Water Quality Assessment Report

State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements
Freedom Boulevard to State Park Drive and Coastal Rail Trail Segment 12
Project
Santa Cruz County, California
05-SCR-01-PM 8.1/10.7
EA 05-0C7340 / 0520000083

August 2022

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STATE OF CALIFORNIA
Department of Transportation

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EXECUTIVE SUMMARY

The California Department of Transportation (Caltrans), in cooperation with the Santa Cruz County Regional Transportation Commission (SCCRTC) and the County of Santa Cruz, proposes to widen State Route (SR) 1 to include auxiliary lanes, accommodate bus-on-shoulder (BOS) operations between the Freedom Boulevard and State Park Drive interchanges, and construct Coastal Rail Trail Segment 12 (Project). The Coastal Rail Trail Segment 12 proposes to construct a paved bicycle and pedestrian shared used trail alongside the existing railroad track alignment, with an optional interim phase. The optional interim phase proposes that all or a portion of the trail would be constructed in approximately the same location of the existing railroad tracks by removal of the rails and ties from just south of Rio Del Mar Boulevard at the southern terminus with Sumner Avenue to the northern terminus at State Park Drive.

The purpose of the Project is to:

- Reduce congestion along SR 1 through the Project limits;
- Enhance bicycle and pedestrian connectivity along Segment 12 of the Coastal Rail Trail;
- Promote the use of alternative transportation modes to increase transportation system capacity and reliability; and
- Provide Coastal Rail Trail access across SR 1 at the two railroad bridges.

Improvements in the Project area were addressed previously, as a part of a larger 8.9-mile project, in a combined Tier I/Tier II Environmental Impact Report/Environmental Assessment with a Finding of No Significant Impact, which was adopted in December 2018.

The purpose of the *Water Quality Assessment Report* is to fulfill the requirements of the California Environmental Quality Act and the National Environmental Policy Act, and to provide information for National Pollutant Discharge Elimination System (NPDES) permitting. The document includes a discussion of the proposed Project, the general environmental setting of the Project area, and the regulatory framework with respect to water quality. It also provides data on surface water and groundwater resources within the Project area, describes water quality impairments and beneficial uses, and identifies potential water quality impacts/benefits associated with the proposed Project, and recommends avoidance and/or minimization measures.

The portion of the Project along SR 1 is within Caltrans' right-of-way and is therefore, subject to the Caltrans Municipal Separate Storm Sewer System (MS4) permit. The Project's Project Initiation Documents (PID) phase was approved in 2002 and therefore, work done within Caltrans' right-of-way must comply with the 1999 Caltrans MS4 permit, NPDES No. CAS000003, State Water Resources Control Board (SWRCB) Order No. 99-06-DWQ.

The Project would also include rail trail and road realignment work within unincorporated Santa Cruz County. Santa Cruz County is a permittee under the statewide Phase II Small MS4 Permit (NPDES No. CAS000004, SWRCB Order No. 2013-0001-DWQ). The Project would be subject to Post-Construction Stormwater Requirements issued by the Central Coast Regional Water Quality Control Board (RWQCB), which give additional project size-based requirements for site

design, water quality treatment, runoff retention, and peak management. Road realignment work within the County of Santa Cruz's right-of-way would be subject to the requirements outlined in the Phase II MS4 Permit. Additionally, the County of Santa Cruz has developed *Design Criteria Containing Standards for the Construction of Streets, Storm Drains, Sanitary Sewers, Water Systems, and Driveways within the Unincorporated Portion of Santa Cruz County* (2019).

Per the Phase II MS4 permit, sidewalks, bicycle lanes, and trails constructed with permeable surfaces, or sidewalks, bicycle lanes, and impervious trails built to direct stormwater to adjacent vegetated areas are excluded from the post-construction stormwater treatment control and hydromodification management requirements of this permit. Because all the Project's rail trail improvements within unincorporated Santa Cruz County's right-of-way fit the criteria of exclusion described above, these improvements would be exempt from implementing stormwater treatment and baseline hydromodification management.

The Project disturbs over one acre of soil and therefore, will be subject to the Construction General Stormwater Permit (CGP) (NPDES NO. CAS000002, SWRCB Order No. 2009-0009-DWQ as amended by Order No. 2012-0006-DWQ).

The Project is under the jurisdiction of the Central Coast RWQCB and is therefore, subject to the *Central Coast Basin (Region 3) Water Quality Control Plan (Basin Plan).* This Project discharges to coastal watersheds within 1 mile of the Pacific Ocean, and as such, this Project is also subject to the *California Ocean Plan* (SWRCB, 2019).

The Project's receiving waters are Aptos Creek and Valencia Creek, Valencia Lagoon, and the Pacific Ocean. Valencia Creek is a tributary to Aptos Creek, and Aptos Creek drains directly to the Pacific Ocean (Central Coast RWQCB, 2019).

The following table identifies the disturbed soil area (DSA) and impervious surface values resulting from the proposed Project improvements:

	Caltrans Right-of-Way (acres)	Santa Cruz County Right-of-Way (acres)			Total (acres)	
		SR 1	Interim Trail	Ultimate Trail	Interim Trail	Ultimate Trail
Disturbed Soil Area (DSA)	17.06	0.47	7.12	7.12	24.65	24.65
Pre-project Impervious Area	32.47	0.08	2.00	2.31	34.55	34.86
Post-project Impervious Area	36.08	0.31	4.44	4.98	40.83	41.37
Net New Impervious Area (NNI)	3.61	0.23	2.44	2.67	6.28	6.51
Replaced Impervious Surface (RIS)	N/A	0	0	0	N/A	N/A
Total New Impervious Surface (NIS)	3.61	0.23	N/A	N/A	3.84	3.84
Post Construction Treated Area (PCTA)	3.61	0.23	0	0	3.84	3.84

Permanent impacts from runoff from the increased impervious surface area could have the potential to increase in pollutants to the receiving water bodies. In compliance with the Caltrans and Phase II MS4 permits, the Project is required to construct permanent best management practice (BMP) design features that reduce these potential impacts. Erosion control measures such as hydroseeding and erosion control blankets will be applied on all DSAs to minimize post-construction erosion. Reducing pervious areas could also reduce the amount of rainfall that is able to percolate into the water table. Therefore, the Project will also consider post-construction stormwater treatment BMPs (TBMP) that are designed to infiltrate. The Project would result in net new impervious (NNI) surface areas of 6.28 acres under the Interim Trail option and 6.51 acres under the Ultimate Trail option. Because the 1999 Caltrans MS4 permit does not require projects to treat the replaced impervious surface (RIS) within Caltrans' right-of-way, and the Phase II Small MS4 Permit does not require projects to treat bicycle or pedestrian facilities, the Project is required to treat the post-construction treatment area (PCTA) of the new impervious surface (NIS) of 3.61 acres within Caltrans' right-of-way and the PCTA of added and replaced area of 0.23 acres within the County's right-of-way only. Areas within the County's right-of-way that are part of the Interim or Ultimate Trail options are bicycle or pedestrian facilities; therefore, these areas would not require treatment. As a result, the Project is required to infiltrate, or treat with flow through TBMPs, the stormwater runoff from 3.84 acres of impervious surfaces.

The Project would disturb a total of 24.65 acres of soil (Mark Thomas, 2022). This soil disturbance could result in temporary impacts to the receiving surface water bodies, such as an increase in the discharge of sediment and other pollutants. Under the CGP, the Project would be Risk Level 3, because it has a high sediment risk and a high receiving water body risk. The CGP requires the Project to implement a Storm Water Pollution Prevention Plan (SWPPP), which would be submitted by the Contractor and approved by Caltrans prior to the start of construction. The SWPPP is intended to address construction-phase impacts, and must include, at a minimum, the following elements:

- Minimum Construction Control Measures;
- Erosion and Sediment Control;
- Non-Stormwater Management;
- Post-Construction Stormwater Management; and
- Maintenance, Inspection, and Repair.

The Project design includes the widening of the existing SR 1 bridge over Aptos Creek and Spreckels Drive. The widening of the SR 1 bridge over Aptos Creek and Spreckels Drive would occur on the south side of SR 1 and require abutment walls along the existing embankments along the south side of Aptos Creek and the embankment on the north side of Spreckels Drive. Temporary dewatering of the work zone would be necessary. Therefore, the Project will likely need to implement temporary clear water diversions and groundwater dewatering, which requires waste discharge requirements from the Central Coast RWQCB. The Project will also require a Section 401 Water Quality Certification from the Central Coast RWQCB.

By implementing water quality project features that are required for all construction projects to comply with federal, state, and local requirements, potential water quality impacts would be minimized.

Table of Contents

Figures

Tables

Appendices

Acronyms

Basin Plan	Central Coast Basin Plan
bgs	below ground surface
BMP	best management practices
BOS	bus-on-shoulders
BSA	biological study area
Caltrans	California Department of Transportation
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CGP	Construction General Permit
CWA	Clean Water Act
DPP	Design Pollution Prevention
DPS	District Population Segment
DSA	disturbed soil area
EA	Environmental Assessment
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
°F	Fahrenheit
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
FTC	Full Trash Capture
ISA	Initial Site Assessment
K	soil-erodibility factor
LID	low-impact development
LS	length-slope factor
MBSST	Monterey Bay Sanctuary Scenic Trail
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System
NES	Natural Environment Study
NIS	total new impervious surface
NNI	net new impervious surface
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resource Conservation Service
OHWM	Ordinary High Water Mark
Parikh	Parikh Consultants, Inc.
PCTA	post construction treatment area
PID	Project Initiation Document
PM	post mile
Project	State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements Freedom Boulevard to State Park Drive and Coastal Rail Trail Segment 12 Project
R	rainfall erosivity factor
RIS	replaced impervious surface
RWQCB	Regional Water Quality Control Board

PS&E	Plans, Specifications, and Estimates
SCBRL	Santa Cruz Branch Rail Line
SCCDEH	Santa Cruz County Department of Environmental Health
SCCRTC	Santa Cruz County Regional Transportation Commission
SMARTS	Stormwater Multiple Application and Report Tracking System
SFHA	Special Flood Hazard Areas
SR	State Route
STB	Surface Transportation Board
STGA	Significant Trash Generating Areas
STIP	State Transportation Improvement Program
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TBMP	treatment best management practice
TMDL	total maximum daily load
TMP	Transportation Management Plan
U.S.	United States
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
WDR	Waste Discharge Requirements
WRCC	Western Regional Climate Center

1 INTRODUCTION

1.1 Approach to Water Quality Assessment

The purpose of the *Water Quality Assessment Report* is to fulfill the requirements of the National Environmental Policy Act and the California Environmental Quality Act (CEQA), and to provide information for National Pollutant Discharge Elimination System (NPDES) permitting. The document includes a discussion of the proposed project, the general environmental setting of the project area, and the regulatory framework with respect to water quality; it also provides data on surface water and groundwater resources within the project area and the water quality of these waters, describes water quality impairments and beneficial uses, and identifies potential water quality impacts/benefits associated with the proposed project, and recommends project features for the potential impacts.

1.2 Project Description

The California Department of Transportation (Caltrans), in cooperation with the Santa Cruz County Regional Transportation Commission (SCCRTC) and the County of Santa Cruz, proposes to widen State Route (SR) 1 to include auxiliary lanes, accommodate bus-on-shoulder (BOS) operations between the Freedom Boulevard and State Park Drive interchanges, and construct Coastal Rail Trail Segment 12 (Project).

One build alternative and the no-build alternative are proposed for further consideration. The Project is located in Santa Cruz County on SR 1 from post mile (PM) 8.1, south of Freedom Boulevard, to PM 10.7, north of State Park Drive, with 1.14 miles of trail along the SCCRTC-owned Santa Cruz Branch Rail Line (SCBRL) between State Park Drive and Rio Del Mar Boulevard. The total length of the Project on SR 1 is 2.6 miles, and on the SCBRL is 1.14 miles. Within the limits of the proposed Project, SR 1 is a controlled access freeway with two 12-foot lanes; shoulder width varies within Project limits. The average width of the inside shoulders is approximately 5 feet, and the average width of the outside shoulders is approximately 10 feet. Within the Project area, the existing railroad right-of-way is generally in the range of 40 to 55 feet wide, with the existing railroad tracks generally in the center of the right-of-way. The existing railroad has at-grade crossings at State Park Drive, Aptos Creek Road, and Trout Gulch Road, with bridges over SR 1 at two locations, Soquel Drive, Aptos Creek and Valencia Creek, and crosses under Rio Del Mar Boulevard. The SCBRL is currently an active freight railroad. The Project location and vicinity are shown in Figure 1 and Figure 2, respectively. Figure 3, Figure 4, and Figure 5 shows the Project components.

1.2.1 Purpose and Need

The purpose of the Project is to do the following.

- Reduce congestion along SR 1 through the Project limits.
- Enhance bicycle and pedestrian connectivity along Segment 12 of the Coastal Rail Trail.

- Promote the use of alternative transportation modes to increase transportation system capacity and reliability.

- Provide Coastal Rail Trail access across SR 1 at the two railroad bridges.

This Project is needed for the following reasons.

- Several bottlenecks along SR 1 in the southbound and northbound directions cause congestion during peak hours, significantly delaying drivers.

- Cut-through traffic, or traffic on local streets, is increasing because drivers are seeking to avoid congestion on SR 1.

- There are limited opportunities for pedestrians and bicyclists to safely cross SR 1 and navigate the Project corridor, even though portions of the Project area are designated as regional bicycle routes.

- There are insufficient incentives to increase transit service in the SR 1 corridor because congestion threatens reliability and cost-effective transit service delivery.

Figure 1. Project Location Map

Source: ICF, 2021

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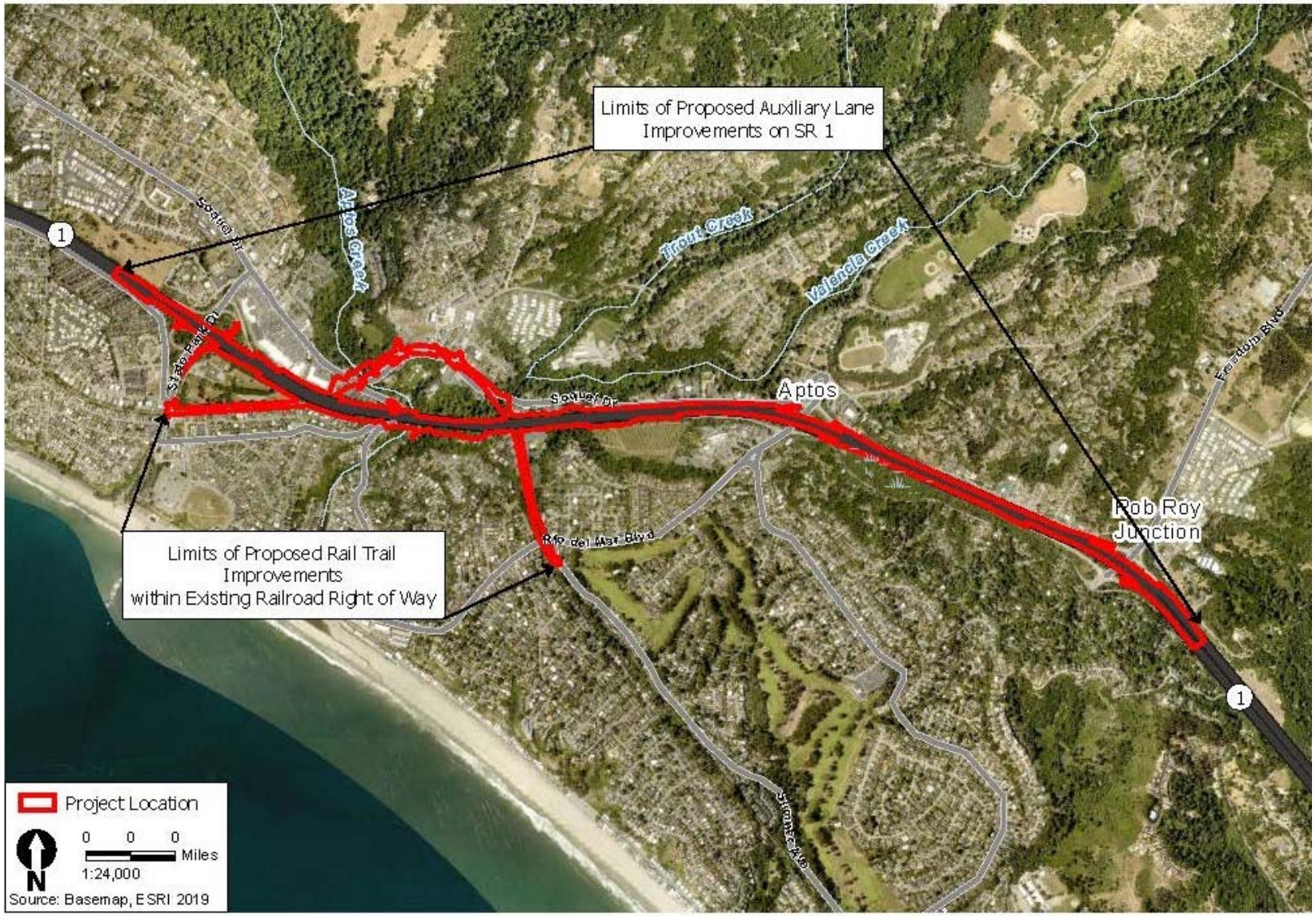

Figure 2. Project Vicinity Map

Source: ICF, 2021

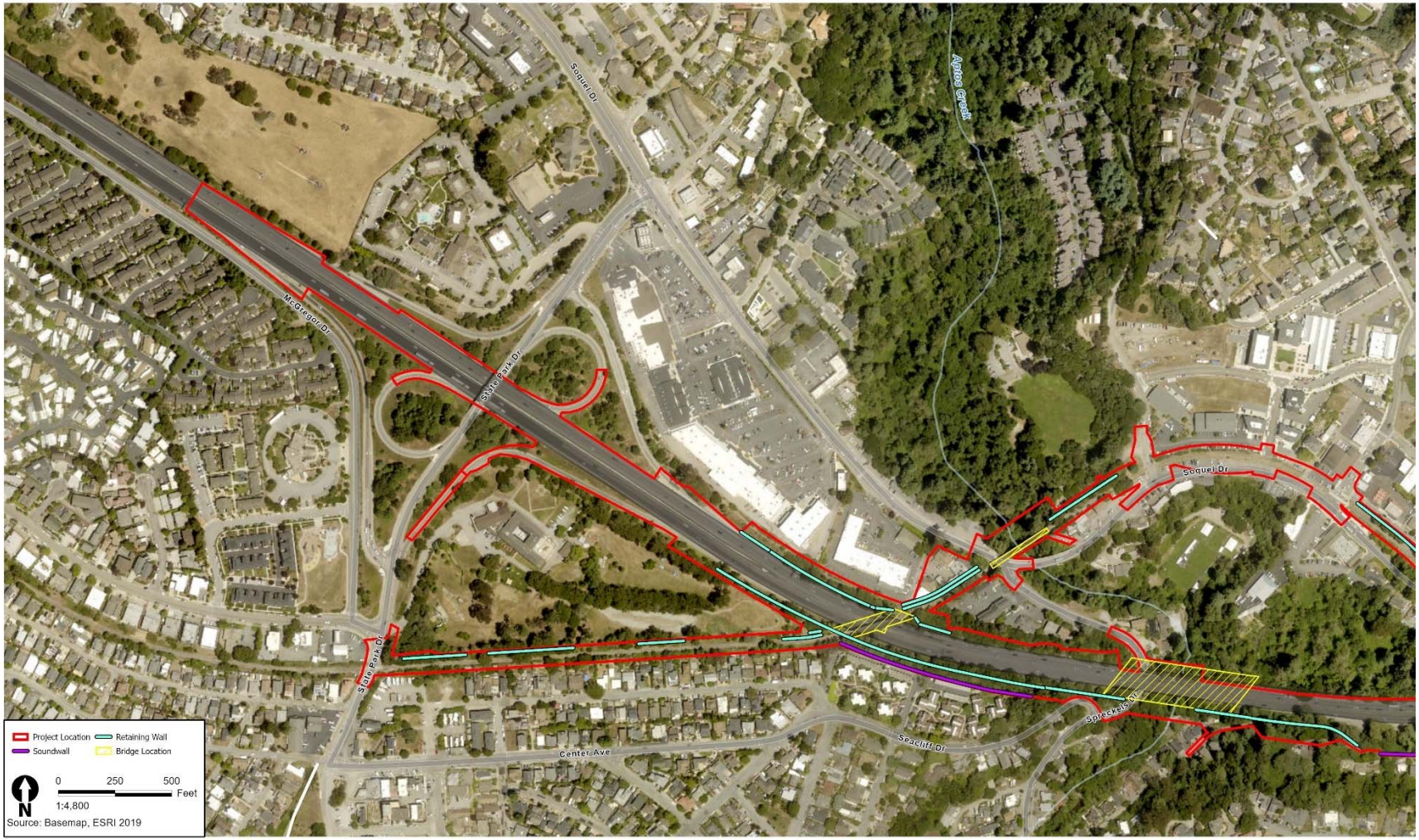

Figure 3. Project Components (page 1 of 3)

Source: ICF, 2021

Figure 4. Project Components (page 2 of 3)

Source: ICF, 2021

Figure 5. Project Components (page 3 of 3)

Source: ICF, 2021

1.3 Project Alternatives

1.3.1 Build Alternative

1.3.1.1 Auxiliary Lanes

Auxiliary lanes are designed to improve merging operations and reduce conflicts between traffic entering and exiting SR 1 by connecting the on-ramp of one interchange to the off-ramp of the next; they are not designed to serve through traffic. A southbound auxiliary lane and a northbound auxiliary lane would be added to the following segments of SR 1.

- Between the Freedom Boulevard and Rio Del Mar Boulevard interchanges.
- Between Rio Del Mar Boulevard and State Park Drive interchanges.

The total roadway widening would be approximately 2.6 miles in length. Southbound, the auxiliary lanes would begin at the existing State Park Drive loop on-ramp and end at the existing off-ramp to Freedom Boulevard. Northbound, the auxiliary lanes would begin at the existing Freedom Boulevard on-ramp and end at the existing diagonal off-ramp to State Park Drive.

The new auxiliary lanes would be 12-feet-wide. From Freedom Boulevard to Rio Del Mar Boulevard, the width needed for the new lane would be added in the median. The existing median barrier would be reconstructed in its current location. From Rio Del Mar Boulevard to State Park Drive, the width needed for the new lane would be added outside the existing shoulders; the outside shoulders would be standard 10-foot-wide.

Moosehead Drive to the south of SR 1, south of Aptos Creek, would be realigned where it runs parallel to SR 1 due to the outside widening of SR 1. A new retaining wall would be placed along the outside freeway shoulder to support the realignment that would include horizontal and vertical adjustments.

Structures – State Route 1

The Build Alternative would include the replacement of the two SCBRL railroad bridges over SR 1 and widening of the SR 1 bridge over Aptos Creek and Spreckels Drive to accommodate the proposed auxiliary lanes. The existing two-span SCBRL railroad bridges (underpass structures) are proposed to be replaced with longer spans to accommodate the planned SR 1 ultimate improvements that are a six-through-lane concept plus an auxiliary lane in each direction between interchanges. The ultimate SR 1 configuration was approved in the *Final Environmental Impact Report/Environmental Assessment with a Finding of No Significant Impact for the Tier I High Occupancy Vehicle (HOV) Lanes and Tier II 41st Avenue to Soquel Avenue/Drive Auxiliary Lanes Project* (Tier I/Tier II Environmental Impact Report/Environmental Assessment with a Finding of No Significant Impact). In addition to the railroad bridges, new trail overcrossings would be constructed adjacent to the new railroad bridges for the ultimate trail configuration of the Coastal Rail Trail Segment 12 for the SR 1 improvements.

The widening of the SR 1 bridge over Aptos Creek and Spreckels Drive would occur on the south side of SR 1 only and require abutment walls along the existing embankments along the south side of Aptos Creek and the embankment on the north side of Spreckels Drive. The widened bridge would accommodate six lanes, each 12-feet-wide (four through-lanes plus an auxiliary lane in each direction), 10-foot-wide outside shoulders, and a 9-foot-wide median with a 2-foot-wide inside shoulder in the northbound direction and 5-foot-wide inside shoulder in the southbound direction. To accommodate the SR 1 ultimate improvements of six through-lanes plus an auxiliary lane in each direction, the SR 1 bridge over Aptos Creek and Spreckels Drive would be widened to the north (inland) side as part of a future Project.

Retaining Walls – State Route 1

The build alternative would include retaining walls at the following locations along SR 1 (Figure 3 and Figure 4).

Northbound

- "SR1" Station 258+90 - 261+26; max height = 15 feet
- "SR1" Station 288+07 - 296+00; max height = 15 feet

Southbound

- "SR1" Station 258+55 - 263+01; max height = 20 feet
- "SR1" Station 265+55 - 268+56; max height = 12 feet
- "SR1" Station 269+71 - 270+70; max height = 12 feet
- "SR1" Station 273+20 - 277+02; max height = 20 feet
- "SR1" Station 277+02 - 278+98; max height = 30 feet
- "SR1" Station 281+56 - 284+41; max height = 35 feet
- "SR1" Station 284+41 - 296+45; max height = 15 feet

The build alternative would evaluate sound walls at the following locations along SR 1 (Figure 3, Figure 4, and Figure 5).

Northbound

- "SR1" Station 258+57 – 267+49

Southbound

- "SR1" Station 263+18 – 266+78
- "SR1" Station 267+31 – 272+50
- "SR1" Station 284+79 – 291+52

1.3.1.2 Bus-on-Shoulder Features

BOS features are proposed, which would allow future bus operations on the outside shoulders of SR 1 through the interchanges during peak congestion periods. At the Freedom Boulevard, Rio Del Mar Boulevard, and State Park Drive interchanges, the Project would widen and improve SR 1 shoulders, which currently lack the width and pavement structural section to support bus operations.

Cross Section – State Route 1 Bus-on-Shoulder

The added auxiliary lanes coupled with the BOS improvements allow the transit operator to use the auxiliary lane in between interchanges and use the shoulder between the off-ramp and on-ramps through the interchanges. Within the Freedom Boulevard, Rio Del Mar Boulevard, and State Park Drive interchange areas, the highway shoulders would be 12-feet-wide.

Other Features – State Route 1 Bus-on-Shoulder

New signs would be installed to advise motorists that only buses are allowed to use the highway shoulders through interchanges during peak traffic hours. Along northbound SR 1, a sign would be provided south of each of the three interchanges in the Project area. Along southbound SR 1, a sign would be installed north of each interchange. Shoulders would be painted red to indicate bus-only use.

1.3.1.3 Coastal Rail Trail Segment 12

The limits of Coastal Rail Trail Segment 12 extend from the southern terminus of the trail segment at Sumner Avenue, just of the south of the Rio Del Mar Boulevard underpass, to the northern terminus at State Park Drive. The proposed Coastal Rail Trail Segment 12 includes the construction of a paved bicycle and pedestrian shared use trail within SCBRL's right-of-way on the inland side of the tracks, consistent with the approved *Monterey Bay Sanctuary Scenic Trail (MBSST) Network Master Plan* (MBSST Network Master Plan) (Figure 6), with an optional first phase. The trail segment would include a new at-grade trail connection to Sumner Avenue just south of the Rio Del Mar Boulevard underpass where the existing railroad tracks pass under Rio Del Mar Boulevard and a new sidewalk on the north side of Sumner Avenue between the terminus of the trail and the existing sidewalk on Rio Del Mar Boulevard.

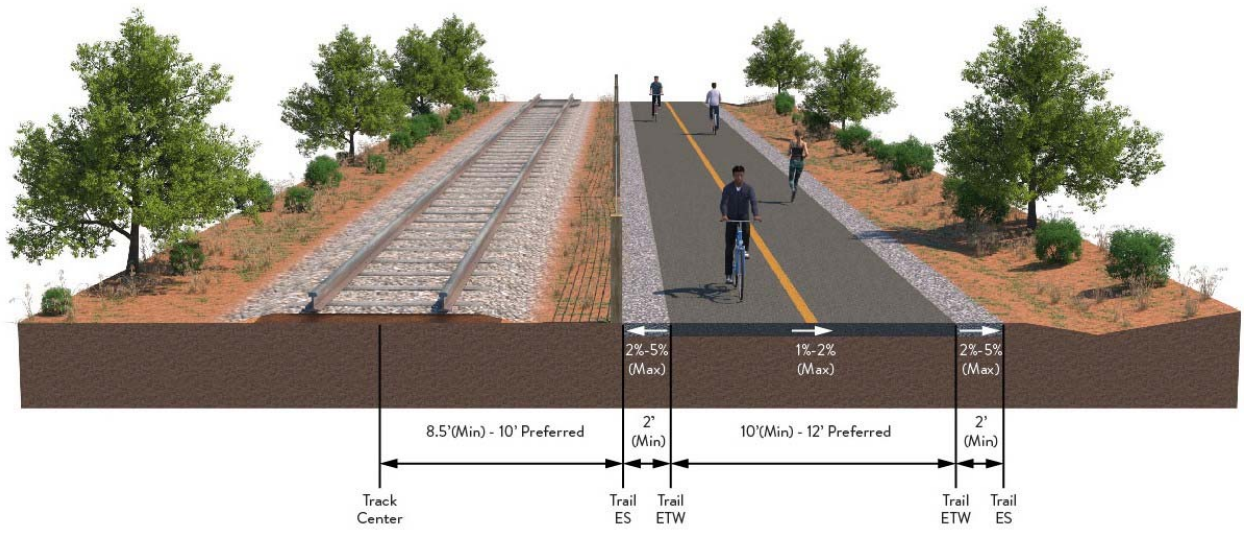

Figure 6. Coastal Rail Trail Segment – Ultimate Trail Configuration

The SCCRTC wishes to preserve the SCBRL corridor for transportation uses, which includes recreational passenger rail, freight rail, a multiuse trail, and future commuter rail transit. The ultimate configuration to accommodate all proposed transportation uses along the SCBRL is a bicycle and pedestrian shared use trail adjacent to railroad tracks. The SCBRL is currently an active freight railroad with SCCRTC owning the right-of-way. SCCRTC contracts to serve freight and recreational passenger rail along the freight easement. The SCCRTC's contracted freight operator has indicated that they may file for abandonment of freight along the SCBRL.

As a method of preserving the right-of-way of a corridor that otherwise could be abandoned, the SCCRTC could consider railbanking the corridor. The Department of Interior defines railbanking as the preservation of a railroad corridor for future rail use. Railbanking is accomplished under the National Trails System Act through provisions that allow a railbanked corridor to be used for interim trail use purposes through a voluntary agreement reached between a railroad and a trail manager. The right-of-way is preserved for future freight reactivation and could allow the removal of the railroad tracks and construction of a trail in the interim condition.

For this reason, an optional first phase is being considered for Segment 12 of the Coastal Rail Trail, where all or a portion of the trail could be located along the alignment of the existing railroad tracks.

1.3.1.3.1 Ultimate Trail Configuration

Trail Alignment

The ultimate trail configuration includes construction of a paved bicycle and pedestrian shared use trail alongside the existing railroad track alignment. New trail bridge crossings of SR 1 at two locations and adjacent to the existing railroad bridges at Soquel Drive, Aptos Creek, and Valencia Creek would be constructed. New at-grade trail crossings will be constructed at Aptos Creek Drive, Parade Street, and Trout Gulch Road. An at-grade trail connection from the new trail to the Aptos Village County Park between Aptos Creek and Aptos Creek Road would be constructed.

Structures

- At the two locations where the existing railroad bridges cross over SR 1, the rail trail will be placed adjacent to the reconstructed rail underpasses.
- Where the rail trail crosses over Aptos Creek, Valencia Creek and Soquel Drive, the existing structures have been evaluated for their load bearing capacities, and it has been determined there is not enough data to cantilever the rail trail. Therefore, the Project would include construction of new rail trail bridges adjacent to the existing railroad structures.
- For areas where the rail trail is on an independent structure from the railroad bridges or grade, the separation between the two structures would be a minimum of 5 feet.

Retaining Walls

Retaining walls would be constructed in the following locations for the Coastal Rail Trail Segment 12 alignment.

- North of SR 1 (towards State Park Drive) – An approximate 6-foot-high, 300-foot-long retaining wall on the inland side of the trail.
- SR 1 to Soquel Drive—Retaining wall varying in height between approximately 5-feet and 20-feet, approximately 300-feet-long on the inland side of the trail.
- Aptos Creek to Aptos Creek Road—Retaining wall varying in height between approximately 2-feet and 18-feet, approximately 400-feet-long on the inland side of the trail.
- Trout Gulch Road to Valencia Creek—Retaining wall varying in height between approximately 2-feet and 18-feet, approximately 450-feet-long on the inland side of the trail.
- South of SR 1 (towards Rio Del Mar Boulevard)—An approximate 12-foot-high, 400-foot-long retaining wall on the inland side of the trail.
- Under Rio Del Mar Boulevard - Retaining wall varying in height between approximately 4-feet and 16-feet, approximately 1,000-feet-long on the inland side of the trail.

Fencing

Fencing to separate trail users and the railroad for the ultimate trail improvements is proposed as shown in Figure 6. In accordance with the Federal Railroad Administration guidelines, there would be a 10-foot offset from the centerline of the railroad to the edge of the trail, although an 8-foot-6-inch offset from the centerline of the railroad may be allowed in some circumstances. The fencing would be constructed using concrete posts (4 feet, 6 inches in height) etched to resemble wood, and multiple smooth wire strands. Fence post construction is anticipated to require 3-foot-deep excavation. The new trail bridges over Aptos Creek, Valencia Creek, and Soquel Drive would include a railing.

1.3.1.3.2 Construction of Optional First Phase for Coastal Rail Trail Segment 12

It is possible that the common carrier could file for abandonment of freight operations with the Surface Transportation Board (STB) along the SCBRL at any time, in which case all or a portion of the SCBRL would likely be railbanked to preserve the corridor for future freight re-activation but could then be used for a multi-use trail as an interim condition.

All or a portion of the trail would be constructed in approximately the same location of the existing railroad tracks by removal of the rails and ties from just south of Rio Del Mar Boulevard at the southern terminus with Sumner Avenue to the northern terminus at State Park Drive, as shown in Figure 7. The two existing railroad bridges over SR 1 would be removed and two new trail overcrossings over SR 1 would be constructed in their place. The existing railroad bridges at Aptos Creek and Valencia Creek/Soquel Drive (south) would be repurposed for the new trail by removing the railroad decking and replacing it with a new trail deck and railing system. The existing single-span railroad bridge superstructure over Soquel Drive (north) would be removed and replaced with a new trail deck and railing system.

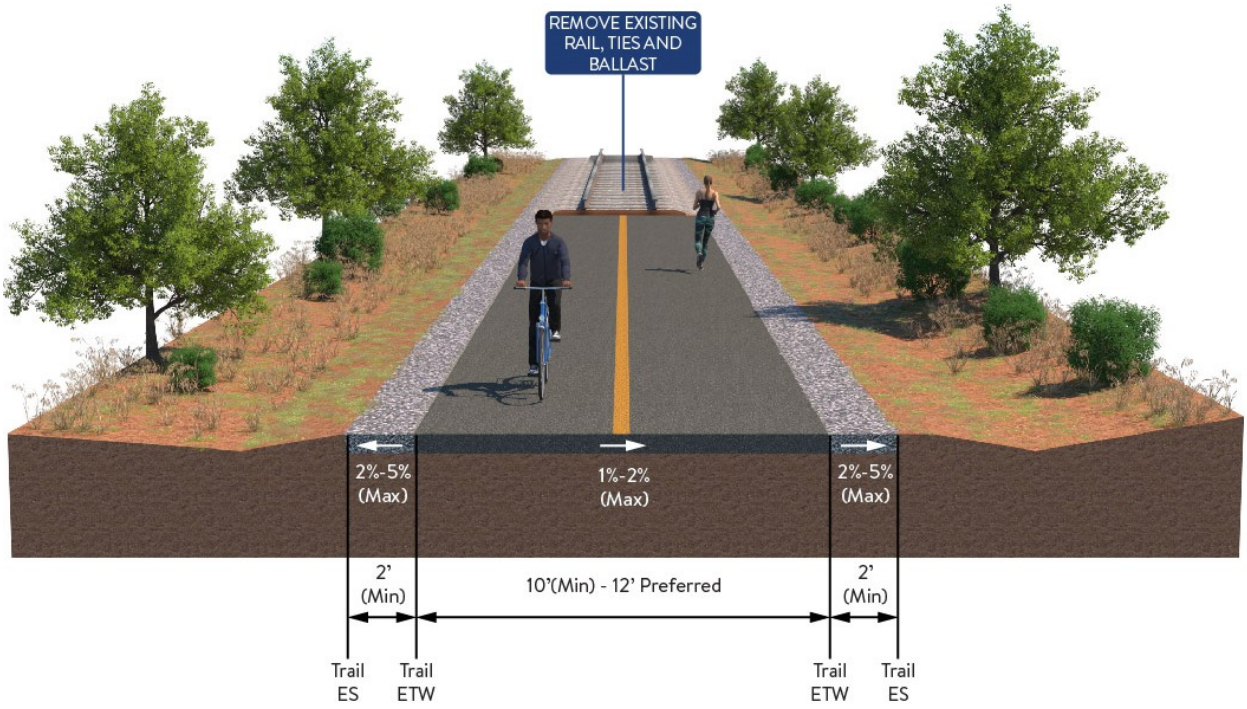

Figure 7. Coastal Rail Trail Segment – Optional First Phase

Stair access between the new trail and existing Soquel Drive (north) is proposed. A stair connection from the trail to Soquel Drive would begin on the south side of the trail west of the existing railroad bridge over Soquel Drive with a terminus at the Soquel Drive/Spreckels Drive signalized intersection. A new crosswalk would be provided at the Soquel Drive/Spreckels Drive signalized intersection. All trail users can access Soquel Drive via the at-grade trail crossing with Aptos Creek Road as an alternative to using the stairs. The alternative route would be identified with new signage. An at-grade trail connection from the new trail to the Aptos Village County Park between Aptos Creek and Aptos Creek Road would be constructed.

New at-grade trail crossings will be constructed at Aptos Creek Drive, Parade Street, and Trout Gulch Road in the approximate location of the existing railroad tracks.

Structures

- At the two locations where the existing railroad bridges cross over SR 1, the existing railroad bridges would be removed, and new single-span trail overcrossings would be constructed over SR 1 in the same general location as the existing railroad bridges. The bridge abutments constructed on either side of SR 1 would be constructed to freight railroad standards and be positioned and sized to account for the ultimate trail configuration.
- Where the trail crosses over Aptos Creek, Valencia Creek, and Soquel Drive (south), the existing bridge structures would remain, the railroad tracks removed, and new trail constructed along the existing rail centerline.

- The existing single-span railroad bridge superstructure over Soquel Drive (north) would be removed and replaced with a new trail deck and railing system.
- Slight modifications of the existing railroad bridge abutments are proposed to meet current seismic requirements.

Retaining walls

Retaining walls would be constructed in the following locations:

- Just west of Soquel Drive - An approximate 5-foot high, 60-foot long retaining wall on the south side of the trail.
- Just east of Aptos Creek —An approximate 18-foot high, 140-foot long retaining wall on the south side of the trail and an approximate 6-foot high, 140-foot long retaining wall on the inland side of the trail.

Fencing

The new trail overcrossings over SR 1 would include railings with fencing and the repurposed bridges over Aptos Creek, Valencia Creek, and Soquel Drive would have fencing added. No additional fencing is anticipated due to the railroad tracks being removed.

1.3.1.3.3 Removal of Optional First Phase for Coastal Rail Trail Segment 12

If all or a portion of the optional first phase of the trail is implemented, the trail along the existing railroad track alignment would need to be removed, a trail would be constructed adjacent to the tracks as described by the proposed ultimate trail Project, and the railroad tracks re-installed in their approximate existing location. At-grade railroad crossings of Aptos Creek Drive, Parade Street, and Trout Gulch Road would need to be reconstructed.

Structures

- At the two locations where new trail overcrossings are constructed over SR 1 as part of the optional first phase improvements, the trail overcrossings would be relocated to be adjacent to the existing railroad alignment, and new railroad bridges would be constructed over SR 1 adjacent to the trail overcrossings, as described by the ultimate trail configuration. Construction of the new two-span railroad bridges over SR 1 would require the construction of support columns in the median of SR 1 to support the new railroad bridges.
- Repurpose bridges over Soquel Drive (south), Aptos Creek, and Valencia Creek from trail use to rail use by removing the trail deck and railing system and reconstructing railroad infrastructure.
- The trail deck and railing system over Soquel Drive (north) would be removed and replaced with a single-span railroad bridge with reconstructed railroad infrastructure.

Design Standards

Coastal Rail Trail Segment 12 would be designed as a multi-use paved path per the guidelines identified in Chapter 5 of the *MBSST Network Master Plan*. The design standards used for this segment of the Coastal Rail Trail follow the MBSST guidelines and are listed under *Cross*

Section Standards. The MBSST Network Master Plan incorporates and refers to design elements from the Class I Bikeways identified in Chapter 1000 of the Highway Design Manual.

In areas where existing constraints limit the available width for the trail to be adjacent to the railroad tracks, other alternative design standards than those listed in the *MBSST Master Plan* may be utilized for design.

Cross Section Standards

- The paved traveled way of the Coastal Rail Trail would be a minimum of 12-feet-wide but may be reduced to 10 feet in areas with existing constrained conditions.
- Shoulders would be provided on each side of the traveled way and would be 2 feet in width where possible.
- For accessibility and drainage, the cross slope of the traveled way would be between 1% and 2%.
- The shoulder cross slope would be between 2% and 5%, and would angle away from the surface of the traveled way.

Horizontal Design

- The design speed for the trail would be established at 20 miles per hour and correlates to a minimum stopping sight distance of 125 feet.
- To meet a minimum stopping sight distance of 125 feet, a radius of no less than 500 feet would be used for the Coastal Rail Trail alignment where possible.
- The minimum horizonal clearance between the railroad centerline and the edge of the Coastal Rail Trail, inclusive of shoulders, is 8 feet, 6 inches.
- Where roadways are adjacent to the trail, such as Soquel Drive through Aptos Village, a minimum horizonal separation of 12 feet on tangents and 10 feet on curves is recommended between edge of pavement of the roadway and edge of the trail. This standard would be modified at constrained locations along the corridor where necessary to maintain the absolute minimum horizontal separation. Such separation variances may include vertical separation, fence, or other barriers.

Vertical Design

- The vertical grade slope for the Coastal Rail Trail would be limited to no more than 5%.
- Vertical obstructions and signs would be 10 feet above the entire Coastal Rail Trail, except in limited situations where the vertical clearance may be reduced to 8 feet over the travel way and 7 feet over the shoulders.
- The Coastal Rail Trail would either be constructed following closely the existing grade or on widened segments and new bridges requiring new cuts/fills and retaining walls. Minor grading of the existing ground surface in segments on existing grade is anticipated and may involve excavation of approximately 1-foot depth.

1.3.1.4 Vegetation Removal and Planting

Construction work for the Build Alternative would require removal of existing mature landscape plantings along SR 1 and along the Coastal Rail Trail Segment 12 route. Where proper setback requirements allow, plantings would be replaced as per Caltrans' policies, and include an

automated irrigation system and a 3-year plant establishment period. The replacement planting effort would include vegetation impacted by the contractor's staging, storage, and construction activities. Vegetation needed for the optional first phase trail improvements is significantly less than for the ultimate trail improvements.

1.3.1.5 Construction Activities

Construction work for the Build Alternative would be done primarily during daylight hours from 7:00 a.m. to 6:00 p.m. However, night-time work and temporary closures of lanes and roadways may be necessary to avoid major disruption for tasks that could interfere with traffic or create safety hazards such as demolition of the existing railroad bridges. Construction activities would include excavation, drilling, dewatering, pavement demolition, bridge demolition, mass grading, concrete form work, pavement installation, storm system installation, landscaping and irrigation, sign installation, striping operations, and traffic control. Such activities would require the use of the following types of equipment: drilling rig, forklift, scissor lift, backhoe, track excavator, compactor, concrete pump, crane, bulldozer, grader, front-end loader, dump trucks, jackhammer, and vibratory roller. These activities may require temporary freeway, ramp, and local street partial lane closures or full closures with possible detours.

A Transportation Management Plan (TMP) would be developed as part of the Project construction planning phase. The TMP would address potential impacts to circulation of all modes of travel (i.e., transit, bicycles, pedestrians, and vehicles). Roadway and/or pedestrian access to all occupied businesses and respective parking lots would be maintained during project construction. The TMP would include an evaluation of potential detour impacts and would also include measures to minimize, avoid, and/or mitigate impacts to alternate routes. The TMP would address coordination with local agencies for traffic through or near the construction zone. Staging areas would be located within the existing Caltrans' right-of-way and within SCBRL's right-of-way along Coastal Rail Trail Segment 12.

Construction Schedule

Construction of the SR 1 and Coastal Rail Trail improvements including the auxiliary lanes and BOS features is anticipated to begin in 2025 subject to availability of funds for construction and is estimated to take approximately 3 years to complete.

Demolition

Demolition work would generally comprise removal of existing bridge structures, abutments, columns, overhead sign foundations, rails and ties, clearing and grubbing, tree removal, pavement removal, and drainage system removal.

1.3.1.6 Stormwater Impacts

1.3.1.6.1 Permanent Stormwater Impacts

Permanent impacts from runoff from the increased impervious surface area could have the potential to increase in pollutants to the receiving water bodies. Erosion control measures such as hydroseeding and erosion control blankets will be applied on all DSAs to minimize post-construction erosion. Reducing pervious areas could also reduce the amount of rainfall that is

able to percolate into the water table. Therefore, the Project will consider treatment best management practices (TBMP) and hydromodification measures to reduce these impacts. This consideration is further discussed in Section 2.2.3 and Section 2.3.3.

1.3.1.6.2 Temporary Stormwater Impacts

During construction, the contractor would be required to develop and implement a Storm Water Pollution Prevention Plan (SWPPP) in compliance with the statewide Construction General Permit and consistent with the guidelines and procedures in Caltrans' Statewide Storm Water Management Plan. The SWPPP will provide detailed, site-specific information regarding best management practices (BMP) to avoid and minimize water quality impacts. The Project would be constructed to minimize erosion by disturbing slopes only when necessary, minimizing cut and fill areas to reduce slope lengths, providing cut and fill slopes flat enough to allow revegetation to limit erosion rates, and providing concentrated flow conveyance systems such as storm drains, ditches, and gutters.

1.3.1.7 Utilities

Existing utilities located in areas subject to construction that conflict with the proposed improvements would be relocated as needed. This is anticipated to include sanitary sewer and electric utility poles adjacent to Moosehead Drive and a gas line along the Coastal Rail Trail Segment 12 route for the ultimate trail improvements, and other utility appurtenances.

1.3.1.8 Property Acquisitions

The Build Alternative would require full or partial acquisitions for the construction of the SR 1 and Coastal Rail Trail Segment 12 ultimate trail improvements, as well as temporary easements for construction activities such as the construction of sound walls and retaining walls along SR 1 and the SCBRL.

Table 1 lists the full and partial property acquisitions that would occur under the Build Alternative. Along the SCBRL corridor, the acquisitions shown below would be needed for the construction of the proposed ultimate trail configuration of Coastal Rail Trail Segment 12. No new property acquisitions would be needed to construct the optional first phase of the Coastal Rail Trail Segment 12, however the STB would have to approve railbanking the corridor.

Table 1. Property Acquisitions

Assessor's Parcel Number	Street Address	Partial Acquisition (square feet)	Full Acquisition (square feet)
Coastal Rail Trail Segment 12 – Ultimate Trail Improvements			
039-232-03	7992 Soquel Drive	2,700	7,510[a]
039-232-02	7994 Soquel Drive	1,100	3,350[a]
039-232-01	7996 Soquel Drive	5,370	12,110[a]
041-561-11	8035 Soquel Drive 23	2,100	-
041-011-42	10 Parade St A	400	-
041-011-41	15 Parade St B	400	-
044-282-47	379 Sandalwood Drive	320	-
044-282-48	369 Sandalwood Drive	3,300	-
041-052-16	9006 Soquel Drive	520	-
041-052-17	Soquel Drive - Vacant	1,560	-
Highway 1			
042-071-01, 042-071-02, 042-071-03, 042-067-18	345 Moosehead Drive	1,129	-
042-067-16	Moosehead Drive - Vacant	343	-
042-067-17	Moosehead Drive - Vacant	735	-

[a] During final design, partial acquisition of parcel numbers 039-232-01, 039-232-02, and 039-232-03 may be determined to be feasible, in which case, the respective amounts shown in the "Partial Acquisition" column of Table 1 would be acquired. In the event that it is determined during final design that partial acquisition is infeasible, the respective amounts shown in the "Full Acquisition" column of Table 1 would be acquired.

1.3.2 No-Build Alternative

Under the No-Build Alternative, there would be no construction of auxiliary lanes or BOS features on SR 1 within the Project area, and Coastal Rail Trail Segment 12 would not be constructed. The existing transportation facilities within the Project area would remain unchanged. The No-Build Alternative assumes the construction of other planned and programmed projects in the region, including other auxiliary lanes projects on SR 1 and other segments of the Coastal Rail Trail.

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2 REGULATORY SECTION

2.1 Federal Laws and Requirements

2.1.1 Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source unlawful unless the discharge is in compliance with a NPDES permit. Known today as the Clean Water Act (CWA), Congress has amended it several times. In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/construction point sources to comply with the NPDES permit program. Important CWA sections are:

- Sections 303 and 304 require states to promulgate water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity, which may result in a discharge to waters of the U.S., to obtain certification from the State that the discharge will comply with other provisions of the act. (Most frequently required in tandem with a Section 404 permit request. See below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. The Federal Environmental Protection Agency delegated to the California State Water Resources Control Board (SWRCB) the implementation and administration of the NPDES program in California. The SWRCB established nine Regional Water Quality Control Boards (RWQCB). The SWRCB enacts and enforces the Federal NPDES program and all water quality programs and regulations that cross Regional boundaries. The nine RWQCBs enact, administer and enforce all programs, including NPDES permitting, within their jurisdictional boundaries. Section 402(p) requires permits for discharges of stormwater from industrial, construction, and Municipal Separate Storm Sewer Systems (MS4).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S, including wetlands. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

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

There are also two types of Individual permits: Standard Individual permit and Letter of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Individual permits. For Standard Individual permit, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's (EPA) Section 404 (b)(1) Guidelines (U.S. EPA CFR 40 Part 230), and whether permit approval is in the public interest. The 404(b)(1) Guidelines were developed by the U.S. EPA in conjunction with USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative, to the proposed discharge that would have less effects on waters of the U.S., and not have any other significant adverse environmental consequences. Per Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures have been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4.

2.2 State Laws and Requirements

2.2.1 Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the State. It predates the CWA and regulates discharges to waters of the State. Waters of the State include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined and this definition is broader than the CWA definition of "pollutant". Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDR) and may be required even when the discharge is already permitted or exempt under the CWA.

The SWRCB and RWQCBs are responsible for establishing the water quality standards as required by the CWA, and regulating discharges to protect beneficial uses of water bodies. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions, and then set standards necessary to protect these uses. Consequently, the water quality standards developed for particular water body segments are based on the designated use and vary depending on such use. Water body segments that fail to meet standards for specific pollutants are included in a Statewide List in accordance with CWA Section 303(d). If a Regional Board determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-source point controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDL). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed. The SWRCB implemented the requirements of CWA Section

303(d) through Attachment IV of the Caltrans Statewide MS4, as it includes specific TMDLs for which Caltrans is the named stakeholder.

2.2.2 State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB adjudicates water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

2.2.3 National Pollutant Discharge Elimination System (NPDES) Program

2.2.3.1 Municipal Separate Storm Sewer Systems

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of stormwater dischargers, including MS4s. The U.S. EPA defines an MS4 as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying stormwater." The SWRCB has identified Caltrans as an owner/operator of an MS4 pursuant to federal regulations. Caltrans's MS4 permit covers all Caltrans rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

Because the Project's Project Initiation Document (PID) was approved in 2002, this Project is subject to the 1999 Caltrans MS4 Permit, NPDES No. CAS000003, SWRCB Order No. 99-06-DWQ, adopted July 15, 1999. The Caltrans MS4 Permit contains four basic requirements:

1. Caltrans must comply with the requirements of the Construction General Stormwater Permit (CGP) (see below);
2. Caltrans must implement a year-round program in all parts of the State to effectively control stormwater and non-stormwater discharges; and
3. Caltrans stormwater discharges must meet water quality standards through implementation of permanent and temporary (construction) BMPs to the Maximum Extent Practicable (MEP), and other measures deemed necessary by the SWRCB and/or other agency having authority reviewing the stormwater component of the Project.
4. Caltrans must implement trash control measures to meet trash regulation compliance. This requirement is per the California Water Code Section 13383 Order issued by the SWRCB to Caltrans, and is applicable to all Caltrans projects (SWRCB, 2017). However, per the *Caltrans Statewide Trash Amendment Implementation Plan* (2019), full trash capture (FTC) BMPs are only considered for Significant Trash Generating Areas (STGA). This Project is not currently located in an STGA, so the Project would not need to consider FTC BMPs.

Pursuant to the California Water Code Section 13383 Order issued by the SWRCB to Caltrans, Caltrans developed the *Caltrans Statewide Trash Amendment Implementation Plan* (Caltrans, 2019), which describes the steps Caltrans will take to comply with the requirements on a statewide basis outside of the excluded San Francisco Region. The *Caltrans Statewide Trash Amendment Implementation Plan* (Caltrans, 2019) includes a Geographic Information System map of STGAs, the combination of FTC systems, multi-benefit projects, other treatment controls, and/or institutional controls selected by Caltrans and the rational for the selections, and Caltrans' method for demonstrating FTC equivalency. The Project would be required to consider trash control measures in accordance with the *Caltrans Statewide Trash Amendment Implementation Plan*; however, because the Project is not located in an SGTA, the Project is not required to implement trash capture systems within Caltrans' right-of-way.

To comply with the permit, Caltrans developed the Statewide SWMP to address stormwater pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing stormwater management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices Caltrans uses to reduce pollutants in stormwater and non-stormwater discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed Project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address stormwater runoff.

2.2.3.2 Construction General Permit

The CGP (NPDES No. CAS000002, SWRCB Order No. 2009-0009-DWQ, adopted on November 16, 2010) became effective on February 14, 2011 and was amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ. The permit regulates stormwater discharges from construction sites which result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development.

For all projects subject to the CGP, the applicant is required to hire a Qualified SWPPP Developer to develop and implement an effective SWPPP. All Project Registration Documents, including the SWPPP, are required to be uploaded into the SWRCB's on-line SMARTS, at least 30 days prior to construction. In compliance with the CGP, prior to any soil disturbance work, a Notice of Intent would need to be filed with the SWRCB's SMARTS. To maintain proper permit coverage under the CGP, in addition to filing a Notice of Intent, all dischargers must electronically file Permit Registration Documents, Changes of Information, sampling and monitoring information, annual reporting, and other required compliance documents, through SMARTS. To end permit coverage, the Project would be required to electronically file a Notice of Termination through SMARTS. The Notice of Termination should include a final site map and photos to certify that final soil stabilization has been achieved. The Central Coast RWQCB will only accept the 70% Final Cover Method to demonstrate final soil stabilization.

2.2.3.2.1 Waivers from CGP Coverage

Projects that disturb over 1 acre but less than 5 acres of soil, may qualify for waiver of CGP coverage. This occurs whenever the R factor of the **Watershed Erosion Estimate (=RxKxLS) in tons/acre is less than 5**. Within this CGP formula, there is a factor related to when and where the construction will take place. This factor, the 'R' factor, may be low, medium, or high. When the R factor is below the numeric value of 5, projects can be waived from coverage under the CGP, and are instead covered by the Caltrans Statewide MS4.

In accordance with SWMP, a Water Pollution Control Plan is necessary for construction of a Caltrans project not covered by the CGP.

Construction activity that results in soil disturbances of less than 1 acre is subject to this CGP if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop a SWPPP, to implement soil erosion and pollution prevention control measures, and to obtain coverage under the CGP.

The CGP contains a risk-based permitting approach by establishing three levels of risk possible for a construction site. Risk levels are determined during the planning, design, and construction phases, and are based on project risk of generating sediments and receiving water risk of becoming impaired. Requirements apply according to the Risk Level determined.

Risk Level 3 (highest risk) projects would require compulsory stormwater runoff pH and turbidity monitoring during all qualifying rain events (producing precipitation of 0.5 inch or more at the time of discharge). Stormwater samples should be representative of the flow and characteristics of the discharge. If any samples exceed an applicable Numeric Action Levels, sampling results should be reported electronically to the SWRCB no later than 10 days after the conclusion of the storm event. Risk Level 3 projects that are over 30 acres would also be required to conduct pre- and post-construction aquatic biological assessments during specified seasonal windows.

2.2.3.3 Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the United States must obtain a 401 Certification, which certifies that the project will be in compliance with State water quality standards. The most common federal permit triggering 401 Certification is a CWA Section 404 permit, issued by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may prescribe a set of requirements known as WDRs under the State Water Code (Porter-Cologne Act). WDRs may specify the inclusion of additional project features, effluent limitations, monitoring, and plan submittals that are to be implemented for

protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

2.3 Regional and Local Requirements

2.3.1 RWQCB Basin Plan

The Project is within the jurisdiction of the Central Coast RWQCB, Region 3. The *Central Coast Basin (Region 3) Water Quality Control Plan* (Basin Plan) (2019) states the goals and policies, beneficial uses, and water quality objectives that apply to water bodies throughout the Central Coast region, which includes the Project area. The Basin Plan has been adopted by the SWRCB, U.S. EPA, and the Office of Administrative Law. Excerpts from the Basin Plan are included in Appendix A of this WQAR.

2.3.2 Ocean Plan

This Project discharges to coastal watersheds within one mile of the Pacific Ocean, and as such, this Project is also subject to the *California Ocean Plan* (Ocean Plan) (SWRCB, 2019). Goals and policies, beneficial uses, and water quality objectives that apply to the Pacific Ocean are contained in the Ocean Plan. Excerpts from the Ocean Plan are included in Appendix B of this WQAR.

2.3.3 MS4

The Project would also include Rail Trail and road realignment work within unincorporated Santa Cruz County. Santa Cruz County is a permittee under the statewide Phase II Small MS4 Permit (NPDES No. CAS000004, SWRCB Order No. 2013-0001-DWQ). The Project would be subject to Post-Construction Stormwater Requirements issued by the Central Coast RWQCB, which give additional project size-based requirements for site design, water quality treatment, runoff retention, and peak management. Road realignment work within the County of Santa Cruz's right-of-way would be subject to the requirements outlined in the Phase II MS4 Permit.

Additionally, the County of Santa Cruz has developed *Design Criteria Containing Standards for the Construction of Streets, Storm Drains, Sanitary Sewers, Water Systems, and Driveways within the Unincorporated Portion of Santa Cruz County* (Santa Cruz County Design Criteria) (2019). The Santa Cruz County Design Criteria summarizes the requirements of the Phase II Small MS4 Permit and the Central Coast RWQCB's *Post-Construction Stormwater Management Requirements Development Projects in the Central Coast Region* (RWQCB Post-Construction Stormwater Requirements) (2013). It also provides guidance for low-impact development (LID) design strategies and specific BMP selection criteria. The Design Criteria document provides technical requirements for project designs throughout Santa Cruz County that include the implementation of permanent stormwater TBMPs. Placement of stormwater TBMPs within unincorporated Santa Cruz County's right-of-way would comply with the Santa Cruz County Design Criteria.

Per the Phase II MS4 permit, sidewalks, bicycle lanes, and trails constructed with permeable surfaces, or sidewalks, bicycle lanes, and impervious trails built to direct stormwater to adjacent

vegetated areas are excluded from the post-construction stormwater treatment control and hydromodification management requirements of this permit. Because all of the Project's rail trail improvements within unincorporated Santa Cruz County's right-of-way fit the criteria of exclusion described above, these improvements would be exempt from implementing stormwater treatment and baseline hydromodification management.

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3 AFFECTED ENVIRONMENT/EXISTING CONDITIONS

This section describes the physical setting of the Project area. The Project limits cover approximately 2.6 miles along SR 1 in Santa Cruz County between the State Park Drive and Freedom Boulevard Interchanges. The Project limits are within the jurisdiction of the Central Coast RWQCB, Region 3.

3.1 General Setting

3.1.1 Population and Land Use

Based on the Project's *Initial Site Assessment* (ISA) performed by WRECO (2022a), SR 1 is a primary route connecting in the southern and central areas of Santa Cruz County and is the only continuous commuter route linking Watsonville, Capitola, Aptos, Cabrillo College, Santa Cruz, and the University of California, Santa Cruz. SR 1 is also a southern terminus for SR 9 and SR 17, which bring heavy tourist traffic to coastal destinations in Santa Cruz and Monterey counties. The Project limits extend approximately 2.6 miles along SR 1 with surrounding properties consisting of a mix of commercial, residential, and recreational sites.

The U.S. Census Bureau *Quick Facts* website reports the 2019 population of Santa Cruz County to be approximately 273,213 (U.S. Census Bureau, 2019).

3.1.2 Topography

Santa Cruz County encompasses diverse topography, geologic features, and soils, including coastal terraces and alluvial valleys, steep foothills and mountains, known and potential earthquake faults and seismic hazards, and a wide range of soil types with varying constraints (e.g., expansion, liquefaction).

Based on SWRCB GeoTracker website, the average elevation of the Project area is 120 feet above mean sea level (SWRCB, 2022). the average elevation of the Project area is 120 feet above mean sea level. Per the United States Geological Survey (USGS) 7.5-Minute Soquel Quadrangle map and the 7.5-Minute Watsonville West Quadrangle map, locally, the Project area is sloped towards Aptos Creek. Aptos Creek is at an elevation of 25 feet, with the State Park Drive and Freedom Boulevard interchanges at average elevations of 150 feet. Regionally, the Project is located in a hilly area, sloping from east to southwest towards Soquel Cove (USGS, 2019).

3.1.3 Hydrology

3.1.3.1 Regional Hydrology

Per the watershed delineation in Caltrans' Water Quality Planning Tool (2022), the Project area is identified to be within the Aptos-Soquel hydrologic sub-area (#304.13), the Santa Cruz hydrologic area, and the Big Basin hydrologic unit (Caltrans, 2021).

3.1.3.2 Local Hydrology

The Project area is located within the Soquel Creek Watershed, Aptos Creek Watershed, and San Andreas Watershed as seen in Figure 8 and Figure 9. Based on the Project's *Location Hydraulic Study* prepared by WRECO (2022b), the Aptos Creek watershed originates in the San Rosalia Mountains. The watershed includes portions of the Forest of Nisene Marks State Park. One of the major tributaries that contributes to Aptos Creek is Mangels Gulch; its confluence with Aptos Creek is approximately 0.5 miles upstream of the SR 1 bridge crossing. Another major tributary to Aptos Creek is Valencia Creek. Valencia Creek originates along the northeastern boundary of the Aptos Creek watershed and like Aptos Creek, it flows in a north to south direction. Trout Creek Gulch is a major tributary to Valencia Creek, and their confluence is approximately 0.3 miles upstream of the confluence of Valencia Creek with Aptos Creek. Aptos Creek crosses SR 1 at a five-span bridge, and Valencia Creek crosses SR 1 at an arch culvert (WRECO, 2022b).

Aptos Creek (upstream of its confluence with Valencia Creek) drains a watershed area of approximately 12.2 square miles, and StreamStats indicates that approximately 74% of the land is covered by forest (USGS, 2019). Valencia Creek (upstream of its confluence with Aptos Creek) drains a watershed area of approximately 12.4 square miles, and StreamStats indicates that approximately 53 percent of the land is covered by forest (USGS, 2019). The watershed area of Aptos Creek at the mouth of the Pacific Ocean is 24.5 square miles (WRECO, 2022b).

Aptos Creek and Valencia Creek are the principal tributaries in the Aptos Creek watershed. Aptos Creek converges with Valencia Creek approximately 1 mile inland of Monterey Bay. Bridge Creek and Mangels Gulch empty into the Aptos Creek portion of the watershed and Trout Gulch empties into Valencia Creek (Santa Cruz County Department of Environmental Health [SCCDEH], 2021).

The northern Project limits of the SR 1 and the western limits of the rail trail are located within the Soquel Creek watershed and San Andreas. The stormwater drains located within Soquel Creek watersheds drain through underground pipes to the Pacific Ocean. Soquel Creek watershed is considered to be one of the major watersheds in Santa Cruz County (SSCDEH, 2021)

A small portion of the southwestern Project limits within the Coastal Rail Trail Segment 12 is located within the San Andreas watershed. San Andreas watershed is bordered on the north and east by the Pajaro River watershed and to the west by the Aptos Creek watershed. San Andreas drains an area of approximately 15 square miles and is comprised of Bush Gulch and two unnamed streams. Land use is predominantly agriculture with some rural and urban residential areas. Principal concerns of this watershed are excessive sedimentation, low stream flow, fish barriers, channelization, and poor water quality in the coastal lagoon (SCCDEH, 2021).

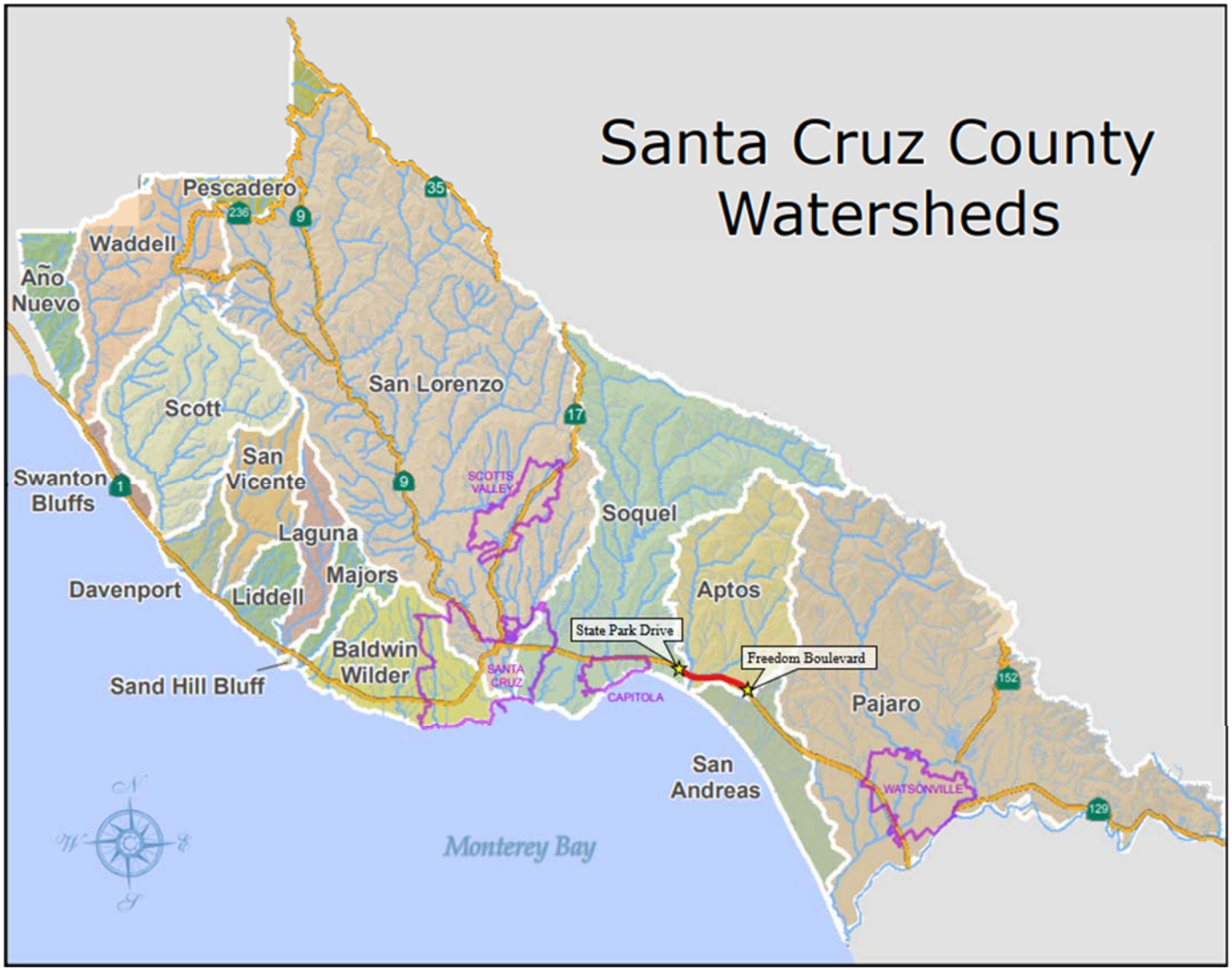

Figure 8. Santa Cruz County Watersheds

Source: SCCDEH, 2021

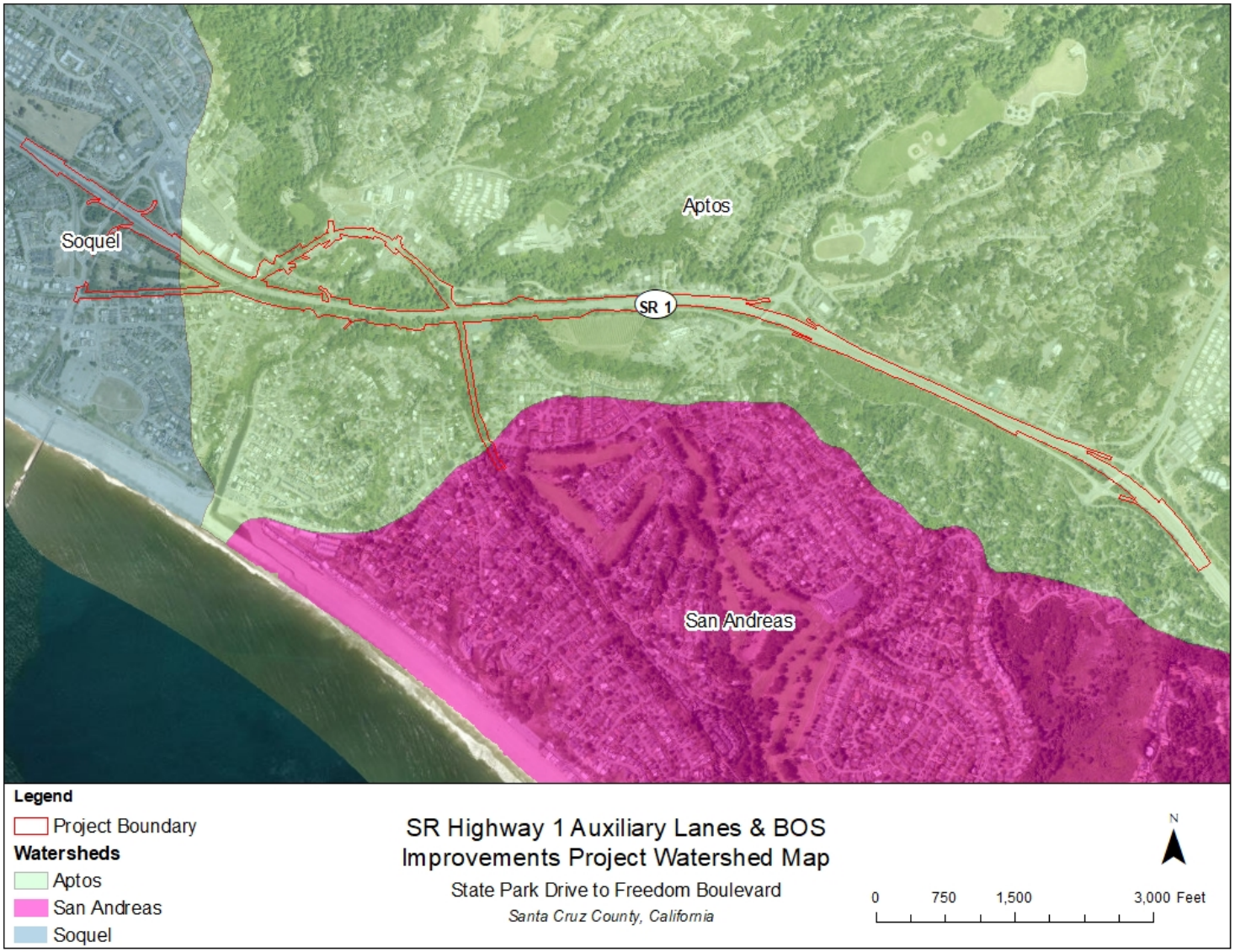

Figure 9. Project Watershed Map

Source: Santa Cruz County 2019c & Mark Thomas

3.1.3.2.1 Precipitation and Climate

According to the Köppen climate classification system, the Project area has a Mediterranean climate, characterized by mild, moist winters and hot, dry summers (UC Rangelands Research & Education Archive, 2021). A monthly climate summary was generated from the Western Regional Climate Center (WRCC) for Santa Cruz, CA for the period of record of January 1, 1893 to June 9, 2016. The average precipitation for a calendar year is 29.33 inches. The majority of this rainfall occurs between the months of October and April. The warmest month is July with an average high of 74.6 Fahrenheit (°F) and an average low of 51.1°F. The coolest month is January with an average high of 60.4°F and an average low of 38.8°F (WRCC, 2016).

3.1.3.2.2 Surface Waters

The Project's receiving waters are Aptos Creek and Valencia Creek, Valencia Lagoon, and the Pacific Ocean (Figure 10). The northern portion of the Coastal Rail Trail Segment 12 of the Project is in the Soquel Watershed and drains directly to the Pacific Ocean through a system of stormwater drains. Valencia Creek is a tributary to Aptos Creek, and Aptos Creek drains directly to the Pacific Ocean (WRECO, 2022b).

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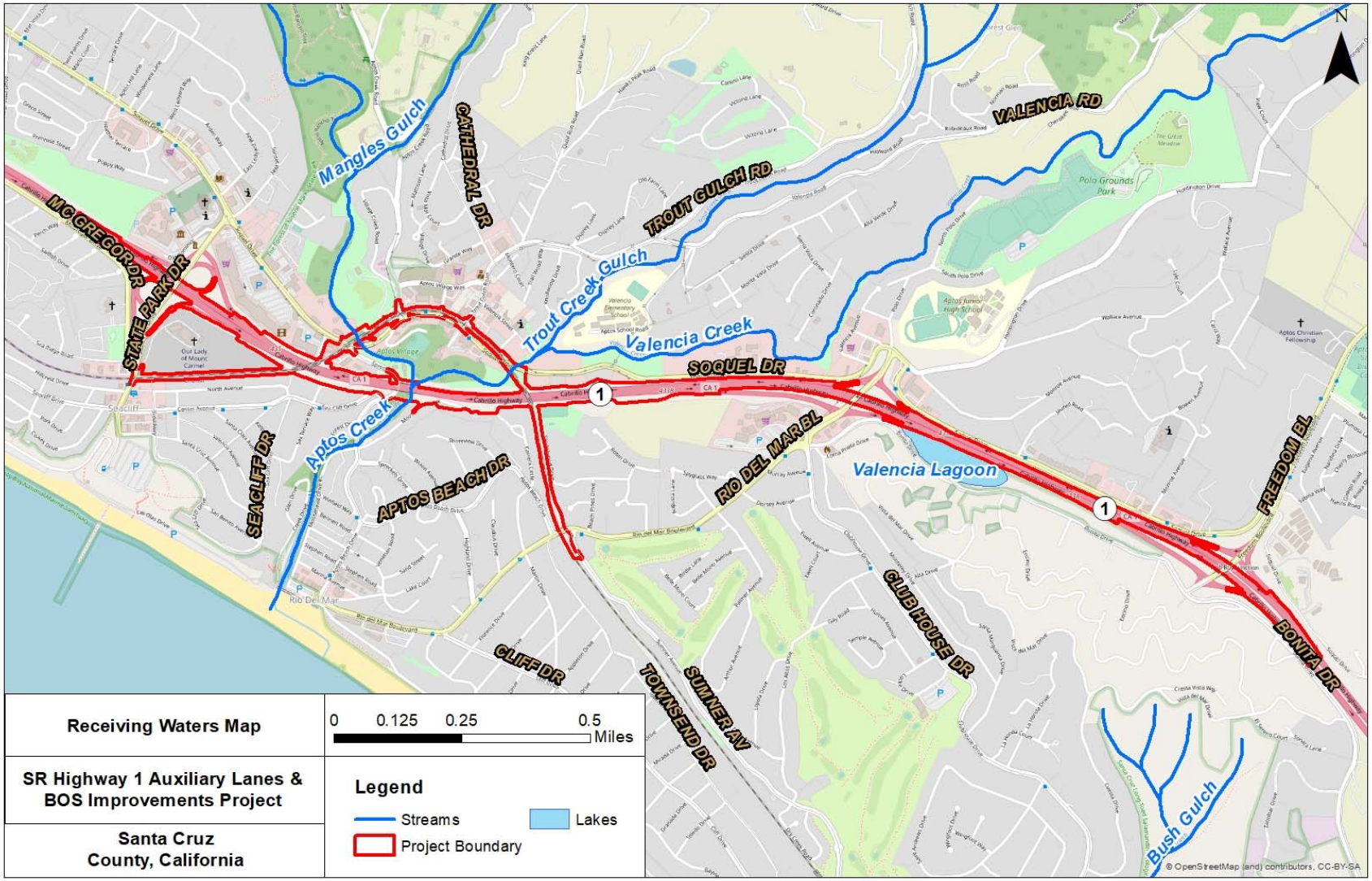

Figure 10. Surface Waters

Source: Mark Thomas, 2022 and Santa Cruz County, 2019a; 2019b

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According to the *Water Quality Control Plan for the Central Coast Region (Basin Plan)* (2019), the overall goals of water quality regulation are to "show how the quality of surface water and groundwater in the Central Coast Region should be managed to provide the highest water quality reasonably possible" (Central Coast RWQCB, 2019). The RWQCB establishes and enforces waste discharge requirements for point and nonpoint sources of pollutants at levels necessary to meet numeric and narrative water quality objectives.

Water quality objectives are numeric and narrative objectives used to define the appropriate levels of environmental quality and to manage activities that can impact aquatic environments. The Basin Plan lists the following water quality objectives for surface waters: color, tastes and odors, floating material, suspended material, settleable material, oil and grease, biostimulatory substances, sediment, turbidity, pH, dissolved oxygen, temperature, toxicity, pesticides, chemical constituents, other organics, and radioactivity (Central Coast RWQCB, 2019).

The Basin Plan lists beneficial uses for Aptos Creek, Valencia Creek, and Valencia Lagoon (see Table 2). The Basin Plan states that "Surface water bodies within the Region that do not have beneficial uses designated for them in Table 2-1 [of the Basin Plan] are assigned the following designations: municipal and domestic water supply [and] protection of both recreation and aquatic life" (Central Coast RWQCB, 2019).

Each of the Project's receiving water bodies discharge to the Pacific Ocean, which is located approximately 0.5 miles south of the Project site. The Pacific Ocean, as stated in the SWRCB's California Ocean Plan (2019), has the following beneficial uses (see Table 2):

- Industrial water supply;
- Water contact and non-contact recreation, including aesthetic enjoyment;
- Navigation;
- Commercial and sport fishing;
- Mariculture;
- Preservation and enhancement of designated Areas of Special Biological Significance;
- Rare and endangered species;
- Marine habitat;
- Fish migration;
- Fish spawning; and
- Shellfish harvesting.

There are six designated Areas of Special Biological Significance within the Central Coast RWQCB's jurisdiction, none of which fall within the proposed Project limits.

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Table 2. Listed Beneficial Uses for Project Receiving Waters

Water Body	Beneficial Uses																		
	MUN	AGR	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	EST	FRSH	NAV	COMM	AQUA	MAR	SHELL	RARE
Aptos Creek	E	E	E	E	E	E	E	E	–	E	E	E	E	E	–	E	–	–	–	–
Valencia Creek	E	–	–	–	E	E	E	E	–	E	–	E	E	–	–	E	–	–	–	–
Valencia Lagoon	–	–	–	–	E	E	E	–	E	E	–	E	–	E	–	E	–	–	–	E
Pacific Ocean	–	–	E	–	E	E	–	–	–	E	E	–	–	–	E	E	E	E	E	E

Source: RWQCB and SWRCB, 2019

Notes:

- MUN – municipal and domestic supply
- AGR – agricultural supply
- IND – industrial process supply
- GWR – groundwater recharge
- REC1 – water contact recreation
- REC2 – non-water contact recreation
- WILD – wildlife habitat
- COLD – cold freshwater habitat
- WARM – warm freshwater habitat
- MIGR – fish migration
- SWPN – fish spawning
- BIOL – preservation of biological habitats of special significance
- EST – estuarine habitat
- FRSH – fresh water replenishment
- NAV - navigation
- COMM – commercial and sports fishing
- AQUA – mariculture
- MAR – marine habitat
- SHELL – shellfish harvesting
- RARE – rare, threatened, or endangered species
- E - existing

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Water Quality Impairments and Total Maximum Daily Loads

Water body segments that fail to meet standards for specific pollutants are included in a Statewide List in accordance with the CWA Section 303(d). If a RWQCB determines that waters are impaired for one or more constituents, the CWA requires the establishment of TMDLs to specify allowable pollutant loads from all sources for a given watershed. Table 3 lists the water quality impairments and TMDLs for Aptos Creek, Valencia Creek, and the Pacific Ocean at Rio Del Mar (RWQCB, 2021).

Table 3. 303(d) Listed Pollutants

Water Body	Pollutant	Potential Source	TMDL Completion Date (Estimated)
Aptos Creek	Indicator Bacteria	Collection System Failure, Natural Sources, Urban Runoff/Storm Sewers, Other Urban Runoff	U.S. EPA Approval Date: January 20, 2011
	Sedimentation/ Siltation	Source Unknown	2027
Valencia Creek	Escherichia coli	Source Unknown	2027
	Fecal Coliform	Collection System Failure, Domestic Animals/Livestock, Natural Sources, Urban Runoff/Storm Sewers	U.S. EPA Approval Date: January 20, 2011
	Sedimentation/ Siltation	Source Unknown	2027
Pacific Ocean at Rio Del Mar (Santa Cruz County), Aptos Creek mouth	Total Coliform	Source Unknown	2027

Source: SWRCB, 2021

3.1.3.2.3 Floodplains

Per the Project's *Flood Evaluation Report-Location Hydraulic Study*, the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) were referenced for the Project. The majority of the Project site is located within unshaded Zone X regions. An area within unshaded Zone X is considered to be outside of FEMA's Special Flood Hazard Areas (SFHA) and represent areas of minimal flood hazard. Aptos Creek is associated with a base floodplain. The Aptos Creek floodplain at SR 1 and the railroad bridge are within FEMA FIRM panel 06087C0357F. According to the FIRM, Aptos Creek is associated with a SFHA Zone AE within the Project limits. Zone AE represents areas within a base floodplain where base flood elevations are provided. A floodway has also been defined along this reach of Aptos Creek. There are areas of shaded Zone X regions adjacent to the Aptos Creek base floodplain in the vicinity of SR 1, including along Valencia Creek. Shaded Zone X regions represent areas subject to inundation by storm events between the base flood and the 500-year flood, and are considered

to be outside of a SFHA (WRECO, 2022a). Flood hazard areas within the Project area are shown in Figure 11.

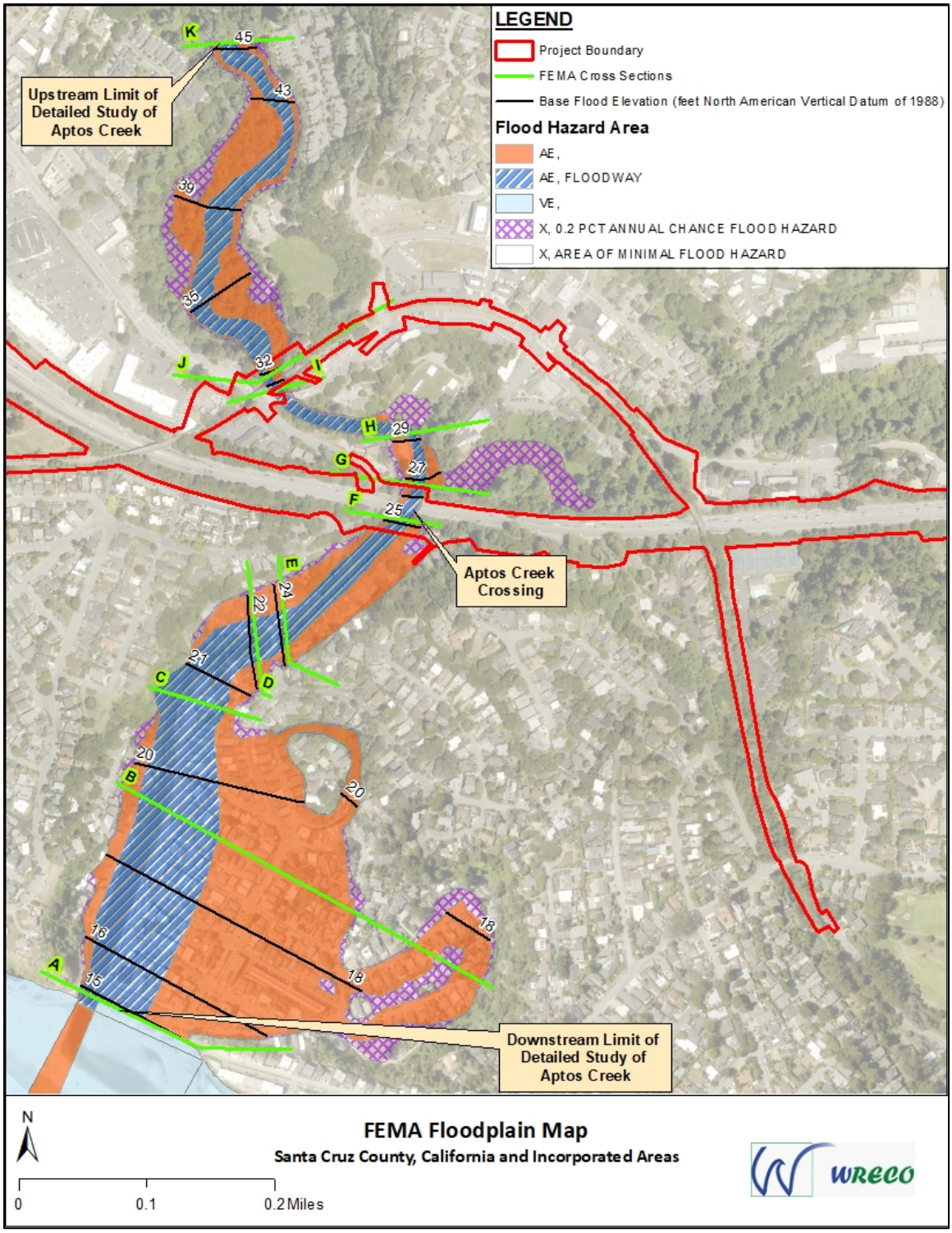

Figure 11. FEMA Floodplain Map - Aptos Creek

Sources: FEMA, 2017

3.1.3.2.4 Municipal Supply

Based on the Caltrans District 5 Work Plan, there are no drinking water reservoirs or recharge facilities near the Project area (2020). However, the Basin Plan (2019) does identify Aptos Creek and its tributaries, Valencia Creek and Trout Gulch Creek, as having the beneficial use of municipal and domestic supply. The Project traverses through both the Soquel Creek Water District and the Central Water District, which are 100% groundwater-sourced. The Mid-County Groundwater Basin is currently overdrafted and there is a *Groundwater Sustainability Plan* developed for the basin. There are some recharge facilities in the general area (Santa Cruz Mid-County Groundwater Agency, 2019).

3.1.3.3 Groundwater Hydrology

Per the Project's ISA (WRECO, 2022a), the Project limits are in the Santa Cruz Mid-County Basin (3-001) (Figure 12), as defined by the Department of Water Resources (DWR) Bulletin 118. The Santa Cruz Mid-County groundwater basin is located near the towns of Aptos, Capitola, and Soquel, extending inland from the Pacific Ocean in Santa Cruz County. The northeastern boundary generally follows the northwest trending Zayante Fault. The eastern boundary is marked by the Central Water District and Pajaro Valley Water Management Agency. The southern boundary follows the Pacific Ocean up to the Santa Cruz Small Craft Harbor. The western boundary follows the watershed boundary between Carbonera Creek and Branciforte Creek up through Blackburn Gulch (DWR, 2018).

The water-bearing sediments consist of the Pliocene Purisima Formation, which is overlain by Quaternary terrace deposits, and the Pleistocene Aromas Red Sands Formation. The Purisima and Quaternary terrace deposit have been locally incised by streams filled with Quaternary alluvium. The Purisima Formation is exposed along Monterey Bay where it is a cliff-forming unit. The Aromas Red Sands Formation extends into the Pajaro Valley Basin. It appears the basin is supplied mostly from the Quaternary alluvium and terrace deposits. Groundwater cannot be the only viable water source for the surrounding areas due to sustainability and reliability issues of the local aquifers (DWR, 2004).

Based on the Parikh Consultants, Inc. (Parikh) *Preliminary Geotechnical Design Report* (2021), groundwater level is anticipated to vary with the passage of time due to seasonal groundwater fluctuation, surface and subsurface flows into nearby water coarse, ground surface run-off, and other environmental factors that may not be present at the time of previous field explorations.

Information obtained from the California SWRCB's GeoTracker website, for sites within proximity to the Project limit, indicated depth to groundwater ranges from 16 to 26.5 feet below ground surface (bgs), and groundwater flow direction is to the south-southwest (SWRCB, 2021).

Figure 12. Groundwater Basins within the Central Coast Hydrologic Region

Source: Central Coast RWQCB, 2019

3.1.3.3.1 Groundwater Quality Objectives/Standards and Beneficial Uses

The Basin Plan (Central Coast RWQCB, 2019) has water quality objectives listed for all groundwaters of the Central Coast Basin. Groundwater objectives consist primarily of narrative objectives combined with a limited number of numerical objectives. In addition, the SWRCB will establish basin- and/or site-specific groundwater objectives as necessary. At a minimum, all groundwaters shall not contain concentrations of taste or odor-producing substances or radionuclides. Groundwaters designated with the beneficial use of municipal and domestic supply shall not contain concentrations of organic chemicals, inorganic chemicals, or radionuclides. Groundwaters designated with the beneficial use of agriculture supply shall not contain concentrations of chemical constituents.

The Basin Plan does not list beneficial uses for specific groundwater basins; however, it does state that "Groundwater throughout the Central Coastal Basin, except for that found in the Carrizo Plain groundwater basin, is suitable for agricultural water supply, municipal and domestic water supply, and industrial use" (Central Coast RWQCB, 2019).

3.1.4 Geology/Soils

Based on the Parikh *Preliminary Geotechnical Design Report* (2021), the subsurface soil conditions near the State Park Drive Overcrossing consists of slightly compact to very dense silty sand/well-graded sand and gravel/and clayey sand. At the Freedom Boulevard interchange, the subsurface soil consists of very dense to fine coarse sand; and at the Rob Roy Junction, the subsurface consist of slightly compact fine to coarse sand (Parikh, 2021).

Based on information from GeoTracker, subsurface conditions encountered near the Project area consists of various types of sand, silty sand, clayey silt with sand, sandy gravel, and sandy clay, to approximately 30 feet bgs (SWRCB, 2021).

A soil map of the Project limit was created on the National Resource Conservation Service (NRCS) website. The map indicated the following soils series were dominant along the Project limits: Elkhorn Series, Watsonville Series, and the Tierra Series.

- The Elkhorn series is characterized by deep, well-drained soils that formed from weathered alluvium, composed from mixed rock sources. This series has slow to rapid runoff with moderately low permeability. The Elkhorn Series has a small extent and is found primarily along the coastline of central California, on coastal terraces with a slope that ranges from 2 to 50 %.
- The Watsonville Series is characterized by deep, somewhat poorly drained soils that formed from alluvium. This series is poorly drained with slow to rapid runoff and very low permeability. The Watsonville series is not extensive, found primarily on coastal terraces and valleys along California's central coast, with a slope that ranges from 0 to 50%.
- The Tierra Series is characterized by deep, moderately well-drained soils, that formed from alluvium derived from sedimentary rocks. This series has slow to rapid runoff and very low permeability. The Tierra Series has a moderate extent and is found primarily

along the central and southern coast of California, typically on dissected terraces and low hills, a slope that ranges from 2 to 50 % (NRCS, 2021).

3.1.4.1 Soil Erosion Potential

Erosion is the detachment, movement, and redistribution of soil particles by forces of water, wind, and/or gravity. The rate at which soil erodes during a rain event is a function of the slope, vegetation cover, and soil properties. The primary soil properties that influence the erodibility of a soil are texture, structure, organic matter content, and permeability. The collected influence of these soil properties on the erodibility of a soil is described as the soil-erodibility factor (K) (USDA, 1997). Soils with properties that result in a high susceptibility to water erosion have K factors greater than 0.4 (Michigan State University, 2002).

Per the Caltrans Water Quality Planning Tool (2022), the maximum K factor found in the soil within the Project site is 0.32 and therefore, the Project has a moderate susceptibility to erosion. This is confirmed in Parikh's *Preliminary Geotechnical Design Report* (2021), which indicates that the Project's erosion hazard is moderate to severe. The overall susceptibility of soils to sheet and rill erosion by water often increases during excavation and grading activities as vegetative cover is removed and/or local gradients and slope lengths are increased.

3.1.5 Biological Communities

The following sections summarize the information from the *Draft Natural Environment Study* (NES) performed by SWCA Environmental in 2022, which provide detailed information regarding the biological communities within SR 1.

The NES identified riverine (stream), riparian woodland, mixed coast live oak woodland, eucalyptus woodland, mixed coniferous woodland, mixed woodland, developed/landscaped areas, annual grassland, and ruderal/disturbed vegetation within the vicinity of the Project limits. The majority of these habitats have the potential to support several special-status plant species and/or special-status animal species (SWCA Environmental, 2022).

3.1.5.1 Aquatic Habitat

Areas within the Project limits that potentially contain biotic and/or aquatic species of significance are characterized by whether they are under jurisdiction of the USACE, RWQCB, the California Department of Fish and Wildlife (CDFW), or the Coastal Zone/California Coastal Commission (CCC).

The biological study area contains potentially jurisdictional non-wetland waters of the U.S, which fall under the jurisdiction of USACE. No jurisdictional wetland waters of the U.S. were delineated within the biological study area (SWCA Environmental, 2022).

The Project's draft NES identified aquatic areas within the Ordinary High Water Mark (OHWM) in streams, ditches, and riparian woodland, within the biological study area that may fall under the jurisdiction of RWQCB and CDFW. It also identified potential jurisdictional Coastal Zone aquatic resources within the Project limits, which included Coastal Zone riparian non-wetlands

and streams. These areas may fall under the jurisdiction of CCC and may be considered Environmentally Sensitive Habitat Areas under the Santa Cruz County Local Coastal Plan (SWCA Environmental, 2022).

3.1.5.2 Special-Status Species

Botanical and wildlife surveys, habitat mapping, and wetland assessments were conducted to determine whether any special-status plant species or special-status animal species were present within the biological study area. California red-legged frog, foothill yellow-legged frog, Santa Cruz long-toed salamander, western pond turtle, central California coast steelhead District Population Segment (DPS), tidewater goby, Cooper's hawk, white-tailed kite, hoary bat, pallid bat, and Townsend's big-eared bat have potential to occur within the biological study area. None of these species were observed in the biological study area (BSA) during the surveys (SWCA Environmental, 2022).

3.1.5.3 Stream/Riparian Habitats

Per the Project's draft NES (2022), Streams present in the BSA include Aptos Creek and Valencia Creek, which are both perennials. Aptos Creek and Valencia Creek are jurisdictional waters within their OHWM. The adjacent areas mapped as riparian woodland adjacent to Aptos and Valencia Creeks qualify as jurisdictional riparian areas under the jurisdiction of the RWQCB and CDFW (SWCA Environmental, 2022).

3.1.5.4 Wetlands

Per the Project's draft NES (2022), aquatic resources in the BSA contain potentially jurisdictional non-wetland waters of the U.S. No jurisdictional wetland waters of the U.S. were delineated within the BSA SWCA Environmental, 2022).

3.1.5.5 Fish Passage

Per the Project's draft NES (2022), central California coast steelhead DPS are known to occur in Valencia Creek and Aptos Creek. Within the BSA, Valencia Creek drains into a culvert under SR 1 before flowing into Aptos Creek. This culvert has been identified as a partial barrier to adult and juvenile fish passage during low flows. There is no work being done in this culvert. A second partial fish passage barrier occurs upstream of this culvert, just north of the BSA (SWCA Environmental, 2022).

There is a fish ladder installed at the culvert at Valencia Creek and Soquel Drive. In addition, this culvert has been retrofitted with baffles and a low flow channel to provide fish passage. It has not been verified that fish has responded to the remediation efforts. No work is proposed at this culvert (SWCA Environmental, 2022).

There is an additional fish ladder towards the downstream end of the Valencia Creek culvert and the Union Pacific Railroad/ SCBRL right-of-way. This fish ladder extends out approximately 10 feet downstream from the culvert; aerial imagery indicates that this fish ladder may have extended farther downstream at one point, but this downstream extension may have been washed away or otherwise been removed in recent years (SWCA Environmental, 2022).

Valencia and Aptos Creek may also provide year-round mitigation for Tidewater goby (SWCA Environmental, 2022).

4 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

The following sections present the potential temporary and permanent water quality impacts from the Project activities, as well as standard BMPs, which are project features, to address the impacts.

Temporary water quality impacts can result from sediment discharge from the DSAs and construction near water resources or drainage facilities that discharge to water bodies. Permanent impacts to water quality result from the addition of impervious area; this additional impervious area prevents runoff from naturally dispersing and infiltrating into the ground, resulting in increased concentrated flow. The estimates for DSA, added impervious area, and reworked impervious area for the Interim and Ultimate trails are listed in Table 4. The DSA and impervious area values will be further refined during the design phase once the limits of grading, construction staging locations, off-ramp geometry, and other areas of improvement have been further developed.

Implementation of water quality project features required for all construction projects in compliance with federal, state, and local requirements, would minimize the potential for water quality impacts from runoff entering storm drains.

Table 4. Build Alternative DSA and Impervious Areas

	Caltrans Right-of-Way (acres)	Santa Cruz County Right-of-Way (acres)			Total (acres)	
		SR 1	Interim Trail	Ultimate Trail	Interim Trail	Ultimate Trail
Disturbed Soil Area (DSA)	17.06	0.47	7.12	7.12	24.65	24.65
Pre-project Impervious Area	32.47	0.08	2.00	2.31	34.55	34.86
Post-project Impervious Area	36.08	0.31	4.44	4.98	40.83	41.37
Net New Impervious Area (NNI)	3.61	0.23	2.44	2.67	6.28	6.51
Replaced Impervious Surface (RIS)	N/A	0	0	0	N/A	N/A
Total New Impervious Surface (NIS)	3.61	0.23	N/A	N/A	3.84	3.84
Post Construction Treated Area (PCTA)	3.61	0.23	0	0	3.84	3.84

Source: Mark Thomas, 2022

4.2 Potential Impacts to Water Quality

4.2.1 Caltrans MS4 Permit Requirements

The Project's PID phase was approved in 2002 and therefore, portions of the Project within Caltrans' right-of-way is grandfathered under the 1999 Caltrans MS4 permit. The 1999 Caltrans MS4 permit contains provisions to reduce pollutant loadings from the facility once construction is complete. The 1999 Caltrans MS4 permit stipulates permanent measures that control pollutant discharges must be considered and implemented for all new or reconstructed facilities that have an increase in NNI of 1 acre or more or non-highway facilities with an NNI of 5,000 square feet or more. The RIS within Caltrans' right-of-way is not required to be treated per the 1999 Caltrans MS4 permit. For projects resulting in an increase of more than 50 percent of impervious surface of a previously existing development, runoff from all existing, new and/or replaced impervious surfaces must be considered for treatment. Permanent control measures located within Caltrans' right-of-way reduce pollutants in stormwater runoff from the roadway. These measures reduce the suspended particulate loads, and thus, pollutants associated with the particles, from entering waterways. The measures would be incorporated into the final engineering design or landscape design of the Project and would consider expected runoff from the roadway. The stormwater runoff volumes and rates used to size the TBMPs would be based on *the 85th percentile 24-hour storm event, as specified by the Caltrans MS4 permit*. In addition,

the 1999 Caltrans MS4 permit also stipulates that an operation and maintenance program be implemented for permanent control measures. This category of water quality control measures can be identified as including both design pollution prevention BMPs and TBMPs. Long-term impacts during operation and maintenance are not anticipated.

4.2.2 Phase II MS4 Permit Requirements

As mentioned in Section 2.3.3, the Phase II MS4 Permit requires proponents of larger projects to implement into their design and on-going activities specific source control measures to minimize the impact of pollutant-generating activities based on the Central Coast RWQCB Post-Construction Stormwater Requirements and the Santa Cruz County Design Criteria. This includes development projects that create and/or replace 5,000 square feet (0.11 acres) or more of impervious surfaces. For redevelopment projects resulting in more than 50 percent of impervious surface of a previously existing development, runoff from all existing, new and/or replaced impervious surfaces must be considered. Regulated projects with pollutant-generating activities and sources are required to implement standard permanent and/or operation source control measure as applicable. If a proposed regulated project has any of the potential pollutant-generating activities or list of source controls mentioned in the Phase II MS4 Permit, then it must be designed and operated consistent with the recommendations provided in the Central Coast RWQCB Post-Construction Stormwater Requirements and the Santa Cruz County Design Criteria.

Per the Phase II MS4 permit, sidewalks, bicycle lanes, and trails constructed with permeable surfaces, or sidewalks, bicycle lanes, and impervious trails built to direct stormwater to adjacent vegetated areas are excluded from these requirements. Because all Rail Trail improvements within Santa Cruz County's right-of-way fits the criteria described above, this Project would only be required to consider site design, source control, runoff reduction, storm water treatment and baseline hydromodification management for areas within Santa Cruz County's right-of way which fall outside of these Rail Trail areas.

4.2.3 Anticipated Changes to the Physical/Chemical Characteristics of the Aquatic Environment

The following sections describe the specific physical and chemical characteristics that can potentially be impacted by the Project. It is anticipated that the Project would result in changes to the physical and chemical characteristics of the aquatic environment.

4.2.3.1 Currents, Circulation, or Drainage Patterns

The Project will result in an NNI area of 6.28 acres under the Interim Trail or an NNI of 6.51 acres under the Ultimate Trail that will not be infiltrated or dispersed over unpaved surfaces (Kimley-Horn Associates, 2021). The goal of the Project is to maintain the drainage pattern.

The added impervious area created by the Project may result in impacts to the existing hydrograph, including increases in low flow and peak flow velocity and volume to the receiving water bodies. Portions of the Project along SR 1 within the local jurisdictions' right-of-way would be subject to the hydromodification management requirements included in the Central

Coast RWQCB Post-Stormwater Requirements and the Santa Cruz County Design Criteria as mentioned in Section 2.3.3 of this report.

4.2.3.2 Suspended Particulates (Turbidity)

The Project will result in the creation of new impervious areas, which would increase the amount of runoff not infiltrated or dispersed over permeable surfaces. Although the added impervious area could result in an increase of sediment-laden flow directly discharging to receiving water bodies, stormwater impacts would be minimized through the proper implementation of permanent stormwater treatment measures and design pollution prevention BMPs.

Permanent erosion control measures would be applied to all exposed areas once grading or soil disturbance work is completed as a permanent measure to achieve final slope stabilization. These measures may include hydraulically applying a combination of hydroseed with native seed mix, hydromulch, straw, tackifier, and compost to promote vegetation establishment, and installing fiber rolls to prevent sheet flow from concentrating and causing gullies. For steeper slopes or areas that may be difficult for vegetation to establish, measures such as netting, blankets, or slope paving could be considered to provide stabilization.

The following design pollution prevention (DPP), the follow BMPs should be considered for incorporation into the Project design:

- Conserve natural areas, including existing trees, stream buffer areas, vegetation, and soils;
- Minimize the impervious footprint of the Project;
- Minimize disturbances of natural drainages;
- Design and construct pervious areas to effectively receive runoff from impervious areas, taking into consideration the pervious area's soil conditions, slope, and other design factors;
- Implement landscape and soil-based BMPs such as amended soils and vegetated strips and swales where feasible;
- Use climate-appropriate landscaping that minimize irrigation and runoff. This promotes surface infiltration and minimizes the use of pesticides and fertilizers;
- Design landscapes to comply with state, local, and Caltrans requirements (Caltrans, 2017b).

The PID for this Project was signed in 2002 and therefore, the Project is grandfathered under the 1999 Caltrans Permit (Section E.2.d). This Project is subject to the treatment threshold requirements contained within the 1999 Caltrans Permit. Per the 1999 Caltrans Permit, the Project will treat the NNI to the MEP.

Caltrans has an approved list of TBMPs that have been studied and verified to remove targeted design constituents and provide general pollutant removal. The stormwater treatment facilities for the Project may include any of the following:

- DPP infiltration areas;
- Infiltration devices;

- Biofiltration strips and swales;
- Detention devices;
- Dry weather flow diversion;
- Gross solids removal devices;
- Open graded friction course; and
- Bioretention.

In addition, portions of the Project under the Santa Cruz County's right-of-way are subject to the requirements under the Phase II MS4 Permit. The Project proposes to create 2.44 acres of impervious bicycle and pedestrian facilities under the Interim Trail and 2.67 acres of impervious bicycle and pedestrian facilities under the Ultimate Trail. Per the Phase II MS4 permit, rail trail improvements within Santa Cruz County's right-of-way would be classified as bicycle and pedestrian facilities, which drain to vegetated areas and therefore, these areas would be exempt from implementing site design, source control, runoff reduction, stormwater treatment and baseline hydromodification management.

Also, the Project proposes to create 0.23 acres of impervious surface where Moosehead Drive is realigned within the County's right-of way. The realignment of Moosehead Drive within Santa Cruz County's right-of-way would be subject to the site design, source control, runoff reduction, storm water treatment and baseline hydromodification management requirements of the Phase II MS4 permit.

Per the County's design criteria, the Project would be required to implement water quality treatment 0.23 acres of impervious surface within the County's right-of-way. Because the Project proposes to increase the impervious surface area by less than 50% of the pre-Project impervious area, runoff from only the added and replaced impervious areas would be treated to the maximum extent practicable. The Project would be designed to treat runoff using any of the following (in order of preference):

- Retention treatment systems;
- LID treatment systems;
- Biofiltration treatment systems;
- Non-retention-based treatment systems (County of Santa Cruz, 2019).

4.2.3.3 Oil, Grease, and Chemical Pollutants

Heavy metals associated with vehicle tire and brake wear, oil and grease, and exhaust emissions are the primary pollutants associated with transportation corridors. Generally, roadway stormwater runoff has the following pollutants: total suspended solids, nitrate nitrogen, total Kjeldahl nitrogen, phosphorus, ortho-phosphate, copper, lead, and zinc. The pollutants are dispersed from combustion products from fossil fuels, the wearing of brake pads and tires, and tree leaves that have been exposed through aerial deposition. The Project is expected to ease congestion, leading to less deposition of particulates from exhaust and heavy metals from braking.

The Project would implement TBMPs such as biofiltration swales/strips, bioretention

areas, and trash capture devices to remove pollutants from stormwater runoff. The implementation of TBMPs would avoid and/or minimize impacts to water quality.

4.2.3.4 Erosion and Accretion Patterns

As seen in Table 4, the Project will result in a combined net new impervious surface of 6.28 acres under the Interim Trail or 6.51 acres under the Ultimate Trail within the Caltrans' and Santa Cruz County's right-of-way. The Project can be expected to increase the volume and velocity of the stormwater discharge, which is likely to impact the downstream waterways. The source control measure, preservation of existing vegetation, will be implemented in order to slow the stormwater flow to the receiving water bodies.

The Project is grandfathered under the 1999 Caltrans MS4 permit and therefore, the Project is not required to implement hydromodification management measures within Caltrans' right-of-way. For non-exempt portions of the Project within Santa Cruz County's right-of-way, the Project would have to comply with the hydromodification management requirements included under the Central Coast RWQCB Post-Construction Stormwater Requirements of the Phase II MS4 permit. The Project proposes to add or replace less than 15,000 square feet of non-exempt impervious areas within Santa Cruz County's right-of-way and therefore, the Project would not be subject to hydromodification requirements.

4.2.3.5 Aquifer Recharge/Groundwater

This Project would result in the addition of impervious area and thereby reduce the available unpaved area that previously allowed runoff to infiltrate into the native soils. Aptos Creek is listed in the Basin Plan as having the groundwater recharge beneficial use (Central Coast RWQCB, 2019). The reduction of runoff infiltrating through native soils has the potential to result in loss in volume or amount of water that may have previously recharged localized aquifers and thereby reduce regional groundwater volumes. The reduction in local aquifer and groundwater recharge also has the potential to impact the beneficial uses of groundwater basins. Because the Project is anticipated to have to comply with Caltrans' MS4 post-construction permit requirements, TBMPs from the Caltrans list of approved TBMPs that allow for stormwater infiltration will be considered for the Project.

4.2.3.6 Baseflow

The NNI for the Project ranges between 6.28 acres (0.010 square miles) and 6.51 (0.010 square miles) acres, depending on if the Interim or Ultimate Trail option is chosen. The overall combined watersheds area for Soquel Creek, which drains approximately 41 square miles, and Aptos Creek, which drains approximately 25 square miles, is 66 square miles. This results in a maximum of 0.15% increase in the amount of runoff not infiltrated or dispersed over unpaved surfaces. As the amount of surface runoff infiltrating into groundwater would likely be affected, the amount of base flow to Soquel Creek and Aptos Creek would likely be affected. As discussed previously in Section 4.2.3.5, the portions of the Project area along SR 1 that are under the local jurisdictions' right-of-way would be subject to the Central Coast RWQCB and Santa Cruz County hydromodification management requirements.

4.2.4 Anticipated Changes to the Biological Characteristics of the Aquatic Environment

The following sections summarize the Project-related impacts based on the information from the Project's draft NES (2022) which provide detail information regarding biological communities within the Project area.

4.2.4.1 Special Aquatic Sites

The Project would result in temporary and/or permanent impacts to riparian, freshwater marsh, drainage ditches, and riverine habitats within the Project vicinity. These habitats may fall under the jurisdiction of the USACE, RWQCB, CDFW, and the CCC. Impacts to these habitats may consist of fill or dredging, and such activities could require permits or authorizations from the previously stated regulatory agencies. As described in the Draft NES, the proposed Project would result in temporary impacts to non-wetland waters of the U.S.; therefore, the Project would be regulated by the USACE under Section 404 of the CWA. Coverage under Nationwide Permit 14, Linear Transportation Projects, is anticipated. Discharges into waters of the U.S. under Section 404 of the CWA would require a Water Quality Certification from the RWQCB, pursuant to Section 401 of the CWA. As described in the Draft NES, the proposed Project would result in permanent and temporary impacts in areas under the CDFW's jurisdiction; therefore, a Streambed Alteration Agreement would be required. As described in the Draft NES, the proposed Project would result in permanent and temporary impacts in areas under the CCC's jurisdiction. For areas of the proposed Project that occur within the Coastal Zone of California, implementation of the Project will likely require a Coastal Development Permit or Waiver to satisfy provisions of the California Coastal Act (SWCA Environmental, 2022).

4.2.4.2 Habitat for Fish and Other Aquatic Organisms

The Project may result in temporary or permanent impacts to habitat for fish or other aquatic organisms. Some of the beneficial uses listed for Aptos Creek, Valencia Creek, Trout Gulch and the Pacific Ocean include cold, freshwater habitat, fish migration, fish spawning, wildlife habitat, preservation of biological habitats of special significance, estuarine habitat, and marine habitat. The Project's draft NES (SWCA Environmental, 2022) provides potential avoidance and minimization measures to address impacts to fish and other aquatic organisms.

4.2.4.3 Wildlife Habitat

Riverine, riparian woodland, various woodlands, annual grassland, ruderal/disturbed, and landscaped/developed areas are present within the Project area. The majority of these habitats have a potential to support and provide essential ecosystem services that include habitat for plants and wildlife, water quality, and ecological functions (SWCA Environmental, 2022). Impacts to the wildlife habitats will be mitigated through the avoidance and minimization measures included in the Project's draft NES (SWCA Environmental, 2022).

4.2.4.4 Endangered or Threatened Species

Federally listed and special-status species could potentially be present within the Project area. Pursuant to Section 7 of the Endangered Species Act, consultation with the USFWS will be conducted for all federally listed species that could be affected by the Project, including

tidewater goby and red-legged frog. Consultation with the National Oceanic and Atmospheric Administration National Marine Fisheries Service for potential impacts to central California coast steelhead will be required. Other impacts to natural communities or habitats and special-status species will be mitigated through the avoidance and minimization measures included in the Project's draft NES, which is still being developed at the time of this report.

4.2.5 Anticipated Changes to the Human Use Characteristics of the Aquatic Environment

4.2.5.1 Existing and Potential Water Supplies; Water Conservation

The Caltrans District 5 Work Plan does not identify any drinking water reservoirs or recharge facilities near the Project area (2020); however, the Basin Plan does identify Aptos Creek and Valencia Creek as having the beneficial use of municipal and domestic supply (Central Coast RWQCB, 2019). Also, part of the Project traverses through the Soquel Creek Water District, which is 100% groundwater-sourced, and the Mid-County Groundwater Basin is currently overdrafted and there is a *Groundwater Sustainability Plan* developed for the basin (Santa Cruz Mid-County Groundwater Agency, 2019).

4.2.5.2 Recreational or Commercial Fisheries

Aptos Creek, Valencia Creek, Trout Gulch, and the Pacific Ocean have the beneficial uses of commercial and sport fishing. The Project is expected to have no long-term impacts on these beneficial uses; however, the Project may temporarily impact these beneficial uses during the construction phase. Temporary impacts may result from road closures during construction that would limit or prohibit access to stretches of Aptos Creek and its tributaries. The Project limits do not extend to the Pacific Ocean and therefore, access to the Pacific Ocean fisheries would not be affected.

4.2.5.3 Other Water Related Recreation

The Basin Plan (2019) and the *California Ocean Plan* (2019) outline two beneficial use designations for water-related recreation: Water Contact Recreation and Noncontact Water Recreation. The beneficial use designation of Water Contact Recreation refers to water used for recreational activities involving body contact with water where ingestion of water is reasonably possible. The beneficial use designation of Noncontact Water Recreation refers to water used for recreational activities involving proximity to water, but not normally involving contact with water where water ingestion is reasonably possible. The Basin Plan (2019) designates Aptos Creek, Valencia Creek and Trout Gulch as having Water Contact Recreation and Noncontact Water Recreation beneficial uses. The *California Ocean Plan* (2019) designates the Pacific Ocean as having Water Contact Recreation and Noncontact Water Recreation beneficial uses. Potential impacts on water-related recreation in Aptos Creek, Valencia Creek, Trout Gulch and the Pacific Ocean would be avoided with standard construction site BMPs, water quality monitoring, and good housekeeping practices. Temporary impacts may result from road closures during construction that would limit or prohibit access to stretches of Aptos Creek and the listed tributaries. The Project limits do not extend to the Pacific Ocean so access to the Pacific Ocean

fisheries would not be affected. There are minimal to no anticipated permanent impacts on water quality recreation.

4.2.5.4 Traffic/Transportation Patterns

The overall goal of the Project is to reduce congestion on SR 1 between the State Park Drive and Freedom Boulevard Interchanges and to enhance bicycle and pedestrian connectivity along Segment 12 of the Coastal Rail Trail. Impacts to traffic and transportation patterns may occur during construction activities; however, the Project improvements would increase access for vehicles, pedestrians, and bicycles once construction is complete.

4.2.6 Short Term Impacts During Construction

During construction, potentially sediment-laden flow can result from runoff over DSAs that enter storm drainage facilities or directly discharge into the receiving water bodies, increasing the turbidity, decreasing the clarity, and potentially impacting the beneficial uses of the receiving water bodies. Additional sources of sediment that could result in increases in turbidity include uncovered or improperly covered active and non-active stockpiles, unstabilized slopes and construction staging areas, and improperly maintained or cleaned construction equipment.

Earth moving and other construction activities could cause minor erosion and runoff of top soils into the drainage systems along the Project limits during construction, which could temporarily affect water quality in local waterways.

Also, during construction, the Project would have the potential for water quality impacts due to grading and excavation activities, which can cause increased erosion. Stormwater runoff from the Project site may transport pollutants to nearby receiving waters and storm drains if BMPs are not properly implemented. Generally, as the DSAs increase, the potential for temporary water quality impacts also increases. The Project would have an estimated 17.06 acres DSA in Caltrans' right-of-way and 7.59 acres of DSA in Santa Cruz County's right-of-way. Based on the preliminary calculated data, the Project would have some potential short-term water quality impacts during construction.

If fueling or maintenance of construction vehicles occurs within the Project site during construction, there is a risk of accidental spills or releases of fuels, oils, or other potentially toxic materials. An accidental release of these materials may pose a threat to water quality if contaminants enter storm drains, open channels, or surface receiving water bodies. The magnitude of the impact from an accidental release depends on the amount and type of material spilled.

4.2.6.1 Construction General Permit Risk Assessment

This Project would disturb 24.65 acres of soil (Mark Thomas, 2022) and must comply with the CGP, which includes performing a risk-level determination to determine the required monitoring and sampling of stormwater during construction. The risk-level assessment is determined from the combined receiving water risk and sediment risk.

The Project has a high receiving water risk, because Aptos Creek and its tributaries have impairments for sediment and the combined existing beneficial uses of cold freshwater habitat, fish spawning, and fish migration, as listed in the Basin Plan, *Table 2.1 Identified Uses of Inland Surface Waters*.

The Project sediment risk factor was determined from the product of rainfall erosivity factor (R), the soil erosion factor (K), and the length-slope factor (LS). Using the U.S. EPA's "Rainfall Erosivity Factor Calculator for Small Construction Sites" (2021), the calculated R factor for the Project site is 260.44. The Caltrans' Water Quality Planning Tool (2022) identified the average K factor within the Project area to be 0.24; the K factors at the State Park Drive intersection and the Freedom Boulevard intersection were 0.32 and 0.15, respectively. The LS factors were identified to be 2.17 (at the State Park Drive intersection) and 3.89 (at the Freedom Boulevard intersection), averaging at 3.03. The product of these values is 189.39 tons/acre (130.56 x 0.24 x 3.03); because this value is greater than 75, the Project has a high sediment risk. The R, K, and LS factor information is included in Appendix C of this report.

The high receiving water and high sediment risks result in the Project being classified as Risk Level 3. In addition to the BMP requirements required for Risk Level 1 and 2 projects, Risk Level 3 projects also require the contractor to implement additional construction site BMPs and create Rain Event Action Plans. Risk Level 3 projects would also require compulsory stormwater runoff pH and turbidity monitoring during all qualifying rain events (producing precipitation of 0.5 inch or more at the time of discharge). Stormwater samples should be representative of the flow and characteristics of the discharge. If any samples exceed applicable Numeric Action Levels, sampling results should be reported electronically to the SWRCB no later than 10 days after the conclusion of the storm event. This Project is not subject to the Bioassessment Monitoring requirements because the DSA is less than 30 acres.

This assessment may be updated during the Plans, Specifications, and Estimates (PS&E) phase as more detailed Project information becomes available. The calculations for the risk level assessment can be found in Appendix C.

4.2.6.2 Project Construction

The CGP, Caltrans, and Santa Cruz County standards require the Project's contractor to implement a SWPPP to comply with the conditions of the CGP. The SWPPP would be submitted by the Contractor and approved by Caltrans prior to the start of construction. The SWPPP is intended to address construction-phase impacts, and must include, at a minimum, the following elements:

- Project description – the Project description includes maps and other information related to construction activities and potential sources of pollutants.
- Minimum Construction Control Measures – these measures may include limiting construction access routes, stabilization of areas denuded by construction, and using sediment controls and filtration.
- Erosion and Sediment Control – the SWPPP is required to contain a description of soil stabilization practices, control measures to prevent a native increase in sediment load in

stormwater, controls to reduce tracking sediment onto roads, and controls to reduce wind erosion.

- Non-Stormwater Management – the SWPPP includes provisions to reduce and control discharges other than stormwater.
- Post-Construction Stormwater Management – the SWPPP includes a waste management section including equipment maintenance waste, used oil, batteries, etc. All waste must be disposed of as required by state and federal law.
- Maintenance, Inspection, and Repair – the SWPPP requires an ongoing program to ensure that all controls are in place and operating as designed.
- Monitoring – this provision requires documented inspections of the control measures.
- Reports – the contractor would repair an annual report on the construction project and submit the report on July 15 of each year, with the final annual report being submitted upon Project completion. This report would be submitted to the SWRCB on the SMARTS website.
- Training – the SWPPP provides documentation of the training and qualifications of the designated Qualified SWPPP Developer and Qualified SWPPP Practitioner. Inspections, maintenance, and repair of construction site BMPs must be done by trained personnel.
- Construction Site Monitoring Program – the SWPPP includes a Construction Site Monitoring Program, which details the procedures and methods related to the visual monitoring and sampling and analysis plans for non-visible pollutants, sediment and turbidity, pH, and bioassessment.

4.2.6.3 Construction BMPs

Water quality impacts that occur during construction can be avoided or minimized by implementing temporary construction site BMPs. Typical construction site BMPs that should be considered for this Project are as listed in Table 5. The selected BMPs are consistent with the practices required under the CGP and the Phase II Small MS4 General Permit. The actual minimum temporary construction site BMPs necessary for the Project to comply with the CGP, Caltrans, and County standards will be determined during the design phase. Furthermore, the contractor would be required to detail actual in-field implementation of the BMPs in the SWPPP during construction; the contractor would also be required to amend the SWPPP as necessary to match both field conditions and Project phasing.

The Project design includes the widening of the existing SR 1 bridge over Aptos Creek and Spreckels Drive. The widening of the SR 1 bridge over Aptos Creek and Spreckels Drive would occur on the south side of SR 1 and require abutment walls along the existing embankments along the south side of Aptos Creek and the embankment on the north side of Spreckels Drive. Therefore, temporary dewatering of the work zone would be required. Therefore, the Project is likely to need to implement temporary clear water diversions and groundwater dewatering.

A spill on the roadway would trigger immediate response actions to report, contain, and mitigate the incident. The California Office of Emergency Services has developed a *California Hazardous Materials Incident Contingency Plan* (1991), which provides a program for response

to spills involving hazardous materials. The plan designates a chain of command for notification, evacuation, response, and cleanup of spills.

Table 5. Suggested Construction BMPs

BMP	Purpose
Vehicle Tracking and Dust Control	
Stabilized Construction Access	Reduce dirt and mud tracking onto roads and public rights-of-way through rock pads or construction mud mats.
Stabilized Construction Roadway	Prevent on-site erosion through stabilization of access roads.
Tire Wash	Remove sediment from tires and undercarriages to prevent sediment transport onto roadways.
Dust Control	Reduce dust generation from DSAs through water or commercial stabilizers.
Street Cleaning	Prevent tracked soils, sand, and other debris from entering streets and paved areas by removing it from roadways.
Erosion and Sediment Control	
Rolled Erosion Control Products	Stabilize soils by placing geotextiles, plastic covers, and erosion control blankets and mats on disturbed areas.
Hydraulic Mulch	Temporarily protect soil surfaces from wind and water erosion by spraying a wood mulch and water mixture.
Hydroseeding	Temporarily protect soils from wind and water erosion by spraying a fiber, seed, fertilizer, and stabilizing liquid mixture.
Soil Binders	Temporarily protect topsoils from wind and water erosion through stabilizing emulsions or as a stabilizer for hydraulic mulch and/or hydroseeding.
Fiber Rolls	Intercept stormwater runoff, reduce velocity, release runoff as sheet flow, and provide some sediment removal along slopes using straw, flax, or synthetic fiber rolls.
Temporary Large Sediment Barrier	Detain sediment-laden water through the use of a temporary large sediment barrier at the bottom of slopes.
Gravel Berm	Intercept runoff, reduce runoff velocity, and release runoff as sheet flow after some sediment removal through lined row of gravel bags forming a barrier across slopes.
Inlet and Catch Basin Protection	Prevent sediment from entering storm drain systems through excavation around the inlet/basin perimeter or reusable barriers around the drain entrances.

Source: Caltrans, 2017b

Table 5. Suggested Construction BMPs cont.

BMP	Purpose
Non-Stormwater and Waste/Material Management	
Dewatering Operations	Dewatering activities associated with stormwater and non-stormwater to prevent the discharge of pollutants from construction site.
Clear Water Diversion	System designed to intercept and divert surface water upstream around a construction area and discharge downstream with minimal water quality impacts.
Water Conservation	Implement procedures for reducing amount of water needed for construction activities.
Concrete Management	Implement procedures for reducing/eliminating stormwater runoff contamination from concrete curing, cutting, drilling, and coring activities through containment structures.
Paving and Grinding Operations	Implement procedures for handling and removing materials during pavement preparation, paving, surfacing, resurfacing, paint striping, and thermoplastic striping and placement during construction.
Material Delivery and Storage	Implement procedures for delivery and storage of materials during construction.
Stockpile Management	Implement procedures for stockpiling of construction materials during construction.
Sanitary Waste	Implement procedures for preventing waste from portable sanitary facilities from entering storm drain systems, natural waterways, and channels.
Hazardous Waste	Implement procedures for preventing hazardous waste from entering storm drain systems, natural waterways, and channels.
Solid Waste	Implement procedures for collecting and disposing solid waste materials.
Liquid Waste	Implement procedures for preventing non-hazardous liquid waste from entering storm drain systems.
Spill Prevention and Control	Implement procedures for preventing and responding to pollutant discharges into drainage systems.
Contaminated Soil	Implement procedures for identification and handling of contaminated soils on a construction site.
Illicit Connection/Discharge Waste	Recognize and report illicit connections/illegally discharged material on a construction site.

Source: Caltrans, 2017b

4.2.7 Long-Term Impacts During Operation and Maintenance

The new impervious surface area would increase hydromodification and stormwater pollution effects along the Project's right-of-way. Pollution and runoff sources are not expected to change. These impacts would be reduced through the implementation of source control, LID, and

stormwater TBMPs. Caltrans has developed the Maintenance Stormwater Management Program, which is a component of the SWMP. To assist Caltrans staff with complying with this program, Caltrans has developed the Maintenance Storm Water Management Program's Staff Guide (2017a), which provides detailed description, implementation, and maintenance of BMPs used in maintenance activities.

4.3 Alternative-Specific Impact Analysis

Each rail trail option would have the potential to cause stormwater pollution effects and increase impervious areas. The Ultimate Trail would result in the same amount of DSA as the Interim Trail, but more impervious area compared to the Interim Trail. However, impacts from each alternative would be reduced with the implementation of temporary and permanent project features, in accordance with the CGP and the Caltrans and County's MS4 permits.

4.4 Cumulative Impacts

There may be cumulative impacts from other projects that are underway or planned for the area. Under consideration for cumulative impacts, are 16 projects in Santa Cruz County. These projects, which are in varying stages of construction or planning, are listed in detail in Appendix D. In sum, there are three public amenity projects, three transit projects, six development projects, one trail project, one water purification project, a wharf rehabilitation project, and the County's sustainability plan update. As this Project and the other concurrent or planned projects would be subject to NPDES permit requirements and have their own BMPs, the cumulative impacts are expected to be minimal.

5 AVOIDANCE AND MINIMIZATION MEASURES

This section discusses the avoidance and minimization measures not already implemented under Caltrans' and the County's standard operating practices.

5.1 Temporary Dewatering Activities

Clear water diversion and dewatering activities are anticipated due to bridge work and shallow groundwater. Dewatering activities would comply with the Caltrans *Standard Plans and Standard Specifications* (2018), and applicable permits from the Central Coast RWQCB. If groundwater in the area is contaminated, the Project would comply with the NPDES General Permit for Discharges of Highly Treated Groundwater to Surface Waters (NPDES No. CAG993002, Order No. R3-2016-0035). If groundwater in the Project area is clean, the Project would comply with the NPDES General Permit for Discharges with Low Threat to Water Quality (NPDES No. CAG993001, Order No. R3-2017-0042). Dewatering requirements, costs, and the design of the active treatment system would be determined during the PS&E phase.

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Appendix A Central Coast RWQCB Basin Plan Excerpts

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Appendix A.1 Central Coast RWQCB Basin Plan Beneficial Uses

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Chapter 2. Present and Potential Beneficial Uses

State policy for water quality control in California is directed toward achieving the highest water quality consistent with maximum benefit to the people of the State (Appendix A-1). Therefore, all water resources must be protected from pollution and nuisance that may occur as a result of waste discharges.

Establishing the beneficial uses to be protected in the Central Coastal Basin is a cornerstone of this comprehensive plan. Once uses are recognized, compatible water quality standards can be established as well as the level of treatment necessary to maintain the standards and ensure the continuance of the beneficial uses. This chapter will examine and identify historical, present, and potential beneficial uses in the Basin.

The remainder of this chapter summarizes current beneficial uses, describes anticipated future water demands characterizing future or potential water users, and lists the present and potential beneficial uses in tabular form.

2.1 Present and Potential Beneficial Uses

Beneficial uses are presented for inland surface waters in Table 2-1. Beneficial uses for inland surface waters are arranged by hydrologic unit. A map of the hydrologic units is shown in Figure 2-1, and a table of hydrologic units is shown in Table 2-3. Beneficial uses are regarded as existing whether the waterbody is perennial or ephemeral, or the flow is intermittent or continuous. Beneficial uses of coastal waters are shown in Table 2-2.

Surface water bodies within the Region that do not have beneficial uses designated for them in Table 2-1 are assigned the following designations:

- Municipal and Domestic Water Supply
- Protection of both recreation and aquatic life.

Municipal and Domestic Water Supply is designated in accordance with the provisions of State Water Resources Control Board Resolution 88-63 is by reference, a part of this Plan. (A copy of this resolution is located in Appendix A-9). These MUN designations in no way affect the presence or absence of other beneficial use designations in these water bodies.
Groundwater throughout the Central Coastal Basin, except for that found in the Carrizo Plain groundwater basin, is suitable for agricultural water supply, municipal and domestic water supply, and industrial use. Groundwater basins, adapted from the California Department of Water Resources 2003 Bulletin 118, are listed in Table 2-4. A map showing these groundwater basins is displayed in Figure 2-2.

2.2 Beneficial Use Definitions

Beneficial uses for surface water and groundwater are divided into the twenty-three standard categories listed below. One of the principal purposes of this standardization is to facilitate establishment of both qualitative and numerical water quality objectives that will be compatible on a statewide basis.

2.2.1 Municipal and Domestic Supply (MUN)

Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply. According to State Board Resolution No. 88-63, "Sources of Drinking Water Policy" (Appendix A-9) all surface waters are considered suitable, or potentially suitable, for municipal or domestic water supply except where:

a. TDS exceeds 3000 mg/L (5000 uS/cm electrical conductivity);
b. Contamination exists, that cannot reasonably be treated for domestic use;
c. The source is not sufficient to supply an average sustained yield of 200 gallons per day;
d. The water is in collection or treatment systems of municipal or industrial wastewaters, process waters, mining wastewaters, or stormwater runoff; and
e. The water is in systems for conveying or holding agricultural drainage waters.

2.2.2 Agricultural Supply (AGR)

Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.

2.2.3 Industrial Process Supply (PROC)

Uses of water for industrial activities that depend primarily on water quality (i.e., waters used for manufacturing, food processing, etc.).

2.2.4 Industrial Service Supply (IND)

Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well repressurization.

2.2.5 Groundwater Recharge (GWR)

Uses of water for natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into fresh water aquifers. Groundwater recharge includes recharge of surface water underflow.

2.2.6 Fresh Water Replenishment (FRSH)

Uses of water for natural or artificial maintenance of surface water quantity or quality (e.g., salinity) which includes a waterbody that supplies water to a different type of waterbody, such as, streams that supply reservoirs and lakes, or estuaries; or reservoirs and lakes that supply streams. This includes only immediate upstream water bodies and not their tributaries.

2.2.7 Navigation (NAV)

Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels. This Board interprets NAV as, "Any stream, lake, arm of the sea, or other natural body of water that is actually navigable and that, by itself, or by its connections with other waters, for a period long enough to be of commercial value, is of sufficient capacity to float watercraft for the purposes of commerce, trade, transportation, and including pleasure; or any waters that have been declared navigable by the Congress of the United States" and/or the California State Lands Commission.

2.2.8 Hydropower Generation (POW)

Uses of water for hydropower generation.

2.2.9 Water Contact Recreation (REC-1)

Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs.

2.2.10 Non-Contact Water Recreation (REC-2)

Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

2.2.11 Commercial and Sport Fishing (COMM)

Uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.

2.2.12 Aquaculture (AQUA)

Uses of water for aquaculture or mariculture operations including, but not limited to, propagation, cultivation, maintenance, or harvesting of aquatic plants and animals for human consumption or bait purposes.

2.2.13 Warm Fresh Water Habitat (WARM)

Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

2.2.14 Cold Fresh Water Habitat (COLD)

Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish or wildlife, including invertebrates.

2.2.15 Inland Saline Water Habitat (SAL)

Uses of water that support inland saline water ecosystems including, but not limited to, preservation or enhancement of aquatic saline habitats, vegetation, fish, or wildlife, including invertebrates. Soda Lake is a saline habitat typical of desert lakes in inland sinks.

2.2.16 Estuarine Habitat (EST)

Uses of water that support estuarine ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds). An estuary is generally described as a semi-enclosed body of water having a free connection with the open sea, at least part of the year and within which the seawater is diluted at least seasonally with fresh water drained from the land. Included are water bodies which would naturally fit the definition if not controlled by tidegates or other such devices.

2.2.17 Marine Habitat (MAR)

Uses of water that support marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals, shorebirds).

2.2.18 Wildlife Habitat (WILD)

Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

2.2.19 Preservation of Biological Habitats of Special Significance (BIOL)

Uses of water that support designated areas or habitats, such as established refuges, parks, sanctuaries, ecological reserves, or Areas of Special Biological Significance (ASBS), where the preservation or enhancement of natural resources requires special protection. ASBS are those areas designated by the State Water Resources Control Board as requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable.

The following areas have been designated Areas of Special Biological Significance in the Central Coastal Basin:

1. Año Nuevo Point and Island, San Mateo County

2 Pacific Grove Marine Gardens Fish Refuge and Hopkins Marine Life Refuge, Monterey County

3. Point Lobos Ecological Reserve, Monterey County

4. Carmel Bay, Monterey County

5 Julia Pfeiffer Burns Underwater Park, Monterey County

6. Ocean area surrounding the mouth of Salmon Creek, Monterey County

7. Channel Islands, Santa Barbara County - San Miguel, Santa Rosa, Santa Cruz

An ASBS designation implies the following requirements:

1. Discharge of elevated temperature wastes in a manner that would alter water quality conditions from those occurring naturally will be prohibited.

2. Discharge of discrete, point source sewage or industrial process wastes in a manner that would alter water quality conditions from those occurring naturally will be prohibited.

3. Discharge of waste from nonpoint sources, including but not limited to stormwater runoff, silt, and urban runoff, will be controlled to the extent practicable. In control programs for waste from nonpoint sources, Regional Boards will give high priority to areas tributary to ASBS.

2.2.20 Rare, Threatened, or Endangered Species (RARE)

Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered.

2.2.21 Migration of Aquatic Organisms (MIGR)

Uses of water that support habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish.

2.2.22 Spawning, Reproduction, and/or Early Development (SPWN)

Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

2.2.23 Shellfish Harvesting (SHELL)

Uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters, and mussels) for human consumption, commercial, or sport purposes. This includes waters that have in the past, or may in the future, contain significant shellfisheries.

Table 2-1. Identified Uses of Inland Surface Waters

Waterbody Names	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	NAV	POW	COMM	AQUA	SAL	SHELL
Big Basin Hydrologic Unit 304																						
Lucerne Lake Estuary						X	X	X	X			X	X	X	X				X			X
Lucerne Lake	X	X				X	X	X	X							X			X			
Arroyo de los Frejoles Creek	X	X			X	X	X	X	X	X	X	X	X	X		X			X			
Arroyo de los Frejoles Reservoir	X	X			X	X	X	X	X	X						X	X		X			
Gazos Creek Lagoon/Estuary						X	X	X	X	X	X	X	X	X	X				X			X
Gazos Creek	X	X			X	X	X	X	X		X	X				X			X			
Old Woman's Creek	X					X	X	X	X		X	X	X						X			
Whitehouse Creek	X					X	X	X	X		X	X	X		X	X			X			
Cascade Creek Lagoon/Estuary						X	X	X	X		X	X	X	X	X				X			X
Cascade Creek	X	X			X	X	X	X	X		X	X	X	X		X			X			
Green Oaks Creek Lagoon/Estuary						X	X	X	X			X		X	X				X			X
Green Oaks Creek	X	X			X	X	X	X	X	X	X	X	X		X	X			X			
Año Nuevo Creek	X	X			X	X	X	X	X		X	X	X	X	X	X			X			
Finney Creek	X	X				X	X	X	X				X		X	X			X			
Elliot Creek	X	X				X	X	X	X				X		X	X			X			
Waddell Creek Estuary					X	X	X	X	X		X	X	X	X	X				X			X
Waddell Creek (Main Stem)	X	X		X	X	X	X	X	X		X	X	X	X		X			X			
Waddell Creek, east branch	X				X	X	X	X	X		X	X	X	X		X			X			
Last Chance Creek	X	X			X	X	X	X	X		X	X		X					X			
Blooms Creek	X				X	X	X	X	X			X	X	X					X			
Sempervirens Creek	X				X	X	X	X	X		X	X	X						X			
Union Creek	X					X	X	X	X				X						X			
Sempervirens Res.	X					X	X	X	X				X			X			X			X
Opal Creek	X				X	X	X	X	X				X						X			
Rogers Creek	X					X	X	X	X				X						X			
Maddock's Creek	X					X	X	X	X				X						X			
Waddell Creek, west branch	X				X	X	X	X	X		X	X	X	X					X			
Kelley Creek	X				X	X	X	X	X										X			
Berry Creek (304, trib. of Waddell Cr. W.)	X				X	X	X	X	X										X			
Henry Creek	X				X	X	X	X	X				X						X			
Scott Creek Lagoon						X	X	X	X		X	X		X	X				X			X
Scott Creek	X	X		X	X	X	X	X	X		X	X		X		X			X			
Little Creek	X	X		X	X	X	X	X	X		X	X		X					X			
Big Creek (304)	X	X		X	X	X	X	X	X		X	X		X				X	X			
Berry Creek (304, trib. of Big Cr.)	X				X	X	X	X	X				X						X			
Deadman Gulch Creek	X				X	X	X	X	X			X		X					X			
Boyer Creek	X				X	X	X	X	X			X						X	X			
Mill Creek (304, trib. of Scott Creek)	X	X		X	X	X	X	X	X		X	X		X		X			X			
Mill Creek Res.	X					X	X	X	X	X	X	X				X	X		X			
Molino Creek	X	X			X	X	X	X	X						X	X			X			
San Vicente Creek	X	X	X	X	X	X	X	X	X		X	X		X	X	X			X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	NAV	POW	COMM	AQUA	SAL	SHELL
Mill Creek (304, trib. of S. Vicente Cr.)	X				X	X	X	X	X		X	X							X			
Liddell Creek	X	X			X	X	X	X	X		X	X		X	X	X			X			
Liddell Creek, east branch	X	X		X	X	X	X	X	X		X	X							X			
Liddell Creek, west branch	X				X	X	X	X	X		X	X							X			
Laguna Creek Estuary					X	X	X	X	X		X	X		X	X				X			X
Laguna Creek	X	X		X	X	X	X	X	X		X	X		X		X			X			
Reggiardo Creek	X				X	X	X	X	X					X					X			
Majors Creek	X	X		X	X	X	X	X	X		X	X		X	X	X			X			
Baldwin Creek Estuary						X	X	X	X	X	X	X	X	X	X				X			X
Baldwin Creek	X	X			X	X	X	X	X		X	X	X	X		X			X			
Wilder Creek Estuary						X	X	X	X	X	X	X	X	X	X				X			X
Wilder Creek	X	X			X	X	X	X	X	X	X	X	X			X			X			
Cave Gulch	X				X	X	X	X	X	X									X			
Younger's Lagoon					X	X	X	X	X	X		X	X						X			X
Antonellis Pond					X	X	X	X		X	X	X		X					X			
Moore Creek	X	X			X	X	X	X	X	X		X	X			X			X			
Neary's Lagoon					X	X	X	X		X		X		X					X			
San Lorenzo River Estuary						X	X	X	X		X	X	X	X	X				X			
San Lorenzo River	X	X		X	X	X	X	X	X		X	X	X	X		X			X			
Branciforte Creek	X	X			X	X	X	X	X		X	X							X			
Blackburn Gulch	X				X	X	X	X	X		X	X							X			
Tie Gulch	X				X	X	X	X	X		X	X							X			
Granite Creek	X			X	X	X	X	X	X		X	X							X			
Carbonera Creek	X	X		X	X	X	X	X	X		X	X							X			
Zayante Creek	X	X		X	X	X	X	X	X		X	X							X			
Bean Creek	X	X		X	X	X	X	X	X		X	X							X			
Mackenzie Creek	X				X	X	X	X	X		X	X							X			
Ruins Creek	X				X	X	X	X	X		X	X							X			
Lockhart Gulch Creek	X				X	X	X	X	X		X	X							X			
Mountain Charlie Gulch	X				X	X	X	X	X		X	X							X			
Lompico Creek	X	X			X	X	X	X	X		X	X							X			
Mill Creek (304, trib. of Lompico Cr.)	X				X	X	X	X	X										X			
Newell Creek	X	X		X	X	X	X	X	X		X	X				X		X	X			
Loch Lomond Res.	X	X		X	X	X	X	X	X	X	X	X		X		X	X		X			X
Love Creek	X				X	X	X	X	X		X	X							X			
Fritch Creek	X				X	X	X	X	X		X	X							X			
Smith Creek	X				X	X	X	X	X										X			
Spring Creek Gulch	X				X	X	X	X	X										X			
Bear Creek	X	X			X	X	X	X	X		X	X							X			
Connelly Gulch	X				X	X	X	X	X		X	X							X			
Shear Creek	X				X	X	X	X	X		X	X							X			
Deer Creek	X				X	X	X	X	X		X	X							X			
Hopkins Gulch	X				X	X	X	X	X		X	X							X			
Two Bar Creek	X				X	X	X	X	X		X	X							X			
Kings Creek	X				X	X	X	X	X		X	X	X						X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	NAV	POW	COMM	AQUA	SAL	SHELL
Logan Creek	X				X	X	X	X	X		X	X							X			
Sleeper Gulch	X				X	X	X	X	X				X						X			
McDonald Gulch	X				X	X	X	X	X		X	X	X						X			
Spring Creek	X				X	X	X	X	X		X	X							X			
Boulder Creek	X	X			X	X	X	X	X		X	X							X			
Bracken Brae Creek	X				X	X	X	X	X					X					X			
Hare Creek	X				X	X	X	X	X		X	X		X					X			
Jamison Creek	X				X	X	X	X	X		X	X							X			
Peavine Creek	X				X	X	X	X	X		X	X							X			
Silver Creek	X				X	X	X	X	X		X	X							X			
Foreman Creek	X				X	X	X	X	X		X	X							X			
Malosky Creek	X				X	X	X	X	X		X	X							X			
Clear Creek	X				X	X	X	X	X		X	X							X			
Alba Creek	X				X	X	X	X	X		X	X							X			
Marshall Creek	X				X	X	X	X	X		X	X							X			
Manson Creek	X				X	X	X	X	X		X	X							X			
Fall Creek	X	X		X	X	X	X	X	X		X	X	X						X			
South Fall Creek	X	X			X	X	X	X	X		X	X	X						X			
Bennett Creek	X	X		X	X	X	X	X	X		X	X	X						X			
Bull Creek	X				X	X	X	X	X			X							X			
Shingle Mill Creek	X				X	X	X	X	X		X	X							X			
Gold Gulch Creek	X				X	X	X	X	X		X	X							X			
Woods Lagoon						X	X	X			X	X			X				X			X
Arana Gulch	X				X	X	X	X	X		X	X		X		X			X			
Schwan Lake						X	X	X		X		X	X	X					X			X
Corcoran Lagoon					X	X	X	X		X		X		X	X				X			X
Rodeo Creek Gulch (Doyle Gulch)	X	X		X	X	X	X	X	X			X				X			X			
Moran Lake					X	X	X	X		X		X							X			
Soquel Lagoon						X	X	X	X		X	X		X	X				X			
Soquel Creek	X	X		X	X	X	X	X	X		X	X	X			X			X			
Bates Creek	X					X	X	X	X		X	X	X						X			
Grover Gulch	X				X	X	X	X	X		X	X							X			
Soquel Creek, east branch	X			X	X	X	X	X	X		X	X							X			
Hinckley Creek	X	X		X	X	X	X	X	X		X	X	X						X			
Amaya Creek	X				X	X	X	X	X		X	X							X			
Soquel Creek, west branch	X				X	X	X	X	X		X	X							X			
Hester Creek	X				X	X	X	X	X		X	X							X			
Laural Creek	X				X	X	X	X	X		X	X							X			
Burns Creek	X				X	X	X	X	X		X	X							X			
Moores Gulch	X				X	X	X	X	X		X	X							X			
Miners Creek	X				X	X	X	X	X		X	X							X			
Aptos Creek	X	X		X	X	X	X	X	X		X	X	X		X	X			X			
Valencia Creek	X				X	X	X	X	X		X	X							X			
Trout Gulch	X				X	X	X	X	X										X			
Bridge Creek	X	X				X	X	X	X		X	X	X						X			
Valencia Lagoon						X	X	X		X		X		X					X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	NAV	POW	COMM	AQUA	SAL	SHELL
Pajaro River Hydrologic Unit 305																						
Corralitos Lagoon						X	X	X	X										X			
Palm Beach Pond	X					X	X	X		X				X					X			
Pinto Lake	X	X			X	X	X	X		X		X							X			
Kelley Lake	X	X			X	X	X	X		X		X							X			
Drew Lake	X	X			X	X	X	X		X		X							X			
Tynan Lake	X	X			X	X	X	X		X		X							X			
Warner Lake	X	X			X		X	X											X			
Pajaro River Estuary						X	X	X	X	X	X	X	X	X	X				X			X
Pajaro River	X	X		X	X	X	X	X	X	X	X	X				X			X			
San Benito River	X	X		X	X	X	X	X		X		X				X			X			
Bird Creek	X	X			X	X	X	X		X			X						X			
Pescadero Creek (305, trib. of San Benito R.)	X	X			X	X	X	X	X	X	X	X							X			
Tres Pinos Creek	X	X		X	X	X	X	X		X		X							X			
Hernandez Reservoir	X	X			X	X	X	X		X		X				X	X		X			
Tequisquita Slough					X	X	X	X		X		X							X			
San Felipe Lake	X	X			X	X	X	X	X	X	X					X	X		X			
Pacheco Creek	X	X			X	X	X	X	X	X	X	X	X	X		X			X			
Pacheco Lake	X	X			X	X	X	X	X	X		X		X		X	X		X			
Llagas Creek (above Chesbro Res.)	X	X			X	X	X	X	X	X				X		X			X			
Chesbro Reservoir	X	X			X	X	X	X		X	X	X		X		X	X		X			
Llagas Creek (below Chesbro Res.)	X	X		X	X	X	X	X	X	X	X	X		X					X			
Alamias Creek	X	X			X	X	X	X	X	X	X	X							X			
Live Oak Creek	X	X			X	X	X	X	X	X	X								X			
Little Llagas Creek	X	X			X	X	X	X		X									X			
Carnadero Creek	X				X	X	X	X	X	X	X			X					X			
Uvas Creek, downstream	X	X		X	X	X	X	X	X	X	X	X		X					X			
Uvas Res.	X	X			X	X	X	X		X		X		X		X	X		X			
Little Arthur Creek	X	X			X	X	X	X	X	X	X	X							X			
Bodfish Creek	X	X			X	X	X	X	X	X	X	X		X					X			
Black Hawk Canyon Creek	X					X	X	X		X	X	X		X					X			
Uvas Creek, upstream	X				X	X	X	X	X		X	X		X		X			X			
Little Uvas Creek	X	X			X	X	X	X		X									X			
Swanson Canyon Creek	X				X	X	X	X											X			
Alec Canyon Creek	X				X	X	X	X	X		X	X							X			
Croy Creek	X				X	X	X	X		X				X					X			
Eastman Canyon Creek	X	X			X	X	X	X		X									X			
Pescadero Creek (305, trib. of Pajaro R.)	X	X			X	X	X	X	X		X	X	X						X			
Soda Lake (305)							X	X		X				X					X			
Salsipuedes Creek (305)	X	X			X	X	X	X	X		X	X							X			
Corralitos Creek	X	X		X	X	X	X	X	X	X	X	X							X			
Browns Creek	X	X		X	X	X	X	X	X	X	X	X							X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	NAV	POW	COMM	AQUA	SAL	SHELL
Gamecock Creek	X				X	X	X	X	X		X	X							X			
Ramsey Gulch	X				X	X	X	X	X		X	X							X			
Redwood Creek	X					X	X	X	X		X	X							X			
Mormon Gulch	X				X	X	X	X	X										X			
Clipper Gulch	X				X	X	X	X	X										X			
Cookhouse Gulch	X				X	X	X	X	X										X			
Shingle Mill Gulch	X				X	X	X	X	X		X	X							X			
Rattlesnake Gulch	X				X	X	X	X	X										X			
Diablo Gulch Creek	X				X	X	X	X	X										X			
Eureka Gulch	X				X	X	X	X	X										X			
Rider Gulch Creek	X				X	X	X	X	X		X	X							X			
Watsonville Slough						X	X	X		X		X	X	X	X				X			
Struve Slough						X	X	X		X		X	X	X	X				X			
Hanson Slough						X	X	X		X		X	X	X	X				X			
Harkins Slough						X	X	X		X		X	X	X	X				X			
Gallighan Slough						X	X	X		X		X		X	X				X			
Bolsa Nueva Hydrologic Unit 306																						
McClusky Slough					X	X	X	X		X		X		X					X			X
Elkhorn Slough						X	X	X	X	X	X	X	X	X	X		X		X	X		X
Carneros Creek	X					X	X	X	X	X	X	X		X		X			X			
Bennett Slough/Estuary						X	X	X	X	X		X	X	X	X				X			X
Parsons Slough						X	X	X	X			X	X	X	X				X			X
Carmel River Hydrologic Unit 307																						
Carmel River Estuary					X	X	X	X	X		X	X	X	X	X				X			X
Carmel River	X	X		X	X	X	X	X	X	X	X	X	X	X		X			X			
San Clemente Res.	X	X			X	X	X	X	X		X	X				X	X		X			
San Clemente Creek	X	X			X	X	X	X	X	X	X	X				X			X			
Pine Creek	X				X	X	X	X	X	X	X	X	X						X			
Los Padres Reservoir	X				X	X	X	X	X	X	X	X				X	X		X			
Cachagua Creek	X	X	X	X	X	X	X	X	X	X	X	X				X			X			
Finch Creek	X				X	X	X	X	X	X	X	X	X	X					X			
Tularcitos Creek	X	X			X	X	X	X	X	X	X	X							X			
Rana Creek	X				X	X	X	X	X	X	X	X							X			
Chupines Creek	X				X	X	X	X	X	X	X	X							X			
Black Rock Creek	X					X	X	X	X		X	X		X		X			X			
White Rock Lake	X					X	X	X	X	X	X	X					X		X			
Santa Lucia Hydrologic Unit 308																						
San Jose Creek Estuary						X	X	X	X		X	X	X	X	X				X			X
San Jose Creek (308)	X	X			X	X	X	X	X	X	X	X	X			X			X			
Garrapata Creek	X					X	X	X	X		X	X		X	X	X			X	X		
Palo Colorado Canyon	X	X			X	X	X	X	X	X		X			X	X			X			
Rocky Creek	X					X	X	X	X	X	X	X			X	X			X			
Bixby Creek	X					X	X	X	X		X	X		X	X	X			X			
Mill Creek (308, trib. of Bixby Cr.)	X					X	X	X	X		X	X							X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	NAV	POW	COMM	AQUA	SAL	SHELL
Little Sur River Estuary						X	X	X	X		X	X	X	X	X				X			X
Little Sur River	X	X			X	X	X	X	X		X	X	X	X		X			X			
Big Sur River Estuary						X	X	X	X	X	X	X	X	X	X				X			X
Big Sur River	X	X			X	X	X	X	X	X	X	X	X	X		X			X			
Big Creek (308)	X					X	X	X	X	X	X	X	X	X	X	X			X			
Devils Canyon Creek, south fork	X					X	X	X	X		X	X	X						X			
Devils Canyon Creek, middle fork	X					X	X	X	X		X	X	X						X			
Devils Canyon Creek, north fork	X					X	X	X	X		X	X	X						X			
Big Creek, north fork	X					X	X	X	X				X						X			
Limekiln Creek	X	X			X	X	X	X	X		X	X	X	X	X	X			X			
Mill Creek (308, N. of Cape San Martin)	X					X	X	X	X	X	X	X			X	X			X			
Willow Creek	X				X	X	X	X	X		X	X		X	X	X			X			
Salmon Creek (308)	X					X	X	X	X		X	X		X	X	X			X			
Salinas Hydrologic Unit 309																						
Old Salinas River Estuary, downstream of Potrero Rd.						X	X	X	X	X	X	X	X	X	X				X			X
Moro Cojo Slough					X	X	X	X	X	X		X	X	X	X				X			X
Tembladero Slough						X	X	X		X	X	X		X	X				X			X
Espinosa Lake						X	X	X		X									X			
Espinosa Slough						X	X	X		X									X			
Salinas Reclamation Canal						X	X	X		X	X								X			
Gabilan Creek	X	X			X	X	X	X	X	X	X	X		X					X			
Alisal Creek	X	X			X	X	X	X	X	X		X							X			
Blanco Drain						X	X	X		X									X			
Old Salinas River						X	X	X	X	X	X	X	X	X	X				X			
Salinas River Refuge Lagoon (South)						X	X	X	X	X	X		X	X					X			X
Marina Pond #1					X	X	X	X	X			X	X	X					X			
Marina Pond #2					X	X	X	X	X				X	X					X			
Marina Pond #3					X	X	X	X	X				X	X					X			
Marina Pond #4/5					X	X	X	X	X				X	X					X			
Marina Pond #6					X	X	X	X	X				X	X					X			
Marina Pond #7					X	X	X	X	X			X	X	X					X			
Laguna Grande/Roberts Lake	X					X	X	X	X	X									X			
Del Monte Lake	X					X	X	X		X									X			
El Estero Lake	X				X	X	X	X	X	X		X							X			
Salinas River Lagoon (North)						X	X	X	X	X	X	X	X	X	X				X			X
Salinas River, downstream of Spreckels Gage	X	X				X	X	X	X	X	X					X			X			
Salinas River, Spreckels Gage-Chualar	X	X	X	X	X	X	X	X	X	X	X								X			
Salinas Riv, Chualar-Nacimiento Riv	X	X	X	X	X	X	X	X	X	X	X	X		X					X			
Arroyo Seco River	X	X		X	X	X	X	X	X	X	X	X		X					X			
Abbott Lakes (The Lakes)	X				X	X	X	X	X	X		X					X		X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	NAV	POW	COMM	AQUA	SAL	SHELL
Piney Creek	X					X	X	X	X		X	X							X			
Paloma Creek	X	X			X	X	X	X	X	X									X			
Tassajara Creek	X	X			X	X	X	X	X	X	X	X	X	X					X			
Santa Lucia Creek	X	X			X	X	X	X	X	X	X	X	X						X			
Vaqueros Creek	X	X				X	X	X	X		X	X							X			
Reliz Creek	X	X			X	X	X	X	X		X	X							X			
Hames Creek	X	X			X	X	X	X		X									X			
San Antonio Riv., downstream from Res.	X	X		X	X	X	X	X		X	X	X		X					X			
San Antonio Reservoir	X	X			X	X	X	X	X	X		X		X		X	X	X	X			
San Antonio Riv., upstream from Res.	X	X		X	X	X	X	X	X	X	X	X		X		X			X			
Pancho Rico Creek	X	X			X	X	X	X		X		X							X			
San Lorenzo Creek	X	X			X	X	X	X		X		X							X			
Chalone Creek	X	X			X	X	X	X		X		X							X			
Salinas R.,Nacimiento R.-S. Margarita Res.	X	X	X		X	X	X	X	X	X	X	X		X					X			
Nacimiento River, upstream of Res.	X	X			X	X	X	X	X	X		X		X		X			X			
Salmon Creek (309)	X					X	X	X	X		X	X		X					X			
Nacimiento Reservoir	X	X			X	X	X	X	X	X		X		X		X	X		X			
Nacimiento River, downstream of Res.	X	X		X	X	X	X	X	X	X	X	X		X					X			
Las Tablas Creek	X	X			X	X	X	X	X	X		X		X					X			
Las Tablas Creek, north fork	X	X			X	X	X	X	X			X		X					X			
Las Tablas Creek, south fork	X	X			X	X	X	X	X			X		X					X			
Franklin Creek (309)	X	X			X	X	X	X											X			
San Marcos Creek	X	X			X	X	X	X		X									X			
Paso Robles Creek	X	X			X	X	X	X	X		X	X		X					X			
Jack Creek	X	X			X	X	X	X	X		X	X		X					X			
Santa Rita Creek (309)	X	X		X	X	X	X	X	X	X	X	X		X					X			
Atascadero Creek (309)	X	X			X	X	X	X	X			X		X					X			
Santa Margarita Reservoir (Lake)	X	X		X	X	X	X	X	X	X		X		X		X	X	X	X			
Salinas R., Reservoir-Headwaters	X	X			X	X	X	X	X		X	X				X			X			
Huerhuero Creek	X	X			X	X	X	X		X				X					X			
Vineyard Canyon Creek	X	X			X	X	X	X		X									X			
Big Sandy Creek	X	X			X	X	X	X		X			X	X					X			
Atascadero Lake	X				X	X	X	X	X	X		X					X		X			
Estero Bay Hydrologic Unit 310																						
San Carpoforo Creek Estuary						X	X	X	X		X	X	X	X	X				X			X
San Carpoforo Creek	X	X		X	X	X	X	X	X	X	X	X		X		X			X			
Estrada Creek	X	X			X	X	X	X	X	X									X			
Chris Flood Creek	X	X			X	X	X	X	X	X									X			
Wagner Creek	X	X			X	X	X	X	X	X									X			
Dutra Creek	X	X			X	X	X	X	X	X									X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	NAV	POW	COMM	AQUA	SAL	SHELL
Arroyo de los Chinos	X	X			X	X	X	X	X	X				X	X	X			X			
Arroyo de la Cruz Estuary						X	X	X	X		X	X	X	X	X				X			X
Arroyo de la Cruz Creek	X	X		X	X	X	X	X	X	X	X	X		X		X			X			
Burnett Creek	X	X			X	X	X	X	X	X	X	X		X					X			
Arroyo del Oso	X	X			X	X	X	X	X					X	X	X			X			
Arroyo del Corral	X	X			X	X	X	X	X	X	X	X		X	X	X			X			
Oak Knoll Creek	X	X			X	X	X	X	X	X				X	X	X			X			
Arroyo Laguna						X	X	X	X			X		X	X				X			X
Little Pico Creek Estuary						X	X	X	X		X	X	X	X	X				X			X
Little Pico Creek	X	X			X	X	X	X	X		X	X		X		X			X			
Pico Creek Estuary					X	X	X	X	X	X	X	X	X	X	X				X			X
Pico Creek	X	X			X	X	X	X	X	X	X	X	X	X		X			X			
Pico Creek, south fork	X	X			X	X	X	X	X		X	X		X					X			
Pico Creek, north fork	X	X			X	X	X	X	X		X	X		X					X			
San Simeon Creek Estuary					X	X	X	X	X		X	X	X	X	X				X			X
San Simeon Creek	X	X		X	X	X	X	X	X	X	X	X	X	X		X			X			
Steiner Creek	X	X			X	X	X	X	X	X	X	X		X					X			
Santa Rosa Creek Estuary					X	X	X	X	X	X	X	X	X	X	X				X			X
Santa Rosa Creek (310)	X	X		X	X	X	X	X	X	X	X	X		X		X			X			
Perry Creek	X	X			X	X	X	X	X					X					X			
Green Valley Creek	X	X			X	X	X	X	X	X				X					X			
Villa Creek	X	X			X	X	X	X	X		X	X		X	X	X			X			
Cayucos Creek	X	X			X	X	X	X	X	X	X	X	X	X	X	X			X			
Old Creek, downstream from Whale Rock Res.	X	X			X	X	X	X		X				X	X	X			X			
Whale Rock Reservoir	X	X	X	X	X	X	X	X	X	X		X		X		X	X		X			
Old Creek, upstream from Whale Rock Res.	X	X	X	X	X	X	X	X	X	X		X		X		X			X			
Toro Creek	X	X			X	X	X	X	X	X	X	X		X	X	X			X			
Morro Creek	X	X			X	X	X	X	X	X	X	X		X	X	X			X			
Little Morro Creek	X	X			X	X	X	X	X		X	X		X					X			
Morro Bay Estuary				X		X	X	X	X		X	X	X	X	X				X	X		X
Chorro Creek	X	X			X	X	X	X	X	X	X	X	X	X		X			X			
Dairy Creek	X	X			X	X	X	X	X		X	X		X					X			
San Luisito Creek	X	X			X	X	X	X	X		X	X		X					X			
San Bernardo Creek	X	X			X	X	X	X	X		X	X		X					X			
Los Osos Creek	X	X			X	X	X	X	X	X	X	X		X		X			X			
Warden Lake Wetland		X			X	X	X	X		X		X		X					X			
Islay Creek	X	X			X	X	X	X	X		X	X	X	X	X	X			X			
Coon Creek	X	X			X	X	X	X	X		X	X	X	X	X	X			X			
Diablo Canyon Creek	X	X		X	X	X	X	X	X			X		X	X	X			X			
San Luis Obispo Creek Estuary (a)					X	X	X	X	X	X	X	X	X	X	X				X	X		X
S.L.O. Crk. above W. Marsh St.	X	X			X	X	X	X	X	X	X	X		X					X			
S.L.O. Crk. below W. Marsh St.	X	X			X	X	X	X	X	X	X	X				X			X			
Froom Creek	X					X	X	X						X					X			
Davenport Creek	X	X			X	X	X	X	X					X					X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	NAV	POW	COMM	AQUA	SAL	SHELL
San Luis Obispo Creek, east fork	X	X			X	X	X	X	X		X	X		X					X			
Stenner Creek	X	X			X	X	X	X	X		X	X		X					X			
Brizziolari Creek	X	X			X	X	X	X	X		X	X		X					X			
Prefumo Creek	X	X			X	X	X	X	X		X	X		X		X			X			
Laguna Lake	X	X			X	X	X	X		X	X	X		X			X		X			
Pismo Creek Estuary					X	X	X	X	X		X	X	X	X	X				X			X
Pismo Creek	X	X		X	X	X	X	X	X	X	X	X	X	X		X			X			
Arroyo Grande Creek Estuary					X	X	X	X	X		X	X	X	X	X				X			X
Arroyo Grande Creek, downstream from Lopez Res.	X	X		X	X	X	X	X	X	X	X			X		X			X			
Oceano Lagoon						X	X	X		X		X	X	X					X			
Meadow Creek	X	X			X	X	X	X	X				X	X					X			
Pismo Marsh (Lake)					X	X	X	X		X			X	X					X			
Los Berros Creek	X	X			X	X	X	X	X		X			X					X			
Lopez Reservoir	X	X	X	X	X	X	X	X	X	X		X		X		X	X		X			
Arroyo Grande Creek, upstream from Lopez Res.	X	X	X	X	X	X	X	X	X	X	X	X		X					X			
Big Pocket Lake (Dunes Lakes)					X		X	X						X					X			
Willow Lake " "					X	X	X	X		X		X		X					X			
Pipeline Lake " "					X	X	X	X		X		X		X					X			
Celery Lake " "					X	X	X	X		X		X		X					X			
Hospital Lake " "					X	X	X	X		X		X		X					X			
Big Twin Lake " "					X	X	X	X		X		X		X					X			
Small Twin Lake " "						X	X	X		X		X		X					X			
Bolsa Chico Lake " "					X	X	X	X		X		X		X					X			
White Lake " "					X	X	X	X		X		X		X					X			
Mud Lake " "					X	X	X	X		X		X		X					X			
Black Lake " "					X	X	X	X		X		X		X					X			
Dune Lakes Marsh Area " "					X	X	X	X		X		X		X					X			
Carrizo Plain Hydrologic Unit 311																						
San Diego Creek	X	X			X	X	X	X		X			X	X		X			X			
Soda Lake (311)				X			X	X		X			X	X					X		X	
Santa Maria Hydrologic Unit 312																						
Oso Flaco Lake					X	X	X	X		X		X	X	X			X		X			
Oso Flaco Creek	X	X			X	X	X	X		X			X	X		X			X			
Santa Maria River Estuary					X	X	X	X		X	X	X	X	X	X				X			X
Santa Maria River	X	X		X	X	X	X	X	X	X	X			X		X			X			
Corralitos Canyon Creek	X	X				X	X	X											X			
Sisquoc River, downstream from San Rafael wilderness boundary	X	X		X	X	X	X	X	X	X	X	X							X			
Sisquoc River, upstream from San Rafael wilderness boundary	X				X	X	X	X	X		X	X	X	X					X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	NAV	POW	COMM	AQUA	SAL	SHELL
Cuyama River, downstream from Twitchell Res.	X	X			X	X	X	X		X				X					X			
Twitchell Reservoir	X	X			X		X	X		X				X		X			X			
Cuyama River, upstream from Twitchell Res.	X	X	X	X	X	X	X	X	X	X		X		X		X			X			
Alamo Creek	X	X			X	X	X	X	X	X		X		X					X			
Huasna River	X	X			X	X	X	X		X				X					X			
Orcutt Creek	X	X			X	X	X	X	X	X				X	X	X			X			
San Antonio Hydrologic Unit 313																						
Shuman Canyon Creek	X	X				X	X	X		X		X		X	X	X			X			
Casmalia Canyon Creek	X	X				X	X	X		X		X		X					X			
San Antonio Creek Estuary					X	X	X	X	X	X	X	X	X	X	X				X			X
San Antonio Creek (313)	X	X			X	X	X	X	X	X	X	X		X		X			X			
Barka Slough					X	X	X	X		X		X		X	X				X			X
Santa Ynez Hydrologic Unit 314																						
Santa Ynez River Estuary						X	X	X		X	X	X	X	X	X				X			X
Santa Ynez River, downstream from Cachuma Res.	X	X	X	X	X	X	X	X	X	X	X	X		X		X			X			
Graves Wetland						X	X	X		X		X							X			
Lompoc Canyon	X	X		X	X	X	X	X		X									X			
La Salle Canyon Creek	X	X			X	X	X	X		X									X			
Sloans Canyon Creek	X				X	X	X	X		X									X			
San Miguelito Creek	X	X			X	X	X	X	X	X		X							X			
Salsipuedes Creek (314)	X	X		X	X	X	X	X	X	X	X	X							X			
El Jaro Creek	X	X		X	X	X	X	X	X	X	X	X							X			
El Callejon Creek	X				X	X	X	X		X									X			
Llanito Creek	X				X	X	X	X		X									X			
Yridisis Creek	X	X			X	X	X	X		X		X							X			
Canada de la Vina	X	X			X	X	X	X		X									X			
Nojoqui Creek	X	X			X	X	X	X	X	X		X							X			
Alamo Pintado Creek	X	X		X	X	X	X	X		X									X			
Zaca Creek	X	X			X	X	X	X	X	X				X					X			
Zaca Lake	X					X	X	X	X	X		X		X					X			
Santa Rosa Creek (314)	X	X			X	X	X	X	X	X	X	X							X			
Santa Rita Creek (314)	X	X		X	X	X	X	X		X									X			
Davis Creek	X				X	X	X	X		X									X			
Santa Lucia Canyon Creek	X	X			X	X	X	X		X									X			
Oak Canyon Creek	X	X		X	X	X	X	X		X			X						X			
Hilton Creek	X	X			X	X	X	X	X		X	X							X			
Cachuma Reservoir	X	X	X		X	X	X	X	X	X		X		X		X	X		X			
Santa Ynez River, upstream from Cachuma Res.	X	X	X	X	X	X	X	X	X	X	X	X		X		X			X			
Gibralter Reservoir	X	X	X	X	X	X	X	X	X	X		X		X		X	X		X			
Jameson Reservoir	X	X	X		X	X	X	X	X	X		X		X		X	X		X			
Agua Caliente Canyon	X	X		X	X	X	X	X	X	X		X		X					X			
Mono Creek	X	X		X	X	X	X	X	X	X	X	X		X					X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	NAV	POW	COMM	AQUA	SAL	SHELL
Indian Creek	X	X		X	X	X	X	X	X	X	X	X	X	X					X			
Santa Cruz Creek	X	X		X	X	X	X	X	X	X	X	X		X					X			
Cachuma Creek	X				X	X	X	X	X	X	X	X		X					X			
South Coast Hydrologic Unit 315																						
Canada Honda Creek Estuary						X	X	X	X	X	X	X	X	X	X				X			X
Canada Honda Creek	X	X			X	X	X	X	X	X	X	X		X		X			X			
Canada Agua Viva	X				X	X	X	X		X					X	X			X			
Water Canyon Creek (315)	X				X	X	X	X		X			X		X	X			X			
Canada del Jolloru	X					X	X	X		X					X	X			X			
Jalama Creek Estuary						X	X	X		X	X	X	X	X	X				X			X
Jalama Creek	X	X			X	X	X	X		X		X				X			X			
Escondido Creek	X				X	X	X	X	X	X	X	X		X					X			
Gasper Creek	X				X	X	X	X		X									X			
Espada Creek	X				X	X	X	X		X									X			
Wood Canyon Creek	X				X	X	X	X		X					X	X			X			
Canada del Cojo	X				X	X	X	X		X					X	X			X			
Barranca Honda	X	X			X	X	X	X		X				X	X	X			X			
Arroyo Bulito	X	X			X	X	X	X		X					X	X			X			
Canada de Santa Anita	X	X			X	X	X	X		X					X	X			X			
Canada del Sacate	X	X			X	X	X	X		X					X	X			X			
Canada Alegria	X				X	X	X	X		X					X	X			X			
Canada del Agua Caliente	X	X			X	X	X	X	X	X					X	X			X			
Canada de la Gaviota	X	X			X	X	X	X	X	X	X	X	X	X	X	X			X			
Canada San Onofre	X					X	X	X	X	X	X	X		X	X	X			X			
Canada del Molino	X					X	X	X		X				X	X	X			X			
Arroyo Hondo	X					X	X	X	X	X	X	X		X	X	X			X			
Arroyo Quenado	X	X				X	X	X	X		X	X		X	X	X			X			
Tajigas Creek	X	X			X	X	X	X	X	X	X	X		X	X	X			X			
Canada del Refugio	X	X			X	X	X	X	X	X	X	X	X	X	X	X			X			
Canada del Capitan	X	X			X	X	X	X	X	X	X	X	X	X	X	X			X			
Dos Pueblos Canyon Creek	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X			X			
Tecolote Creek	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X			X			
Devereaux Ranch Lagoon						X	X	X		X	X	X	X	X	X				X			X
Devereaux Creek	X				X	X	X	X		X						X			X			
Goleta Point Marsh						X	X	X		X		X	X	X					X			
Goleta Slough/Estuary						X	X	X		X	X	X	X	X	X				X			X
Carneros Creek	X	X			X	X	X	X	X	X						X			X			
Tecolotito Creek	X				X	X	X	X	X	X	X					X			X			
Glen Annie Creek	X	X	X	X	X	X	X	X	X	X	X	X		X		X			X			
Los Caneros Wetland					X	X	X	X		X		X		X					X			
Los Caneros	X	X			X	X	X	X		X		X		X		X			X			
Atascadero Creek (315)	X	X			X	X	X	X	X	X	X	X		X		X			X			
Maria Ygnacio Creek	X	X			X	X	X	X	X		X	X							X			
San Antonio Creek (315)	X	X			X	X	X	X	X	X	X	X		X					X			
San Jose Creek (315)	X	X			X	X	X	X	X	X	X	X		X		X			X			
Las Vegas Creek	X				X	X	X	X	X	X									X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	NAV	POW	COMM	AQUA	SAL	SHELL
San Pedro Creek	X	X			X	X	X	X	X	X	X					X			X			
Las Palmas Creek	X				X	X	X	X		X									X			
Arroyo Burro Estuary						X	X	X		X		X			X				X			
Arroyo Burro Creek	X				X	X	X	X		X		X	X	X		X			X			
Mission Creek	X				X	X	X	X	X	X	X	X		X	X	X			X			
Rattlesnake Canyon	X				X	X	X	X	X	X	X	X							X			
Waste Slough					X	X	X	X		X		X							X			
Sycamore Creek	X	X			X	X	X	X	X	X	X	X		X	X	X			X			
Andree Clark Bird Refuge						X	X	X		X			X	X					X			X
San Ysidro Creek	X				X	X	X	X		X					X	X			X			
Romero Creek	X				X	X	X	X		X					X	X			X			
Toro Canyon Creek	X				X	X	X	X		X					X	X			X			
Arroyo Paredon	X	X			X	X	X	X	X	X	X	X		X	X	X			X			
Carpinteria Marsh (El Estero Marsh)						X	X	X		X	X	X	X	X	X				X			
Santa Monica Creek	X	X			X	X	X	X	X	X		X	X			X			X			
Franklin Creek (315)	X	X			X	X	X	X	X	X	X	X		X		X			X			
Carpinteria Creek	X	X			X	X	X	X	X	X	X	X	X	X	X	X			X			
Gobernador Creek	X				X	X	X	X	X	X		X							X			
Steer Creek	X					X	X	X	X	X	X	X							X			
Rincon Creek	X	X			X	X	X	X	X	X	X	X		X	X	X			X			
Santa Barbara Channel Hydrologic Unit 316																						
Santa Rosa Island																						
Canada Lobos Creek	X	X				X	X	X		X			X	X					X			
Old Ranch Canyon Creek	X	X				X	X	X		X			X	X		X			X			
Arlington Canyon Creek	X	X				X	X	X		X			X	X					X			
Water Canyon Creek (316)	X	X				X	X	X		X			X	X					X			
Cow Canyon Creek	X	X				X	X	X		X			X	X					X			
Clapp Springs	X	X				X	X	X		X			X	X					X			
Old Ranch Canyon Creek Estuaries		X				X	X	X		X			X	X	X				X			
Old Ranch House Canyon Creek	X	X				X	X	X		X			X	X		X			X			
Cherry Canyon Creek	X	X				X	X	X		X			X	X					X			
Santa Cruz Island																						
Willow Canyon Creek	X					X	X	X		X			X	X					X			
Coches Prieto Canyon Creek	X					X	X	X		X			X	X					X			
Almos Anchorage Canyon Creek	X					X	X	X		X			X	X					X			
Canada del Puerta (Prisoner Harbor)	X					X	X	X		X			X	X					X			
Canada Larga Creek	X					X	X	X		X			X	X					X			
Upper Pozo Canyon Creek	X					X	X	X		X			X	X					X			
Sauces Canyon Creek	X					X	X	X		X			X	X					X			
Twin Harbors Canyon Ck, (E. Fork)	X					X	X	X		X			X	X					X			
Lady's Harbor Canyon Creek	X					X	X	X		X			X	X					X			
Estrella River Hydrologic Unit 317																						

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	NAV	POW	COMM	AQUA	SAL	SHELL
Estrella River	X	X			X	X	X	X		X		X							X			
San Juan Creek	X	X			X	X	X	X		X				X					X			
Chalome Creek	X	X			X	X	X	X		X				X					X			
Little Chalome Creek	X	X			X	X	X	X		X				X					X			

Table 2-2. Existing and Anticipated Uses of Coastal Waters[a]

Coastal Water	REC 1	REC 2	IND	NAV	MAR	SHELL	COMM	RARE	BIOL	WILD
Pescadero Pt. to Pt. Año Nuevo	E	E	E	E	E	E	E	E		E
Pt. Año Nuevo to Soquel Pt.	E	E	E	E	E	E	E			E
Pt. Año Nuevo and Island	E	E			E			E	E	E
Santa Cruz Harbor	E	E	E	E	E		E			
San Lorenzo Estuary	E	E		E	E	E	E			E
Soquel Pt. to Salinas River	E	E	E	E	E	E	E	E		E
Elkhorn Slough[b]	E	E			E	E	E	E		E
Moss Landing Harbor	E	E	E	E	E	E[c]	E	E		E
Salinas River to Pt. Piños	E	E	E	E	E	E	E			E
Monterey Harbor	A	E	E	E	E	E	A	E		
Pacific Grove Marine Gardens	E	E			E		E	E	E	E
Hopkins Marine Life Refuge	E	E			E		E	E	E	E
Pt. Piños to Pt. Piedras Blancas	E	E		E	E		E	E		E
Carmel Bay	E	E			E		E	E	E	E
Pt. Lobos State Reserve	E	E			E			E	E	E
Pt. Sur	E	E			E	E	E			E
Pfeiffer-Burns State Park	E	E			E			E	E	E
Ocean Area Surrounding Salmon Creek	E	E			E				E	E
Pt. Piedras Blancas to Pt. Estero	E	E		E	E	E	E	E		E
Estero Bay	E	E	E	E	E	E	E	E		E
Morro Bay	E	E	E	E	E	E	E	E		E
Pt. Buchon to Pt. San Luis	E	E	E	E	E	E	E			E
Pt. San Luis to Pt. Sal	E	E	E	E	E	E	E	E		E
Pt. Sal to Pt. Arguello	E	E		E	E	E	E			E
Pt. Arguello to Coal Oil Pt.	E	E	E	E	E	E	E			
Coal Oil Pt. to Rincon Pt.	E	E	E	E	E	E	E	E		E
Goleta Slough	E	E			E	E		E		E
Santa Barbara Harbor	E	E	E	E	E		E			
Beach Parks	E	E		E	E					
San Miguel Island	E	E		E	E	E	E	E	E	E
Santa Rosa Island	E	E		E	E	E	E		E	E
Santa Cruz Island	E	E		E	E	E	E	E	E	E
El Estero	E	E			E	E		E		E

a This table lists selected coastal segments. It is not a complete inventory for the Central Coast Region. Unlisted water bodies have implied beneficial use designations for protection of both recreation and aquatic life.

b Elkhorn Slough has been designated an ecological reserve by the California Department of Fish and Wildlife, and recognized as a National Estuary Sanctuary by the Federal Government.

c Clamming is an existing beneficial use in the North Harbor and on the south side of the entrance channel to Elkhorn Slough (north of the Pacific Gas and Electric Cooling Water Intake). Presently, no shellfishing use occurs south of the Pacific Gas and Electric Intake.

NOTES: E = Existing beneficial water use
A = Anticipated beneficial water use

Table 2-3. Central Coastal Surface Water Hydrologic Planning Areas

Number	Surface Waterbody Name
304.00	**Big Basin Hydrologic Unit**
304.10	Santa Cruz HA
304.11	Davenport HSA
304.12	San Lorenzo HSA
304.13	Aptos-Soquel HSA
304.20	Ano Nuevo HA
305.00	**Pajaro River Hydrologic Unit**
305.10	Watsonville HA
305.20	Santa Cruz Mountains HA
305.30	South Santa Clara Valley HA
305.40	Pacheco-Santa Ana Creek HA
305.50	San Benito River HA
306.00	**Bolsa Nueva Hydrologic Unit**
307.00	**Carmel River Hydrologic Unit**
308.00	**Santa Lucia Hydrologic Unit**
309.00	**Salinas Hydrologic Unit**
309.10	Lower Salinas Valley HA
309.20	Chular HA
309.30	Soldad HA
309.40	Upper Salinas Valley HA
309.50	Montery Peninsula HA
309.60	Arroyo Sceo HA
309.70	Gabilan Range HA
309.80	Paso Robles HA
309.81	Atascadero HSA
309.82	Nacimiento Reservoir HSA
309.83	San Antonio Reservoir HSA
309.90	Pozo HA
310.00	**Estero Bay Hydrologic Unit**
310.10	Cambria HA
310.11	San Carpoforo HSA
310.12	Arroyo De La Cruz HSA
310.13	San Simeon HSA
310.14	Santa Rosa HSA
310.15	Villa HSA
310.16	Cayucos HSA
310.17	Old HSA
310.18	Toro HSA
310.20	Point Buchon HA
310.21	Morro HSA
310.22	Chorro USA
310.23	Los Osos HSA
310.24	San Luis Obispo Creek HSA
310.25	Point San Luis HSA
310.26	Pismo HSA
310.30	Arroyo Grande HA
310.31	Oceano HSA
310.32	Nipomo Mesa HSA
311.00	**Carrizo Plain Hydrologic Unit**
312.00	**Santa Maria Hydrologic Unit**
312.10	Guadalupe HA
312.20	Sisquoc HA
312.30	Cuyama Valley HA
313.00	**San Antonio Hydrologic Unit**
314.00	**Santa Ynez Hydrologic Unit**
314.10	Lompoc HA
314.20	Santa Rita HA
314.30	Buellton HA
314.40	Los Olivos HA
314.50	Headwater HA
314.51	Santa Cruz Creek HSA
314.52	Lake Cachuma HSA
315.00	**South Coast Hydrologic Unit**
315.10	Arguello HA
315.30	South Coast HA
315.31	Goleta HSA
315.32	Santa Barbara HSA
315.33	Montecito HSA
315.34	Carpinteria HSA
316.00	**Santa Barbara Channel Islands Hydrologic Unit**
316.10	San Miguel Island HA
316.20	Santa Rosa Island HA
316.30	Santa Cruz Island HA
317.00	**Estrella River Hydrologic Unit**

Surface water hydrologic planning areas shown in Figure 2-1.

Table 2-4. Central Coastal Groundwater Basins

Basin/ Subbasin No.	Basin Name	County
3-1	Soquel Valley	Santa Cruz
3-2	Pajaro Valley	Monterey, Santa Cruz
3-3	Gilroy-Hollister Valley	San Benito, Santa Clara
3-3.01	Llagas Area	Santa Clara
3-3.02	Bolsa Area	San Benito
3-3.03	Hollister Area	San Benito, Santa Clara
3-3.04	San Juan Bautista Area	San Benito, Santa Clara
3-4	Salinas Valley	Monterey, San Luis Obispo
3-4.01	180/400 Foot Aquifer	Monterey
3-4.02	East Side Aquifer	Monterey
3-4.04	Forebay Aquifer	Monterey
3-4.05	Upper Valley Aquifer	Monterey
3-4.06	Paso Robles Area	Monterey, San Luis Obispo
3-4.08	Seaside Area	Monterey
3-4.09	Langley Area	Monterey
3-4.10	Corral de Tierra Area	Monterey
3-5	Cholame Valley	Monterey, San Luis Obispo
3-6	Lockwood Valley	Monterey
3-7	Carmel Valley	Monterey
3-8	Los Osos Valley	San Luis Obispo
3-9	San Luis Obispo Valley	San Luis Obispo
3-12	Santa Maria River Valley	San Luis Obispo, Santa Barbara
3-13	Cuyama Valley	Kern, San Luis Obispo, Santa Barbara, Ventura
3-14	San Antonio Creek Valley	Santa Barbara
3-15	Santa Ynez River Valley	Santa Barbara
3-16	Goleta	Santa Barbara
3-17	Santa Barbara	Santa Barbara
3-18	Carpinteria	Santa Barbara, Ventura
3-19	Carrizo Plain	San Luis Obispo
3-20	Ano Nuevo Area	San Mateo
3-21	Santa Cruz Purisima Formation	Santa Cruz
3-22	Santa Ana Valley	San Benito
3-23	Upper Santa Ana Valley	San Benito
3-24	Quien Sabe Valley	San Benito
3-25	Tres Pinos Valley	San Benito
3-26	West Santa Cruz Terrace	Santa Cruz
3-27	Scotts Valley	Santa Cruz
3-28	San Benito River Valley	San Benito
3-29	Dry Lake Valley	San Benito
3-30	Bitter Water Valley	San Benito
3-31	Hernandez Valley	San Benito
3-32	Peach Tree Valley	San Benito
3-33	San Carpoforo Valley	San Luis Obispo
3-34	Arroyo de la Cruz Valley	San Luis Obispo
3-35	San Simeon Valley	San Luis Obispo
3-36	Santa Rosa Valley	San Luis Obispo
3-37	Villa Valley	San Luis Obispo
3-38	Cayucos Valley	San Luis Obispo
3-39	Old Valley	San Luis Obispo
3-40	Toro Valley	San Luis Obispo
3-41	Morro Valley	San Luis Obispo
3-42	Chorro Valley	San Luis Obispo
3-43	Rinconada Valley	San Luis Obispo
3-44	Pozo Valley	San Luis Obispo
3-45	Huasna Valley	San Luis Obispo
3-46	Rafael Valley	San Luis Obispo
3-47	Big Spring Area	San Luis Obispo
3-49	Montecito	Santa Barbara
3-50	Felton Area	Santa Cruz
3-51	Majors Creek	Santa Cruz
3-52	Needle Rock Point	Santa Cruz
3-53	Foothill	Santa Barbara

Groundwater basin locations shown in Figure 2-2.

Figure 2-1. Central Coast Surface Water Hydrologic Planning Areas

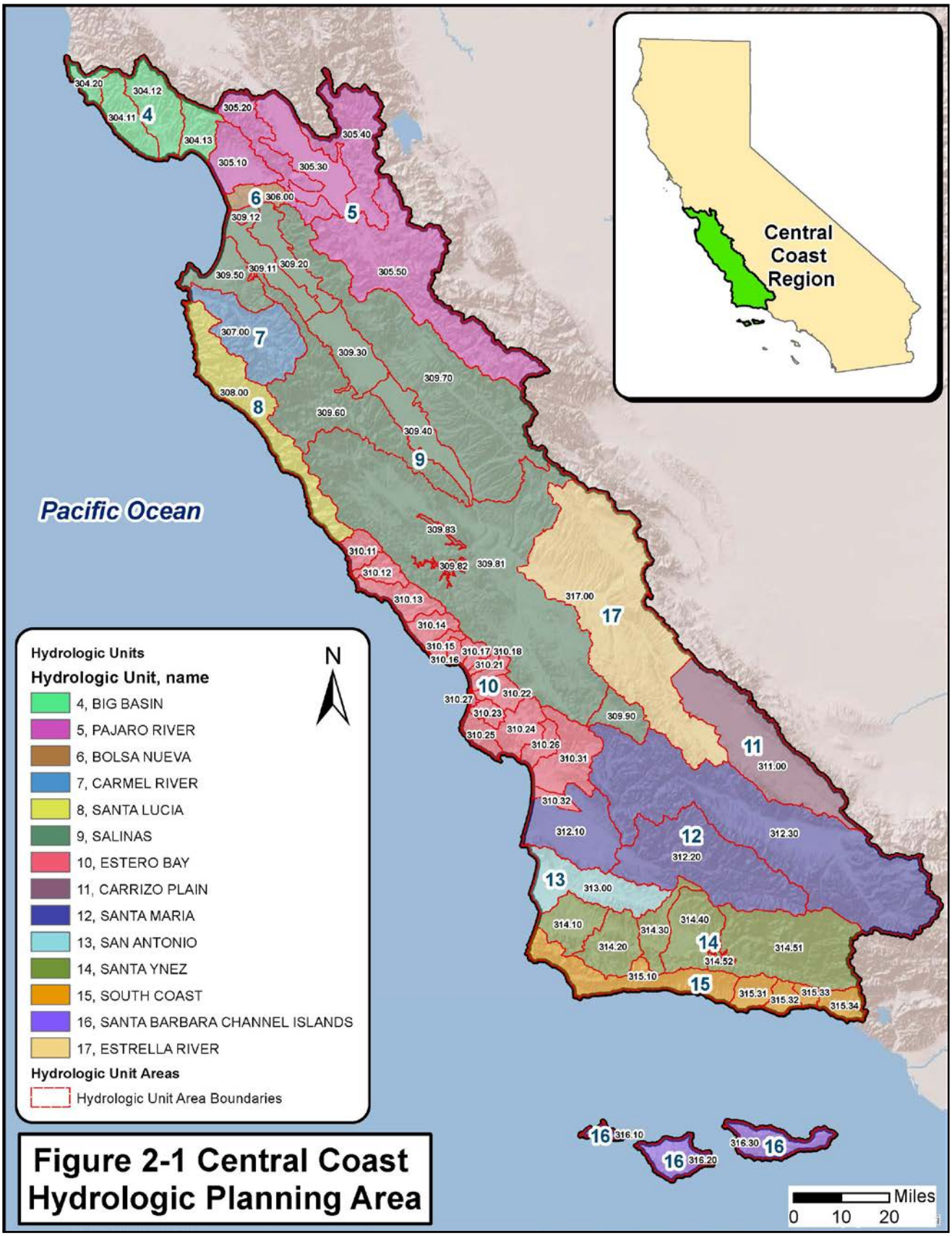

Figure 2-2. Central Coast Groundwater Basins

Appendix A.2 Central Coast RWQCB Basin Plan Water Quality Objectives

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Chapter 3. Water Quality Objectives

Section 13241, Division 7 of the California Water Code specifies that each Regional Water Quality Control Board shall establish water quality objectives which, in the Regional Board's judgment, are necessary for the reasonable protection of beneficial uses and for the prevention of nuisance.

Section 303 of the 1972 Amendments to the federal Water Pollution Control Act requires the State to submit to the Administrator of the U.S. Environmental Protection Agency (USEPA) for approval, all new or revised water quality standards which are established for surface and ocean waters. Under federal terminology, water quality standards consist of beneficial uses enumerated in Chapter Two and water quality objectives contained in this chapter.

Water quality objectives contained herein are designed to satisfy all State and federal requirements.

As new information becomes available, the Regional Board will review the appropriateness of objectives contained herein. These objectives are subject to public hearing at least once during each three-year period following adoption of this plan for the purpose of review and modification as appropriate.

3.1 Considerations in Selecting Water Quality Objectives

The aforementioned 1972 Amendments to the federal Water Pollution Control Act declare that a national goal is elimination of discharge of pollutants into navigable waters.

A prerequisite to water quality control planning is the establishment of a base or reference point. The base in this instance was various general and specific water quality criteria previously found acceptable for particular beneficial uses or selected sources of waste. Current technical guidelines, available historical data, and enforcement feasibility were given full consideration in formulating water quality objectives.

A distinction is made here between the terms "water quality objectives" and "water quality standards". Water quality objectives have been adopted by the State and, when applicable, extended as federal water quality standards. Water quality standards, previously mentioned in this chapter's introduction, pertain to navigable waters and become legally enforceable criteria when accepted by the USEPA Regional Administrator.

Point and nonpoint water pollution sources described herein have the same meaning as defined in the federal Water Pollution Control Act. Point sources are wasteloads from identifiable sources such as municipal discharges, industrial discharges, vessels, controllable stormwaters, fish hatchery discharges, confined animal operations, and agricultural drains. Nonpoint sources are wasteloads resulting from land use practices where wastes are not collected and disposed of in any readily identifiable manner. Examples include: urban drainage, agricultural runoff, road construction activities, mining, grassland management, logging and other harvest activities, and natural sources such as effects of fire, flood, and landslide. The distinction between point sources and diffuse sources is not always clear but generally applies to the practicality of wasteload control.

Water quality objectives for the Central Coastal Basin satisfy State and federal requirements to protect waters for the beneficial uses in Chapter Two and are consistent with all existing statewide plans and policies.

3.2 Anti-Degradation Policy

Wherever the existing quality of water is better than the quality of water established herein as objectives, such existing quality shall be maintained unless otherwise provided by the provisions of the State Water Resources Control Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," including any revisions thereto. A copy of this policy is included in Appendix A-1.

3.3 Water Quality Objectives

The water quality objectives which follow supersede and replace those contained in the 1967 Water Quality Control Policies; the Interim Water Quality Control Plan for the Central Coastal Basin adopted by the Regional Board in 1971, including all existing revisions; and the Water Quality Control Plan Report

for the Central Coastal Basin, adopted by the Regional Board in 1974.

Controllable water quality shall conform to the water quality objectives contained herein. When other conditions cause degradation of water quality beyond the levels or limits established as water quality objectives, controllable conditions shall not cause further degradation of water quality.

Controllable water quality conditions are those actions or circumstances resulting from man's activities that may influence the quality of the waters of the State and that may be reasonably controlled.

Water quality objectives are considered to be necessary to protect those present and probable future beneficial uses enumerated in Chapter Two of this plan and to protect existing high quality waters of the State. These objectives will be achieved primarily through the establishment of waste discharge requirements and through implementation of this water quality control plan.

In setting waste discharge requirements, the Regional Board will consider the potential impact on beneficial uses within the area of influence of the discharge, the existing quality of receiving waters, and the appropriate water quality objectives. The Regional Board will make a finding of beneficial uses to be protected and establish waste discharge requirements to protect those uses and to meet water quality objectives.

Several water quality objectives listed herein originate from the California Code of Regulations (CCR), Title 22. If Title 22 concentrations are amended, Basin Plan objectives are automatically amended to correspond with the new regulations.

3.3.1 Objectives for Ocean Waters

The provisions of the State Board's "Water Quality Control Plan for Ocean Waters of California" (Ocean Plan, Appendix A-11), "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California" (Thermal Plan, Appendix A-3), and any revisions thereto shall apply in their entirety to affected waters of the basin. The Ocean and Thermal Plans shall also apply in their entirety to Monterey Bay and Carmel Bay.

In addition to provisions of the Ocean Plan and Thermal Plan, the following objectives shall also apply to all ocean waters, including Monterey and Carmel Bays:

Dissolved Oxygen

The mean annual dissolved oxygen concentration shall not be less than 7.0 mg/L, nor shall the minimum dissolved oxygen concentration be reduced below 5.0 mg/L at any time.

pH

The pH value shall not be depressed below 7.0, nor raised above 8.5.

Radioactivity

Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life; or result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal, or aquatic life.

3.3.2 Objectives for All Inland Surface Waters, Enclosed Bays, and Estuaries

3.3.2.1 General Objectives

The following objectives apply to all inland surface waters, enclosed bays, and estuaries of the basin:

Color

Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses. Coloration attributable to materials of waste origin shall not be greater than 15 units or 10 percent above natural background color, whichever is greater.

Tastes and Odors

Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses.

Floating Material

Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

Suspended Material

Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

Settleable Material

Waters shall not contain settleable material in concentrations that result in deposition of material that causes nuisance or adversely affects beneficial uses.

Oil and Grease

Waters shall not contain oils, greases, waxes, or other similar materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.

Biostimulatory Substances

Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

Sediment

The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

Turbidity

Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.

Increase in turbidity attributable to controllable water quality factors shall not exceed the following limits:

1. Where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases shall not exceed 20 percent.

2. Where natural turbidity is between 50 and 100 NTU, increases shall not exceed 10 NTU.

3. Where natural turbidity is greater than 100 NTU, increases shall not exceed 10 percent.

Allowable zones of dilution within which higher concentrations will be tolerated will be defined for each discharge in discharge permits.

pH

For waters not mentioned by a specific beneficial use, the pH value shall not be depressed below 7.0 or raised above 8.5.

Dissolved Oxygen

For waters not mentioned by a specific beneficial use, dissolved oxygen concentration shall not be reduced below 5.0 mg/L at any time. Median values should not fall below 85 percent saturation as a result of controllable water quality conditions.

Temperature

Temperature objectives for Enclosed Bays and Estuaries are as specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California" including any revisions thereto. A copy of this plan is included in Appendix A-3.

Natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.

Toxicity

All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in, human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, toxicity bioassays of appropriate duration, or other appropriate methods as specified by the Regional Board.

Survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality conditions, shall not be less than that for the same waterbody in areas unaffected by the waste discharge or, when necessary, for other control water that is consistent with the requirements for "experimental water" as described in Standard Methods for the Examination of Water and Wastewater, latest edition. As a minimum, compliance with this objective shall be evaluated with a 96-hour bioassay.

In addition, effluent limits based upon acute bioassays of effluents will be prescribed where appropriate, additional numerical receiving water objectives for specific toxicants will be established as sufficient data become available, and source control of toxic substances is encouraged.

The discharge of wastes shall not cause concentrations of un-ionized ammonia (NH_3) to exceed 0.025 mg/L (as N) in receiving waters.

Pesticides

No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life.

For waters where existing concentrations are presently nondetectable or where beneficial uses would be impaired by concentrations in excess of nondetectable levels, total identifiable chlorinated hydrocarbon pesticides shall not be present at concentrations detectable within the accuracy of analytical methods prescribed in Standard Methods for the Examination of Water and Wastewater, latest edition, or other equivalent methods approved by the Executive Officer.

Chemical Constituents

Where wastewater effluents are returned to land for irrigation uses, regulatory controls shall be consistent with Title 22 of the California Code of Regulations and other relevant local controls.

Other Organics

Waters shall not contain organic substances in concentrations greater than the following:

Methylene Blue Activated Substances	0.2 mg/L
Phenols	0.1 mg/L
PCB's	0.3 μg/L
Phthalate Esters	0.002 μg/L

Radioactivity

Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life; or result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal, or aquatic life.

3.3.2.2 Objectives for Specific Beneficial Uses

Municipal and Domestic Supply (MUN)

pH

The pH value shall neither be depressed below 6.5 nor raised above 8.3.

Organic Chemicals

All inland surface waters, enclosed bays, and estuaries shall not contain concentrations of organic chemicals in excess of the maximum contaminant levels for primary drinking water standards specified in California Code of Regulations, Title 22, Division 4, Chapter 15, Article 5.5, Section 64444, Table 64444-A. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect.

Inorganic Chemicals

Waters shall not contain concentrations of inorganic chemicals in excess of the maximum contaminant levels for primary drinking water standards specified in California Code of Regulations, Title 22, Division 4, Chapter 15, Sections 64431 and 64433.2. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect.

Phenol

Waters shall not contain phenol concentrations in excess of 1.0 μg/L.

Radioactivity

Waters shall not contain concentrations of radionuclides in excess of the limits specified in California Code of Regulations, Title 22, Division 4, Chapter 15, Article 5, Sections 64442 and 64443. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect.

Agricultural Supply (AGR)

pH

The pH value shall neither be depressed below 6.5 nor raised above 8.3.

Dissolved Oxygen

Dissolved oxygen concentration shall not be reduced below 2.0 mg/L at any time.

Chemical Constituents

Waters shall not contain concentrations of chemical constituents in amounts which adversely affect the agricultural beneficial use. Interpretation of adverse effect shall be as derived from the University of California Agricultural Extension Service guidelines provided in Table 3-1.

In addition, waters used for irrigation and livestock watering shall not exceed concentrations for those chemicals listed in Table 3-2. Salt concentrations for irrigation waters shall be controlled through implementation of the anti-degradation policy (Appendix A-2) to the effect that mineral constituents of currently or potentially usable waters shall not be increased. It is emphasized that no controllable water quality factor shall degrade the quality of any groundwater resource or adversely affect long-term soil productivity.

Where wastewater effluents are returned to land for irrigation uses, regulatory controls shall be consistent with Title 22 of the California Code of Regulations and with relevant controls for local irrigation sources.

Water Contact Recreation (REC-1)

pH

The pH value shall neither be depressed below 6.5 nor raised above 8.3.

Bacteria

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200/100 mL, nor shall more than ten percent of total samples during any 30-day period exceed 400/100 mL.

Non-Contact Water Recreation (REC-2)

pH

The pH value shall neither be depressed below 6.5 nor raised above 8.3.

Bacteria

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 2000/100 mL, nor shall more than ten percent of samples collected during any 30-day period exceed 4000/100 mL.

Cold Fresh Water Habitat (COLD)

pH

The pH value shall not be depressed below 7.0 or raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters.

Dissolved Oxygen

The dissolved oxygen concentration shall not be reduced below 7.0 mg/L at any time.

Temperature

At no time or place shall the temperature be increased by more than 5^{o}F above natural receiving water temperature.

Chemical Constituents

Waters shall not contain concentrations of chemical constituents known to be deleterious to fish or wildlife in excess of the limits listed in Table 3-3.

Warm Fresh Water Habitat (WARM)

pH

The pH value shall not be depressed below 7.0 or raised above 8.5.

Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters.

Dissolved Oxygen

The dissolved oxygen concentration shall not be reduced below 5.0 mg/L at any time.

Temperature

At no time or place shall the temperature of any water be increased by more than 5^{o}F above natural receiving temperature.

Chemical Constituents

Waters shall not contain concentrations of chemical constituents known to be deleterious to fish or wildlife in excess of the limits listed in Table 3-3.

Fish Spawning (SPWN)

Cadmium

Cadmium shall not exceed 0.003 mg/L in hard water or 0.0004 mg/L in soft water at any time. (Hard water is defined as water exceeding 100 mg/L CaCO3.)

Dissolved Oxygen

The dissolved oxygen concentration shall not be reduced below 7.0 mg/L at any time.

Marine Habitat (MAR)

pH

The pH value shall not be depressed below 7.0 or raised above 8.5.

Changes in normal ambient pH levels shall not exceed 0.2 units.

Dissolved Oxygen

The dissolved oxygen concentration shall not be reduced below 7.0 mg/L at any time.

Chemical Constituents

Waters shall not contain concentrations of chemical constituents known to be deleterious to fish or wildlife in excess of limits listed in Table 3-4.

Shellfish Harvesting (SHELL)

Chromium

The maximum permissible value for waters designated SHELL shall be 0.01 mg/L.

Bacteria

At all areas where shellfish may be harvested for human consumption, the median total coliform concentration throughout the water column for any 30-day period shall not exceed 70/100 mL, nor shall more than ten percent of the samples collected during any 30-day period exceed 230/100 mL for a five-tube decimal dilution test or 330/100 mL when a three-tube decimal dilution test is used.

3.3.3 Objectives for Specific Inland Surface Waters, Enclosed Bays and Estuaries

Certain water quality objectives have been established for selected surface waters; these objectives are intended to serve as a water quality baseline for evaluating water quality management in the basin. Mean values, shown in Table 3-5 for surface waters, are based on available data.

It must be recognized that the mean values indicated in Table 3-5 are values representing gross areas of a waterbody. Specific water quality objectives for a particular area may not be directly related to the objectives indicated. Therefore, application of these objectives must be based upon consideration of the surface water and groundwater quality naturally present; i.e., waste discharge requirements must adhere to the previously stated objectives and issuance of requirements must be tempered by consideration of beneficial uses within the immediate influence of the discharge, the existing quality of receiving waters, and water quality objectives. Consideration of beneficial uses includes: (1) a specific enumeration of all beneficial uses potentially to be affected by the waste discharge, (2) a determination of the relative importance of competing beneficial uses, and (3) impact of the discharge on existing beneficial uses. The Regional Board will make a judgment as to the priority of dominant use and minimize the impact on competing uses while not allowing the discharge to violate receiving water quality objectives.

As part of the State's continuing planning process, data will be collected and numerical water quality objectives will be developed for those mineral and nutrient constituents where sufficient information is presently not available for the establishment of such objectives.

3.3.4 Objectives for Groundwater

3.3.4.1 General Objectives

The following objectives apply to all groundwaters of the basin.

Tastes and Odors

Groundwaters shall not contain taste or odor producing substances in concentrations that adversely affect beneficial uses.

Radioactivity

Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life; or result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal, or aquatic life.

3.3.4.2 Objectives for Specific Beneficial Uses

Municipal and Domestic Supply (MUN)

Bacteria

The median concentration of coliform organisms over any seven-day period shall be less than 2.2/100 mL.

Organic Chemicals

Ground waters shall not contain concentrations of organic chemicals in excess of the maximum contaminant levels for primary drinking water standards specified in California Code of Regulations, Title 22, Division 4, Chapter 15, Article 5.5, Section 64444, Table 64444-A. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect.

Inorganic Chemicals

Groundwaters shall not contain concentrations of inorganic chemicals in excess of the maximum contaminant levels for primary drinking water standards specified in California Code of Regulations, Title 22, Division 4, Chapter 15, Sections 64431 and 64433.2. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect.

Radioactivity

Ground waters shall not contain concentrations of radionuclides in excess of the limits specified in California Code of Regulations, Title 22, Division 4, Chapter 15, Article 5, Section 64443. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect.

Agricultural Supply (AGR)

Groundwaters shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use. Interpretation of adverse effect shall be as derived from the University of California Agricultural Extension Service guidelines provided in Table 3-1.

In addition, water used for irrigation and livestock watering shall not exceed the concentrations for those chemicals listed in Table 3-2. No controllable water quality factor shall degrade the quality of any groundwater resource or adversely affect long-term soil productivity. The salinity control aspects of groundwater management will account for effects from all sources.

3.3.5 Objectives for Specific Groundwaters

Certain water quality objectives have been established for selected groundwaters; these objectives are intended to serve as a water quality baseline for evaluating water quality management in the basin. The median values for groundwaters are shown in Table 3-6.

The restrictions specified for Table 3-5 are applicable to the values indicated in Table 3-6; i.e., the values are at best representative of gross areas only. Groundwaters in the Upper Valley Aquifer Groundwater Basin have average Total Dissolved Solids (TDS) concentrations that range from 300 mg/L to over 3000 mg/L. Therefore, application of these objectives must be consistent with the objectives previously stated in this chapter and synchronously reflect the actual groundwater quality naturally present. The Regional Board must afford full consideration to: (1) present and probable future beneficial uses affected by the waste discharge; (2) competing beneficial uses; (3) degree of impact on existing beneficial uses; (4) receiving water quality; and (5) water quality objectives, before adjudging priority of dominant use and promulgating waste discharge requirements.

As part of the State's continuing planning process, data will be collected and numerical water quality objectives will be developed for those mineral constituents where sufficient information is presently not available for the establishment of such objectives.

Table 3-1. Guidelines for Interpretation of Quality of Water for Irrigation[a]

Problem and Related Constituent	Water Quality Guidelines		
	No Problem	Increasing Problems	Severe
Salinity[b]			
EC of irrigation water, mmho/cm	<0.75	0.75 - 3.0	>3.0
Permeability			
EC of irrigation water, mmho/cm	>0.5	<0.5	<0.2
SAR, adjusted[c]	<6.0	6.0 - 9.0	>9.0
Specific ion toxicity[d] from root absorption			
Sodium (evaluate by adjusted SAR)	<3	3.0 - 9.0	>9.0
Chloride			
me/L	<4	4.0 - 10	>10
mg/L	<142	142 - 355	>355
Boron, mg/L	<0.5	0.5 - 2.0	2.0 - 10.0
Specific ion toxicity[d] from foliar absorption[e] (sprinklers)			
Sodium			
me/L	<3.0	>3.0	--
mg/L	<69	>69	--
Chloride			
me/L	<3.0	>3.0	--
mg/L	<106	>106	--
Miscellaneous[f]			
NH4 - N, mg/L for sensitive crops	<5	5 - 30	>30
NO3 - N, mg/L for sensitive crops	<5	5 - 30	>30
HCO3 (only with overhead sprinklers)			
me/L	<1.5	1.5 - 8.5	>8.5
mg/L	<90	90 - 520	>520
pH	Normal range	6.5 - 8.4	--

a. Interpretations are based on possible effects of constituents on crops and/or soils. Guidelines are flexible and should be modified when warranted by local experience or special conditions of crop, soil, and method of irrigation.

b. Assumes water for crop plus needed water for leaching requirement (LR) will be applied. Crops vary in tolerance to salinity. Refer to tables for crop tolerance and LR. The mmho/cm x 640 = approximate total dissolved solids (TDS) in mg/L or ppm; mmho x 1,000 = micromhos.

c. Adjusted SAR (sodium adsorption ratio) is calculated from a modified equation developed by U.S. Salinity Laboratory to include added effects of precipitation and dissolution of calcium in soils and related to CO_3 + HCO_3 concentrations.

To evaluate sodium (permeability) hazard: Adjusted SAR = $Na/[1/2\ (Ca + Mg)]^{1/2}[1+ (8.4 - pHc)]$.
Refer to Appendix A-26 for calculation assistance.

SAR can be reduced if necessary by adding gypsum. Amount of gypsum required (GR) to reduce a hazardous SAR to any desired SAR (SAR desired) can be calculated as follows:

$$GR = \left[\frac{2(Na)^2}{SAR^2\ desired} - (Ca + Mg) \right] 234$$

Note: Na and Ca + Mg should be in me/L. GR will be in lbs. of 100 percent gypsum per acre foot of applied water.

d. Most tree crops and woody ornamentals are sensitive to sodium and chloride (use values shown). Most annual crops are not sensitive (use salinity tolerance tables). For boron sensitivity, refer to boron tolerance tables. A source of tolerance tables is "Agricultural Salinity and Drainage," University of California Water Management Series publication 3375, revised 2006.

e. Leaf areas wet by sprinklers (rotating heads) may show a leaf burn due to sodium or chloride absorption under low humidity/high evaporation conditions. (Evaporation increases ion concentration in water films on leaves between rotations of sprinkler heads.)

f. Excess N may affect production or quality of certain crops; e.g., sugar beets, citrus, avocados, apricots, etc. (1 mg/L NO_3 - N = 2.72 lbs. N/acre foot of applied water.) HCO_3 with overhead sprinkler irrigation may cause a white carbonate deposit to form on fruit and leaves.

Table 3-2. Water Quality Objectives for Agricultural Water Use

Element	Maximum Concentration (mg/L)[a] Irrigation supply[b]	Livestock watering
Aluminum	5.0	5.0
Arsenic	0.1	0.2
Beryllium	0.1	--
Boron	0.75	5.0
Cadmium	0.01	0.05
Chromium	0.10	1.0
Cobalt	0.05	1.0
Copper	0.2	0.5
Fluoride	1.0	2.0
Iron	5.0	--
Lead	5.0	0.1[c]
Lithium	2.5[d]	--
Manganese	0.2	--
Mercury	--	0.01
Molybdenum	0.01	0.5
Nickel	0.2	--
Nitrate + Nitrite	--	100
Nitrite	--	10
Selenium	0.02	0.05
Vanadium	0.1	0.10
Zinc	2.0	25

a. Values based primarily on "Water Quality Criteria 1972" National Academy of Sciences-National Academy of Engineers, Environmental Study Board, ad hoc Committee on Water Quality Criteria furnished as recommended guidelines by University of California Agriculture Extension Service, January 7, 1974; maximum values are to be considered as 90 percentile values not to be exceeded.

b. Values provided will normally not adversely affect plants or soils; no data available for mercury, silver, tin, titanium, and tungsten.

c. Lead is accumulative and problems may begin at threshold value (0.05 mg/L).

d. Recommended maximum concentration for irrigating citrus is 0.075 mg/L.

Table 3-3. Toxic Metal Concentrations not to be Exceeded in Aquatic Life Habitats, mg/L[a]

Metal	Fresh Water (COLD, WARM) Hard (> 100 mg/L CaCO3)	Soft (< 100 mg/L CaCO3)
Cadmium[b]	0.03	0.004
Chromium	0.05	0.05
Copper	0.03	0.01
Lead	0.03	0.03
Mercury[c]	0.0002	0.0002
Nickel[d]	0.4	0.1
Zinc	0.2	0.004

a. Based on limiting values recommended in the National Academy of Sciences-National Academy of Engineers "Water Quality Criteria 1972." Values are 90 percentile values except as noted in qualifying note "c."

b. Lower cadmium values not to be exceeded for crustaceans and waters designated SPWN are 0.003 mg/L in hard water and 0.0004 mg/L in soft water.

c. Total mercury values should not exceed 0.05 µg/L as an average value; maximum acceptable concentration of total mercury in any aquatic organism is a total body burden of 0.5 µg/g wet weight.

d. Value cited as objective pertains to nickel salts (not pure metallic nickel).

Table 3-4. Toxic Metal Concentrations Not to be Exceeded in Marine Habitats, mg/L[a]

Metal	Marine (MAR)
Cadmium	0.0002
Chromium	0.05
Copper	0.01
Lead	0.01
Mercury[b]	0.0001
Nickel[c]	0.002
Zinc	0.02

a. Based on limiting values recommended in the National Academy of Sciences-National Academy of Engineers "Water Quality Criteria 1972." Values are 90 percentile values except as noted in qualifying note "b."

b. Total mercury values should not exceed 0.05 μg/L as an average value; maximum acceptable concentration of total mercury in any aquatic organism is a total body burden of 0.5 μg/g wet weight.

c. Value cited as objective pertains to nickel salts (not pure metallic nickel).

Table 3-5. Mean Surface Water Quality Objectives, mg/L[a]

Hydrologic Unit/Sub-Area	TDS	Cl	SO4	B	Na
Big Basin (304)					
Boulder Creek	150	10	10	0.2	20
Zayante Creek	500	50	100	0.2	40
San Lorenzo River					
Above Bear Creek	400	60	80	0.2	50
At Tait Street Check Dam	250	30	60	0.2	25
Pajaro River (305)					
at Chittenden	1000	250	250	1.0	200
San Benito River	1400	200	350	1.0	250
Llagas Creek	200	10	20	0.2	20
Carmel River (307)	200	20	50	0.2	20
Santa Lucia (308)					
Big Sur River	200	20	20	0.2	20
Salinas River (309)					
Salinas River					
Above Bradley	250	20	100	0.2	20
Above Spreckles	600	80	125	0.2	70
Gabilan Tributary	300	50	50	0.2	50
Diablo Tributary	1200	80	700	0.5	150
Nacimiento River	200	20	50	0.2	20
San Antonio River	250	20	80	0.2	20
Estero Bay (310)					
Santa Rosa Creek	500	50	80	0.2	50
Chorro Creek	500	50	50	0.2	50
San Luis Obispo Creek	650	100	100	0.2	50
Arroyo Grande Creek	800	50	200	0.2	50
Santa Maria (312)					
Cuyama River (Near Garey)	900	50	400	0.3	70
Sisquoc River (Near Garey)	600	20	250	0.2	50
Santa Ynez (314)					
Cachuma Reservoir	600	20	220	0.4	50
Solvang	700	50	250	0.4	60
Lompoc	1000	100	350	0.4	100

a. Objectives shown are annual mean values. Objectives are based on preservation of existing quality or water quality enhancement believed attainable following control of point sources.

Table 3-6. Median Groundwater Objectives, mg/L[a]

Basin/Sub-Area	TDS	Cl	SO_4	B	Na	N[b]
Big Basin						
Near Felton	100	20	10	0.2	10	1
Near Boulder Creek	250	30	50	0.2	20	5
Pajaro Valley						
Hollister	1200	150	250	1.0	200	5
Tres Pinos	1000	150	250	1.0	150	5
Llagas	300	20	50	0.2	20	5
Salinas Valley						
Upper Valley[f]	600	150	150	0.5	70	5
Upper Forebay[f]	800	100	250	0.5	100	5
Lower Forebay[f]	1500	250	850	0.5	150	8
180 foot Aquifer[f]	1500	250	600	0.5	250	1
400 foot Aquifer[f]	400	50	100	0.2	50	1
Paso Robles Area[g]						
Central Basin[f]	400	60	45	0.3	80	3.4
San Miguel[f]	750	100	175	0.5	105	4.5
Paso Robles[f]	1050	270	200	2.0	225	2.3
Templeton[f]	730	100	120	0.3	75	2.7
Atascadero[f]	550	70	85	0.3	65	2.3
Estrella[f]	925	130	240	0.75	170	3.2
Shandon	1390	430	1025[h]	2.8	730	2.3
Estero Bay						
Santa Rosa	700	100	80	0.2	50	5
Chorro	1000	250	100	0.2	50	5
San Luis Obispo	900	200	100	0.2	50	5
Arroyo Grande	800	100	200	0.2	50	10
Carrizo Plain	[e]	[e]	[e]	[e]	[e]	[e]
Santa Maria River Valley[c]						
Upper Guadalupe[f]	1000[d]	165	500[d]	0.5	230	1.4[e]
Lower Guadalupe[f]	1000[d]	85	500[d]	0.2	90	2.0[e]
Lower Nipomo Mesa[f]	710	95	250	0.15	90	5.7[e]
Orcutt[f]	740	65	300	0.1	65	2.3[e]
Santa Maria[f]	1000[d]	90	510	0.2	105	8.0[e]
Cuyama Valley	1500	80	--	0.4	--	5
San Antonio Creek Valley	600	150	150	0.2	100	5
Santa Ynez River Valley						
Santa Ynez	600	50	10	0.5	20	1
Santa Rita	1500	150	700	0.5	100	1
Lompoc Plain[f]	1250	250	500	0.5	250	2
Lompoc Upland[f]	600	150	100	0.5	100	2
Lompoc Terrace[f]	750	210	100	0.3	130	1
South Coast						
Goleta	1000	150	250	0.2	150	5
Santa Barbara	700	50	150	0.2	100	5
Carpinteria	700	100	150	0.2	100	7

a. Objectives shown are median values based on data averages; objectives are based on preservation of existing quality or water quality enhancement believed attainable following control of point sources.
b. Measured as Nitrogen
c. Basis for objectives is in the "Water Quality Objectives for the Santa Maria Ground Water Basin Revised Staff Report, May 1985" and February 1986, Staff Report.
d. These are maximum objectives in accordance with Title 22 of the Code of Regulations.
e. Groundwater basin currently exceeds usable mineral quality.
f. Groundwater basin boundary maps available in the Appendix: Salinas (Appendix A-32), Paso Robles (Appendix A-33), Santa Maria (Appendix A-34), and Lompoc (Appendix A-35).
g. Basis for objectives is in the report "A Study of the Paso Robles Ground Water Basin to Establish Best Management Practices and Establish Salt Objectives", Coastal Resources Institute, June 1993.
h. Standard exceeds California Secondary Drinking Water Standards contained in Title 22 of the Code of Regulations. Water quality standard is based upon existing water quality. If water quality degradation occurs, the Regional Board may consider salt limits on appropriate discharges.

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Appendix B California Ocean Plan Excerpts

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Appendix B.1 Ocean Plan Beneficial Uses

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I. BENEFICIAL USES

A. The beneficial uses of the ocean* waters of the State that shall be protected include industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture*; preservation and enhancement of designated Areas* of Special Biological Significance (ASBS); rare and endangered species; marine habitat; fish migration; fish spawning and shellfish* harvesting.

* See Appendix I for definition of terms.

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Appendix B.2 Ocean Plan Water Quality Objectives

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II. WATER QUALITY OBJECTIVES

A. General Provisions

1. This chapter sets forth limits or levels of water quality characteristics for ocean* waters to ensure the reasonable protection of beneficial uses and the prevention of nuisance. The discharge of waste* shall not cause violation of these objectives.

2. The Water Quality Objectives and Effluent Limitations are defined by a statistical distribution when appropriate. This method recognizes the normally occurring variations in treatment efficiency and sampling and analytical techniques and does not condone poor operating practices.

3. Compliance with the water quality objectives of this chapter shall be determined from samples collected at stations representative of the area within the waste* field where initial* dilution is completed.

B. Bacterial Characteristics

1. Water-Contact Standards

Subsection (a) of this section contains bacteria water quality objectives* adopted by the State Water Board for ocean waters* used for water contact recreation. Subsection (b) describes the beach notification levels for waters adjacent to public beaches and public water contact sports areas in ocean waters*.

a. State Water Board Water-Contact Objectives

(1) Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Regional Water Board (i.e., waters designated as REC-1), but including all kelp beds*, the following water quality objectives* shall be maintained throughout the water column.

Fecal coliform

A 30-day geometric mean* (GM) of fecal coliform density not to exceed 200 per 100 milliliters (mL), calculated based on the five most recent samples from each site, and a single sample maximum* (SSM) not to exceed 400 per 100 mL.

* See Appendix I for definition of terms.

Table 1. Fecal Coliform REC-1 Water Quality Objective for Water-Contact in Ocean Waters*

Indicator	**Magnitude**	**Magnitude**
	30-day GM*	SSM*
Fecal coliform density	200 per 100 mL	400 per 100 mL
GM* = geometric mean SSM* = single sample maximum mL = milliliter		

Enterococci

A six-week rolling GM***** of enterococci not to exceed 30 colony forming units (cfu) per 100 milliliters (mL), calculated weekly, and a statistical threshold value* (STV) of 110 cfu/100 mL not to be exceeded by more than 10 percent of the samples collected in a calendar month*, calculated in a static manner. U.S. EPA recommends using U.S. EPA Method 1600 or other equivalent method to measure culturable enterococci.

Table 2. Enterococci REC-1 Water Quality Objective for Water-Contact in Ocean Waters*

Indicator	**Estimated Illness Rate (NGI):** 32 per 1,000 water contact recreators	
	Magnitude	
	GM* (cfu/100 mL)	STV* (cfu/100 mL)
Enterococci	30	110
The waterbody GM* shall not be greater than the GM* magnitude in any six-week interval, calculated weekly. The STV* shall not be exceeded by more than 10 percent of the samples collected in a calendar month*, calculated in a static manner. NGI = National Epidemiological and Environmental Assessment of Recreational Water gastrointestinal illness rate GM* = geometric mean cfu = colony forming units STV* = statistical threshold value mL = milliliter		

* See Appendix I for definition of terms.

Water Quality Standards Assessment

When applying the listing and delisting factors contained in the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List, the GM*, SSM*, and STV* shall be used as follows, unless a situation-specific weight of the evidence factor is being applied: Only the GM* value shall be applied based on a statistically sufficient number of samples, which is generally not less than five samples distributed over a six-week period. However, if a statistically sufficient number of samples is not available to calculate the GM*, then attainment of the water quality objective shall be determined based only on the SSM* or STV*. When applying the situation-specific weight of the evidence factor for listing or delisting decisions, any available beach use or beach closure information shall be evaluated.

(2) The "Initial Dilution* Zone" of wastewater outfalls shall be excluded from designation as "kelp beds*" for purposes of bacterial standards, and Regional Water Boards should recommend extension of such exclusion zone where warranted to the State Water Board (for consideration under Chapter III. J.). Adventitious assemblages of kelp plants on waste discharge structures (e.g., outfall pipes and diffusers) do not constitute kelp beds* for purposes of bacterial standards.

b. Beach Notification Levels

Minimum protective bacteriological standards for waters adjacent to public beaches and for public water-contact sports areas in ocean waters* are established in the California Code of Regulations, Title 17 (beginning at div. 1, ch. 5, § 7958 et seq.). When a public beach or public water-contact sports area fails to meet the standards, the California Department of Public Health or the local public health officer may post with warning signs or otherwise restrict use of the public beach or public water-contact sports area until the standards are met. The regulations impose more frequent monitoring and more stringent posting and closure requirements on certain high-use public beaches that are located adjacent to a storm drain that flows in the summer. The Title 17 bacteriological standards are not water quality objectives.

2. Shellfish* Harvesting Standards

a. At all areas where shellfish* may be harvested for human consumption, as determined by the Regional Water Board, the following bacterial objectives shall be maintained throughout the water column:

(1) The median total coliform density shall not exceed 70 per 100 mL, and not more than 10 percent of the samples shall exceed 230 per 100 mL.

* See Appendix I for definition of terms.

C. Physical Characteristics

1. Floating particulates and grease and oil shall not be visible.

2. The discharge of waste* shall not cause aesthetically undesirable discoloration of the ocean* surface.

3. Natural light* shall not be significantly* reduced at any point outside the initial* dilution zone as the result of the discharge of waste.*

4. The rate of deposition of inert solids and the characteristics of inert solids in ocean* sediments shall not be changed such that benthic communities are degraded.*

5. Trash* shall not be present in ocean waters, along shorelines or adjacent areas in amounts that adversely affect beneficial uses or cause nuisance.

D. Chemical Characteristics

1. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste* materials.*

2. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.

3. The dissolved sulfide concentration of waters in and near sediments shall not be significantly* increased above that present under natural conditions.

4. The concentration of substances set forth in chapter II, Table 3, in marine sediments shall not be increased to levels which would degrade* indigenous biota.

5. The concentration of organic materials* in marine sediments shall not be increased to levels that would degrade* marine life.

6. Nutrient materials* shall not cause objectionable aquatic growths or degrade* indigenous biota.

7. Numerical Water Quality Objectives

   a. Table 3 water quality objectives apply to all discharges within the jurisdiction of this Plan. Unless otherwise specified, all metal concentrations are expressed as total recoverable concentrations.

   b. Table 3 Water Quality Objectives

* See Appendix I for definition of terms.

E. Biological Characteristics

1. Marine communities, including vertebrate, invertebrate, algae, and plant species, shall not be degraded.*

2. The natural taste, odor, and color of fish, shellfish,* or other marine resources used for human consumption shall not be altered.

3. The concentration of organic materials* in fish, shellfish* or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

F. Radioactivity

1. Discharge of radioactive waste* shall not degrade* marine life.

* See Appendix I for definition of terms.

Table 3 (formerly Table B): Water Quality Objectives

OBJECTIVES FOR PROTECTION OF MARINE AQUATIC LIFE

	Units of Measurement	Limiting Concentration: 6-Month Median	Limiting Concentration: Daily Maximum	Limiting Concentration: Instantaneous Maximum
Arsenic	µg/L	8.	32.	80.
Cadmium	µg/L	1.	4.	10.
Chromium (Hexavalent) (see below, a)	µg/L	2.	8.	20.
Copper	µg/L	3.	12.	30.
Lead	µg/L	2.	8.	20.
Mercury	µg/L	0.04	0.16	0.4
Nickel	µg/L	5.	20.	50.
Selenium	µg/L	15.	60.	150.
Silver	µg/L	0.7	2.8	7.
Zinc	µg/L	20.	80.	200.
Cyanide (see below, b)	µg/L	1.	4.	10.
Total Chlorine Residual (For intermittent chlorine sources see below, c)	µg/L	2.	8.	60.
Ammonia (expressed as nitrogen)	µg/L	600.	2400.	6000.
Acute* Toxicity	TUa	N/A	0.3	N/A
Chronic* Toxicity	TUc	N/A	1.	N/A
Phenolic Compounds (non-chlorinated)	µg/L	30.	120.	300.
Chlorinated Phenolics	µg/L	1.	4.	10.
Endosulfan*	µg/L	0.009	0.018	0.027
Endrin	µg/L	0.002	0.004	0.006
HCH*	µg/L	0.004	0.008	0.012
Radioactivity	Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, section 30253 of the California Code of Regulations. Reference to section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.			

* See Appendix I for definition of terms.

Table 3 (formerly Table B) Continued

OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – NONCARCINOGENS

Chemical	30-day Average (µg/L): Decimal Notation	30-day Average (µg/L): Scientific Notation
Acrolein	220.	2.2×10^{2}
Antimony	1,200.	1.2×10^{3}
bis(2-chloroethoxy) methane	4.4	4.4×10^{0}
bis(2-chloroisopropyl) ether	1,200.	1.2×10^{3}
chlorobenzene	570.	5.7×10^{2}
chromium (III)	190,000.	1.9×10^{5}
di-n-butyl phthalate	3,500.	3.5×10^{3}
dichlorobenzenes*	5,100.	5.1×10^{3}
diethyl phthalate	33,000.	3.3×10^{4}
dimethyl phthalate	820,000.	8.2×10^{5}
4,6-dinitro-2-methylphenol	220.	2.2×10^{2}
2,4-dinitrophenol	4.0	4.0×10^{0}
ethylbenzene	4,100.	4.1×10^{3}
fluoranthene	15.	1.5×10^{1}
hexachlorocyclopentadiene	58.	5.8×10^{1}
nitrobenzene	4.9	4.9×10^{0}
thallium	2.	$2. \times 10^{0}$
toluene	85,000.	8.5×10^{4}
tributyltin	0.0014	1.4×10^{-3}
1,1,1-trichloroethane	540,000.	5.4×10^{5}

Table 3 (formerly Table B) Continued

OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – CARCINOGENS

Chemical	30-day Average (µg/L): Decimal Notation	30-day Average (µg/L): Scientific Notation
acrylonitrile	0.10	1.0×10^{-1}
aldrin	0.000022	2.2×10^{-5}
benzene	5.9	5.9×10^{0}
benzidine	0.000069	6.9×10^{-5}
beryllium	0.033	3.3×10^{-2}
bis(2-chloroethyl) ether	0.045	4.5×10^{-2}
bis(2-ethylhexyl) phthalate	3.5	3.5×10^{0}
carbon tetrachloride	0.90	9.0×10^{-1}
chlordane*	0.000023	2.3×10^{-5}
chlorodibromomethane	8.6	8.6×10^{0}
chloroform	130.	1.3×10^{2}

* See Appendix I for definition of terms.

Chemical	30-day Average (µg/L): Decimal Notation	30-day Average (µg/L): Scientific Notation
DDT*	0.00017	1.7×10^{-4}
1,4-dichlorobenzene	18.	1.8×10^{1}
3,3'-dichlorobenzidine	0.0081	8.1×10^{-3}
1,2-dichloroethane	28.	2.8×10^{1}
1,1-dichloroethylene	0.9	9×10^{-1}
dichlorobromomethane	6.2	6.2×10^{0}
dichloromethane	450.	4.5×10^{2}
1,3-dichloropropene	8.9	8.9×10^{0}
dieldrin	0.00004	4.0×10^{-5}
2,4-dinitrotoluene	2.6	2.6×10^{0}
1,2-diphenylhydrazine	0.16	1.6×10^{-1}
halomethanes*	130.	1.3×10^{2}
heptachlor	0.00005	5×10^{-5}
heptachlor epoxide	0.00002	2×10^{-5}
hexachlorobenzene	0.00021	2.1×10^{-4}
hexachlorobutadiene	14.	1.4×10^{1}
hexachloroethane	2.5	2.5×10^{0}
isophorone	730.	7.3×10^{2}
N-nitrosodimethylamine	7.3	7.3×10^{0}
N-nitrosodi-N-propylamine	0.38	3.8×10^{-1}
N-nitrosodiphenylamine	2.5	2.5×10^{0}
PAHs*	0.0088	8.8×10^{-3}
PCBs*	0.000019	1.9×10^{-5}
TCDD equivalents*	0.0000000039	3.9×10^{-9}
1,1,2,2-tetrachloroethane	2.3	2.3×10^{0}
tetrachloroethylene	2.0	2.0×10^{0}
toxaphene	0.00021	2.1×10^{-4}
trichloroethylene	27.	2.7×10^{1}
1,1,2-trichloroethane	9.4	9.4×10^{0}
2,4,6-trichlorophenol	0.29	2.9×10^{-1}
vinyl chloride	36.	3.6×10^{1}

Table 3 Notes:

a) Dischargers may at their option meet this objective as a total chromium objective.

b) If a discharger can demonstrate to the satisfaction of the Regional Water Board (subject to EPA approval) that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, effluent limitations for cyanide may be met by the combined measurement of free cyanide, simple alkali metal cyanides, and weakly complexed organometallic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide

* See Appendix I for definition of terms.

from metal complexes must be comparable to that achieved by the approved method in 40 CFR PART 136, as revised May 14, 1999.

c) Water quality objectives for total chlorine residual applying to intermittent discharges not exceeding two hours, shall be determined through the use of the following equation:

$$\log y = -0.43 (\log x) + 1.8$$

where: y = the water quality objective (in µg/L) to apply when chlorine is being discharged;
x = the duration of uninterrupted chlorine discharge in minutes.

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* See Appendix I for definition of terms.

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Appendix B.3 Ocean Plan Trash Discharge Prohibition

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5. Vessels

   a. Discharges of hazardous waste (as defined in California Health and Safety Code § 25117 et seq. [but not including sewage]), oily bilge water,* medical waste (as defined in § 117600 et seq. of the California Health and Safety Code) dry-cleaning waste, and film-processing waste from large passenger vessels* and oceangoing vessels* are prohibited.

   b. Discharges of graywater* and sewage* from large passenger vessels* are prohibited.

   c. Discharges of sewage and sewage sludge from vessels are prohibited in No Discharge Zones* promulgated by U.S. EPA.

6. Trash*

   The discharge of Trash* to surface waters of the State or the deposition of Trash* where it may be discharged into surface waters of the State is prohibited. Compliance with this prohibition of discharge shall be achieved as follows:

   a. Dischargers with NPDES permits that contain specific requirements for the control of Trash* that are consistent with these Trash Provisions* shall be determined to be in compliance with this prohibition if the dischargers are in full compliance with such requirements.

   b. Dischargers with non-NPDES waste discharge requirements (WDRs) or waivers of WDRs that contain specific requirements for the control of Trash* shall be determined to be in compliance with this prohibition if the dischargers are in full compliance with such requirements.

   c. Dischargers with NPDES permits, WDRs, or waivers of WDRs that do not contain specific requirements for the control of Trash* are exempt from these Trash Provisions*.

   d. Dischargers without NPDES permits, WDRs, or waivers of WDRs must comply with this prohibition of discharge.

   e. Chapter III.I.6.b and Chapter III.L.3 notwithstanding, this prohibition of discharge applies to the discharge of preproduction plastic* by manufacturers of preproduction plastics*, transporters of preproduction plastics*, and manufacturers that use preproduction plastics* in the manufacture of other products to surface waters of the State, or the deposition of preproduction plastic* where it may be discharged into surface waters of the State, unless the discharger is subject to a NPDES permit for discharges of storm water* associated with industrial activity.

* See Appendix I for definition of terms.

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Appendix C Risk Level Calculations

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Receiving Water Body Risk Level

Aptos Creek, Valencia Creek and Trout Gulch have COLD, SPAWN, AND MIGR beneficial uses:

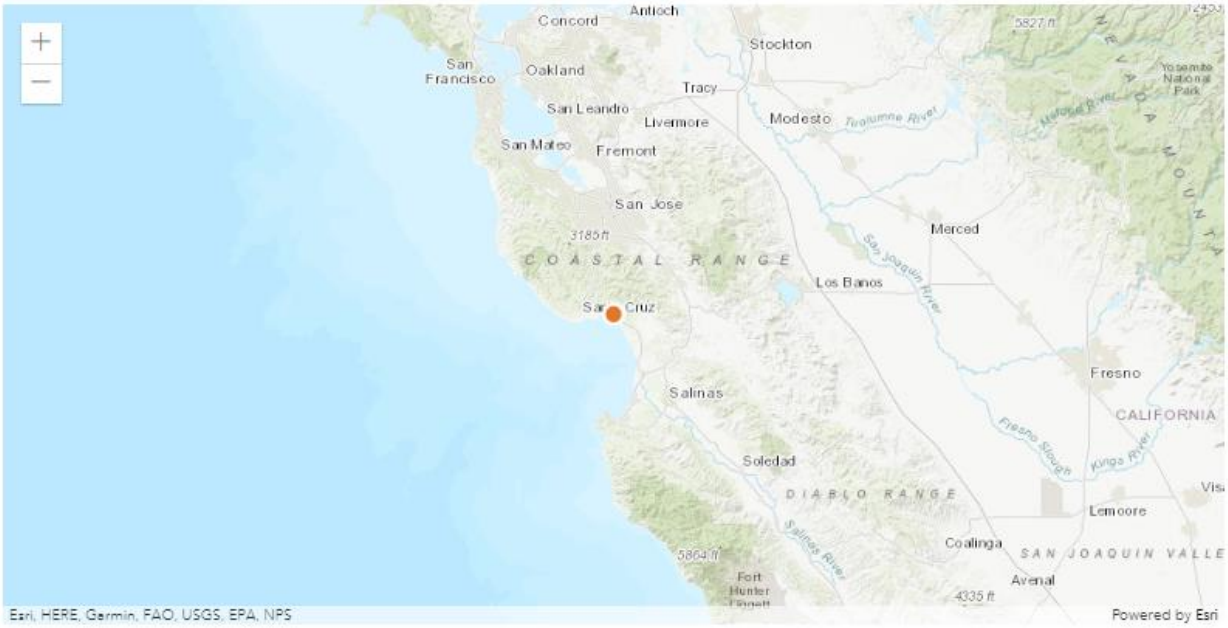
Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	NAV	POW	COMM	AQUA	SAL	SHELL
Logan Creek	X				X	X	X	X	X		X	X							X			
Sleeper Gulch	X				X	X	X	X	X				X						X			
McDonald Gulch	X				X	X	X	X	X		X	X	X						X			
Spring Creek	X				X	X	X	X	X		X	X							X			
Boulder Creek	X	X			X	X	X	X	X		X	X							X			
Bracken Brae Creek	X				X	X	X	X	X					X					X			
Hare Creek	X				X	X	X	X	X		X	X		X					X			
Jamison Creek	X				X	X	X	X	X		X	X							X			
Peavine Creek	X				X	X	X	X	X		X	X							X			
Silver Creek	X				X	X	X	X	X		X	X							X			
Foreman Creek	X				X	X	X	X	X		X	X							X			
Malosky Creek	X				X	X	X	X	X		X	X							X			
Clear Creek	X				X	X	X	X	X		X	X							X			
Alba Creek	X				X	X	X	X	X		X	X							X			
Marshall Creek	X				X	X	X	X	X		X	X							X			
Manson Creek	X				X	X	X	X	X		X	X							X			
Fall Creek	X	X		X	X	X	X	X	X		X	X	X						X			
South Fall Creek	X	X			X	X	X	X	X		X	X	X						X			
Bennett Creek	X	X		X	X	X	X	X	X		X	X	X						X			
Bull Creek	X				X	X	X	X	X			X							X			
Shingle Mill Creek	X				X	X	X	X	X		X	X							X			
Gold Gulch Creek	X				X	X	X	X	X		X	X							X			
Woods Lagoon						X	X	X			X	X			X				X			X
Arana Gulch	X				X	X	X	X	X		X	X		X		X			X			
Schwan Lake						X	X	X		X		X	X	X					X			X
Corcoran Lagoon					X	X	X	X		X		X		X	X				X			X
Rodeo Creek Gulch (Doyle Gulch)	X	X		X	X	X	X	X	X			X				X			X			
Moran Lake					X	X	X	X		X		X							X			
Soquel Lagoon						X	X	X	X		X	X		X	X				X			
Soquel Creek	X	X		X	X	X	X	X	X		X	X	X			X			X			
Bates Creek	X					X	X	X	X		X	X	X						X			
Grover Gulch	X				X	X	X	X	X		X	X							X			
Soquel Creek, east branch	X			X	X	X	X	X	X		X	X							X			
Hinckley Creek	X	X		X	X	X	X	X	X		X	X	X						X			
Amaya Creek	X				X	X	X	X	X		X	X							X			
Soquel Creek, west branch	X				X	X	X	X	X		X	X							X			
Hester Creek	X				X	X	X	X	X		X	X							X			
Laural Creek	X				X	X	X	X	X		X	X							X			
Burns Creek	X				X	X	X	X	X		X	X							X			
Moores Gulch	X				X	X	X	X	X		X	X							X			
Miners Creek	X				X	X	X	X	X		X	X							X			
Aptos Creek	X	X		X	X	X	X	X	X		X	X	X		X	X			X			
Valencia Creek	X				X	X	X	X	X		X	X							X			
Trout Gulch	X				X	X	X	X	X										X			
Bridge Creek	X	X				X	X	X	X		X	X	X						X			
Valencia Lagoon						X	X	X		X		X		X					X			

Source: Central Coast RWQCB

Sediment Risk Level

R Factor:



Facility Information

Start Date: 01/01/2025	**Latitude:** 36.9753
End Date: 12/31/2025	**Longitude:** -121.8932

Calculation Results

Rainfall erosivity factor (R Factor) = **65.11**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

Source: US EPA

R-Factor (continued)

Facility Information

Start Date: 01/01/2026	**Latitude:** 36.9753
End Date: 12/31/2026	**Longitude:** -121.8932

Calculation Results

Rainfall erosivity factor (R Factor) = **65.11**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

Facility Information

Start Date: 01/01/2027	**Latitude:** 36.9753
End Date: 12/31/2027	**Longitude:** -121.8932

Calculation Results

Rainfall erosivity factor (R Factor) = **65.11**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

Facility Information

Start Date: 01/01/2028	**Latitude:** 36.9753
End Date: 12/31/2028	**Longitude:** -121.8932

Calculation Results

Rainfall erosivity factor (R Factor) = **65.11**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

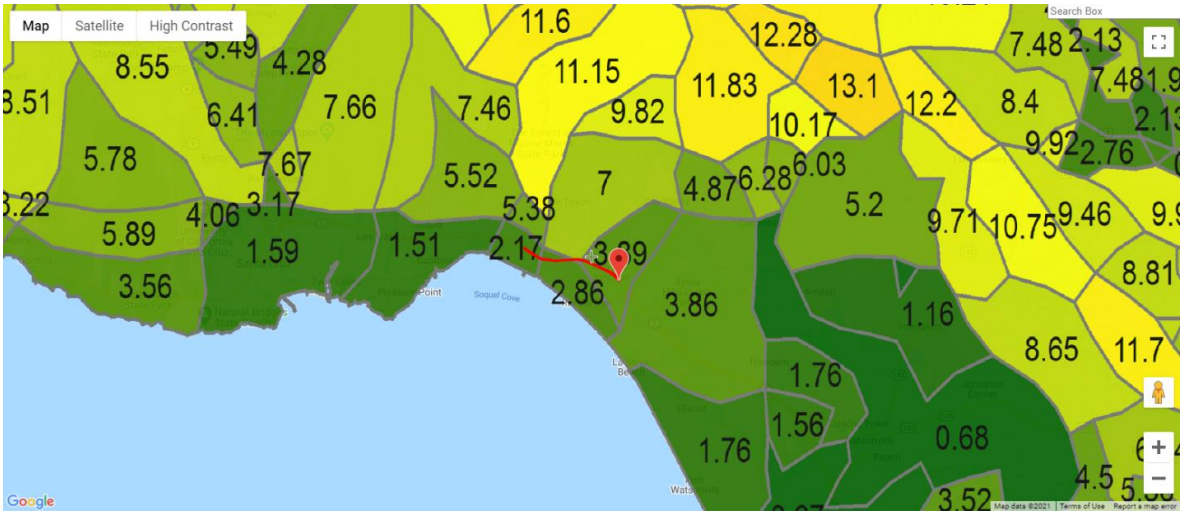
You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

Source: US EPA

K Factor

Source: Caltrans

LS Factor



Source: Caltrans

Risk Level Calculations

	A	B	C
1	**Sediment Risk Factor Worksheet**		**Entry**
2	**A) R Factor**		
3	Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site.		
4	http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm		
5	**R Factor Value**		260.44
6	**B) K Factor (weighted average, by area, for all site soils)**		
7	The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted.		
8	Site-specific K factor guidance		
9	**K Factor Value**		0.24
10	**C) LS Factor (weighted average, by area, for all slopes)**		
11	The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction.		
12	LS Table		
13	**LS Factor Value**		3.03
14			
15	**Watershed Erosion Estimate (=RxKxLS) in tons/acre**		189.39
16	**Site Sediment Risk Factor**		**High**
17	Low Sediment Risk: < 15 tons/acre		
18	Medium Sediment Risk: >=15 and <75 tons/acre		
19	High Sediment Risk: >= 75 tons/acre		
20			

Receiving Water (RW) Risk Factor Worksheet	Entry	Score
A. Watershed Characteristics	**yes/no**	
A.1. Does the disturbed area discharge (either directly or indirectly) to a **303(d)-listed waterbody impaired by sediment** (For help with impaired waterbodies please visit the link below) or has a **USEPA approved TMDL implementation plan for sediment**?: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml **OR** A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY? (For help please review the appropriate Regional Board Basin Plan) http://www.waterboards.ca.gov/waterboards_map.shtml	**yes**	**High**

Combined Risk Level Matrix

Receiving Water Risk	Sediment Risk: Low	Sediment Risk: Medium	Sediment Risk: High
Low	Level 1	Level 2	
High	Level 2		Level 3

Project Sediment Risk:	**High**
Project RW Risk:	**High**
Project Combined Risk:	**Level 3**

Appendix D Cumulative Impacts Table

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List of Current and Reasonably Foreseeable Future Projects

Project No.	Project Name	Location	Project Description	Status
SCo-01	Trout Gulch Road Storm Damage Repair Project	Trout Gulch Road PM 1.16 & 1.18	Construction of a soldier pile wall with tiebacks and timber lagging, RSP and soil-wrap slope repair, pavement repairs, guardrail installation, and landscaping.	Out to bid
SCo-02	Medical Office Building Project	5940 Soquel Ave., Santa Cruz	New four-story medical office building measuring approximately 60 feet in height to finished roof and approximately 74 feet to top of mechanical screens on the rooftop. The proposed building would provide approximately 160,000 gross square feet of medical office use for specialty outpatient services.	Construction to begin late 2022, facility expected to be completed in 2024
SCo-03	Pure Water Soquel: Groundwater Replenishment and Seawater Intrusion Prevention Project	Multiple	Recycled water will be purified and transported via pipeline to seawater intrusion prevention wells. The Project includes facilities in portions of the cities of Santa Cruz and Capitola, and in the Live Oak, Soquel, and Aptos communities of unincorporated Santa Cruz County.	Under construction
SCo-04	Dominican Hospital PUD	1555 Soquel Drive	Establishing a Planned Unit Development for construction of an approximately 84,000 square foot addition to the existing hospital facility. Project includes construction of a new surgery center, reconfiguring the existing emergency room and construction of a three-story parking structure.	Project approved, construction not yet started
SCo-05	Arana Sewer Trunk Line Replacement Project	Soquel Avenue and La Fonda Avenue	The project involves replacement of approximately 2,900 linear feet of aging and deteriorated sewer trunk line and associated manholes between Brookwood Drive and La Fonda Avenue.	Not yet started
SCo-06	Caltrans - San Lorenzo River Bridge and Kings Creek Bridge	Boulder Creek (still in an RSA)	Replace the San Lorenzo River Bridge at post mile 13.6 and Kings Creek Bridge at post mile 15.5 on State Route 9 in Santa Cruz County, in the unincorporated community of	Construction to begin September, 2022

Project No.	Project Name	Location	Project Description	Status
	Replacement (05-1H470)		Boulder Creek, with new single-span, standard-width structures.	
SCo-07	Valencia Creek Sewer Relocation Project	Valencia Creek near Soquel Dr.	Approximately 535 feet of gravity sanitary sewer would be abandoned in-place. Approximately 1,355 feet of new gravity sanitary sewer will be constructed.	NOD approved in Feb 2021
SCo-08	Capitola Wharf Renovation	Capitola Wharf in Capitola	Increase Wharf resiliency and improve public safety by expanding a section of the Wharf's existing narrow trestle system and by completing necessary repairs.	Construction not yet started
SCo-09	Front St. Riverfront Project	Downtown Santa Cruz	Demolition of existing commercial buildings and the construction of a seven-story, mixed-use building with 175 residential condominium units and 11,498 square feet of ground floor and levee-front commercial space.	Approved 1/12/21
SCo-10	Sustainability Policy and Regulatory Update	Santa Cruz County	Update of the County's General Plan/Local Coastal Program (LCP) and County Code (Sustainability Update)	Environmental Phase
SCo-11	Pippin Phase II	78 Atkinson Lane, Watsonville	Development of 80 new multi-family rental apartments on a 15-acre site. The project will consist of construction of the described residential buildings and all necessary infrastructure including, but not limited to, sidewalks, curbs, gutters, lighting, water, sewer and electrical connections (including undergrounding), water drains, parking lot, open space/park, and landscaping. The project includes the extension of Brewington Avenue from the east side of the site across the site to the north of wetlands, which will be protected.	Environmental Phase
SCo-12	9041 Soquel Drive, Aptos Mixed Use project	9041 Soquel Drive, Aptos	Construction of 10,81 sf mixed-use building for office space and three residential units. A portion of the parking lot and an	Environmental Phase (Initial Study)

Project No.	Project Name	Location	Project Description	Status
			associated retaining wall encroach into the riparian corridor within the arroyo along Valencia Creek.	
SCo-13	The 41st Avenue to Soquel Drive Auxiliary Lanes Project	Soquel	The project will construct northbound and southbound auxiliary lanes and bus on shoulder improvements between the 41st Avenue and Soquel Avenue/Drive interchanges, and construct a new bicycle and pedestrian overcrossing at Chanticleer Avenue.	Plans, Specifications, and Estimates (PS&E) phase.
SCo-14	State Park Drive to Bay Avenue/Porter Street Auxiliary Lanes Project	County of Santa Cruz, Capitola	The project will construct northbound and southbound auxiliary lanes between the Bay Avenue/Porter Street and State Park Drive interchanges and replace the existing Capitola Avenue local roadway overcrossing.	EIR/EA complete in 2021
SCo-15	Coastal Rail Trail Segments 10 and 11	County of Santa Cruz, Capitola	Construct 4.7 miles of the Monterey Bay Sanctuary Scenic Trail's rail trail spine between 17th Avenue in the unincorporated area of Santa Cruz County known as Live Oak through Jade Street Park in the City of Capitola, then down the coast to State Park Drive.	CEQA document is being prepared
SCo-16	Aptos Branch Library	Aptos	Demolition of existing library and construction of new larger library.	Design phase

Source: SWCA Environmental, 2021

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