately 231 linear feet of the streams, including ditches and Lombardi Gulch, are located in areas where the pipeline will be abandoned and removed. At the Lombardi Gulch, Little Baldwin Creek, Baldwin Creek, and the eastern tributary to Baldwin Creek locations, the existing pipeline is located above ground to cross over a natural creek channel or highway drainage feature. At the eastern tributary of Baldwin Creek, approximately 360 feet of HDPE piping was installed above ground as a temporary repair. The length and location of the five segments of existing, above ground pipeline that would be abandoned and removed are shown in Table B in the Project Description.

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

The following sections discuss potential impacts of the proposed project and required mitigation measures related to special-status plant and animal species in the project area.

**Plants.** No special-status plants (Table C, Appendix C) were observed within the project alignment during focused plant surveys conducted in 2013. These focused surveys were conducted during the applicable blooming periods of the target special-status plants (Table C, Appendix C) on March 19 and August 6, 2013 to verify presence or absence of special-status species. These surveys were conducted in the suitable undeveloped habitat within the alignment according to the CDFW *Protocols for Surveying and Evaluating Impacts to Special Status Plant Populations and Natural Communities* (CDFG 2009).

The negative findings of the plant surveys are generally considered valid for two years because after the two-year period, special-status species could colonize the alignment. As long as construction of the project occurs within this two-year period, the impact would be less than significant and no mitigation measures would be necessary. If construction occurs beyond two years of the surveys (August 2015 or later) or new populations of rare plants are located in the project alignment, additional surveys should be conducted. If additional focused surveys are conducted and special-status plant species are found within the alignment, potentially significant impacts could occur and the following mitigation measures, General Minimization and BMPs as modified from the Draft O&M HCP (City of Santa Cruz 2012a), would be implemented to reduce impacts to any subsequently identified special-status plants to less than significant:

RP-1 Preconstruction surveys for special-status plants shall be conducted if construction is initiated after August 2015. The surveys shall follow standard survey protocols and shall be timed to occur when target species are present and identifiable. If special-status plant species are identified, the following Mitigation Measures RP-2 through RP-5 shall be implemented.

RP-2 Prior to the initiation of construction activities, population boundaries for special-status plant species shall be clearly delineated with visible flagging or fencing, which shall remain in

place for the duration of construction activities. Flagged areas shall be avoided during construction activities in that area. Warning signs shall be posted on the temporary fencing to alert excavators and other workers not to proceed beyond the fence. All protective fencing shall remain in place until all repairs have been completed. Signs shall include the following language: "NOTICE: SENSITIVE HABITAT AREA. DO NOT ENTER." If the area cannot be avoided and it is determined that the activity will adversely affect the special-status plant species, the activity shall be conducted outside of the bloom period for that species to the extent practicable. In the appropriate season prior to construction, seed from the special-status plant species shall be collected from plants within the impact area and stored. Soil excavation activities in areas where special-status plant species are known to occur shall ensure that the topsoil will be segregated to preserve the viability of the seed bank. To adequately capture the seed bank, the top few inches of soil shall be removed and appropriately stored. Upon completion of the project, the soil shall be replaced in the area affected and seed collected from plants within the impact area shall be hand broadcast onto the revegetated area. Success of the revegetation efforts shall be monitored for a minimum of five years, wherein the number of plant species growing within the area shall be inventoried. The revegetation shall be deemed successful if the alignment attains 50 percent of the pre-disturbed number of plants. If no special-status plant species are detected in Year 1 of monitoring, the City shall develop and implement remedial measures, which may include additional management and revegetation, upon concurrence from the USFWS. Occurrences of problematic invasive, non-native plant species[1] shall be removed from the revegetated area for a minimum of five years.

RP-3 Appropriate dust control measures, such as periodically wetting down the work areas, shall be used as necessary for any project-related construction activities that generate dust.

RP-4 The spread or introduction of problematic invasive exotic plant species shall be avoided to the extent practicable. All heavy equipment shall be thoroughly inspected and cleaned of invasive plants prior to entrance to the work site. When practicable, noxious and invasive plants in the project areas shall be removed.

RP-5 Prior to any on-site work in areas where special-status plant species may occur, an agency-approved biologist shall conduct a tailgate training session in which all construction personnel shall receive training regarding measures that are to be implemented to avoid environmental impacts. This training shall include a presentation of the potential for sensitive species to occur at the alignment and measures to protect habitat, including aquatic habitat, and avoid impacts to the species. All personnel working on the alignment shall receive this training, and shall sign a sign-in sheet showing they received the training.

**Ohlone Tiger Beetle.** Based on the results of species surveys in 2011 by Dr. Arnold, the Ohlone tiger beetle is assumed to be absent in the proposed project alignment and would not likely be impacted by the proposed project, unless conditions along the proposed project alignment change over time such that tiger beetles re-occupy isolated areas along the alignment.

[1] For the purposes of these Mitigation Measures, problematic invasive species and noxious weeds refer to any invasive species appearing on State or Santa Cruz County lists of noxious weeds, the California Invasive Pest Plant Council's (Cal-IPC) list of problematic invasive species, or relevant other authoritative sources.

If this species is discovered in the project area in the future, however, the following mitigation measures as modified from the Draft O&M HCP (City of Santa Cruz 2012a), and PEIR (ENTRIX 2005) would be implemented to reduce impacts to any subsequently identified Ohlone tiger beetle or Ohlone tiger beetle habitat to less than significant:

OTB-1 Preconstruction Survey: A preconstruction survey for the Ohlone tiger beetle shall be conducted by a qualified entomologist within suitable grassland habitat during its active flight period (January 15 to May 30). If individual beetles are identified during the survey, mitigation measures shall be implemented according to OTB-2 through OTB-9 below. If individual beetles are not identified during the survey, no additional mitigation measures will need to be implemented.

OTB-2 Locate Project Within Previously Disturbed Areas: To the extent practical, new habitat disturbance shall be minimized by locating components of this project either within the footprint of or adjacent to previously disturbed areas (such as the existing pipeline alignment or roads) or paved areas. Micro-siting of the new pipeline within the project alignment shall be utilized to the extent practical to avoid impacts to active Ohlone tiger beetle larval burrows that are encountered. Alternatively, the City may explore new technologies that would minimize or avoid new ground disturbance.

OTB-3 Educational Awareness Training Session for All Construction Workers: Prior to the start of any construction-related activities, a USFWS-approved entomologist shall conduct a training session for all construction personnel. This training shall include a description of the Ohlone tiger beetle life stages that might be encountered by workers, information about its natural history and habitat, and measures to be implemented to avoid and minimize impacts to the beetle and its habitat during all work activities. The training shall also include a discussion of why sensitive habitat areas are fenced and procedures workers will follow if any Ohlone tiger beetle life stages are encountered.

OTB-4 Delineate Boundaries of the Impact Area: In portions of the project located on Watsonville loams occupied by the Ohlone tiger beetle, temporary fencing and signs shall be erected before any vegetation clearing or ground disturbing (i.e., excavation, trenching, grading, etc.) activities occur to clearly delineate the boundaries of the project's impact area. Warning signs shall be posted on the temporary fencing to alert equipment operators and other construction workers not to proceed beyond the fence. Protective fencing shall remain in place until all construction and revegetation activities have been completed. Signs shall include the following language: "NOTICE: SENSITIVE HABITAT AREA. DO NOT ENTER."

OTB-5 Identify Locations for Refueling, Worker Parking, and Staging Areas Outside of Sensitive Habitat: Whenever possible, locations for refueling, maintenance, and staging of equipment and vehicles shall be situated outside of sensitive habitat areas. Similarly, worker's vehicles shall be parked in designated areas outside of sensitive habitat areas. The City shall ensure that contamination of sensitive habitat does not occur during such operations, including accidental spills. All workers shall be informed of the appropriate procedures to prevent spills and response measures should an accidental spill occur.

OTB-6 Relocate Observed Life Stages of Ohlone Tiger Beetles: To avoid the need to relocate adult Ohlone tiger beetles, pipeline construction activities in areas occupied by the species shall not occur during the flight season (January 15 to May 30), unless monitoring surveys

indicate that adults are no longer active. If avoidance during the flight season is not practicable, a pre-construction survey shall be performed by a USFWS-approved entomologist to salvage and relocate any larvae and other life stages of the Ohlone tiger beetle. The approved monitor shall remain onsite during construction activities in occupied habitat to salvage and relocate any Ohlone tiger beetle encountered during construction. If a larva is found in an earthen tunnel, a new tunnel of the same depth shall be created outside of the impact area and the larva placed in it. If suitable habitat is not present adjacent to the impact area, salvaged tiger beetles shall be relocated, subject to USFWS approval, to Pogonip Park in an attempt to reestablish the beetle at this formerly occupied location. The salvaging and relocating of Ohlone tiger beetles will be authorized under Section 7 of the federal Endangered Species Act, which is expected to be authorized under the Biological Opinion issued through the Section 404 permit from the Corps.

OTB-7 Dust Control: Dust can clog the spiracles of adult beetles and larvae, the latter which are active throughout much of the year. Appropriate dust control measures, such as periodically wetting down the work areas, shall be used as necessary for any project-related activities that generate dust. Care will need to be exercised to avoid saturating areas supporting life stages of the Ohlone tiger beetle.

OTB-8 Revegetation of Coastal Terrace Prairie Habitat: Ohlone tiger beetle adults and larvae prefer patches of bare to sparsely vegetated soil in this grassland habitat. Revegetation of disturbed portions of the project area at locations known to support the Ohlone tiger beetle shall use only grasses and forbs indigenous to the coastal terrace prairie habitat. Also, weed control shall be part of the revegetation activities. Dense ground covers, weed matting, aggregate, and mulch can degrade habitat conditions and shall not be used.

OTB-9 Trench Backfilling: All excavated soil shall be retained and used to refill the trench after installation of the new pipeline. To maintain the pre-construction soil profile, soil from the bottom of the trench should be returned to the trench's bottom. Similarly, top soil should be redeposited as top soil. No off-site soils or other materials should be utilized to refill the trench.

**Steelhead, Coho Salmon, and Tidewater Goby.** Steelhead are known to occur in Majors Creek (Station 52+00, Figure 1, Appendix B) and Baldwin Creek (Station 16+50, Figure 6, Appendix B). Although coho salmon have not been documented in either creek and their potential for occurrence is considered to be low, both creeks are accessible (e.g., no documented migration barriers) and provide potential suitable habitat for this species. Although these two streams meet critical habitat criteria for coho (defined as all river reaches accessible to listed coho), neither Majors nor Baldwin creeks are identified as streams with Focus Populations in the Recovery Plan for coho (NMFS 2012). The tidewater goby is known to occur in the Baldwin Creek Lagoon, downstream of the proposed project alignment (CDFW 2012). The proposed project will likely not directly require work within either Majors Creek or Baldwin Creek as the pipeline will be buried in existing road crossings of these creeks. There is sufficient fill depth over the creek culverts for pipeline construction to occur and construction is not expected to require culvert removal or replacement. Additionally, installation of new pipeline near the 20 linear feet of Baldwin Creek that occurs within the proposed project alignment will occur on agricultural roads above the culverted creek channel (Figure 6, Appendix B). While considered highly unlikely, dewatering could be required for the open trench construction across Little Baldwin and Old Dairy Gulch. The latter would only occur if the City pursues the second option at Old Dairy Gulch of replacing the existing above ground pipe via open trenching,

which is not the preferred option, as identified in the Project Description. Removal of sections of the old pipeline would likely be the only direct impact to streams, and therefore, impacts to special-status fish, if any, would be minimal.

Potential impact considerations for steelhead and coho salmon are primarily related to potential temporary effects during construction: sediment entering the creek, stream dewatering and maintenance of downstream flows, loss of overhead cover, potential increases in stream temperature, and discharge of sediment or contaminants. Construction could also result in temporary minor degradation of tidewater goby habitat due to discharge of sediment or contaminants to Baldwin Creek and to the downstream Baldwin Creek Lagoon where the species is known to occur (CDFW 2012). The project could also affect these species by impacting the turbidity and sedimentation of downstream habitat within the creek channels that may support these species.

The only creek in which directional drilling is proposed is Lombardi Gulch, which may provide suitable habitat but is not known to support special-status fish species, possibly due to a potential barrier to passage at Highway 1. Directional drilling under this creek would avoid the above-mentioned direct impacts. The primary issue for directional drilling is the potential for a frac-out and drilling mud entering the creek. Detailed geologic studies have been conducted to minimize the potential for a frac-out and a contingency plan will be prepared and implemented in case a frac-out occurs. Impacts from the discharge of drilling mud could have more significant impacts and affect a larger area than a more traditional trenching installation.

As stated above, although unlikely, the project may impact special-status fish species, if present. The standard operating procedures (SOPs) and BMPs from the *Draft City of Santa Cruz Habitat Conservation Plan Conservation Strategy for Steelhead and Coho Salmon* (City of Santa Cruz 2011) and the PEIR were used, in part, to develop the mitigation measures below. Additionally, the following measures modified from the Draft O&M HCP (City of Santa Cruz 2012a) are applicable and in many cases implement or further clarify PEIR and Draft Steelhead and Salmon HCP conditions to reduce the potential impacts to steelhead, coho salmon, tidewater goby, and other aquatic resources to less than significant, as discussed above:

FISH-1 All refueling, maintenance, and staging of equipment and vehicles shall occur at least 65 feet from any riparian habitat or water body. The City shall ensure contamination of habitat does not occur during such operations. Prior to the onset of work, the City shall ensure that the contractor has prepared a plan to allow a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

FISH-2 The City shall submit the name(s) and credentials of biologists who would conduct activities specified in the following measures at least 30 days prior to construction to the USFWS, NMFS, and CDFW. No project activities shall begin until the City receives approval from the agencies that the biologist(s) is qualified to conduct the work.

FISH-3 Prior to any on-site work where special-status fish species may occur, an agency-approved biologist shall conduct a tailgate training session in which all construction personnel shall receive training regarding measures that are to be implemented to avoid impacts to special-status fish and associated aquatic habitats. This training shall include a

presentation of the potential for the designated species to occur at the alignment and measures to protect habitat, including aquatic habitat, and to avoid impacts to the species. All personnel working on the alignment shall receive this training, and shall sign a sign-in sheet showing they received the training.

FISH-4 Each morning before work begins at Majors Creek and Baldwin Creek, an agency-approved biologist shall survey the work site and habitat immediately surrounding the work site for conditions that could impact steelhead, coho salmon, or tidewater goby and shall remain on-site whenever work is occurring in these locations. No work shall be allowed to begin each morning until the monitor has inspected the work site in these locations.

FISH-5 To protect water quality, water pumped from construction areas shall be discharged into a basin created out of straw bales lined with filter fabric.

FISH-6 To reduce the potential for erosion after work is completed, disturbed areas within the alignment shall be decompacted and revegetated with an appropriate assemblage of native riparian, wetland, and upland vegetation suitable for the area. Planted material may include native seed mixes, pole cuttings, or container stock as appropriate. All seed and plant sources shall be approved by the California Department of Parks and Recreation Senior Environmental Scientist.

FISH-7 Stream contours shall be returned to the original condition at the end of project activities, unless consultation with the USFWS, NMFS, and CDFW has determined that it is not beneficial to the species or feasible.

FISH-8 To control erosion during and after project implementation, the applicant shall implement best management practices, including:

- Install straw wattles/silt fencing to break up and filter surface runoff.
- Install rice straw, jute netting, or native duff to cover bare soil after work is completed except in Ohlone tiger beetle (coastal terrace prairie) habitat. Avoid use of plastic mesh netting at all sites, as this can entrap native animals such as snakes.
- Install exclusion fencing to prevent heavy equipment from entering muddy/unstable areas.
- Install rolling dips and revegetation on accessways utilized for repairs.
- Install energy dissipators on pump/dewatering equipment outlets.
- Revegetate with site-specific native materials, where appropriate.
- Conduct activities outside of the channel whenever feasible by timing work to the low flow season or by utilizing equipment or methods that do not require access in the channel.
- Conduct instream activities in Majors and Baldwin creeks (if necessary) during the low flow season (June 15 through October 15 depending on the weather conditions) unless that conflicts with seasonal restrictions in other species-specific measures presented elsewhere in this report.

- Conduct instream activities in Little Baldwin Creek, Old Dairy Gulch, Lombardi Gulch, and un-named streams during the low flow season between April 1 and November 1 (depending on the weather conditions) unless these dates conflict with seasonal restrictions in other species-specific measures presented elsewhere in this report.
- Avoid disturbance of retained riparian/wetland vegetation where practicable.
- Utilize "floating" platforms for mobilization of heavy equipment in saturated soil conditions, as appropriate.
- Repair by high-lining high-density polyethylene pipeline to ensure longevity of pipeline repairs and to avoid site disturbance/unnecessary excavation and subsequent erosion impacts. Where placing pipeline in trench is not feasible because of topographic features, the pipeline shall be elevated on piers above ground, as opposed to placement directly on the ground, to avoid potential for creating a barrier to movement/habitat use by species.
- Limit removal of riparian vegetation to pruning/trimming where practicable.
- Minimize excavation in the active stream channel to that which was historically permitted.
- Isolate channels from flowing water through temporary bypass before beginning work (i.e., aquadam, coffer dam, etc.).
- Store construction and erosion control materials outside of the stream channel and cover loose soils/excavations during non-work hours and wet periods.

FISH-9 An agency-approved biologist or biological monitor shall remove from within the proposed project alignment in or near creeks and drainages, any individuals of exotic species that are encountered, such as bullfrogs, crayfish, and centrarchid fishes to the extent practicable.

FISH-10 Upon locating individuals of federally listed special-status animal species that are dead or injured as a direct result of activities conducted by the City, initial notification shall be made within three working days of its finding to the appropriate responsible agency for the species: Ventura Fish and Wildlife Office at (805) 644-1766; NMFS Southwest Region at (582) 980-4000; and CDFW Bay-Delta Region (707) 944-5500 if the species is also State-listed. Written notification shall be made within five calendar days and shall include the date, time, and location of the carcass, a photograph, cause of death, if known, and any other pertinent information. If necessary, the City shall work with the applicable agencies to locate contacts for the deposition of dead insects and other species.

FISH-11 Prior to any instream work in the bed and banks of creeks that requires the construction of cofferdams or dewatering of the creek bed, a stream diversion plan shall be prepared by a qualified biologist after consultation with NMFS and CDFW, and per an approved LSAA. The stream diversion plan shall require that: (1) a qualified fisheries biologist be present during the closing and dewatering of all cofferdams; (2) a qualified fisheries biologists collect, handle, and relocate fish in dewatered areas; and (3) all pump intakes

are screened according to CDFW and NMFS criteria. Construction specifications shall incorporate the terms of the stream diversion plan.

Diversion and routing of the stream channel to a temporary diversion channel to allow construction work in the existing channel shall be supervised by the qualified fisheries biologist after consultation with NMFS and CDFW, consistent with any terms imposed by those two agencies pursuant to their regulatory authorities under the FESA and/or Section 1602 of the California Fish and Game Code. The diversion and routing shall not disrupt the connectivity of the upstream reaches with the lower reaches of the creek. The existing channel shall remain untouched until the temporary diversions are constructed and the erosion control measures are in place. Diversion channels shall be opened from the downstream end first; and only clean washed material shall be used to close existing channels to divert water to temporary diversion channels. The temporary diversion channel shall be designed to accommodate the flow of expected storm events, and have gradient controls to ensure that diversion channel slopes correspond to the existing channel gradients.

FISH-12 This mitigation measure applies to Lombardi Gulch where directional drilling is proposed in order to reduce potential construction impacts in the creek and riparian corridor. Prior to construction, a drilling-fluids management and response plan shall be prepared to address the potential for fluid releases. The plan shall include but not be limited to the following measures:

- Conducting a pre-construction geologic study to examine the work area to determine soil types, ground conditions, and appropriate construction procedures;
- Isolating the work area with siltation fencing so that any fluid leaks are contained within a controlled area;
- Maintaining materials and equipment on site to allow for the cleanup of any leak that may occur;
- Constantly monitoring the work site by having inspector(s) maintain constant radio contact with equipment operators;
- If a fluid leak does occur, the contractor shall stop work immediately and assess the nature of the leak. Remedial actions shall be implemented and may include spot cleanup with adsorbent materials, or sub-containment of a localized area for the duration of the work.
- Once construction is complete, the site shall be restored to existing conditions.

The City shall include the requirement for a drilling fluids management and response plan in construction specifications and bid document for the construction contractor, and shall ensure its implementation during construction.

FISH-13 Required clean-up and remediation materials shall be stored and available at each drilling site for immediate containment and clean-up response.

**California Red-legged Frog**. California red-legged frogs may occur in all vegetation communities, including agricultural areas, along the entire route; however, they are most likely to occur within the coastal scrub, mixed evergreen forest, and riparian habitats in or adjacent to the creek channels, larger drainages, and irrigation ponds on or near the alignment. Specifically, this core red-legged frog habitat within or adjacent to the alignment occurs within:

- The channel and surrounding natural vegetated habitat (i.e., riparian forest and scrub, grassland, scrub) in the vicinity of Majors Creek and two vegetated drainages between Station 44+50 and 61+00 (Figures 1-2, Appendix B);
- Little Baldwin Creek, the irrigation pond, and surrounding natural vegetated habitat between Stations 81+00 and 84+00 (Figure 4, Appendix B);
- Baldwin Creek and surrounding natural vegetated habitat between Stations 16+00 and 25+00 (Figure 6, Appendix B);
- The drainage channel, seasonal wetlands, and surrounding natural vegetated habitat between Stations 31+00 and 42+50 of the railroad alignment (Figures 7-8, Appendix B);
- The drainage channel and surrounding natural vegetated habitat north of Stations 31+00 to 38+00 of the railroad alignment (Figure 9, Appendix B);
- The irrigation pond and surrounding natural vegetated habitat between Stations 138+00 and 145+00 (Figure 10, Appendix B);
- Lombardi Gulch and surrounding natural vegetated habitat between Stations 147+50 and 160+00 (Figures 10-11, Appendix B);
- The natural vegetated habitat in the vicinity of the irrigation pond between Stations 179+00 and 191+00 (Figure 13, Appendix B);
- Old Dairy Gulch and surrounding natural vegetated habitat between Stations 207+00 and 218+00 (Figure 15, Appendix B).

The following mitigation measures and General Minimization and BMPs as modified from the Draft O&M HCP (City of Santa Cruz 2012a) shall be implemented to avoid and minimize impacts to California red-legged frogs. The potential impacts include direct impacts to red-legged frogs during construction-related activities and temporary impacts to red-legged frog habitat, most of which occurs in the vicinity of the creeks, drainages, irrigation ponds, and riparian forest and scrub. These impacts could occur anywhere within the proposed project alignment but are more likely to occur near these habitat areas. The mitigation measures are applicable to both directional drilling and conventional trenching operations and also implement the applicable PEIR measures for impacts to the California red-legged frog and when implemented, will reduce potential impacts to California red-legged frogs to less than significant:

CRLF-1 The City shall submit the name(s) and credentials of biologists who would conduct activities specified in the following measures at least 30 days prior to construction to the USFWS and CDFW. No project activities shall begin until the City receives approval from the agencies that the biologist(s) is qualified to conduct the work.

CRLF-2 An agency-approved biologist shall conduct a pre-construction California red-legged frog survey of each work area of the alignment within 48 hours prior to the onset of activities. If California red-legged frogs, tadpoles, or eggs are found, the approved biologist shall

determine the closest appropriate relocation site. The approved biologist shall be allowed sufficient time to move them from the alignment before work activities begin. Only agency-approved biologists shall participate in activities associated with the capture, handling, and moving of California red-legged frogs. The handling of California red-legged frogs will be authorized under Section 7 of the federal Endangered Species Act, which is expected to be authorized under the Biological Opinion issued through the Section 404 permit from the Corps.

CRLF-3 Before any activities begin on a project, an agency-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the California red-legged frog and its habitat, the importance of the California red-legged frog and its habitat, general measures that are being implemented to protect the California red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.

CRLF-4 An agency-approved biologist shall be present at the proposed project alignment until such time as all removal of California red-legged frogs, instruction of workers, and disturbance of core aquatic and riparian habitat areas and establishment of a 100-foot buffer has been completed. After this time and in agricultural and upland areas more than 100 feet from of core habitat areas, the contractor or City shall designate a person to monitor on-site compliance with all mitigation measures and any future staff training. The agency-approved biologist shall ensure that this individual receives training outlined in measure CRLF-3 above and in the identification of California red-legged frogs. The monitor and the agency-approved biologist shall have the authority to stop work if California red-legged frogs are in harm's way.

CRLF-5 The number of access routes, number and size of staging areas, and the total area of the activity shall be limited to the minimum necessary to achieve the project goal. Routes and boundaries shall be clearly demarcated, and these areas shall be outside of riparian and wetland areas to the extent practicable. Where impacts occur in these staging areas and access routes, restoration shall occur as identified in the general BMP measures above.

CRLF-6 In core riparian and aquatic habitats, work activities shall be completed between April 1 and November 1. The City shall coordinate with the USFWS on a case-by-case basis prior to conducting such activities, outside of this time period.

In uplands, ground-disturbance, mechanical clearing of vegetation, and associated work activities shall be conducted between June 1 and November 1 or until the first fall rain that produces 0.25 inch of rainfall, unless preconstruction surveys have been conducted and California red-legged frogs are shown to be absent from the site and the site boundary is fenced to preclude California red-legged frogs from moving onto the site. Alternatively, an agency-approved biological monitor shall be present during all active construction activities to survey and clear the construction site continuously as pipeline construction progresses during the wet season.

CRLF-7 If the alignment is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than 5 millimeters to prevent California red-legged frogs from entering the pump system. Water shall be released or pumped downstream at

an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.

CRLF-8 The Declining Amphibian Populations Task Force's Fieldwork Code of Practice shall be followed to minimize the possible spread of chytrid fungus or other amphibian pathogens and parasites.

This measure is applicable to any construction personnel and equipment as well as biological monitors and shall require equipment and personal gear such as work boots that come in contact with water in any waterway be disinfected prior to use in another waterway. Compliance with this measure shall require establishing decontamination procedures and stations at each creek area.

CRLF-9 During project activities, all trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.

CRLF-10 Prior to the commencement of work, the limits of the work area shall be clearly marked with orange construction fencing to prevent workers from impacting habitat outside the work area. No work shall occur outside the designated marked work area.

CRLF-11 Each morning before work begins, a qualified monitor, as defined in CRLF-4 above, shall survey the work site and habitat immediately surrounding the work site for conditions that could impact red-legged frogs and other special-status species, and shall remain on-site whenever work is occurring. No work shall be allowed to begin each morning until the monitor has inspected the work site.

CRLF-12 Upon locating individuals of California red-legged frogs (or other special-status species) that are dead or injured as a direct result of activities conducted by the City, initial notification shall be made to the Ventura Fish and Wildlife Office at (805) 644-1766 within three working days of its finding. Written notification shall be made within five calendar days and shall include the date, time, and location of the carcass, a photograph, cause of death, if known, and any other pertinent information. Written notification shall be sent to the Ventura Fish and Wildlife Office at 2493 Portola Road Suite B, Ventura, California 93003. Dead California red-legged frogs may be placed with the California Academy of Sciences. If necessary, the City shall work with the USFWS to locate contacts for the deposition of dead insects and other species.

In addition to the above measures, the stream and riparian habitat protection measures FISH-1 and FISH-5 through FISH-8 as described above for steelhead, coho salmon, and tidewater goby, and WET-1 through WET-3 as described below for wetlands, are also applicable to minimize impacts to California red-legged frogs at the described locations.

**Western Pond Turtle**. Western pond turtles may occur within the natural vegetated habitat in or adjacent to the creek channels, larger drainages, and irrigation ponds on or near the alignment. The suitable western pond turtle habitat within the alignment occurs within the same streams, ponds, and riparian habitat as described for California red-legged frogs above.

The following mitigation measures as modified from the Draft O&M HCP (City of Santa Cruz 2012a) should be implemented to reduce impacts to western pond turtles to less than significant:

WPT-1 The City shall submit at least 30 days prior to construction the name(s) and credentials of biologists who would conduct activities specified in the following measures to the CDFW for approval. No project activities shall begin until the City has received approval from the CDFW that the biologist(s) is qualified to conduct the work.

WPT-2 An agency-approved biologist shall survey the alignment 48 hours prior to the onset of activities. If western pond turtle adults, juveniles, or eggs are found, the approved biologist shall determine the closest appropriate relocation site. The approved biologist shall be allowed sufficient time to move them from the alignment before work activities begin. Only agency-approved biologists shall participate in activities associated with the capture, handling, and moving of western pond turtles.

WPT-3 Before any activities begin on a project, an agency-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the western pond turtle and its habitat, the importance of the western pond turtle and its habitat, general measures that are being implemented to conserve the western pond turtle as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.

WPT-4 An agency-approved biologist shall be present at the alignment until such time as all removal of western pond turtles, instruction of workers, and disturbance of habitat have been completed. After this time, the contractor or City shall designate a person to monitor on-site compliance with all mitigation measures. The agency-approved biologist shall ensure that this individual receives training outlined in measure WPT-3 and in the identification of the western pond turtle. The monitor and the agency-approved biologist shall have the authority to stop work if western pond turtles are observed in harm's way.

WPT-5 The number of access routes, number, and size of staging areas, and the total area of the activity shall be limited to the minimum necessary to achieve the project goal. Routes and boundaries shall be clearly demarcated, and these areas shall be outside of riparian and wetland areas to the extent practicable. Where impacts occur in these staging areas and access routes, restoration shall occur as identified measures FISH-6 and FISH-8.

WPT-6 Work activities within or adjacent to creek channels, ponds, and riparian areas shall be completed between April 1 and November 1 to the extent practicable. Should the City need to conduct activities outside this period, the City may conduct such activities after providing notification to the CDFW.

**Burrowing Owl.** Project construction may impact nesting and/or wintering burrowing owls if occupied burrows are present within or adjacent to the project alignment. While no burrowing owls or evidence of owls were observed during the surveys for the proposed project, burrowing owls could occur in mammal burrows, culverts, or other suitable burrow sites within the agriculture, non-native grassland/ coastal terrace prairie, and ruderal/ landscaped/ ornamental habitat types.

Protocol-level surveys should be conducted for burrowing owls prior to construction activities to determine presence or absence. These surveys should conform to the survey protocol established in the *Staff Report on Burrowing Owl Mitigation* (Staff Report) (CDFG 2012) and would need to be conducted regardless of the time of year. Burrowing owls could nest or winter in the ruderal/disturbed

non-native grassland and agricultural habitat on and adjacent to the proposed project alignment. The following mitigation measures are consistent with the provisions of the MBTA and the Staff Report. Implementation of the following measures will reduce potential impacts to burrowing owl to less than significant:

BO-1 The City shall submit the name(s) and credentials of biologists who would conduct activities specified in the following measures at least 30 days prior to construction to the CDFW for approval. No project activities shall begin until the City has received approval from CDFW that the biologist(s) is qualified to conduct the work.

BO-2 No more than 14 days prior to any ground disturbing activities, a qualified biologist shall conduct a protocol-level survey for burrowing owls. If no owls are found during this first survey, a final survey shall be conducted within 24 hours prior to ground disturbance to confirm that burrowing owls are still absent. If ground disturbing activities are delayed or suspended for more than 14 days after the initial survey, the alignment shall be resurveyed (including the final survey within 24 hours of disturbance). All surveys shall be conducted in accordance with CDFW guidelines (CDFG 2012).

BO-3 If burrowing owls are found within the alignment during the surveys, 250-foot-wide breeding season buffers and 160-foot-wide non-breeding season buffers shall be established. If the surveys identify breeding activity, no construction-related activity (e.g., site grading, staking, surveying, any use of construction equipment) shall occur in the exclusion zone during the breeding season or until the young have fledged. Standard construction buffer widths may be reduced in accordance with the following requirements:

- A site-specific analysis prepared by an Approved Biologist indicates that the nesting pair(s) or wintering owl(s) would not be adversely affected by construction activities. The County and CDFW must approve this analysis in writing before construction can proceed.
- Monitoring by an Approved Biologist is conducted for a sufficient time (during all construction activities for a minimum of 10 consecutive days following the initiation of construction), the nesting pair does not exhibit adverse reactions to construction activities (e.g., changes in behavioral patterns, reactions to noise), and the burrows are not in danger of collapse due to equipment traffic.
- Monitoring is continued at least once a week through the nesting/wintering cycle at that site, and no change in behavior by the owls is observed. This longer-term monitoring may be reduced to a minimum of 2 hours in the morning and 2 hours in the afternoon during construction activities; however, additional and more frequent monitoring may be required if any adverse reactions are noted.

Where avoidance is not feasible during the non-breeding season, a site-specific exclusion plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity with background activities) may be implemented to encourage owls to move away from the work area prior to construction and to minimize the potential to affect the reproductive success of the owls. The exclusion plan would be subject to CDFW approval and monitoring requirements.

**Other Nesting Birds.** The proposed project may impact special-status nesting birds and other nesting birds that are protected by the MBTA and California Fish and Game Code. Suitable nesting habitat is present along the entire pipeline alignment and includes trees, shrubs, grasslands and other ground surfaces, and buildings within any of the land cover types/habitat communities that occur within or adjacent to the proposed project alignment, including the agricultural and developed areas. The following measures shall be implemented to minimize and avoid impacts to nesting birds:

NB-1 The project should avoid vegetation removal during the bird nesting season (February 1 through August 31), to the extent feasible. For construction activities during the nesting season, a qualified biologist should conduct a preconstruction survey of the alignment within 14 days of the start of construction activities. All trees, shrubs, or other suitable nesting habitat within 250 feet of the project alignment should be searched for nests during the preconstruction survey. If the survey indicates the presence of nesting birds, protective buffer zones should be established around the nests as follows: for raptor nests, the size of the buffer zone should be a 250-foot radius centered on the nest; for other birds, the size of the buffer zone should be a 50-foot radius centered on the nest. In some cases, these buffers may be increased or decreased depending on the bird species and the level of disturbance that will occur near the nest. Changes to the buffer should be made by the project biologist in consultation with CDFW.

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

Up to approximately 0.57 acre of riparian forest and scrub habitat may be temporarily impacted in the proposed project alignment at:

- Stations 60+50 to 61+00 (Figure 2, Appendix B);
- Station 82+00 (Figure 4, Appendix B);
- Stations 18+00 to 19+00 (Figure 6, Appendix B);
- Along the railroad alignment with no designated station numbers (north of Stations 31+00 to 38+00 of the regular project alignment (Figure 9, Appendix B);
- Station 151+00 (Figure 11, Appendix B);
- Stations 156+00 to 158+00 (Figure 11, Appendix B); and
- Stations 210+50 to 214+50 (Figure 15, Appendix B). Impacts to riparian forest and scrub habitat would only occur if the pipeline is replaced through open-trench construction, which is not the preferred option.

Although 0.57 acre of riparian forest and scrub habitat occurs within the proposed project alignment, reduced-width trenching and trenchless pipeline installation would reduce the impacted area within this habitat type. Any construction in riparian forest and scrub habitat that does occur will likely require a LSAA from CDFW. Impacts resulting in loss of vegetation will likely require mitigation by restoring the riparian vegetation within and/or outside of the proposed project alignment.

The following measures modified from the Draft O&M HCP (City of Santa Cruz 2012a) shall be implemented for the proposed project construction to reduce impacts to riparian forest and scrub habitat to less than significant:

RIP-1 Above ground construction activities in riparian areas shall be limited to April 15 to October 15 except where work windows are more restricted based on special-status species considerations.

RIP-2 The City shall prepare and implement a plan to re-establish riparian habitat within the 800 linear feet abandoned pipeline segments where above-grade pipe is removed and work areas within the proposed project alignment that extend beyond required maintenance access areas. All native, woody vegetation greater than 1 inch in diameter that is removed as a result of the above activities shall be replaced by establishing native woody vegetation at a 3:1 ratio. This ratio represents the number of native trees and shrubs that shall become established in the riparian mitigation area through direct planting and/or natural recruitment by monitoring year 5. The riparian habitat restoration plan will be approved by the California Department of Parks and Recreation Senior Environmental Scientist prior to implementation.

Up to 0.91 acre of coastal scrub and 0.03 acre of non-native grassland/coastal terrace prairie habitat may be impacted within the proposed project alignment. Both of these habitats are considered to be sensitive habitats. The coastal scrub habitat is spread throughout the proposed project alignment (see figures in Appendix B), while the non-native grassland/ coastal terrace prairie within the alignment occurs near the Graniterock Wilder Sand Quarry (Figure 15, Appendix B).

The following measures modified from the Draft O&M HCP (City of Santa Cruz 2012a) shall be implemented for the proposed project construction to reduce impacts to coastal scrub and non-native grassland/ coastal terrace prairie habitat to less than significant:

S/TP-1 Identify locations for refueling, worker parking, and staging areas in designated areas outside of sensitive habitat whenever possible. The City shall ensure that contamination of sensitive habitat does not occur during such operations, including accidental spills. All workers shall be informed of the appropriate procedures to prevent spills and response measures should an accidental spill occur.

S/TP-2 Revegetation of coastal scrub and coastal terrace prairie habitat: revegetation of disturbed portions of the project alignment within these habitat areas shall use only grasses and forbs indigenous to these habitats. Also, weed control shall be part of the revegetation activities. Dense ground covers, weed matting, aggregate, and mulch can degrade habitat conditions and shall not be used. The California Department of Parks and Recreation Senior Environmental Scientist shall approve the revegetation plan and material list prior to implementation.

S/TP-3 All excavated top soil shall be retained and used to cover the trench after installation of the new pipeline.

**c) Have a substantial adverse effect on Federally or State-protected wetlands as defined by Section 404 of the Clean Water Act, the Porter-Cologne Water Quality Control Act, or California Coastal Act through direct removal, filling, hydrological interruption, or other means?**

Potential waters of the United States, State, and/or CCA wetlands occur within the vicinity of the proposed project alignment. These features include creeks, drainages, certain agricultural ditches, a freshwater pond, seasonal wetlands, and seep wetlands. Specifically, these potentially jurisdictional features include:

- Majors Creek (Station 51+50, Figure 1, Appendix B);
- Little Baldwin Creek (Station 82+00, Figure 4, Appendix B);
- Baldwin Creek (Station 16+50, Figure 6, Appendix B);
- Lombardi Gulch (Station 151+00, Figure 10, Appendix B);
- Old Dairy Gulch (Station 212+50, Figure 15, Appendix B);
- The freshwater pond that connects to Little Baldwin Creek north of Highway 1 (Station 82+00, Figure 4, Appendix B);
- Approximately 0.55 acre of potentially jurisdictional and non-jurisdictional seasonal wetlands and 0.26 acre of potentially jurisdictional seep wetlands that occur within the proposed project alignment or study corridor:
    - Potentially jurisdictional seasonal wetland in the study corridor at Station 83+50 (Figure 4, Appendix B);
    - Potentially non-jurisdictional seasonal wetlands between Stations 3+00 and 10+00 of the railroad alignment (Figure 5, Appendix B);
    - Potentially non-jurisdictional seasonal wetlands between Stations 35+50 and 43+00 of the railroad alignment (Figures 7 and 8, Appendix B);
    - Potentially non-jurisdictional seasonal wetlands along the railroad alignment south of Stations 133+50 to 138+00 of the proposed project alignment (Figures 7 and 8, Appendix B);
    - Potentially jurisdictional seep wetland north of Stations 34+00 and 36+00 of the railroad alignment (Figure 9, Appendix B);
    - Four potentially jurisdictional seep wetlands between Stations 148+00 and 151+50 (Figure 10, Appendix B);
    - Potentially jurisdictional seep wetland at Station 213+50 (Figure 15, Appendix B); and a
    - Potentially jurisdictional seasonal wetland in the study corridor at the Graniterock Wilder Sand Quarry northwest of Station 218+50 (Figure 15, Appendix B).
- Eight vegetated ditches/drainages that occur within the proposed project alignment or study corridor:
    - The drainage at Stations 44+50 to 49+00 (Figure 1, Appendix B);

- The drainage at Station 60+50 and associated culvert from the crossing under Highway 1 (Figure 2, Appendix B);
- The agricultural ditch at Stations 61+00 to 81+00 (Figures 3-4, Appendix B);
- The drainage at Station 64+50 and associated culvert for the crossing under Highway 1 (Figure 3, Appendix B);
- The drainage along the railroad tracks between Stations 9+50 to 17+00 of the railroad alignment (Figures 5-6, Appendix B);
- The drainage that crosses through a culvert approximately 40-50 feet below the railroad alignment at Station 32+00 (Figure 7, Appendix B);
- The drainage north of Stations 34+50 to 38+00 of the railroad alignment (Figure 9, Appendix B); and
- The drainage at Stations 153+00 to 166+00 (Figure 11, Appendix B).

The concrete-lined "v" ditches are likely non-jurisdictional because they were constructed in upland habitat in order to provide roadside drainage along Highway 1 and do not exhibit wetland characteristics, such as wetland soils and hydrophytic vegetation. These "v" ditches include:

- Ditches that flow into Little Baldwin Creek at Stations 80+00 to 84+00 (Figure 4, Appendix B);
- Ditch from 89+00 to 91+50 (Figure 5, Appendix B);
- Ditches on north side of Highway 1 north of Stations 36+00 to 38+00 of the railroad alignment (Figure 9, Appendix B);
- Ditches on north side of Highway 1 at Stations 166+00 to 169+00 (Figure 12, Appendix B);
- Ditch at Stations 178+00 to 187+00 (Figure 13, Appendix B);
- Ditches at Stations 192+50 to 199+00 (Figure 14, Appendix B); and
- Ditch at Stations 203+50 to 208+50 (Figure 14, Appendix B).

In addition to the concrete-lined "v" ditches, the constructed ditch at Stations 203+50 to 207+00 (Figure 14, Appendix B) is likely non-jurisdictional. This ditch was constructed on upland habitat in order to provide roadside drainage along an agricultural road, and although portions of this ditch may exhibit wetland characteristics, it appears to be isolated and to not connect to jurisdictional features.

The irrigation pond situated within the study corridor between Stations 142+50 and 143+50 (Figure 10, Appendix B) is also likely exempt from Section 404 and 401 jurisdiction and the County's LCP because it is constructed on upland habitat, not connected to jurisdictional waters, and/or is currently being used for agricultural purposes.

The proposed project may impact potentially jurisdictional waters of the United States and/or waters of the State. A preliminary wetland delineation was completed in May 2014. Approximately 0.14 acre of seasonal wetlands and 0.1 acre of seep wetlands may be impacted within the project alignment, but some of these areas may be avoided by limiting construction to a 20-foot width. Approximately 0.14 acre of these seasonal wetlands, which are likely non-jurisdictional, occurs along the railroad alignment; these wetlands will likely be avoided by limiting construction to a 20-foot width within

the roads adjacent to the agricultural and railroad operations (Figures 5-8, Appendix B). Ditches and drainages within the full width trenching areas, creeks and ditches within the reduced width trenching areas, and drainages and creeks within the abandoned and removed pipeline areas occur within the area of potential impact within the proposed project alignment (see figures in Appendix B). Areas with directional drilling and jack and bore are not likely to impact any of the creeks and drainages. Although likely avoided, especially in areas with reduced-width trenching, the proposed project may impact up to approximately 0.041 acre of these potentially jurisdictional creeks, drainages, and ditches and 0.232 acre of non-jurisdictional ditches and culverts as listed in Table D below. Permit requirements for impacts to these features vary depending on the construction approach and associated work activities at each regulated area.

**Table D: Approximate Area of Impact to Potentially Jurisdictional Creeks, Drainages, Ditches, and Culverts within the Proposed Project Alignment**

| Potentially Jurisdictional Creek, Drainage, or Ditch | Linear Feet | Estimated Average Width | Approximate Square Feet (sf)/Acres |
|---|---|---|---|
| Baldwin Creek | 67 | 7.5 | 503 sf/ 0.012 acre |
| Little Baldwin Creek | 20 | 8 | 160 sf/ 0.004 acre |
| Lombardi Gulch | 20 | 6.5 | 130 sf/ 0.003 acre |
| Majors Creek | 43 | 8 | 344 sf/ 0.008 acre |
| Old Dairy Gulch | 20 | 6 | 120 sf/ 0.003 acre |
| Un-named Stream | 29 | 6 | 174 sf/ 0.004 acre |
| Ditches | 68 | 3 | 204 sf/ 0.004 acre |
| Culverts | 36 | 4 | 144 sf/ 0.003 acre |
| **Total** | **303** | **---** | **1,779 sf/ 0.041 acre** |
| **Total Non-jurisdictional Ditches and Culverts** | **4,051** | **2.5** | **10,128 sf/ 0.232 acre** |

Note: The average width and total acreage of these features is estimated based on a preliminary wetland delineation and should be considered preliminary until the wetland delineation is verified by the Corps (see below).

The preliminary wetland delineation will be submitted to the Corps and verified by the Corps as the formal jurisdictional determination to officially document the extent of potentially jurisdictional features within the impacted areas of the proposed project alignment. The formal jurisdictional determination will be required for filing an application to the Corps. Activities resulting in the placement of fill in jurisdictional features will require permits from the Corps, RWQCB, CDFW, and County, including preparation and implementation of a Mitigation and Monitoring Plan.

The specific permit required for the project depends on the type of the construction work that is conducted within a jurisdictional feature, as described below:

- Construction work requiring digging/trenching or other activities resulting in the placement of more than incidental fallback of fill within a seasonal wetland or jurisdictional stream/tributary will require a permit from the Corps and a water quality certification from the RWQCB will be

required. The project should be suitable for authorization under existing Nationwide Permit (NWP) 12 for Utility Line Activities. Directional drilling or other subsurface construction under Lombardi Gulch and some of the other drainages would not trigger the need for CWA Section 404 or 401 permits from these agencies.

- Any construction work that requires digging, trenching, tunneling/directional drilling under or otherwise modifying the bed or bank and associated riparian vegetation of a stream channel or jurisdictional vegetated ditch will additionally require a LSAA from the CDFW.

In addition to the need to obtain a jurisdictional determination and prepare regulatory permit applications, the PEIR (ENTRIX 2005) requires seasonal restrictions to be implemented to reduce the potential impacts to wetlands during construction. The following measures implement the PEIR requirements and reduce the potential temporary impacts to approximately 0.041 acre of potentially jurisdictional creeks, drainages, and ditches, 0.232 acre of non-jurisdictional ditches and culverts, 0.14 acre of potentially jurisdictional seasonal wetlands, and 0.1 acre of potentially jurisdictional seep wetlands to less than significant:

WET-1 In perennial streams, construct stream crossings or remove old pipes during the low flow season (approximately June 15 through October 15 depending on the weather conditions). This measure is applicable to the following waterways:

- Little Baldwin Creek, Station 82+00 (Figure 4, Appendix B);
- Lombardi Creek, Station 151+00 for pipe removal (Figure 10, Appendix B); and
- Old Dairy Creek, Station 212+50, only if the pipeline is replaced through open-trench construction, which is not the preferred option (Figure 15, Appendix B).

In ephemeral streams[1], construct stream crossings when there is no flow. Impacts to some of these streams shall be avoided during construction through reduced-width trenching, if possible, but may occur if avoidance is not possible. The intent of this measure is for it to apply to streams or other regulated tributaries with ephemeral to intermittent flows at the following locations:

- Drainage, Stations 60+50 (Figure 2, Appendix B);
- Drainages, Stations 61+00 to 81+00 (Figures 3-4, Appendix B);
- Drainage, north of Stations 34+50 to 38+00 of the railroad alignment (Figure 9, Appendix B); and
- Drainage, Stations 153+00 to 166+00 (Figure 11, Appendix B).

WET-2 All disturbed work areas in wetlands shall be returned to its approximate pre-construction profile to ensure that flow patterns are unaltered. The upland areas in the right-of-way shall also be recontoured to restore original grades, elevations, and flow patterns into wetlands.

[1] The terms ephemeral as used in the PEIR do not appear to reflect Corps regulatory definitions for steam flow. The Corps also defines ephemeral streams has having flowing water only during, and for a short duration after precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round and groundwater is not a source of water for the stream. The term intermittent is a more applicable regulatory description of the stream flow in the non-perennial tributaries as it is likely that groundwater contributes to stream flow.

WET-3 The City shall prepare and implement a plan to re-establish wetlands or waters that are temporarily impacted during construction. The plan at a minimum shall include provisions for:

- Salvage, stockpiling and replacement of the top 6 to 10 inches of soil (or the depth 50 percent of more roots for the dominant native wetland species) and reseeding of the disturbed soils with appropriate native grasses and forbs;
- Periodic maintenance to remove/control establishment of highly invasive exotic plant species as classified by California Invasive Plant Council (Cal-IPC; http://www.cal-ipc.org/) for a minimum of three years;
- A description of performance criteria which shall include at a minimum standards for no net loss of wetland acreage and percent cover for native species and total wetland species based on achieving equal to or greater cover than pre-project conditions; and
- A minimum three-year monitoring program to document progress toward achieving appropriate performance criteria. At a minimum, there shall be no loss of wetland acreage.

Measures FISH-1, FISH-5, FISH-6, FISH-7, and FISH-8 are also applicable to these wetland habitats.

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

Construction activities would not be conducted at night and therefore night safety lighting would not cause temporary disruptions of wildlife movement or increased predation of species as a result of such lighting. Open trenches could however impede or block normal wildlife movement. These potential impacts mostly apply to the stream channels and adjacent habitat because these areas are where red-legged frogs and other species are more likely to move through the project alignment. Special-status species, including California red-legged frogs, and common wildlife species, however, could occur and move throughout the project pipeline, but stream and associated riparian habitat are the movement corridors that would more likely be used by wildlife. The following measures shall be implemented to reduce these impacts to less than significant:

MOV-1 Open trenches shall be limited to the maximum necessary for efficient construction.

MOV-2 A qualified, agency-approved biologist shall inspect any trench segments left open overnight and remove any stranded animals to safe locations away for the proposed project alignment.

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

As indicated previously, the proposed project, which is a public project being undertaken by the SCWD, will be subject to the policies, requirements, standards and conditions of the General Plan and the County's LCP, given its location in the Coastal Zone (Section 13.20.150 of the Santa Cruz County Code). Therefore, the proposed project will need to comply with Chapter 16.30 Riparian Corridor and Wetland Protection, Chapter 16.32 Sensitive Habitat Protection, and Chapter 16.34

Significant Tree Protection. Project conformance and/or potential conflicts with these ordinances are further described below.

### Riparian Corridor and Wetland Protection

The Riparian Corridor and Wetland Protection ordinance seeks to minimize and eliminate any development activities in riparian corridors and to protect wildlife habitat, water quality, open space and other resource values, and floodways, as well as to implement the policies of the General Plan and LCP (Section 16.30.010). Development activities, land alteration, and vegetation disturbance in the riparian habitat located along the proposed project alignment, as identified in Impact (b) above, would be prohibited unless a riparian exception is granted per Section 16.30.060. As a condition of the riparian exception, the City would need to provide evidence of approval for development from the Corps, CDFW, and RWQCB. Additionally, the County must make a series of findings to approve an exception, including:

1. That there are special circumstances or conditions affecting the property;
2. That the exception is necessary for the proper design and function of some permitted or existing activity on the property;
3. That the granting of the exception will not be detrimental to the public welfare or injurious to other property downstream or in the area in which the project is located;
4. That the granting of the exception, in the Coastal Zone, will not reduce or adversely impact the riparian corridor, and there is no feasible less environmentally damaging alternative; and
5. That the granting of the exception is in accordance with the purpose of this chapter, and with the objectives of the General Plan and elements thereof, and the LCP (Section 16.30.060).

Replacement of the existing pipeline along the proposed project alignment requires several stream crossings that cannot be avoided. Where feasible, new pipe through riparian areas would be installed using trenchless construction methods such as horizontal directional drilling and jack and bore, as described in the Project Description. Additionally, the width of the construction footprint and area of work has been reduced to 20 feet wide along portions of the project alignment to reduce the removal of riparian vegetation (see Table A). These construction approaches would serve to reduce the overall impact to riparian habitat, to the extent possible. Additionally, removal of the existing pipeline would require encroachment into riparian areas in several locations. As indicated in Impact (b), the implementation of Mitigation Measures RIP-1 and RIP-2 would reduce potentially significant impacts to riparian forest and scrub habitat to less than significant. With the approval of a riparian exception from the County, the proposed project would not conflict with the County's Riparian Corridor and Wetland Protection ordinance.

### Sensitive Habitat Protection

The Sensitive Habitat ordinance seeks to minimize disturbance of biotic communities which are rare or especially valuable because of their special nature or role in the ecosystem (Section 16.32.010). Based on the County's definition of sensitive habitat in Section 16.32.040, the proposed project alignment includes the following types of sensitive habitats: coastal scrub; non-native

grassland/coastal terrace prairie; streams; riparian corridors; wetlands; and areas that provide habitat or potential habitat for special-status species. Any development activity within an area of biotic concern requires a biotic approval from the County, supported either by a biotic assessment or biotic report that includes conditions of approval, as determined by the County's Environmental Coordinator. This biological resources assessment has been reviewed by the County and serves as the biotic report for the proposed project. As indicated in Impacts (a), (b), and (c), the implementation of Mitigation Measures RP-1 to -5; OTB-1 to -9; FISH-1 to -13; CRLF-1 to -12; WPT-1 to -6; BO-1 to -3; NB-1; RIP-1 to -2; S/TP-1 to -3; WET-1 to -3; and MOV-1 to -2 would reduce potentially significant impacts to coastal scrub; non-native grassland/coastal terrace prairie; streams; riparian corridors; wetlands; and areas that provide habitat or potential habitat for special-status species to less than significant. With a biotic approval from the County, the proposed project would not conflict with the County's Sensitive Habitat ordinance.

### Significant Tree Protection

The Significant Tree Protection ordinance seeks to preserve significant trees and forests communities and to protect and enhance the County's natural beauty, property values, and tourist industry (Section 16.34.010). Within the urban and rural services line, significant trees are any tree which is equal to or greater than 20 inches diameter at breast height (dbh) (approximately 5 feet in circumference); any sprout clump of five or more stems each of which is greater than 12 inches dbh (approximately 3 feet in circumference); or any group consisting of five or more trees on one parcel, each of which is greater than 12 inches dbh (approximately 3 feet in circumference) (Section 16.34.030[A]). Additionally, any tree located in a sensitive habitat as defined in Chapter 16.32, is also categorized as a significant tree (Section 16.34.030[C]).

The proposed project may impact trees that are protected by the County's Significant Tree Ordinance. An initial arborist assessment has identified 46 significant trees within the area of potential impact. These include 3 common Douglas-fir (*Pseudotsuga menziesii*), 7 Monterey pine, 5 blue gum eucalyptus, 2 coast live oak, and 29 Monterey cypress (M. Hamb, pers. comm.). A final arborist report will be prepared as part of the final design and permitting process to determine whether significant trees would need to be removed or could otherwise be damaged during construction. If so, the following findings will need to be made by the County in its consideration of the coastal permit for the project:

1. That the significant tree is dead or is likely to promote the spread of insects or disease.
2. That removal is necessary to protect health, safety, and welfare.
3. That removal of a nonnative tree is part of a plan approved by the County to restore native vegetation and landscaping to an area.
4. That removal will not involve a risk of adverse environmental impacts such as degrading scenic resources.
5. That removal is necessary for operation of active or passive solar facilities, and that mitigation of visual impacts will be provided.

6. That removal is necessary in conjunction with another permit to allow the property owner an economic use of the property consistent with the land use designation of the Local Coastal Program Land Use Plan.
7. That removal is part of a project involving selective harvesting for the purpose of enhancing the visual qualities of the landscape or for opening up the display of important views from public places.
8. That removal is necessary for new or existing agricultural purposes consistent with other County policies and that mitigation of visual impacts will be provided.

With the implementation of Mitigation Measure TREE-1 below, as modified from the PEIR (ENTRIX 2005), the potentially significant impact related to significant tree removal would be reduced to less than significant. Additionally, the County may attach reasonable conditions to the coastal development permit to mitigate visual impacts and ensure compliance with the County's Significant Trees Protection ordinance. With a coastal development permit from the County, the proposed project would not conflict with the County's Significant Trees Protection ordinance.

TREE-1 The City shall inventory trees for removal and retention within the project work area to document trees which qualify as significant trees under the County's regulations. This information shall be documented in an arborist report. The City shall implement measures from the arborist report to protect trees to be retained in order to minimize inadvertent damage to protected trees and their root zones during construction. Measures shall include, but not limited to, the following: installation of temporary construction fencing around the dripline of the trees; prohibition of storage or dumping of any kind inside the fenced area; protection of the trees and root zones as specified; and pruning as may be specified in the report. Require that the project arborist be retained throughout the duration of the project to inspect and monitor tree protection zones at regular intervals and to ensure that all arborist recommendations are implemented. Tree removal in sensitive riparian habitat shall be compensated for at a 3:1 ratio through the implementation of Mitigation Measure RIP-2. The City shall otherwise comply with the County's Significant Tree Ordinance as part of the County's coastal development permit process.

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

The City has prepared a Draft O&M HCP for federally listed species (City of Santa Cruz 2012a) to address the effects of City operations and maintenance activities on terrestrial species. The City has also prepared a draft conservation strategy (City of Santa Cruz 2012b) as part of a pending draft HCP addressing the effects of City activities related to sediment delivery, storm flow management, and stream flow diversion on steelhead and coho salmon (City of Santa Cruz 2011 and 2012b). Neither of these documents has been adopted at this time; however, the mitigation measures presented in this report incorporate or expand upon the measures contained in these documents. As such, the project would not conflict with any adopted or currently proposed HCPs.

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# APPENDIX A

# FIGURES

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FIGURE 1

N

0 2000 4000
FEET

SOURCE: ESRI StreetMap North America (2012).

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Regional Location and Project Area

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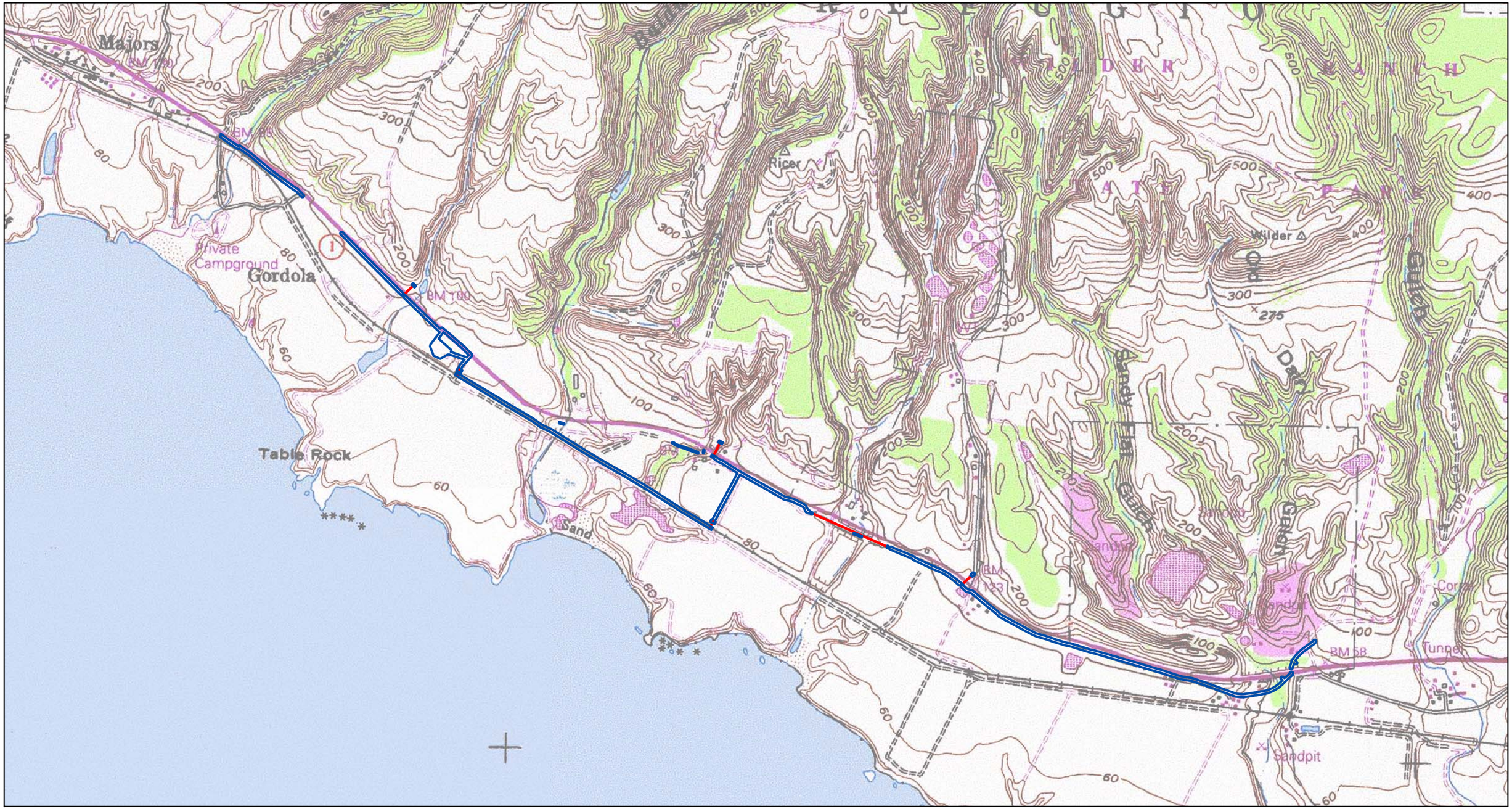


LSA

LEGEND

Area of Potential Impact

Area of Potential Impact - sub-surface only*

0 625 1250

FEET

* trenchless drilling

SOURCE: USGS 7.5-minute Topographic Quad - *Santa Cruz, Calif.* (1994)

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FIGURE 2

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Area of Potential Impact

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# APPENDIX B

# AREA OF POTENTIAL IMPACT AND MAP INDEX AND HABITATS IN AREA OF POTENTIAL IMPACT

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LSA

LEGEND

Area of Potential Impact

1 Map Sheet

0 625 1250

FEET

SOURCE: Aerial Imagery from ESRI World Imagery Service.

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Map Index

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Area of Potential Impact and Map Index

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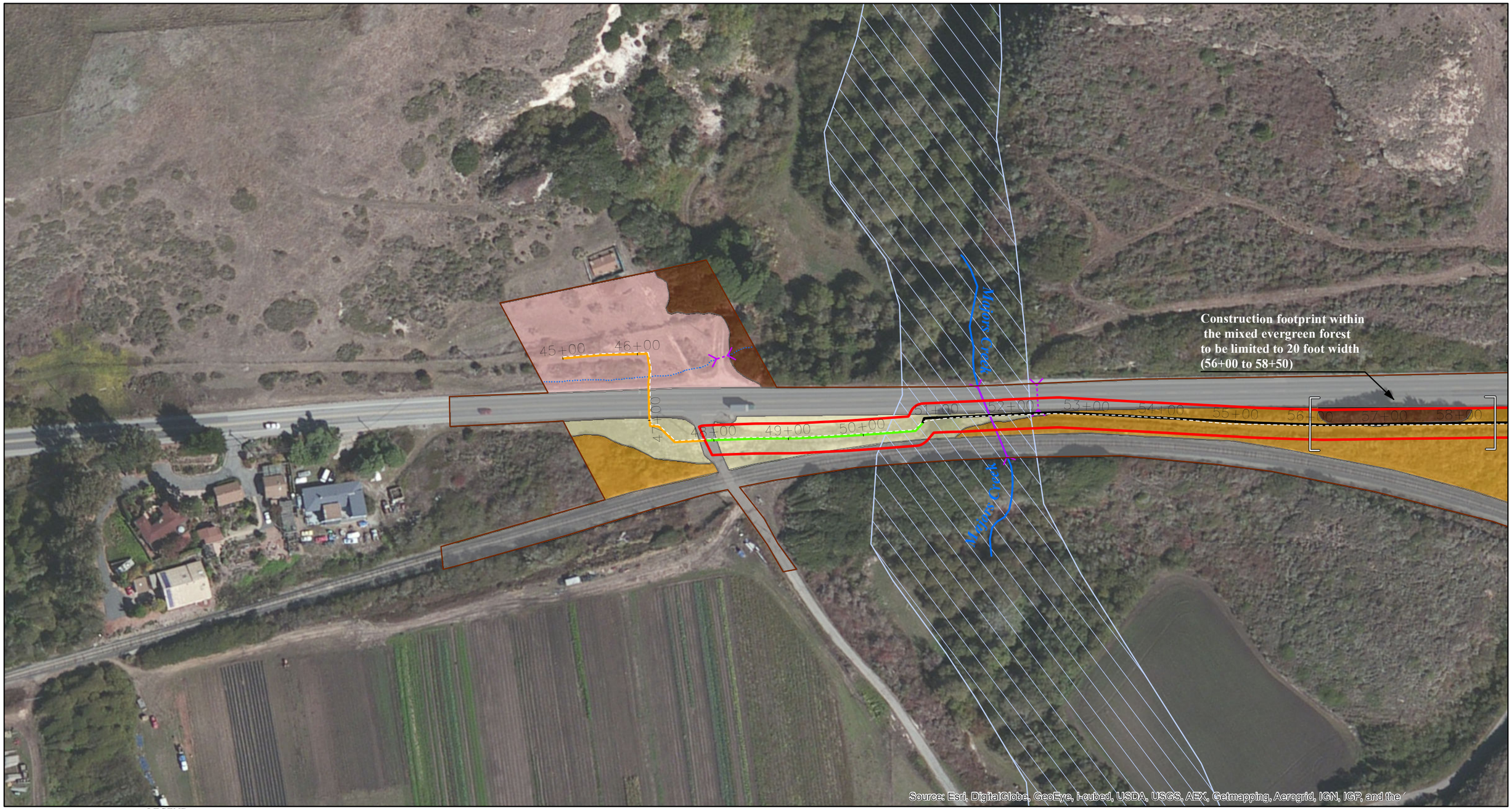


LSA

LEGEND

- Area of Potential Impact
- Study Corridor
- Existing Raw Water Main
- 100-Year Flood Zone

**Activity**

- abandon and remove above ground pipeline or meter
- install new pipeline (trenchless)
- install new pipeline (open trenching)
- remove existing pipeline and install new pipeline (within casing underneath highway crossing tunnel)
- install new pipeline (open trenching - new lateral)
- remove above ground pipeline and install new pipeline (open trenching)
- use existing pipeline
- use existing pipeline (staging and stockpiling along highway shoulder)

**Habitats***

- Agriculture
- Coastal Scrub
- Developed
- Mixed Evergreen Forest
- Non-Native Grassland
- Non-Native Grassland/ Coastal Terrace Prairie
- Riparian Forest and Scrub
- Ruderal/ Landscaped/ Ornamental

* Habitats adapted by LSA from City of Santa Cruz Habitat Conservation Plan (HCP)

**Potential Jurisdictional Features**

- Freshwater Pond
- Seasonal or Seep Wetland
- Stream/Drainage
- Ditch
- Culvert

**Other Features (Non-jurisdictional)**

- Seasonal Wetland
- Irrigation Pond
- Ditch
- Culvert

0 62.5 125
FEET

SOURCE: ESRI World Imagery Service (10/26/2010).

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FIGURE 1 of 15

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Habitats in Area of Potential Impact

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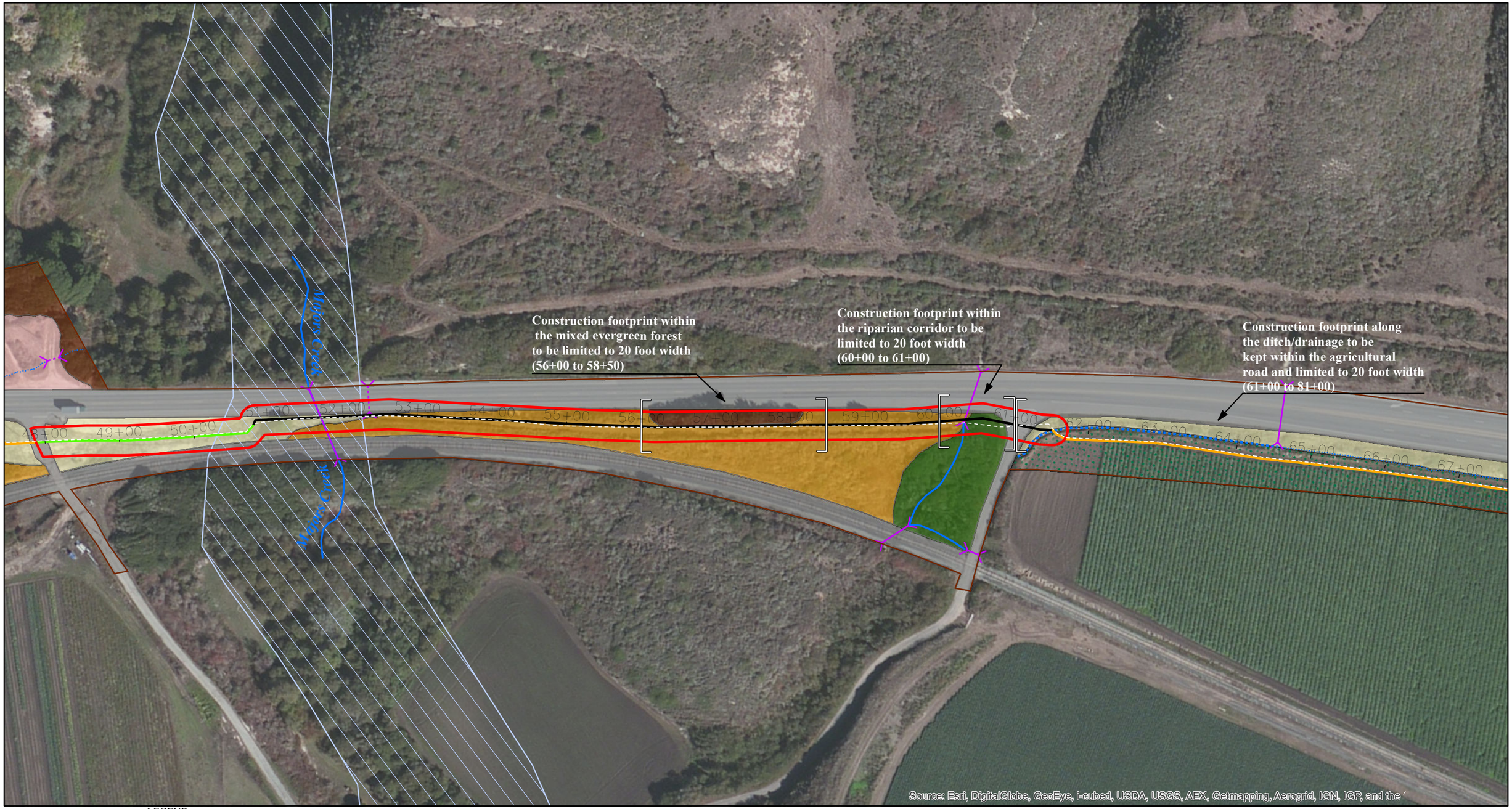


LSA

LEGEND

- Area of Potential Impact
- Study Corridor
- Existing Raw Water Main
- 100-Year Flood Zone

**Activity**

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**Habitats***

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- Developed
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**Potential Jurisdictional Features**

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- Ditch
- Culvert

**Other Features (Non-jurisdictional)**

- Seasonal Wetland
- Irrigation Pond
- Ditch
- Culvert

0 62.5 125
FEET

SOURCE: ESRI World Imagery Service (10/26/2010).

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FIGURE 2 of 15

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Habitats in Area of Potential Impact

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LSA

LEGEND

- Area of Potential Impact
- Study Corridor
- Existing Raw Water Main
- 100-Year Flood Zone

**Activity**

- abandon and remove above ground pipeline or meter
- install new pipeline (trenchless)
- install new pipeline (open trenching)
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- install new pipeline (open trenching - new lateral)
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- use existing pipeline (staging and stockpiling along highway shoulder)

**Habitats***

- Agriculture
- Coastal Scrub
- Developed
- Mixed Evergreen Forest
- Non-Native Grassland
- Non-Native Grassland/ Coastal Terrace Prairie
- Riparian Forest and Scrub
- Ruderal/ Landscaped/ Ornamental

* Habitats adapted by LSA from City of Santa Cruz Habitat Conservation Plan (HCP)

**Potential Jurisdictional Features**

- Freshwater Pond
- Seasonal or Seep Wetland
- Stream/Drainage
- Ditch
- Culvert

**Other Features (Non-jurisdictional)**

- Seasonal Wetland
- Irrigation Pond
- Ditch
- Culvert

0 62.5 125
FEET

SOURCE: ESRI World Imagery Service (10/26/2010).

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FIGURE 3 of 15

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Habitats in Area of Potential Impact

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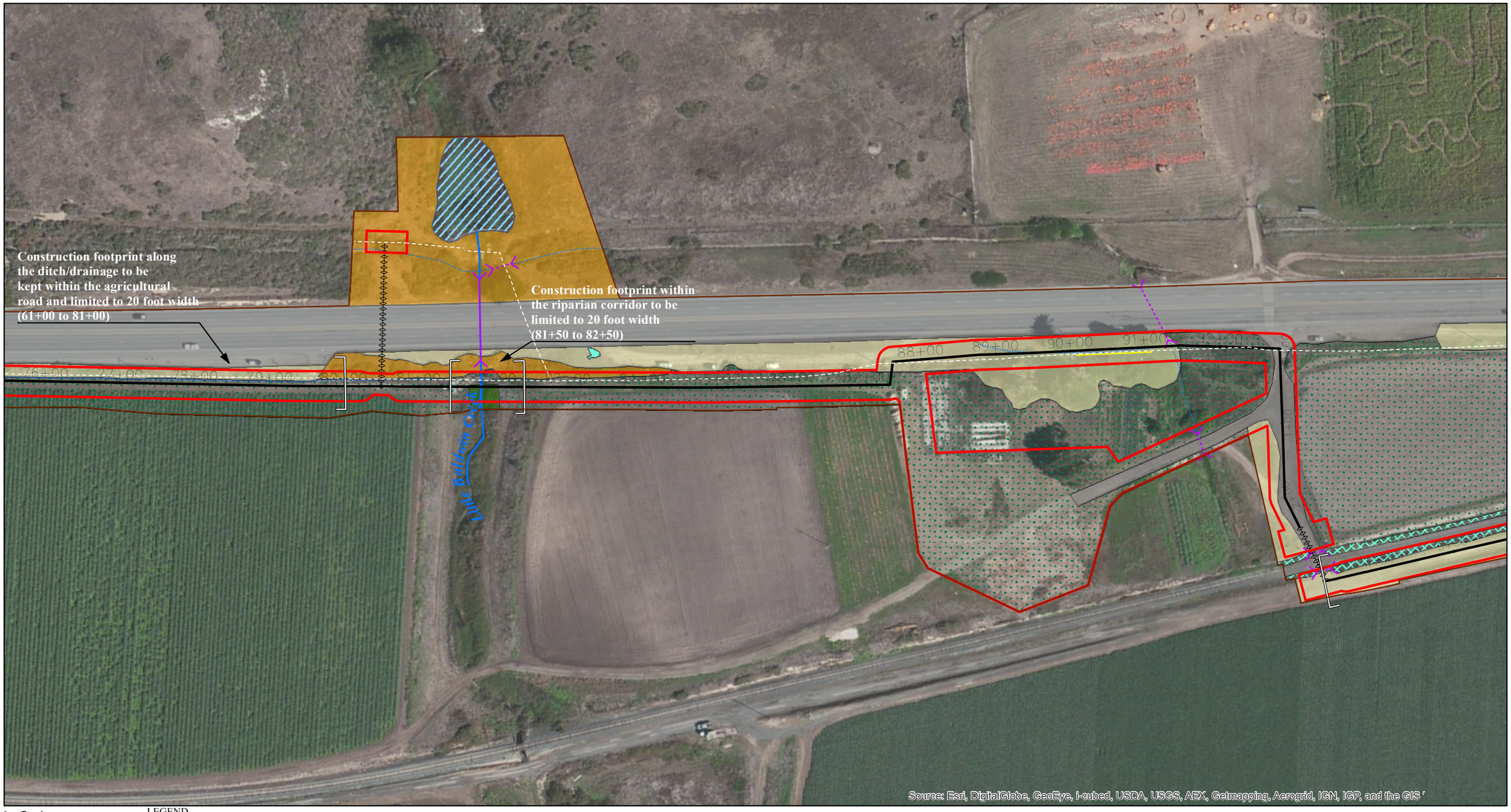


LSA

LEGEND

- Area of Potential Impact
- Study Corridor
- Existing Raw Water Main
- 100-Year Flood Zone

**Activity**

- abandon and remove above ground pipeline or meter
- install new pipeline (trenchless)
- install new pipeline (open trenching)
- remove existing pipeline and install new pipeline (within casing underneath highway crossing tunnel)
- install new pipeline (open trenching - new lateral)
- remove above ground pipeline and install new pipeline (open trenching)
- use existing pipeline
- use existing pipeline (staging and stockpiling along highway shoulder)

**Habitats***

- Agriculture
- Coastal Scrub
- Developed
- Mixed Evergreen Forest
- Non-Native Grassland
- Non-Native Grassland/ Coastal Terrace Prairie
- Riparian Forest and Scrub
- Ruderal/ Landscaped/ Ornamental

* Habitats adapted by LSA from City of Santa Cruz Habitat Conservation Plan (HCP)

**Potential Jurisdictional Features**

- Freshwater Pond
- Seasonal or Seep Wetland
- Stream/Drainage
- Ditch
- Culvert

**Other Features (Non-jurisdictional)**

- Seasonal Wetland
- Irrigation Pond
- Ditch
- Culvert

0 62.5 125
FEET

SOURCE: ESRI World Imagery Service (10/26/2010).

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FIGURE 4 of 15

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Habitats in Area of Potential Impact

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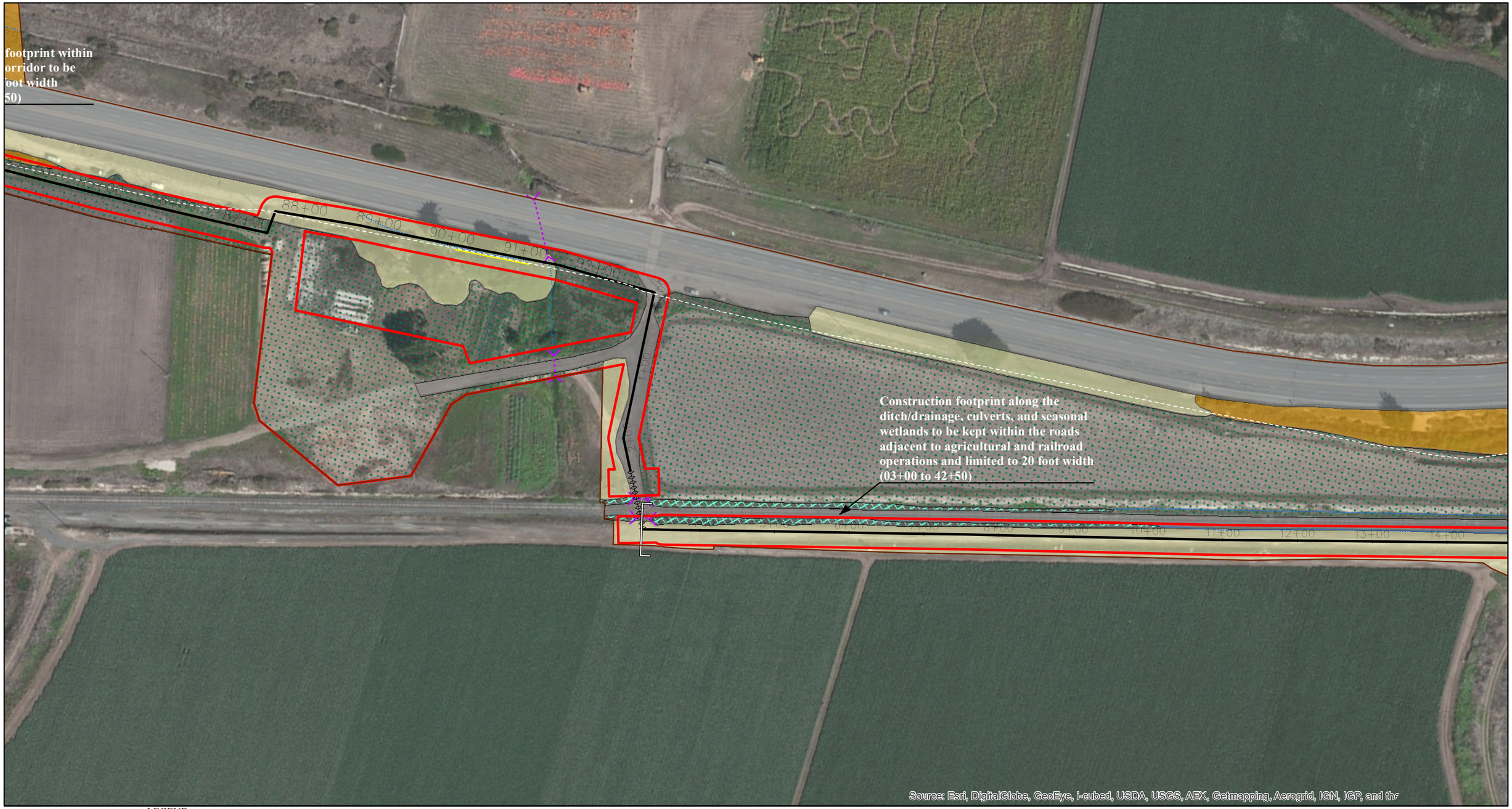


LSA

LEGEND

- Area of Potential Impact
- Study Corridor
- Existing Raw Water Main
- 100-Year Flood Zone

**Activity**

- abandon and remove above ground pipeline or meter
- install new pipeline (trenchless)
- install new pipeline (open trenching)
- remove existing pipeline and install new pipeline (within casing underneath highway crossing tunnel)
- install new pipeline (open trenching - new lateral)
- remove above ground pipeline and install new pipeline (open trenching)
- use existing pipeline
- use existing pipeline (staging and stockpiling along highway shoulder)

**Habitats***

- Agriculture
- Coastal Scrub
- Developed
- Mixed Evergreen Forest
- Non-Native Grassland
- Non-Native Grassland/ Coastal Terrace Prairie
- Riparian Forest and Scrub
- Ruderal/ Landscaped/ Ornamental

* Habitats adapted by LSA from City of Santa Cruz Habitat Conservation Plan (HCP)

**Potential Jurisdictional Features**

- Freshwater Pond
- Seasonal or Seep Wetland
- Stream/Drainage
- Ditch
- Culvert

**Other Features (Non-jurisdictional)**

- Seasonal Wetland
- Irrigation Pond
- Ditch
- Culvert

0 62.5 125
FEET

SOURCE: ESRI World Imagery Service (10/26/2010).

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FIGURE 5 of 15

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Habitats in Area of Potential Impact

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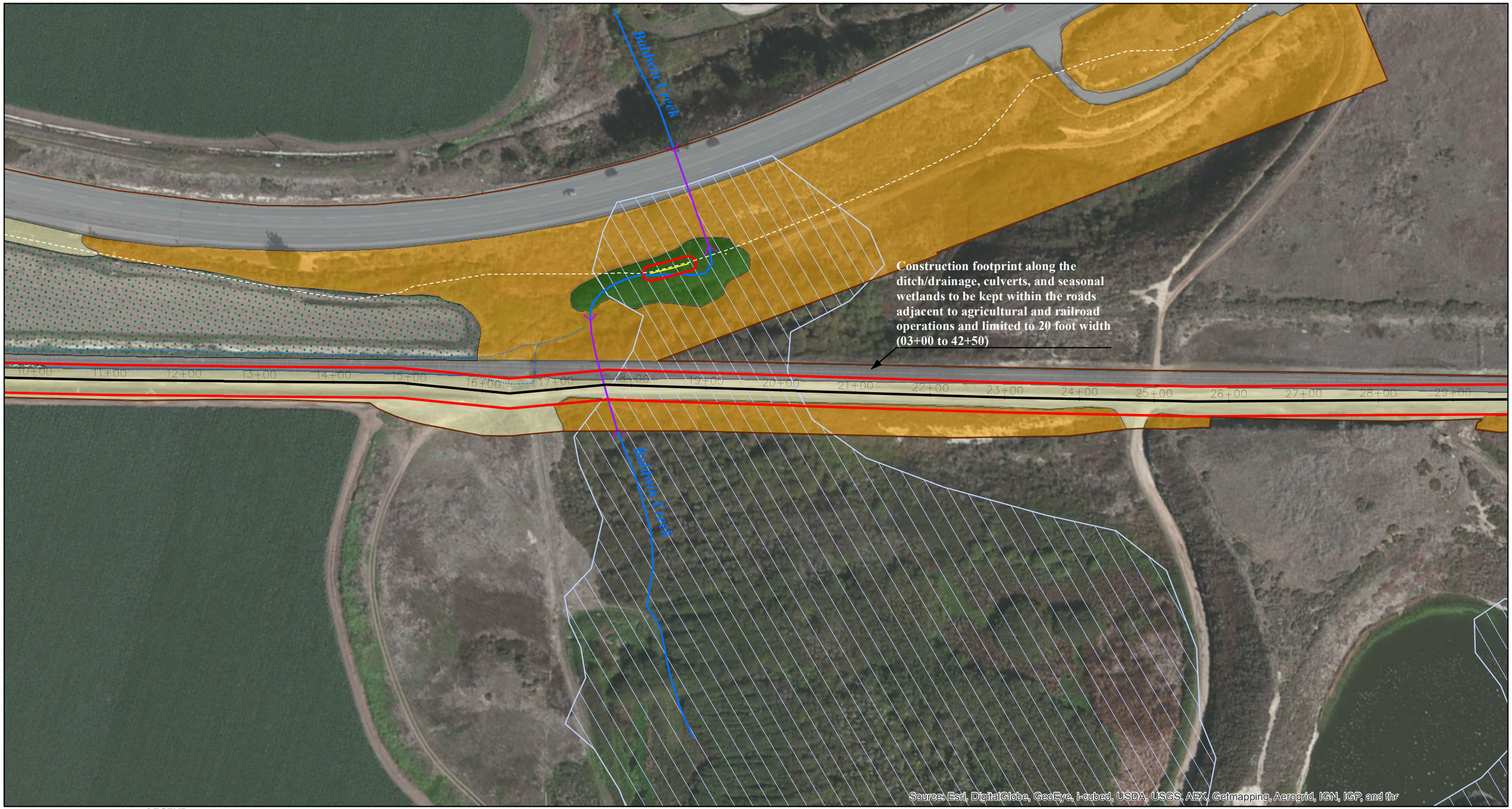


LSA

LEGEND

- Area of Potential Impact
- Study Corridor
- Existing Raw Water Main
- 100-Year Flood Zone

**Activity**

- abandon and remove above ground pipeline or meter
- install new pipeline (trenchless)
- install new pipeline (open trenching)
- remove existing pipeline and install new pipeline (within casing underneath highway crossing tunnel)
- install new pipeline (open trenching - new lateral)
- remove above ground pipeline and install new pipeline (open trenching)
- use existing pipeline
- use existing pipeline (staging and stockpiling along highway shoulder)

**Habitats***

- Agriculture
- Coastal Scrub
- Developed
- Mixed Evergreen Forest
- Non-Native Grassland
- Non-Native Grassland/ Coastal Terrace Prairie
- Riparian Forest and Scrub
- Ruderal/ Landscaped/ Ornamental

* Habitats adapted by LSA from City of Santa Cruz Habitat Conservation Plan (HCP)

**Potential Jurisdictional Features**

- Freshwater Pond
- Seasonal or Seep Wetland
- Stream/Drainage
- Ditch
- Culvert

**Other Features (Non-jurisdictional)**

- Seasonal Wetland
- Irrigation Pond
- Ditch
- Culvert

0 62.5 125
FEET

SOURCE: ESRI World Imagery Service (10/26/2010).

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FIGURE 6 of 15

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Habitats in Area of Potential Impact

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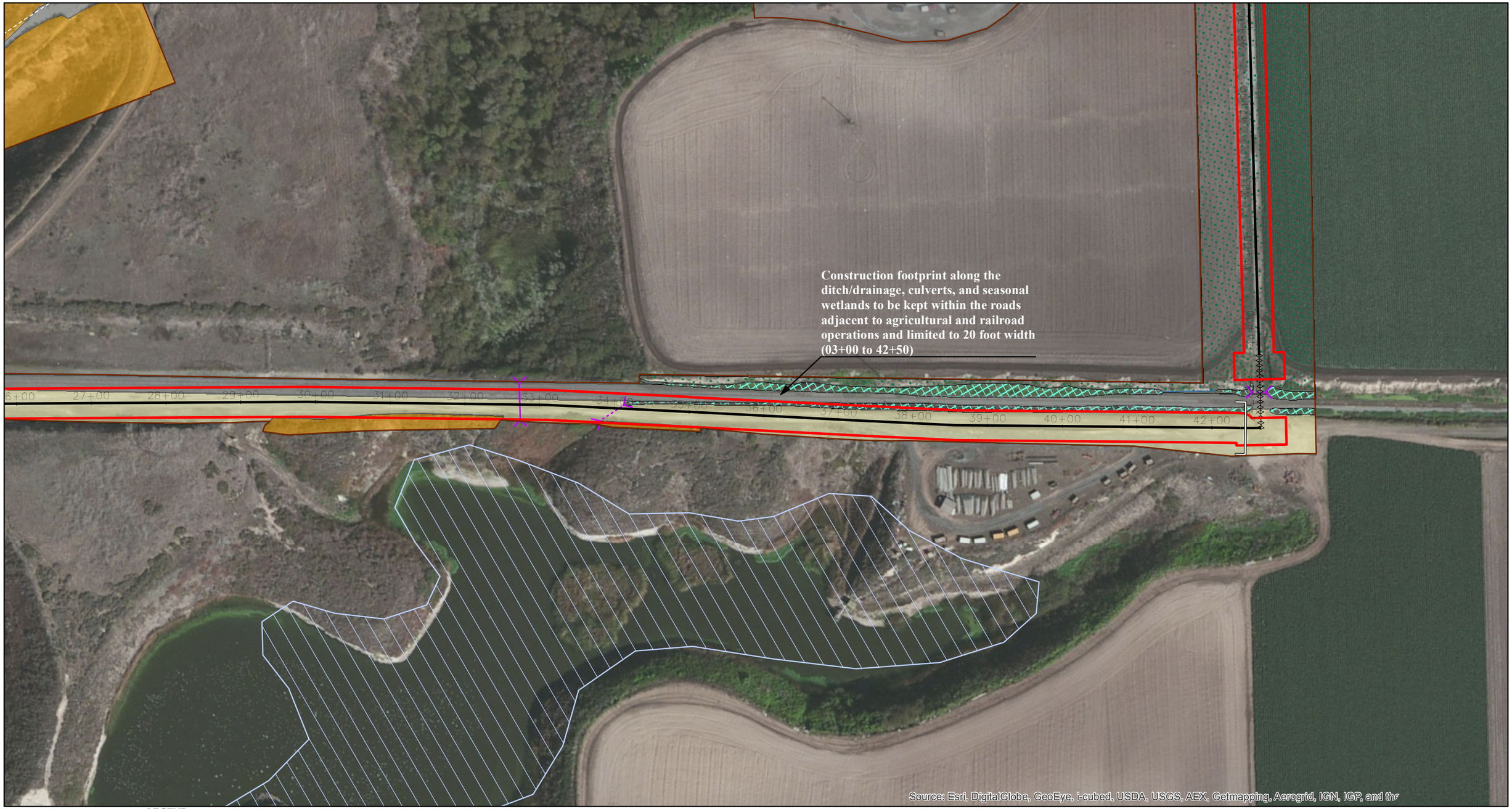


LSA

LEGEND

- Area of Potential Impact
- Study Corridor
- Existing Raw Water Main
- 100-Year Flood Zone

**Activity**

- abandon and remove above ground pipeline or meter
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**Habitats***

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**Potential Jurisdictional Features**

- Freshwater Pond
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- Ditch
- Culvert

**Other Features (Non-jurisdictional)**

- Seasonal Wetland
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SOURCE: ESRI World Imagery Service (10/26/2010).

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*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Habitats in Area of Potential Impact

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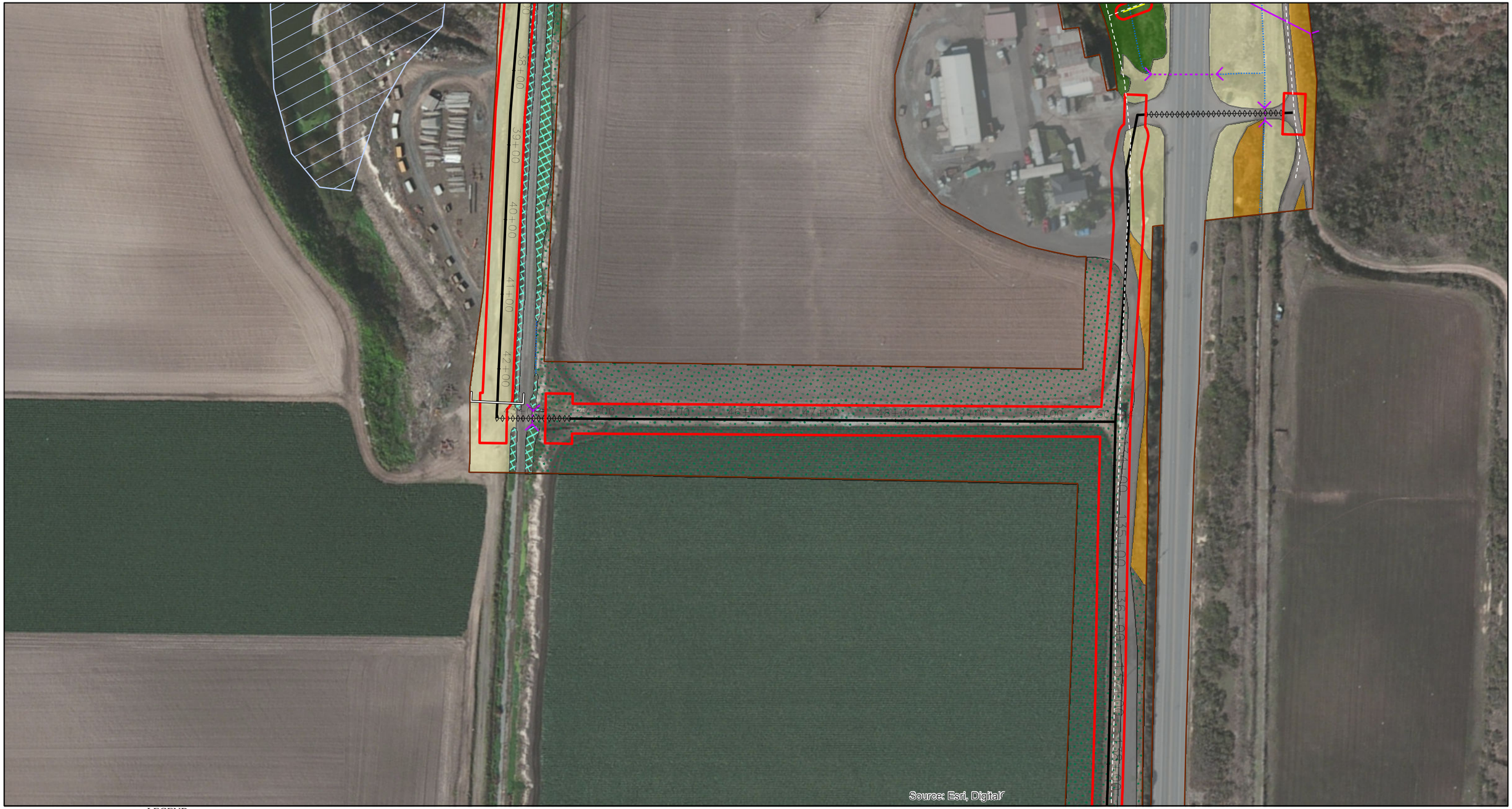


LSA

LEGEND

- Area of Potential Impact
- Study Corridor
- Existing Raw Water Main
- 100-Year Flood Zone

**Activity**

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**Habitats***

- Agriculture
- Coastal Scrub
- Developed
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- Non-Native Grassland
- Non-Native Grassland/ Coastal Terrace Prairie
- Riparian Forest and Scrub
- Ruderal/ Landscaped/ Ornamental

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**Potential Jurisdictional Features**

- Freshwater Pond
- Seasonal or Seep Wetland
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**Other Features (Non-jurisdictional)**

- Seasonal Wetland
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FEET

SOURCE: ESRI World Imagery Service (10/26/2010).

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FIGURE 8 of 15

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Habitats in Area of Potential Impact

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LSA

LEGEND

- Area of Potential Impact
- Study Corridor
- Existing Raw Water Main
- 100-Year Flood Zone

0 62.5 125
FEET

**Activity**

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**Potential Jurisdictional Features**

- Freshwater Pond
- Seasonal or Seep Wetland
- Stream/Drainage
- Ditch
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**Other Features (Non-jurisdictional)**

- Seasonal Wetland
- Irrigation Pond
- Ditch
- Culvert

SOURCE: ESRI World Imagery Service (10/26/2010).

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FIGURE 9 of 15

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Habitats in Area of Potential Impact

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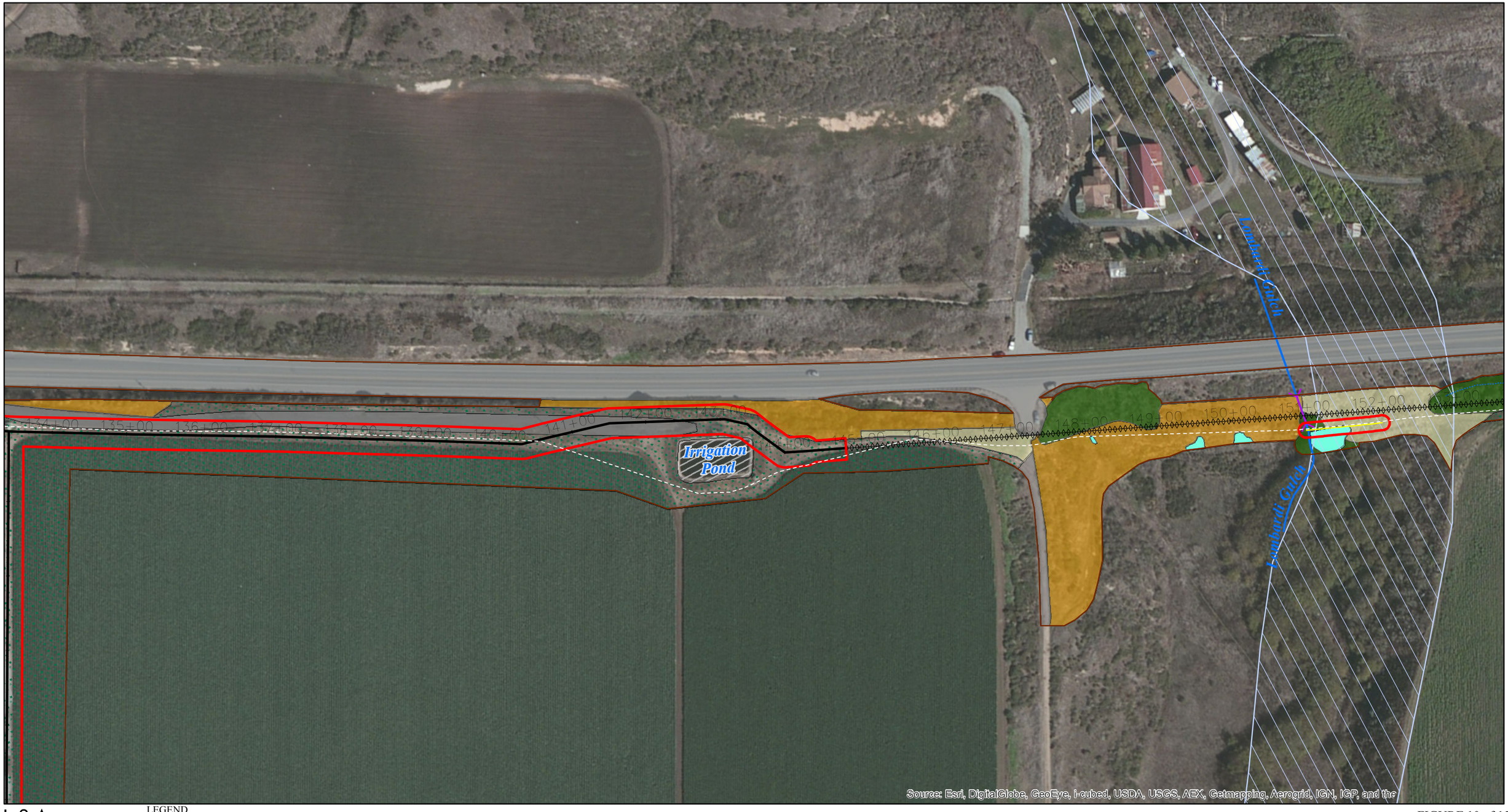


LSA

LEGEND

- Area of Potential Impact
- Study Corridor
- Existing Raw Water Main
- 100-Year Flood Zone

**Activity**

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**Potential Jurisdictional Features**

- Freshwater Pond
- Seasonal or Seep Wetland
- Stream/Drainage
- Ditch
- Culvert

**Other Features (Non-jurisdictional)**

- Seasonal Wetland
- Irrigation Pond
- Ditch
- Culvert

0 62.5 125
FEET

SOURCE: ESRI World Imagery Service (10/26/2010).

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FIGURE 10 of 15

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Habitats in Area of Potential Impact

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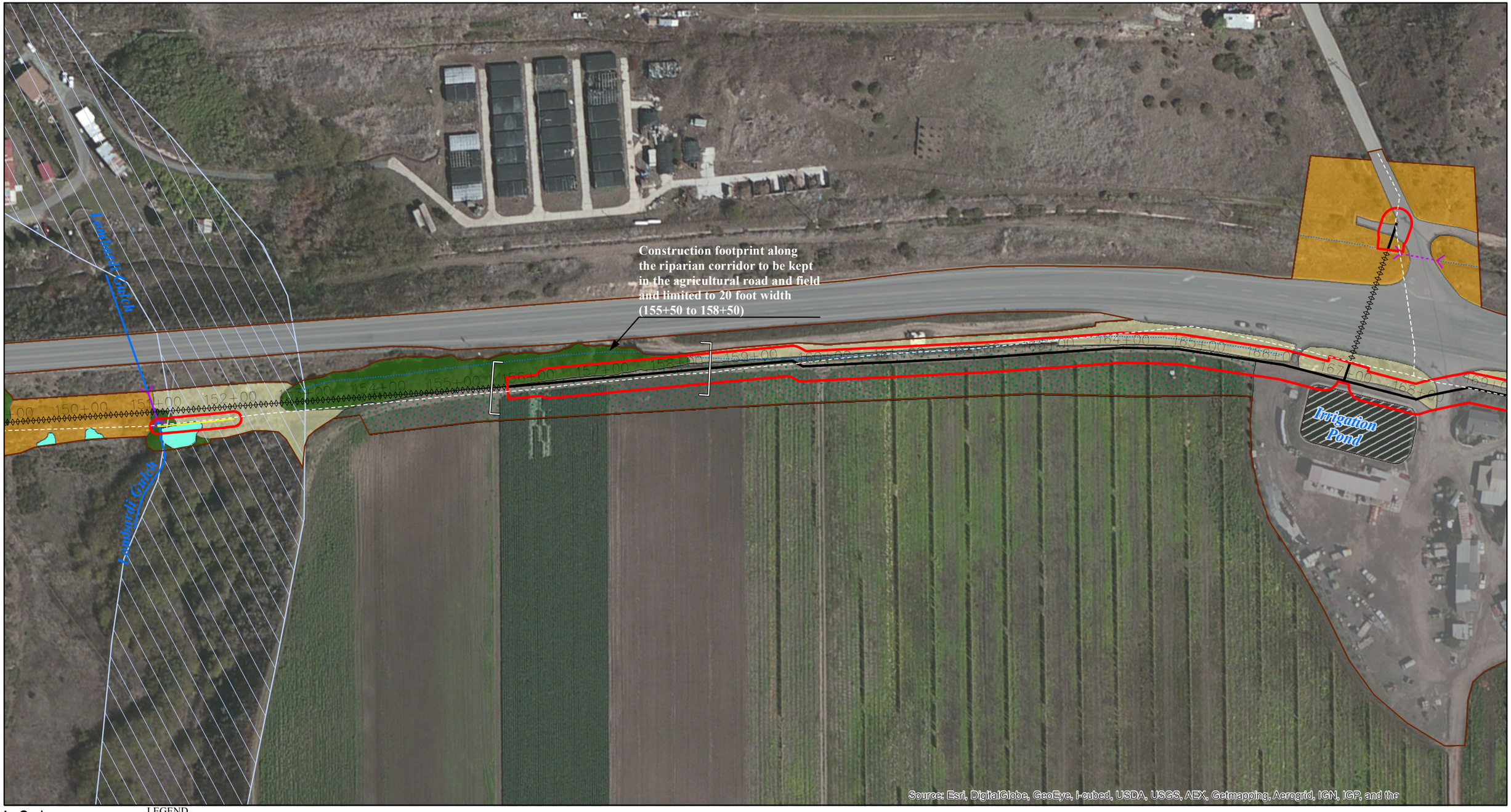


LSA

LEGEND

- Area of Potential Impact
- Study Corridor
- Existing Raw Water Main
- 100-Year Flood Zone

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**Other Features (Non-jurisdictional)**

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FEET

SOURCE: ESRI World Imagery Service (10/26/2010).

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FIGURE 11 of 15

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Habitats in Area of Potential Impact

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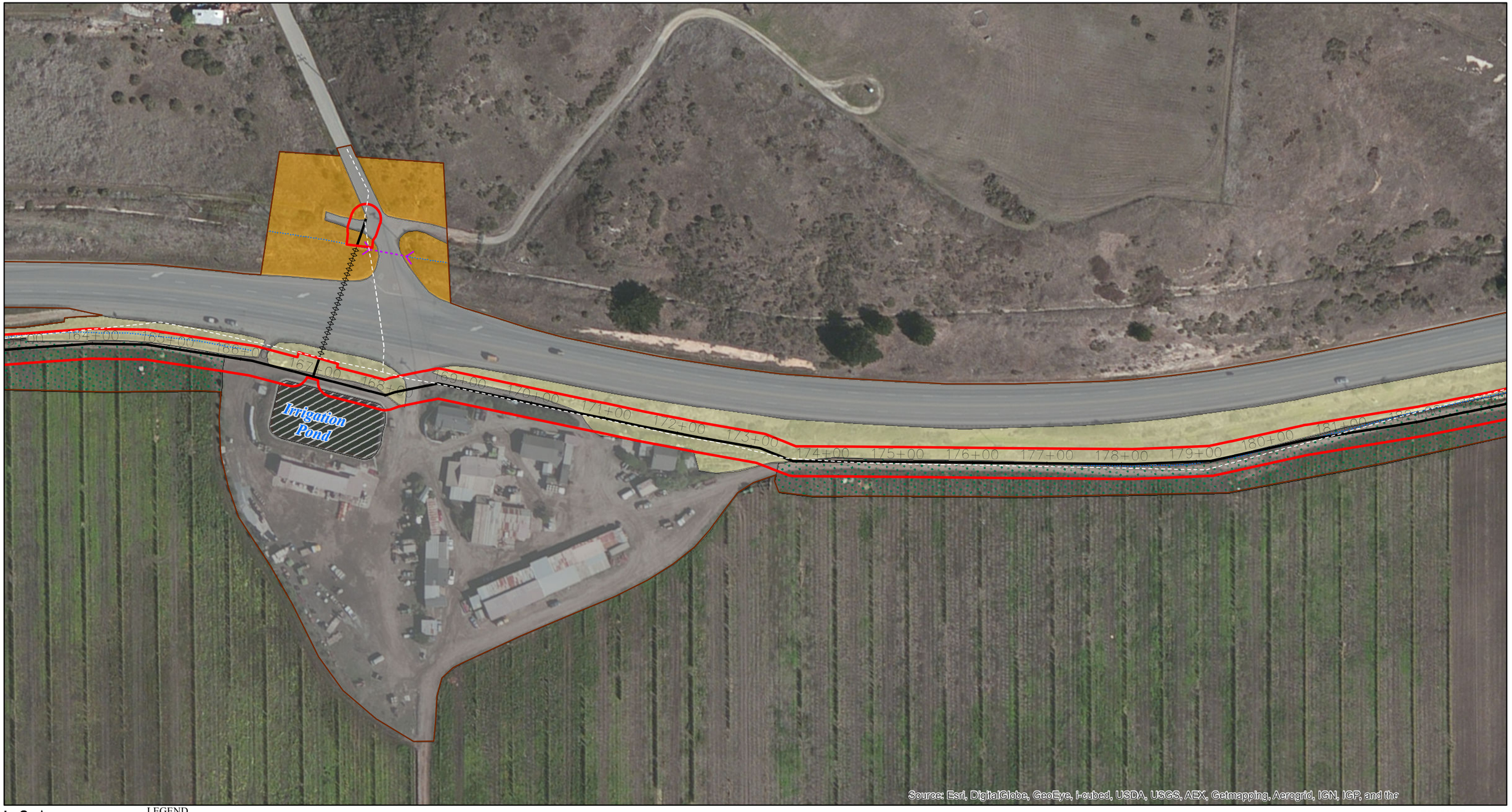


LSA

LEGEND

- Area of Potential Impact
- Study Corridor
- Existing Raw Water Main
- 100-Year Flood Zone

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0 62.5 125
FEET

SOURCE: ESRI World Imagery Service (10/26/2010).

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FIGURE 12 of 15

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Habitats in Area of Potential Impact

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LSA

LEGEND

- Area of Potential Impact
- Study Corridor
- Existing Raw Water Main
- 100-Year Flood Zone

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0 62.5 125
FEET

SOURCE: ESRI World Imagery Service (10/26/2010).

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FIGURE 13 of 15

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Habitats in Area of Potential Impact

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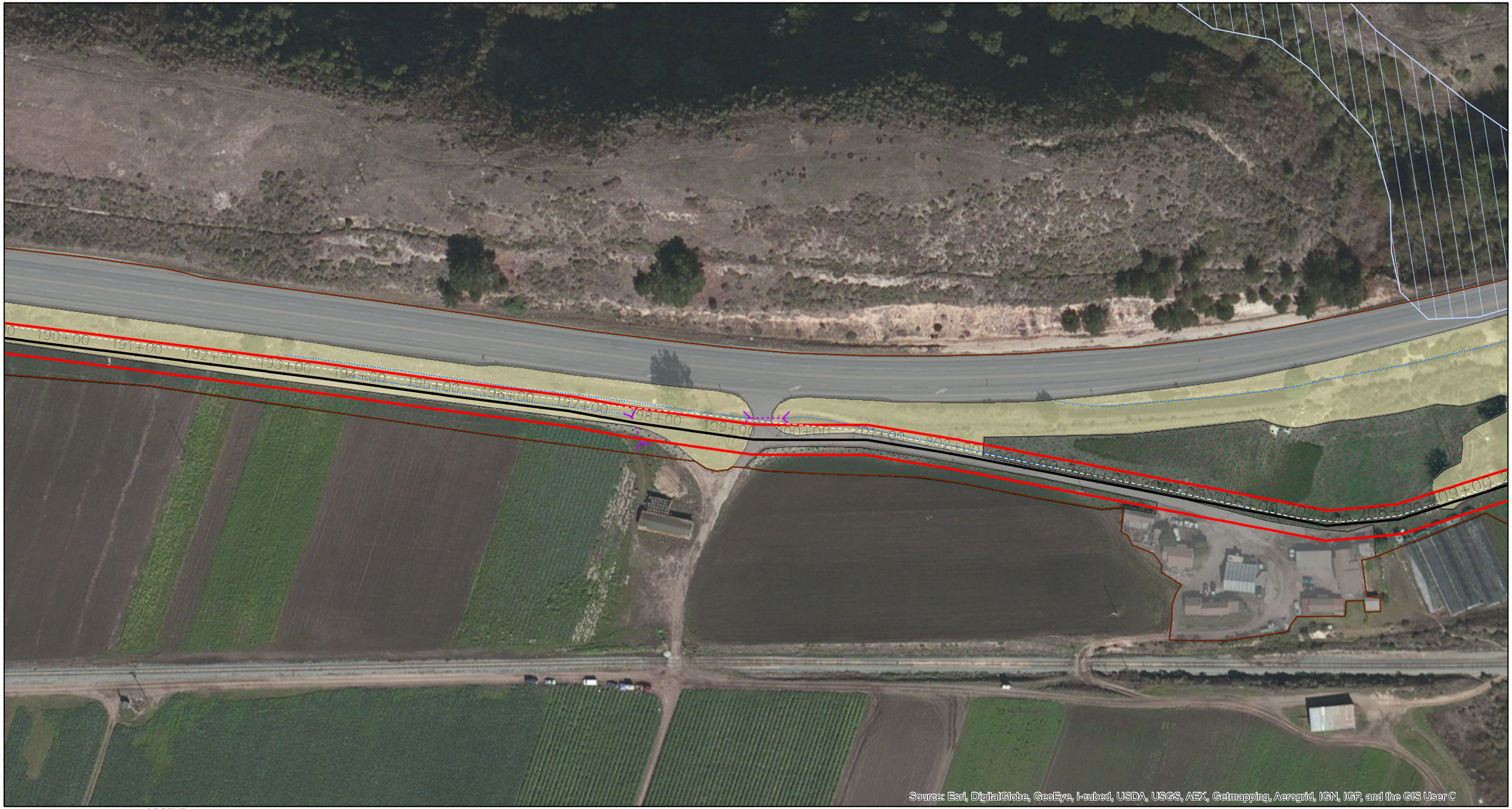


LSA

LEGEND

- Area of Potential Impact
- Study Corridor
- Existing Raw Water Main
- 100-Year Flood Zone

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0 62.5 125
FEET

SOURCE: ESRI World Imagery Service (10/26/2010).

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FIGURE 14 of 15

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Habitats in Area of Potential Impact

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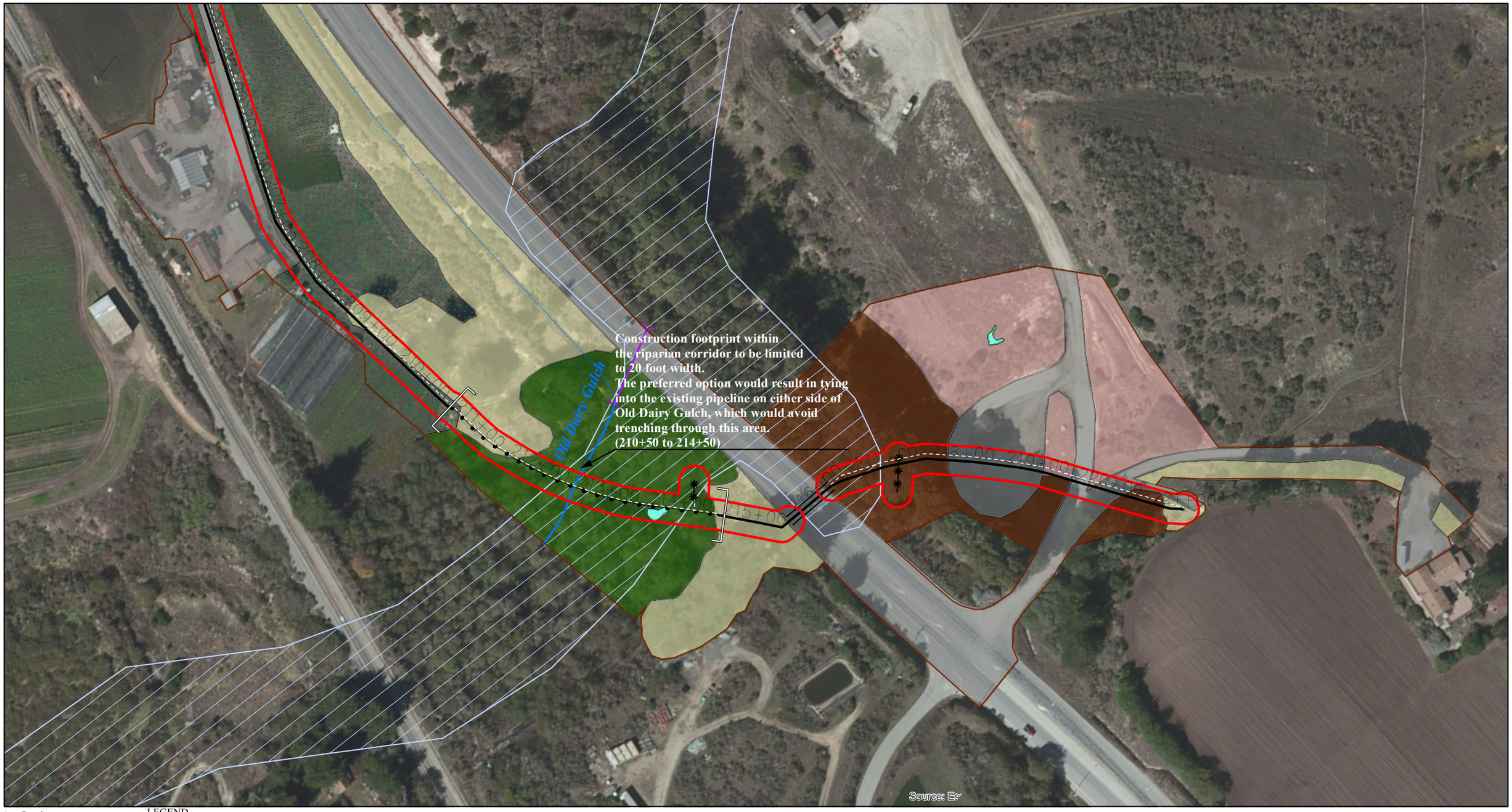


LSA

LEGEND

- Area of Potential Impact
- Study Corridor
- Existing Raw Water Main
- 100-Year Flood Zone

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FIGURE 15 of 15

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Habitats in Area of Potential Impact

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# APPENDIX C

# SPECIES LISTS

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**Table A: Plant Species Observed at the North Coast System Repair Project Alignment (April 19 and August 6, 2013, and May 29 and 30, 2014)**

| FAMILY/Species Name - scientific | FAMILY/ Common Name | Nativity |
|---|---|---|
| **FERNS and FERN ALLIES** | | |
| BETULACEAE | BIRCH FAMILY | |
| *Alnus rubra* | Red alder | yes |
| | | |
| BLECHNACEAE | DEER FERN FAMILY | |
| *Woodwardia fimbriata* | Giant chain fern | yes |
| | | |
| DENNSTAEDTIACEAE | BRACKEN FAMILY | |
| *Pteridium aquilinum* | Bracken fern | yes |
| | | |
| EQUISETACEAE | HORSETAIL FAMILY | |
| *Equisetum telmateia* ssp. *braunii* | Giant horsetail | yes |
| | | |
| POLYPODIACEAE | POLYPODY FAMILY | |
| *Polypodium californicum* | California polypody | yes |
| | | |
| **GYMNOSPERMS** | | |
| CUPRESSACEAE | CYPRESS FAMILY | |
| *Hesperocyparis macrocarpa* | Monterey cypress | yes |
| *Juniperus* sp. | Common juniper | no |
| | | |
| PINACEAE | PINE FAMILY | |
| *Pinus radiata* | Monterey pine | yes |
| *Pseudotsuga menziesii* | Common Douglas-fir | yes |
| | | |
| **EUDICOTS** | | |
| ADOXACEAE | MUSKROOT FAMILY | |
| *Sambucus nigra* subs. *caerulea* | Blue elderberry | yes |
| | | |
| AIZOACEAE | ICEPLANT FAMILY | |
| *Carpobrotus edulis* | Freeway iceplant | no |
| | | |
| ANACARDIACEAE | SUMAC/CASHEW FAMILY | |
| *Toxicodendron diversilobum* | Poison oak | yes |
| | | |
| APIACEAE | CARROT FAMILY | |
| *Anthriscus caucalis* | Bur chervil | no |
| *Cicuta douglasii* | Western water hemlock | yes |
| *Conium maculatum* | Poison hemlock | no |
| *Daucus pusillus* | California carrot | yes |

| FAMILY/Species Name - scientific | FAMILY/ Common Name | Nativity |
|---|---|---|
| *Foeniculum vulgare* | Fennel | no |
| *Sanicula crassicaulis* | Pacific sanicle | yes |
| | | |
| APOCYNACEAE | DOGBANE FAMILY | |
| *Vinca major* | Periwinkle | no |
| *Nerium oleander* | Oleander | no |
| | | |
| ARALIACEAE | GINSENG FAMILY | |
| *Hedera canariensis* | Canary Island ivy | no |
| | | |
| ASPHODELACEAE | ASPHODEL FAMILY | |
| *Aloe* sp. | Aloe | no |
| | | |
| ASTERACEAE | SUNFLOWER FAMILY | |
| *Achillea millefolium* | Yarrow | yes |
| *Artemisia californica* | California sagebrush | yes |
| *Artemisia douglasiana* | Mugwort | yes |
| *Baccharis glutinosa* | Marsh baccharis | yes |
| *Baccharis pilularis* subsp. *consanguinea* | Coyote brush | yes |
| *Baccharis pilularis* subsp. | Coyote brush | yes |
| *Calendula arvensis* | Field marigold | no |
| *Carduus pycnocephalus* | Italian thistle | no |
| *Cirsium vulgare* | Bull thistle | no |
| *Erigeron canadensis* | Canadian horseweed | yes |
| *Corethrogyne filaginifolia* | Common aster | yes |
| *Eriophyllum staechadifolium* | Lizard tail | yes |
| *Gamochaeta ustulata* | Purple cudweed | yes |
| *Helminthotheca echioides* | Bristly ox-tongue | no |
| *Hieracium albiflorum* | Hawkweed | yes |
| *Hypochaeris radicata* | Rough cat's ears | no |
| *Lactuca serriola* | Prickly lettuce | no |
| *Matricaria discoidea* | Pineapple weed | no |
| *Pseudognaphalium luteoalbum* | Jersey cudweed | no |
| *Crepis vesicaria* ssp. *taraxacifolia* | Rough hawksbeard | no |
| *Senecio vulgaris* | Common groundsel | no |
| *Silybum marianum* | Milk thistle | no |
| *Solidago velutina* | Three nerve goldenrod | yes |
| *Sonchus asper* | Sow thistle | no |
| *Sonchus oleraceus* | Common sow thistle | no |
| | | |
| BORAGINACEAE | BORAGE FAMILY | |
| *Echium candicans* | Pride of Madeira | no |
| *Phacelia* sp. | Phacelia | yes |
| | | |

| **FAMILY/Species Name - scientific** | **FAMILY/ Common Name** | **Nativity** |
|---|---|---|
| BRASSICACEAE | MUSTARD FAMILY | |
| *Brassica rapa* | Field mustard | no |
| *Capsella bursa-pastoris* | Shepherd's purse | no |
| *Cardamine oligosperma* | Bittercress | yes |
| *Hirschfeldia incana* | Shortpod mustard | no |
| *Lepidium nitidum* | Shining peppergrass | no |
| *Lepidium strictum* | Upright pepperweed | no |
| *Lobularia maritima* | Sweet alyssum | no |
| *Raphanus sativus* | Wild radish | no |
| *Rorippa nasturtium-aquaticum* | Water cress | yes |
| | | |
| CARYOPHYLLACEAE | PINK FAMILY | |
| *Cerastium glomeratum* | Mouse ears | no |
| *Spergularia rubra* | Red sandspurry | no |
| *Stellaria media* | Chickweed | no |
| | | |
| CONVOLVULACEAE | MORNING GLORY FAMILY | |
| *Convolvulus arvensis* | Field bindweed | no |
| *Calystegia purpurata* ssp. *purpurata* | Pacific false bindweed | yes |
| | | |
| CORNACEAE | DOGWOOD FAMILY | |
| *Cornus sericea* | Redosier dogwood | yes |
| | | |
| CUCURBITACEAE | GOURD FAMILY | |
| *Marah fabacea* | Wild cucumber | yes |
| | | |
| CRASSULACEAE | STONECROP FAMILY | |
| *Dudleya farinosa* | Bluff lettuce | yes |
| | | |
| DIPSACACEAE | TEASEL FAMILY | |
| *Dipsacus sativus* | Fuller's teasel | no |
| *Scabiosa atropurpurea* | Pincushion plant | no |
| | | |
| ERICACEAE | HEATH FAMILY | |
| *Arbutus menziesii* | Pacific madrone | yes |
| | | |
| EUPHORBIACEAE | SPURGE FAMILY | |
| *Chamaesyce maculata* | Spotted spurge | no |
| *Euphorbia dentata* | Toothed spurge | no |
| | | |
| FABACEAE | LEGUME FAMILY | |
| *Acacia dealbata* | Silver wattle | no |
| *Acmispon parviflorus* | Small-flowered lotus | yes |
| *Genista monspessulana* | French broom | no |

| FAMILY/Species Name - scientific | FAMILY/ Common Name | Nativity |
|---|---|---|
| *Lathyrus vestitus* | Pacific pea | yes |
| *Lotus corniculatus* | Bird's-foot trefoil | no |
| *Lupinus albifrons* | Silver lupine | yes |
| *Lupinus bicolor* | Miniature lupine | yes |
| *Lupinus nanus* | Sky lupine | yes |
| *Medicago polymorpha* | Bur-clover | no |
| *Melilotus indicus* | Annual yellow sweetclover | no |
| *Trifolium angustifolium* | Narrowleaf crimson clover | no |
| *Trifolium campestre* | Hop clover | no |
| *Trifolium dubium* | Shamrock clover | no |
| *Trifolium glomeratum* | Clustered clover | no |
| *Trifolium hirtum* | Rose clover | no |
| *Trifolium subterraneum* | Subterranean clover | no |
| *Vicia benghalensis* | Purple vetch | no |
| *Vicia sativa* | Spring vetch | no |
| *Vicia villosa* | Hairy vetch | no |
| | | |
| FAGACEAE | OAK FAMILY | |
| *Quercus agrifolia* | Coast live oak | yes |
| | | |
| GENTIANACEAE | GENTIAN FAMILY | |
| *Zeltnera muehlenbergii* | Muhlenberg's centaury | yes |
| | | |
| GERANIACEAE | GERANIUM FAMILY | |
| *Erodium cicutarium* | Redstem filaree | no |
| *Erodium moschatum* | Whitestem filaree | no |
| *Erodium texanum* | Texas storksbill | yes |
| *Geranium dissectum* | Cutleaf geranium | no |
| *Geranium molle* | Woodland geranium | no |
| *Pelargonium* sp. | Garden geranium | yes |
| | | |
| GROSSULARIACEAE | GOOSEBERRY FAMILY | |
| *Escallonia rubra* | Redclaws | no |
| | | |
| LAMIACEAE | MINT FAMILY | |
| *Clinopodium douglasii* | Yerba buena | yes |
| *Mentha pulegium* | Pennyroyal | no |
| *Rosmarinus officinals* | Rosemary | no |
| *Stachys ajugoides* | Hedgenettle | yes |
| *Stachys bullata* | California hedge nettle | yes |
| | | |
| LINACEAE | FLAX FAMILY | |
| *Linum bienne* | Flax | no |
| | | |

| FAMILY/Species Name - scientific | FAMILY/ Common Name | Nativity |
|---|---|---|
| LYTHRACEAE | LOOSETRIFE FAMILY | |
| *Lythrum hyssopifolia* | Hyssopp loosetrife | no |
| | | |
| MALVACEAE | MALLOW FAMILY | |
| *Malva arborea* | Velvet tree-mallow | no |
| *Malva parviflora* | Cheeses | no |
| *Malva neglecta* | Common mallow | no |
| | | |
| MONTIACEAE | PURSLANE FAMILY | |
| *Claytonia perfoliata* | Miner's lettuce | yes |
| | | |
| MYRSINACEAE | MYRSINE FAMILY | |
| *Anagallis arvensis* | Scarlet pimpernel | no |
| | | |
| MYRTACEAE | MYRTLE FAMILY | |
| *Callistemon citrinus* | Crimson bottlebrush | no |
| *Eucalyptus globulus* | Blue gum eucalyptus | no |
| | | |
| ONAGRACEAE | EVENING PRIMROSE FAMILY | |
| *Epilobium brachycarpum* | Annual willow herb | yes |
| *Epilobium cilliatum* | Northern willow herb | yes |
| | | |
| OROBANCHACEAE | BROOMRAPE FAMILY | |
| *Castilleja affinis ssp. affinis* | Indian paintbrush | yes |
| | | |
| OXALIDACEAE | OXALIS FAMILY | |
| *Oxalis pes-caprae* | Bermuda buttercup | no |
| *Oxalis pilosa* | Hairy wood sorrel | no |
| | | |
| PAPAVERACEAE | POPPY FAMILY | |
| *Eschscholzia californica* | California poppy | yes |
| | | |
| PHRYMACEAE | LOPSEED FAMILY | |
| *Mimulus aurantiacus* | Sticky monkeyflower | yes |
| | | |
| PLANTAGINACEAE | PLANTIAN FAMILY | |
| *Kickxsia spuria* | Fluellin | no |
| *Plantago coronopus* | Buckhorn plantain | no |
| *Plantago lanceolata* | English plantain | no |
| | | |
| POACEAE | TRUE GRASSES FAMILY | |
| *Polypogon monspeliensis* | Rabbitsfoot grass | no |
| | | |
| POLYGONACAE | BUCKWHEAT FAMILY | |

| **FAMILY/Species Name - scientific** | **FAMILY/ Common Name** | **Nativity** |
|---|---|---|
| *Eriogonum latifolium* | Coast buckwheat | yes |
| *Eriogonum nudum* | California buckwheat | yes |
| *Polygonum aviculare* subsp. *depressum* | Prostrate knotweed | no |
| *Polygonum paronychia* | Smartweed | yes |
| *Rumex acetosella* | Sheep sorrel | no |
| *Rumex crispus* | Curly dock | no |
| | | |
| RANUNCULACEAE | BUTTERCUP FAMILY | |
| *Ranunculus aquatilis* | Whitewater crowfoot | yes |
| | | |
| RHAMNACEAE | BUCKTHORN FAMILY | |
| *Frangula californica* | California coffeeberry | yes |
| | | |
| ROSACEAE | ROSE FAMILY | |
| *Fragaria vesca* | Wild strawberry | yes |
| *Rosa* sp. | Horticultural rose | no |
| *Rubus armeniacus* | Himalaya blackberry | no |
| *Rubus ursinus* | California blackberry | yes |
| | | |
| RUBIACEAE | MADDER FAMILY | |
| *Galium aparine* | Goose grass | yes |
| | | |
| SALICACEAE | WILLOW FAMILY | |
| *Salix lasiandra* | Pacific willow | yes |
| *Salix lasiolepis* | Arroyo willow | yes |
| | | |
| SCROPHULARIACEAE | FIGWORT FAMILY | |
| *Scrophularia californica* | Bee plant | yes |
| *Verbascum thapsus* | Woolly mullein | no |
| | | |
| SOLANACEAE | NIGHTSHADE FAMILY | |
| *Solanum umbelliferum* | Nightshade | yes |
| | | |
| TROPAEOLACEAE | NASTURTIUM FAMILY | |
| *Tropaeolum majus* | Garden nasturtium | no |
| | | |
| URTICACEAE | NETTLE FAMILY | |
| *Soleirolia soleirolii* | Baby's tears | no |
| *Urtica dioica* | Stinging nettle | yes |
| | | |
| VALERIANACEAE | VALERIAN FAMILY | |
| *Centranthus ruber* | Red valerian | no |
| | | |
| VERBENACEAE | VERVAIN FAMILY | |

| FAMILY/Species Name - scientific | FAMILY/ Common Name | Nativity |
|---|---|---|
| *Verbena* sp. | Verbena | no |
| | | |
| **MONOCOTS** | | |
| AGAVACEAE | AGAVE FAMILY | |
| *Agave americana* | Century plant | no |
| | | |
| AMARYLLIDACEAE | AMARYLLIS FAMILY | |
| *Amaryllis belladonna* | Belladonna lily | no |
| | | |
| ARACEAE | ARUM FAMILY | |
| *Lemna* sp. | Duckweed | yes |
| *Zantedeschia aethiopica* | Calla lily | no |
| | | |
| CYPERACEAE | SEDGE FAMILY | |
| *Carex obnupta* | Slough sedge | yes |
| *Cyperus eragrostis* | Tall flatsedge | yes |
| *Eleocharis* sp. | Spikerush | yes |
| *Schoenoplectus acutus* | Hardstem bulrush | yes |
| *Schoenoplectus californicus* | California bulrush | yes |
| | | |
| IRIDACEAE | IRIS FAMILY | |
| *Iris* sp. | Iris | unknown |
| *Sisyrinchium bellum* | Blue-eyed grass | yes |
| | | |
| JUNCACEAE | RUSH FAMILY | |
| *Juncus balticus* subsp. *ater* | Baltic rush | yes |
| *Juncus bufonius* | Toad rush | yes |
| *Juncus effusus* | Common rush | yes |
| *Juncus patens* | Spreading rush | yes |
| | | |
| TYPHACEAE | CATTAIL FAMILY | |
| *Typha latifolia* | Common cattail | yes |
| | | |
| POACEAE | GRASS FAMILY | |
| *Avena barbata* | Slender wild oat | no |
| *Briza maxima* | Rattlesnake grass | no |
| *Briza minor* | Little quaking grass | no |
| *Bromus carinatus var. carinatus* | California brome | yes |
| *Bromus diandrus* | Ripgut brome | no |
| *Bromus hordeaceus* | Soft cheatgrass | no |
| *Bromus madritensis* | Foxtail chess | no |
| *Cortaderia jubata* | Pampas grass | no |
| *Cynodon dactylon* | Bermuda Grass | no |
| *Cynosurus echinatus* | Dogtail grass | no |

| FAMILY/Species Name - scientific | FAMILY/ Common Name | Nativity |
|---|---|---|
| *Dactylis glomerata* | Orchardgrass | no |
| *Ehrharta erecta* | Panic veldtgrass | no |
| *Elymus glaucus* | Blue wildrye | yes |
| *Festuca arundinacea* | Tall fescue | no |
| *Festuca myuros* | Rat's-tail fescue | no |
| *Festuca perennis* | Italian ryegrass | no |
| *Festuca rubra* | Red fescue | no |
| *Holcus lanatus* | Velvet grass | no |
| *Hordeum brachyantherum* | Meadow barley | yes |
| *Hordeum marinum* subsp. *gussoneanum* | Mediterranean barley | no |
| *Hordeum murinum* subsp. *leporinum* | Hare barley | no |
| *Melica* sp. | Oniongrass | yes |
| *Paspalum dilatatum* | Dallisgrass | no |
| *Phalaris aquatica* | Harding grass | no |
| *Poa annua* | Annual bluegrass | no |
| *Poa secunda* | One-sided bluegrass | yes |
| *Stipa pulchra* | Purple needlegrass | yes |

**Table B: Animal Species Observed in the Vicinity of the Project Alignment**

| Common Name | Scientific Name | Native/Introduced |
|---|---|---|
| **Fish** | | |
| Western mosquitofish | *Gambusia affinis* | I |
| **Amphibians** | | |
| Sierran treefrog | *Pseudacris sierra* | N |
| **Birds** | | |
| American coot | *Fulica americana* | N |
| California gull | *Larus californicus* | N |
| Brown pelican | *Pelecanus occidentalis* | N |
| Red-winged blackbird | *Agelaius phoeniceus* | N |
| Red-tailed hawk | *Buteo jamaicensis* | N |
| Red-shouldered hawk | *Buteo lineatus* | N |
| Turkey vulture | *Cathartes aura* | N |
| Mourning dove | *Zenaida macroura* | N |
| American crow | *Corvus brachyrhynchos* | N |
| Common raven | *Corvus corax* | N |
| Western scrub-jay | *Aphelocoma californica* | N |
| Anna's hummingbird | *Calypte anna* | N |
| Chestnut-backed chickadee | *Poecile rufescens* | N |
| Black phoebe | *Sayornis nigricans* | N |
| Ruby-crowned kinglet | *Regulus calendula* | N |
| Yellow-rumped warbler | *Setophaga coronata* | N |
| Orange-crowned warbler | *Oreothlypis celata* | N |
| Song sparrow | *Melospiza melodia* | N |
| Golden-crowned sparrow | *Zonotrichia atricapilla* | N |
| White-crowned sparrow | *Zonotrichia leucophrys* | N |
| House finch | *Haemorhous mexicanus* | N |
| European starling | *Sturnus vulgaris* | I |
| Bushtit | *Psaltriparus minimus* | N |
| Blue-gray gnatcatcher | *Polioptila caerulea* | N |
| **Mammals** | | |
| Botta's pocket gopher (burrows) | *Thomomys bottae* | N |
| Black-tailed deer (scat) | *Odocoileus hemionus* | N |
| Bobcat* | *Lynx rufus* | N |

N = Native; I = Introduced

*Observed during cultural resources survey on January 25, 2013.

## Table C: Special-Status Species Evaluated for the Project

| Species | Status (Federal/ State/CRPR) | Habitat | Potential for Occurrence[a] |
|---|---|---|---|
| **Plants** | | | |
| Blasdale's bent grass<br>*Agrostis blasdalei* | 1B | Occurs in coastal bluff scrub, coastal dunes, and coastal prairie; sandy and gravely soil.<br>Elevation: 5-150 meters.<br>Blooms: May-June | Suitable habitat present. No CNDDB occurrences within 5 miles. Not observed during protocol level surveys. |
| Bent-flowered fiddleneck<br>*Amsinckia lunaris* | 1B | Occurs in coastal bluff scrub, cismontane woodland, valley and foothill grassland; openings.<br>Elevation: 3-500 m.<br>Blooms: March-June | Suitable habitat present. No CNDDB occurrences within 5 miles. Not observed during protocol level surveys. |
| Slender silver moss<br>*Anomobryum julaceum* | 2 | Occurs on damp rocks and soil, acidic substrates in broadleaf upland, lower montane coniferous, and North Coast coniferous forests; usually seen on roadcuts.<br>Elevation: 100-1000 m.<br>Blooms: N/A | The habitat conditions of the project area are unlike those required for this species. The project site's elevation is below the range associated with this species. Closest CNDDB occurrence (#12) is approximately 3.7 miles from the alignment. No moss collections were made during LSA's field survey. |
| Santa Cruz (Anderson's) manzanita<br>*Arctostaphylos andersonii* | 1B | Open sites and edges in broadleaf upland forest, chaparral, and north coast coniferous forest; and redwood forest.<br>Elevation: 60-760 m.<br>Blooms: November-May | Although broadleaf upland forest and coastal scrub is present, this species is mostly known from sites in the Santa Cruz Mountains and occurs at much higher elevations. Closest CNDDB occurrence (#25) is approximately 2.5 miles from the alignment. No manzanitas observed during LSA's field survey. |
| Schreiber's manzanita<br>*Arctostaphylos glutinosa* | 1B | Occurs in closed-cone coniferous forest and chaparral; mudstone and diatomaceous shale outcrops.<br>Elevation: 170-685 m.<br>Blooms: November-April | The habitat conditions of the project area are unlike those required for this species. The project site's elevation is below the range associated with this species. Closest CNDDB occurrence is approximately 2 miles from the alignment. No manzanitas observed during LSA's field survey. |

| Species | Status (Federal/ State/CRPR) | Habitat | Potential for Occurrence[a] |
|---|---|---|---|
| Hooker's manzanita *Arctostaphylos hookeri* subsp. *Hookeri* | 1B | Occurs in closed-cone coniferous forest, chaparral, cismontane woodland and coastal scrub; sandy soil, shales, sandstone outcrops. Elevation: 85-536 m. Blooms: January-June | Cismontane woodland and coastal scrub habitat conditions are present on the site. The project site's elevation is below the range associated with this species, however, there is one occurrence of this species attributed to the Central Coast along Highway 1 at an elevation of 45 m. (Rancho Santa Ana Botanic Garden RSA303435A[1]) located approximately 2 miles from the alignment. No manzanitas were observed during LSA's field survey. |
| Pajaro manzanita *Arctostaphylos pajaroensis* | 1B | Occurs in sandy sites and sandstone outcrops in chaparral. Elevation: 30-760 m. Blooms: December-March | The habitat conditions of the project area are unlike those required for this species. Closest CNDDB occurrence (#11) is approximately 4.7 miles from the alignment. No manzanitas were observed during LSA's field survey. |
| Bonny Doon manzanita *Arctostaphylos silvicola* | 1B | Occurs in chaparral, ponderosa pine forest, and lower montane coniferous forest; specifically associated with inland marine sands. Elevation: 120-390 m. Blooms: February-March | The habitat conditions of the project area are unlike those required for this species. The project site's elevation is below the range associated with this species. Closest CNDDB occurrence (#11) is approximately 4.3 miles from the alignment. No manzanitas were observed during LSA's field survey. |
| Marsh sandwort *Arenaria paludicola* | FE/CE/1B | Occurs in freshwater conditions in bogs, fens, marshes and swamps; sandy, openings. Elevation: 3-170 m. Blooms: May-August | Although freshwater wetland habitats area present at the site, this species is known from only two natural occurrences in Black Lake Canyon and at Oso Flaco Lake. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys. |
| Coastal marsh milk-vetch *Astragalus pycnostachyus* var. *pycnostachyus* | 1B | Occurs in wet hollows of coastal dunes, coastal scrub, and in marshes and swamps of coastal salt marsh and streamsides. Elevation: 0-30 m. Blooms: April-October | The habitat conditions of the project area are unlike those required for this species. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys. |
| Santa Cruz Mountains pussypaws *Calyptridium parryi* var. *hesseae* | 3 | Occurs in chaparral and cismontane woodland. Elevation: 700-1100 m. Blooms: May-August | Although cismontane woodland and scrub habitats are present the project site's elevation is below the range associated with this species. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |

[1] Data provided by the participants of the Consortium of California Herbaria (ucjeps.berkeley.edu/consortium/; Wed Oct 2 10:33:09 2013).

| Species | Status (Federal/ State/CRPR) | Habitat | Potential for Occurrence[a] |
|---|---|---|---|
| Swamp harebell<br>*Campanula californica* | 1B | Occurs in bogs and fens, closed-cone coniferous forest, coastal prairie, meadows, marshes and swamps; freshwater.<br>Elevation: 1-405 m.<br>Blooms: June-October | Suitable freshwater wetland habitat is present at the site. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Bristly sedge<br>*Carex comosa* | 2 | Occurs in freshwater wetlands and lake margins in coastal prairie, marshes and swamps, valley and foothill grassland.<br>Elevation: 0-425 m.<br>Blooms: May-September | Suitable freshwater wetland habitat is present at the site. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Deceiving sedge<br>*Carex saliniformis* | 1B | Occurs in coastal prairie, coastal scrub, meadows, seeps, marshes and swamps; mesic sites with coastal salt.<br>Elevation: 3-230 m.<br>Blooms: June-July | Suitable freshwater wetland habitat is present at the site. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Coyote ceanothus<br>*Ceanothus ferrisae* | FE/1B | Occurs in chaparral, coastal scrub, valley and foothill grassland; serpentinite.<br>Elevation: 120-455 m.<br>Blooms: January-May | Suitable coastal scrub habitat present, but there is no serpentine on the site. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Ben Lomond or Scott's Valley spineflower<br>*Chorizanthe pungens* var. *hartwegii* | FE/1B | Occurs in lower montane coniferous forest and maritime ponderosa pine sandhills; restricted mainly to Ben Lomand sand hill area of Santa Cruz County.<br>Elevation: 230-245 m.<br>Blooms: April-July | The habitat conditions of the project area are unlike those required for this species. The project site's elevation is below the range associated with this species. Closest CNDDB occurrence (#25) is approximately 2.0 miles from the alignment. This species was not observed during protocol level surveys |
| Monterey spineflower<br>*Chorizanthe pungens* var. *pungens* | FT/1B | Occurs in sandy soil in maritime chaparral, cismontane woodland, coastal dunes, coastal scrub, and in valley and foothill grassland.<br>Elevation: 0-150 m.<br>Blooms: April-June | Suitable habitat types are present. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Robust spineflower<br>*Chorizanthe robusta* var. *robusta*<br>HCP Covered Species | FE/1B | Occurs in sandy or gravelly openings on terraces and bluffs in cismontane woodland, coastal dunes, and coastal scrub.<br>Elevation: 3-300 m.<br>Blooms: April-September | Suitable coastal scrub habitat present. Closest CNDDB occurrence (#24) is approximately 2.9 miles from the alignment. This species was not observed during protocol level surveys |
| Franciscan thistle<br>*Cirsium andrewsii* | 1B | Occurs in mesic areas of broadleaf upland forest, coastal bluff scrub, coastal prairie and coastal scrub; sometimes serpentinite.<br>Elevation: 0-150 m.<br>Blooms: March-July | Marginal mesic habitat present. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |

| Species | Status (Federal/ State/CRPR) | Habitat | Potential for Occurrence[a] |
|---|---|---|---|
| San Francisco blue eyed Mary<br>*Collinsia multicolor* | 1B | Closed-cone coniferous forest, coastal scrub and grassland on decomposed shale (mudstone) mixed with humus; in moist and shady areas and sometimes on serpentinite.<br>Elevation: 30-250 m.<br>Blooms: March-May | Marginal habitat present. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Branching beach aster<br>*Corethrogyne leucophylla* | 3.2 | Occurs in closed-cone coniferous forest, coastal scrub, chaparral, valley and foothill grassland, and coastal dunes; sometimes on serpentinite.<br>Elevation: 3-60 m.<br>Blooms: May-December | Suitable habitat types present. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Tear drop moss<br>*Dacryophyllum falcifolium* | 1B | Occurs on a variety of rock types (rock outcrops and walls) in shady areas coast redwood and north coast coniferous forests.<br>Elevation: 50-275 m.<br>Blooms: N/A | Rock walls occur at the site. Closest CNDDB occurrence (#9) is approximately 2.4 miles from the alignment. No moss collections were made during LSA's field survey. |
| Ben Lomond buckwheat<br>*Eriogonum nudum* var. *ducurrens* | 1B | Ponderosa pine sandhills in Santa Cruz County in chaparral, cismontane woodland, and lower montane coniferous forest.<br>Elevation: 50-800 m.<br>Blooms: June-October | The habitat conditions of the project area are unlike those required for this species. The project site's elevation is below the range associated with this species. Known only to occur in Santa Cruz Sandhills in Santa Cruz County near the towns of Boulder Creek, Ben Lomond, Olympia, Zayante, Felton, Scotts Valley, Glenwood, and Bonny Doon. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Coast wallflower<br>*Erysimum ammophilum* | 1B | Occurs in maritime chaparral, coastal dunes and coastal scrub; sandy soil, openings;<br>Elevation: 0-130 m.<br>Blooms: February-June | Suitable scrub habitat present. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Santa Cruz wallflower<br>*Erysimum teretifolium* | FE/CE/1B | Occurs on inland and marine sands in chaparral and lower montane coniferous forest; Ponderosa pine sandhills in Santa Cruz County.<br>Elevation: 120-610 m.<br>Blooms: March-July | The habitat conditions of the project area are unlike those required for this species. The project site's elevation is below the range associated with this species. Closest CNDDB occurrence (#28) is approximately 4.5 miles from the alignment. This species was not observed during protocol level surveys |
| Sand gilia<br>*Gilia tenuiflora* subsp. *arenaria* | FE/CT/1B | Occurs in coastal dunes, coastal scrub, maritime chaparral, and cismontane woodland, particularly in bare, wind-sheltered areas within the dune complex in Monterey County, known from fewer than 20 occurrences.<br>Elevation: 0-245 m.<br>Blooms: April-June | Marginal habitat present, but species only known to occur south of the alignment in Monterey County. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |

| Species | Status (Federal/ State/CRPR) | Habitat | Potential for Occurrence[a] |
|---|---|---|---|
| San Francisco gumplant *Grindelia hirsutula* var. *maritima* | 3.2 | Occurs on sandy or serpentinite soils in coastal bluff scrub, coastal scrub, and valley and foothill grassland. Previously Rank 1B. Can be difficult to identify; as hybridization occurs between more common species. Not in TJM 2. Elevation: 15-400 m. Blooms: June-September | Suitable habitat types are present. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Short-leaved evax *Hesperevax sparsiflora* var. *brevifolia* | 1B | Occurs in sandy, grassy, or wooded coastal bluff scrub, terraces, coastal dunes. Elevation: 0-215 m. Blooms: May-June. | Suitable scrub habitat present. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Santa Cruz Cypress *Hesperocyparis abramsiana* var. *abramsiana* | FE/CE/1B | Occurs in closed-cone coniferous forest, chaparral, and lower montane coniferous forest; in sandstone or granitic substrates. Elevation: 280-1,800 m. Blooms: N/A | Although mixed evergreen forest and scrub habitats are present, the project site's elevation is below the range associated with this species and no suitable substrates are present. Closest CNDDB occurrence (#9) is approximately 3.3 miles from the alignment. This species was not observed during protocol level surveys. |
| Loma Prieta hoita *Hoita strobilina* | 1B | Chaparral, cismontane woodland, and riparian woodland on mesic serpentine sites. Elevation: 30-860 m. Blooms: May- October | Suitable coastal scrub habitat present, but there is no serpentine on the site. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Santa Cruz tarplant *Holocarpha macradenia* HCP Covered Species. | FT/CE/1B | Occurs in sandy-clay soil in coastal prairie, coastal scrub, and in valley and foothill grassland. Elevation: 10-220 m. Blooms: June-October. | Although suitable habitat types are present, this species was not observed during protocol level surveys. Closest CNDDB occurrence (#21) is approximately 4.0 miles from the alignment. |
| Kellogg's horkelia *Horkelia cuneata* var. *sericea* | 1B | Occurs in closed-cone coniferous forest, maritime chaparral, coastal scrub, dunes and coastal sandhills; sandy or gravelly openings; Elevation: 10-200 m. Blooms: April-September | Suitable scrub habitat present. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Point Reyes horkelia *Horkelia marinensis* | 1B | Occurs in sandy flats and dunes near coast in grassland or scrub plant communities; Elevation: 5-30 m. Blooms: May-September | Suitable scrub habitat present. Closest CNDDB occurrence (#8) is approximately 3.5 miles from the alignment. This species was not observed during protocol level surveys |

| Species | Status (Federal/ State/CRPR) | Habitat | Potential for Occurrence[a] |
|---|---|---|---|
| Woolly-headed lessingia *Lessingia hololeuca* | 3 | Often found in dry grassy areas such as fields and roadside ditches in broadleaf upland forest, coastal scrub, chaparral, lower montane coniferous forest, and valley and foothill grassland. Plant has an affinity for alkaline clay or serpentine soils Elevation: 15-305 m. Blooms: June-October | Suitable habitat present. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Smooth lessingia *Lessingia micradenia* var. *glabrata* | 1B | Occurs in chaparral and cismontane woodland; serpentinite, roadsides. Elevation: 120-420 m. Blooms: July-November | The habitat conditions of the project area are unlike those required for this species. The project site's elevation is below the range associated with this species. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Point Reyes meadowfoam *Limnanthes douglasii* ssp. *sulphurea* | CE/1B | Occurs in coastal prairie, cismontane woodland, meadows, seeps, marshes, swamps and vernal pools; freshwater, dark clay soil; known from fewer than 15 occurrences Elevation: 0-140 m. Blooms: March-May | Marginal habitat types present. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Arcuate bush mallow *Malacothamnus arcuatus* | 1B | Occurs in chaparral and coastal scrub in gravelly alluvium. Elevation: 15-355 m. Blooms: April-September | Coastal scrub habitat present, but not on gravelly alluvium. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Mt. Diablo cottonweed *Micropus amphibolus* | 3 | Broadleaf upland forest, Chaparral, Cismontane woodland, Valley and foothill grassland/rocky Elevation: 50-800 m. Blooms: March-May | Suitable habitat types present, but many occurrences of this species may be misidentified. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Marsh microseris *Microseris paludosa* | 1B | Occurs in moist grassland, openings in closed-cone coniferous forest and cismontane woodland, coastal scrub. Elevation: 5-300 m. Blooms: April-July | Suitable habitat types present. Closest CNDDB occurrence (#8) is at an unknown location mapped approximately 3.0 miles from the alignment. This species was not observed during protocol level surveys |
| Elongate copper moss *Mielichhoferia elongata* | 2 | Occurs in seasonally mesic sites in cismontane woodland on very acidic, metamorphic rock or other substrates. Elevation: 500-1300 m. Blooms: N/A | Marginal habitat present. No serpentine soils are present. Closest CNDDB occurrence (#18) is at an unknown location mapped approximately 4.9 miles from the alignment. No moss collections were made during LSA's field survey. |
| Woodland woollythreads *Monolopia gracilens* | 1B | Openings in broadleaf upland forest, chaparral, cismontane woodland, North Coast coniferous forest, and valley and foothill grassland; Serpentine Elevation: 100-1200 m. Blooms: March-July | Marginal habitat present. Closest CNDDB occurrence (#10) is approximately 2.3 miles from the alignment. This species was not observed during protocol level surveys |

| Species | Status (Federal/ State/CRPR) | Habitat | Potential for Occurrence[a] |
|---|---|---|---|
| Dudley's lousewort *Pedicularis dudleyi* | 1B | Chaparral (maritime), cismontane woodland, north coast coniferous forest, valley and foothill grassland; in deep shade. Elevation: 60-900 m. Blooms: April-June | Although scrub habitat is present, the project site's elevation is below the range associated with this species. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Santa Cruz Mountains beardtongue *Penstemon rattanii* var. *kleei* | 1B | Occurs in sandy shale slopes in chaparral and lower montane coniferous forests; sometimes in the transition zone between forest in chaparral; known from fewer than 10 occurrences. Elevation: 400-1100 m. Blooms: May-June | Project alignment is below the elevation range for this species. Closest CNDDB occurrence (#4) is approximately 5.0 miles from the alignment. This species was not observed during protocol level surveys |
| White-rayed pentachaeta *Pentachaeta bellidiflora* | FE/CE/1B | Occurs in cismontane woodland, valley and foothill grassland; often in serpentine soils. Elevation: 35-620 m. Blooms: March-May | Although cismontane woodland and grasslands are present, no serpentine soils are present. Closest CNDDB occurrence (#11) is a 1933 record at an unknown location mapped along beach cliffs in Santa Cruz. This species was not observed during protocol level surveys |
| Monterey pine *Pinus radiata* | 1B | Occurs in closed-cone coniferous forest and cismontane woodland; dry bluffs and slopes; Elevation: 25-185 m. Blooms: N/A | Suitable cismontane woodland habitat present. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Choris's popcorn-flower *Plagiobothrys chorisianus* var. *chorisianus* | 1B | Occurs in grassy and moist areas (ephemeral drainages) in chaparral, coastal prairie and coastal scrub. Elevation: 15-160 m. Blooms: March-June | Suitable habitat types present. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| San Francisco popcorn-flower *Plagiobothrys diffusus*<br><br>HCP Covered Species | CE/1B | Occurs on grassy slopes with marine influence in coastal prairie and in valley and foothill grassland; known from fewer than 10 occurrences. Elevation: 60-360 m. Blooms: March-June | Suitable habitat types present. Closest CNDDB occurrence (#9) is of a large population located within the Moore Creek Preserve near the end of Meder Road, between Wilder and Moore Creeks, approximately 1.0 mile from the alignment. This species was not observed during protocol level surveys |
| Scotts Valley polygonum *Polygonum hickmanii* | FE/CE/1B | Occurs in valley and foothill grassland; vernally moist mudstone and sandstone outcrops; known from only two occurrences in Scotts Valley. Elevation: 210-250 m. Blooms: May-August | The habitat conditions of the project area are unlike those required for this species. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Pine rose *Rosa pinetorum* | 1B | Occurs in closed-cone coniferous forest (pine woodlands); canyons. Elevation: 2-300 m. Blooms: May-July | Suitable pine woodland habitat not present. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |

| Species | Status (Federal/ State/CRPR) | Habitat | Potential for Occurrence[a] |
|---|---|---|---|
| Chaparral ragwort *Senecio aphanactis* | 2 | Occurs in alkaline flats and rocky areas in cismontane woodland and coastal scrub. Elevation: 15-800 m. Blooms: January-April | Alkaline flats and rocky habitat required for this species is not present. Closest CNDDB occurrence (#48) is at the Bonny Doon Ecological Preserve mapped approximately 4.2 miles from the alignment. This species was not observed during protocol level surveys |
| Maple-leaved checkerbloom *Sidalcea malachroides* | 4.2 | Occurs in broadleaf upland forest, coastal prairie, coastal scrub and North Coast coniferous forest; often in disturbed areas and clearings. Elevation 0-730 m. Blooms: April-August | Suitable habitat types present. Closest CNDDB occurrence (#4) is approximately 2.3 miles from the alignment. This species was not observed during protocol level surveys |
| San Francisco campion *Silene verecunda* subsp. *verecunda* | 1B | Occurs in coastal bluff scrub, chaparral, coastal prairie, coastal scrub, valley and foothill grassland; sand, mudstone, shale or serpentine. Elevation: 30-645 m. Blooms: March-June | Suitable habitat types present. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Santa Cruz microseris *Stebbinsoseris decipiens* | 1B | Occurs in broadleaf upland forest, closed-cone coniferous forest, chaparral, coastal prairie and coastal scrub; open disturbed areas with sandstone, shale or serpentine derived soils. Elevation: 10-500 m. Blooms: April-May | Although suitable habitat types are present, no serpentine soils are present. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Santa Cruz clover *Trifolium buckwestiorum* | 1B | Occurs in moist grassland, gravelly and marginal areas in coastal prairie, broadleaf upland forest, and cismontane woodland. Elevation: 105-610 m. Blooms: April-October | Suitable habitat types present. Closest CNDDB occurrence (#5) is approximately 3.7 miles from the alignment. This species was not observed during protocol level surveys |
| Caper-fruited tropidocarpum *Tropidocarpum capparideum* | 1B | Alkaline clay soils in grasslands and oak woodland. Elevation: 1-455 m. Blooms March-April. | The habitat conditions of the project area are unlike those required for this species. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| Long-beard lichen *Usnea longissima* | None | Occurs in North Coast coniferous forest and broadleaf upland forest; possibly extirpated from Santa Cruz County. Elevation: 0-650 m. Blooms: N/A | No suitable old growth forest/riparian habitat present. No CNDDB occurrences within 5 miles. This species was not observed during protocol level surveys |
| **Invertebrates** | | | |
| Smith's blue butterfly *Euphilotes enoptes smithi* | FE/– | Occurs in coastal dune, coastal scrub, chaparral, and grasslands where its host plants, seacliff buckwheat (*Eriogonum parvifolium*) and/or coast buckwheat (*Eriogonum latifolium*) are present. | Suitable habitat may be present. No CNDDB occurrences within 5 miles. |

| Species | Status (Federal/ State/CRPR) | Habitat | Potential for Occurrence[a] |
|---|---|---|---|
| Ohlone tiger beetle<br>*Cicindela ohlone*<br><br>HCP Covered Species | FE/– | Occurs in poorly drained clay or sandy clay soil over bedrock of Santa Cruz mudstone within remnant native grasslands with California oatgrass (*Danthonia californica*) and purple needlegrass (*Stipa pulchra*) in Santa Cruz County. | Suitable habitat currently not present, but may be present in the future if habitat conditions improve. Closest CNDDB occurrence is approximately 0.8 mile from the alignment. HCP Covered Species |
| Mount Hermon june beetle<br>*Polyphylla barbata*<br><br>HCP Covered Species | FE/– | Occurs in Zayante sands near pine forest and chaparral habitats near Mount Hermon, Scotts Valley, and Ben Lomond in the Santa Cruz County. | No suitable habitat with Zayante sands present. Closest CNDDB occurrence is approximately 4 miles from the alignment. |
| Monarch butterfly<br>*Danaus plexippus* | Sensitive Winter Roosting Sites | Winter roosts along the coast from northern Mendocino to Baja California, Mexico in wind-protected tree groves (eucalyptus, Monterey pine, cypress) with nectar and water sources nearby. | Marginal roost sites present. No known roost sites present in close proximity to the project alignment. |
| Zayante band-winged grasshopper<br>*Trimerotropis infantilis* | FE/– | Restricted to the Zayante sand hills ecosystem. Found in sand parkland habitat on ridges and hills. | Unlikely to occur due to lack of suitable habitat. Closest CNDDB occurrence is a 1941 record at an unknown location in Santa Cruz. |
| **Fish** | | | |
| Tidewater goby<br>*Eucyclogobius newberryi*<br><br>HCP Covered Species | FE/– | Occurs in brackish shallow lagoons and lower stream reaches where water is fairly still but not stagnant | Unlikely to occur but may occur downstream of alignment within Baldwin Creek. Closest CNDDB occurrence is in close proximity to the alignment in Baldwin Creek, from the mouth to 0.25 mile upstream. |
| Pacific lamprey<br>*Entosphenus tridentate*<br><br>HCP Covered Species | FSC/– | Occurs in rivers with continuity with the ocean; prefers low velocity gravel for spawning and soft sand or mud for rearing. | Marginal habitat present but species not known to occur in streams crossed by the North Coast Pipeline (City of Santa Cruz 2012a). |
| Steelhead (Central California coast ESU )<br>*Oncorhynchus mykiss irideus*<br>HCP Covered Species | FT/– | Found in coastal streams from Russian River south to Aptos Creek (Santa Cruz Co.); includes streams tributary to San Francisco and San Pablo Bays | Suitable habitat present. Known to occur in Baldwin and Majors Creek within the alignment (CNDDB 2012a). |
| Coho salmon (Central California Coast ESU )<br>*Oncoryhchus kisutch*<br><br>HCP Covered Species | FE/– | Found in coastal streams from Punta Gorda in northern California down to and including the San Lorenzo River in central California, as well as tributaries to San Francisco Bay | Marginal habitat present. Closest CNDDB occurrence is approximately 3.4 miles north of the alignment in San Vicente Creek in Davenport. Although designated critical habitat is present, species not known to occur in streams within the alignment (Chris Berry, pers. comm.). |

| Species | Status (Federal/ State/CRPR) | Habitat | Potential for Occurrence[a] |
|---|---|---|---|
| **Amphibians** | | | |
| California red-legged frog *Rana draytonii*<br><br>HCP Covered Species | FT/CSC | Found in lowlands and foothills in or near permanent ponds and streams with dense, shrubby, or emergent riparian vegetation. | Suitable habitat present in freshwater ponds, drainages, and ditches on and adjacent to the alignment. Known to occur in ponds within the Wilder San Quarry at the intersection of Sandy Flat Gulch and Dairy Gulch (CNDDB Occurrence #622) and in an agricultural run-off ditch, located on the north side of the railroad tracks, 1000 feet west of the sand plant settling ponds, 0.3 mile west of Old Dairy Gulch, and 200 feet south of Highway 1 (CNDDB Occurrence #324). Known to occur in two irrigation ponds within or immediately south of the project alignment (Hyland 2005a and 2005b). |
| Santa Cruz long-toed salamander *Ambystoma macrodactylum croceum* | FE/– | Occurs in wet meadows near sea level; use mammal burrows. | Unlikely to occur due to lack of suitable habitat. No CNDDB occurrences within 5 miles. |
| California tiger salamander *Ambystoma californiense* | FT/CT | Occurs in annual grass habitat, valley-foothill hardwood habitats and along stream courses; seasonal ponds and vernal pools are crucial for breeding. | Suitable grassland habitat present, but no suitable breeding pools observed in vicinity. No CNDDB occurrences within 5 miles. |
| **Reptiles** | | | |
| San Francisco garter snake *Thamnophis sirtalis tetrataenia* | FE/– | Occurs only in the vicinity of ponds and reservoirs in San Mateo County. | Unlikely to occur due to lack of suitable habitat. No CNDDB occurrences within 5 miles. |
| Western pond turtle *Actinemys marmorata*<br><br>HCP Covered Species | –/CSC | Found in ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and adjacent grasslands or other open habitat for egg-laying. | Suitable habitat present in drainages and ponds on and/or adjacent to the alignment. Closest CNDDB occurrence is approximately 1.4 miles from the alignment in the uppermost drainage of Moore Creek. Also observed at Wilder Ranch State Park in 2013 (Chris Berry, pers. comm.). |
| Blainville's horned lizard *Phrynosoma blainvillii* | –/CSC | Found in open sunny habitats including grasslands, scrub, and open woodlands that support native ant populations. | Marginal habitat present. No CNDDB occurrences within 5 miles. |
| **Birds** | | | |
| Redhead *Aytha americana* | –/CSC | Occurs in large, deep bodies of water; nests in freshwater emergent wetlands | No suitable habitat. May forage nearby, but does not nest in region. Rare in County (Suddjian 2009). No CNDDB occurrences within 5 miles. |
| American white pelican *Pelecanus erythrorhynchos* | –/CSC | Occurs in shallow inland and coastal marine habitats, marshes, lakes, rivers | Suitable foraging habitat present. May forage nearby, but does not nest in the region. No CNDDB occurrences within 5 miles. |

| Species | Status (Federal/ State/CRPR) | Habitat | Potential for Occurrence[a] |
|---|---|---|---|
| California brown pelican *Pelecanus occidentalis californicus* HCP Covered Species | Delisted/ Delisted; CFP | Occurs in coastal areas; nests on islands | No Suitable habitat present. Forages nearby, but does not nest in the region. No CNDDB occurrences within 5 miles. |
| Marbled murrelet *Brachyramphus marmoratus* | FT/CE | Nests in old growth and mature coniferous forests near the coast | No suitable nesting habitat present. May fly over alignment while moving from foraging habitat within the Pacific Ocean to nesting habitat in forests northeast of alignment. |
| White-tailed kite *Elanus leucurus* | –/CFP | Nests in shrubs and trees in open areas and forages in adjacent grasslands and agricultural land. | Suitable nesting habitat present in trees and large shrubs on and adjacent to the alignment and suitable foraging habitat present in grasslands on the alignment. Closest CNDDB occurrence is approximately 3.1 miles from the alignment. Also known to occupy terraces at Wilder Ranch State Park (Chris Berry, pers. comm.). |
| Northern harrier *Circus cyaneus* | –/CSC | Nests and forages in meadows, grasslands, open rangeland, and fresh or saltwater marshes. | Grasslands provide suitable nesting and foraging habitat. No CNDDB occurrences within 5 miles. |
| Golden eagle *Aquila chrysaetos* | –/CFP | Forages in rolling foothill or coast-range terrain, with open grassland and scattered large trees. Nests in large trees, on cliffs, and occasionally on power line poles. | Suitable nesting habitat present in cliffs and large trees adjacent to alignment and suitable foraging habitat present in grasslands. No CNDDB occurrences within 5 miles. |
| Bald eagle *Haliaeetus leucocephalus* | Delisted/CE; CFP | Winters at lakes, reservoirs, river systems, and some rangelands and coastal wetlands throughout most of California. Breeds in mountainous habitats near reservoirs, lakes and rivers, mainly in the northern two-thirds of the State, in the Central Coast Range, and on Santa Catalina Island. Nests generally built in the upper canopy of large trees. | Unlikely to occur due to lack of suitable habitat. No CNDDB occurrences within 5 miles. |
| American peregrine falcon *Falco peregrinus anatum* | Delisted/ Delisted; CFP | Forages in open country, mountains, and sea coasts. Nests on high cliffs, bridges, and buildings. | Suitable nesting habitat present in cliff faces adjacent to alignment; suitable foraging habitat present. Closest CNDDB occurrence is approximately 1.1 miles from the alignment. |
| Western snowy plover *Charadrius alexandrinus nivosus* | FT/– | Nesting habitat includes upper areas of sandy beaches (above normal high tide line), barren dikes of salt ponds, and edges of alkali or brackish lakes in inland areas; forages along the water's edge and on exposed mud flats | No suitable habitat present. Suitable habitat present along coastline west of alignment. Closest CNDDB occurrence is approximately 0.7 mile from the alignment. |

| Species | Status (Federal/ State/CRPR) | Habitat | Potential for Occurrence[a] |
|---|---|---|---|
| California clapper rail *Rallus longirostris obsoletus* | FE/CE; CFP | Wetlands and brackish areas around San Francisco, Monterey, and Morro bays. Forages in higher marsh vegetation, along vegetation and mudflat interface, and along tidal creeks. Nests mostly in lower zones, where cordgrass is abundant and tidal sloughs are nearby. | Unlikely to occur due to lack of suitable habitat. No CNDDB occurrences within 5 miles. |
| Burrowing owl *Athene cunicularia* | –/CSC | Nests in burrows in grasslands and woodlands; often associated with ground squirrels. Will also nest in artificial structures (culverts, concrete debris piles, etc.) | May forage, or winter in the grasslands on and adjacent to the alignment, but nesting is rare within the County (Suddjian 2009). Closest CNDDB occurrence is a wintering owl observed approximately 0.6 mile from the alignment. Also observed near Lombardi Gulch in 1994 (Chris Berry, pers. comm.). |
| Long-eared owl *Asio otus* | –/CSC | Occurs in woodlands and forests that are open or adjacent to grasslands, meadows, or shrublands. | Suitable nesting habitat present, but species is rare in the County (Suddjian 2009; Shuford and Gardali 2008). No CNDDB occurrences within 5 miles. |
| Short-eared owl *Asio flammeus* | –/CSC | Occurs in salt- and freshwater marshes, grasslands, open treeless areas with low perches and dense vegetation for roosting and nesting. | May winter or migrate through alignment, but species not known to breed in the region (Suddjian 2009; Shuford and Gardali 2008). No CNDDB occurrences within 5 miles. |
| Vaux's swift *Chaetura vauxi* | –/CSC | Occurs in grasslands and agricultural fields; nests in large hollow trees near open water; forages in most habitats but prefers rivers and lakes. | Suitable foraging habitat present and suitable nesting habitat may be present in trees near alignment. No CNDDB occurrences within 5 miles. |
| Black swift *Cypseloides niger* | –/CSC | Occurs in the coastal belt of Santa Cruz and Monterey Counties, in the central and southern Sierra Nevada, and in the San Bernadino and San Jacinto Mountains; breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea bluffs above the surf. | Suitable foraging habitat present and suitable nesting habitat present in cliffs adjacent to alignment. Closest CNDDB record is approximately 0.6 mile from the alignment along the ocean-facing cliffs and caves between Davenport and Santa Cruz, but no recent active nests have been found. |
| Olive-sided flycatcher *Contopus cooperi* | –/CSC | Occurs in coniferous forests with open canopies. | Suitable nesting and foraging habitat present. No CNDDB occurrences within 5 miles. |
| Loggerhead shrike *Lanius ludovicianus* | –/CSC | Found in grasslands and open shrub or woodland communities. Nests in dense shrubs or trees and forages in scrub, open woodlands, grasslands, and croplands. Frequently uses fences, posts, and utility lines as hunting perches. | Suitable nesting and foraging habitat present. No CNDDB occurrences within 5 miles. |
| Purple martin *Progne subis* | –/CSC | Occurs in woodlands; nests in tree snags and abandoned woodpecker cavities and human-made structures. | Suitable nesting habitat present, but species is rare in the County (Suddjian 2009). No CNDDB occurrences within 5 miles. |

| Species | Status (Federal/ State/CRPR) | Habitat | Potential for Occurrence[a] |
|---|---|---|---|
| Bank swallow<br>*Riparia riparia* | –/CT | Occurs in riparian habitat; nests in banks associated with streams, rivers, and lakes. | Suitable nesting habitat present, but species is rare in the County (Suddjian 2009). Closest CNDDB occurrence is 2.3 miles from the alignment. |
| Yellow warbler<br>*Dendroica petechia* | –/CSC | Nests in extensive willow riparian woodlands. | Suitable nesting habitat present, but species is a rare breeder in the County (Suddjian 2009). May forage on the alignment during migration. No CNDDB occurrences within 5 miles. |
| San Francisco common yellowthroat<br>*Geothlypis trichas sinuosa* | –/CSC | Occurs in fresh- and saltwater marshes; nests in tall grasses, tule patches, and willows. | Suitable nesting and foraging habitat present. No CNDDB occurrences within 5 miles. |
| Yellow-breasted chat<br>*Icteria virens* | –/CSC | Nests in extensive willow riparian woodlands with dense understory. | Suitable nesting habitat present, but species is rare breeder in the County (Suddjian 2009) and not known to currently breed in the region (Shuford and Gardali 2008). No CNDDB occurrences within 5 miles. |
| Grasshopper sparrow<br>*Ammodramus savannarum* | –/CSC | Occurs in moderately open grasslands with scattered shrubs. | Suitable nesting and foraging habitat present. No CNDDB occurrences within 5 miles. |
| Tricolored blackbird<br>*Agelaius tricolor* | –/CSC | Nests in dense vegetation near open water, forages in grasslands and agricultural fields. | Suitable nesting and foraging habitat present. Closest CNDDB occurrence is at Antonelli Pond, approximately 1.4 miles from the alignment. |
| **Mammals** | | | |
| Townsend's western big-eared bat<br>*Corynorhinus townsendii townsendii* | –/CSC | Found in wooded areas with caves or old buildings for roost sites. | Could roost in old buildings and cliffs adjacent to alignment and forage within alignment, but no suitable roosting or hibernating habitat present. No CNDDB occurrences within 5 miles. |
| Pallid bat<br>*Antrozous pallidus* | –/CSC | Occupies a wide variety of habitats at low elevations. Most commonly found in open, dry habitats with rocky areas for roosting. | Marginal roosting, hibernating, and/or foraging habitat present. No CNDDB occurrences within 5 miles. |
| Western mastiff bat<br>*Eumops perotis californicus* | –/CSC | Roosts in crevices in cliff faces, tunnels, and high buildings. | Could roost in old buildings and cliffs adjacent to alignment and forage within alignment, but no suitable roosting or hibernating habitat present. No CNDDB occurrences within 5 miles. |
| San Francisco dusky-footed woodrat<br>*Neotoma fuscipes annectens* | –/CSC | Occurs in chaparral, dense stands of northern coastal scrub, oak woodlands. | Suitable habitat present in scrub and woodland habitat. Closest CNDDB occurrence is approximately 3.2 miles from the alignment. Also known to occur in the vicinity of the alignment (Chris Berry, pers. comm.). |

| Species | Status (Federal/ State/CRPR) | Habitat | Potential for Occurrence[a] |
|---|---|---|---|
| American badger *Taxidea taxus* | –/CSC | Occurs in grassland, scrub, and woodland with loose-textured soils. | Marginal habitat present. Closest CNDDB occurrence is approximately 2.4 miles from the alignment. Also observed in the region, outside of the project alignment (Chris Berry, pers. comm.). |
| Southern sea otter *Enhydra lutris nereis* | FT/CFP | Occurs in the near-shore waters along the North Pacific ocean. | Unlikely to occur due to lack of suitable habitat. No CNDDB occurrences within 5 miles. |

Status Codes:

FE = Federally-listed as an endangered species.
FT = Federally-listed as a threatened species.
FSC = Federal species of special concern.
CE = State-listed as an endangered species.
CT = State- listed as a threatened species.
CFP = State-listed as a fully protected.
CSC = State Species of Special Concern.
List 1A = California Rare Plant Rank (CRPR): species presumed extinct.
List 1B = CRPR: plant considered rare, threatened, or endangered in California and elsewhere.
List 2 = CRPR: plant considered rare, threatened, or endangered in California but more common elsewhere.
List 3 = California Native Plant Society: plants for which more information is needed.
— = No status

[a] Nearest records are based on CNDDB (CDFW 2012) occurrences unless otherwise noted.

Source: LSA Associates, Inc., 2014

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# APPENDIX D

# SITE PHOTOGRAPHS

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Proposed project alignment near Station 52+00 as depicted on Figure 1 in Appendix B

Proposed project alignment near Station 65+00 as depicted on Figure 3 in Appendix B

LSA

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Site Photographs

Proposed project alignment near ditch at Station 81+00 as depicted on Figure 4 in Appendix B

Proposed project alignment near Station 134+50 as depicted on Figure 9 in Appendix B

LSA

*City of Santa Cruz Water Department*
*North Coast System Rehabilitation Project - Coast Segment*

Site Photographs