DOCKETED

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Project Title:	Carlsbad Energy Center - Compliance
TN #:	204375-7
Document Title:	CalTrans FHWA I-5 Widening North Coast Corridor FEIS/FEIR Part 3 (7 of 8)
Description:	N/A
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Organization:	Locke Lord LLP
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Docket Number:	07-AFC-06C
Project Title:	Carlsbad Energy Center - Compliance
TN #:	204375-6
Document Title:	CalTrans FHWA I-5 Widening North Coast Corridor FEIS/FEIR Part 3 (6 of 8)
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Table 3.17.10 (cont.): Buena Vista Lagoon Bridge Options Summary Analysis

Lagoon System Concerns/ Constraints/Goals (Coastal Conservancy Project)	Bridge Option	Bridge Design [a]	Channel Dimension and Protection Features [a] (CA§ 30253(2)/ 30235)	Estimated Wetland Fill [b] (CA§ 30233)	Tidal Circulation Impact/Benefit (CA§ 30230/ 30231)	Habitat Impact/ Benefit [d] from Improved Tidal Circulation (CA§ 30240)	Wildlife Corridor/ Trail Linkage Impact/Benefit [e] (CA§ 30240/ 30210-30214)	FEMA Floodplain Impact/Benefit [f] (CA§ 30253)	Erosion/Scour Impact/Benefit [g] (CA§ 30253(2)/ 30235)	Shoreline Sand Supply Impact/Benefit [h] (CA§ 30235)	Potential SLR Constraints [i]	Construction Cost
	Bridge Option w/ Removal of All Roadbed Fill	558 ft long; max. length needed to remove all roadbed fill 252.9 ft wide * Removes shoreline alteration from roadbed fill; however, shoreline protection required for bridge pilings and potentially areas subject to expanded floodplain and tidal inundation (depending on lagoon restoration; riprap assumed)	TBD	Adds 3.4 ac of shaded, freshwater marsh habitat to I-5 Basin/Coast Highway Basin	Same as existing, or accommodate future lagoon restoration. With lagoon restoration, introduction of new tidal prism unrestricted except by bridge pilings; expanded area could be subject to tidal inundation if mouth is maintained open	No change to existing intertidal habitats	Unrestricted movement under bridge, some areas under bridge would be left at a higher elevation than the water to accommodate wildlife movement	Greater capacity to pass flood flows. Max. flood event conveyed in expanded floodplain. However, without changes to Coast Highway, inlet weir, and restoration dredging wider floodplain could cause downstream flooding	Greater capacity to pass fluvial flood flows in expanded flood-plain; limits structures subject to erosion/ scour to bridge pilings. Introduction of tidal prism with lagoon restoration may increase potential for erosion/scour at bridge pilings and areas subject to expanded tidal inundation	Same as existing or, dependent on future lagoon restoration, expanded floodplain subjects new areas to scour/erosion upstream and conveys sediment transport to shoreline	At least 9.2 ft of freeboard maintained under 'high' projection of SLR estimates in year 2100 (4.5 ft of SLR)	$49M (additional cost)

NOTES:

a Bridge design features are described in detail within the Draft EIR/EIS. No bridge would involve the construction of new or expanded shoreline protective devices beyond existing abutment protection structures. Bridge designs that remove a portion of the road bed fill to accommodate channel widening would restore a more natural shoreline slope at the crossing.

b Wetland fill consists of bridge support structure footprint within the lagoon channel, as well as road bed fill supporting the bridge span and directly affecting channel width.

d Due to the current constraints and north-south transecting facilities, the lagoon has developed into a freshwater marsh with no tidal influence. Dredging activities have led to development of an island within the I-5 Basin that provides nesting/roosting opportunities for sensitive bird species.

e I-5 currently acts as a wildlife barrier to east-west movement. All bridge design options would include a bench at the abutment to facilitate wildlife movement, as well as use by hikers on the new trail connections proposed adjacent the I-5 on the east and west sides at the Lagoon.

f Drainage and floodplain impacts for all the bridge options are expected to be negligible, which would in turn minimize potential adverse impacts associated with alteration and channelization of floodplains and associated erosion. Hydraulic studies conclude that 100-year flood events would continue to be contained within the existing floodplain boundaries under each option, and therefore would not result in substantial impacts to on-site or off-site locations associated with drainage and flooding.

g The potential for channel erosion or scouring at the bridge abutments to occur is reduced with removal of existing channel constraints due to more complete conversion of flood velocity to energy.

h The Lagoon is a shallow freshwater system managed under an existing sediment control program. No sediment is transported between the Buena Vista Creek on the far east of the system to the Pacific Ocean, which is closed to tidal influence as a result of an existing concrete weir and berm.

i All bridge designs would address potential impacts associated with the exacerbating effects of SLR on shoreline erosion, storm surge, and flooding, by siting and designing the bridge support structures in a manner that minimizes the frequency with which structures are subject to wave action, tidal inundation, and flooding.

Table 3.17.11: PWP/TREP Project Impacts and Mitigation/Enhancement Opportunities Summary

Compensatory Mitigation Opportunities (By Watershed)		Coastal Wetland Acres Established	Coastal Wetland Acres Restored	Coastal Wetland Acres Preserved/ Enhanced	Total Impacts (LOSSAN & I-5)[1]	No Net Loss Wetland Balance[2]	Upland Habitat Acres Established	Upland Habitat Acres Restored	Upland Habitat Acres Preserved/Enhanced	Total Impacts (LOSSAN & I-5)[1]	No Net Loss Upland Balance[2]	Cost Estimate (Incl. Right-Of- Way & Construction Costs)[3]
		Wetland					Upland					
Establishment (No Net Loss) – No Net Loss Pool												
Los Peñasquitos	Deer Canyon II						14					$1,600,000.00
San Dieguito	Dean Family Trust							20.8				$2,650,000.00
	San Dieguito W19	47.3					9.6	19.8				$48,600,000.00
Batiquitos	Batiquitos Bluffs		2.5					3.7				TBD[4]
Agua Hedionda	Hallmark (East and West)	4.37	0.97				3.5	6.6				$9,600,000.00
Corridor Wide Establishment (No Net Loss) Sub Total		**51.67**	**3.47**				**27.1**	**50.9**				**$62,450,000.00**
Restoration, Enhancement, & Preservation –"Enhancement" Pool												
San Dieguito	Dean Family Trust								1.5			Costs identified, above.
San Elijo	Laser			0.02					4.1			$1,610,000.00
Batiquitos	La Costa								18.8			$1,430,000.00
	Batiquitos Bluffs								39.9			TBD[4]
Agua Hedionda	Hallmark (East and West)			0.44					1.8			Costs identified, above.
San Elijo Lagoon Restoration Project												
Buena Vista Lagoon Restoration Project												$90,000,000.00[5]
Corridor Wide Preservation & Enhancement Sub Total				**0.46**					**66.1**			**$93,040,000.00**
Bridge Optimization												
Batiquitos I-5 Bridge Lengthening		Included for project avoidance and minimization purposes.										$8,000,000.00
San Elijo I-5 Bridge Lengthening												$16,000,000.00
San Elijo LOSSAN Bridge Lengthening (Assumes SELRP Alt 2A)												$25,100,000.00
Buena Vista I-5 Bridge Lengthening												$7,000,000.00
Bridge Optimization Sub Total												**$56,100,000.00**
Lagoon Management Endowments – Contingency Pool												
Regional Lagoon Maintenance Program	Batiquitos - $9.50/ cy [est.] Peñasquitos - $3.90/ cy [actual]	20.7*										$10,000,000.00
Corridor Wide Lagoon Management Endowments Sub Total		**20.7***										**$10,000,000.00**
Corridor Wide Project Impact vs. Habitat Establishment, Preservation, Enhancement & Lagoon Management Endowment Totals		**72.37**	**3.47**	**0.46**	**39.28 – 40.04**	**35.8 – 36.56**	**27.1**	**50.9**	**66.1**	**63.79 – 73.89**	**4.11 – 14.21**	**$165,490,000.00**
Project Prioritization/ Lagoon Management Technical Support[6]												
Scientific Advisory Committee		Included to ensure mitigation site success.										$1,000,000.00
Technical Support Sub Total												**$1,000,000.00**

Source: REMP. This table includes LOSSAN and costs information as identified in the PWP/TREP (EIR/EIS Appendix R).

NOTES:

* Caltrans and SANDAG find that establishing an endowment should either be credited 20.7 acres based on hydraulic improvement and habitat creation as a result of maintaining the lagoon mouths at Batiquitos and Los Peñasquitos Lagoons, or it is understood that this endowment would address any potential no net loss deficits between credit release and when impacts would occur, as well as any temporal impacts.

[1] Corridor-wide impacts identified for the I-5 Locally Preferred Alternative (8+4 with Buffer) combined with LOSSAN Project impacts. See Tables 5a and 5b of the REMP (Appendix P) for detailed project impacts by phase.

[2] No net loss balance totals for purposes of Coastal Commission mitigation do not include preservation acreage.

[3] Costs are preliminary and identified for all opportunities, including those to be funded by Environmental Mitigation Program (EMP) (i.e., No Net Loss Pool, Enhancement Pool, Lagoon Management Endowments, and Technical Support) or Capital funds (i.e., Bridge Optimization).

[4] Contingent upon a willing seller and reasonable cost.

[5] These restoration planning efforts are in process, and final cost estimates are not available at this time. However, it is acknowledged that at least one large-scale lagoon restoration project will be funded in full through the REMP.

[6] A REMP Working Group to include resource and regulatory agencies will be formed to evaluate, prioritize, and oversee the implementation of the potential compensatory mitigation sites identified in this REMP.

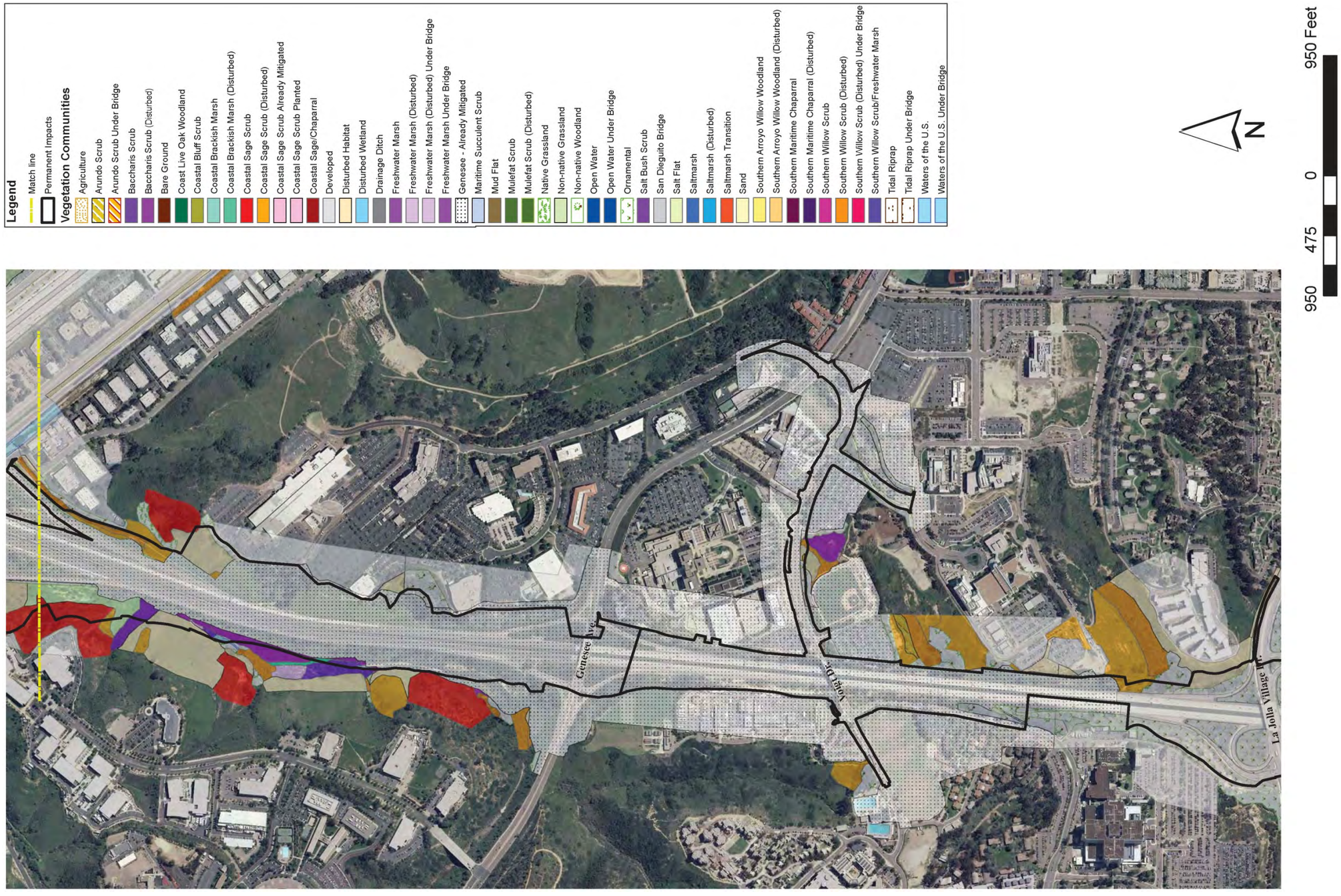


Figure 3-17.1a: Vegetation Communities

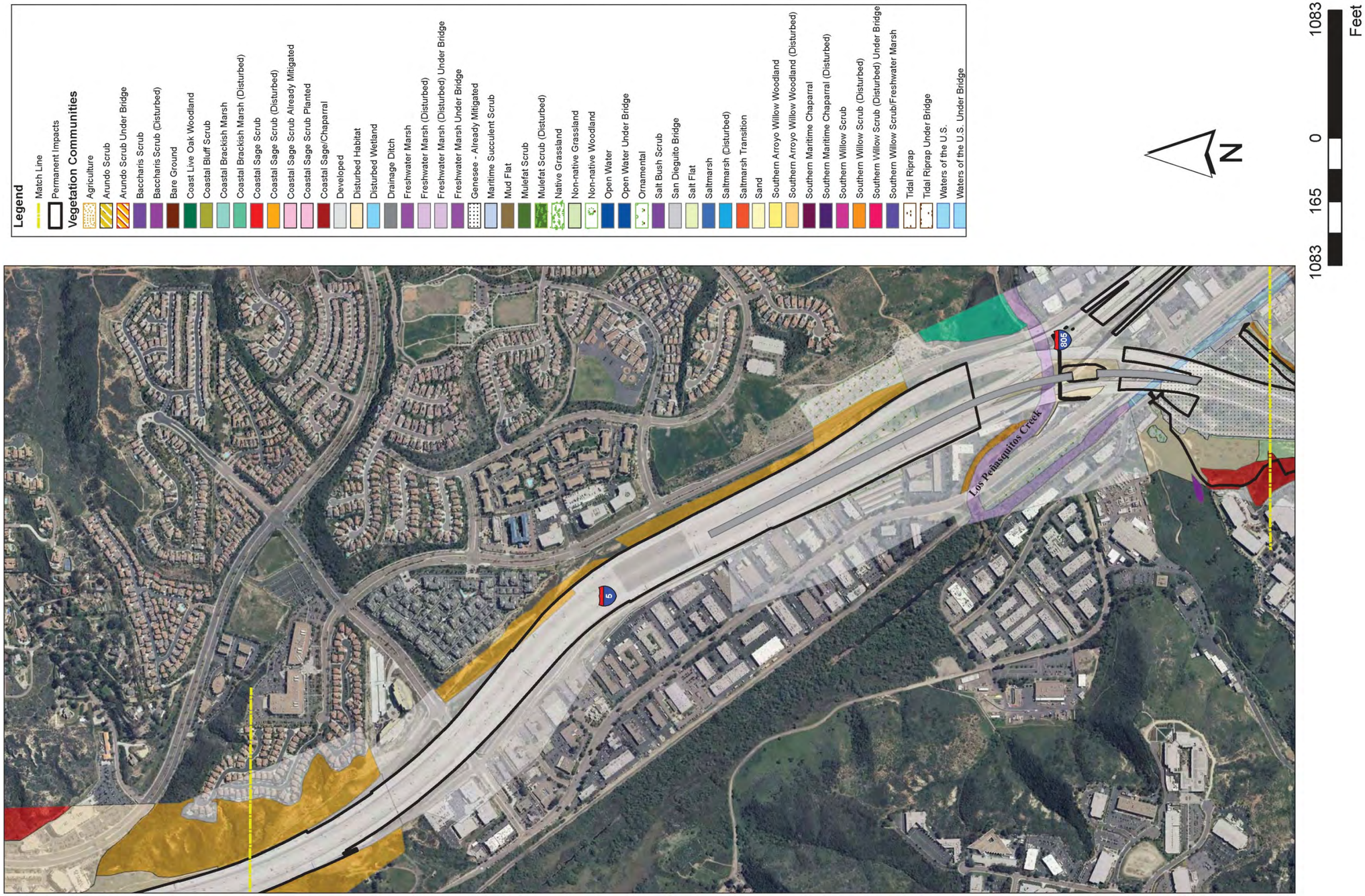


Figure 3-17.1b: Vegetation Communities

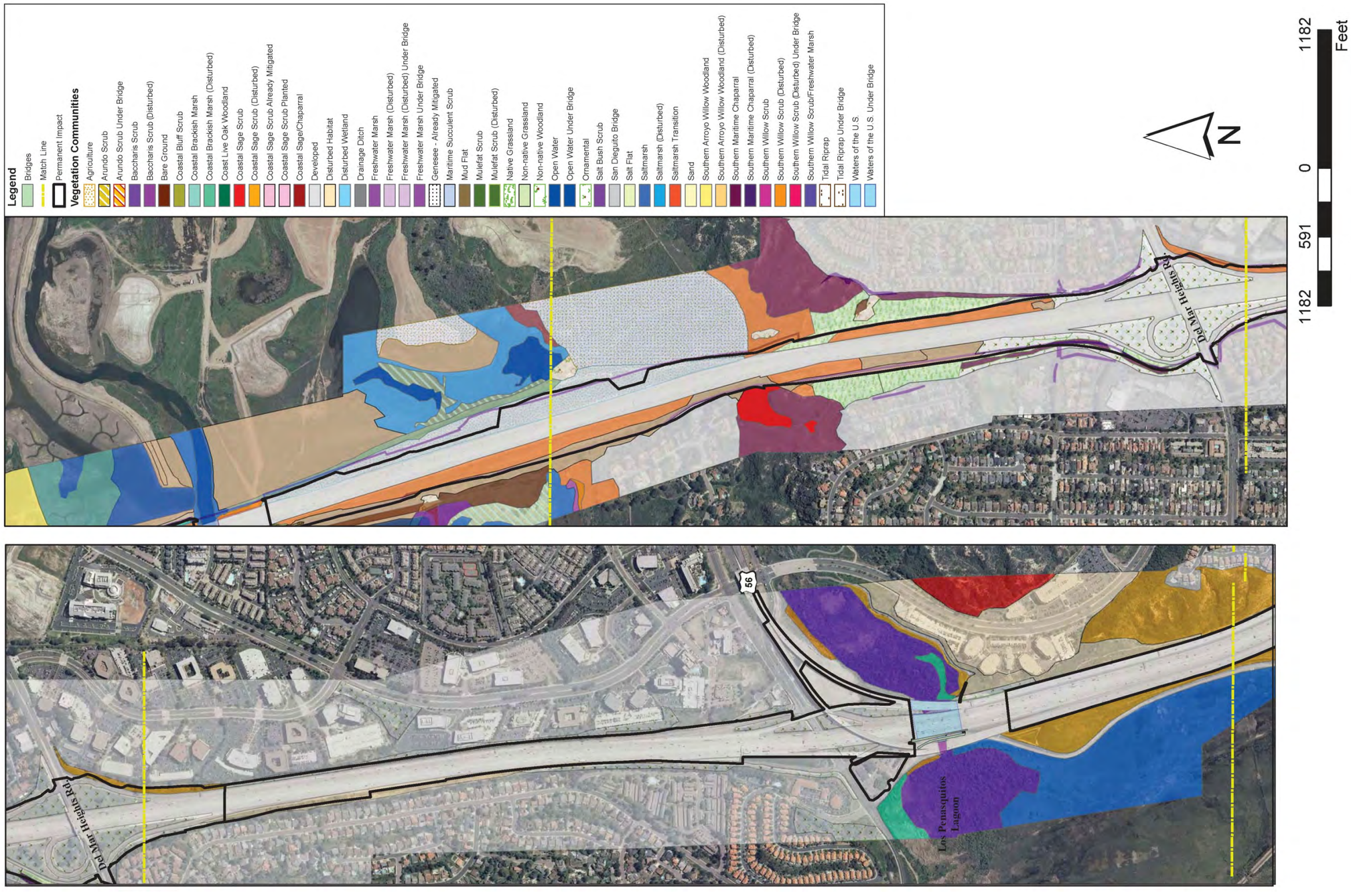


Figure 3-17.1c: Vegetation Communities

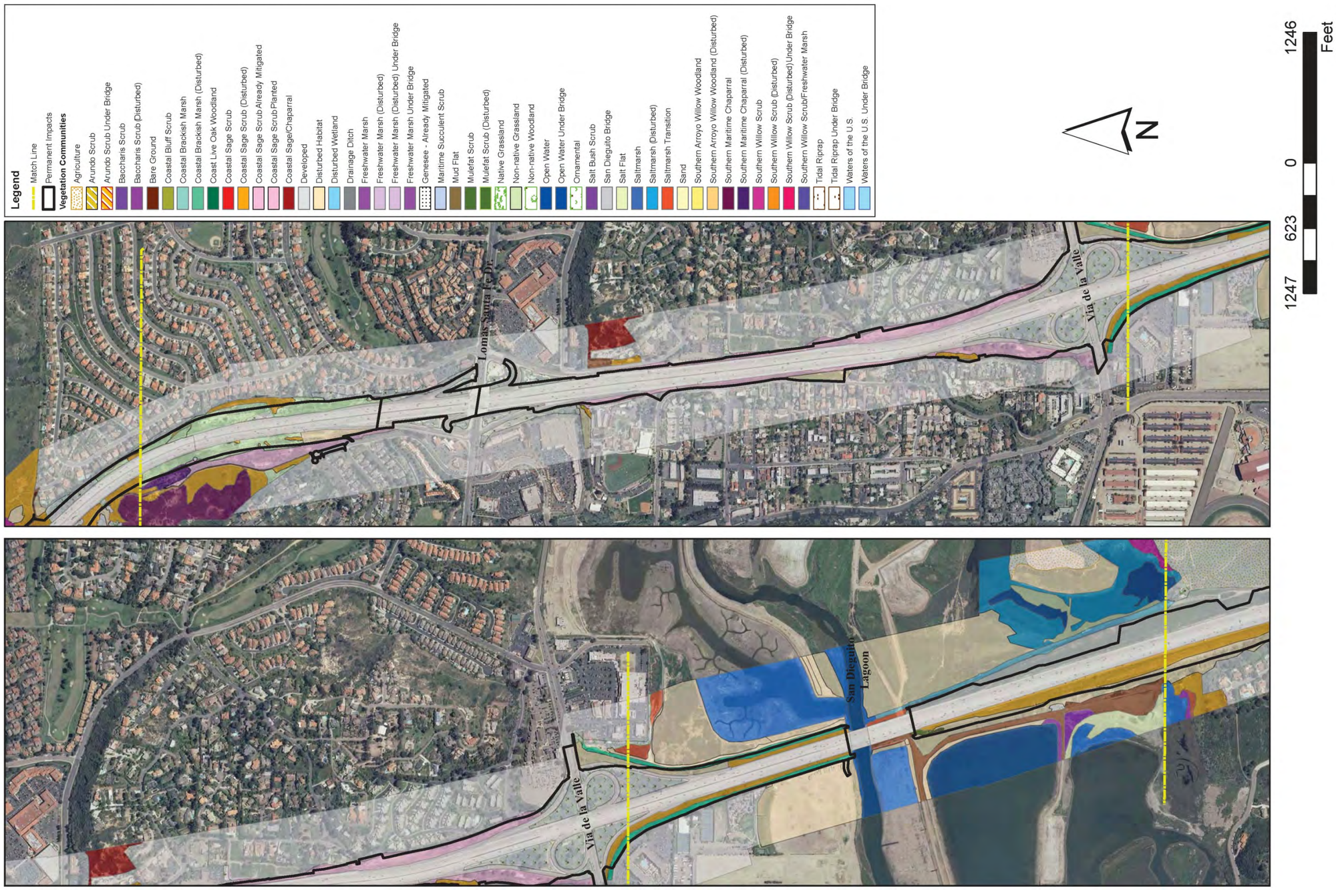


Figure 3-17.1d: Vegetation Communities

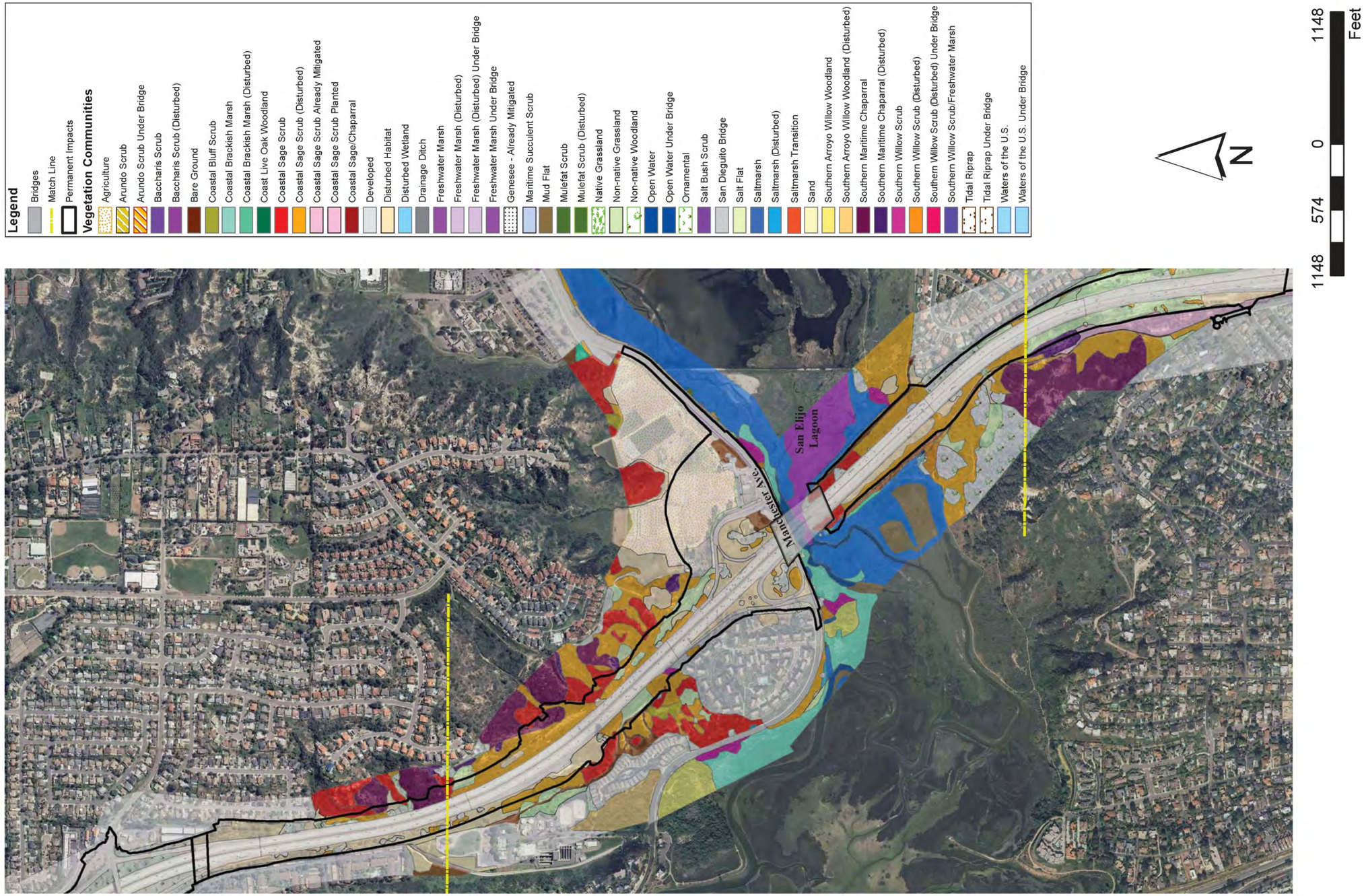


Figure 3-17.1e: Vegetation Communities

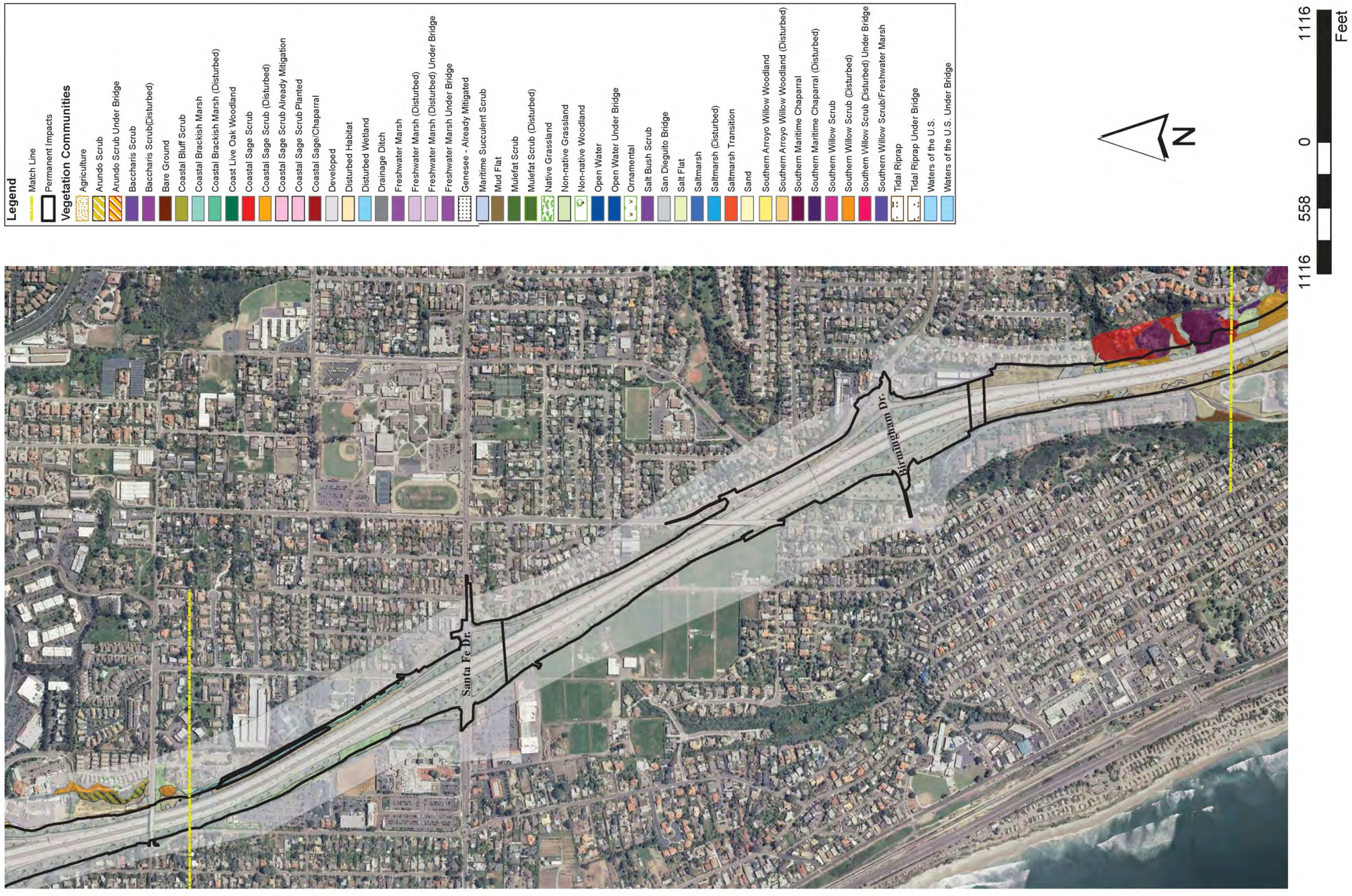


Figure 3-17.1f: Vegetation Communities

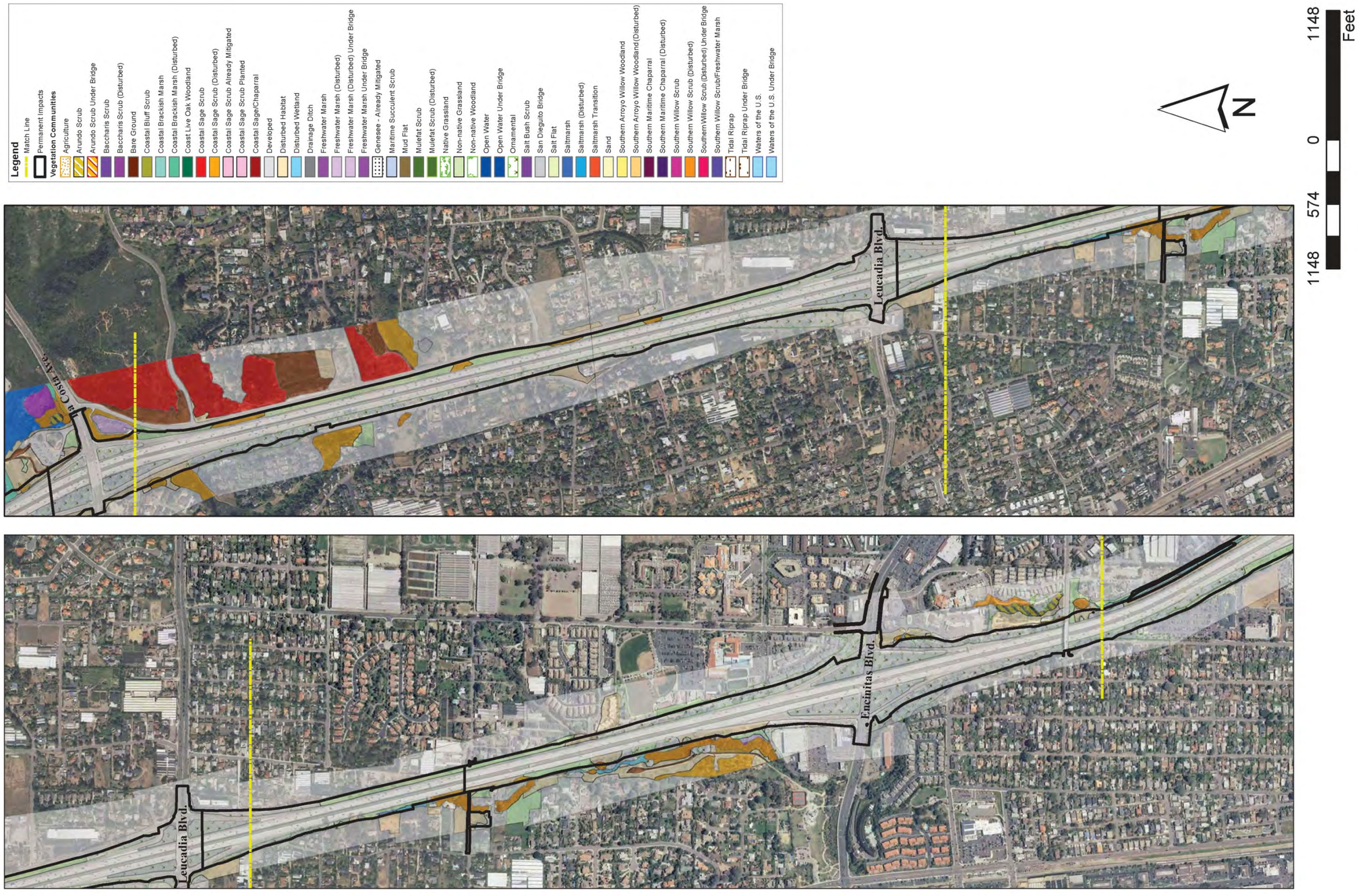


Figure 3-17.1g: Vegetation Communities

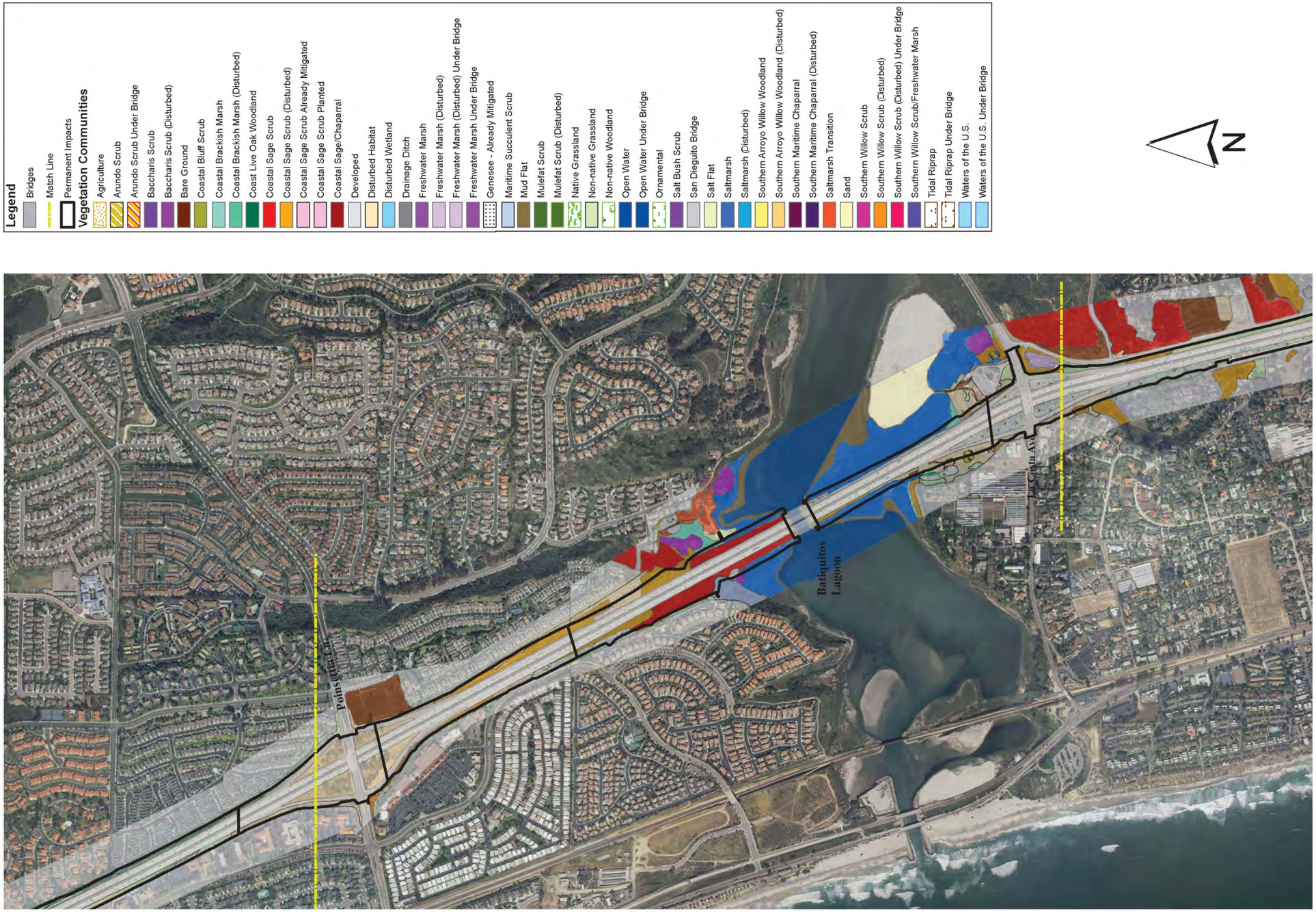


Figure 3-17.1h: Vegetation Communities

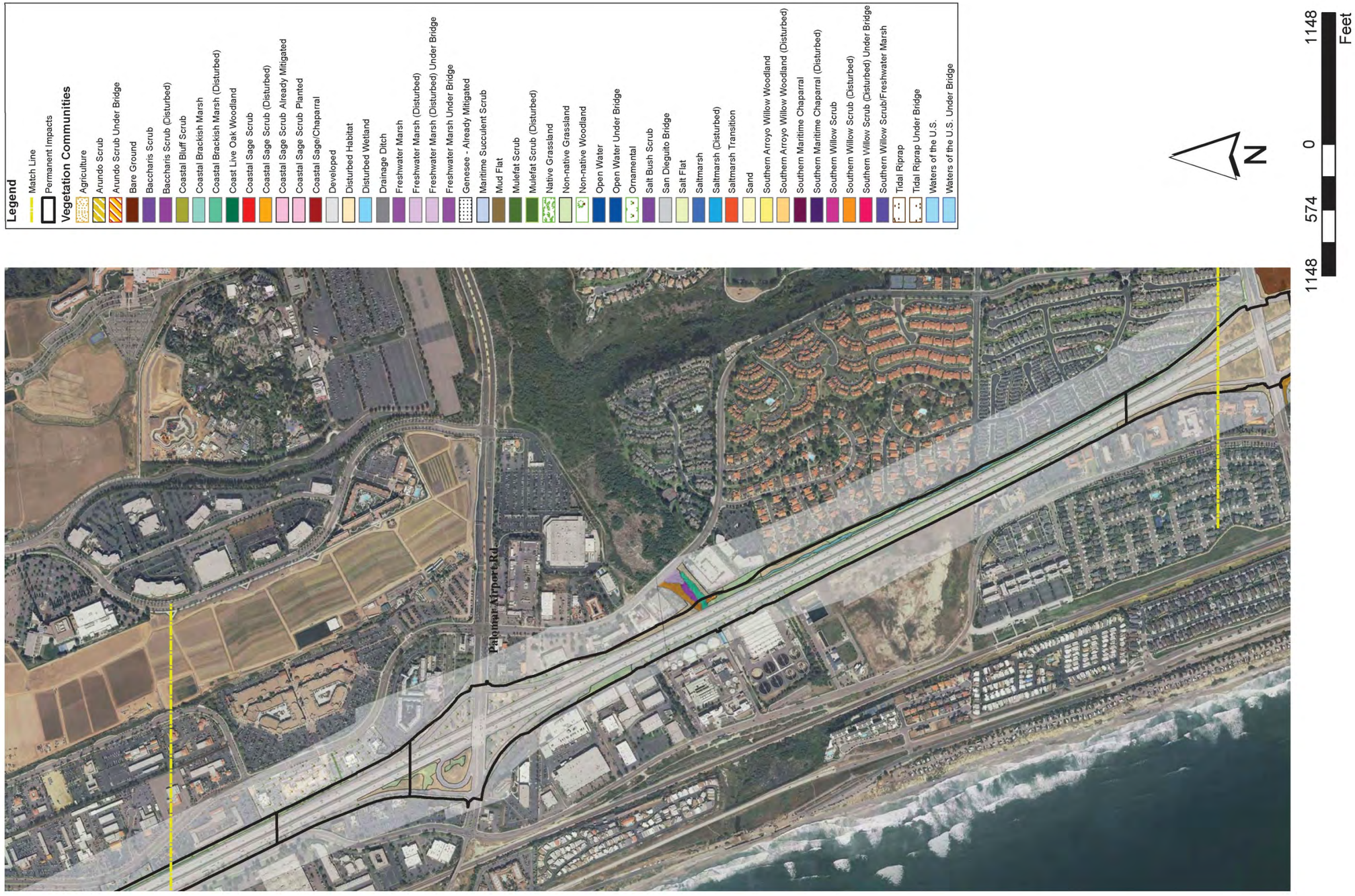
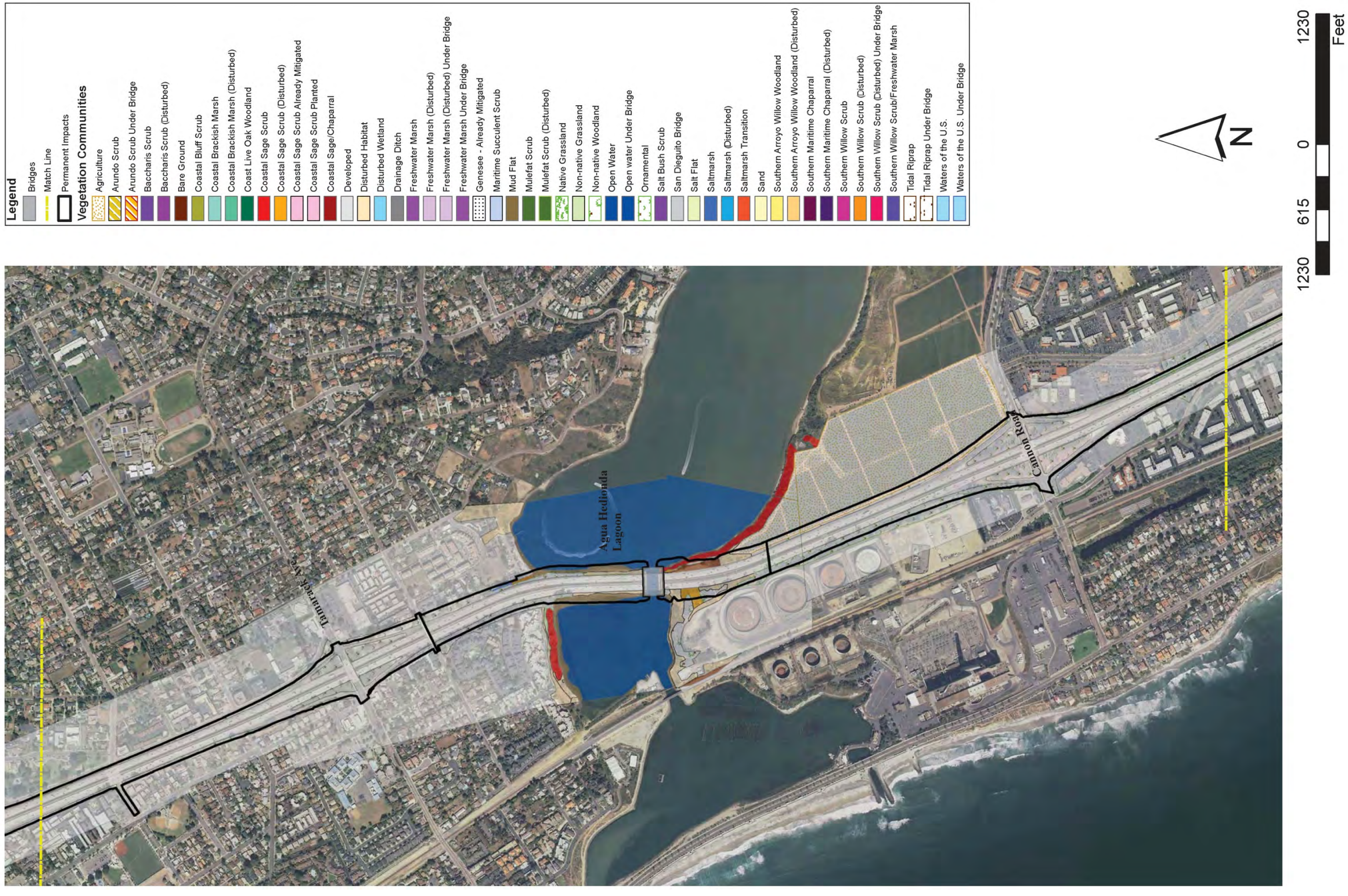


Figure 3-17.1i: Vegetation Communities



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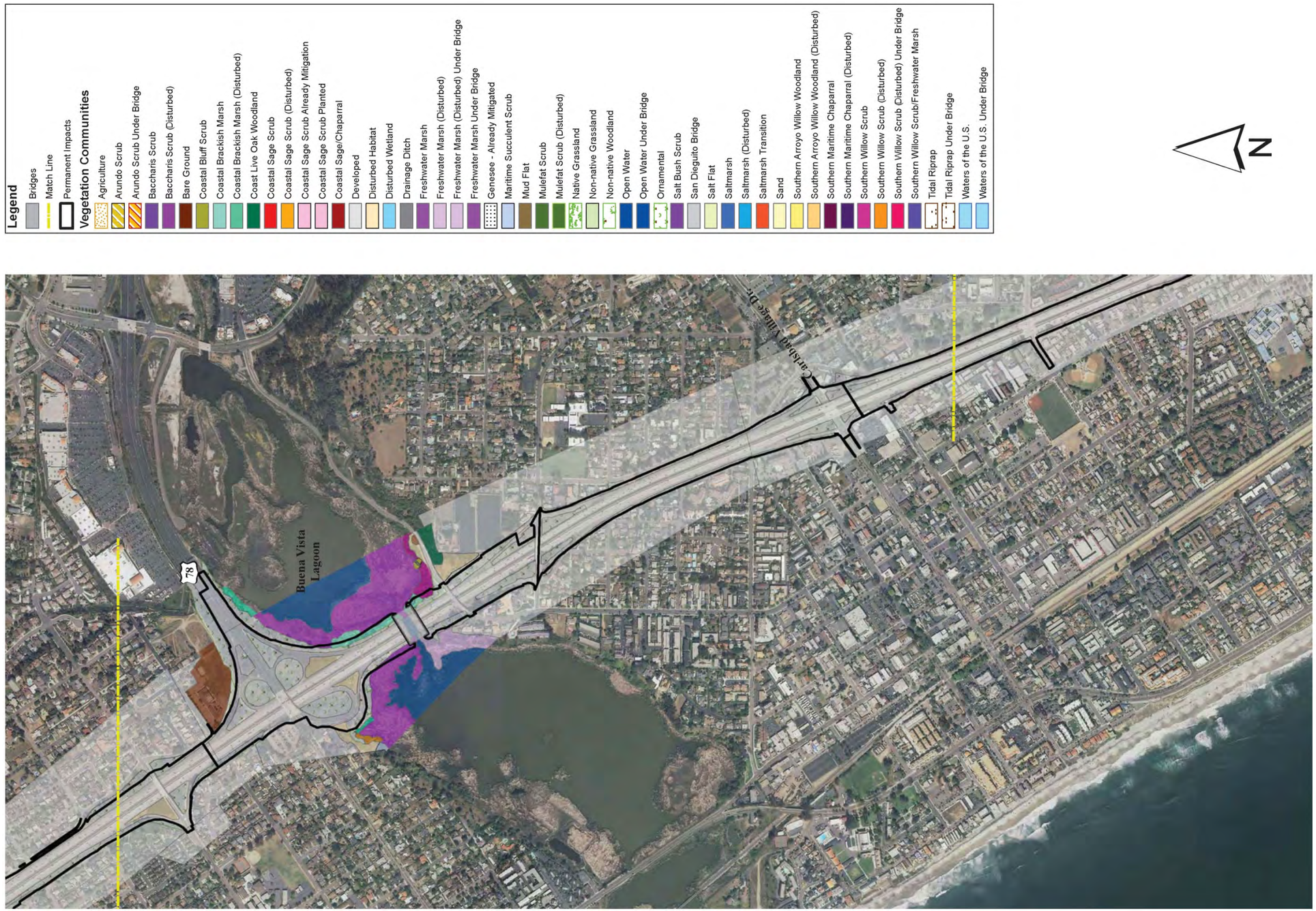

Figure 3-17.1k: Vegetation Communities

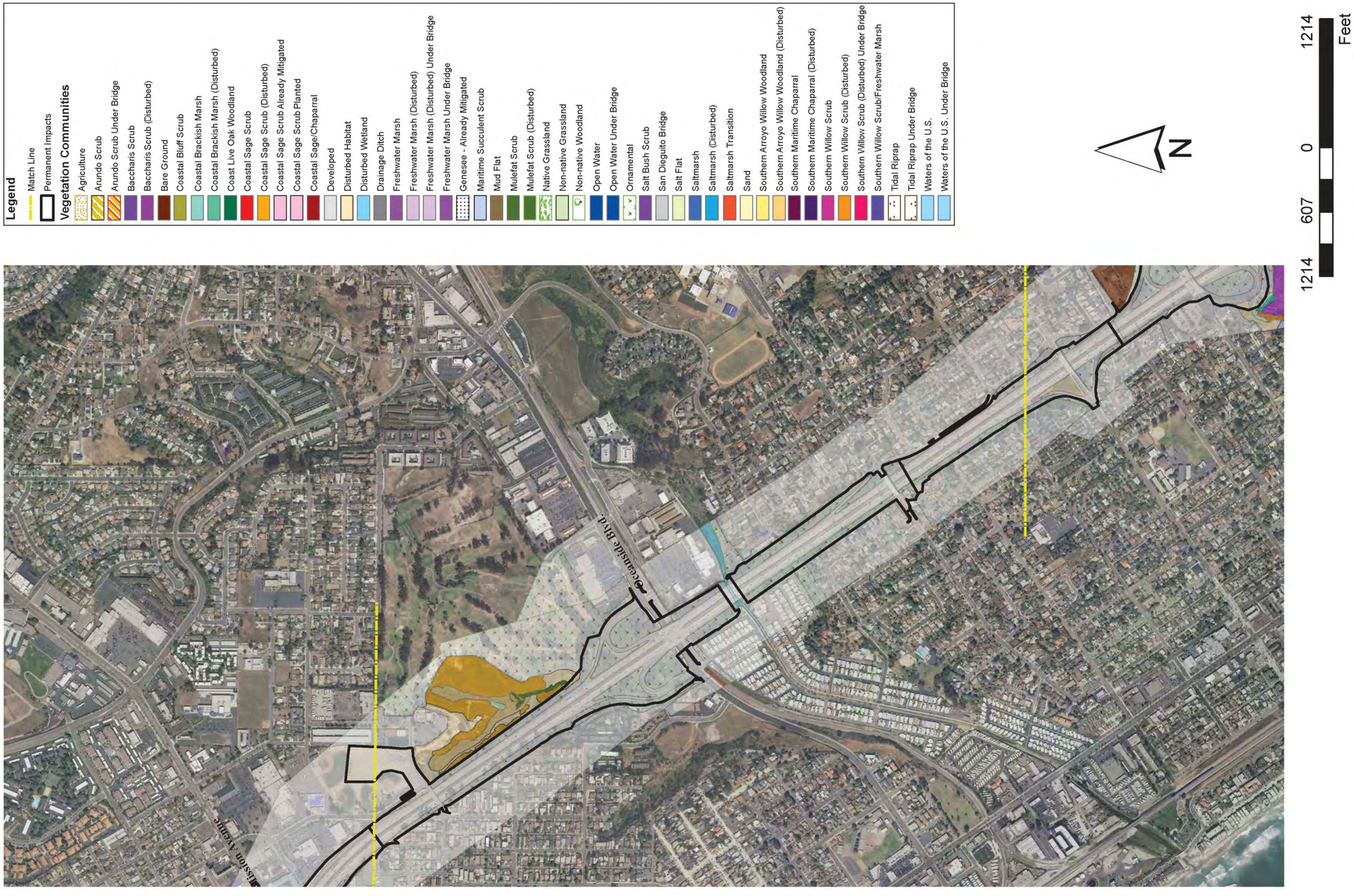

Figure 3-17.1l: Vegetation Communities

Figure 3-17.1m: Vegetation Communities

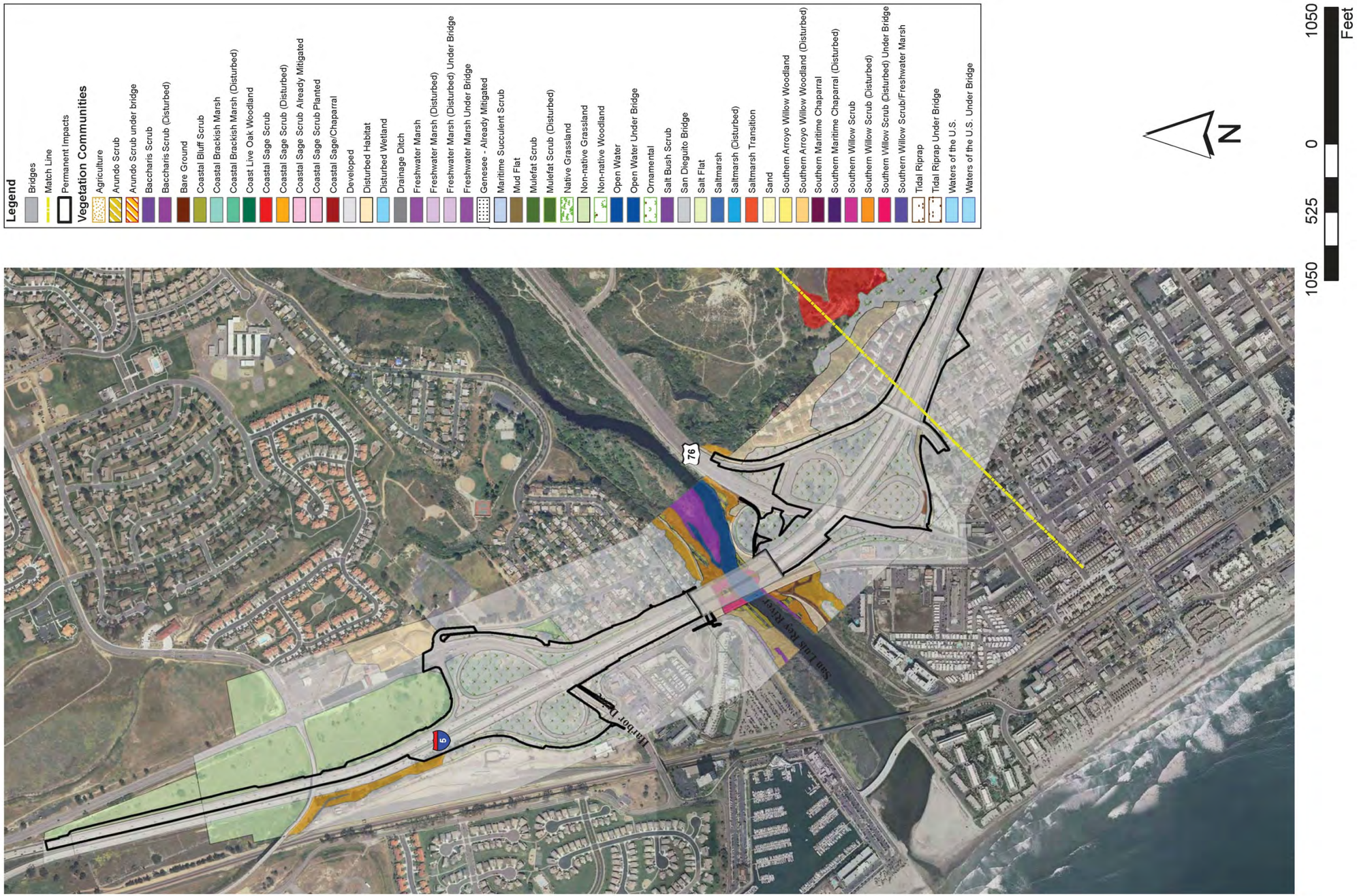

Figure 3-17.1n: Vegetation Communities

3.18 Wetlands and Other Waters

The 8+4 Buffer alternative has been refined since the Draft EIR/EIS was publically circulated in 2010. This alternative was presented as the locally preferred alternative (LPA) in the August 2012 Supplemental Draft EIR/EIS, and has now been identified as the Preferred Alternative. The refined 8+4 Buffer alternative has the least amount of impact of any build alternative and also meets purpose and need.

3.18.1 Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the CWA (33 USC 1344) is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA. A jurisdictional delineation was completed for the *I-5 NCC Project.* The Jurisdictional Delineation verification from the USACE was provided on October 20, 2009 (see Appendix N).

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the USACE with oversight by the USEPA.

The USACE issues two types of 404 permits: Standard and General permits. There are two types of General permits: Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to authorize a variety of minor project activities with no more than minimal effects.

There are two types of Standard permits: Individual permits and Letters of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of the USACE's Standard permits. For Standard permits, the USACE decision to approve is based on compliance with USEPA's Section 404(b)(1) Guidelines (USEPA 40 Code of Federal Regulations [CFR] Part 230), and whether permit approval is in the public interest. The Section 404(b)(1) Guidelines were developed by the USEPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practical alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

Caltrans, FHWA, USACE, USEPA, and USFWS entered into an MOU to integrate NEPA and the CWA for projects that have five ac or more of permanent impact to waters of the U.S. Under this

MOU, the signatory agencies agree to coordinate at three checkpoints with regard to a project's EIS: (1) purpose and need, (2) identification of range of alternatives, and (3) preliminary determination of the LEDPA and conceptual mitigation plan. The goal of the MOU process is to allow the USACE to more efficiently adopt the EIS for their Section 404 permit action.

The EO for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this EO states that a federal agency, such as FHWA, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to the construction, and (2) that the proposed project includes all practicable measures to minimize harm.

At the State level, wetlands and waters are regulated primarily by the California Department of Fish and Wildlife (CDFW; previously California Department of Fish and Game), SWRCB, and RWQCBs. In certain circumstances, the CCC may also be involved. Sections 1600-1607 of the Fish and Game Code (CFG) require any agency that proposes a project that would substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement would be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCB also issues water quality certifications for impacts to wetlands and waters in compliance with Section 401 of the CWA. Please see *Section 3.10* for additional details.

3.18.2 Affected Environment

The wetland communities are described above in *Section 3.17*. Within those plant communities there may also be areas designated by regulation as having jurisdiction by the USACE and/or the CDFW and the CCC. The USACE regulates wetlands as defined in the USACE Wetlands Delineation Manual (USACE 1987) and waters of the U.S. as described above. By USACE definition wetlands are:

> Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in the saturated soil conditions.

Waters of the U.S. include natural drainages up to the limit of the ordinary high water mark, which is defined as the:

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

By definition all USACE jurisdiction wetlands are waters of the U.S. However, not all waters of the U.S. are considered wetlands; therefore, non-wetland USACE jurisdictional areas are identified as other waters of the U.S. *(Figures 3-18.1a* through *3-18.1l*). On October 20, 2009, the USACE concurred with the submitted wetlands delineation (see Appendix N).

The CDFW only requires one of the three criteria that the USACE requires in the definition of a wetland. Pursuant to CFG Code 1602 a streambed alteration agreement is needed for projects which would:

> Divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit, use material from the streambeds designated by the department, or result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake designated by the department.

This generally includes all natural drainages, including any adjacent riparian habitat, but usually does not cover isolated wetlands.

The CCC defines wetlands similar to the CDFW, and CCC Administrative Regulations (Section 13577[b]) further define a wetland as:

> [L]and where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to 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.

There are CDFW, CCC, and USACE jurisdictional wetlands throughout the BSA. CDFW and CCC wetlands are identified by habitat type, which are shown in *Figures 3-17.1a* through *3-17.1n* and are discussed in detail in *Section 3.17*. USACE jurisdiction wetlands and other waters of the U.S. are shown in *Figures 3-18.1a* through *3-18.1l*. The lagoons and their fringing habitats, rivers, creeks, and drainages are considered wetlands by one, two, or all three of the agencies. CCC and CDFW jurisdiction wetlands were primarily mapped based on habitats (see *Section 3.17*), while USACE jurisdiction wetlands were delineated based on the 1987 USACE Manual.

Figure 3-18.1a: USACE Jurisdictional Waters

Figure 3-18.1b: USACE Jurisdictional Waters

Figure 3-18.1c: USACE Jurisdictional Waters

Figure 3-18.1d: USACE Jurisdictional Waters

Figure 3-18.1e: USACE Jurisdictional Waters

Figure 3-18.1f: USACE Jurisdictional Waters

Figure 3-18.1g: USACE Jurisdictional Waters

Figure 3-18.1h: USACE Jurisdictional Waters

Figure 3-18.1i: USACE Jurisdictional Waters

Figure 3-18.1j: USACE Jurisdictional Waters

Figure 3-18.1k: USACE Jurisdictional Waters

Figure 3-18.1l: USACE Jurisdictional Waters

Habitats by Watershed

Different types of wetlands and waters of the U.S. have been divided by watershed as identified from one high point of I-5 to the next high point and the body of water in between. For instance, San Elijo Lagoon watershed includes wetlands and non-wetland waters of the U.S. between Lomas Santa Fe Drive in the south to just south of the Santa Fe Road Interchange in the north. Each wetland/watershed provides unique functions and values ranging from water quality improvements by filtering nutrients and sediments from the water column, to flood relief, to wildlife habitats. The following 11 watersheds and their functions and values were identified in the project vicinity.

San Clemente Creek

A small wetland that is fed primarily by urban runoff flows into a canyon east of I-5 near Voigt Street. This small drainage has some willows and mulefat, as well as a number of invasive species. This wetland area provides a limited area of wildlife habitat as well as some water quality functions. From this canyon, the water flows through culverts until it ultimately empties into the drainage along Gilman Drive and finally into San Clemente Creek (*Figure 3-18.1a*).

Los Peñasquitos Lagoon

This watershed extends from the southern limits of the project on I-5 and I-805 to the Del Mar Heights Road Interchange. The watershed includes the following areas: Carroll Canyon/Sorrento Creek, Los Peñasquitos Creek, Carmel Creek, and Los Peñasquitos Lagoon (*Figures 3-18.1a* and *3-18.1b*). These wetlands provide important wildlife habitat for threatened and endangered species, migratory birds, large mammals, and many different wildlife species. These wetlands also provide flood relief by allowing high flows to spread out and enter the larger water courses. They also provide water quality improvements by slowing the flow of water and allowing sediment loads, nutrients, and toxins from dropping out and being absorbed by the vegetation.

San Dieguito Lagoon

This watershed extends from the Del Mar Heights Road Interchange to the Lomas Santa Fe Drive Interchange and includes all drainages along I-5 into the San Dieguito River and Lagoon (*Figure 3-18.1c*). The San Dieguito River and Lagoon provides similar wetland functions to Los Peñasquitos Lagoon. A large restoration project within this watershed began in 2006. The restoration project would restore land around the lagoon that was previously fill material. The wetland habitats adjacent to the right-of-way would have even greater wildlife value after the restoration is completed.

San Elijo Lagoon

The San Elijo Lagoon watershed extends from Lomas Santa Fe Drive to just south of the Santa Fe Road Interchange (*Figure 3-18.1d*). This watershed encompasses all of the drainages into San Elijo Lagoon. San Elijo Lagoon provides important wildlife habitat, flood relief, and water quality improvement similar to Los Peñasquitos Lagoon.

The lagoon supports light-footed clapper rail and least Bell's vireo (*Vireo bellii pusillus*), as well as California gnatcatchers (*Polioptila californica californica*) on the adjacent uplands. Water quality and flood relief are important functions of this lagoon as well.

Cottonwood Creek

The Cottonwood Creek watershed within this project extends from just south of the Santa Fe Drive Interchange to the Leucadia Boulevard Interchange (*Figures 3-18.1e* and *3-18.1f*). Cottonwood Creek is primarily channelized or underground near I-5. Several drainages feed into Cottonwood Creek from the east side of I-5 to the west side where the outlet has recently been restored to its mouth at the Pacific Ocean near Encinitas Boulevard. Cottonwood Creek and its tributary, Moonlight Creek, flow through a very urbanized section of Encinitas. Cottonwood Creek often flows through culverts and channels near I-5 and does not provide much flood relief, water quality improvement, or wildlife habitat until it flows west of I-5 into the newly created channels in Cottonwood Park. Moonlight Creek flows parallel to I-5 north of Encinitas Boulevard and feeds into Cottonwood Creek. Moonlight Creek has freshwater marsh and southern willow scrub habitat, which provides habitat to some riparian bird species, as well as providing some water quality and flood relief functions.

Batiquitos Lagoon

This watershed extends from Leucadia Boulevard north to Poinsettia Avenue (*Figures 3-18.1g* and *3-18.1h*). This area encompasses Batiquitos Lagoon and any drainages that feed the lagoon. Batiquitos Lagoon provides another important habitat for many wildlife species including threatened and endangered species. California least tern (*Sterna antillarum browni*), western snowy plover (*Charadrius alexandrines nivosus*), and light-footed clapper rail are all endangered species that use portions of the lagoon habitat. The large open water portions of Batiquitos Lagoon also provide important habitat for fish, waterfowl, and shorebirds. The slopes of the lagoons are important wildlife corridors for both large and small mammal movement. The lagoon also provides water quality functions and flood relief.

Encinas Creek

This watershed extends from Poinsettia Lane to Palomar Airport Road (*Figure 3-18.1h*). The Encinas Creek watershed includes the creek itself and a long earthen drainage parallel to I-5 that is fed mostly by urban and freeway runoff that then flows into the creek through a concrete channel. Encinas Creek flows from east to west under I-5. Encinas Creek is disturbed by many invasive plant species and has been channelized along some of its length. The long drainage parallel to I-5 is fed by urban and freeway runoff; it supports cattails and amphibians, as well as some bird species. Encinas Creek does provide some limited wildlife habitat, water quality functions, and flood relief. However, due to the disturbed nature of this creek, the function and value of the wetlands are limited compared to the watersheds that flow into lagoons.

Agua Hedionda Lagoon

This watershed extends from Palomar Airport Road to just north of Tamarack Avenue (*Figure 3-18.1i*). This area contains a concrete-lined drainage parallel to I-5 that has some freshwater marsh vegetation and carries primarily urban and freeway runoff. The developed area between Tamarack Avenue and Carlsbad Village Drive does not contain any wetlands or drainage ditches; therefore, this area is not included in any of the watersheds. Agua Hedionda Lagoon, near I-5, is primarily open water habitat with some mud flat and a small fringe of salt marsh vegetation. Agua Hedionda is fed by some small drainage ditches that capture urban runoff, but provide little wetland functions. Agua Hedionda Lagoon provides open water habitat for fish, waterfowl, and shorebirds. It also provides water quality and flood relief for areas upstream and downstream of the lagoon.

Buena Vista Lagoon

This watershed extends from Carlsbad Village Drive to north of California Street Interchange (*Figure 3-18.1j*). The lagoon itself contains the only wetland/waters of the U.S. within this watershed. Buena Vista Lagoon is a freshwater lagoon that for the most part is not connected to the ocean except through a system of tide gates. Buena Vista Lagoon is a combination of freshwater marsh, brackish marsh, and open water habitat that supports a variety of sensitive and migratory birds. The cattails in the marsh provide habitat and take up nutrients in the water that flows into the lagoon increasing water quality. Buena Vista does provide some flood relief due to its size; however, the tide gates mute the benefit in the western basin.

Loma Alta Creek

This watershed extends from north of the California Street Interchange north to Mission Avenue (*Figure 3-18.1k*). There are several concrete lined ditches that feed into this highly disturbed creek. In addition, there is a riparian area east of I-5 and north of Oceanside Boulevard that ultimately gets piped into this creek as well. The creek flow is fed by urban runoff and storm flows. The creek does provide a limited amount of water quality filtration and flood relief; however, due to its highly disturbed nature the benefit is minimal.

San Luis Rey River

This watershed extends from Mission Avenue north to the end of the project (*Figure 3-18.1l*). The San Luis Rey River is the main wetland within this watershed; however, there are some manmade drainage ditches that parallel I-5 near Vandergrift Boulevard overpass. The San Luis Rey River is one of the few truly perennial rivers in San Diego County. The San Luis Rey River, in the vicinity of I-5, is a combination of open water habitat, freshwater marsh, arundo scrub, and riparian that provides habitat for a variety of sensitive and common wildlife. The San Luis Rey River also plays an important role in flood relief and water quality improvements due to the filtering of water by freshwater marsh species. A recent project was undertaken by the City of Oceanside to remove a large quantity of arundo in the San Luis Rey River, upstream of I-5, to improve its ability to handle floodwaters.

3.18.3 Environmental Consequences

I-5 is an existing freeway that crosses six lagoons, a river, and some additional smaller drainages. The No Build alternative is the only alternative that would avoid the majority of the impacts to wetlands. Some of the projects that would go forward under the No Build scenario would involve wetland impacts. The build alternatives all are variations of widening the existing alignment. There is no way to avoid impacts to the wetlands entirely and still meet the purpose and need of the project. The alternatives which were not carried forward also impacted wetlands. The length of the proposed north-south project and the fact that the watersheds drain from east to west would make it impossible to avoid crossing any wetlands.

The four build alternatives were approved by the MOU regulatory agencies in NEPA 404 coordination. Efforts to minimize fill in the wetland examined using retaining walls; however, the liquefied soils at the lagoons would require very deep footings over 82 ft and would be prohibitively expensive. Varying bridge designs have been examined to enhance flow under the bridges to increase water quality in the eastern basins of the lagoons, as described in *Section 3.17* and shown in *Figures 3-18.2a* through *3-18.2g*. Caltrans, in conjunction with the USACE and restoration efforts at San Elijo Lagoon and Buena Vista Lagoon, is planning to build

longer bridges over wider and deeper channels that would result in removing some of the existing fill at the lagoons. A longer bridge with a wider and deeper channel is also proposed at Batiquitos Lagoon. These channel modifications would be built as part of the *I-5 NCC Project*.

Table 3.18.1 describes the permanent and temporary impacts to USACE jurisdictional wetlands and other waters of the U.S. and State of California jurisdictional wetlands. *Figures 3-18.1a* through *3-18.1l* show the jurisdictional wetlands and waters of the U.S with the permanent impact area for the 8+4 Buffer alternative.

Impacts from each of the build alternatives to the lagoon habitats would slightly decrease the quality and quantity of habitat available for use by wildlife species, including migratory birds and listed species. There would also be effects to each of the lagoons' abilities to provide flood relief and water quality functions. These lagoons are very important to the health and well-being of the coastal habitats and species.

The smaller drainages would also be affected. Although these smaller drainages do not present the high quality habitat that the lagoons and San Luis Rey River provide, the build alternatives would result in placing several of these small wetlands and other waters of the U.S. into culverts, which would eliminate any potential for wildlife habitat, flood control, or water quality functions. Drainages feeding into Cottonwood Creek, Encinas Creek, and those parallel to I-5 north of Genesee Avenue, would have portions placed into culverts.

Table 3.18.1: Permanent and Temporary Impacts to Jurisdictional Waters of the U.S. and State

	10+4 Barrier	10+4 Buffer	8+4 Barrier	8+4 Buffer (Preferred Alternative)
	Ac	Ac	Ac	Ac
Permanent*				
Other Waters of the U.S. USACE	5.92	4.93	5.42	4.20
USACE Wetland	13.77	11.75	12.53	9.93
Total Waters of the U.S.	19.69	16.68	17.95	14.13
State Wetland	25.55	21.49	22.91	18.44
Wetland Re-established	2.52	2.52	2.52	2.52
Net Impact USACE Jurisdiction	**17.17**	**14.16**	**15.43**	**11.61**
Net Impact State Wetland	**23.03**	**18.97**	**20.39**	**15.92**
Temporary				
Other Waters of the U.S. USACE	9.17	7.84	8.24	6.31
USACE Wetland	10.96	10.14	10.66	8.51
Total Waters of the U.S.	**20.13**	**17.98**	**18.90**	**14.82**
State Wetland	**21.95**	**20.20**	**20.88**	**18.39**

*Note: Because USACE jurisdictional areas are a subset of CDFW jurisdictional areas, the total is not additive of all three categories.

The lagoon bridge optimization studies recommended widening and deepening the channels at San Elijo, Batiquitos, and Buena Vista Lagoons under I-5. In addition, the new bike facility over Carmel Creek would be a long bridge as opposed to the current small culverts. As a result, approximately 2.52 ac of wetland would be re-established. Therefore, the net impact for each alternative would be less due to the off-setting creation, resulting from the removal of fill.

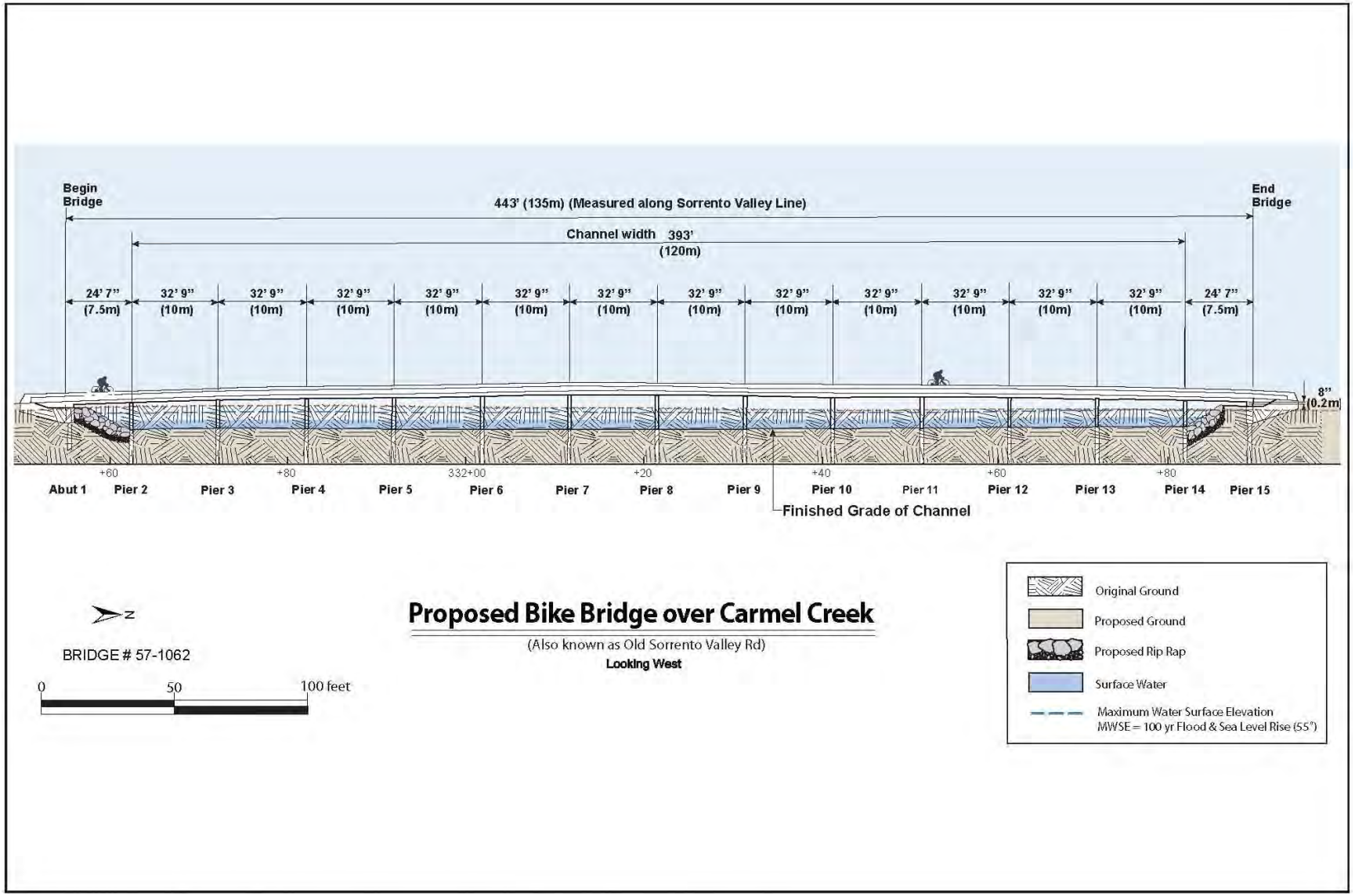

Figure 3-18.2a: Los Peñasquitos Lagoon: Cross-sections for the Existing I-5 Bridge and Proposed 8+4 Buffer (Carmel Creek)

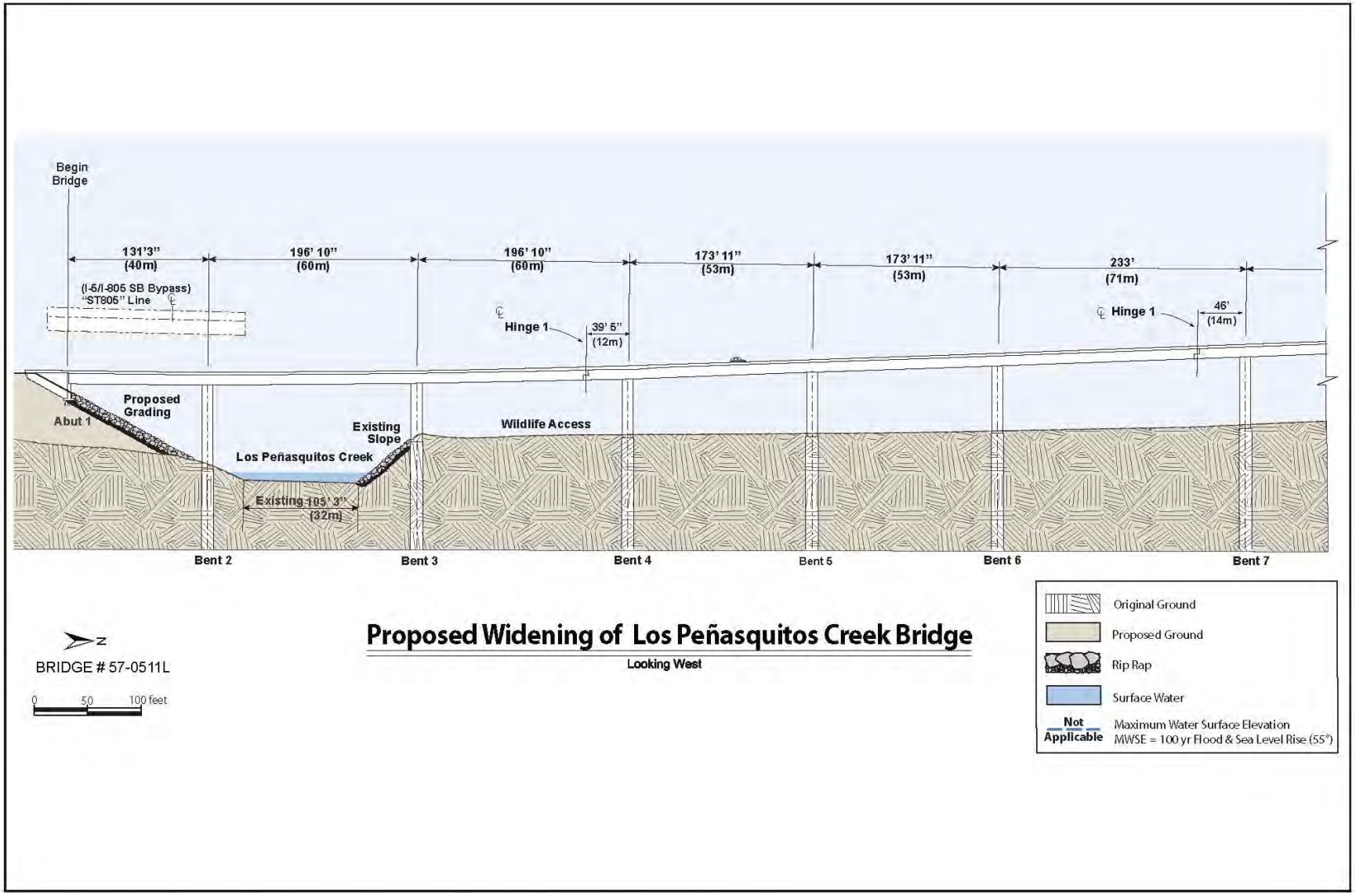

Figure 3-18.2b: Los Peñasquitos Lagoon: Cross-sections for the Existing I-5 Bridge and Proposed 8+4 Buffer (Los Peñasquitos Creek)

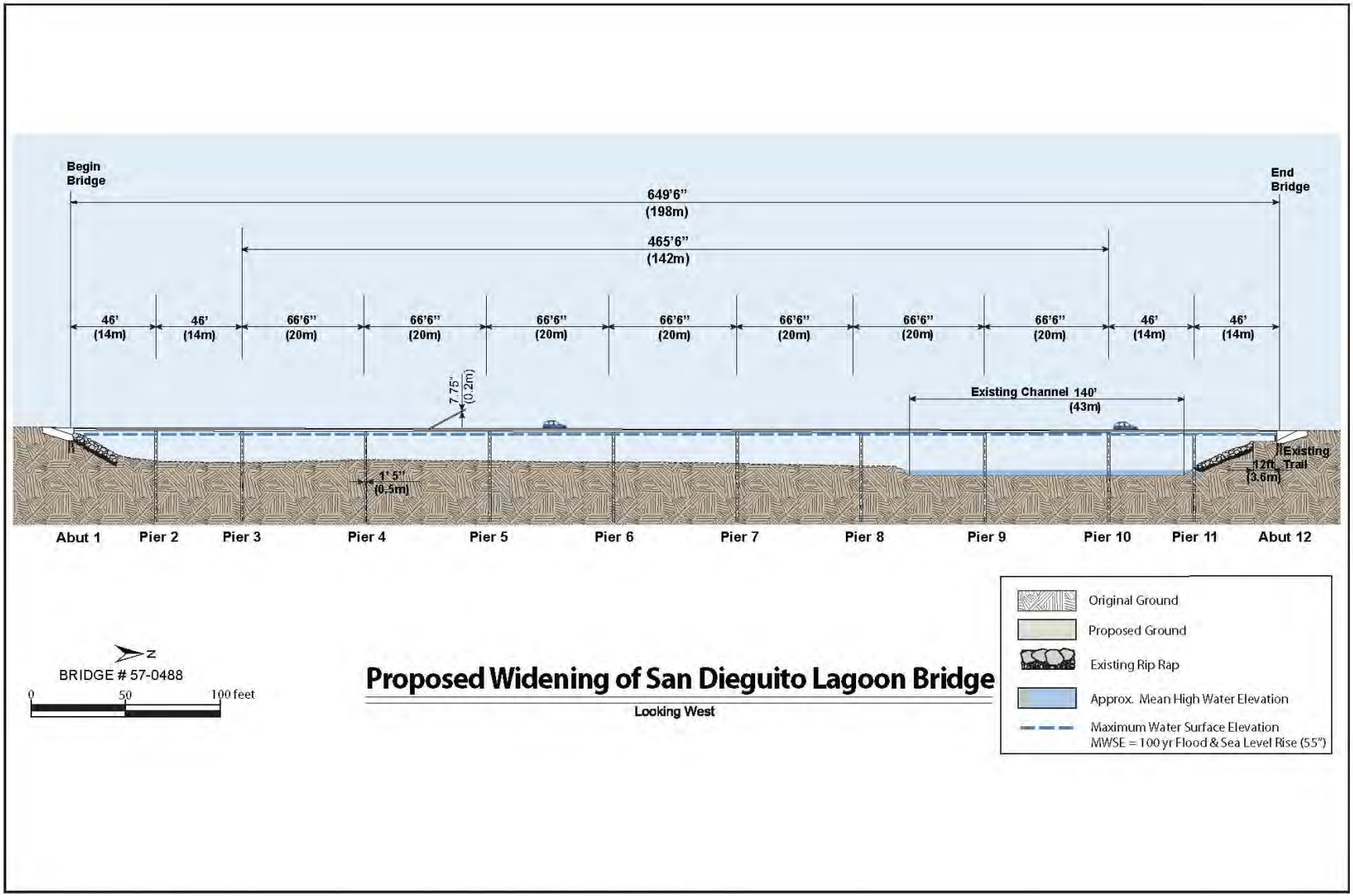

Figure 3-18.2c: San Dieguito Lagoon: Cross-sections for the Existing I-5 Bridge and Proposed 8+4 Buffer

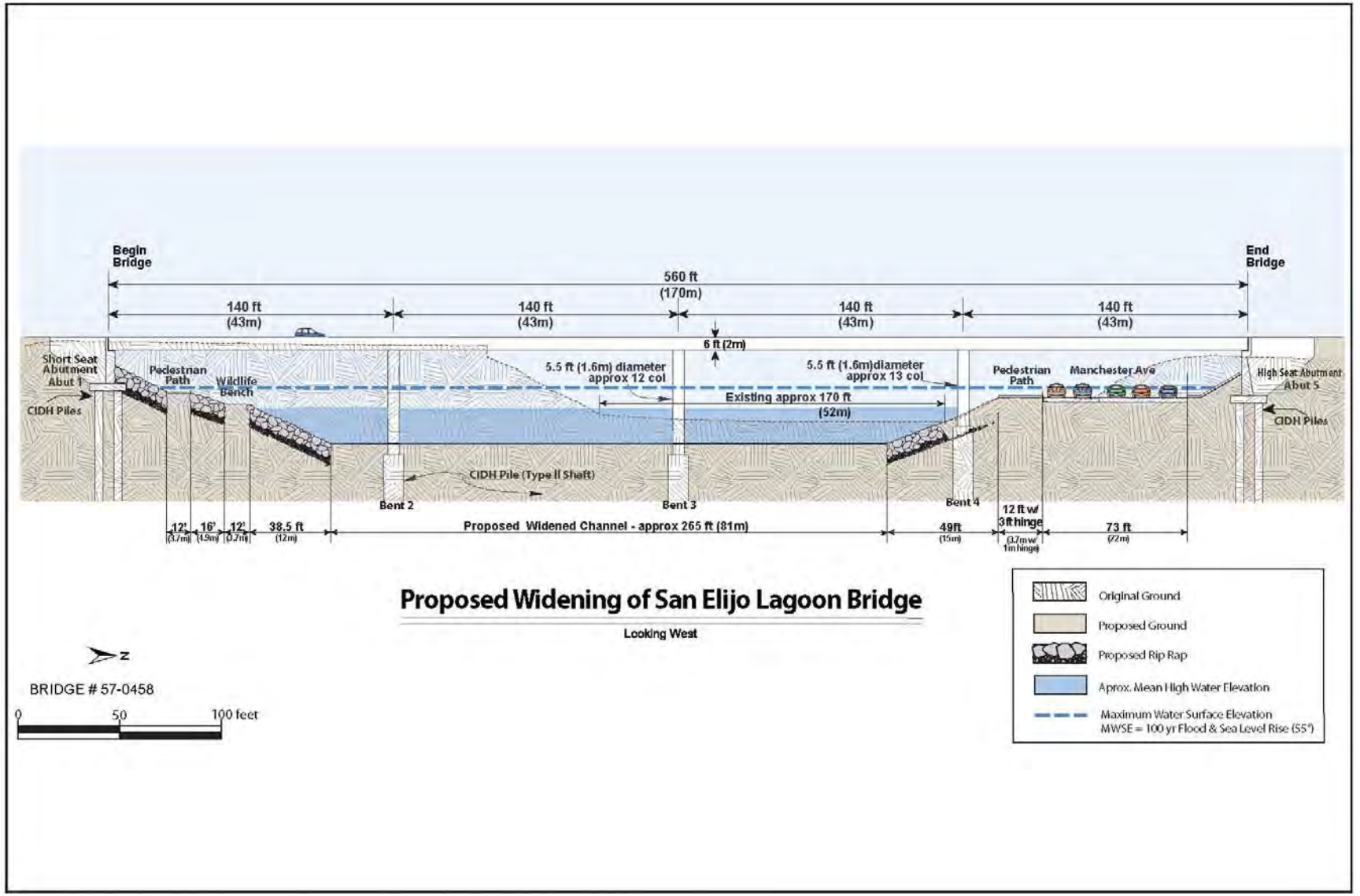

Figure 3-18.2d: San Elijo Lagoon: Cross-sections for the Existing I-5 Bridge and Proposed 8+4 Buffer

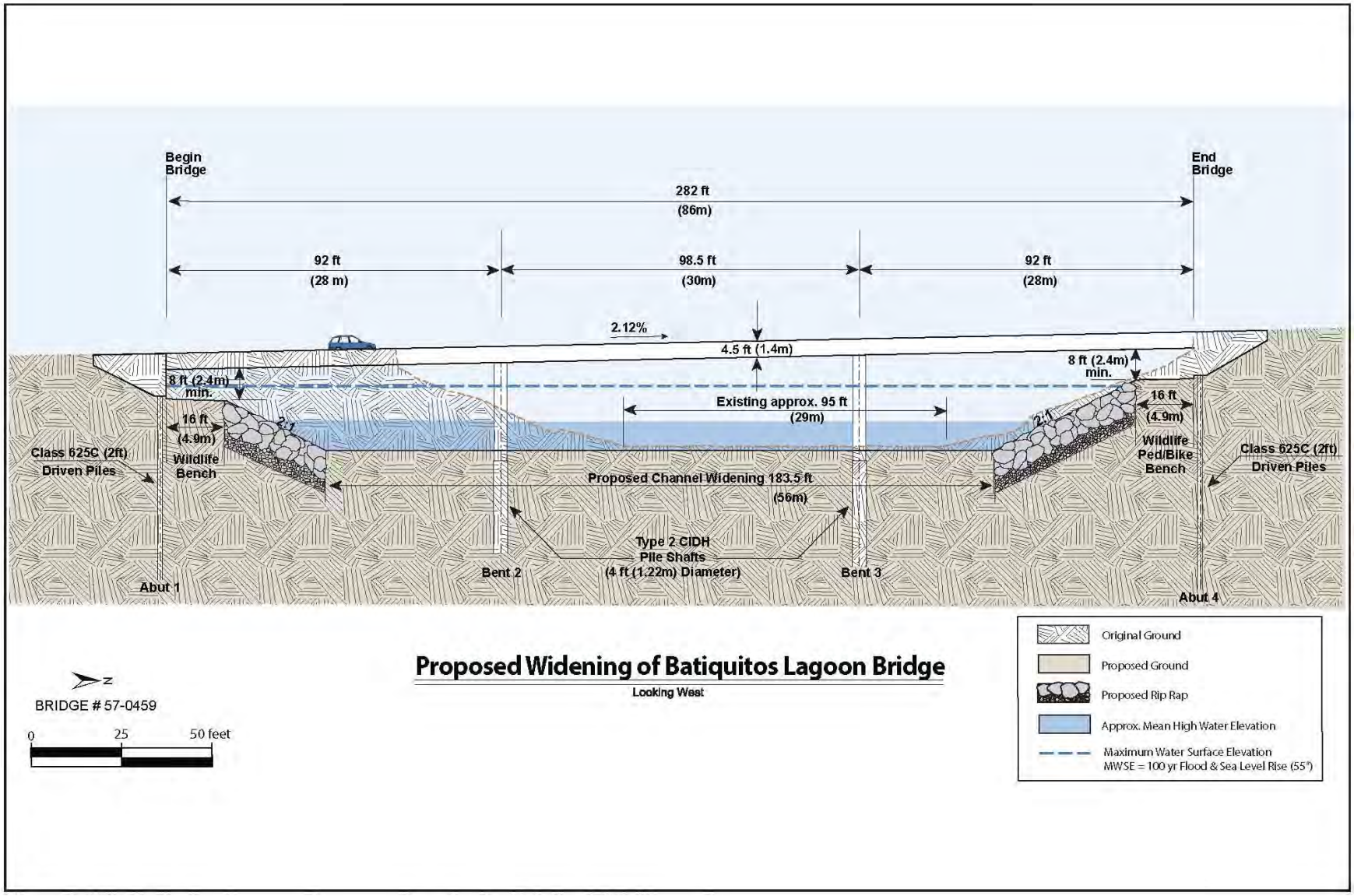

Figure 3-18.2e: Batiquitos Lagoon: Cross-sections for the Existing I-5 Bridge and Proposed 8+4 Buffer

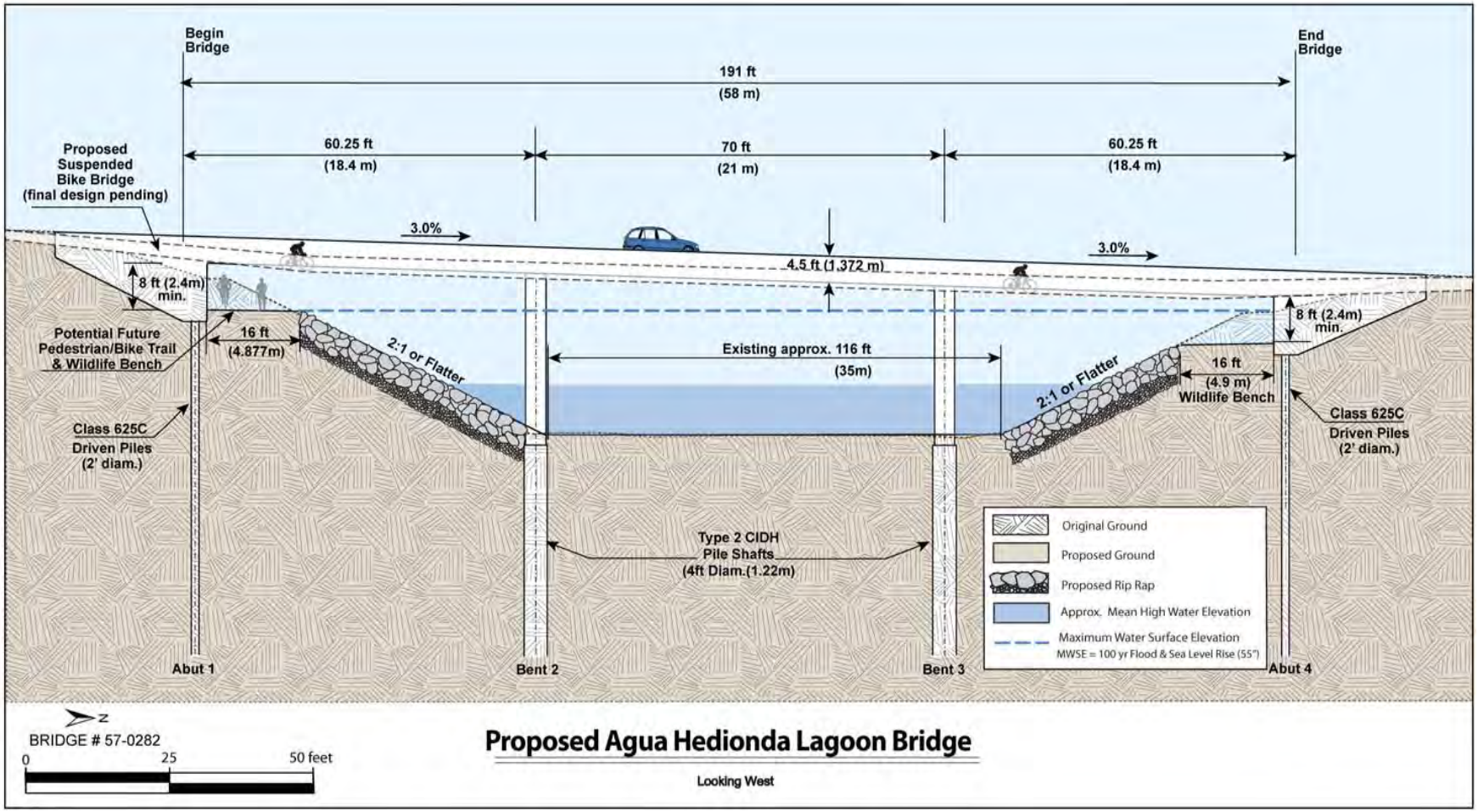

Figure 3-18.2f: Agua Hedionda Lagoon: Cross-sections for the Existing I-5 Bridge and Proposed 8+4 Buffer

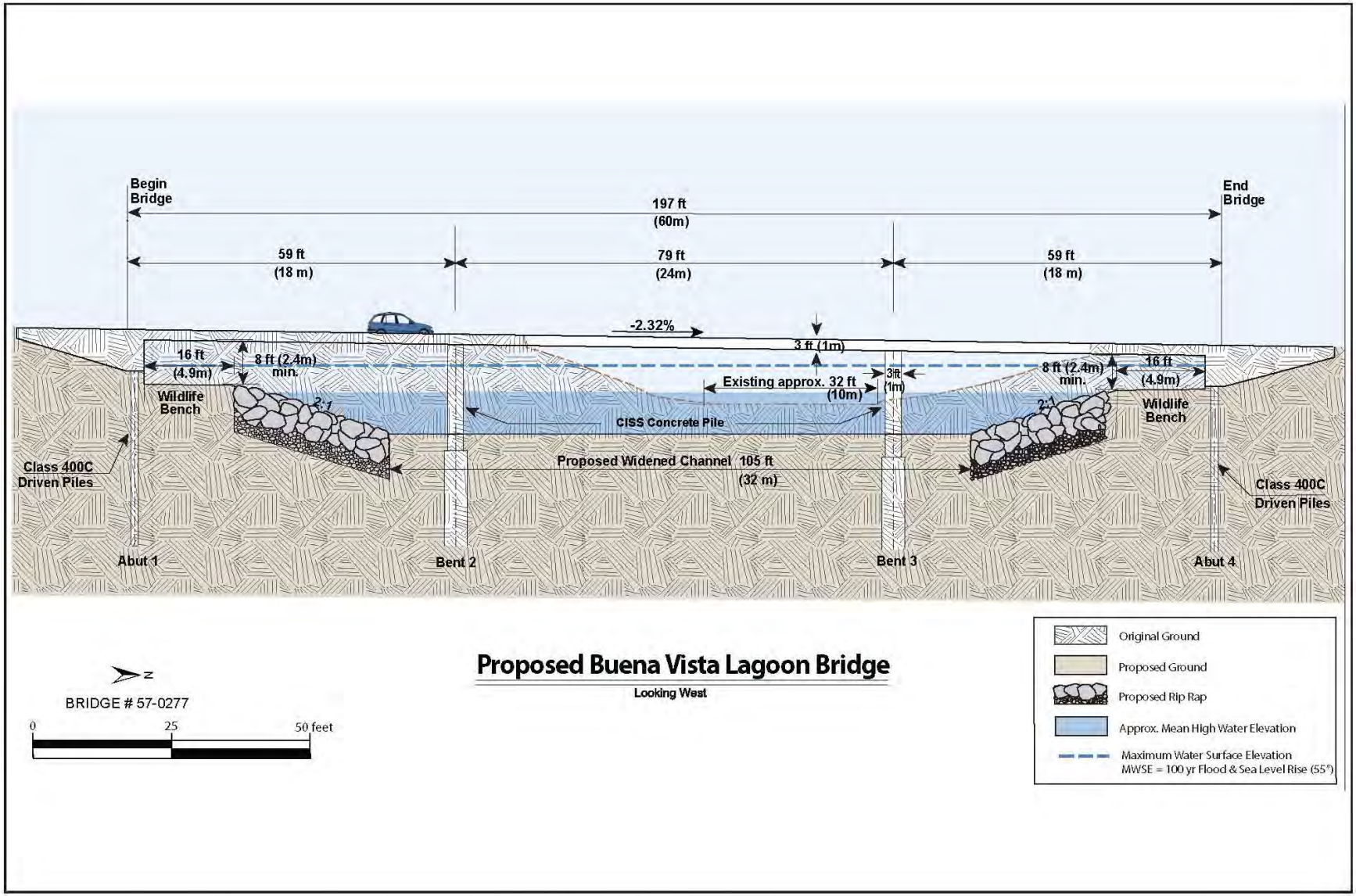

Figure 3-18.2g: Buena Vista Lagoon: Cross-sections for the Existing I-5 Bridge and Proposed 8+4 Buffer

Temporary impacts to waters of the U.S. and State wetlands would include the open water areas under each of the existing and proposed bridges (excluding the columns, which are considered permanent fill) where work would include demolishing the old bridge and constructing the new bridge. A channel would remain open in each of the lagoons during construction; however, the area could be impacted by barges, coffer dams, falsework, or other methods while constructing the bridges.

During the NEPA 404 meetings with the MOU resource agencies, the USACE has expressed an interest in disclosing the amount of impacts to jurisdictional habitat by watershed. The permanent impacts by watershed are listed in *Table 3.18.2*. There is little difference in the amount of impacts for each of the alternatives in many of the watersheds. The footprint is the same in the San Clemente, Los Peñasquitos, Loma Alta, and San Luis Rey watersheds (*Table 3.18.2*). The greatest lagoon impacts are to Agua Hedionda and Batiquitos due to the existing narrow fill slopes under the current I-5 alignment and the closer proximity of waters of the U.S. to the roadway (*Table 3.18.2*). As with the totals, the 8+4 Buffer alternative would have the fewest permanent impacts to USACE jurisdictional waters of the U.S. in each watershed.

Table 3.18.2: Permanent Impacts to USACE Jurisdictional Waters of the U.S. by Watershed

Watershed	Type	10+4 Barrier	10+4 Buffer	8+4 Barrier	8+4 Buffer (Preferred Alternative)
		Ac	Ac	Ac	Ac
San Clemente	Other Waters	0.00	0.00	0.00	0.00
	Wetland	0.01	0.01	0.01	0.01
Los Peñasquitos	Other Waters	0.11	0.11	0.11	0.11
	Wetland	0.44	0.44	0.44	0.44
San Dieguito	Other Waters	0.03	0.03	0.03	0.03
	Wetland	3.74	2.98	3.54	2.96
San Elijo	Other Waters	0.00	0.00	0.00	0.00
	Wetland	1.45	0.68	0.76	0.60
Cottonwood Creek	Other Waters	0.08	0.08	0.08	0.05
	Wetland	0.43	0.32	0.38	0.29
Batiquitos	Other Waters	0.27	0.27	0.27	0.24
	Wetland	4.93	4.58	4.65	2.89
Encinas	Other Waters	0.14	0.13	0.13	0.12
	Wetland	1.49	1.46	1.47	1.46
Agua Hedionda	Other Waters	5.20	4.22	4.71	3.56
	Wetland	0.00	0.00	0.00	0.00
Buena Vista	Other Waters	0.00	0.00	0.00	0.00
	Wetland	1.28	1.28	1.28	1.28
Loma Alta	Other Waters	0.07	0.07	0.07	0.07
	Wetland	0.00	0.00	0.00	0.00
San Luis Rey	Other Waters	0.02	0.02	0.02	0.02
	Wetland	0.00	0.00	0.00	0.00
TOTAL	Other Waters	5.92	4.93	5.42	4.20
	Wetland	13.77	11.75	12.53	9.93
	All	**19.69**	**16.68**	**17.95**	**14.13**

10+4 Barrier

The 10+4 Barrier alternative would have the most net permanent impacts to jurisdictional waters: 17.17 ac of waters of the U.S. and 23.03 ac of State wetlands (*Table 3.18.1*). Almost half of the permanent impacts to jurisdictional waters of the U.S. would occur in Batiquitos and Agua Hedionda Lagoons (*Table 3.18.2*). The 10+4 Barrier alternative would temporarily impact 20.13 ac of USACE jurisdictional waters of the U.S. and 21.95 ac of State wetlands (*Table 3.18.1*).

10+4 Buffer

The 10+4 Buffer alternative would have a net permanent impact to 14.16 ac of waters of the U.S. and 18.97 ac of State wetlands (*Table 3.18.1*). The largest impacts are within the Batiquitos and Agua Hedionda watersheds; however, the majority of the Batiquitos impacts are to wetlands, while the majority of the impacts to Agua Hedionda are to other waters of the U.S. (*Table 3.18.2*). The 10+4 Buffer alternative would have a total of 17.98 ac of temporary impacts to USACE jurisdictional waters of the U.S. and 20.20 ac of State wetlands associated with construction (*Table 3.18.1*).

8+4 Barrier

The 8+4 Barrier alternative would have a net permanent impact to 15.43 ac of waters of the U.S. and 20.39 ac of State wetlands (*Table 3.18.1*). The majority of the wetland impacts are to the Batiquitos watershed and the majority of the other waters of the U.S. impacts are to the Agua Hedionda watershed (*Table 3.18.2*). The 8+4 Barrier alternative would temporarily impact 18.90 ac of USACE jurisdictional waters of the U.S. and 20.88 ac of State wetlands (*Table 3.18.1*).

8+4 Buffer (Preferred Alternative)

Of the USACE jurisdictional waters of the U.S., the refined 8+4 Buffer alternative would have a net permanent impact to 11.61 ac of waters of the U.S., as well as 15.92 ac of State wetlands (*Table 3.18.1*). Temporary impacts total 14.82 ac to USACE waters of the U.S. and 18.39 ac to State wetlands for the refined 8+4 Buffer alternative.

No Build

The No Build alternative would not have any permanent impacts on the majority of these waters of the U.S. Some of the projects proposed to go forward with under the No Build scenario would impact some of the wetlands to a much lesser extent. In addition, some maintenance projects on existing culverts may be anticipated over time that would at least have some temporary impacts on wetlands. Without this project, which would replace the existing I-5 bridges, there is no option to lengthen bridges, remove some fill, or to enhance flow in the lagoons.

Indirect impacts to habitats and the species that utilize them can result from increased lighting, increased exposure to invasive species and trash or debris, edge effects, increased potential for pollution from storm water runoff, shading of aquatic habitat, and long-term increases in noise. I-5 is currently 8 to 10 lanes in width across the lagoons, and is already causing impacts from increased nighttime lighting, increased access from invasive species, and edge effects where habitats are bisected. Most of the remaining corridor has been developed for urban uses that produce many of the same impacts on native habitats. Many of the impacts associated with construction would be temporary, but direct. Those impacts that occur with long-term operation of the freeway would be permanent but indirect.

Potential indirect impacts resulting from the new pedestrian and bike facilities are discussed by lagoon in *Section 3.17.3*. Potential indirect impacts to waters of the U.S. and State wetlands could result from shading from the widened and/or lengthened bridges, discharges of storm water, and trash or debris. Indirect impacts also could result from roadway runoff causing erosion of the slopes and sedimentation within the wetlands. In the case of any build alternative, however, minimization measures would reduce these impacts to the maximum extent practicable (MEP). Any build alternative would employ BMPs to control adverse effects from runoff such as bioswales to slow and treat runoff, riprap to dissipate flows from culverts, and riprap to armor abutment slopes under lagoon bridges. Potential effects of the *I-5 NCC Project* related to runoff and BMPs to be employed by the project are discussed in *Section 3.10* of this EIR/EIS. Scour under the proposed longer bridges with wider channels at San Elijo, Batiquitos, and Buena Vista Lagoons should decrease following construction of these bridges.

The existing I-5 bridges already shade a portion of the aquatic habitats in the corridor. Additional shading of waters of the U.S. and State wetlands would occur as a result of widened and/or lengthened bridges over the lagoons, creeks, and San Luis Rey River. *Table 3.18.3* identifies additional areas that would be shaded due to increased bridge dimensions. The longer bridges proposed over San Elijo, Batiquitos, and Buena Vista Lagoons would result in establishment of new waters of the U.S; however, much of the new habitat would be shaded by the bridges.

Table 3.18.3: Additional Shading Indirect Impacts in USACE Waters of the U.S./State Wetlands by Watershed (Acres)

Watershed	10+4 Barrier	10+4 Buffer	8+4 Barrier	8+4 Buffer (Preferred Alternative)
San Clemente	0	0	0	0
Los Peñasquitos	0.33/0.35	0.33/0.35	0.33/0.35	0.33/0.35
San Dieguito	0.67/1.02	0.51/0.86	0.59/0.94	0.34/0.69
San Elijo	1.82/1.82	1.61/1.61	1.72/1.72	1.4/1.4
Cottonwood Creek	0	0	0	0
Batiquitos	0.63/0.63	0.5/0.5	0.57/0.57	0.37/0.37
Encinas	0	0	0	0
Agua Hedionda	0.58/0.58	0.47/0.47	0.53/0.53	0.37/0.37
Buena Vista	0.67/0.70	0.56/0.59	0.61/0.64	0.45/0.48
Loma Alta	0.11/0.11	0.11/0.11	0.11/0.11	0.11/0.11
San Luis Rey	0.40/0.41	0.40/0.41	0.40/0.41	0.40/0.41

Indirect impacts could result from roadway runoff and human activity from increased access to the wetlands and other waters of the U.S. As noted above, in the case of any build alternative, minimization measures would reduce these impacts to the MEP. This would include fencing to restrict access to wetlands and other waters of the U.S. from the roadway, trails, and use areas, and would employ BMPs to control adverse effects from runoff. Potential effects of the *I-5 NCC Project* related to runoff and BMPs to be employed by the project are discussed in *Section 3.10*.

Indirect impacts to waters of the U.S. and State wetlands would be mitigated through the REMP described in *Section 3.17.3*. The REMP is a comprehensive package of mitigation that includes no net loss mitigation for direct permanent impacts, and a suite of enhancements to mitigate for temporary, indirect, and temporal losses resulting from the project. The enhancements include

funding a large scale lagoon restoration project, an endowment to maintain the inlets of Los Peñasquitos Lagoon and Batiquitos Lagoon, and preservation of some important upland parcels. In addition, providing longer bridges and wider channels at San Elijo, Batiquitos, and Buena Vista Lagoons would allow for greater tidal range, lower residence time, and carry greater fluvial flows to allow for better water quality in these lagoons.

LEDPA Identification

Permit and Coordination Summary

CWA Section 404 guidelines specify that a permit can be issued for a discharge of dredged or fill material to waters of the U.S. only if the discharge is determined to be the LEDPA (40 CFR §230.10 [a]). When a proposed project requires an individual permit for filling waters of the U.S., an analysis of alternatives must be completed. The LEDPA analysis is required for non-water dependent projects (essentially all surface transportation projects) that require filling of wetlands or other special aquatic sites; which are areas possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region. The LEDPA generally is the practicable alternative that either avoids waters of the U.S. or impacts the smallest area of waters.

No discharge of dredged or fill material shall be permitted if it: (a) causes or contributes to violations of any applicable State water quality standard; (b) jeopardizes the continued existence of species listed as endangered or threatened under the federal Endangered Species Act of 1973 (FESA), as amended, or results in the likelihood of the destruction or adverse modification of a habitat which is determined to be a critical habitat under the FESA; or (c) violates any requirement imposed to protect any marine sanctuary. Because a Section 404 permit can only be issued for the LEDPA, Section 404 compliance usually requires a more detailed and specific analysis of the aquatic impacts of each alternative.

The evaluation of alternatives must consider a reasonable range of options that could fulfill the project purpose and need with focus on projects that avoid or minimize fill, and the No Build alternative. Reasonable alternatives are those that “are practical or feasible from the technical and economic standpoint and use common sense, rather than simply desirable from the standpoint of the applicant." It may be presumed that there are upland alternatives available and that these upland sites are less environmentally damaging. An alternative with fewer impacts to aquatic resources than the Preferred Alternative may be eliminated by demonstrating that it has other overriding severe environmental impacts or does not answer project purpose and need.

As described in *Section 3.18.2*, the 404 MOU integration process requires checkpoints at three project milestones during ongoing coordination efforts. These checkpoints are:

- Purpose and need
- Identification of the range of alternatives (including consideration of the criteria used to select and analyze the range of alternatives to be studied)
- LEDPA determination and preparation of a Conceptual Mitigation Plan

The following federal and state permits and approvals would be required to implement the proposed action:

- Section 7 Consultation for Threatened and Endangered Species with USFWS
- Section 404 Permit for dredged and fill waters of the U.S. from the USACE
- Section 1602 Streambed Alteration Agreement with CDFW
- Section 401 Permit for Water Quality Certification

As described in *Section 5.4, NEPA – Section 404 Integration Process*, federal agency coordination began in 2004. FHWA and Caltrans sought and received concurrence for the project purpose and need and project alternatives from the USFWS, USACE, NOAA/NMFS, and USEPA. This coordination included CDFW (then California Department of Fish and Game), CCC, and RWQCB. These letters are located in *Chapter 5*.

After circulation of the Draft EIR/EIS and Supplemental Draft EIR/EIS, project planning continued; including additional extensive coordination with the resource agencies regarding potential project impacts and appropriate project minimization and mitigation. In letters to USFWS, USACE, NMFS, and USEPA dated April 29, 2013, Caltrans asked for concurrence on the selection of the refined 8+4 Buffer alternative as the preliminary Preferred Alternative and LEDPA. All four of the federal agencies concurred with Caltrans' selection: USFWS in a letter dated June 18, 2013; USEPA in a letter dated June 10, 2013; NMFS in a letter dated May 28, 2013; and USACE in a letter dated July 15, 2013.

Identification of the LEDPA

A full aquatic avoidance alternative is not possible. As described in *Section 1.4* and the "Wetlands Only Practicable Finding," below, the 2050 RTP and previous Major Investment Study (MIS)[1] state that the North Coast Corridor has limited transportation alternatives other than I-5. These alternative transportation modes are being reviewed and developed in separate environmental documentation. As shown in these studies, alternative transportation modes being evaluated as part of a multimodal solution to North Coast Corridor transportation shortfalls would not eliminate need for an improved I-5. Even with proposed full double-tracking of the rail line and increasing the number and capacity of the trains, the 2030 daily projection of riders is fewer than 30,000; substantially less than the projected increase over baseline conditions of 79,600 to 131,240 vehicles per day on I-5 North Coast Corridor segments under no build conditions. The arterial street system is also inadequate to provide a viable alternative to I-5, partially due to its disjointed and non-contiguous state. A new north-south transportation corridor was examined as part of SANDAG's NCTS; however, it was rejected due to substantial environmental impacts and community opposition.

As a result, the congestion analysis for I-5 within the North Coast Corridor identifies build alternatives as the only practicable alternatives to maintain or improve future traffic conditions when compared to existing conditions.

CWA Section 404(b)(1) analysis (located in Appendix M) shows compliance with the law. Because each of the build alternatives would result in some aquatic resource loss, the practicable alternative with the least damage to aquatic resources must be selected as the

[1] The goals of the MIS included provision of the full range of transportation modal alternatives that would: (1) promote and provide incentives for ridesharing and alternative modes, (2) accommodate regional and interregional freight movements, and (3) mitigate environmental impacts, among others.

LEDPA, unless that alternative has other significant adverse environmental consequences. The location of I–5 is fixed because this is an existing freeway and the freeway crosses several lagoons, creeks, and other drainages. There is, therefore, no way to avoid all wetland impacts. The focus was minimizing impacts to wetlands and other waters of the U.S. Recent focus has been on continued avoidance and minimization of impacts that would occur with project implementation.

Impacts associated with all the build alternatives would be mitigated. The least environmentally damaging of the analyzed alternatives would be the 8+4 Buffer alternative, especially with the design refinements described in this Final EIR/EIS. The refined 8+4 Buffer alternative also would have the fewest net permanent impacts (in number and acreage) on resources overall, including the fewest impacted ac of waters of the U.S. (11.61 ac for the Preferred Alternative v. up to 17.17 ac for the 10+4 Barrier alternative) and State wetlands (15.92 ac for the Preferred Alternative v. up to 23.03 ac for the 10+4 Barrier alternative).

3.18.4 Avoidance, Minimization, and/or Mitigation Measures

Impacts to wetlands have been minimized to the extent practicable through project design and identification of the refined 8+4 Buffer alternative as the Preferred Alternative. All impacts to wetlands could not be avoided, however, due to the existing alignment crossing six lagoons, other drainages, and a river. The following conservation measures are proposed to further minimize impacts to wetlands. Additional minimization measures and compensatory mitigation are discussed in *Section 3.17.3. The* complete suite of minimization and compensatory mitigation measures are also provided in the project Environmental Commitments Record ([ECR] located in Appendix D).

- Bioswales/detention basins would be placed in the loop ramps, and bioswales would be placed on slopes (i.e., not at base of slope within lagoons), as appropriate to treat runoff from the freeway.

Remaining impacts to waters of the U.S. and waters of the State would be mitigated on a corridor-wide basis through the proposed North Coast Corridor REMP and as described in the ECR.

Wetlands Only Practicable Finding

As noted in *Section 3.18.1,* the EO for the Protection of Wetlands (EO 11990) regulates the activities of federal agencies such that the FHWA cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds that: (1) there is no practicable alternative to the construction, and (2) the proposed project includes all practicable measures to minimize harm.

Identification of the need for improvements along this portion of I-5 has been the subject of rigorous review, as summarized in *Section 1.4.1* of this Final EIR/EIS. In brief, by the late 1980s, traffic congestion on I-5 became an issue of regional concern, and in the early 1990s, Caltrans conducted an operational study of I-5 from I-805 to Camp Pendleton to assess long-range highway needs to the year 2015. The geographic and population constraints on I-5, as well as nearby coastal rail facilities and parallel arterials, led transportation agencies to the conclusion that a corridor-level study was needed to address the long-range needs of this multimodal transportation corridor and that long-range planning would be likely to require multiple transportation options rather than focusing on a single form of transportation.

Between 1995 and 1997, Caltrans, SANDAG, and other stakeholders conducted scoping meetings; and from 1997 to 2000, Caltrans and SANDAG completed a number of studies summarized in the 2000 SANDAG North Coast Transportation Study (NCTS); in order to develop the MIS for the corridor, as prescribed by the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. That study screened options for addressing transportation shortfalls and improving all forms of transportation from SR-52 in the northern portion of the City of San Diego to the Orange County line; including freeways, railways, freight movement, and other forms (such as monorail, ferry service, reversible car pool lanes, etc.). The MIS identified transportation deficiencies within the study area and recommended long-range improvements for highways, bus transit, passenger and freight rail, commuter rail transit, and arterials/roads to address corridor travel demands to the year 2020. The recommended highway program included HOV lanes for the length of the study area, along with general purpose lanes from Del Mar Heights Road to north of Oceanside. In addition, double-tracking the rail line was recommended to help provide an efficient commuting alternative to the freeway.

The North Coast Corridor has limited transportation alternatives other than I-5. The arterial street system is also inadequate to provide a viable alternative to I-5, and a new north-south transportation corridor examined as part of SANDAG's NCTS was rejected due to substantial environmental impacts and community opposition. Bridging all wetlands within the corridor is infeasible. Therefore, impacts to wetlands could not be avoided. As described in *Chapter 1* of this Final EIR/EIS, improvements to I-5 have been identified as necessary.

The build alternatives to improve existing I-5 that are addressed in this Final EIR/EIS were developed by a multi-disciplinary team to achieve the project purpose and need while avoiding or minimizing environmental impacts. The Preferred Alternative is identified as resulting in the smallest impact footprint of the evaluated build alternatives (see LEDPA discussion above). This smaller impact footprint incorporates both the narrowest bridge option, as well as lengthening of three lagoon bridges and increasing the channel cross sections (San Elijo, Batiquitos, and Buena Vista), which moves the north and/or south bridge abutments further from flow areas. Complete avoidance is not possible due to existing I-5 traversing the lagoons and drainages addressed in this section, combined with abutting land uses and the diminishing amount of improvement obtained relative to required additional costs for further lengthening.

Based on the above considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.

3.19 Plant Species

The 8+4 Buffer alternative has been refined since the Draft EIR/EIS was publically circulated in 2010. This alternative was presented as the locally preferred alternative (LPA) in the August 2012 Supplemental Draft EIR/EIS, and has now been identified as the Preferred Alternative. The refined 8+4 Buffer alternative has the least amount of impact of any build alternative and also meets purpose and need.

3.19.1 Regulatory Setting

The USFWS and California Department of Fish and Wildlife (CDFW; previously California Department of Fish and Game) have regulatory responsibility for the protection of special-status plant species. "Special-status" species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under FESA and/or the California Endangered Species Act (CESA). Please see *Section 3.21, Threatened and Endangered Species,* in this document for detailed information regarding these species.

This section of the document discusses all the other special-status plant species, including CDFW species of special concern, USFWS candidate species, and California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at USC 16, Section 1531, et seq. See also 50 CFR Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code Section 2050, et seq. Caltrans projects are also subject to the Native Plant Protection Act, found at Fish and Game Code Section 1900-1913, and CEQA PRC Sections 2100-21177.

3.19.2 Affected Environment

This section is based upon the NES (June 2008), and Manchester Avenue / I-5 Interchange Project NES Report (January 2004), which are incorporated by reference. Sensitive plant species with the potential to occur in the BSA but that were not observed are described in the NES. The section below discusses sensitive plant species observed within the BSA; these species are shown on *Figures 3-19.1a* through *3-19.1f*.

Adolphia californica Wats — CNPS List 2
California adolphia
Rhamnaceae (buckthorn family)

The California adolphia is a deciduous shrub that occurs in chaparral, CSS, and in clay soils in valley and foothill grasslands. It flowers from December through April and is being affected by development and grazing. Adolphia was found on both sides of the slopes of I-5 near San Elijo Lagoon (*Figure 3-19.1d)*.

Atriplex pacifica Nelson — CNPS List 1B
south coast saltscale
Chenopodieae (goosefoot family)

South coast saltscale is a rare plant found in coastal southern California and the Channel Islands between 0 and 450 ft in elevation. This species occurs in coastal bluff scrub, playas, CSS, and coastal sand dunes. It is an annual herbaceous species that blooms from March through October. Approximately 100 individuals were observed along a dirt road northwest of the I-5 / Manchester Avenue Interchange (*Figure 3-19.1e*).

Ceanothus verrucosus Nutt. — CNPS List 2
Wart-stemmed ceanothus
Rhamnaceae (buckthorn family)

This species occurs in chaparral communities on dry hills and mesas to a maximum elevation of 1000 ft in Riverside and San Diego counties as well as in Baja California. It blooms from January to April. It is considered threatened by development. This species was found in southern maritime chaparral north and south of San Elijo Lagoon; it is also known from slopes between Del Mar Heights and San Dieguito and around Batiquitos Lagoon (*Figures 3-19.1b* and *3-19.1d*).

Centromadia parryi (E. Greene) spp. *australis* (Keck) B.G. Baldwin — CNPS List 1B
southern tarplant
Asteraceae (sunflower family)

Southern tarplant is a rare plant found on the margins of marshes, grasslands, and vernal pools. It blooms from May to November. This species is threatened by development. Southern tarplant occurs along the dirt access road east of I-5 and north of the San Dieguito River (*Figure 3-19.1c*).

Chaenactis glabriuscula DC var. *orcuttiana* (E. Greene) H.M. Hall — CNPS List 1B
Orcutt's pincushion
Asteraceae (sunflower family)

Orcutt's pincushion is a rare, annual herb that is found in coastal dunes and coastal bluff scrub between an elevation of 10 and 328 ft. This species occurs in coastal southern California and is threatened by coastal development. Approximately 4,700 individuals were observed within the BSA around San Elijo Lagoon on both sides of I-5 (*Figures 3-19.1d* and *3-19.1e).*

Comarostaphylis diversiloba (Parry) Greene ssp. *diversiloba* — CNPS List 1B
summer holly
Ericaceae (heath family)

Summer holly is an evergreen shrub found in chaparral communities from Orange County to Baja California. It flowers April through June. It is threatened by development and gravel mining. Summer holly was observed north of San Elijo Lagoon on the southbound slopes of I-5 (*Figure 3-19.1d*).

Coreopsis maritima (Nutt.) Hook.f — CNPS List 2
sea dahlia
Asteraceae (sunflower family)

Sea dahlia is a perennial herbaceous plant found in coastal bluff scrub and CSS in San Diego County and Baja California. This species is considered rare and threatened by coastal development. It flowers between March and May. Approximately 389 individual sea dahlia plants were observed in the BSA, primarily north of Manchester Avenue on both sides of I-5 (*Figures 3-19.1d* and *3-19.1e*).

Ferocactus viridescens (T. & G.) Britt. & Rose — CNPS List 2
coast barrel cactus
Cactaceae (cactus family)

The coast barrel cactus is found in chaparral, CSS, valley and foothill grasslands, and in areas around vernal pools. It is a stem succulent scrub that flowers from May through June. It is seriously threatened by urbanization, off-road vehicles, and horticultural collecting. Coast barrel cactus were found on the slopes northwest of the I-5 / Genesee Avenue Interchange, on the slopes on both sides of I-5 near San Elijo Lagoon, and west of I-5 on the northern slopes of Batiquitos Lagoon (*Figures 3-19.1a* and *3-19.1d* through *3-19.1f*).

Lessingia filaginifolia var. linifolia Hall — CNPS List 1B
Del Mar Mesa sand aster
Asteraceae (sunflower family)

This plant is endemic to San Diego County and is generally associated with CSS or chaparral on sandstone substrates. This species is found between Carlsbad and San Diego Bay on the coast. Del Mar sand aster was proposed for federal listing as threatened (58 Federal Register 51302), but the proposed rule was withdrawn based on information indicating that this species is no longer recognized as taxonomically distinct (61 Federal Register 52402). Regardless of the current taxonomic treatment, the CNPS still designates it as rare, threatened, or endangered. Over 2,000 individuals were observed within the BSA, between Del Mar Heights Road and Birmingham Drive Exit along the upper slopes on both sides of I-5 (*Figures 3-19.1c* through *3-19.1e*).

Pinus torreyana Carr. ssp. *torreyana* — CNPS List 1B
Torrey pine
Pinaceae (pine family)

The Torrey pine is an evergreen tree found in sandstone soils in coastal coniferous forest and chaparral communities in San Diego County. It is in cultivation; native plants probably number less than 9,000. It is threatened by development. There are planted Torrey pines along much of the I-5. Some of the Torrey pines near San Elijo Lagoon may be native occurrences (*Figure 3-19.1e*).

Quercus dumosa Nutt. CNPS List 1B
Nuttall's scrub oak
Fagaceae (oak family)

The species occurs sporadically in coastal chaparral and sage scrub communities with a relatively open canopy. This species is considered to have a limited number and is restricted to coastal California communities. Nuttall's scrub oak is considered rare within the region by the CNPS. In the BSA, several plants were observed at the top of the north and southbound slopes, just north of Del Mar Heights Road and on upper slopes near San Elijo Lagoon (*Figures 3-19.1b* through *3-19.1e*).

Suaeda esteroa W. Ferren & S. Whitmore CNPS List 1B
Estuary seablite
Chenodiaceae (goosefoot family)

Estuary seablite occurs from Santa Barbara County south to Baja California. It is found in coastal salt marshes and blooms from July through October. This species was found in the high salt marsh around San Dieguito, Batiquitos, and Agua Hedionda Lagoons.

3.19.3 Environmental Consequences

Each of the build alternatives would have similar impacts to sensitive plant species. Several individuals of different sensitive species listed by the CNPS and/or federal or State species of concern would be impacted by each of the build alternatives. Del Mar sand aster, Nuttall's scrub oak, Orcutt's pincushion, sea dahlia, wart-stemmed ceanothus, coast barrel cactus, southern tarplant, and Torrey pine would be impacted by each of the alternatives (*Table 3.19.1*).

Table 3.19.1: Sensitive Plant Species Impacted by Each Alternative

Species	10+4 Barrier	10+4 Buffer	8+4 Barrier	8+4 Buffer (Preferred Alternative)
Coast barrel cactus	16	7	16	7
Nuttall's scrub oak	7	7	7	5
Del Mar sand aster	763	704	704	694
Orcutt's pincushion	1312	1222	996	869
Sea dahlia	22	22	22	20
Southern tarplant	10	10	10	10
Torrey pine	10	10	10	10
Wart-stemmed ceanothus	10	4	4	4

Due to the varying amounts of fill and exact alignment of each alternative, the number of potentially impacted sensitive plants differs for each of the alternatives, not necessarily in reference to the amount of habitat potentially impacted. Other than large numbers of Del Mar sand aster and Orcutt's pincushion, there are few impacts to sensitive plants. The Torrey pines that would be impacted are planted within the right-of-way and are not naturally occurring. There would be no impacts to sensitive plants from the No Build alternative.

3.19.4 Avoidance, Minimization, and/or Mitigation Measures

Avoidance has been an ongoing design goal throughout project development, starting with the identification of four build alternatives of varying width. Since circulation of the Draft EIR/EIS, the smallest of the four build alternatives (the refined 8+4 Buffer alternative) has been identified as the LPA, as discussed in the August 2012 Supplemental Draft EIR/EIS. The refined 8+4 Buffer alternative has now also been identified as the Preferred Alternative. As the smallest of the potential build alternatives, minimization and avoidance of native plant species, as possible, would continue through final design.

As mitigation, seed would be collected or plants would be salvaged to the extent practicable in the impact areas. Salvaged plants and seed would be planted in mitigation sites, on revegetated new slopes, or in revegetated areas that were temporarily impacted. The majority of these species could potentially be salvaged or mitigated by planting in an off-site preserve. Del Mar sand aster seed was successfully collected for the Del Mar Auxiliary Lane project and reseeded on the mitigation site.

The REMP detailed in *Section 3.17* would be implemented to mitigate for impacts to sensitive habitats, plants, and wildlife. The REMP has been developed to identify compensatory mitigation opportunities to address these unavoidable impacts, and to implement projects that benefit existing natural resources that exceed standard ratio-based compensatory mitigation programs. Additional avoidance and minimization measures for listed species are provided in *Section 3.21*. The full suite of measures is also provided in the project ECR.

Figure 3-19.1a: Sensitive Plant Locations

Figure 3-19.1b: Sensitive Plant Locations

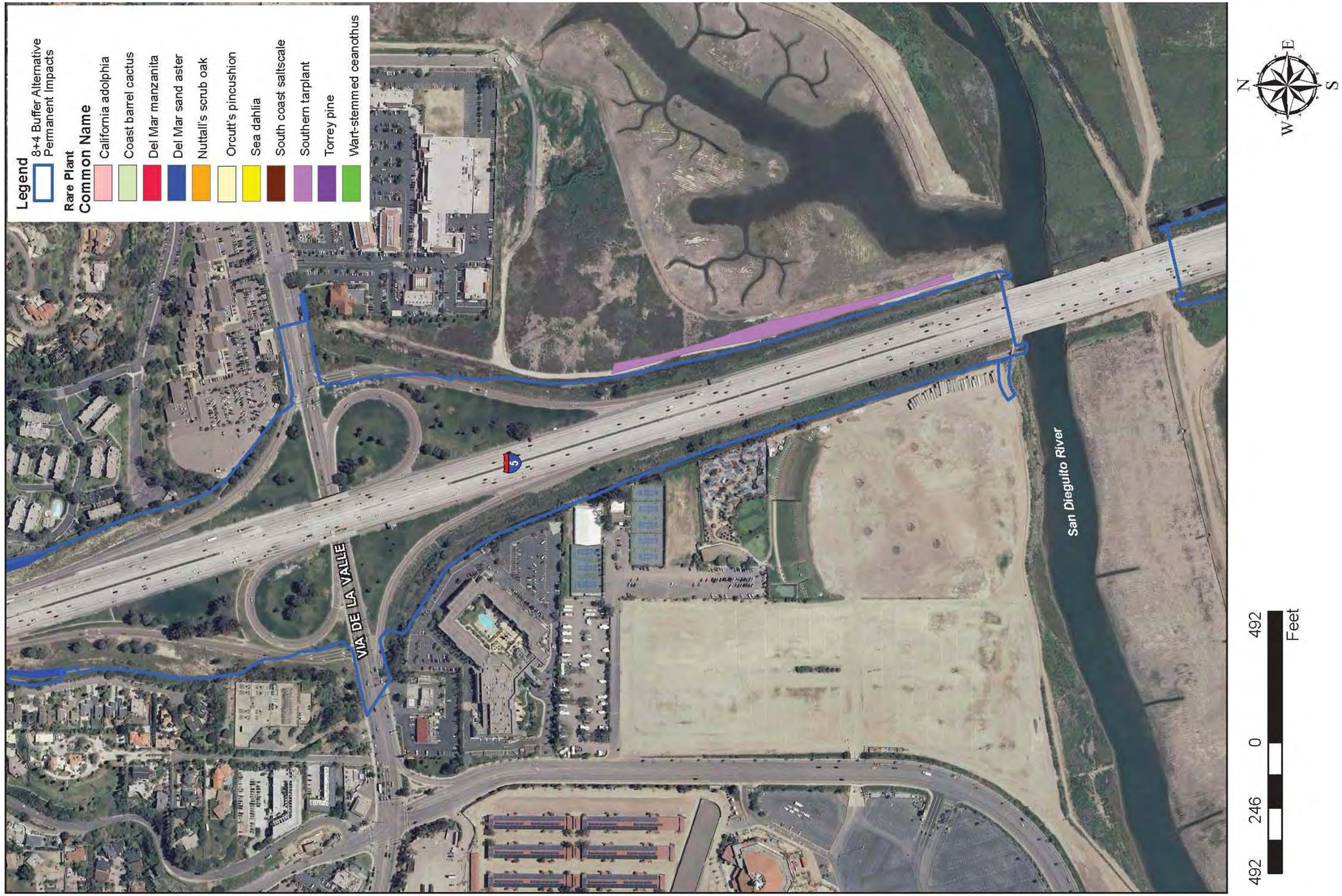

Figure 3-19.1c: Sensitive Plant Locations

Figure 3-19.1d: Sensitive Plant Locations

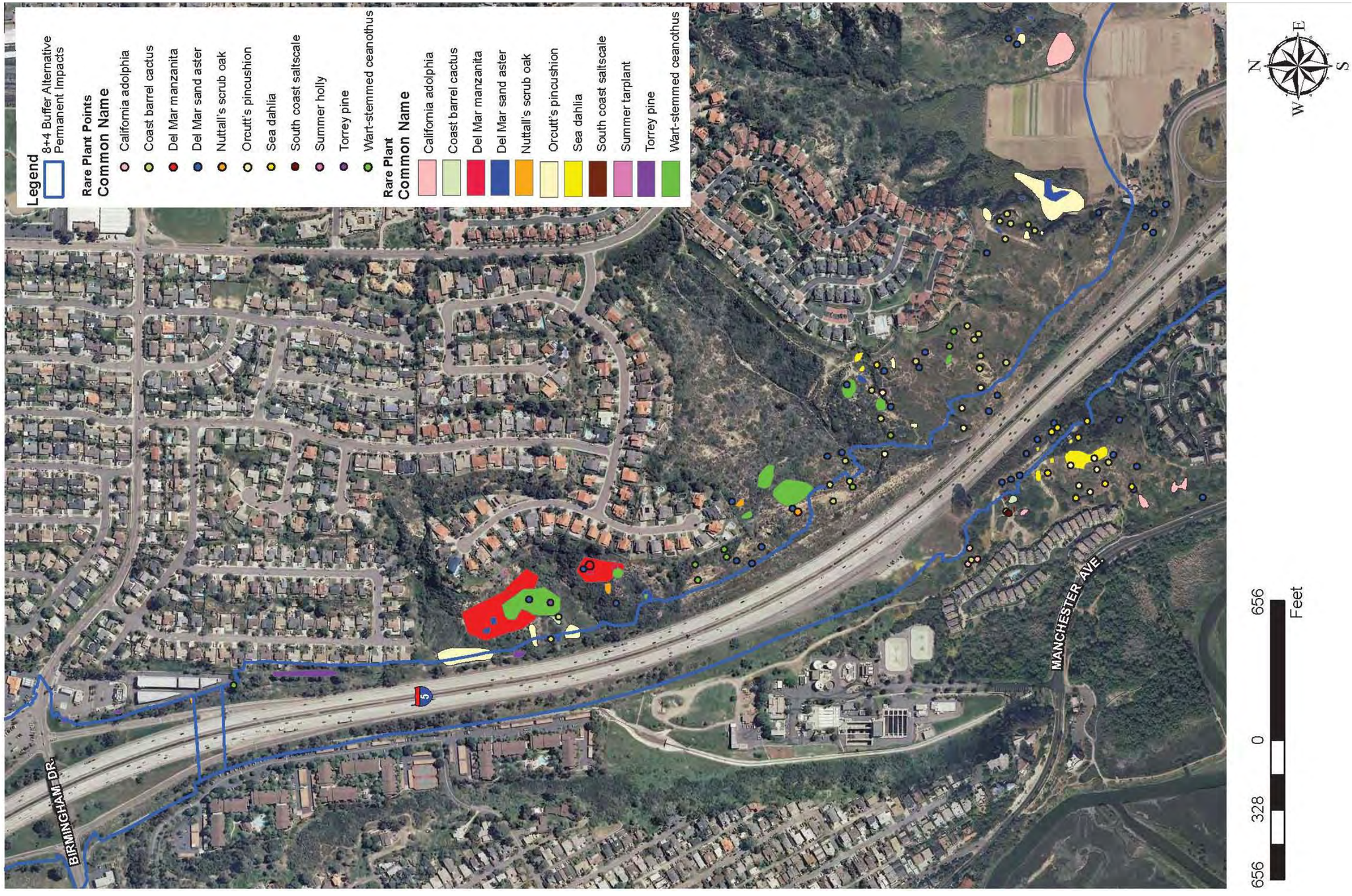

Figure 3-19.1e: Sensitive Plant Locations

Figure 3-19.1f: Sensitive Plant Locations

3.20 Animal Species

The 8+4 Buffer alternative has been refined since the Draft EIR/EIS was publically circulated in 2010. This alternative was presented as the locally preferred alternative (LPA) in the August 2012 Supplemental Draft EIR/EIS, and has now been identified as the Preferred Alternative. The refined 8+4 Buffer alternative has the least amount of impact of any build alternative and also meets purpose and need.

3.20.1 Regulatory Setting

Many State and federal laws regulate impacts to wildlife. The USFWS, National Oceanic and Atmospheric Administration (NOAA), and the California Department of Fish and Wildlife (CDFW; previously California Department of Fish and Game) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under CESA or FESA. Species listed or proposed for listing as threatened or endangered are discussed in *Section 3.21, Threatened and Endangered Species*. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NOAA Fisheries Service candidate species.

Federal laws and regulations pertaining to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act
- Marine Mammal Protection Act
- Magnuson-Stevens Fishery Conservation and Management Act

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act
- Sections 1601 – 1603 of the California Fish and Game Code
- Section 4150 and 4152 of the California Fish and Game Code
- Section 3511 of the California Fish and Game Code

The Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (a) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (b) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

Essential Fish Habitat (EFH) is identified in the Magnuson-Stevens Fishery Conservation and Management Act as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” EFH has been identified for four groups of fish: Pacific salmon, Pacific groundfish, coastal pelagic species, and highly migratory species. The Pacific salmon group does not include southern steelhead trout (*Oncorhynchus mykiss*), which is protected and addressed in *Section 3.21*. Pacific groundfish and the coastal pelagic group both have EFH

within the I-5 BSA. The Pacific groundfish group includes 82 bottom-dwelling species that may occur within some of the coastal lagoons. The coastal pelagic species group includes northern anchovy (*Engraulis mordax*), Pacific sardine (*Sardinops sagax*), Pacific mackerel (*Scomber japonicus*), and jack mackerel (*Trachurus symmetricus*).

3.20.2 Affected Environment

This section is based upon the NES (June 2008), Manchester Avenue / I-5 Interchange Project NES Report (January 2004); I-5 Widening Project Pacific Pocket Mouse Habitat Analysis and Trapping Program, San Diego County, California (June 2003), I-5 Lagoons Marine Resource Investigation (June 2006); and Presence/Absence Surveys for Wandering Skipper (September 2012), which are incorporated by reference. Sensitive animal species with the potential to occur in the BSA, but that were not observed, are described in the NES. This section discusses sensitive wildlife species observed within the BSA (see *Table 3.20.1*); these species are shown on *Figures 3-20.1a* through *3-20.1g,* located at the end of this section.

Due to the length of the project and the fact that it crosses six lagoons and a major river, a large number of sensitive non-listed wildlife species were observed within the BSA. Many of the bird species that stop at the lagoons during their migration have some sensitivity status, primarily in their breeding grounds, and virtually all species of birds observed in the BSA are considered migratory.

Focused presence/absence surveys for the wandering skipper butterfly (*Panoquina errans*), a species considered sensitive under the Multiple Habitat Conservation Program (MHCP), were completed in summer 2012 at the request of the USFWS. Wandering skipper were detected at San Dieguito, San Elijo, Batiquitos, and Buena Vista Lagoons within the BSA.

The white-tailed kite (*Elanus caeruleus*), a California Fully Protected (CFP) Species and State Species of Special Concern (SSC), was occasionally observed foraging over the BSA, usually over the agricultural fields. No nest sites were observed or are known to exist within the BSA.

Not all sightings were mapped, such as herons, egrets, and many raptors that were commonly observed in the BSA (*Figures 3-20.1a* through *3-20.1g*). Most of these species were found in and around the lagoon and associated upland habitats.

3.20.3 Environmental Consequences

Many of the sensitive animal species observed within the lagoons and upland habitats likely occur more frequently than observed. Any impacts to CSS, southern maritime chaparral, and/or maritime succulent scrub have the potential to impact the San Diego horned lizard (*Phrynosoma coronatum blainvillei)*, Coronado Island skink (*Eumeces skiltonianus interparietalis)*, orange-throated whiptail (*Cnemidophorus hyperythrus)*, rufous-crowned sparrow (*Aimophila ruficeps canescens)*, raptors, loggerhead shrike (*Lanius ludovicianus)*, desert woodrat (*Neotoma lepida intermedia)*, and San Diego pocket mouse (*Perognathus fallax fallax)*. The point location where the rufous-crowned sparrow was observed falls within the permanent impact footprint for all four build alternatives. Two locations of San Diego pocket mouse near San Elijo Lagoon would be impacted by all of the build alternatives.

The least bittern was observed in the drainage parallel to I-5 near San Dieguito Lagoon. This area is within the permanent impact footprint for all four build alternatives.

Many bird species that migrate along the Pacific flyway use the lagoons to stop over and forage. Several of these bird species are considered sensitive at their breeding grounds, but not necessarily along their migration routes, including the white pelican, long-billed curlew, and double crested cormorant. Construction for any of the I-5 build alternatives would result in an incremental loss of foraging habitat along the freeways; however, it would not impact these birds' nesting grounds.

Wandering skipper were identified within the permanent and temporary impact areas along the edge of salt marsh at San Dieguito, San Elijo, Batiquitos, and Buena Vista Lagoons. Construction of any of the alternatives would impact a portion of the habitat they occupy in these lagoons.

Although no bat species were observed or detected within the project limits, there is a potential that some species may sporadically use the lagoon bridges.

Several projects that may go forward under the No Build alternative may have impacts to habitats that may support some of these sensitive animal species.

Table 3.20.1: Sensitive Animal Species Observed within the Study Area

Scientific Name	Common Name	Status	General Habitat Description	Rationale
Panoquina errans	Wandering skipper butterfly	MHCP	Salt marsh habitat with tidal flows and saltgrass	A few individuals were observed at San Dieguito, San Elijo, Batiquitos, and Buena Vista Lagoons
Phrynosoma coronatum blainvillei	San Diego horned lizard	SSC	Prefers friable, rocky, or shallow sandy soils in CSS, and chaparral in arid and semi-arid climates.	At least one individual caught near Del Mar Heights Road during small mammal trapping. More likely to occur within the BSA.
Eumeces skiltonianus interparietalis	Coronado Island skink	SSC	Prefers mesic pockets within habitats including CSS, chaparral, oak woodlands, pinon-juniper, and riparian woodlands.	At least one individual observed at southern end of BSA near the 5/805 merge. Others potentially throughout the BSA.
Cnemidophorus hyperythrus	Orange-throated whiptail	SSC, SP	Prefers washes and other sandy areas with patches of brush and rocks for cover. Habitats include low-elevation CSS, chaparral, and valley-foothill hardwood forests.	Observed during general wildlife surveys in CSS.
Thamnophis hammondii	Two-striped garter snake	SSC	Occurs in or near permanent fresh water, usually along streams with rocky beds bordered by willow and other riparian vegetation.	Observed during general wildlife surveys near San Dieguito River.

Table 3.20.1 (cont.): Sensitive Animal Species Observed within the Study Area

Scientific Name	Common Name	Status	General Habitat Description	Rationale
Pelecanus erythrorhynchos	American white pelican	SSC	Inhabits lakes, ponds, and coastal waters.	Observed in San Elijo, Batiquitos, and Buena Vista lagoons during general wildlife surveys.
Phalacrocorax auritus	Double-crested cormorant	SSC	Found near fresh and saltwater near coastline, inshore waters, beaches, inland rivers, and lakes.	Observed in lagoons during general wildlife surveys.
Ixobrychus exilis	Least bittern	SSC	Inhabits fresh and brackish water marshes, usually near open water sources, and desert riparian habitats.	Observed in San Dieguito and in San Elijo Lagoons.
Ardea herodias	Great blue heron	SSC	Found in fresh and saltwater emergent wetlands and estuaries. Less common along rivers, in croplands, pastures, and foothill ponds.	Observed in lagoons during general wildlife surveys. Some nesting habitat may be present at San Elijo Lagoon.
Casmerodius albus	Great egret	SSC	Common to freshwater and saltwater marshes, swampy woods, ponds, lagoons, estuaries, mangroves, streams, lakes, and ponds.	Observed in lagoons during general wildlife surveys.
Pandion haliaetus	Osprey	SSC	Prefers the coast and lakes in the coastal lowlands and rarely lakes in the foothills and mountain areas.	Observed at Batiquitos and San Dieguito lagoons.
Elanus leucurus majusculus	White-tailed kite	FP	Inhabits riparian or oak woodland adjacent to grassland or open fields where it hunts rodents.	Observed at San Dieguito and San Elijo lagoons during general wildlife surveys.
Circus cyaneus	Northern harrier	SSC	Occurs throughout San Diego County in grasslands and agricultural fields during migration and in winter.	Observed at San Dieguito Lagoon.
Accipiter striatus	Sharp-shinned hawk	SSC	Occupies woodlands and a variety of habitats surrounding those wooded areas, and requires a certain amount of dense cover.	Observed during general wildlife surveys.
Accipiter cooperii	Cooper's hawk	SSC	Uncommon migrant and winter visitor to woodlands, parks, and residential areas.	Observed during general wildlife surveys.
Numenius americanus	Long-billed curlew	SSC	Can be found on sandy beaches on marine and estuarine shores, salt pond levees, and the shores of large alkali lakes. Requires sandy or gravelly soils for nesting.	Observed feeding in mudflats within the lagoons during general wildlife surveys.

Table 3.20.1 (cont.): Sensitive Animal Species Observed within the Study Area

Scientific Name	Common Name	Status	General Habitat Description	Rationale
Eremophila alpestris actia	California horned lark	SSC	Inhabits sandy ocean or bay shores, grasslands, and open scrublands and woodlands with low, sparse vegetation.	Present on revegetating slopes of the new auxiliary lane on the NB side of I-5, south of San Dieguito River.
Lanius ludovicianus	Loggerhead shrike	FSC, SSC	Inhabits agricultural lands, desert wash, desert scrub, grasslands, and beaches with scattered bushes. Requires open ground for foraging, preferably near scattered bushes and low trees that provide nest sites and perches.	Observed at the Racetrack View Mitigation Site west of I-5. High probability to occur in other areas based on historical location data and presence of suitable habitat within the BSA.
Dendroica petechia	Yellow warbler	SSC	Occupies marshes, swamps, streamside groves, willow and alder thickets, open woodlands with thickets, and orchards.	Observed during general wildlife surveys in riparian areas.
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	SSC	Uncommon to fairly common localized resident of sage scrub on steep rocky slopes.	Observed during general wildlife surveys at San Dieguito Lagoon.
Perognathus fallax fallax	Northwestern San Diego pocket mouse	SSC	Habitats include CSS, chaparral, oak woodlands, and annual grasslands.	Captured during trapping studies on the slopes south of San Dieguito Lagoon, and around San Elijo Lagoon.
Neotoma lepida intermedia	San Diego desert woodrat	SSC	Occupies rocky habitats in association with chaparral and CSS.	Captured during trapping studies south of San Dieguito Lagoon.

[1]**Status Key**
FSC Federal Species of Concern
FP State of California fully protected
SP State of California protected
SSC State of California Species of Concern
MHCP Multiple Habitat Conservation Plan

Essential Fish Habitat

The Pacific groundfish Fishery Management Plan covers over 82 species of bottom-dwelling fish such as rockfish, flatfish, sole, and skate. EFH for Pacific groundfish is defined as water and substrate along the entire Pacific coast line that is less than or equal to 11480 ft deep shoreward to the mean higher high water (MHHW) line. The coastal lagoons fall within this range. Therefore, Pacific groundfish have a potential to occur in San Dieguito, San Elijo, Batiquitos, Agua Hedionda Lagoons, and possibly the San Luis Rey River within the Study Area. These groundfish species also may inhabit Los Peñasquitos Lagoon; however, saltwater influence does not reach I-5 and project impacts on this lagoon would only be indirect. Pacific groundfish may occur within any of the deeper waters of the lagoons within the project area.

The coastal pelagic species group includes northern anchovy (*Engraulis mordax*), Pacific sardine (*Sardinops sagax*), Pacific mackerel (*Scomber japonicus*), and jack mackerel (*Trachurus symmetricus*). Although not captured during eelgrass and fish sampling in the lagoons, northern anchovy, Pacific sardine, and jack mackerel have a potential to occur in San Dieguito, San Elijo, Batiquitos, and Agua Hedionda Lagoons, and possibly the San Luis Rey River within the project area. These coastal pelagic species also may inhabit Los Peñasquitos Lagoon. As noted above, saltwater influence does not reach I-5 and project impacts on this lagoon would only be indirect. Coastal pelagic fish species are most likely to occur in the open water at Batiquitos and Agua Hedionda Lagoons, which are continuously open to the ocean.

The open water in all these lagoons, and potentially in the San Luis Rey River, provides EFH. Replacement and construction of the bridges in these lagoons and river may adversely affect EFH. The construction of new bridge pilings, fill placed along the abutments, and demolition of the bridges to be replaced could have direct impacts to EFH. Shading by the wider bridges and increased runoff from the wider roadway could have indirect impacts to the EFH. During construction of the bridges, falsework and some kind of work platform may be used which could have a temporary impact to the EFH. All four build alternatives would have an impact to the EFH. Conservation measures to minimize these impacts are discussed below. Lengthening the bridges at San Elijo and Batiquitos Lagoons would increase EFH near the bridges and would also allow for increased tidal range and fluvial transport, and decreased residence times, which would benefit EFH.

Caltrans has coordinated with NOAA/NMFS on EFH. An assessment of impacts to EFH pursuant to the Magnuson-Stevens Fishery Conservation and Management Act was sent to the NMFS on October 24, 2012. An initial response provided on December 12 opened a dialogue, with Caltrans providing additional information on January 3, 2013. The information provided on January 3, 2013 satisfied the EFH consultation requirement by adequately incorporating NMFS EFH conservation recommendations. See also *Chapter 5* of this Final EIR/EIS.

3.20.4 Avoidance, Minimization, and/or Mitigation Measures

Avoidance has been an ongoing design goal throughout project development, starting with the identification of four build alternatives of varying width. Since circulation of the Draft EIR/EIS, the smallest of the four build alternatives (the refined 8+4 Buffer alternative) was identified as the LPA in the August 2012 Supplemental Draft EIR/EIS and has now also been identified as the Preferred Alternative. As the smallest of the potential build alternatives, efforts at minimization and avoidance of native animal species, as possible, would continue through final design.

Conservation measures and compensatory mitigation for impacts to sensitive wildlife and habitats, including birds, EFH, and ESAs, are discussed in *Section 3.17.3*. *Section 3.17.3* includes measures that specify timing for vegetation removal relative to nesting birds and restrictions on permanent project lighting, which would minimize effects to sensitive birds. Measures listed in *Section 3.17.3* concerning minimizing sediment entering the lagoon and habitat protection would minimize effects to EFH. *Section 3.21* provides measures to minimize effects to sensitive fish species during construction, including pre-construction relocation requirements for tidewater goby, noise reduction measures, maintaining a channel for fish movement in the lagoons and San Luis Rey River, and appointment of a USFWS-approved Biological Monitor to address protection of sensitive species. As also specified in *Section 3.21*,

permanent and temporary impacts to gnatcatchers, rails, gobies, manzanita, and critical habitat for the gnatcatcher and goby resulting from the *I-5 NCC Project* would be offset through habitat establishment, restoration, and preservation/enhancement.

In addition to these measures, the REMP (detailed in *Section 3.17*) has been developed to identify compensatory mitigation opportunities to address unavoidable impacts to sensitive habitats, plants, and wildlife, and to implement projects that benefit existing natural resources that exceed standard ratio-based compensatory mitigation programs.

The following are proposed measures to avoid or minimize project-related impacts to sensitive animal species. A full listing of minimization and compensatory mitigation measures is provided in the project ECR.

- To minimize impacts to migratory birds, construction would not occur in more than two lagoons at any one time.

- Exclusion devices would be installed on bridge drain holes and ledges during the non-breeding season (September 1 through February 15) to stop swallows, swifts, and any other birds or bats from nesting on or within bridges to be demolished.

- Erosion and sediment control devices used for the proposed project, including fiber rolls and bonded fiber matrix, would be made from biodegradable materials such as jute, with no plastic mesh, to avoid creating a wildlife entanglement hazard.

- Cationic polymers will not be used for dust control (cationic polymers are attracted to the hemoglobin in fish gills and can cause suffocation at relatively low concentrations).

- Project personnel would be prohibited from bringing domestic pets to construction sites to ensure that domestic pets do not disturb or depredate wildlife in adjacent habitats.

- Eelgrass surveys would be completed at all lagoons with the exception of Buena Vista prior to bridge construction. In lagoons where eelgrass is identified in proximity to I-5 improvements, eelgrass surveys would continue during and after construction, and mitigation would be implemented in accordance with the Resource Enhancement and Mitigation Program (REMP; referred to as the Resource Enhancement Program [REP] in the Supplemental Draft EIR/EIS; included as Appendix P).

- *Caulerpa* surveys would be completed before and after construction at each of the lagoons to ensure there is no infestation within the project limits. If *Caulerpa* is found, measures would be implemented to eradicate it from the area.

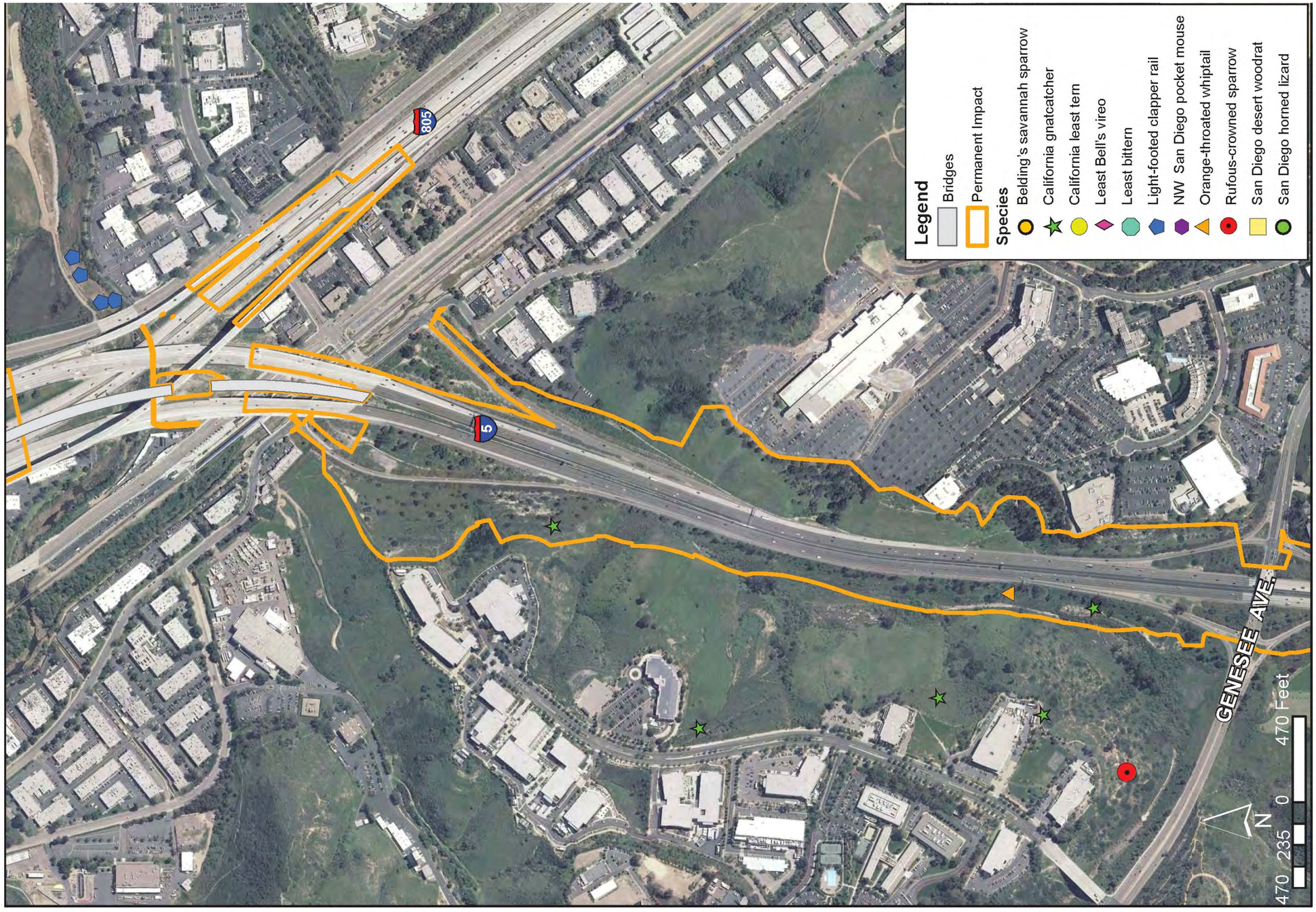

Figure 3-20.1a: Sensitive Wildlife Locations

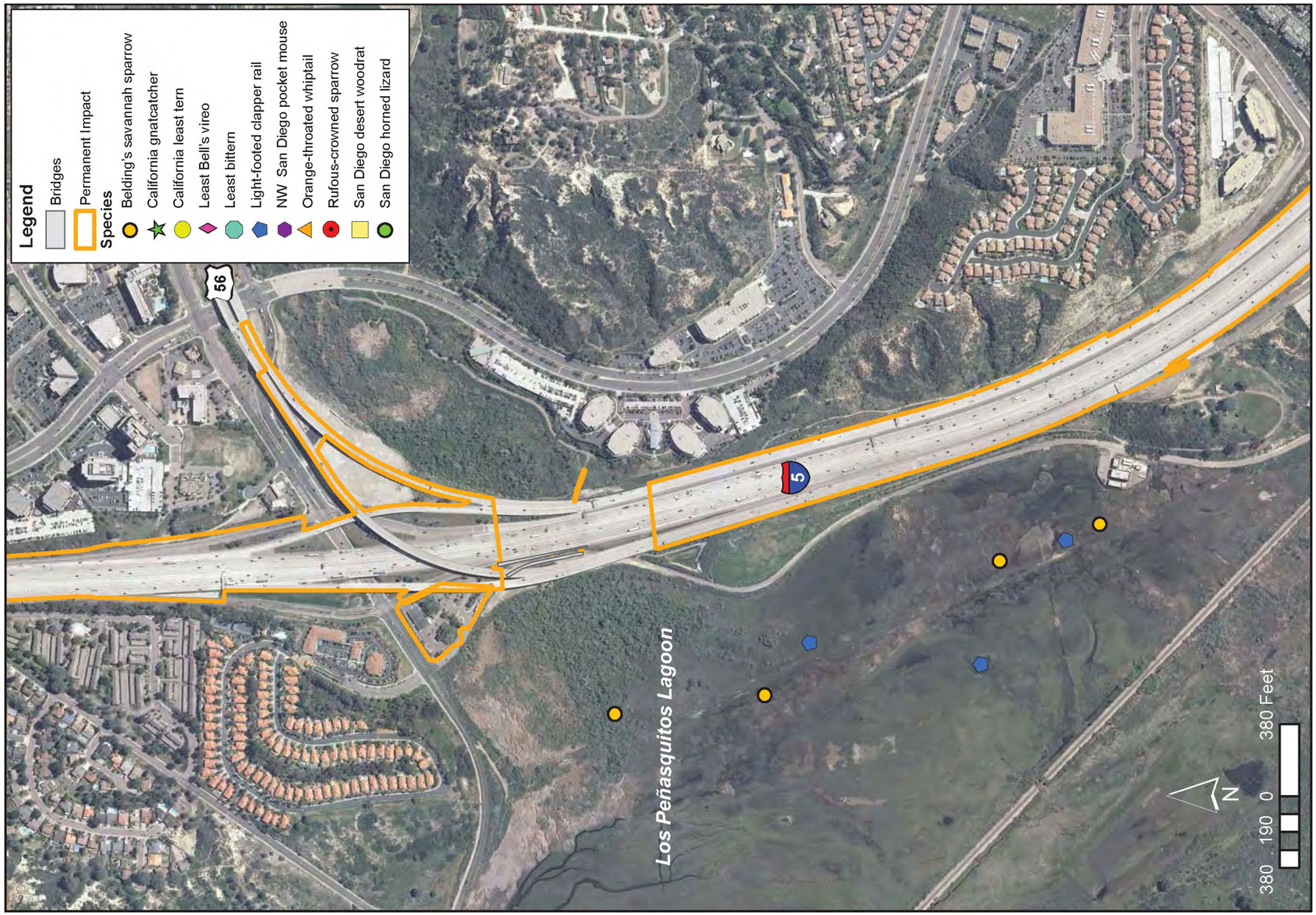

Figure 3-20.1b: Sensitive Wildlife Locations