

# Chapter 1

## Introduction

---

This document is a draft environmental impact report/environmental assessment (Draft EIR/EA) analyzing the effects of implementing the City of Encinitas' (City's) proposed Olivenhain Trunk Sewer Improvements Project (Project, proposed Project).

Originally constructed in 1972, the Olivenhain Trunk Sewer (OTS)<sup>1</sup> is a critical wastewater facility that is currently one of the most vulnerable components of the City's wastewater system. A number of manholes along the OTS are deteriorating and experience significant inflow and infiltration (I&I) that increases flow volumes in the line, and maintenance access along much of the line is inadequate or lacking. The potential for a failure or spill associated with the OTS is a significant concern: Such an event could interrupt sanitary sewer service to a large number of residences and businesses as well as impacting water quality in some of San Diego County's most valuable and sensitive natural habitat.

The proposed Project would rehabilitate 50 badly degraded manholes along an approximately 4-mile-long segment of the OTS within Escondido Creek and San Elijo Lagoon, remove a siphon and three manholes that have been evaluated as superfluous, and would provide City maintenance crews with long-term access for ongoing maintenance. Approximately 2,800 linear feet of the upper OTS would also be realigned in City streets, including the removal of about 1,000 linear feet away from the Creek and Lagoon. In view of the Project's location within sensitive habitat, the Project approach has been developed in consultation with the San Elijo Lagoon Conservancy (Conservancy) as well as local, state, and federal resource agencies, including

- County of San Diego (County)
- California Department of Fish and Wildlife (DFW)
- San Diego Regional Water Quality Control Board (RWQCB)
- California Coastal Commission (Coastal Commission)
- U.S. Army Corp of Engineers (Corps)
- U.S. Fish and Wildlife Service (USFWS)

This Draft EIR/EA was prepared in compliance with the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA). As such, the document functions

- (1) to share project information with the public and enable stakeholders to comment on the Project
- (2) to enable informed decision making by the City and resource agencies as they determine whether and how to move ahead with the Project

The EIR/EA itself does not determine whether or in what form the Project may be implemented; rather, it provides data and analysis to support informed decision making by City and resource agency staff.

---

<sup>1</sup> For a complete list of the acronyms and abbreviations used in this document, see Appendix A.

## Approvals Required to Implement the Project

Because of the Project’s location in sensitive jurisdictional habitat that is home to a number of state- and/or federally listed wildlife species, a number of resource agency permits and approvals will be needed to implement the Project in compliance with the various regulations that protect these resources.

Table 1-1 itemizes the authorizations for which the City is applying and the agencies that have jurisdiction.

**Table 1-1: Approvals Required for Olivenhain Trunk Sewer Improvements Project**

Permit or Authorization	Required for...	Agency with Jurisdiction
Clean Water Act §404 permit	Activities affecting jurisdictional waters of the United States	Corps
Clean Water Act §401 water quality certification		RWQCB
California Streambed Alteration Agreement	Activities affecting the bed or banks of a watercourse under state jurisdiction	DFW
Federal Endangered Species Act “take” authorization	Activities that may result in disturbance, injury, mortality or other detrimental effects on species listed as threatened or endangered under the federal Endangered Species Act	USFWS
California Endangered Species Act §2081 authorization	Activities that may result in injury, mortality, or other detrimental effects on species listed as threatened or endangered by the State of California	DFW
Coastal Development Permit	Construction of facilities within the protected Coastal Zone	California Coastal Commission
Encroachment Permit	Work with state right-of-way at westernmost end of alignment	California Department of Transportation
Excavation permit per County Municipal Code §41.113	Excavation within County parklands	San Diego County Department of Parks and Recreation
Authorization under County Resource Protection Ordinance	Projects proposed for environmentally sensitive lands under County jurisdiction	San Diego County Department of Planning and Building Services
San Diego County Development Permit	Construction of improvements in an area of special flood hazard	San Diego County Department of Planning and Building Services

In addition to external agency authorization, the Project will also need to obtain a Major Use Permit (MUP) from the City’s Department of Planning and Building because of its location in an area zoned for ecological resource/open space/park (ER/OS/PK) use.

## Lead, Responsible, and Trustee Agencies for this Draft EIR/EA

The City of Encinitas is the lead agency for CEQA compliance for the proposed Project. As the federal agency with the most direct regulatory oversight over the Project, the Corps is the lead agency for NEPA compliance. Other state and local agencies who will use this document in decision making (See Table 1-1 above) and who

are therefore considered responsible agencies under CEQA include the County, DFW, RWQCB, and the Coastal Commission. As state agencies with jurisdiction over natural resources held “in trust” for the people of California and potentially affected by the Project, DFW and the Coastal Commission are also considered trustee agencies under CEQA, as is the State Lands Commission. No cooperating agencies have been identified under NEPA.

## Overview of CEQA/NEPA Process

The basic purposes of the CEQA statute include informing the public and decision makers about the potential significant impacts of proposed projects, identifying ways to avoid or reduce environmental damage, and enhancing public participation in the planning process (*CEQA Guidelines* §15002[a]). The NEPA statute similarly requires federal agencies to “encourage and facilitate” public involvement in decisions affecting environmental quality (*40 Code of Federal Regulations* 1500.2[b]) and to identify approaches that will avoid adverse environmental effects (*40 Code of Federal Regulations* 1500.2[e], 1500.2[f]).

Both statutes and their implementing regulations mandate specific milestones during the environmental review process when public and agency input is solicited

- during the scoping period that establishes the breadth of topics analyzed in detail in the environmental document
- during the review period when the draft document is circulated for public and agency comment

More information on these milestones follows.

## Document Scoping

CEQA scoping is initiated when the lead agency issues a formal Notice of Preparation (NOP) announcing the beginning of the EIR process. The state’s CEQA Guidelines (§15082) require the NOP to provide information on the project background, goals, and objectives; announce the preparation of the project EIR; and solicit public and agency comment on the EIR; and provide information on public scoping meetings to be held in support of EIR preparation.

The City submitted the NOP for the proposed Project to the State Clearinghouse in early October 2015. This initiated a scoping period that began on Monday October 12, 2015 and was originally planned to extend through Tuesday November 10, 2015 with a public scoping meeting scheduled for the evening of Thursday November 3. Due to a power outage at City Hall, however, the City was forced to cancel the November 3 scoping meeting. Members of the consultant team were asked to be present at the venue in case of attendees who had not heard about the closure and cancellation. To ensure that all interested parties would have adequate time to plan to attend the meeting and provide comments, the public scoping meeting was then rescheduled for the evening of Thursday December 3, 2015, and the scoping period was extended for an additional 30 days, through December 10.

Appendix B contains more information on the scoping process and a summary of the comments received during the scoping period. This includes those received by email, letter, and fax, as well as those transmitted in person. In-person comments include input received at the December 3, 2015 meeting, in addition to comments provided by several members of the community on the original November 3 meeting date.

## Circulation and Review of this Draft EIR/EA Document

Consistent with the primary mandate of improving information sharing and enhancing public participation in the planning process, CEQA requires lead agencies to circulate draft environmental documents for review and comment by other agencies and the public at large.

The lead agency must notify the public and other agencies when a draft environmental document is available for review. An official notification, the Notice of Availability (NOA), is sent to the State Clearinghouse for distribution to state agencies. CEQA also requires that the lead agency provide formal written notice of the draft document's availability to the County Clerk's office for public posting, and to any other interested parties who have requested it. The NOA must also be published in a general-circulation newspaper, publicly posted on and off the project site, or mailed to residents of properties adjacent to the project site. Issuance of the NOA initiates a public review period during which the lead agency receives and collates public and agency comments on the project and the document.

This Draft EIR/EA is now circulating for public and agency review. The NOA was sent to the State Clearinghouse, initiating the review period, on Monday, March, 7 2016. The review period concludes on Wednesday, April 20, 2016. **Comments on the Project and this Draft EIR/EA may be provided via letter, fax, or email to the City's project manager at the contact below. The deadline for receipt of comments is 6:00 p.m. on Wednesday, April 20, 2016.**

Kipp Hefner, PE  
Associate Civil Engineer  
City of Encinitas, Engineering Department  
505 South Vulcan Avenue  
Encinitas, CA 92024  
Fax: 760-633-2818  
KHefner@encinitasca.gov

## Preparation of Final EIR/EA

Following the close of the public and agency review period, the City and the Corps will compile a Final EIR/EA that includes a list of all individuals, organizations, and agencies that provided comments during the review period; the full text of all comments received; and responses to all comments. Responses may take the form of additional information, further explanation, and/or revisions to the text of the Draft EIR/EA.

The Encinitas City Council will use the information and analysis in the Final EIR/EA, including comments and responses, in deciding whether to approve the project and/or adopt any modifications to the project. The Corps, as federal lead agency, and the various responsible agencies will use the Final EIR/EA in deciding whether to issue permit approvals enabling the project, and in identifying permit terms or conditions required to address project impacts.

## Issues of Known Concern or Controversy

Table 1-2 itemizes key concerns identified during the scoping process and identifies the portions of this EIR/EA that provide relevant information.

**Table 1-2: Issues of Concern**

<b>Topic/Concern</b>	<b>For Relevant Information, Please See...</b>
Why the Project is needed	Chapter 2, pages 2-1 ff.
Whether the OTS can be relocated out of the Creek and Lagoon, so access into sensitive habitat is not needed	Table 2-2, beginning on page 2-7
Whether the Project would provide public access or trail use	<i>Project Approach</i> , beginning on page 2-2
The need for regulatory permit authorization	Table 1-1 and Chapter 4
Impacts on lands set aside for conservation; impacts on Creek and Lagoon habitat	Measures incorporated to protect sensitive habitats and other resources associated with the Creek and Lagoon: <i>Environmental Commitments</i> , beginning on page 2-21
Impacts on special-status plants and wildlife in the Creek and Lagoon; the need to protect special-status birds that use the Creek/Lagoon corridor	Impacts on biological resources (including sensitive habitat as well as special-status species): Chapter 4
Potential to contribute to the spread of invasive non-native plant species	<i>Measures to Control Invasive Non-Native Plant Species On Land</i> , page 2-23 <i>Measures to Control Invasive Non-Native Aquatic Species</i> , page 2-23
Plans for mitigation/compensation for impacted habitat	Revegetation of disturbed areas: pages 2-12 ff. and 2-16; <i>Revegetation Design Measures</i> , page 2-22 Habitat compensation – page 4-1
How the Project will protect water quality during construction	<i>Measures to Protect Creek and Lagoon Water Quality</i> , beginning on page 2-21 Water quality impacts: Chapter 3
How the City will ensure that construction contractors adhere to the Project’s environmental requirements	<i>Environmental Commitments</i> , page 2-21
Potential for the Project to foster mosquito breeding	<i>Measures to Prevent Vector-Related Hazards</i> , page 2-24
Whether Project grading would alter floodway or floodplain topography; impacts on flood conveyance and flood control	Page 2-12; Chapter 3

## Contents and Organization of this Draft EIR/EA Document

### Terminology Used in this Draft EIR/EA

Since the Project is a City undertaking, this Draft EIR/EA uses terminology consistent with the CEQA statute and the state’s *CEQA Guidelines*. Equivalent NEPA terminology is shown in Table 1-3.

**Table 1-3: CEQA and NEPA Terminology Equivalents**

<b>CEQA Terminology Used in this Draft EIR/EA</b>	<b>Equivalent NEPA Terminology</b>
Project	Action
Impact	Effect, impact
Lead agency	Lead agency
Responsible agency	Cooperating agency
Objectives	Purpose and need
Environmental setting	Affected environment
Environmental impacts	Environmental consequences
Environmentally superior	Environmentally preferable

The severity and extent of impacts were assessed using the following terminology.

- **No Impact** – The Project would not materially change conditions from the existing, pre-Project baseline.
- **Less than Significant Impact** – It is reasonably foreseeable (i.e., substantial evidence suggests) that the Project would alter conditions from the pre-Project baseline, but the change would be small enough to fall below an adopted threshold of significance representing the level of concern. The thresholds of significance used to evaluate impacts for each resource topic analyzed are presented in the resource chapters (Chapters 3 through 13) of this Draft EIR/EA.
- **Potentially Significant Impact** – It is reasonably foreseeable that the Project would alter conditions from the pre-Project baseline, and the change would be substantial or important enough to exceed an adopted threshold of significance.
- **Less than Significant with Mitigation Incorporated** – The Project’s impact would be significant, but mitigation measures can be adopted to lessen the effect, reducing it below the adopted threshold of significance, and therefore below the level of concern. Where this finding is made, the specific mitigation measures are identified, including implementation timing and responsibility as well as applicable performance standards.
- **Beneficial Impact** – The Project would improve conditions by comparison with the pre-Project baseline.

### Resources Analyzed in this Draft EIR/EA

This Draft EIR/EA presents detailed analyses of the Project’s potential to impact the following resources.

- Aesthetics
- Air Quality and Greenhouse Gas Emissions
- Biological Resources and Jurisdictional Habitat
- Cultural and Paleontological Resources
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise and Vibration
- Transportation and Traffic
- Utilities and Service Systems
- Environmental Justice

For all resources, consistent with the state’s *CEQA Guidelines* (§15064; see also *Guidelines Appendix G*), analysis considered the Project’s reasonably foreseeable direct impacts (i.e., effects that are immediately related to the Project and typically occur close in space and time to Project implementation) as well as its indirect impacts (i.e., effects that are not immediately related to the Project itself, but are secondary outcomes of Project effects, and may occur at a greater remove in time and/or space). Analysis also considered the Project’s contribution to cumulative impacts (i.e., effects that result from repeated activities over a period of time, and effects representing the reasonably foreseeable combined outcome of more than one past, present, and/or future project).

Additional information on methods of analysis for each resource topic is provided in the individual resource chapters.

## Resources Excluded from Detailed Analysis

The intent of both CEQA and NEPA is to provide readable but substantive documents that analyze and disclose a proposed project’s significant impacts on the environment. Both statutes as well as the state’s *CEQA Guidelines* emphasize the virtue of brevity in the interest of providing the public and decision makers with genuinely useful information. To that end, the *CEQA Guidelines* (§15143) direct lead agencies to focus EIR analysis on the proposed project’s significant effects on the environment; effects that can be shown to be “insignificant” do not need to be discussed in detail.

Table 1-4 below lists the resource topics excluded from detailed analysis in this Draft EIR/EA, and explains why detailed analysis is not considered necessary.

**Table 1-4: Resources Excluded from Detailed Analysis**

Resource	Reasons for Exclusion
Agriculture and Forestry Resources	<p>No forestry or timber resources are present in the Encinitas area.</p> <p>Some remnant agricultural uses are present in and surrounding the City, but the Project alignment supports no agricultural resources; the Project has no potential to result in direct impacts on agriculture or agricultural lands. In addition, the Project is proposed to support existing land use planning under the City’s General Plan (City of Encinitas 1989), County General Plan (County of San Diego 2011), and open space management plans and policies of the San Elijo Lagoon Conservancy. As a result the Project would not result in land use changes that could indirectly foster or contribute to loss of agricultural resources. The Project would have <b>no impact on agriculture or forestry resources, and no further analysis is warranted.</b></p>
Geology, Soils, and Seismicity	<p>The Project is proposed to support existing land use planning under approved City and County planning documents. The Project itself would not include a housing component, and the Project would not modify infrastructure in a manner that conduces to expanded residential development. The Project thus would not increase or relocate populations and would have <b>no potential to increase exposure of persons to any of the geologic hazards that pertain in the Encinitas area.</b></p> <p>All facilities installed as a result of the Project would be designed with input from qualified geotechnical personnel, in consideration of site conditions, and consistent with all applicable codes and standards relative to soil conditions, seismic design, etc. As a result, the Project <b>would not result in significant adverse impacts related to increased exposure of structures to geologic (including seismic) hazards, nor would it create significant hazards related to slope or substrate instability.</b></p> <p>The Project would require limited grading and therefore would entail local removal of topsoil. However, it is being designed to maximize onsite reuse of topsoil in revegetation, to take advantage of native seed bank as well as the weed-retardant properties of saline/alkaline lagoonal soils. As a result, the Project <b>would not result in a significant impact with regard to topsoil loss.</b></p> <p>No further analysis of topics related to geology, soils, or seismicity is warranted.</p>
Land Use and Planning	<p>As discussed above, the Project is proposed to support existing and planned land uses under the various land use planning and open space management documents that apply to the Project alignment and the area served by the OTS, including portions of Encinitas, adjacent unincorporated portions of the County, and open space along the Escondido Creek/San Elijo Lagoon corridor.</p> <p>The Project would not alter existing land use planning in any manner. The Project would have <b>no impact on land use planning,</b> and no further analysis is warranted.</p>
Mineral Resources	<p>The Escondido Creek/San Elijo Lagoon corridor does not offer mineral resource extraction opportunities. Moreover, the Project alignment is located in an area that combines developed suburban uses with preserved open space; mineral resource extraction would be incompatible with existing patterns of land use in this area. As a result, the Project would have <b>no impact on the availability of mineral resources of local, regional, or state importance,</b> and no further analysis is warranted.</p>

Resource	Reasons for Exclusion
Population and Housing	As identified above, the Project is proposed to support existing land use planning under approved City and County planning documents. The Project itself would not include a housing component, and the Project would not modify infrastructure in a manner that conduces to expanded residential development. Project construction would not require a large work force thus would not result in short- or long-term relocation of populations. As a result, the Project would have <b>no impact on populations or housing</b> , and no further analysis is warranted.
Public Services	Because the Project would not construct housing or relocate populations, it would not increase (or decrease) the demand for public services such as police and fire protection, schools, etc. The Project would have <b>no impact on public services</b> , and no further analysis is warranted.
Recreation	The Project focuses exclusively on (1) rehabilitating degraded manholes along a portion of the OTS; and (2) providing environmentally sensitive access enabling the City to maintain the OTS into the future. The Project would not modify the existing recreational opportunities associated with open space/conservation lands along the Escondido Creek/San Elijo Lagoon corridor. Moreover, the Project would not increase or relocate populations and therefore would not increase the demand for recreational opportunities or facilities in the Encinitas area. The Project would have <b>no impact on recreation</b> , and no further analysis is warranted.
Socioeconomics	The Project is proposed to serve the existing residents and businesses in Encinitas. It would not modify the existing or planned pattern of land uses in the Project area, would not relocate populations, and would not modify existing recreational uses in the area. It would neither create nor reduce employment opportunities. As such it would have <b>no potential to impact socioeconomics in the Encinitas area</b> , and no further analysis is warranted.
Wild and Scenic Rivers	Although the Escondido Creek/San Elijo Lagoon corridor is a valued scenic resource for residents and visitors in the Encinitas area, it is not a federally recognized Wild and Scenic River and there are no other streams that qualify as Wild and Scenic Rivers in the Project area. The Project would have <b>no impact on Wild and Scenic Rivers</b> , and no further analysis of this topic is warranted.  Please note that the Project's potential impacts on visual resources in the Creek/Lagoon corridor is analyzed in Chapter 7 ( <i>Aesthetics</i> ), and its potential impacts on wetlands, other sensitive habitats, and wildlife are addressed in Chapter 5 ( <i>Biological Resources and Jurisdictional Habitat</i> ).

## Organization of this Draft EIR/EA Document

This EIR/EA is organized as shown in Table 1-5 below. A *Summary* presenting an overview of the Project and the findings of this EIR/EA precedes the *Table of Contents*.

**Table 1-5: Draft EIR/EA Organization at a Glance**

### Section 1: Project Introduction

- Chapter 1 – Introduction
- Chapter 2 – Proposed Project and Alternatives

### Section 2: Natural Resources

- Chapter 3 – Hydrology and Water Quality
- Chapter 4 – Biological Resources and Jurisdictional Habitat

### Section 3: Heritage Resources

- Chapter 5 – Cultural and Paleontological Resources

**Section 4: Social and Built Environment Resources**

- Chapter 6 – Aesthetics
- Chapter 7 – Transportation and Traffic
- Chapter 8 – Noise and Vibration
- Chapter 9 – Air Quality and Greenhouse Gas Emissions
- Chapter 10 – Hazards and Hazardous Materials
- Chapter 11 – Utilities and Service Systems
- Chapter 12 – Environmental Justice

**Section 5: Other Required Analyses**

- Chapter 13 – Growth Inducement and Related Impacts
- Chapter 14 – Commitment of Resources
- Chapter 15 – Cumulative Impacts
- Chapter 16 – Impacts Summary and Environmentally Superior Alternative

**Appendices**

- Appendix A: List of Acronyms and Abbreviations (11 × 17 foldout)
  - Appendix B: Summary of Scoping Comments
  - Appendix C: Alternatives Analysis Supporting Materials
  - Appendix D: Biological Resources Technical Report
  - Appendix E: Cultural Resources Technical Report
  - Appendix F: Air Quality and Greenhouse Gas Emissions Technical Report
  - Appendix G: List of EIR Preparers
  - Appendix H: Distribution and Noticing
- 

## References Used in Preparing this Chapter

- City of Encinitas. 1989. General Plan. Available:  
<http://archive.ci.encinitas.ca.us/weblink8/browse.aspx?startid=665622>. Accessed: April–August 2014.
- County of San Diego. 2011. General Plan. Available: [www.sandiegocounty.gov/content/sdc/pds/generalplan.html](http://www.sandiegocounty.gov/content/sdc/pds/generalplan.html). Accessed: July–September 2014.



## Chapter 2

# Proposed Project and Alternatives

---

### Background and Need for Proposed Project

The OTS conveys wastewater from the City of Encinitas (including the community of Olivenhain) and portions of the community of Cardiff and unincorporated San Diego County almost 4 miles along the Escondido Creek and San Elijo Lagoon drainage to the Olivenhain Pump Station at the Manchester Avenue/I-5 interchange. The OTS was originally constructed in 1972; a number of its manholes are now deteriorating and require rehabilitation as they are experiencing significant I&I that increases flows in the line. Maintenance access into the Creek and Lagoon is inadequate to fully support reliable service. In particular, the City is unable to access all of the manholes along the lower OTS with the large equipment needed to clean this large-diameter sewer line. Without proper cleaning, sediment and debris accumulate in the line and create potential blockages that can lead to failure and/or overflows and spills. Failure of the OTS could interrupt sanitary sewer service to a large number of residences and businesses; spills or overflows would adversely affect water quality in some of San Diego County's most valuable and sensitive natural habitat.

### Project Goals and Objectives

The Project is proposed to address existing maintenance issues with the OTS, improving the overall reliability of the City's wastewater system and better protecting water quality and habitat values in Escondido Creek and San Elijo Lagoon.

Specific project objectives are as follows.

- Rehabilitating existing sewer manholes along the OTS; reducing inflow and infiltration (I&I) into the OTS, and decreasing the volume of water that needs to be treated at the San Elijo Joint Powers Treatment Plant
- Realigning approximately 2,800 linear feet of the OTS above El Camino del Norte and increasing its capacity to meet currently projected system needs; this aspect of the Project includes relocating approximately 1,000 linear feet of sewer main out of the Escondido Creek floodplain into Lone Jack Road
- Providing environmentally appropriate access for maintenance vehicles along the remainder of the OTS
- Removing an existing but unnecessary siphon that increases the level of maintenance required, along with the associated manhole
- Minimizing adverse effects on sensitive habitat and contributing to the long-term health of the Creek and Lagoon systems

To provide for adequate maintenance, City wastewater operations staff must be able to access all of the manholes along the Project reach of the OTS once or twice each year and as needed.

## Overview of Project Location

The Project would involve the portion of the OTS between approximately the I-5/Manchester Avenue crossing and the intersection of Lone Jack Road and Santa Fe Vista Court (see Figure 2-1). The existing OTS is within City utility easements and public rights-of-way, as are connecting (tributary) sewer lines that feed into the OTS. The width of the City's existing OTS easement is typically 7 feet.

Upstream of MiraCosta College (located at the intersection of MiraCosta College Road and Manchester Avenue), the Project alignment is within or immediately adjacent to the Escondido Creek/San Elijo Lagoon corridor; as such it is largely within wetland and riparian habitat, including extensive lands within the San Elijo Lagoon Ecological Reserve (Reserve). The Reserve is jointly owned by the County, San Elijo Lagoon Conservancy, and DFW, and is operated and managed by the County Parks and Recreation Department. The remainder of the alignment, from approximately MiraCosta College downstream to the Olivenhain Sewer Pump Station at the I-5 overcrossing, is within the paved Manchester Avenue roadway. The lower portion of the Project alignment lies within the Coastal Zone. The City of Escondido also has a sewer easement that follows the Escondido Creek corridor, running adjacent to the OTS on the southeast.

The majority of the Project alignment is within City limits, and the remainder is in unincorporated San Diego County (Figure 2-1).<sup>1</sup> Figure 2-2 shows City and County zoning along the Project alignment, and Figure 2-3 shows corresponding City and County General Plan land use designations for the Project corridor. Portions of San Elijo Lagoon within the City of Encinitas are zoned ER/OS/PK (Ecological Resource/Open Space/Park). Upstream of MiraCosta College, adjacent areas on the Encinitas side of Escondido Creek and San Elijo Lagoon are primarily zoned RRFP (Rural Residential, Floodplain Overlay, 0.00 – 0.25 dwelling units per acre) (du/acre), with small areas of RR (Rural Residential, 0.26 – 0.5 du/acre) immediately north of Manchester Avenue, and GC (General Commercial) and GC-PCD (General Commercial/Planned Commercial Development) at the Fifth Avenue intersection. The MiraCosta College campus is zoned P/SP (Public/Semi-Public use). Downstream of MiraCosta College, areas across Manchester Avenue from the Lagoon are zoned RR2 (Rural Residential 2) and, at and immediately adjacent to the site of the Olivenhain Sewer Pump Station, R3 (Residential 3). General Plan land use designations are consistent with zoning. The segments of the central and northwest portions of the alignment located in the unincorporated County are in County zones A70 (Limited Agriculture) and S80 (Open Space).

Consistent with existing zoning and land use planning, principal land uses neighboring the Project alignment along the north side of the San Elijo Lagoon/Escondido Creek corridor include residential and rural residential development, MiraCosta College, and the Encinitas Country Day School. North of the MiraCosta College campus the character of development becomes semi-rural and is dominated by larger horse properties featuring extensive paddock areas within the Creek and Lagoon floodplain. Commercial development abuts the alignment at South Rancho Santa Fe Road. County land uses crossed by the alignment primarily include rural lands, with a small area of open space/conservation lands.

## Project Approach

Because much of the Project is located in sensitive habitat, including dedicated conservation lands, the City has been working closely with staff of the San Elijo Lagoon Conservancy, the resource agencies (Corps, DFW, USWFS, RQWCB, and Coastal Commission), and the County of San Diego to develop an approach that respects and enhances the value of Lagoon and Creek resources. The City had initially considered including a public access component for a portion of the Project, but because of resident input received early in the

---

<sup>1</sup> Because of the large number of figures contained in this chapter, figures follow the text in sequence at the end of the chapter.

planning process, concluded that the Project will not provide trails, vista points, or other public access. Entry to the new access from public rights-of-way will be gated, locked, and posted with “No Trespassing” signage. Entry from easements on private property will be posted with “No Trespassing” signage.

The City’s design team began the development process by conducting an inventory of the habitat resources along the Project alignment. The resource inventory included

- Developing new detailed mapping showing the vegetation communities along the Project corridor and evaluating the suitability of habitat to support key wildlife species known to be present in the area, as well as
- Conducting a literature review and a search of regulatory agency databases for information on locations where special-status wildlife have been documented in the past

The City was also fortunate to obtain extensive data on Lagoon and Creek resources developed by the San Elijo Lagoon Conservancy in support of the planned project to restore tidal exchange in the Lagoon (San Elijo Lagoon Restoration Project; see [www.sanelijo.org/restoration%20](http://www.sanelijo.org/restoration%20) for more information).

With a detailed, up-to-date understanding of the Project corridor resources in place, the City then initiated a series of working meetings with agency and Conservancy staff. It was understood that some impacts on habitat would likely be inevitable to provide access for the large equipment needed to maintain the OTS property. In this context, the City’s goals in convening the Regulatory Working Group were to

- develop a clear understanding of agency and Conservancy conservation priorities
- obtain agency and Conservancy input on the best ways to avoid and reduce impacts on sensitive habitats and special-status species
- develop an environmentally sensitive approach to meet the need for access along the full length of the OTS

## Conservation Priorities

Through dialogue with the Regulatory Working Group, the following conservation priorities were identified to focus and direct development and evaluation of Project approaches and identification of the preferred alternative.

- Agency and Conservancy staff agree that alkali marsh and riparian (particularly southwestern willow scrub) vegetation communities are the most sensitive and valuable habitats in the Creek and Lagoon corridor, and should be the highest priority for avoidance and preservation
- The Conservancy has been working to develop a continuous, high-quality habitat corridor for Least Bell’s Vireo (*Vireo bellii pusillus*) from the Ford Wildlife Preserve upstream to Val Sereno; the Project should make a particular effort to minimize impacts on the quality and connectivity of riparian habitat in this corridor
- The Project should avoid areas known to support nesting pairs of Coastal California Gnatcatcher (*Polioptila californica californica*), Least Bell’s Vireo, Light-footed Ridgway’s Rail (*Rallus obsoletus levipes*), and other special-status bird species
- The Project should be designed and constructed in a manner that minimizes its potential to contribute to the spread of invasive nonnative plant species, which have the potential to degrade habitat quality and reduce the success of native plants

- Because the Project alignment is located almost entirely within an active floodway, Project facilities must be designed for stability in flood conditions

## Guiding Principles

Based on the conservation priorities identified by agency and Conservancy staff, the group then developed and agreed on Guiding Principles that would help shape the Project to be supportive of identified conservation priorities (Table 2-1). Success in achieving the Guiding Principles was viewed as a primary test in evaluating and discriminating between potential Project approaches. The Guiding Principles address both the location and configuration of the new access, and the extent and nature of improvements (roadway stabilization) that should be considered.

**Table 2-1: Olivenhain Trunk Sewer Improvements Project – Guiding Principles**

Guiding principles for siting	<ul style="list-style-type: none"> <li>• Limit disturbance and loss in the most sensitive habitats (alkali marsh and southwestern willow scrub)</li> <li>• Limit impacts on the most sensitive species (e.g., Light-footed Ridgway’s Rail, Coastal California Gnatcatcher)</li> <li>• Maximize preservation of habitat connectivity</li> <li>• Avoid habitat disconnection—especially, but not only, in Least Bell’s Vireo habitat corridor</li> <li>• Contribute to habitat buffers; avoid habitat “erosion”</li> <li>• Avoid proximity to known nest sites</li> <li>• Configure access to support removal of woody invasive plants rather than native vegetation where possible</li> <li>• Emphasize “straightest, quickest way to get there” in selecting between alternate access routes</li> </ul>
Guiding principles for improvements	<ul style="list-style-type: none"> <li>• Avoid the use of conventional pavement</li> <li>• Avoid the use of easily eroded and transported surfaces like gravel and decomposed granite</li> <li>• In selecting surface treatments, use the “lightest touch” that will provide reliable access</li> <li>• Use plantable, pervious surface treatments and revegetate with site-appropriate native species</li> <li>• Since saline/alkaline soils deter weed growth, emphasize onsite reuse of native soils except in areas already subject to extensive nonnative vegetation growth, where soils contain nonnative seed bank and should be removed as a means of controlling the spread of undesirable vegetation</li> <li>• Implement best management practices during construction to avoid spreading invasive species</li> </ul>

## Potential Approaches

Based on evaluation of the condition of the 53 existing unrehabilitated manholes<sup>2</sup> along the Project reach of the OTS, manhole rehabilitation would primarily involve relining, with some manhole frames and covers also

<sup>2</sup> Three manholes originally planned for inclusion in the Project were rehabilitated on an emergency basis when a routine City condition assessment determined that they were undergoing an accelerated rate of I&I and physical degradation and presented an imminent threat to water quality in the Creek and Lagoon. Work, which consisted of manhole relining only, with no permanent access created, was determined to be outside Corps jurisdiction but was conducted subject to conditions issued by USFWS (FWS-SDG-12B0021-14TA0213 dated March 11, 2014) and DFW (dated March 13, 2014). This work was completed in July 2014.

to be replaced. No excavation would be needed for this process and work would occur within the footprint of the existing manhole; there would be no loss of habitat associated with this portion of the Project.

As a result, most discussion of Project approaches—and later, the process of alternatives development and screening—focused on the Project’s access component, which would entail some loss of habitat dependent on the footprint of the access route.

The traditional approach to access would have been to provide a paved roadway along the length of the Project alignment, but it became clear very early in the process that the footprint of such a facility would likely result in undesirable loss and disconnection of habitat. The introduction of extensive hardscape into the Creek and Lagoon corridor was also understood as inappropriate and undesirable. A primary goal of Regulatory Working Group discussions was therefore to identify alternate means of addressing the need for access. Some of the approaches discussed included

- The potential to relocate the OTS out of the Creek and Lagoon, thereby avoiding the need to provide access into sensitive habitat
- Use of alternate equipment and/or alternative means of delivering equipment to the OTS alignment
- Alternate access routing, configured to reduce the loss and disconnection of habitat and maximize support for conservation goals
- Use of temporary roadway products
- Use of non-traditional surface treatments—such as permeable and plantable products—as an alternative to conventional pavement types
- Various combinations of these approaches

The following section provides details of the alternatives development and screening process, which resulted in the identification of the preferred Project approach and the alternatives analyzed in this Draft EIR/EA, as well as the elimination of some possible approaches from further consideration.

## Alternatives Development and Screening

As the first step toward the development of a preferred solution, the following general approaches were considered. The conventional access approach was identified as unlikely to be desirable from an environmental standpoint but was retained in consideration to ensure that the broadest possible range of approaches was fully evaluated. Additional possibilities reflect input from discussions with the Regulatory Working Group.

- **Conventional continuous access** – This approach would construct an improved access route along the entire length of the Project reach of the OTS
- **Realignment** – This approach would entail relocating the OTS from the Escondido Creek/San Elijo Lagoon corridor into nearby City streets to avoid the need for access into sensitive habitat
- **Manhole removal** – This approach would “retire” selected manholes and reduce the number of points where access into sensitive habitat is needed; retired manholes could either be removed or sealed and abandoned in place, depending on local constraints

- **Restricted timing** – This approach would limit maintenance work to the non-nesting season to avoid disturbance of nesting birds
- **Alternate vehicles** – This approach would use alternate vehicles to reduce or avoid the need for improved access into sensitive habitat. Two variations were considered:
  - Use of smaller maintenance equipment to reduce the need for improved access in sensitive habitat, similar to other agency programs for the maintenance of canyonlands sewers
  - Use of cargo helicopters to deliver the City’s Vac-Con to manholes and avoid the need for overland travel in sensitive habitat
- **Temporary roadway products** – this approach would use temporary roadway products such as MudTraks®. Products of this type are laid down when access is needed and removed immediately following use; they were considered as a means of avoiding the need for permanent improved access
- **Access spurs** – This approach would construct a series of spur routes accessing manholes from “jumping off points” at the ends of existing City roadways. Two variations were considered:
  - spurs using existing City access easements
  - spurs using new access routes; this approach would likely require negotiation of new easements
- **Combination access** – This approach would use a combination of access spurs and “axial” along-alignment access for greatest flexibility in configuring the new access route

Approaches were evaluated based on the following criteria

- ability to achieve the Project need, goal, and objectives
- feasibility/practicability<sup>3</sup>

Approaches that were identified as incapable of meeting the Project need, goal, or objectives were “screened out,” that is, eliminated from further consideration. Approaches that failed to pass the feasibility/practicability test were also screened out. Approaches that were identified as offering the potential to meet the Project need, goal, and objectives—either alone or in combination with one or more other approaches—and were also evaluated as feasible and practicable remained in consideration. Several of the approaches suggested as a means to reduce the need for access were evaluated as feasible in part, or as capable of offering a partial solution; these approaches remained in consideration as potential components of “combination solutions” incorporating more than one approach.

Table 2-2 on the next page summarizes the initial screening of potential project approaches.

---

<sup>3</sup> Both *feasibility* and *practicability* address whether an approach can realistically be brought to fruition; the two terms reflect similar concepts as they are applied in state and federal processes, respectively. For purposes of this Project, *feasible* was defined consistent with the CEQA statute (§21061.1) and *CEQA Guidelines* (§15364) as meaning “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.” *Practicable* was defined consistent with the U.S. Environmental Protection Agency’s Clean Water Act Section 404 guidance as meaning “available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes” (40 CFR §230.3[q]). This definition was selected because the Section 404 permit is the primary federal authorization needed to implement the Project.

**Table 2-2: Overview of Alternatives Screening Process**

Alternative	Comments	Screening Evaluation		Carry Forward for Draft EIR/EA Analysis?
		Feasible/ Practicable?	Achieves Purpose?	
Conventional Continuous Access	This approach would offer the simplest solution from the perspective of maintenance operations.	Yes	Yes	Yes
Realignment	<p>The potential to relocate the OTS out of the Creek/Lagoon corridor into City streets was considered during the City's April 2011 Sewer Master Plan update process (City of Encinitas 2011) and evaluated again in more detail during the alternatives development process for this Project. The Sewer Master Plan determined that the OTS could not be entirely removed from the Creek/Lagoon because of the numerous tributary sewer lines that join the OTS within the Creek corridor.</p> <p>The reevaluation conducted for this Project concluded that although complete relocation of the Project reach was infeasible, <b>the segment of the OTS upstream of El Camino del Norte could be realigned into Lone Jack Road.</b></p> <p>Relocation of the OTS downstream of El Camino del Norte was again found to be infeasible, for the following reasons.</p> <ul style="list-style-type: none"> <li>• Because of the change in grade, the line would no longer be able to function as a gravity main; instead, multiple pump stations (as many as 10 in total) would be required to deliver wastewater to the OTS and pump it through the line. This would translate to a perpetual commitment of energy resources for wastewater conveyance. The addition of multiple new pump station facilities would also increase operations and maintenance requirements, and potentially decrease overall system reliability due to increased reliance on multiple sets of electrical/mechanical systems.</li> <li>• Rerouting the sewer main would also entail realignment of multiple tributary lines. Realignments would involve potentially substantial work in sensitive habitat, and many realignments would likely be infeasible in practice since they would require other wastewater agencies, including the Rancho Santa Fe Community Services District, to reconfigure their systems extensively to avoid the need to cross the Creek.</li> <li>• Costs would be prohibitive; construction cost <u>alone</u> was estimated at &gt;\$39M at then-current (2013) materials costs. The engineer's estimate of probable construction cost prepared to analyze the</li> </ul>	No; cost-prohibitive	Yes	No

Alternative	Comments	Screening Evaluation		Carry Forward for Draft EIR/EA Analysis?
		Feasible/ Practicable?	Achieves Purpose?	
	<p>cost-feasibility of full realignment is presented in Appendix C (<i>Alternatives Screening – Supporting Materials</i>)</p> <p>Rerouting the line and adding facilities would increase the potential for community disturbance related to odor generation.</p>			
Manhole Removal	<p>The potential to retire and remove or abandon-in-place manholes was evaluated on a manhole-by-manhole basis as part of the alternatives development process; see Appendix C for the complete Manhole Removal Analysis document. Analysis concluded that 3 of the total 56 manholes along the project reach of the OTS could be removed without impacting the City’s ability to maintain the OTS properly. Removal of these manholes is assumed to be a component of all project/action alternatives.</p>	Yes	A total of 3 manholes can be removed while meeting the Project purpose	Yes, as a partial solution
Restricted Timing	<p>Avoiding work during the nesting season would mean conducting maintenance activities during the rainy season, beginning in October. The OTS alignment is generally wet during the rainy season, with a number of manholes surrounding by flowing or standing water or completely underwater. Marshland areas are also typically saturated during the rainy season, becoming undrivable. Work during the rainy season would also entail environmental tradeoffs since driving across the wetter substrate would be damaging to the substrate itself, to shallow hydrology, and to vegetation.</p>	Possibly	No; many of the manholes along the alignment are inaccessible during the rainy season	No
Alternate Vehicles				
Use of Smaller Vehicles	<p>This approach is being used in San Diego area canyonlands for maintenance of smaller (8-inch-diameter) sewer lines. However, smaller equipment would not adequately address the maintenance needs of the OTS, which is a large-diameter trunk sewer line.</p>	Yes	No	No
Helicopter Transport	<p>Transporting the City’s Vac-Con or equivalent equipment would require the use of large cargo helicopters.</p> <p>The minimum legal flight ceiling over residential areas is 500 feet; because it would require low-altitude flight associated with takeoffs and landings in the Creek/Lagoon corridor, this approach is considered legally infeasible.</p> <p>Helicopter use also would not avoid all impacts on Creek and Lagoon resources: low-altitude helicopter operations would be noisy and disturbing for both residents and wildlife, and could be hazardous, and rotor wash would be damaging to vegetation and potentially hazardous to wildlife. Rotor wash is a particular concern since the majority of the access would need to take place during the spring and</p>	No; legally infeasible	Uncertain	No, based on legal concerns and environmental trade-offs

Alternative	Comments	Screening Evaluation		Carry Forward for Draft EIR/EA Analysis?
		Feasible/ Practicable?	Achieves Purpose?	
	<p>summer nesting season (see above). Rotor wash would be dangerous to individual birds and could also result in loss of nests and eggs or fledglings. Moreover, even if it were delivered by helicopter, City equipment (either the Vac-Con or an alternative) would require an operational footprint, translating either to repeated disturbance in sensitive habitat, or to construction of stabilized pads, and associated permanent habitat loss.</p> <p>This approach would also entail substantial long-term equipment costs for rental or purchase of helicopters and would likely also require the addition of staffing not currently available to the City, and could be cost-prohibitive.</p>			
Temporary Roadway Products	<p>Placement of MudTraks® and other similar temporary roadway products requires a crew of several persons, exceeding the City's current staffing level and requiring the City to staff up solely for this purpose.</p> <p>Because of the need for a multiple-person crew, placement and removal of the roadway also has the potential to cause substantial disturbance, especially as—with no delineated access route—it would be difficult to control where trampling and flattening as a result of foot traffic and roadway placement/removal might occur.</p> <p>In addition, disturbance would occur on a recurring basis for the foreseeable future; rather than avoiding impacts, this approach would trade one type of impact (a one-time loss of habitat for construction of the access route, which would need to be adequately compensated by habitat enhancement preservation or creation) for an ongoing, repeated disturbance of habitat (which would also need to be appropriately mitigated).</p> <p>Another key consideration is that City staffing/funding are currently inadequate to support use of this product, rendering it fiscally infeasible as a comprehensive solution.</p>	Possibly infeasible due to need for added staffing	Uncertain	No; this approach would be costly and its ability to meet the Project need is uncertain; it would also entail undesirable environmental tradeoffs
Access Spurs	<p>Access spurs could be configured to follow the City's existing access easements and locations where "handshake agreements" with landowners are in place; could involve acquisition of new easements; or could reflect a combination of these two approaches. Access spurs could be used to reach many but not all of the manholes along the project alignment.</p>	Yes	Partially	Yes
Combination Access	<p>This approach would offer the greatest flexibility in laying out the new access route and was tentatively evaluated as offering the best opportunity to avoid and reduce impacts on habitat.</p>	Yes	Yes	Yes

Based on the evaluation and screening process summarized in Table 2-2, several approaches were identified as both feasible/practicable and capable of meeting the project need either alone or in combination with other “partial solution” approaches:

- conventional continuous access—stand-alone
- access spurs—partial solution
- combination access—stand-alone, combines access spurs with segments using conventional access along alignment

The next step was to combine approaches into alternatives for further evaluation. This process included more detailed consideration of various configurations for access spurs.

As Table 2-2 summarizes, initial screening of approaches had determined that it would be feasible/practicable to realign a portion of the OTS upstream of El Camino del Norte to remove it from sensitive habitat and relocate it into City streets (Lone Jack Road) in conjunction with the upsizing needed in this portion of the line; this was identified as desirable since it would decrease the overall need for access and the footprint of the new access route, reducing the Project’s potential to impact Creek and Lagoon resources. Thus, as approaches were combined into alternatives, all alternatives were assumed to include the realignment (plus upsizing) of the “Lone Jack” segment of the OTS.

Initial project planning by the City had identified the desirability of removing an existing siphon located adjacent to MH 1286, which is no longer needed and creates a maintenance challenge as well as odor issues<sup>4</sup>; all alternatives were assumed to incorporate removal of the siphon and immediately associated manhole (MH 1286).

As discussed above, early evaluation during the development of project approaches had determined that up to 2 additional manholes could also be retired (sealed and abandoned in place) while still meeting the maintenance need; this outcome was considered desirable since it would further decrease the potential for impacts, and all alternatives were accordingly also envisioned as including the additional manhole abandonments. Combination of approaches into alternatives also continued to be shaped by the Guiding Principles listed above in Table 2-1.

The following alternatives were identified as both feasible/practicable and capable of meeting the identified project need, goals, and objectives.

- (1) continuous access using plantable/pervious surface improvements, with realignment of Lone Jack segment, removal of siphon, and manhole abandonments
- (2) several combination access configurations, all with realignment of Lone Jack segment, removal of siphon, and manhole abandonments

The preferred alternative (proposed Project) represents the approach that, based on preliminary screening-level evaluation, reflects the best balance between meeting the City’s maintenance and access needs while effectively avoiding and reducing impacts on the environment. This Draft EIR/EA also analyzes a range of feasible/practicable alternatives that would also meet the Project needs, goals, and objectives. The following section describes the proposed Project and alternatives in greater detail.

---

<sup>4</sup> The siphon was originally installed to accommodate the OTS crossing over another utility line. The other utility has since been removed, and the siphon and associated manhole are no longer needed. Siphons in general are considered maintenance risks, and the best practice from a system reliability standpoint is to remove them when they are not necessary.

A separate, subsequent section, *Alternatives Eliminated from Detailed Analysis*, describes the alternatives that were not carried forward and explains the reasons for their elimination.

## Project Approaches Analyzed in this Draft EIR/EA

This Draft EIR/EA analyzes the following alternatives.

- **Proposed Project** – The proposed Project is a combination solution that incorporates access spurs, limited segments of along-alignment access, realignment and upsizing of the Lone Jack segment, removal of the existing siphon and associated manhole (MH 1286), removal of 2 additional manholes (MH 1304 and MH 1283), and rehabilitation of the remaining 50 manholes. In this configuration, the Project would use portions of the City’s existing OTS easement, as well as new easements; the existing easement would also be retained by the City.

The proposed Project would use a “tiered” approach to surface improvements, with the level of engineering adjusted to the existing substrate condition. Figure 2-4 shows the locations of existing manholes along the Project alignment, along with the locations of the manholes to be realigned along Lone Jack Road. The proposed Project is shown in Figures 2-5a through 2-5c. Please note that in addition to existing infrastructure, Figure 2-4 also shows the locations and extent of the more detailed maps in Figures 2-5a through 2-5c.

- **Alternative 1: Combination Access, Alternate Configuration** – Like the proposed Project, Alternative 1 is a combination solution that would incorporate access spurs, limited segments of along-alignment access, realignment of the Lone Jack segment, removal of the existing siphon and associated manhole (MH 1286), removal of 2 additional manholes (MH 1304 and MH 1283), and rehabilitation of the remaining 50 manholes. Like the proposed Project, Alternative 1 would also use portions of the City’s existing OTS easement with additional segments of new easement to be negotiated with property owners; the existing easement would also be retained by the City. Alternative 1 would also rely on a “tiered” approach to surface improvements, with the level of engineering adjusted to the existing substrate condition. The proposed Project and Alternative 1 differ only in the location and configuration of the access spurs (see Figures 2-8a through 2-8c).
- **Alternative 2: Conventional Continuous Access, Plantable/Pervious Surface Treatments** – Alternative 2 would realign the Lone Jack segment, remove the existing siphon and associated manhole (MH 1286), remove 2 additional manholes (MH 1304 and MH 1283), rehabilitate the remaining 50 manholes, and construct an access route along the remainder of the OTS alignment from El Camino del Norte to Manchester Avenue. Like the proposed Project and Alternative 1, Alternative 2 would also use a “tiered” approach to surface improvements, with the level of engineering adjusted to the existing substrate condition. Alternative 2 differs from the proposed Project and Alternative 1 in that it would provide a continuous access route along the entire length of the OTS alignment from El Camino del Norte downstream to Manchester Avenue (Figures 2-9a through 2-9c).

Two scenarios are considered under Alternative 2. **Alternative 2A** would generally follow the City’s existing easement, requiring fairly extensive use of Level 5 improvements to provide reliable year-round passage, as shown in Figures 2-9a through 2-9c. **Alternative 2B** would relocate access out of the wettest portions of the corridor to reduce the use of Level 5 treatment; this would entail acquisition of some additional easement segments, with the existing easement also retained. The primary differences between Alternatives 2A and 2B appear near Mira Costa College (Figure 2-9a), south of Rancho Santa Fe Road (Figure 2-9b), and between Rancho Santa Fe Road and El Camino Del Norte (Figure 2-9c).

- **No Project/No Action** – The No Project/No Action Alternative would not modify existing infrastructure; there would be no manhole rehabilitation, and no access would be provided. The No Project/No Action Alternative would not satisfy the Project need/goals/objectives, but under law must be analyzed so the consequences of not moving ahead with the Project or another “action” alternative are fully understood and disclosed (*CEQA Guidelines* 15126.6[e][1]).

The following paragraphs provide additional specifics on the proposed Project and alternatives, including No Project/No Action.

## Proposed Project

### Project Elements

Figures 2-5a through 2-5c show the layout of access spurs and along-alignment access comprising the proposed Project, as well as the manholes proposed for rehabilitation and those the City plans to remove. The segment of the OTS proposed for realignment into City streets and the location of the siphon planned for removal are also shown.

All access routes would be 16 feet wide, the minimum needed for safe and reliable passage for the large equipment needed to clean and maintain the OTS. Where access spurs dead-end at manholes, a limited turn-around area is provided to allow equipment to exit the manhole area. The proposed footprints of the turn-arounds have been reduced to the minimum needed for safe maneuvering.

Access routes would be improved (engineered) where necessary to enable access by the City’s large Vac-Con truck or similar future equipment. The level of improvement would be the minimum (the “softest touch”) needed to enable reliable passage in an often wet or saturated environment, while preventing the development or ruts that could damage surface drainage patterns in the Creek/Lagoon corridor.

Six “levels” of improvement are envisioned, ranging from Level 0 (no improvement needed for driveability) to Level 5 (engineered crossing over standing or flowing water, including short segments of culvert where there is no other feasible alternative to provide the needed access). All levels of treatment were designed to avoid the use of conventional hardscape, considered inappropriate in this sensitive environment, as well as materials such as gravel or decomposed granite, which are easily remobilized on a flooded surface. Instead, design emphasized the use of pervious and plantable treatments. Improvements will be designed such that there is no modification of topography: finished grade will be the same as existing grade.

Improvement Levels 1 through 5 represent increasing levels of subgrade preparation and stabilization, with increasing use of overexcavation, base material placement, and use of reinforcement/stabilizing measures such as geogrid or StrataWeb™. All of the reinforcement/stabilization measures proposed for use in the new access are plantable and would be vegetated with appropriate, low-growing native species once installation is complete. With this provision, although the new access is unlikely to provide the same level of function and value as adjacent natural habitat, it would offer a “green,” permeable surface, allowing water to infiltrate naturally and maintaining a level of habitat connectivity.

Figures 2-5a through 2-5c are color-coded to show where the different levels of improvement would be used in the proposed Project. Table 2-3 gives more information on each of the six levels of improvement, and they are illustrated in Figure 2-6. Note that Table 2-3 describes existing substrate condition based on the way persons accessing the area would experience driving or walking across the ground.

**Table 2-3: Levels of Improvement**

Level	Existing Substrate	Habitat Setting	Treatment
0	Existing surface is drivable by heavy trucks year-round	Existing pavement; existing well-traveled dirt or gravel roadways	No treatment needed
1	Ground is relatively dry most of the time but may flood occasionally. Deep saturation is unusual or rare	Uplands, upper-level floodplain terraces; some areas of intergraded scrub and marshland	<ul style="list-style-type: none"> <li>• Armortec® or turf reinforcement mats with revegetation</li> <li>• No overexcavation</li> </ul>
2	Ground is often wet, but will support pedestrian travel	Lower-level terraces; some upper marsh plain areas	<ul style="list-style-type: none"> <li>• StrataWeb™ (or similar) 6 inches deep</li> <li>• Overexcavation + base refill of up to 12 inches</li> <li>• Single layer geogrid</li> <li>• Subgrade preparation</li> </ul>
3	Ground is wet most of the time; pedestrians walking across this ground typically have muddy shoes	Marshlands	<ul style="list-style-type: none"> <li>• StrataWeb™, 6 inches deep</li> <li>• Overexcavation + base refill of up to 24 inches</li> <li>• Single layer geogrid</li> <li>• Subgrade preparation</li> </ul>
4	Ground is always wet, and pedestrians may sink in up to 4 inches. Shallow standing water is often present	Marshlands	<ul style="list-style-type: none"> <li>• StrataWeb™ 6 inches deep</li> <li>• Overexcavation + base refill of up to 36 inches</li> <li>• Double layer geogrid</li> <li>• Subgrade preparation</li> </ul>
5	Standing or flowing water is present for long durations	Tributary channel and swale crossings in marshlands and along Creek; drainage ditches	<ul style="list-style-type: none"> <li>• Engineered at-grade “Arizona crossing” with StrataWeb™ 6 inches deep over base fill, multiple layers of geogrid</li> </ul> <p><i>OR</i></p> <ul style="list-style-type: none"> <li>• Small box culvert or elliptical pipe crossing</li> <li>• With either approach, crossing engineered to reduce profile and minimize hydraulic effects on Escondido Creek floodflows</li> </ul>

**Project Construction**

All of the action alternatives<sup>5</sup> would entail a similar construction process; the following description applies to the Project as proposed as well as Alternatives 1 and 2.

Under all action alternatives, construction would proceed in four phases:

- access construction
- manhole rehabilitation
- siphon and manhole removal, including installation of a new concrete manhole with a polyvinyl chloride (PVC) lining at the former siphon site
- upstream (“Lone Jack segment”) realignment and upsizing

<sup>5</sup> Throughout this document, *action alternatives* is used to refer to the alternatives that would entail a federal permit action and would construct a project (Alternatives 1 and 2), by contrast to the No Project/No Action Alternative, under which no federal permits would be issued and no project would be constructed.

Construction planning has emphasized reducing the work footprint in order to minimize impacts on sensitive habitat. For this reason, access would be constructed first, and during the construction process all activity would be confined to the footprint of the finished access route. Equipment and workers would operate in an essentially linear path, which is less efficient from the construction standpoint, but was identified as necessary to avoid unnecessary impacts on habitat. Staging for materials and equipment would also occur within the new access footprint, outside the Creek/Lagoon corridor, or a combination of the two. No staging would be permitted in sensitive habitat outside the access footprint. Staging on private property near the active work site is also unlikely; in no case would staging on private property be permitted unless the property owner is willing and provides written consent. Access to County-, Conservancy-, or other non-City-owned lands will be coordinated with the appropriate landowners.

Once access construction is complete, the manhole rehabilitation contractor would use the new access to bring equipment and materials directly to each of the manholes planned for rehabilitation, avoiding the need for overland travel in sensitive habitat. Manhole rehabilitation activities and staging would then be restricted to the new access, with no incursions into adjacent habitat permitted; this approach is discussed further in *Environmental Commitments* below.

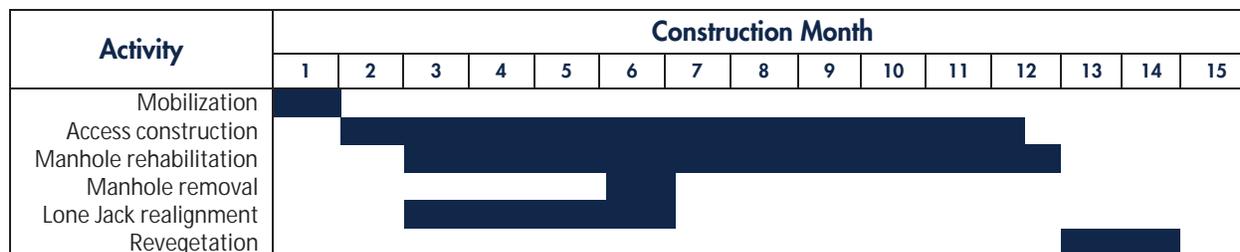
Table 2-4 gives an overview of the construction equipment and personnel expected to be necessary, by construction phase. It also summarizes the traffic associated with construction, including the delivery of equipment and materials as well as construction worker commute trips.

**Table 2-4: Anticipated Construction Equipment, Staffing, and Traffic Generation by Phase**

Equipment	Staffing	Round Trip Traffic Generation
<b>Access Construction</b>		
<ul style="list-style-type: none"> <li>• 1 Cat 325 excavator</li> <li>• 1 Cat 938 loader</li> <li>• 1 Skidsteer</li> <li>• 1 large (10-wheel) dump truck</li> <li>• 2 crew trucks</li> </ul> <p>Level 5 construction may entail coffer dams and flow bypass</p>	<ul style="list-style-type: none"> <li>• 2 laborers</li> <li>• 2 equipment operators</li> <li>• Superintendent</li> <li>• Foreperson</li> <li>• Construction inspector/manager</li> </ul> <p>Daily total – 7 personnel</p>	<ul style="list-style-type: none"> <li>• Mobilization/demobilization of construction equipment: 6 semi-truck trips</li> <li>• Materials delivery: 1 semi-truck trip for every 300 linear feet of alignment (82)</li> <li>• Worker commute trips: 7 round trips per day or 1,720 total trips for anticipated construction period</li> </ul>
<b>Manhole Rehabilitation</b>		
<ul style="list-style-type: none"> <li>• 1 delivery/wet-out truck (mid-size truck)</li> <li>• 1 small truck-mounted crane</li> <li>• 1 crew truck</li> </ul>	<ul style="list-style-type: none"> <li>• 2 laborers</li> <li>• Foreperson</li> <li>• Construction inspector/manager</li> </ul> <p>Daily total – 4 personnel</p>	<ul style="list-style-type: none"> <li>• Mobilization/demobilization: 6 semi-truck trips</li> <li>• Materials delivery: 1 mid-sized truck trip per manhole</li> <li>• Worker commute trips: 4 round trips per day</li> </ul>
<b>Siphon and Manhole Removal</b>		
<ul style="list-style-type: none"> <li>• 1 Cat 325 excavator</li> <li>• 1 Cat 314 excavator</li> <li>• 1 Cat 938 loader</li> <li>• 1 Skidsteer</li> <li>• 1 large (10-wheel) dump truck</li> <li>• 2 crew trucks</li> </ul>	<ul style="list-style-type: none"> <li>• 2 laborers</li> <li>• 2 equipment operators</li> <li>• Superintendent</li> <li>• Foreperson</li> <li>• Construction inspector/manager</li> </ul>	<ul style="list-style-type: none"> <li>• Mobilization/demobilization: 5 semi-truck trips</li> <li>• Materials delivery: 3 semi-truck trips</li> <li>• Worker commute trips: 7 round trips per day</li> </ul>

Equipment	Staffing	Round Trip Traffic Generation
<b>“Lone Jack Segment” Realignment and Upsizing</b>		
<p><i>For sewer installation:</i></p> <ul style="list-style-type: none"> <li>1 sawcutter</li> <li>Cat 325 Excavator</li> <li>Cat 314 Excavator</li> <li>Cat 938 Loader</li> <li>Skidsteer</li> <li>1 large (10-wheel) dump truck</li> <li>2 crew trucks</li> </ul> <p><i>For repaving following completed installation:</i></p> <ul style="list-style-type: none"> <li>JD 710 backhoe</li> <li>Skidsteer</li> <li>36-inch smooth drum roller</li> <li>Tack wagon</li> <li>1 large (10-wheel) dump truck</li> <li>2 crew trucks</li> </ul>	<p><i>For both phases:</i></p> <ul style="list-style-type: none"> <li>2 laborers</li> <li>2 equipment operators</li> <li>Superintendent</li> <li>Foreperson</li> <li>Construction inspector/manager</li> </ul> <p>Daily total – 7 personnel</p>	<ul style="list-style-type: none"> <li>Mobilization/demobilization: 6 semi-truck trips</li> <li>Materials delivery: 1 semi-truck trip for every 500 linear feet of alignment (5 trips) plus 1 semi-truck trip for each new manhole (10 trips); 15 total trips</li> <li>Worker commute trips: 7 round trips per day</li> </ul>

The graphic below illustrates the anticipated construction schedule. Please note that the graphic depicts the anticipated total duration of each construction activity; work in any given location would be completed within a period of several days to a week.



The following sections describe access construction and manhole rehabilitation in more detail.

**Access Construction**

Sections of the access route identified as Level 0 in Figures 2-5a through 2-5c would require no improvement. For sections requiring Level 1 through Level 4 improvements, the overall process would be similar for all levels, with the key differences relating to the extent of grading and substrate preparation needed. Level 5 sections would also undergo a similar process, unless culvert installation is required; additional procedures for culvert installation are discussed below.

For Level 1 through 4 sections and Level 5 sections with no culvert, the new access route would be constructed in sections averaging about 100 feet long, representing the length that can be completed in a single work day. For each section, the following steps would be required.

- **Clear and grub existing vegetation from area of work** – Clearing and grubbing would be accomplished using the skidsteer and hand tools. Plant materials would be removed for appropriate disposal. In areas where invasive nonnative vegetation is present, precautions will be taken to avoid

spreading seeds or other potential propagules. Native topsoil would be sidecast and stockpiled for use in revegetation, except in areas where it contains non-native seed bank that should be eradicated. In these areas, topsoil would be offhauled for appropriate disposal or reuse outside sensitive habitat. *Key equipment for this clearing and grubbing would include skidsteer, loader, dump truck, and hand tools.*

- **Grade or excavate access “roadbed”** – For Level 1 sections, which require no subgrade preparation, this step would entail simply grading to smooth the access surface and prepare it for stabilization using Armortec® or turf reinforcement mats. For Levels 2 through 5, limited excavation would be required, in order to accommodate the placement of aggregate base, compacted soil backfill, and other components of the improvement needed to support travel by the City’s maintenance equipment. The depth of excavation would depend on the level of improvement, and would be kept to the minimum needed, based on geotechnical information collected to support final design. Excavated materials would be stockpiled adjacent to the trench for onsite reuse; excess materials would be removed from the site for appropriate disposal. *Key equipment for this step would include excavator, dump truck, and loader.*
- **Install improvements** – In this step, the needed roadway improvements (summarized above in Table 2-3) would be placed and secured. *Key equipment for this step would include crew trucks, skidsteer, loader, and hand tools.*
- **Revegetate** – The final step in the access construction process would be revegetation of the finished access surface. Since saline/alkaline soils deter weed growth, and local soils also contain seed bank and other propagules that would support vegetation regrowth, revegetation would use stockpiled native soils except where they are known to contain invasive non-native seed bank. In these areas, clean import topsoil with appropriate grain size, grading, and clay content would be imported from a local source. The planting palette would rely on native species appropriate to the local habitat for each segment of the access. It would also emphasize tough, low-growing species that establish quickly and would require no trimming to remain drivable once they are fully established. A tentative palette by habitat setting is shown in Table 2-5 below; although the palette is restricted by the need to avoid larger woody species, planting will be designed to avoid a monoculture outcome. *Key equipment for this step would include crew trucks, skidsteer, loader, and hand tools.*

**Table 2-5: Tentative Revegetation Palette by Habitat**

Location/Elevation	Planting Palette	
	Scientific Name	Common Name
Low Elevation/Wetlands	<i>Frankenia salina</i>	Alkali heath
	<i>Anemopsis californica</i>	Yerba mansa
	<i>Distichlis spicata</i>	Saltgrass
	<i>Jaumea carnosa</i>	Salty Susan
	<i>Cressa truxillensis</i>	Spreading alkaliweed
	<i>Atriplex prostrata</i>	Spearscale
	<i>Artemisia douglasiana</i>	Mugwort
High Elevation/Uplands	<i>Acmispon glaber</i>	Deerweed
	<i>Artemisia californica</i>	California sagebrush
	<i>Distichlis spicata</i>	Saltgrass
	<i>Eriogonum fasciculatum</i> var. <i>fasciculatum</i>	California buckwheat
	<i>Eriophyllum confertiflorum</i> var. <i>confertiflorum</i>	Golden yarrow

Location/Elevation	Planting Palette	
	Scientific Name	Common Name
	<i>Isocoma menziesii</i> var. <i>menziesii</i>	Coast goldenbush
	<i>Nasella pulchra</i>	Purple needlegrass
	<i>Vulpia microstachys</i>	Three week fescue

If the need for culverts is identified in final design, Level 5 sections with culvert placement would entail the following process.

- **Cofferdam installation** – Before any work in areas of standing or flowing water, the work area would be isolated by installing a cofferdam, and would then be dewatered, discharging to the channel downstream of the cofferdam. In flowing water, flow would be bypassed around the work area and discharged downstream of the cofferdam. Dewatering would be carried out under the supervision of a qualified biologist, who would be responsible for relocating fish and amphibians should any become stranded in the cofferdammed area.
- **Clear and grub existing vegetation from area of work** – If culvert installation requires vegetation removal, clearing and grubbing would be accomplished similar to the description above, except that work within channel and bank areas may be more areally confined and thus may need to emphasize the use of hand tools. As described, above, plant materials would be removed for appropriate disposal, and if invasive nonnative vegetation is present, precautions will be taken to avoid spreading seeds or other potential propagules. Native topsoil would be sidecast and stockpiled for use in revegetation, unless it contains non-native seed bank that should be eradicated, in which case it will be removed for appropriate disposal or reuse outside sensitive habitat. *Key equipment for this clearing and grubbing would include hand tools, motorized wheelbarrow plus skidsteer, loader, and dump truck.*
- **Grade and install culvert** – Once vegetation has been removed, the surface would be prepared and the new culvert would be placed; depending on site conditions, overexcavation to create a suitable base may be required. Excavated materials would be stockpiled adjacent to the trench for onsite reuse, and once the culvert is in place, the excavation would be backfilled and the access surface established. Surface treatments in areas of standing and flowing water would be designed for frequent inundation, and may include revegetation as described above. *Key equipment for this step would include excavator, dump truck, and loader.*

### ***Manhole Rehabilitation***

In areas outside sensitive habitat, manhole rehabilitation is expected to use either epoxy lining or polyurethane lining (spray-on lining), for the most part. Where I&I problems are greatest, and for all manholes in sensitive areas, rehabilitation would be accomplished using a cured-in-place product such as Poly-Triplex or an equivalent. Products of this type offer the dual benefit of sealing the manhole walls to control I&I while also providing a level of structural reinforcement. Based on preliminary design, the City anticipates that 21 manholes would receive spray-on linings; 28 would be rehabilitated using a cured-in-place product; and 1 manhole would be replaced in association with removal of the existing siphon; as identified above, the retired manholes at the siphon location are planned for abandonment-in-place and would be sealed and would remain in their existing locations.

The installation process would be very similar for spray-on and cured-in-place rehabilitation, entailing the following general steps.

- Surface preparation, including chemical grouting to control active infiltration, enabling successful curing once the liner is in place, and mortar repairs to degraded concrete surfaces to restore a uniform surface for the liner to adhere to
- Installation of the liner product
- Replacement of existing corroded frames and covers with new composite, locking, gasketed frames and covers

As identified above, to decrease the overall construction footprint and reduce the potential for impacts on sensitive habitat, all work for manhole rehabilitation would be confined to the new access route; equipment and materials would be staged either within the limits of the new access route, or in nearby areas outside of sensitive habitat. As with the access construction phase, no staging would occur on private property without authorization from willing participant landowners.

A video showing the process for installing a cured-in-place product similar to what is proposed for use in this Project is available online at the following link: [www.youtube.com/watch?v=qQcnTdHukY](http://www.youtube.com/watch?v=qQcnTdHukY). Please note however that this video shows the application of the product in a developed environment (on a university campus) where work footprint is less of a concern, and the use of heavy equipment (crane and steam truck) is easily accomplished. For this Project, where much of the activity would take place in or adjacent to sensitive habitat, precautions would be required to reduce the work footprint and avoid/minimize impacts on protected species and jurisdictional habitat. For instance, the video shows the product laid out for assembly on the grass adjacent to the manhole under repair; contractors would be required to undertake this work within the new access footprint, outside sensitive habitat. Similarly, where the assembled liner is shown being lowered into the manhole and steam-cured, equipment would be located within the new access footprint, taking care to avoid incursion into sensitive habitat. Additional measures relevant to the avoidance and minimization of impacts are discussed in *Environmental Commitments* below.

### ***Siphon and Manhole Abandonment/Removal***

The first step in removing the siphon and associated manholes would be to install a bypass so wastewater continues to flow unimpeded. The bypass is expected to consist of approximately 600 linear feet of 12-inch-diameter high-density polyethylene (HDPE) pipe placed at ground level. Flow would be conveyed through the bypass using a skid-mounted diesel-powered pump. A second pump would also be staged onsite as a backup. The pumps and the bypass pipeline would be located within the access footprint.

Once the bypass is in place, the siphon would be disconnected and removed. The manholes would then be excavated and removed; the excavation is expected to about 10 feet by 10 feet and 10 feet deep for each manhole and 20 feet long by 5 feet wide and 10 feet deep for the siphon. Excavated material would be stockpiled within the access footprint.

One new replacement PVC-lined concrete manhole would be installed on the excavated site of one of the existing manholes. To construct the new manhole, a cast-in-place manhole base would first be poured. Following placement of the manhole base manhole, manhole rings would be installed in approximately 3-foot-high vertical sections to create the manhole itself. Backfill would be placed and compacted around each section. The manhole would be sealed using a combination of T-Lock and spray-on lining. For the T-Lock seal, the manhole rings will be delivered to the site with an integrally cast factory-installed PVC lining. After the rings are placed, the contractor would weld PVC strips onto each joint between the manhole sections to create a monolithic liner. A plural component spray-on epoxy or polyurethane liner would then be applied to

the cast-in-place manhole base to protect the manhole bench and channel. A section of PVC sewer pipe would be installed within the OTS line where the second manhole was removed. The area disturbed by removal of the second existing manhole would then be backfilled, stabilized, and revegetated with appropriate native species (see Table 2-5 above).

### ***Sewer Realignment and Upsizing***

Realigning the portion of the OTS immediately upstream of El Camino del Norte would entail abandoning approximately 2,400 linear feet of the existing sewer main (and the 10 associated manholes) in place, and installation of approximately 2,225 linear feet of new PVC sewer main and 10 new PVC-lined manholes within Lone Jack Road, approximately 1 block to the west. The new sewer main would be upsized from its current 8-inch diameter to a diameter of 15 inches and would be installed at depths of 12–22 feet below grade to conform to the remainder of the system.

Installation of the new sewer main is expected to be accomplished via conventional open cut (“cut and cover”) construction. In this method, pavement is removed from the roadway, and heavy equipment such as an excavator is used to open a trench to accommodate the new sewer main; because of the large diameter of the OTS sewer main, the Lone Jack Road trench is expected to be approximately 4 feet wide and between 12 and 22 feet deep. The new sewer pipe is placed on a bed of appropriate stone aggregate material, then the trench is backfilled with compacted soil, and roadway paving is restored. In most cases, temporary paving is applied as each segment of trench is closed. When installation of all segments is complete, the entire alignment is repaved, and affected roadway striping, if any, is restored.

To reduce traffic disruption and other disturbance, trenching and pipeline installation typically proceeds in sections about 100 feet long, with each section backfilled or plated at the end of the day. Excavated materials that cannot be reused onsite—such as pavement debris and large rock fragments—are offhauled for recycling or appropriate disposal. The remainder of the spoils are reused onsite as trench backfill.

All but 3 of the manholes along the segment of the OTS proposed for realignment are located outside sensitive habitat. These manholes would be abandoned in place: a 2-foot-thick concrete plug would be installed on either side of the manhole; the frame, grate, and upper 2 feet of cone and grade rings would be removed; any remaining void space would be filled with compacted sand or cement slurry; and the surface would be restored to match the existing grade. The remaining 3 feet and approximately 720 linear feet of sewer main are located in sensitive habitat. This portion of the sewer main would be capped at both ends (outside sensitive habitat) and abandoned in place, with no further action taken to remove or modify the existing facilities; the above-grade portion of manholes is planned to remain in place to reduce the work footprint and limit disturbance in sensitive habitat.

### **Project Operation**

Constructing the new access route would enable the City to reinstate a full program of inspections, cleaning, and maintenance along the Project reach of the OTS, consistent with the City’s standard operations and maintenance practices for the sanitary sewer system as a whole. This would entail the following activities.

- **Visual inspection of manhole condition** – Visual inspections are performed on a twice yearly schedule. A crew of 1 – 2 persons accesses each manhole and examines it for overall condition, structural integrity, and I&I, and to verify that flow rates are appropriate. This activity typically takes about 15 minutes per manhole. Equipment use is minimal, limited to removal and replacement of the manhole cover.

- **Closed circuit television (CCTV) video inspection** – Standard City practice is to conduct a CCTV of all sewer lines once a year following cleaning. Each manhole is accessed in sequence after cleaning, and a robotic sewer camera is placed in the sewer line. The camera is cable-connected to a CCTV support truck or van from which it can be controlled, and where the video is viewed. This requires a crew of 2 – 3 persons and typically takes about 2 – 3 hours.
- **Sewer line cleaning** – The City’s standard practice is to clean the entirety of its sanitary sewer system twice a year to remove sediment and debris as well as fatty, oily, and greasy substances (“Fats Oils and Greases” or FOG). If allowed to accumulate over time, these materials reduce the ability of the sewer system to convey flows; regular removal is critical to maintain the conveyance capacity of the lines and help to prevent sewer system spills and overflows.

As a sewer line is cleaned, sediment and debris is washed downstream. Thus, each phase of cleaning begins in the upstream tributary lines and works downstream toward the larger lines, and each manhole is accessed sequentially for cleaning. Adequate removal of accumulated sediment, debris, and FOG from a larger-diameter line such as the OTS requires the use of the City’s Vac-Con truck, which is specifically designed for this heavy duty work. The Vac-Con, shown in action in Figure 2-7, is operated by a crew of 2 – 3 persons and is typically set up and operating at each manhole for approximately 2 hours.

- **Access road maintenance** – As discussed above under access construction, access routes would be revegetated with low-growing native plants that require no trimming to remain drivable. Invasive plant removal and ongoing maintenance would probably take place monthly for first 90 days, seasonally for first few years, and as needed after that; schedule and criteria for vegetation management, including control of invasive non-native plants, will be detailed via the regulatory permit process. Maintenance would likely involve a small crew in a pick-up truck, using primarily hand tools. In addition to hand pulling, minor, localized herbicide application may be used to control invasive vegetation; if so, permissible herbicides would be limited to registered herbicides approved for use in aquatic environments. Application methods would be similarly restricted to avoid the potential for overspray and drift. Approach and limitations for herbicide use would be consistent with the approach the Conservancy already has in place.

### **Environmental Commitments**

Because the majority of the Project alignment is within or in close proximity to sensitive habitat, the City has adopted a number of procedures to avoid and reduce adverse impacts on the environment. The Project will also incorporate a number of standard measures that represent “best management practices” for worker and community safety. Collectively, these are referred to as the Project’s *Environmental Commitments*. The Environmental Commitments, along with any additional requirements identified through the CEQA/NEPA review or permitting processes (mitigation measures and permit terms, respectively) will be included in the Project construction documents to support efficient and accurate implementation. Similar commitments, including measures to protect water quality and avoid/reduce habitat and species impacts, are being developed in consultation with resource agency staff via the regulatory permitting process for implementation during future inspection, cleaning, and maintenance activities once the new access is in use.

### ***Measures to Protect Creek and Lagoon Water Quality***

Because the total area of disturbance would exceed 1 acre, the Contractor will be required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) consistent with all current requirements of the current California Construction General Permit. More information on the SWPPP requirement is provided in Chapter 3 (*Hydrology and Water Quality*). The SWPPP will be submitted to the City for review and approval prior before the start of construction. It will include, but will not necessarily be limited to, the following provisions beginning on the next page:

- No fueling, lubrication, maintenance, or staging of vehicles or equipment will be permitted within sensitive habitat. In conjunction with SWPPP development, a qualified biologist separately retained and reporting to the City (City's biologist) will designate fueling locations within paved or concrete areas at least 125 feet away from riparian areas. The use of containment measures such as drip pans may also be required, depending on the nature of the fueling locations. If a diesel-powered pump is needed for the bypass during siphon replacement, it will be sited outside sensitive habitat and/or placed within secondary (dual) containment.
- Where work within areas of flowing or standing water is necessary, cofferdams or other appropriate containment will be used to prevent ground disturbance from increasing downstream sediment loading and turbidity. In flowing water, an appropriate flow bypass will also be provided. If cofferdamming/containment/flow bypass is identified as necessary, the measures will be approved by, and installed under the supervision of, the City's biologist.
- Appropriate types and sufficient quantities of materials will be maintained onsite to contain any spill or inadvertent release of materials that may cause a condition of pollution or nuisance if the materials reach jurisdictional waters.
- In the event of a spill, appropriate spill response procedures will be initiated as soon as the incident is discovered. City staff and the San Diego County RWQCB will be notified as soon as feasible, and in no case more than 24 hours after the occurrence.

#### ***Measures to Protect Sensitive Biological Resources***

The Contractor will be required to adhere to the following procedures to protect sensitive habitats and special-status species.

- All construction activity will be confined to the final access footprint.
- No construction staging will occur within sensitive habitat.
- The limits of permissible construction activity will be defined in the field using temporary construction fencing, pin flags, or another similar low-impact medium. In each work area, fencing will be installed in advance of mobilization, and will remain in place until construction in that area is complete and the contractor has demobilized. Fencing will be installed under the direct supervision of a qualified wildlife biologist contracted by the City (City's biologist).
- The construction documents will require the contractor to abide by the requirements of the Environmental Commitments, CEQA/NEPA mitigation, and permit terms and conditions, as well as the directions in the field of the City's biologist.
- The City's biologist will monitor construction activity to verify that construction limits are respected and that the Project's other Environmental Commitments, mitigation requirements, and permit terms and conditions are being properly implemented.
- Vegetation removal and trimming will be restricted to the minimum necessary to enable work.
- Erosion and sediment control measures used for the proposed Project, including fiber rolls and bonded fiber matrix, will be made from biodegradable materials such as jute, with no plastic mesh, to avoid creating a wildlife entanglement hazard. If wattles are used, only certified sterile, weed-free rice straw will be permitted.
- To avoid disturbance associated with nighttime construction lighting, no night work will occur within sensitive habitat.

- Any nighttime construction lighting in roadways will use the lowest illumination that provides for a safe working environment and will be shielded and/or directed inward toward the work area, avoiding light spill into sensitive habitat.
- All food-related trash such as wrappers, cans, bottles, and food scraps will be disposed of on a daily basis in secure, closed containers only and will be regularly removed from the Project site. Feeding of wildlife (e.g., ground squirrels) will be strictly prohibited.

### ***Revegetation Design Measures***

To meet regulatory requirements and provide the best possible platform for successful revegetation, the Project revegetation plan will include at a minimum the following information.

- The location and extent of the replanted areas.
- The plant species to be used in each habitat type, along with propagule types, including container sizes, seed mixtures, and seeding rates.
- A schematic plan showing the planting area .
- Planting schedule.
- Guidance regarding irrigation, if warranted during the establishment period.
- Site- and habitat-specific measures to control exotic vegetation.
- A detailed monitoring program together with interim and final success criteria to evaluate the progress of revegetated areas.
- Contingency/corrective measures that will be implemented if success criteria are not met.
- Identification of all parties responsible for revegetation success.

The plan will be prepared by qualified ecologist and/or landscape architect staff with expertise and experience in northern San Diego County ecosystems and native species revegetation.

### ***Measures to Control Invasive Non-Native Plant Species On Land***

A number of precautions are being incorporated to avoid the spread of invasive plants. In areas where invasive non-native plants are not established, construction will maximize the reuse of native site materials for fill and revegetation, to take advantage of the weed-deterrent properties of saline/alkaline soils. Where invasive non-native plants are known to be present, clean and sterile (weed-free) offsite fill materials will be required. Project construction documents will delineate the portions of the project where onsite materials are to be used and those where import materials will be required, based on information from the Conservancy's invasives species tracking and management program.

Prior to groundbreaking, the City will provide training to Contractor staff on invasive species precautions. Training will be delivered by a qualified biologist or ecologist.

During construction , the Contractor will be required to implement the precautions beginning on the next page—based on recommendations from the California Invasive Plant Council (2012a, 2015b)—to prevent the spread of invasive non-native plant species.

- Designate lay-down and staging areas outside of infested areas prior to starting work; permissible and prohibited staging areas will be delineated in the Project construction documents based on information from the Conservancy's invasive species tracking.
- Clean tools, equipment, and vehicles before entering and leaving worksites. Designate specific areas for cleaning tools, vehicles, equipment, clothing and gear.
- Clean footwear and gear before entering worksites. Clean clothing, footwear, and gear before leaving infested worksites. Designate specific areas for cleaning clothing, boots, and gear.
- Dispose of invasive plant materials offsite; contain invasive plant material during transport.
- Use weed-free sources for project materials.
- Prevent invasive plant contamination of project materials when stockpiling and during transport.
- Revegetate and/or mulch disturbed soils as soon as possible.

#### ***Measures to Control Invasive Non-Native Aquatic Species***

During in-water construction for Level 5 improvements, the Contractor will be required to implement the following additional precautions to prevent the spread of invasive non-native aquatic species. Requirements are based on recommendations from the Protect Your Waters – Stop Aquatic Hitchhikers campaign ([www.protectyourwaters.net](http://www.protectyourwaters.net)).

- Use only dry and previously cleaned materials and equipment for inwater work.
- Clean and dry all equipment, gear, and materials before removal from the site, removing all visible mud, plant materials, and fish/animals. Eliminate all water from equipment and materials before removal from the site.
- Cleaning will be accomplished using hot water if possible. If this is not possible, a high-pressure spray will be used.

#### ***Measures to Prevent Vector-Related Hazards***

The Project will be designed to avoid increasing the potential for ponding and stagnancy with the potential to support mosquito breeding. Design will be guided by the current *Best Management Practices for Mosquito Control in California* issued by the California Department of Public Health (2012). Manhole covers will be designed to restrict access by mosquitoes to the extent practicable.

#### ***Measures for Hazardous Materials Safety***

All hazardous materials used in Project construction will be transported, stored, handled, and used in strict accordance with label restrictions and all applicable federal, state, and local regulations. In the event known or suspected hazardous materials are encountered during site preparation, grading, or other Project-related activity, work in the vicinity of the find will be suspended until qualified staff (staff meeting the Environmental Professional qualifications in ASTM E1527-13) retained by the City can assess the nature of the find and stipulate appropriate follow-up and protective measures. Work may proceed elsewhere on the alignment, assuming the discovery is localized.

If the qualified staff/environmental professional consider it warranted, the City will conduct a Phase II hazardous materials investigation or appropriate equivalent procedure to identify the nature and extent of contamination and evaluate potential impacts on project construction, human health, and the environment. If necessary, based on the outcomes of the Phase II investigation, the City will implement Phase III remediation measures consistent with all applicable local, state, and federal codes and regulations.

Construction in areas of known and potential contamination will not resume until remediation is complete. If waste disposal is necessary, materials will be handled and disposed of by a licensed waste-disposal contractor and transported by a licensed hauler to an appropriately licensed and permitted disposal or recycling facility, in accordance with local, state, and federal requirements.

The Project Contract Documents will stipulate the contractors' responsibilities in accommodating and assisting with the implementation of these commitments.

### ***Noise and Disturbance Control***

The Contractor will be required to implement the following measures to reduce the potential for disturbance due to construction noise. These measures are being required to keep Project construction in compliance with City ordinances limiting construction noise; although a portion of the Project is within the unincorporated County, the City's construction noise standards will be adopted for the entire Project alignment because they are more restrictive than the corresponding County standards.

- Construction will take place Monday through Friday; weekend work will not be permitted.
- Use of heavy equipment will be restricted to the period between 10 AM and 5 PM; in no case will equipment be operated for more than 8 hours within any 24-hour period.
- Construction equipment will be equipped with manufacturer's standard noise control devices or mufflers, or with equally effective replacement devices consistent with manufacturer specifications.
- Use of Jake brakes will be prohibited.
- Stationary noise-generating equipment will be located as far as possible from residences and sensitive receptors.
- At least 2 weeks before construction begins, the Contractor will be required to notify residences and other addresses within 300 feet of the Project alignment via mailing or doorhanger distribution. Notification will include an overview of the proposed Project and the planned construction schedule. It will also include a Construction Hotline number community members can contact with questions or concerns. The Contractor will designate staff members who are responsible for making sure reasonable measures are implemented in the event disturbance is reported by the community.

### ***Measures for Traffic Control and Safety***

The Contractor will be required to develop and implement a Traffic Control Plan to avoid and minimize potential disruption related to the presence of construction traffic on area roadways. Preparation of the Plan will include coordination with emergency responders, including the Encinitas Fire Department, regarding emergency response and evacuation planning. The Plan will be subject to City review and approval, and the City will have oversight to verify proper and effective implementation.

The Traffic Control Plan is expected to contain the following types of stipulations.

- **Regional Access**
  - Use of the City's current designated truck routes to access the general Project area
  - Use of designated routes in neighboring jurisdictions, if applicable
  - Avoidance of congested or inappropriate roadways and intersections
  - Avoidance of residential neighborhoods

- **Local Access**
  - Avoidance of peak-hour travel via intersections currently operating below an acceptable level of service (LOS), including but not necessarily limited to the intersections of Rancho Santa Fe Road and Lone Jack Road and Rancho Santa Fe Road and El Camino del Norte, as well as Manchester Avenue between I-5 And El Camino Real
  - Avoidance of roadways/intersections adjacent to school entrances in the hour prior to the start of the school and the hour at the end of the school day
- **Lane Closures and In-Roadway Construction**
  - Restriction or avoidance of in-roadway work during peak AM and PM commute hours
  - Maintenance of 2-way traffic flow on all arterial and other major roadways, including Manchester Avenue
  - Maintenance of 1 lane open at all times on any 2-lane road
  - Limiting lane closures to the duration and area required for safety
  - Use of signage and flagging to give the public adequate warning
  - Use of nonskid traffic plates over open trenches to minimize hazards
  - Notification and coordination with City Fire Station 6, located at 770 Rancho Santa Fe Road
  - Coordination with area schools, faith communities, and commercial centers to minimize disruption and avoid potential conflicts with event traffic
- **Alternate Modes of Transportation**
  - Clearly marked pedestrian and equestrian detours and safety barriers if needed, for any closure of or incursion onto a sidewalk, walkway, or equestrian trail, or if pedestrian or equestrian safety would otherwise be compromised
  - Clearly marked bicycle detours, and safety barriers if needed, upon any closure of or incursion onto a bike route, or if bicyclist safety would otherwise be compromised
  - Provision of crossing guards and/or flaggers as needed to avoid traffic conflicts and provide for safe passage by pedestrians, bicyclists, and equestrians
  - Measures to avoid interference with North County Transit District (NCTD) bus route 304, including reducing construction traffic along the bus route in the 7 AM and 2 PM peak usage hours; prohibiting staging, parking, and waiting/stalling within 50 feet of bus stops and bus turn-outs; notifying NCTD of construction schedules
- **Equipment and Parking**
  - Locating staging and stationary equipment as far away as possible from roadways and areas used by pedestrians, bicyclists, and equestrians
  - Provisions for worker parking within designated staging areas
  - Prohibition on construction staging and parking on residential streets

### ***Measures to Protect Air Quality***

For compliance with the San Diego County Air Pollution Control District's Rule 55, the Contractor will be required to implement the dust control measures.

- Active construction areas, unpaved access roads, and unpaved parking and staging areas will be watered as necessary to suppress fugitive dust during grubbing, clearing, grading, trenching, construction rehabilitation work, and soil compaction
- Sweepers and water trucks will be used to control dust and debris at public street access points
- Exposed stockpiles of loose materials will be covered, watered, and/or stabilized with nontoxic soil binders approved for use in sensitive habitats
- Traffic speeds in all unpaved areas will be limited to 15 miles per hour
- All haul and dump trucks carrying loose materials will maintain at least 2 feet of freeboard or will be securely covered
- Revegetation will occur as soon as feasible following construction

The following additional measures will be required to reduce emissions of volatile organic compounds (VOCs) and diesel particulate matter (DPM).

- Touch-up painting of the pipe installations will use low-VOC content paint
- Low-VOC content epoxy coating will be applied to new and rehabilitated manholes
- Minimum Tier 3 engine will be used in all diesel vehicles and equipment
- If Tier 3 or newer engines for equipment or vehicles are not available, all diesel-powered equipment and vehicles will be equipped with diesel particulate filters

### **Alternative 1 – Combination Access, Alternate Configuration**

Figures 2-8a through 2-8c show the layout of access spurs and along-alignment access that would comprise Alternative 1, as well as the manholes proposed for rehabilitation and the manholes and siphons the City plans to remove. Manhole rehabilitation and removal as well as siphon removal elements would be the same under Alternative 1 as under the Proposed Project, and overall Alternative 1 is very similar to the proposed Project; the difference between Alternative 1 and the proposed Project relates to the detailed layout of the access route, not the general project approach.

All access routes would also be 16 feet wide under Alternative 1; as described for the proposed Project, this represents the minimum width needed to ensure safe and reliable passage for the large equipment needed to clean and maintain the OTS. Where access spurs dead-end at manholes, a limited turn-around area is provided to allow equipment to exit the manhole area; as with the proposed Project, the footprints of the turn-arounds reflect the minimum needed for safe maneuvering.

Also like the proposed Project, Alternative 1 provides for access routes to be improved (engineered) where necessary to enable access by the City's large Vac-Con truck or similar future equipment. Alternative 1 takes the same approach as the proposed Project in using the minimum level of engineering needed to enable reliable passage in an often wet or saturated environment, while preventing the development of ruts that could damage surface drainage patterns in the Creek/Lagoon corridor. Alternative 1 would incorporate the

same range of treatment levels as the proposed Project; these are illustrated on Figure 2-6, summarized in Table 2-3, and depicted in Figures 2-8a through 2-8c.

The construction process for Alternative 1 would be essentially the same as that for the proposed Project, discussed in the preceding section. Construction of Alternative 1 would incorporate the same environmental commitments described for construction of the proposed Project.

Alternative 1 would enable the same operational regime as that described for the proposed Project.

## **Alternative 2 – Conventional Continuous Access, Plantable/Pervious Surface Treatments**

Alternative 2 would construct a continuous access route along the OTS alignment from El Camino del Norte downstream to Manchester Avenue. Two options are available for Alternative 2.

- **Alternative 2a would follow the City's existing easement.** Because this easement follows one of the wetter portions of the Creek/Lagoon corridor in many places, it would require extensive use of Level 5 improvements to provide reliable year-round passage. This is shown schematically in Figures 2-9a through 2-9c. Figure 2-9b also shows the locations of the manholes proposed for rehabilitation and those the City plans to remove, as well as the location of the siphon planned for removal.
- **Alternative 2b would relocate access out of the wettest portions of the corridor where feasible,** as shown in Figures 2-10a through 2-10c. This approach is intended to reduce the overall level of engineering required and would entail establishment of a new easement in some places.

As described for the proposed Project and Alternative 1, the access routes would be 16 feet wide under Alternative 2 since this represents the minimum width needed for safe and reliable passage for the large equipment needed to clean and maintain the OTS. Also similar to the proposed Project and Alternative 1, Alternative 2 provides for the access route to be improved (engineered) where necessary to enable access by the City's large Vac-Con truck or similar future equipment. Alternative 2 takes the same approach as the proposed Project and Alternative 1 in using the minimum level of engineering needed to enable reliable passage in an often wet or saturated environment, while preventing the development of ruts that could damage surface drainage patterns in the Creek/Lagoon corridor. Alternative 2 would therefore employ the same range of treatment levels as the proposed Project; these are color-coded on Figures 2-9a through 2-9c and 2-10a through 2-10c, summarized in Table 2-3, and illustrated in Figure 2-6.

The construction process for Alternative 2 would be very similar to that described for the proposed Project, discussed in the preceding section, and construction of Alternative 2 would incorporate the same environmental commitments described for construction of the proposed Project. Construction access would differ slightly, however, since Alternative 2 does not incorporate spurs enabling equipment to enter and leave the construction corridor entirely within the project footprint. Instead, there are three possibilities:

- **Construction ingress and egress could be restricted to the two ends of the alignment,** where the new access would contact existing City streets. If this approach is taken, the construction footprint would likely need to be widened in places to provide for vehicles to pass one another and/or turn around.
- **Construction ingress and egress could occur in places where drivable access already exists.** This approach might entail limited temporary disturbance to extend a drivable footprint to meet the access route, but these areas would be fully revegetated following construction and would have a reduced extent by comparison with the previous option. This approach is considered preferable

because it would be more efficient, reducing the overall disturbance associated with construction, and is therefore analyzed in this Draft EIR/EA.

- **Some combination of these two approaches**, configured to maximize construction efficiency (reducing overall levels of activity and disturbance within the Creek and Lagoon), while keeping the footprint of construction activity to a functional minimum. This would likely be the preferable approach if Alternative 2 were to be adopted.

Alternative 2 would enable the same operational regime as that described for the proposed Project.

### No Project/No Action

Under the No Project/No Action Alternative, there would be no modifications to existing infrastructure. The segment of the OTS above El Camino del Norte would remain in its current location within the Escondido Creek corridor, and no access to the OTS between El Camino del Norte and Manchester Avenue would be provided. The siphon and all existing manholes would remain in place, and none of the manholes would be relined or otherwise rehabilitated.

Operations under the No Project/No Action Alternative would remain unchanged from current practices. This means that City staff would access the project reach of the OTS as and when feasible for cleaning, visual inspection, and CCTV inspection. Access to some of the manholes would continue to be unreliable or infeasible, and it would likely remain difficult or impossible to provide adequate cleaning and maintenance.

### Alternatives Eliminated from Detailed Analysis

This section recaps the alternatives that were considered but eliminated from detailed analysis and the reasons for their elimination. Information in Table 2-6, beginning on the next page, summarizes the screening analysis presented in Table 2-2 above. Alternatives are described in more detail in the text that immediately precedes Table 2-2.

**Table 2-6: Alternatives Eliminated from Detailed Analysis**

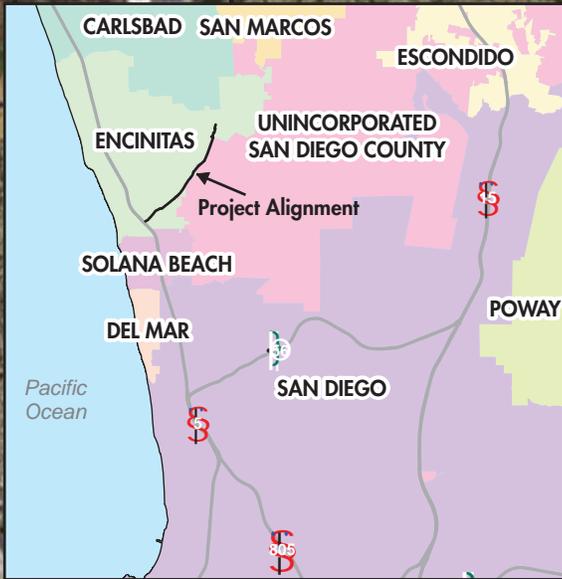
Alternative	Overview	Summary of Reasons for Elimination
Conventional Continuous Access, Hardscape Surface	Construct an improved hardscape access route along the entire length of the Project reach of the OTS	The use of conventional hardscape was evaluated as inappropriate for an access route in sensitive habitat. The introduction of a minimum 16-foot-wide paved route would disconnect habitat, decrease rainfall infiltration, and increase surface runoff. Continuous access using permeable and plantable surface treatments would offer the access convenience of this approach but would avoid these impacts, and was carried forward as a more appealing alternative.
Realignment	Relocate the OTS from the Escondido Creek/San Elijo Lagoon corridor into nearby City streets to avoid the need for access into sensitive habitat	The potential to relocate the OTS out of the Creek/Lagoon corridor into City streets was considered during the City’s April 2011 Sewer Master Plan update process (City of Encinitas 2011) and evaluated again in more detail during the alternatives development process for this Project (see Table 2-2 for additional information). Relocation of the OTS downstream of El Camino del Norte was found to be infeasible. Because of the change in grade, up to 10 pump stations would be needed to deliver wastewater to the OTS and move it

Alternative	Overview	Summary of Reasons for Elimination
Manhole Removal	"Retire" selected manholes and reduce the number of points where access into sensitive habitat is needed	<p>through the line, and numerous tributary sewer lines would need to be rerouted within sensitive habitat, requiring neighboring wastewater agencies to reconfigure their systems extensively. Costs would be prohibitive, estimated at &gt;\$39M at (2013) materials costs (see Engineer's Opinion of Probable Construction Cost prepared for alternatives screening, presented in Appendix C).</p> <p>However, analysis concluded that the segment of the OTS upstream of El Camino del Norte could be realigned into Lone Jack Road. Realignment of the Lone Jack segment was incorporated into the proposed Project and all of the alternatives carried forward for detailed analysis in this Draft EIR/EA.</p>
Restricted Timing	Limit maintenance work to the non-nesting season to avoid disturbance of nesting birds	<p>For adequate maintenance, manholes must be no more than about 500 feet apart and must be accessible by large equipment (the City's current Vac-Con truck or an equivalent). Accessible manholes are also required where tributary sewers join the main trunk line and where the line changes direction or gradient. Thus, most of the existing manholes must remain in place with access provided; this alternative does not offer a stand-alone solution. However, as the preceding section discusses, removal of several manholes identified as not necessary for adequate maintenance was incorporated into the proposed Project and all of the alternatives carried forward for detailed analysis in this Draft EIR/EA.</p> <p>Maintenance must be conducted during the dry season because the OTS alignment is generally wet during the rainy season, with a number of manholes submerged or surrounded by water. Marshland areas are also too wet to drive across during the rainy season, and all operations on the wetter substrate have the potential to be more damaging to the surface and to sensitive vegetation.</p>
Alternate Vehicles		
Smaller Vehicles	Use smaller equipment to reduce the need for improved access in sensitive habitat	Smaller equipment would not adequately address the maintenance needs of this large-diameter trunk sewer line.
Helicopter Transport	Use cargo helicopters to deliver the City's Vac-Con to manholes, avoiding the need for overland travel in sensitive habitat	<p>Transporting the City's Vac-Con or equivalent equipment would require the use of large cargo helicopters. This approach was evaluated as infeasible because it would require low-altitude flight associated with takeoffs and landings in the Creek/Lagoon corridor, and the minimum legal flight ceiling over residential areas is 500 feet. Helicopter use would also be noisy and disturbing for both residents and wildlife and could be hazardous, and rotor wash would be damaging to vegetation and potentially hazardous to wildlife. This approach would also entail substantial long-term equipment costs associated with equipment and staffing, and would be cost-prohibitive.</p>

Alternative	Overview	Summary of Reasons for Elimination
Temporary Roadway Products	Use temporary roadway products such as MudTraks® to avoid the need for permanent improved access	<p>Placement of MudTraks® and other similar temporary roadway products requires a crew of several persons, exceeding the City’s current staffing level and requiring the City to staff up solely for this purpose.</p> <p>Because of the need for a multiple-person crew, placement and removal of the roadway also has the potential to cause substantial disturbance, especially as—with no delineated access route—it would be difficult to control where trampling and flattening as a result of foot traffic and roadway placement/removal might occur.</p> <p>In addition, disturbance would occur on a recurring basis for the foreseeable future; rather than avoiding impacts, this approach would trade one type of impact (a one-time loss of habitat for construction of the access route, which would need to be adequately compensated by habitat enhancement preservation or creation) for an ongoing, repeated disturbance of habitat (which would also need to be appropriately mitigated).</p> <p>Another key consideration is that City staffing/funding are currently inadequate to support use of this product, rendering it fiscally infeasible as a comprehensive solution.</p>

## References Used in Preparing this Chapter

- California Department of Public Health. 2012. *Best Management Practices for Mosquito Control in California: Recommendations of the California Department of Public Health and the Mosquito and Vector Control Association of California*. Available: <https://www.cdph.ca.gov/HealthInfo/discond/Documents/BMPforMosquitoControl07-12.pdf>. Downloaded: December 2015.
- California Invasive Plant Council. 2012a. *Preventing the Spread of Invasive Plants: Best Management Practices for Transportation and Utility Corridors*. (Cal-IPC Publication 2012-01.) Available: [www.cal-ipc.org](http://www.cal-ipc.org). Downloaded: November 2015.
- California Invasive Plant Council. 2012b. *Preventing the Spread of Invasive Plants: Best Management Practices for Land Managers* (3<sup>rd</sup> ed.). (Cal-IPC Publication 2012-03.) Available: [www.cal-ipc.org](http://www.cal-ipc.org). Downloaded: November 2015.
- City of Encinitas. 2011. Cardiff and Encinitas Sewer Master Plan Update. (April.) Prepared for City of Encinitas. Available: <http://www.ci.encinitas.ca.us/modules/showdocument.aspx?documentid=4806>. Prepared by Dudek, Inc., Encinitas, CA.



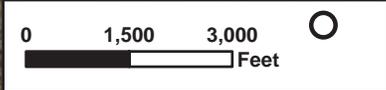
**Legend**

- Project Alignment
- Jurisdictional Boundaries

**Infrastructure**  
ENGINEERING CORPORATION

City of Encinitas • Olivenhain Trunk  
Sewer Improvements Project

**Figure 2-1**  
**Project Location**





# Legend

-  Existing Manhole
-  Project Alignment
-  Municipal Boundary
-  100 Year Flood Plain

## Zoning Within 500 feet of Project Alignment, Unincorporated San Diego County

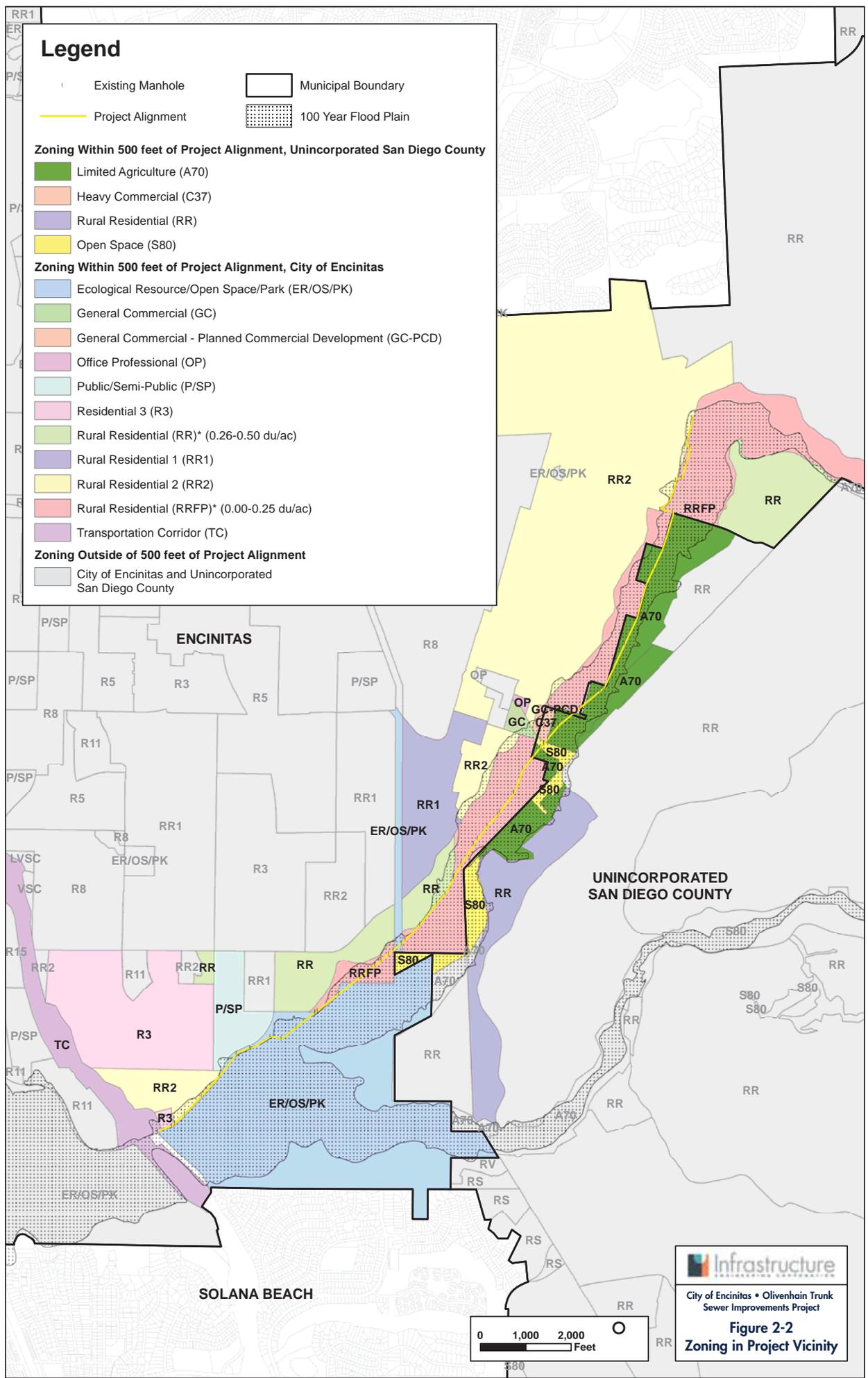
-  Limited Agriculture (A70)
-  Heavy Commercial (C37)
-  Rural Residential (RR)
-  Open Space (S80)

## Zoning Within 500 feet of Project Alignment, City of Encinitas

-  Ecological Resource/Open Space/Park (ER/OS/PK)
-  General Commercial (GC)
-  General Commercial - Planned Commercial Development (GC-PCD)
-  Office Professional (OP)
-  Public/Semi-Public (P/SP)
-  Residential 3 (R3)
-  Rural Residential (RR)\* (0.26-0.50 du/ac)
-  Rural Residential 1 (RR1)
-  Rural Residential 2 (RR2)
-  Rural Residential (RRFP)\* (0.00-0.25 du/ac)
-  Transportation Corridor (TC)

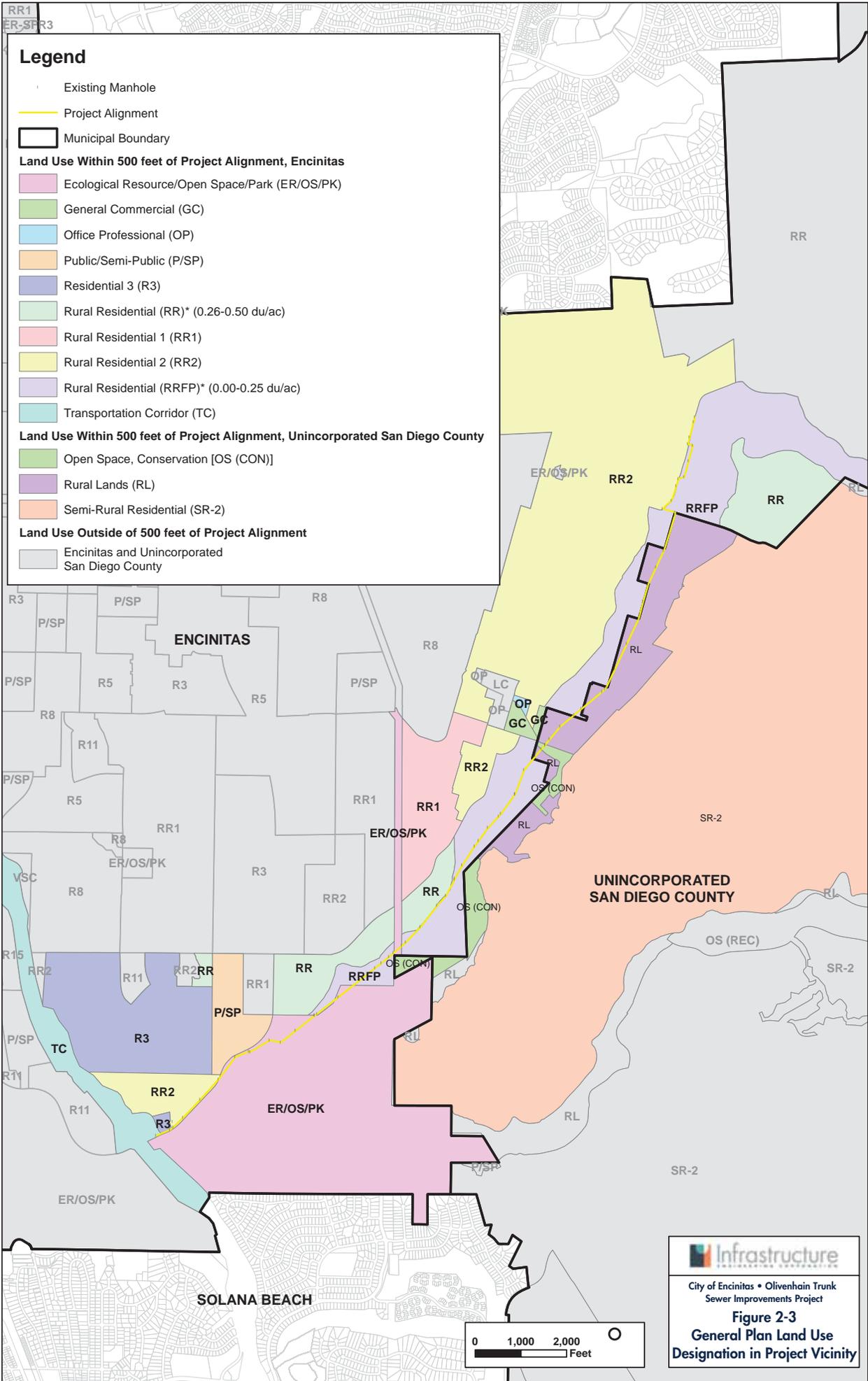
## Zoning Outside of 500 feet of Project Alignment

-  City of Encinitas and Unincorporated San Diego County



**Infrastructure**  
 City of Encinitas • Olivenhain Trunk Sewer Improvements Project  
**Figure 2-2**  
**Zoning in Project Vicinity**

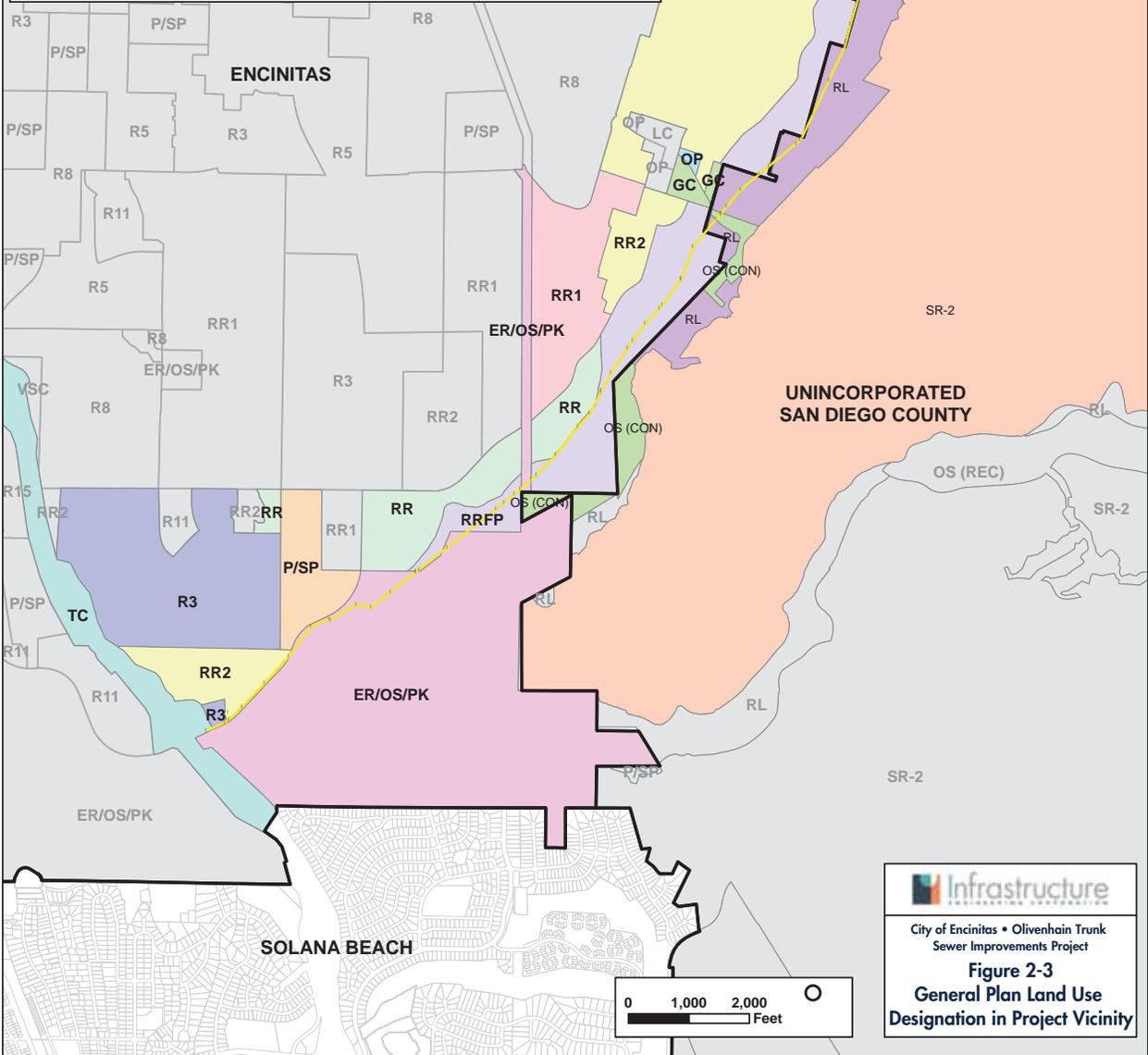




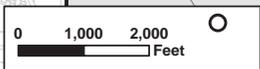
RR1  
ER-SR3

**Legend**

- Existing Manhole
- Project Alignment
- Municipal Boundary
- Land Use Within 500 feet of Project Alignment, Encinitas**
- Ecological Resource/Open Space/Park (ER/OS/PK)
- General Commercial (GC)
- Office Professional (OP)
- Public/Semi-Public (P/SP)
- Residential 3 (R3)
- Rural Residential (RR)\* (0.26-0.50 du/ac)
- Rural Residential 1 (RR1)
- Rural Residential 2 (RR2)
- Rural Residential (RRFP)\* (0.00-0.25 du/ac)
- Transportation Corridor (TC)
- Land Use Within 500 feet of Project Alignment, Unincorporated San Diego County**
- Open Space, Conservation [OS (CON)]
- Rural Lands (RL)
- Semi-Rural Residential (SR-2)
- Land Use Outside of 500 feet of Project Alignment**
- Encinitas and Unincorporated San Diego County



**Infrastructure**  
 City of Encinitas • Olivenhain Trunk  
 Sewer Improvements Project  
**Figure 2-3**  
 General Plan Land Use  
 Designation in Project Vicinity









# Legend

## Encinitas Sewer Infrastructure

-  Manhole to be Rehabilitated
-  Manhole to be Removed
-  Manhole Rehabilitated 2014
-  Manhole to Remain
-  Lone Jack Road sewer realignment

## Surface Improvement Level

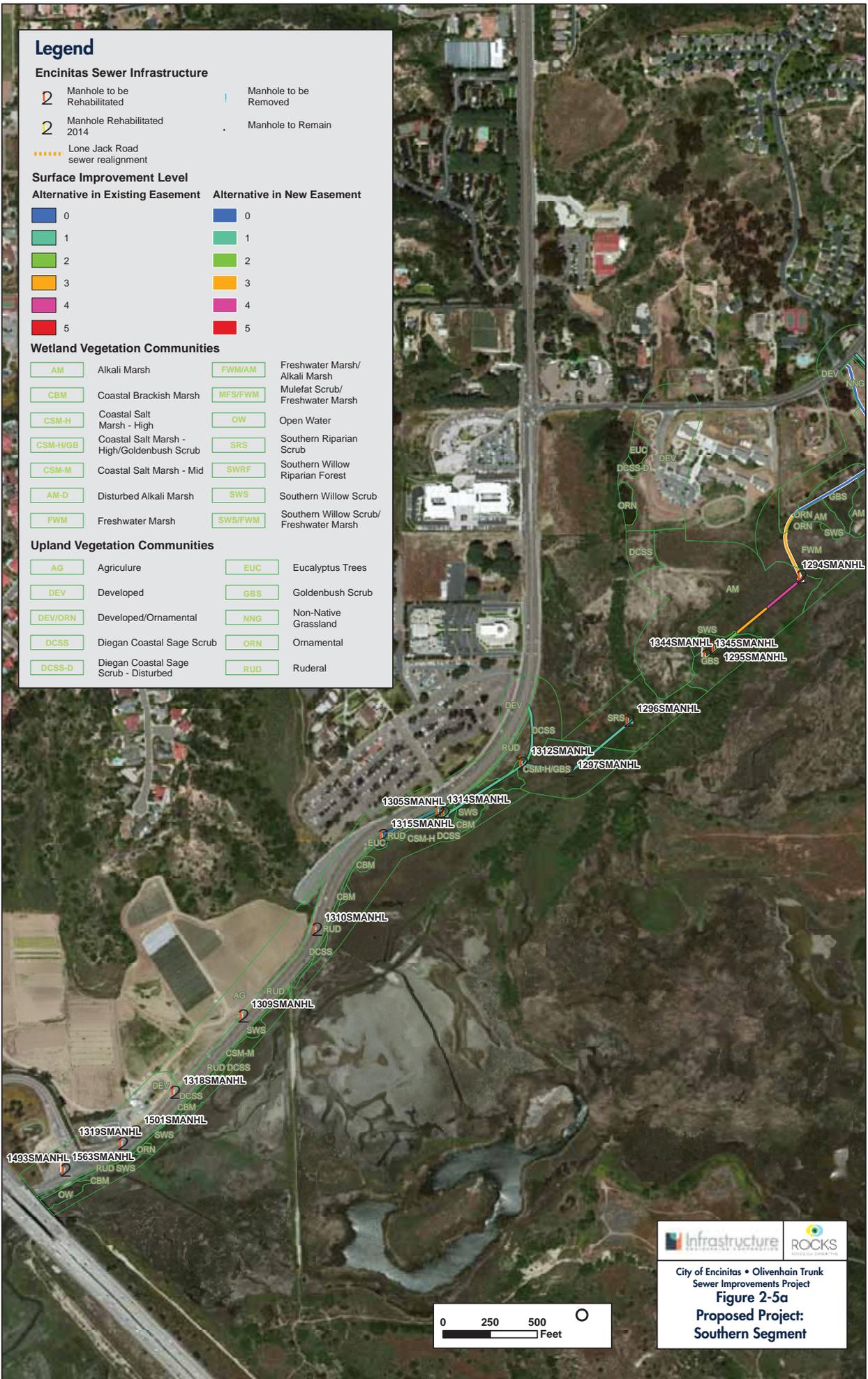
Alternative in Existing Easement	Alternative in New Easement
 0	 0
 1	 1
 2	 2
 3	 3
 4	 4
 5	 5

## Wetland Vegetation Communities

 AM Alkali Marsh	 FWM/AM Freshwater Marsh/ Alkali Marsh
 CBM Coastal Brackish Marsh	 MFS/FWM Mulefat Scrub/ Freshwater Marsh
 CSM-H Coastal Salt Marsh - High	 OW Open Water
 CSM-H/GB Coastal Salt Marsh - High/Goldenbush Scrub	 SRS Southern Riparian Scrub
 CSM-M Coastal Salt Marsh - Mid	 SWRF Southern Willow Riparian Forest
 AM-D Disturbed Alkali Marsh	 SWS Southern Willow Scrub
 FWM Freshwater Marsh	 SWS/FWM Southern Willow Scrub/ Freshwater Marsh

## Upland Vegetation Communities

 AG Agriculture	 EUC Eucalyptus Trees
 DEV Developed	 GBS Goldenbush Scrub
 DEV/ORN Developed/Ornamental	 NNG Non-Native Grassland
 DCSS Diegan Coastal Sage Scrub	 ORN Ornamental
 DCSS-D Diegan Coastal Sage Scrub - Disturbed	 RUD Ruderal





# Legend

## Encinitas Sewer Infrastructure

-  Manhole to be Rehabilitated
-  Manhole to be Removed
-  Manhole Rehabilitated 2014
-  Manhole to Remain
-  Lone Jack Road sewer realignment

## Surface Improvement Level

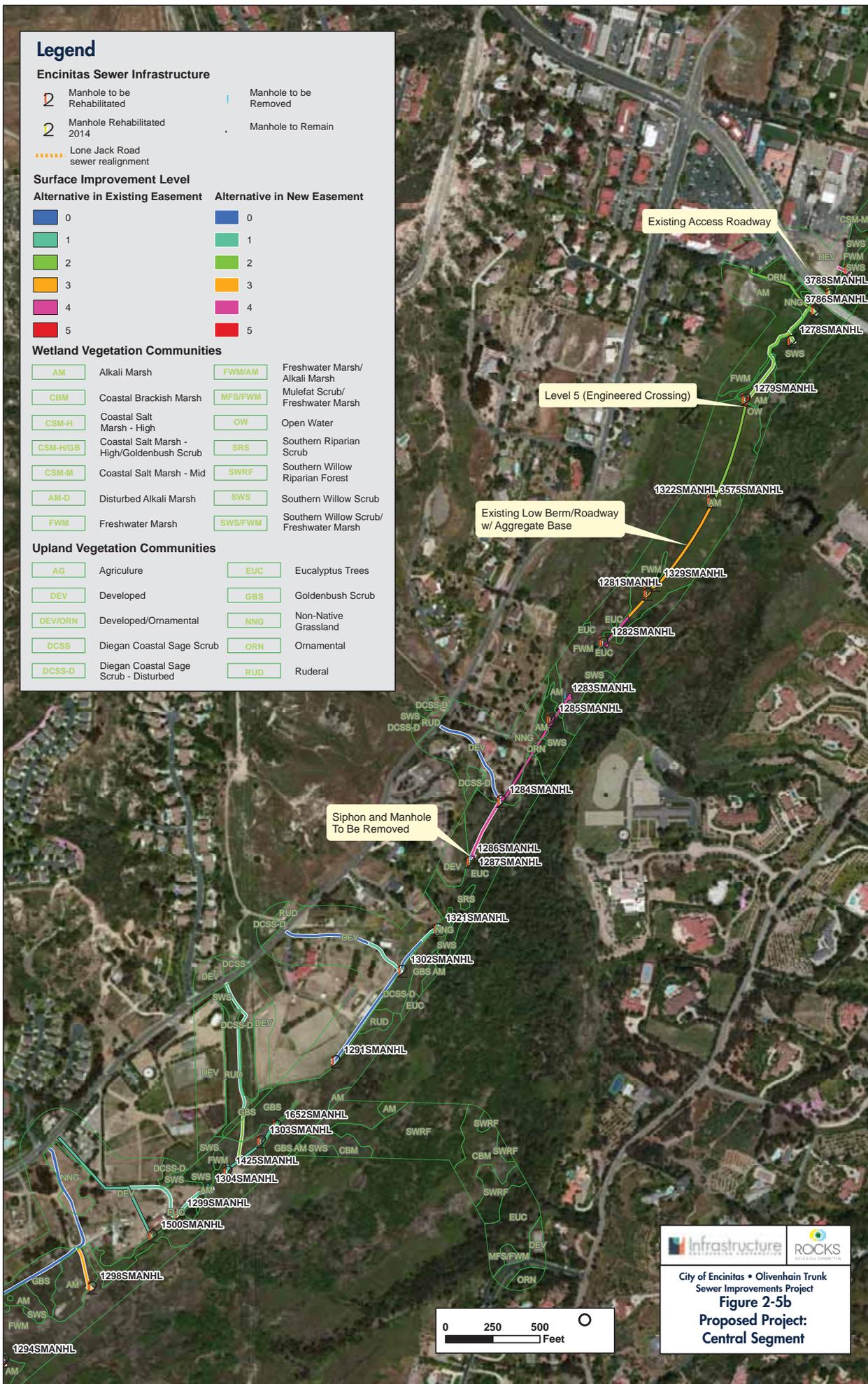
- | Alternative in Existing Easement  | Alternative in New Easement   |
|---|---|
|  0 |  0 |
|  1 |  1 |
|  2 |  2 |
|  3 |  3 |
|  4 |  4 |
|  5 |  5 |

## Wetland Vegetation Communities

- |  |  |   |   |
|--|--|---|---|
|  AM       | Alkali Marsh                               |  FWM/AM  | Freshwater Marsh/ Alkali Marsh          |
|  CBM      | Coastal Brackish Marsh                     |  MFS/FWM | Mulefat Scrub/ Freshwater Marsh         |
|  CSM-H    | Coastal Salt Marsh - High                  |  OW      | Open Water                              |
|  CSM-H/GB | Coastal Salt Marsh - High/Goldenbush Scrub |  SRS     | Southern Riparian Scrub                 |
|  CSM-M    | Coastal Salt Marsh - Mid                   |  SWRF    | Southern Willow Riparian Forest         |
|  AM-D     | Disturbed Alkali Marsh                     |  SWS     | Southern Willow Scrub                   |
|  FWM      | Freshwater Marsh                           |  SWS/FWM | Southern Willow Scrub/ Freshwater Marsh |

## Upland Vegetation Communities

- |   |                                       |  |                      |
|---|---------------------------------------|--|----------------------|
|  AG      | Agriculture                           |  EUC  | Eucalyptus Trees     |
|  DEV     | Developed                             |  GBS  | Goldenbush Scrub     |
|  DEV/ORN | Developed/Ornamental                  |  NNG  | Non-Native Grassland |
|  DCSS    | Diegan Coastal Sage Scrub             |  ORN  | Ornamental           |
|  DCSS-D | Diegan Coastal Sage Scrub - Disturbed |  RUD | Ruderal              |





City of Encinitas • Olivenhain Trunk Sewer Improvements Project



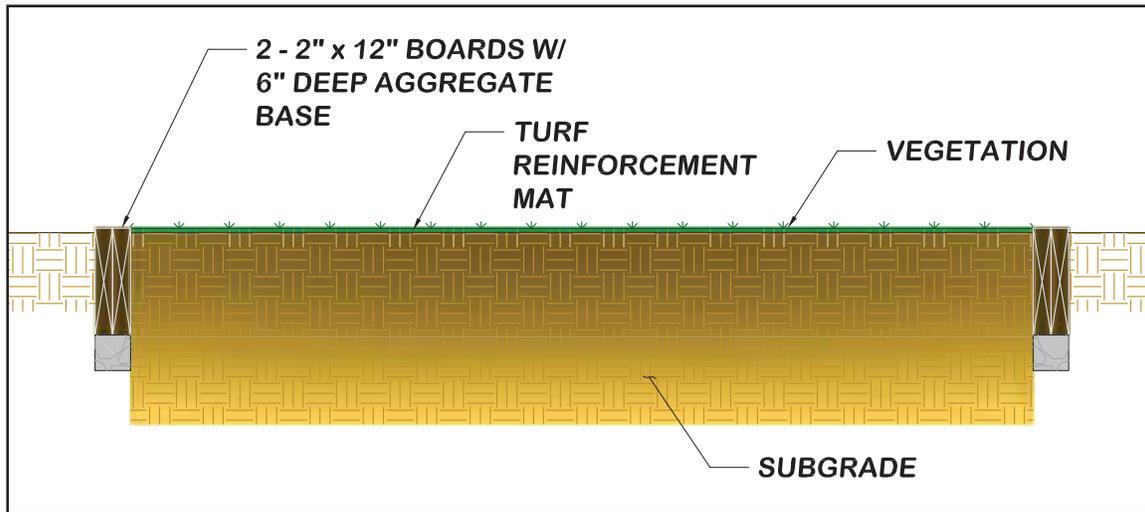
**Figure 2-5b**  
**Proposed Project:**  
**Central Segment**



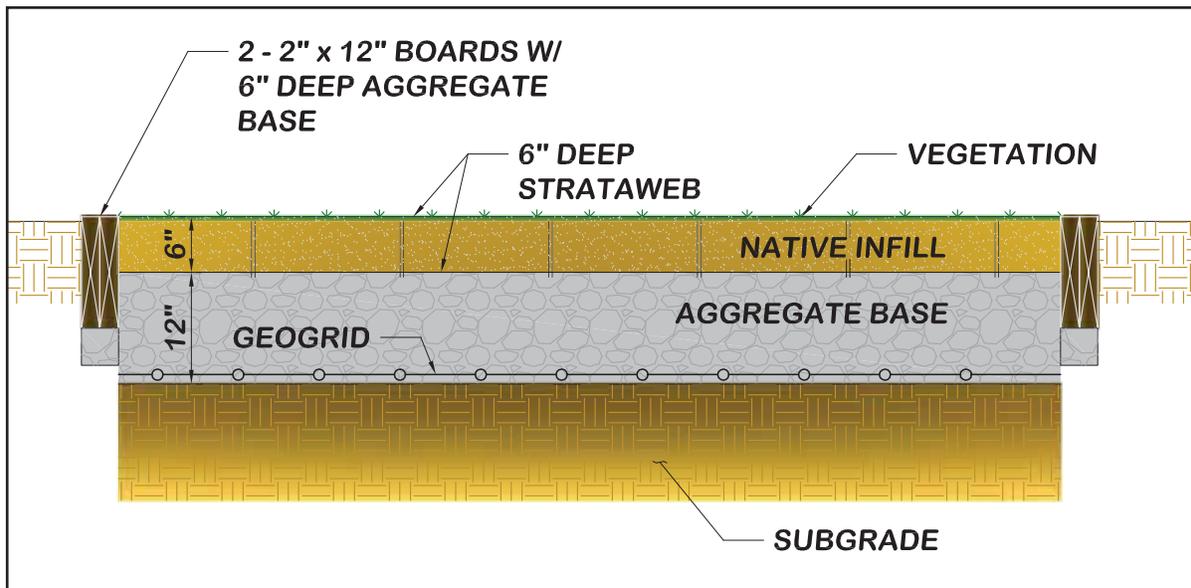




## Level 1 Improvement



## Level 2 Improvement

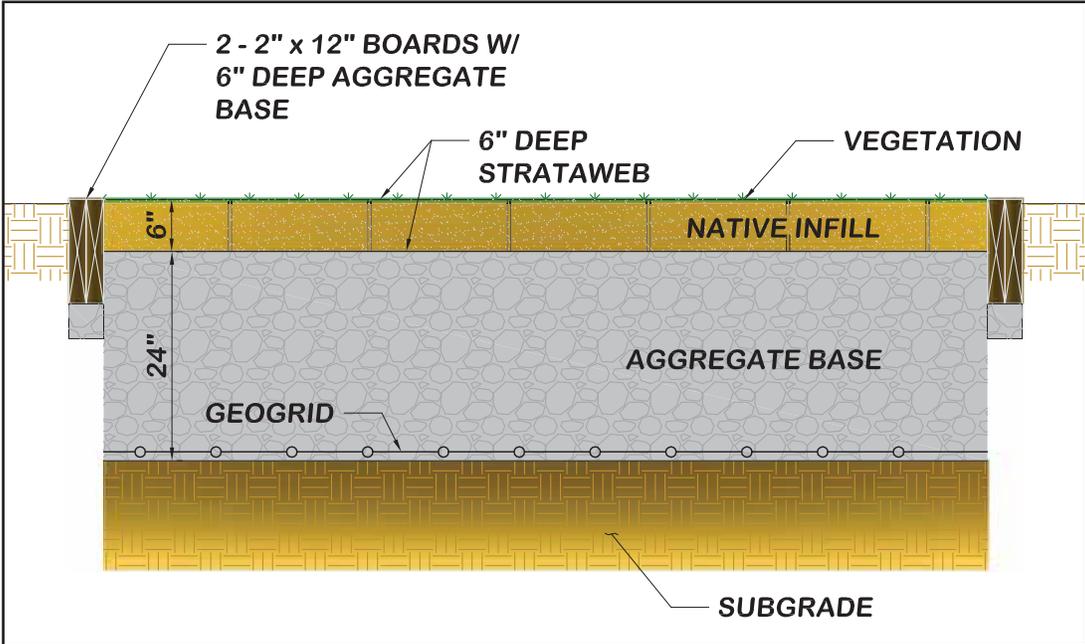


City of Encinitas • Olivenhain Trunk  
Sewer Improvements Project

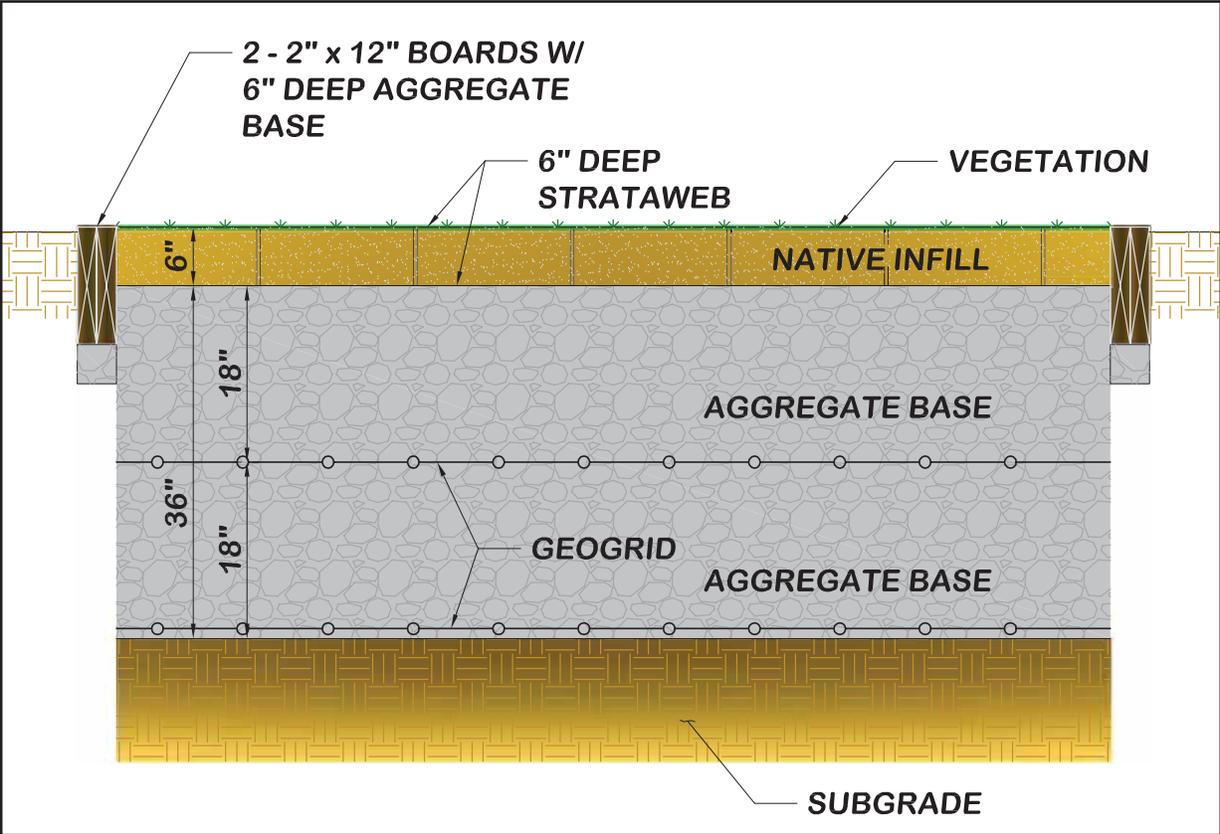
Figure 2-6  
Section Views  
Levels of Improvement



**Level 3 Improvement**

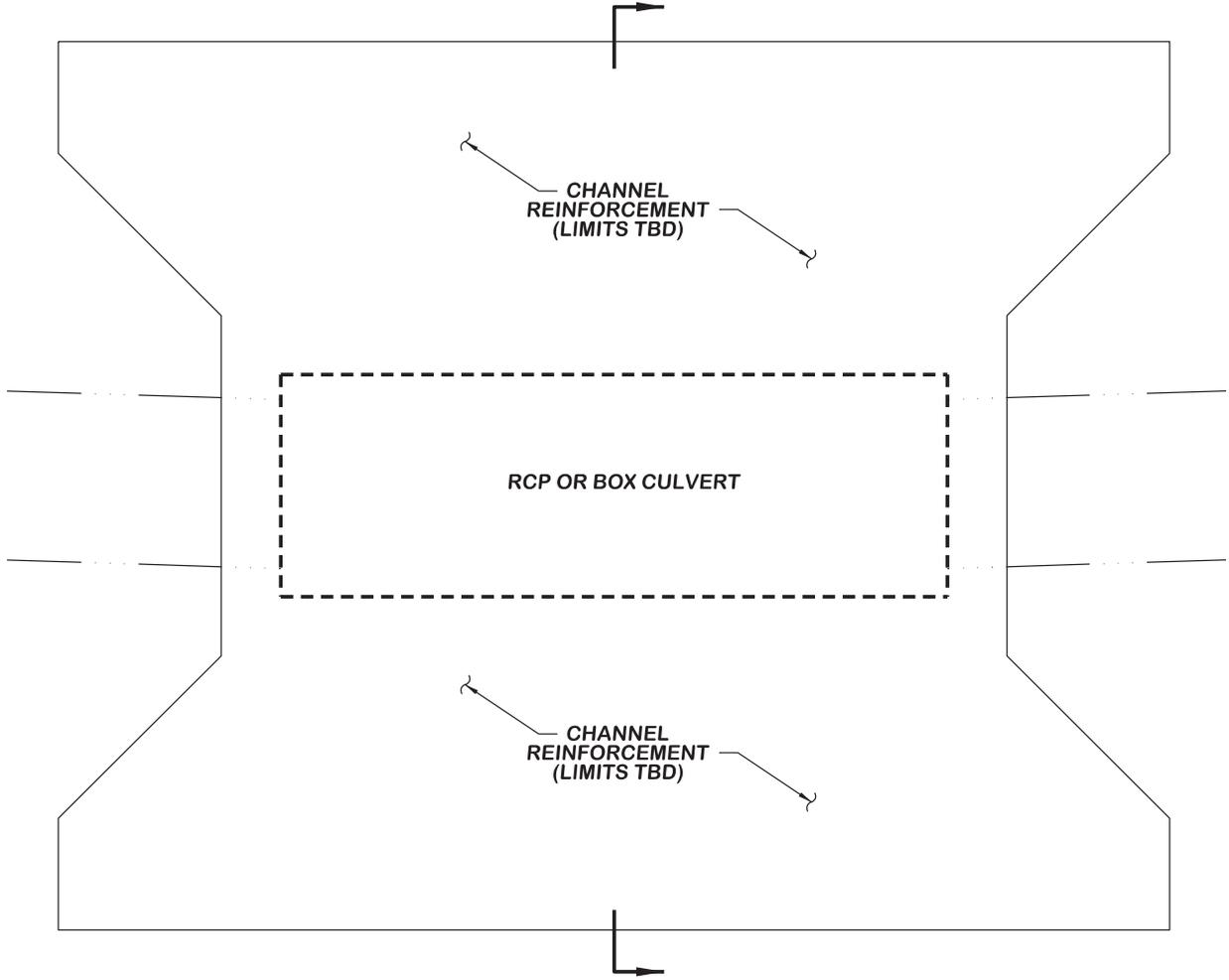


**Level 4 Improvement**

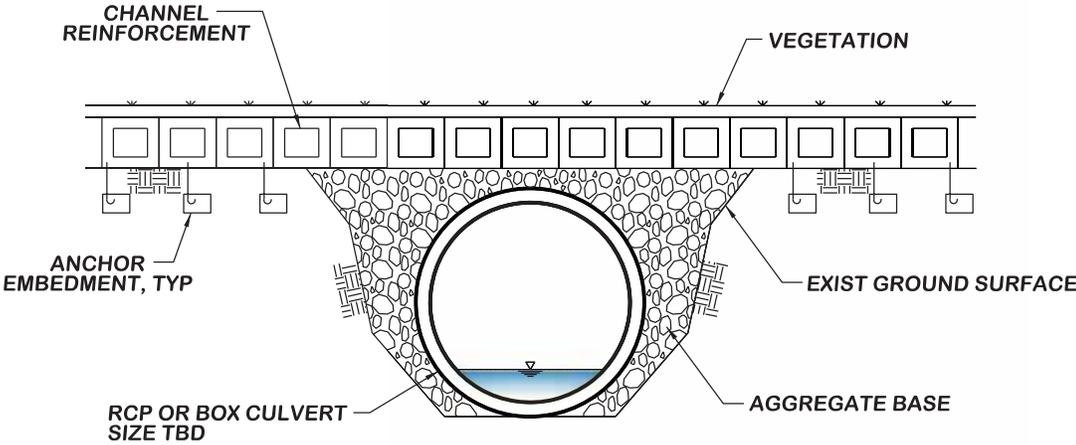




# Level 5 Improvement



PLAN



SECTION





City of Encinitas • Olivenhain Trunk  
Sewer Improvements Project

Figure 2-7  
Vac-Con Truck in Operation



# Legend

## Encinitas Sewer Infrastructure

-  Manhole to be Rehabilitated
-  Manhole Rehabilitated 2014
-  Lone Jack Road sewer realignment
-  Manhole to be Removed
-  Manhole to Remain

## Surface Improvement Level

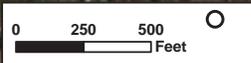
- | Alternative in Existing Easement  | Alternative in New Easement   |
|---|---|
|  0 |  0 |
|  1 |  1 |
|  2 |  2 |
|  3 |  3 |
|  4 |  4 |
|  5 |  5 |

## Wetland Vegetation Communities

- |  |  |
|--|--|
|  Alkali Marsh                               |  Freshwater Marsh/<br>Alkali Marsh          |
|  Coastal Brackish Marsh                     |  Mulefat Scrub/<br>Freshwater Marsh         |
|  Coastal Salt Marsh - High                  |  Open Water                                 |
|  Coastal Salt Marsh - High/Goldenbush Scrub |  Southern Riparian Scrub                    |
|  Coastal Salt Marsh - Mid                   |  Southern Willow Riparian Forest            |
|  Disturbed Alkali Marsh                     |  Southern Willow Scrub                      |
|  Freshwater Marsh                           |  Southern Willow Scrub/<br>Freshwater Marsh |

## Upland Vegetation Communities

- |   |  |
|---|--|
|  Agriculture                           |  Eucalyptus Trees     |
|  Developed                             |  Goldenbush Scrub     |
|  Developed/Ornamental                  |  Non-Native Grassland |
|  Diegan Coastal Sage Scrub             |  Ornamental           |
|  Diegan Coastal Sage Scrub - Disturbed |  Ruderal              |






City of Encinitas • Olivenhain Trunk  
 Sewer Improvements Project  
**Figure 2-8a**  
**Alternative 1:**  
**Southern Segment**



# Legend

## Encinitas Sewer Infrastructure

-  Manhole to be Rehabilitated
-  Manhole Rehabilitated 2014
-  Lone Jack Road sewer realignment
-  Manhole to be Removed
-  Manhole to Remain

## Surface Improvement Level

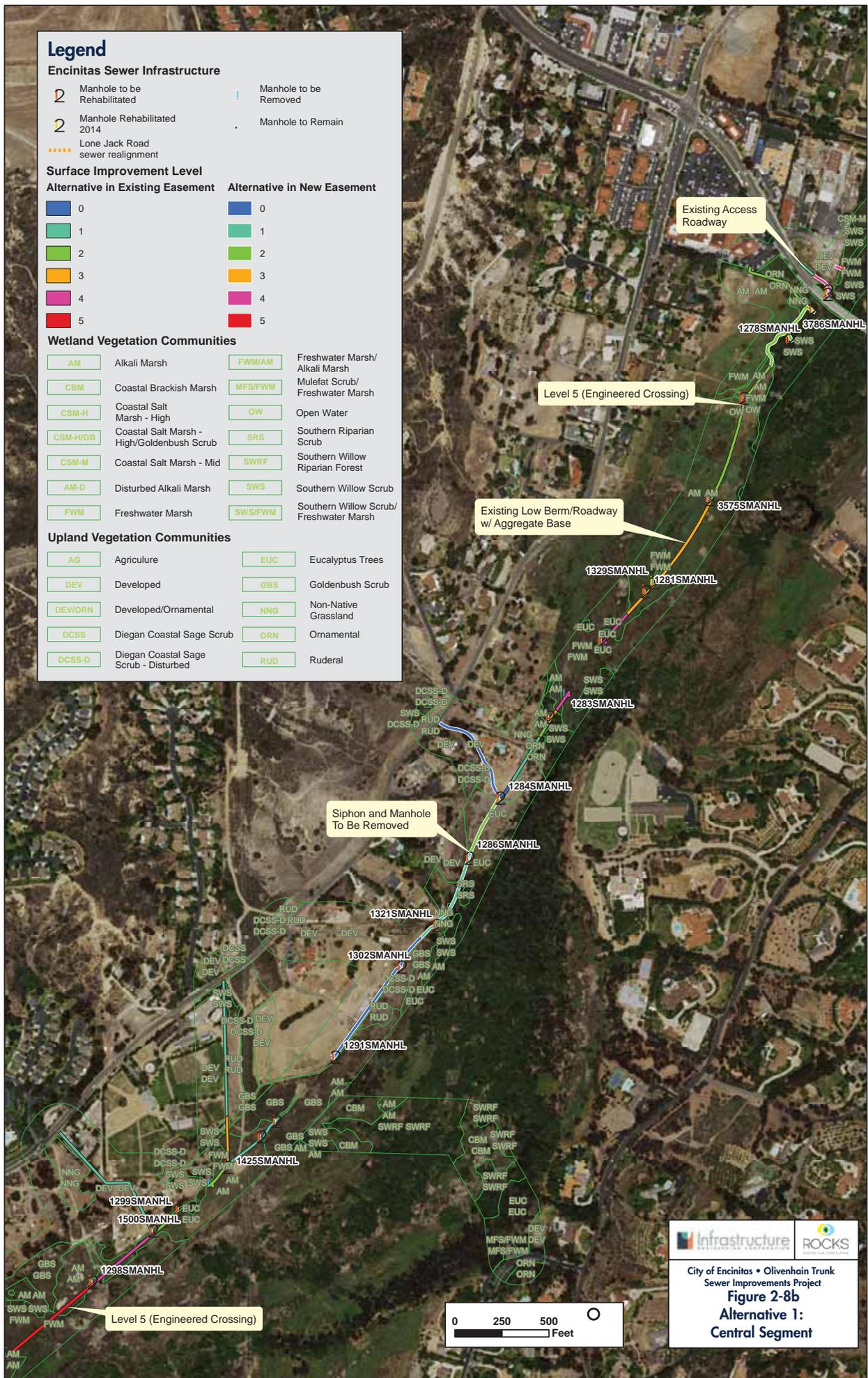
- | Alternative in Existing Easement  | Alternative in New Easement   |
|---|---|
|  0 |  0 |
|  1 |  1 |
|  2 |  2 |
|  3 |  3 |
|  4 |  4 |
|  5 |  5 |

## Wetland Vegetation Communities

- |  |   |
|--|---|
|  Alkali Marsh                               |  Freshwater Marsh/ Alkali Marsh          |
|  Coastal Brackish Marsh                     |  Mulefat Scrub/ Freshwater Marsh         |
|  Coastal Salt Marsh - High                  |  Open Water                              |
|  Coastal Salt Marsh - High/Goldenbush Scrub |  Southern Riparian Scrub                 |
|  Coastal Salt Marsh - Mid                   |  Southern Willow Riparian Forest         |
|  Disturbed Alkali Marsh                     |  Southern Willow Scrub                   |
|  Freshwater Marsh                           |  Southern Willow Scrub/ Freshwater Marsh |

## Upland Vegetation Communities

- |   |  |
|---|--|
|  Agriculture                           |  Eucalyptus Trees     |
|  Developed                             |  Goldenbush Scrub     |
|  Developed/Ornamental                  |  Non-Native Grassland |
|  Diegan Coastal Sage Scrub             |  Ornamental           |
|  Diegan Coastal Sage Scrub - Disturbed |  Ruderal              |

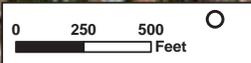




City of Encinitas • Olivenhain Trunk Sewer Improvements Project



**Figure 2-8b**  
**Alternative 1:**  
**Central Segment**





# Legend

## Encinitas Sewer Infrastructure

- Manhole to be Rehabilitated
- Manhole Rehabilitated 2014
- Lone Jack Road sewer realignment
- Manhole to be Removed
- Manhole to Remain

## Surface Improvement Level

- | Alternative in Existing Easement | Alternative in New Easement |
|----------------------------------|-----------------------------|
| 0                                | 0                           |
| 1                                | 1                           |
| 2                                | 2                           |
| 3                                | 3                           |
| 4                                | 4                           |
| 5                                | 5                           |

## Wetland Vegetation Communities

- |          |  |         |  |
|----------|--|---------|--|
| AM       | Alkali Marsh                               | FWM/AM  | Freshwater Marsh/<br>Alkali Marsh          |
| CBM      | Coastal Brackish Marsh                     | MFS/FWM | Mulefat Scrub/<br>Freshwater Marsh         |
| CSM-H    | Coastal Salt Marsh - High                  | OW      | Open Water                                 |
| CSM-H/GB | Coastal Salt Marsh - High/Goldenbush Scrub | SRS     | Southern Riparian Scrub                    |
| CSM-M    | Coastal Salt Marsh - Mid                   | SWRF    | Southern Willow Riparian Forest            |
| AM-D     | Disturbed Alkali Marsh                     | SWS     | Southern Willow Scrub                      |
| FWM      | Freshwater Marsh                           | SWS/FWM | Southern Willow Scrub/<br>Freshwater Marsh |

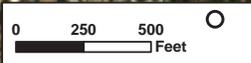
## Upland Vegetation Communities

- |         |                                       |     |                      |
|---------|---------------------------------------|-----|----------------------|
| AG      | Agriculture                           | EUC | Eucalyptus Trees     |
| DEV     | Developed                             | GBS | Goldenbush Scrub     |
| DEV/ORN | Developed/Ornamental                  | NNG | Non-Native Grassland |
| DCSS    | Diegan Coastal Sage Scrub             | ORN | Ornamental           |
| DCSS-D  | Diegan Coastal Sage Scrub - Disturbed | RUD | Ruderal              |

Sewer to be realigned into Lone Jack Road. Exact locations of manholes to be determined.

Level 5 (Engineered Crossing)

Existing Access Roadway



**Infrastructure**  
ROCKS  
CITY OF ENCINITAS

City of Encinitas • Olivenhain Trunk Sewer Improvements Project  
**Figure 2-8c**  
**Alternative 1:**  
**Northern Segment**





# Legend

## Encinitas Sewer Infrastructure

-  Manhole to be Rehabilitated
-  Manhole Rehabilitated 2014
-  Lone Jack Road sewer realignment
-  Manhole to be Removed
-  Manhole to Remain

## Surface Improvement Level

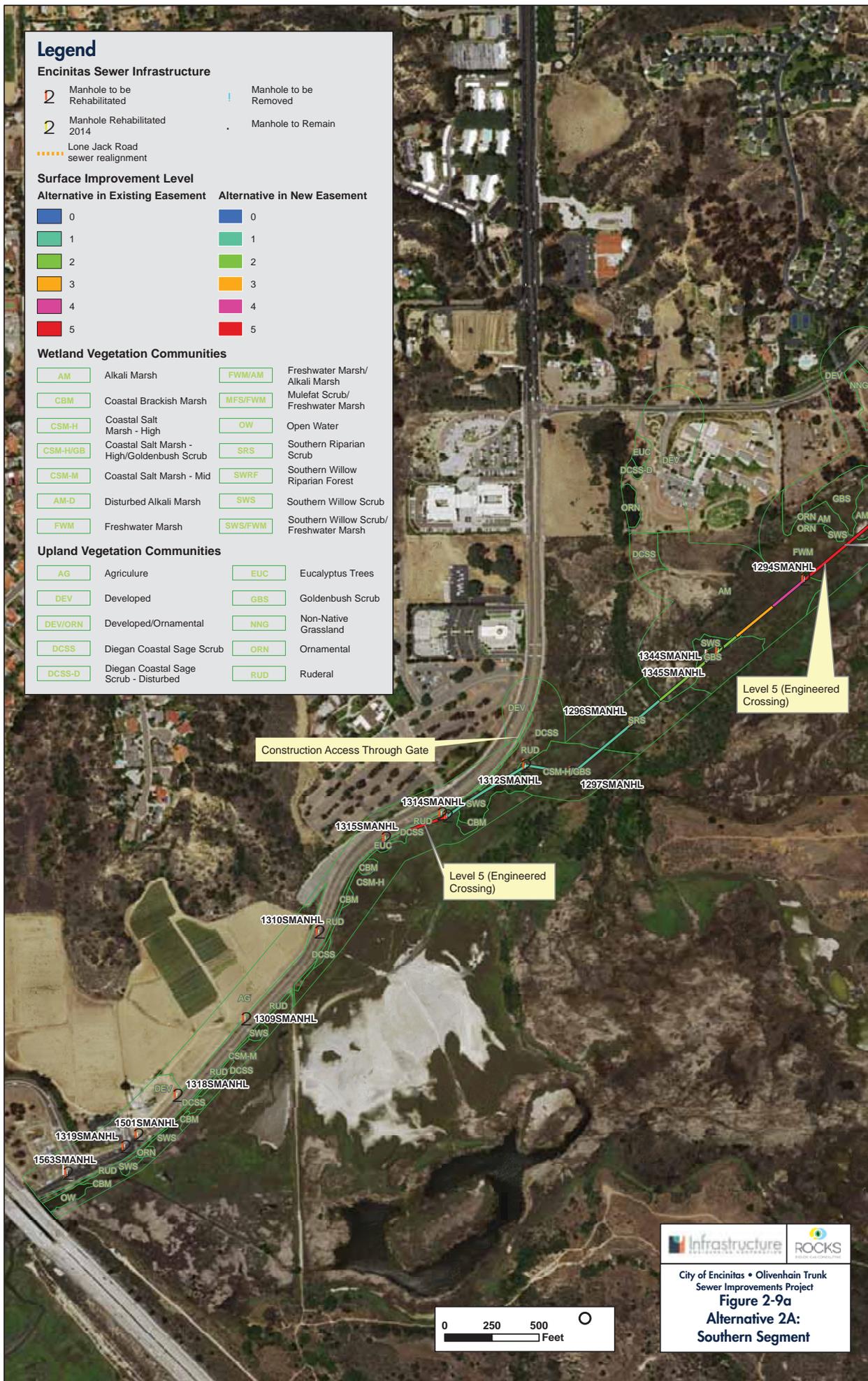
- | Alternative in Existing Easement  | Alternative in New Easement   |
|---|---|
|  0 |  0 |
|  1 |  1 |
|  2 |  2 |
|  3 |  3 |
|  4 |  4 |
|  5 |  5 |

## Wetland Vegetation Communities

- |  |   |
|--|---|
|  Alkali Marsh                               |  Freshwater Marsh/ Alkali Marsh          |
|  Coastal Brackish Marsh                     |  Mulefat Scrub/ Freshwater Marsh         |
|  Coastal Salt Marsh - High                  |  Open Water                              |
|  Coastal Salt Marsh - High/Goldenbush Scrub |  Southern Riparian Scrub                 |
|  Coastal Salt Marsh - Mid                   |  Southern Willow Riparian Forest         |
|  Disturbed Alkali Marsh                     |  Southern Willow Scrub                   |
|  Freshwater Marsh                           |  Southern Willow Scrub/ Freshwater Marsh |

## Upland Vegetation Communities

- |   |  |
|---|--|
|  Agriculture                             |  Eucalyptus Trees     |
|  Developed                               |  Goldenbush Scrub     |
|  Developed/Ornamental                    |  Non-Native Grassland |
|  Diegan Coastal Sage Scrub               |  Ornamental           |
|  Diegan Coastal Sage Scrub - Disturbed |  Ruderal            |






City of Encinitas • Olivenhain Trunk  
 Sewer Improvements Project  
**Figure 2-9a**  
**Alternative 2A:**  
**Southern Segment**



# Legend

## Encinitas Sewer Infrastructure

- Manhole to be Rehabilitated
- Manhole to be Removed
- Manhole Rehabilitated 2014
- Manhole to Remain
- Lone Jack Road sewer realignment

## Surface Improvement Level

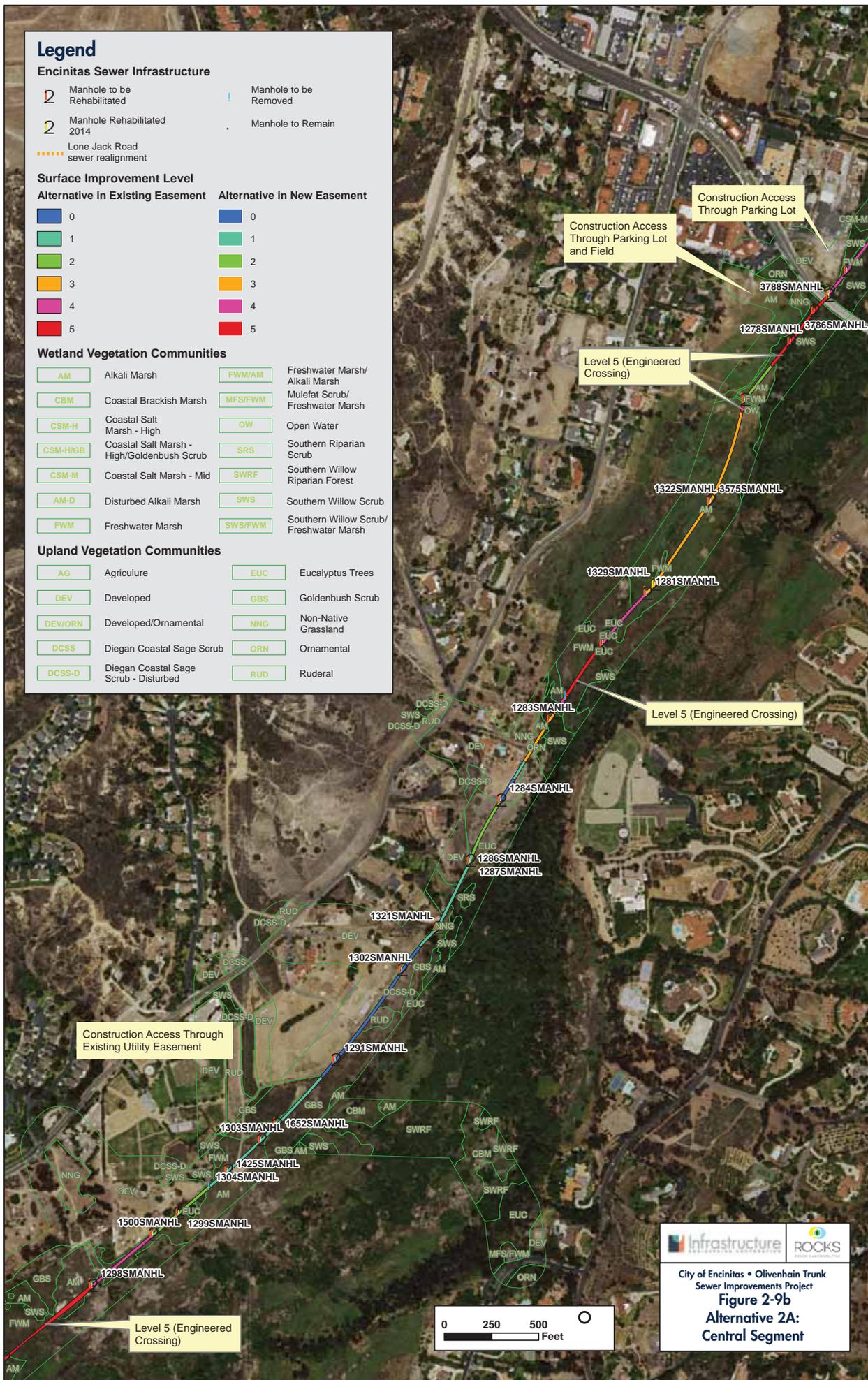
Alternative in Existing Easement	Alternative in New Easement
0	0
1	1
2	2
3	3
4	4
5	5

## Wetland Vegetation Communities

AM	Alkali Marsh	FWM/AM	Freshwater Marsh/ Alkali Marsh
CBM	Coastal Brackish Marsh	MFS/FWM	Mulefat Scrub/ Freshwater Marsh
CSM-H	Coastal Salt Marsh - High	OW	Open Water
CSM-H/GB	Coastal Salt Marsh - High/Goldenbush Scrub	SRS	Southern Riparian Scrub
CSM-M	Coastal Salt Marsh - Mid	SWRF	Southern Willow Riparian Forest
AM-D	Disturbed Alkali Marsh	SWS	Southern Willow Scrub
FWM	Freshwater Marsh	SWS/FWM	Southern Willow Scrub/ Freshwater Marsh

## Upland Vegetation Communities

AG	Agriculture	EUC	Eucalyptus Trees
DEV	Developed	GBS	Goldenbush Scrub
DEV/ORN	Developed/Ornamental	NNG	Non-Native Grassland
DCSS	Diegan Coastal Sage Scrub	ORN	Ornamental
DCSS-D	Diegan Coastal Sage Scrub - Disturbed	RUD	Ruderal



City of Encinitas • Olivenhain Trunk Sewer Improvements Project

**Figure 2-9b**  
**Alternative 2A:**  
**Central Segment**



# Legend

## Encinitas Sewer Infrastructure

- Manhole to be Rehabilitated
- Manhole Rehabilitated 2014
- Lone Jack Road sewer realignment
- Manhole to be Removed
- Manhole to Remain

## Surface Improvement Level

Alternative in Existing Easement	Alternative in New Easement
0	0
1	1
2	2
3	3
4	4
5	5

## Wetland Vegetation Communities

AM	Alkali Marsh	FWM/AM	Freshwater Marsh/ Alkali Marsh
CBM	Coastal Brackish Marsh	MFS/FWM	Mulefat Scrub/ Freshwater Marsh
CSM-H	Coastal Salt Marsh - High	OW	Open Water
CSM-H/GB	Coastal Salt Marsh - High/Goldenbush Scrub	SRS	Southern Riparian Scrub
CSM-M	Coastal Salt Marsh - Mid	SWRF	Southern Willow Riparian Forest
AM-D	Disturbed Alkali Marsh	SWS	Southern Willow Scrub
FWM	Freshwater Marsh	SWS/FWM	Southern Willow Scrub/ Freshwater Marsh

## Upland Vegetation Communities

AG	Agriculture	EUC	Eucalyptus Trees
DEV	Developed	GBS	Goldenbush Scrub
DEV/ORN	Developed/Ornamental	NNG	Non-Native Grassland
DCSS	Diegan Coastal Sage Scrub	ORN	Ornamental
DCSS-D	Diegan Coastal Sage Scrub - Disturbed	RUD	Ruderal



City of Encinitas • Olivenhain Trunk Sewer Improvements Project  
**Figure 2-9c**  
**Alternative 2A:**  
**Northern Segment**



# Legend

## Encinitas Sewer Infrastructure

-  Manhole to be Rehabilitated
-  Manhole Rehabilitated 2014
-  Lone Jack Road sewer realignment
-  Manhole to be Removed
-  Manhole to Remain

## Surface Improvement Level

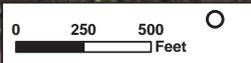
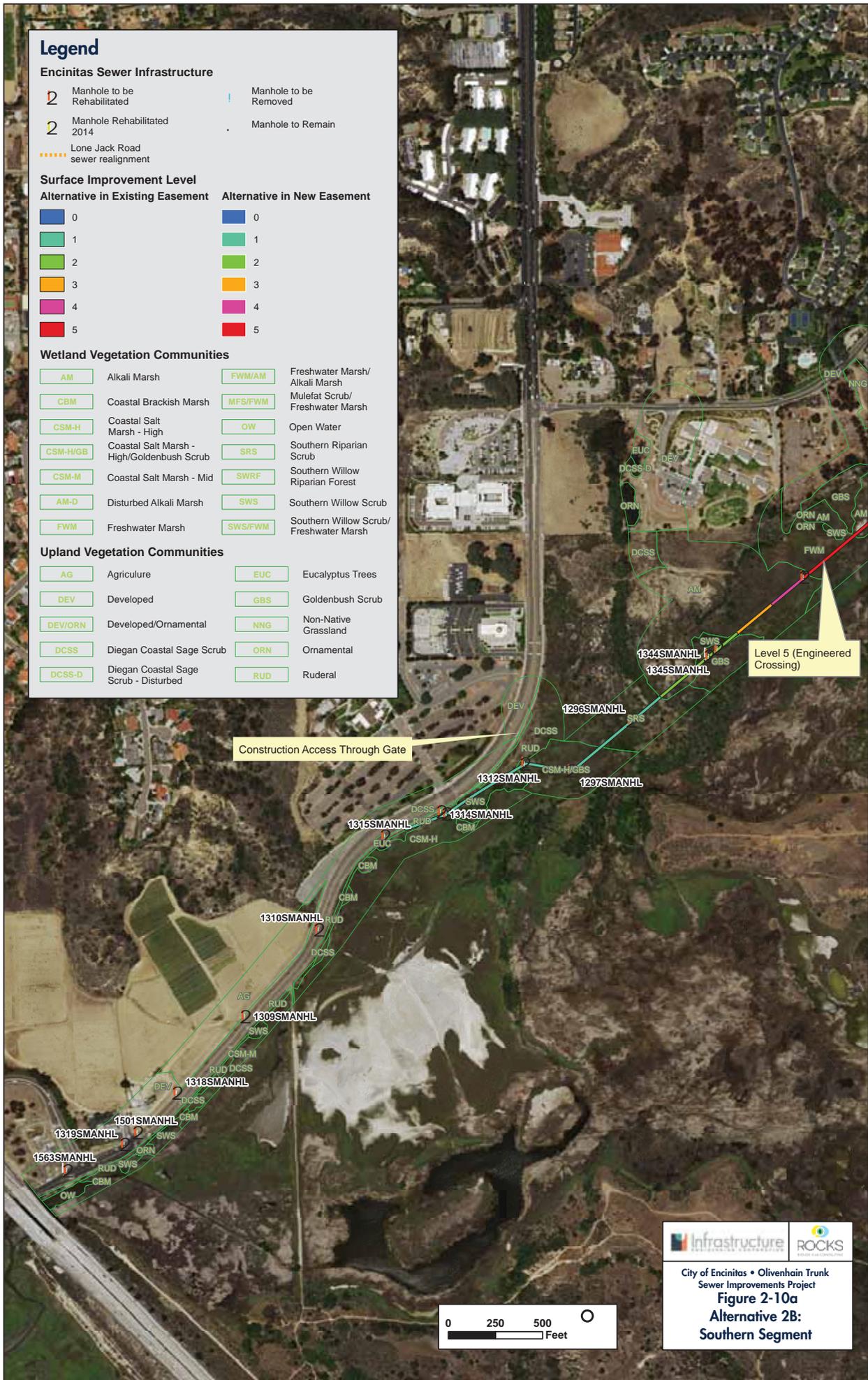
- | Alternative in Existing Easement  | Alternative in New Easement   |
|---|---|
|  0 |  0 |
|  1 |  1 |
|  2 |  2 |
|  3 |  3 |
|  4 |  4 |
|  5 |  5 |

## Wetland Vegetation Communities

- |  |   |
|--|---|
|  Alkali Marsh                               |  Freshwater Marsh/ Alkali Marsh          |
|  Coastal Brackish Marsh                     |  Mulefat Scrub/ Freshwater Marsh         |
|  Coastal Salt Marsh - High                  |  Open Water                              |
|  Coastal Salt Marsh - High/Goldenbush Scrub |  Southern Riparian Scrub                 |
|  Coastal Salt Marsh - Mid                   |  Southern Willow Riparian Forest         |
|  Disturbed Alkali Marsh                     |  Southern Willow Scrub                   |
|  Freshwater Marsh                           |  Southern Willow Scrub/ Freshwater Marsh |

## Upland Vegetation Communities

- |  |  |
|--|--|
|  Agriculture                            |  Eucalyptus Trees     |
|  Developed                              |  Goldenbush Scrub     |
|  Developed/Ornamental                   |  Non-Native Grassland |
|  Diegan Coastal Sage Scrub              |  Ornamental           |
|  Diegan Coastal Sage Scrub - Disturbed |  Ruderal             |






City of Encinitas • Olivenhain Trunk  
 Sewer Improvements Project  
**Figure 2-10a**  
**Alternative 2B:**  
**Southern Segment**



# Legend

## Encinitas Sewer Infrastructure

-  Manhole to be Rehabilitated
-  Manhole to be Removed
-  Manhole Rehabilitated 2014
-  Manhole to Remain
-  Lone Jack Road sewer realignment

## Surface Improvement Level

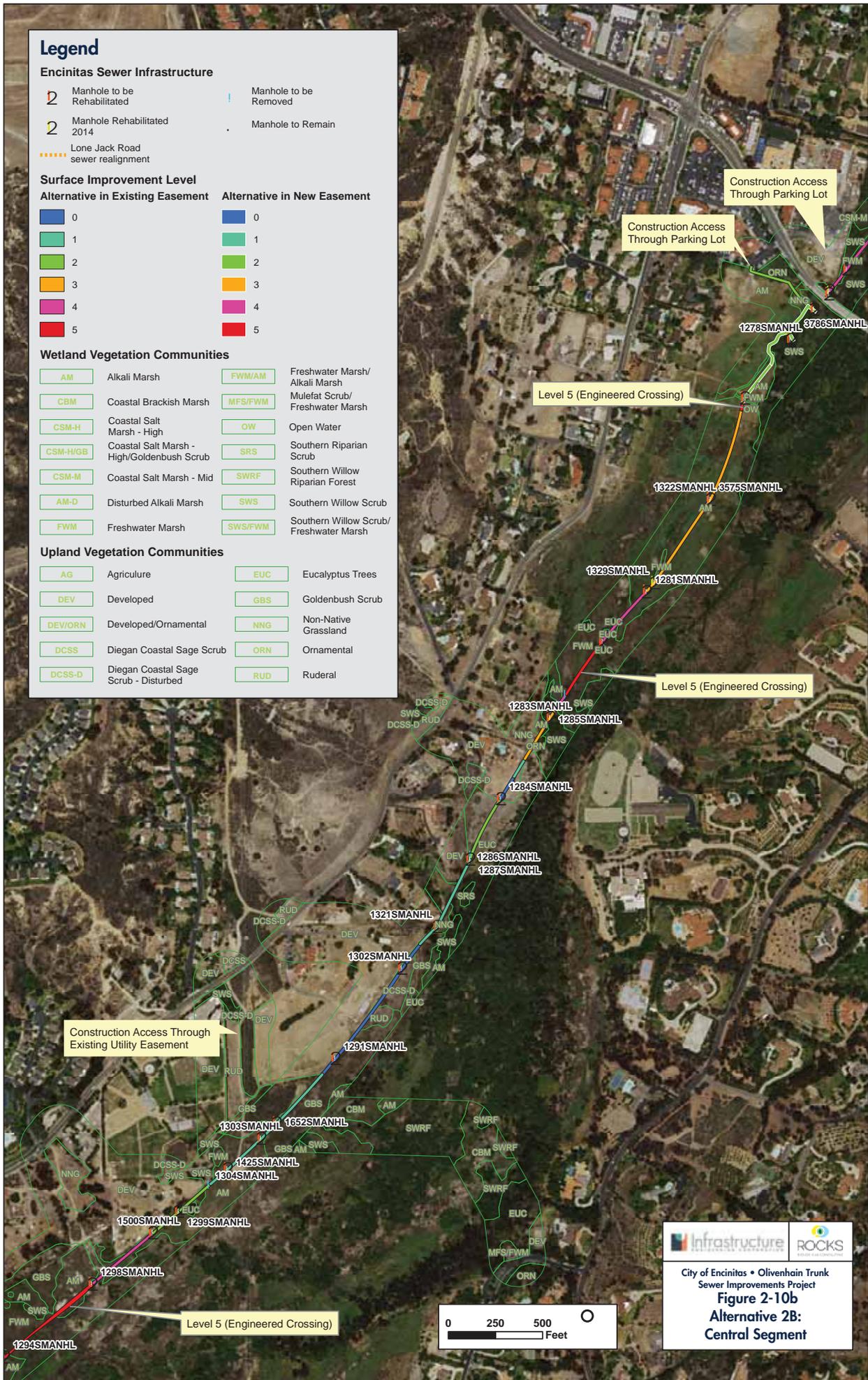
Alternative in Existing Easement	Alternative in New Easement
 0	 0
 1	 1
 2	 2
 3	 3
 4	 4
 5	 5

## Wetland Vegetation Communities

 AM	Alkali Marsh	 FWM/AM	Freshwater Marsh/ Alkali Marsh
 CBM	Coastal Brackish Marsh	 MFS/FWM	Mulefat Scrub/ Freshwater Marsh
 CSM-H	Coastal Salt Marsh - High	 OW	Open Water
 CSM-H/GB	Coastal Salt Marsh - High/Goldenbush Scrub	 SRS	Southern Riparian Scrub
 CSM-M	Coastal Salt Marsh - Mid	 SWRF	Southern Willow Riparian Forest
 AM-D	Disturbed Alkali Marsh	 SWS	Southern Willow Scrub
 FWM	Freshwater Marsh	 SWS/FWM	Southern Willow Scrub/ Freshwater Marsh

## Upland Vegetation Communities

 AG	Agriculture	 EUC	Eucalyptus Trees
 DEV	Developed	 GBS	Goldenbush Scrub
 DEV/ORN	Developed/Ornamental	 NNG	Non-Native Grassland
 DCSS	Diegan Coastal Sage Scrub	 ORN	Ornamental
 DCSS-D	Diegan Coastal Sage Scrub - Disturbed	 RUD	Ruderal



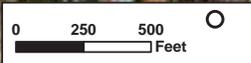


City of Encinitas • Olivenhain Trunk  
Sewer Improvements Project



ROCKS  
BUILT FOR CALIFORNIA

**Figure 2-10b**  
**Alternative 2B:**  
**Central Segment**





# Legend

## Encinitas Sewer Infrastructure

- Manhole to be Rehabilitated
- Manhole Rehabilitated 2014
- Lone Jack Road sewer realignment
- Manhole to be Removed
- Manhole to Remain

## Surface Improvement Level

- | Alternative in Existing Easement | Alternative in New Easement |
|----------------------------------|-----------------------------|
| 0                                | 0                           |
| 1                                | 1                           |
| 2                                | 2                           |
| 3                                | 3                           |
| 4                                | 4                           |
| 5                                | 5                           |

## Wetland Vegetation Communities

- |          |  |         |  |
|----------|--|---------|--|
| AM       | Alkali Marsh                               | FWM/AM  | Freshwater Marsh/<br>Alkali Marsh          |
| CBM      | Coastal Brackish Marsh                     | MFS/FWM | Mulefat Scrub/<br>Freshwater Marsh         |
| CSM-H    | Coastal Salt Marsh - High                  | OW      | Open Water                                 |
| CSM-H/GB | Coastal Salt Marsh - High/Goldenbush Scrub | SRS     | Southern Riparian Scrub                    |
| CSM-M    | Coastal Salt Marsh - Mid                   | SWRF    | Southern Willow Riparian Forest            |
| AM-D     | Disturbed Alkali Marsh                     | SWS     | Southern Willow Scrub                      |
| FWM      | Freshwater Marsh                           | SWS/FWM | Southern Willow Scrub/<br>Freshwater Marsh |

## Upland Vegetation Communities

- |         |                                       |     |                      |
|---------|---------------------------------------|-----|----------------------|
| AG      | Agriculture                           | EUC | Eucalyptus Trees     |
| DEV     | Developed                             | GBS | Goldenbush Scrub     |
| DEV/ORN | Developed/Ornamental                  | NNG | Non-Native Grassland |
| DCSS    | Diegan Coastal Sage Scrub             | ORN | Ornamental           |
| DCSS-D  | Diegan Coastal Sage Scrub - Disturbed | RUD | Ruderal              |



