Devil's Slide
Final Second Supplement to the 1986 Environmental Impact Statement/Environmental Impact Report

Route 1 from the Half Moon Bay Airport to Linda Mar Boulevard, Pacifica, San Mateo County, California

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Devil's Slide Improvement Project

Route 1 from Half Moon Bay Airport to Linda Mar Boulevard in Pacifica,
San Mateo County, California

FINAL
SECOND SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT/
SECOND SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT

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ABSTRACT

The original 1986 FEIS presented three alternative alignments with various design options to provide a safe, dependable and stable highway between the Half Moon Bay Airport and Linda Mar Boulevard in the City of Pacifica. From these alternatives, the Federal Highway Administration (FHWA) and Caltrans selected the Martini Creek alignment, a two-lane facility with an uphill climbing lane in each direction where grades are 6% or greater, as well as traffic safety design features. As a result of a NEPA lawsuit, the impact of estimated future project-generated noise was restudied in the 1995 Noise-Only Supplemental EIS/EIR. Again, the FHWA and Caltrans selected the Martini Creek alignment, but agreed to revisit the tunnel alternative in the reevaluation of the 1986 FEIS that was to follow (a tunnel alternative was previously evaluated in the 1986 FEIS as an alternative considered but withdrawn). Based upon the results of an independent tunnel feasibility report issued in October 1996, and updated cost estimates for the revised Martini Creek alignment alternative, FHWA and Caltrans determined that a tunnel alternative is a reasonable alternative for the proposed project and should be fully evaluated in the environmental process. After consideration of the analysis reported in the Draft Second Supplemental EIS/EIR and review of public and agency comments received during the public comment period, the tunnel alternative variation "A" was identified as the preferred alternative. This Final Second Supplemental EIS/EIR serves as both the revaluation of the original Final EIS for the Martini Creek alignment alternative and the initial NEPA evaluation of the tunnel alternative. The slide dewatering alternative is also evaluated in this document, but is considered not reasonable. Potential adverse impacts from the tunnel alternative could occur to the visual landscape and to wildlife. Mitigation measures to minimize these impacts include an extensive revegetation program and avoidance of sensitive habitat.

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SUMMARY

The Devil's Slide project is located on Route 1 in San Mateo County midway between the town of Montara and the Linda Mar district of Pacifica. The project area, characterized by the steep, rocky coastline, is often subject to road closures from landslides, rock falls, and subsiding grade resulting in diminished roadway width. Because of more than a half century of continual problems and closures at Devil's Slide, Caltrans and the Federal Highway Administration have sought a permanent solution that results in a stable and safe roadway for this portion of Route 1. The environmental review process for this project began in the early 1980's, and has included several documents, public hearings and extensive consideration of various project alternatives. The history of the project and the environmental review process undertaken to this point are described in this document.

This document is the Final Second Supplemental Environmental Impact Statement/ Environmental Impact Report (Final SSEIS/EIR), hereafter referred to as the Final SSEIS. The purpose of this document is to provide to the public, interested entities, and decision-makers, supplemental information regarding the project alternatives and their impacts. This Final SSEIS supplements the 1986 FEIS.

The Draft Second Supplemental Environmental Impact Statement/Environmental Impact Report (Draft SSEIS/EIR, hereafter referred to as the Draft SSEIS) for the proposed Devil's Slide Improvement Project was circulated for public review beginning March 19, 1999. An Open House – Public Hearing for the project was held on April 27, 1999 at the Farallone View School in Montara. The public review and comment period for the Draft SSEIS closed on May 12, 1999.

A Supplemental Environmental Impact Statement/Environmental Impact Report (SEIS/EIR) was prepared in 1995 to present the results of an additional study to assess the impact of estimated future project-generated noise. Litigation regarding the project required this additional study.

This Final SSEIS identifies the Tunnel Alternative Design Variation A as the preferred alternative for the project. This preference is based on consideration of the environmental effects and reasonable mitigation measures for each project alternative, comments received from the circulation of the draft environmental document and from the public hearing process, and also the amendments to the San Mateo County Local Coastal Program (LCP) resulting from passage of the local initiative Measure T. Changes or revisions to the document reflect new information, correct and update text, and improve overall readability. Vertical lines in the outside margin of the document note major changes. Several sections have either been substantially revised or rewritten completely. These include Sections 5.3 – Construction, 5.11 - Natural Environment, 5.12 – Waters of the U.S. (renamed Aquatic Resources and Associated Habitats), and 5.14 Parkland (renamed Parkland and Recreational Areas).

Impacts identified in the Final SSEIS are based on technical studies conducted for the project. These studies are listed in Section 11.0 of this document and are available for review at the Caltrans District 4 Offices, at 111 Grand Avenue in Oakland, California.

Preferred Alternative

The preferred alternative is Tunnel Alternative Design Variation A, which is a 1,219 m (4,000 ft) long double-bore facility with one lane in each direction. This alternative will cross and affect property known as Shamrock Ranch. The roadway alignment, while proceeding south from Pacifica, departs from existing Route 1 at Kilometer Post (KP) 64.1/Post Mile (PM) 39.8. The new roadway alignment follows a 7% uphill grade and crosses the valley at Shamrock Ranch, passes through a small ravine and enters the tunnel at San Pedro Mountain on Shamrock Ranch property. The north approach road is approximately 457 m (1,500 ft) and the south approach road is approximately 305 m (1,000 ft). The alignment exits the tunnel just south of the Devil's Slide area where it rejoins the existing highway at KP 61.0/PM 37.9.

Martini Creek Alignment Alternative

The Martini Creek Alignment Alternative was the previous preferred alternative identified in the 1986 FEIS, and was selected in the Federal Highway Administration (FHWA) 1986 Record of Decision. Following completion of the supplemental EIS process in 1995, the Martini Creek alignment alternative was again selected in the FHWA 1995 Record of Decision. In 1996, the voters of San Mateo County passed a local initiative (Measure T), that deletes all references to the Martini Creek Alignment as the preferred alternative from the County's Local Coastal Program (LCP). It further requires voter approval of any alternative to the tunnel, with the exception of repairs or reconstruction of the existing highway.

No Project Alternative

The no project alternative, as described in the 1986 FEIS, consists of continuing with the general maintenance and repair of the existing alignment. The periodic slides and slip-outs, resulting in road closures of various lengths of time, are expected to continue with this alternative. There is a high probability that a seismic event of sufficient magnitude will eventually occur and result in permanent closure of the existing roadway.

Alternatives Considered but Withdrawn

Based on an independent draft report by Dr. John Hovland, a local engineer, it had been proposed that the existing highway could be preserved by an extensive effort to drain the active slide and the adjacent land mass. This effort, referred to as "de-watering," can be an effective means of increasing the stability of a slide mass but only under specific geological and hydro-geological conditions. Subsurface drainage efforts, such as passive horizontal drains, well points employing pumps, or a combination of these techniques, are dependent upon site specific conditions such as permeability of the geologic formations, connectivity and continuity of groundwater reservoirs, and the ability to intercept the groundwater with wells or drains, etc.

In November 1997, the Caltrans HQ Engineering Service Center (ESC) Roadway Geo-technical Engineering, North Section, initiated a feasibility study to determine if de-watering was possible and feasible as a long-term solution to the recurring slide movement within the most active area of Devil's Slide. The major components of this effort were the installation of two test wells to improve roadway stability prior to the anticipated wet "El Nino" winter and to obtain data regarding the feasibility of using deep wells to de-water and stabilize this area in order to support and maintain a stable and permanent highway.

The De-watering Feasibility Study concluded that the subsurface groundwater regime within the study area is complex, and de-watering would be extremely difficult. The slide mass has a low to very low hydraulic conductivity and thus, removing groundwater from the slide mass is expected to be difficult and have limited lateral impact on the groundwater table. This limited ability to remove groundwater from Devil's Slide supports the conclusion that de-watering this slide area is not feasible and does not meet the purpose and need for the project, and therefore, is not considered to be a viable project alternative.

Funding

The Transportation Equity Act for the 21st Century (TEA-21) (Public Law 105-178), as approved by Congress and the President in June 1998, addresses the funding for a Devil's Slide project by providing that emergency relief (ER) funds may be used for the alternative selected. This legislation, at Section 1217(a), not only removed the cap on ER funding from the previous $100,000,000 per state per disaster, but also defined the circumstances at Devil's Slide to be an "on going and continuing emergency." Under current practices, the provisions of TEA-21 permit Caltrans to request the allocation of ER funds for the Devil's Slide project when Plans, Specifications and Estimates (PS&E) for the project have been developed and approved.

Since the 1998 State Transportation Improvement Program (STIP) approval process, as amended by Senate Bill 45 (Kopp), was underway prior to the enactment of TEA-21, the final provisions of TEA-21 were unknown while the 1998 STIP was being developed. To assure against project delays and to maintain continuity for the environmental process, design, and right of way, funding for these activities was included in the 1998 STIP and subsequently approved with the adoption of the 1998 STIP.

Consistency with Local Coastal Program (LCP)

The California Coastal Commission (CCC) reviews federal assistance activities within or affecting the coastal zone and makes a determination regarding consistency with the Coastal Zone Management Program (CZMP). Coastal Development Permits are issued by the county but the Coastal Commission determines consistency. A Consistency Certification was submitted to the California Coastal Commission, and on October 10, 2000, the Commission, by unanimous vote, concurred with the consistency certification and found the tunnel alternative to be consistent with the California Coastal Management Program.

Environmental Setting

The project site is located in the Santa Cruz Mountains, which are part of the Coast Ranges of California. Devil's Slide is a name given to a steep, rocky coastal promontory located between Montara and the Linda Mar District of Pacifica. The terrain is characterized by steep eroded slopes with natural gradients ranging between thirty and seventy percent. There are small coastal valleys throughout the length of the project along the major drainages within the Montara Mountain watershed. The soils in these valleys are deep and moderately well drained and have built up along the low terraces and alluvial fans along the stream channels.

The climate of the project area is Mediterranean with a strong maritime influence. The temperature range is narrow both seasonally and diurnally, and air moisture content is relatively high.

Extremely dense northern coastal scrub covers most of the project area, especially over San Pedro Mountain and along the steeper foot slopes of Montara Mountain. Small grassy openings and barren rocky areas are scattered throughout the scrub areas. The proposed project corridor also traverses areas with other types of vegetation both native and introduced including, aquatic and coastal freshwater marshes/seeps, willow riparian scrub, coastal grasslands, non-native forest, and pasture/ranch uses/non-native brush.

Species of Concern

There is one federal threatened wildlife species present on the project site and one delisted federal endangered species located in the immediate vicinity. The California red-legged frog (*Rana aurora draytonii*), a listed federal threatened species, is found in association with two ponds on the western end of Shamrock Ranch, at the north end of the proposed project. The peregrine falcon (*Falco peregrinus anatum*), a delisted federal endangered species but state endangered species, nests on a coastal bluff near the south portal of the proposed tunnel project. In response to comments and suggestions on the Draft SSEIS and further consultation with state and federal agencies, several construction design features which will minimize potential impacts to the California red legged frog, have been incorporated into the preliminary design proposal.

An environmentally sensitive area (ESA) was developed for the tunnel alternative in consultation with U.S. Fish and Wildlife Service (USFWS) biologists to protect the red-legged frog habitat. In order to avoid direct impacts to the ESA, the bridge across the valley at Shamrock Ranch will be constructed using a segmented balanced cantilever method where the bridge piers and abutments, located outside the ESA, will be constructed first. Cantilevering out from the piers will advance the superstructure between the north and south piers and thus avoid direct impacts to the ESA. Falsework will be utilized to support the counterbalancing superstructure outside the ESA between the piers and adjacent north and south abutments. Additional measures will be implemented as part of the tunnel alternative to avoid direct and indirect impacts to the red legged frog. These are described in Section 5.11 Natural Environment - Environmental Consequences and Mitigation Measures and further detailed in the USFWS biological opinion (Appendix J).

Wetlands and Riparian Habitat

The project area contains aquatic resources, including wetlands that fall under the jurisdiction of three separate agencies; the U.S. Army Corp of Engineers (ACOE or Corps), the California Coastal Commission (CCC or Coastal Commission) and the County of San Mateo (County). The potential impacts of the different project alternatives are described separately relative to each of these jurisdictions.

The tunnel alternative will permanently impact .59 ha (1.45 acres) of wetlands and 3.04 ha (7.52 acres) of buffer zones protected under the California Coastal Act. Impacts to other jurisdictional wetlands are inclusive in these quantities.

The tunnel alternative will have no permanent effect on wetlands associated with the habitat for the California red-legged frog and will qualify for a U.S. Army Corps of Engineers (ACOE) nationwide permit. The tunnel alternative will eliminate an estimated total of 1,042 square m (11,217 square ft) of ACOE jurisdictional wetlands, including areas at the south portal drainage and the fill disposal site. A riparian and wetland mitigation site has been proposed to replace eliminated habitat. A conceptual mitigation plan has been prepared for the proposed mitigation site in coordination with the USFWS, California Department of Fish and Game (CDFG), CCC, and ACOE. A plant establishment and maintenance program will be conducted for ten years, and a biologist will monitor the mitigation sites at the end of each growing season. Caltrans will be responsible for the establishment and care of the site until the resource agencies determine that replenishment is successful.

Aesthetics

Construction of the tunnel alternative will result in negative visual impacts associated with the clearing and grubbing of trees and hillside vegetation and the subsequent contrast between the cleared area and the chaparral-blanketed hillsides. The introduction of structural elements into an area with minimal development will also affect the visual experiences and aesthetic qualities.

The major structural elements at Shamrock Ranch and the North Portal Area include the bridge structure, the tunnel portal, and the roadway approach to the portal. An access road and water tank on the hillside above the North Portal will be visible in long range views and the North Portal facade will be visible for a short duration to motorists and bicyclists. Other elements at the North Portal including the rock cut, guardrails, and the safety fence at the top of the rock cut, will have a negative impact on the existing visual environment as viewed by motorists and bicyclists.

The major elements at the South Portal Area include the South Disposal Site, the South Portal facade, and the Operations and Maintenance Center (OMC), proposed to be located a short distance from the portal. These are visually intrusive features in a relatively undisturbed environment. The South Disposal Site, located south of the South Portal is the area designated for disposal of excavated material from the tunnel construction. This area will undergo negative visual changes as a result of the placement of fill material in a coastal scrub-covered valley

located close to the coastal bluffs. The South Portal facade will be visible from a short distance to motorists on the highway, and from much longer distances to those on boats on the ocean. There is a large rock cut necessary to align the highway and to provide adequate sight distance and radius curve as well as a smaller rock cut at the top of the South Portal for the tunnel bore and the facade. These rock cuts and other elements such as a rock net fence at the base of the rock cut (to catch rock crumbling off the face of the cut), drainage features, a turnaround area, and guardrails will be visually prominent and will contrast with the vegetated hillsides.

Mitigation for visual impacts will include consideration of aesthetics as an integral part of the bridge design as well as architectural treatments for the tunnel and the portals. Architectural treatments, surface treatments, scale, and location considerations will be included in the design along with functional considerations in order to reduce visual impacts.

The mitigation also includes a major re-vegetation effort, site-specific measures for erosion control of cut and fill slopes, installation of automatic irrigation systems and a plant establishment period of ten years. The mitigation for the visual impact of the placement of fill material in the South Disposal Site will include contour grading of the fill material to match the adjacent hillsides and valley floor. Mitigation will also include re-vegetation with plant species and densities that match the surrounding area.

Construction

The project is located in an area of steep and rugged terrain where extensive grading will be required for each of the build alternatives. The major components of the tunnel construction are the north and south portals, the south disposal area, and the tunnel bore. Other elements include the bridge approach structures, temporary construction access roads, a haul road for transporting excess material to the south disposal area, the north and south roadway approaches, the south disposal site, the operations and maintenance building, and a water supply tank and access road.

A preliminary construction sequence has been developed which identifies the components of the construction, the various associated activities, and the order in which they are to occur. A specific construction plan will be developed to establish the limits for the various construction phases and construction contracts. This plan will be updated to reflect the final design and to allow for possible changes in the construction sequencing.

Activities such as phased clearing, grubbing, construction of the access roads, and construction in general, will typically result in increased levels of truck traffic, noise, dust, and visual impacts.

Most construction workers typically arrive at and depart from the work site during non-peak traffic period. Truck trips will generally be restricted to off peak hours at critical locations such as the Route 1 and San Pedro Terrace Road intersection. Public notices and the posting of roadways signs will be implemented to alert the public of any temporary road closures, lane reductions, or other construction scenarios which may affect traffic. No long-term traffic impacts are expected.

Noise suppression devices will be used on equipment and vehicles and construction activities will be limited at locations where there may be sensitive receptors. Standard construction methodologies and dust control measures will be implemented and where possible, construction staging areas will be located in less visible areas. Most construction impacts are unavoidable, however, they will be temporary during the course of the three-year construction period and wherever possible, every effort will be made to minimize the impacts.

Water Quality

Non-storm water discharges include all liquids used by the contractor that have the potential to be discharged, either accidentally (spills) or as part of the construction process. Although these types of discharges are most likely to be small quantities, they have the potential to adversely impact receiving water quality in a localized area. Therefore, they will be managed accordingly with an appropriate Storm Water Pollution Prevention Plan (SWPPP).

Caltrans mitigation measures include those that will be required during construction of the project, as well as measures that consider long term benefits. Mitigation during construction is implemented through the SWPPP. The conceptual SWPPP, which is prepared during the design phase of the project will identify control measures and Best Management Practices (BMP) that may be implemented.

TABLE S-1: Summary of Impacts

IMPACT CATEGORY	ALTERNATIVE		
	Tunnel	Martini Creek Alignment	No-Build
AESTHETICS	Visual contrast at portal areas, and bridge.	Severe visual scars from cuts and fills.	Vehicles and roadway visible from Park and surrounding area.
AIR QUALITY	No impact	No impact	No impact
CONSISTENCY WITH LOCAL, REGIONAL AND STATE PLANS	Consistent with Coastal Act , Certified by CA Coastal Commission. Consistent with the current RTP.	Not consistent with County LCP.	No Issues
CONSTRUCTION	Short term dust, run-off and siltation impacts.	short term dust, run-off and siltation impacts.	Run-off and siltation impacts and repair periods.
CULTURAL RESOURCES	No Impact	No Impact	No Impact
FARMLANDS	No Impact	4.2 ha (10.4 acres) of farmland.	No impact
FOG	Some visibility reduction at portal areas from June to September.	Visibility reduced at higher elevations from June to September.	Some visibility reduction from June to September.
GEOLOGY/SEISMOLOGY	Minor deformations and architectural damage during major seismic event.	Roadbed stable with some rockfalls and rockslides during major seismic event.	Potential permanent road closure risk during major seismic event and/or landslide.
GROWTH INDUCEMENT	No growth inducement impacts.	No growth inducement impacts.	No growth inducement impacts.
HYDROLOGY	No significant floodplain encroachment or risk.	No significant floodplain encroachment or risk.	No significant floodplain encroachment or risk.
NATURAL ENVIRONMENT	3.04 ha (7. 52 acres) of habitat buffer zone. Temporary construction impacts to red-legged frog habitat.	1.41 ha (3.5 acres) of riparian habitat. Reduces home range for large mammals; creates migration barriers. Impacts to red-legged frog habitat.	No impacts
NOISE	One noise receptor to be affected. No proximity impacts to parklands. Possible temporary impacts from blasting.	Possible noise impacts to Park users.	No additional impacts beyond existing noise levels.
PARKLAND	No Impacts or constructive use issues.	No substantial impairment.	No impacts
SOCIOECONOMIC / RIGHT OF WAY	74 acres to be acquired	52.6 ha (130 acres) to be acquired. Some relocation of ranch property at south end.	Periodic closures from slides will adversely affect businesses and residents south of Devil's Slide
TRAFFIC	No impacts.	No impacts.	Adverse impacts expected due to periodic roadway failures.
WATER QUALITY	Runoff/Sedimentation impacts expected during construction.	Runoff/Sedimentation impacts expected during construction.	No Impacts
WETLANDS Waters of the U.S. California Coastal Commission County of San Mateo-LCP	 . 10 ha (.25 acres) . 59 ha (1.45 acres) . 02 ha (.06 acres)	11ha (28 acres)	No Impacts

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ABBREVIATIONS AND ACRONYMS

ABAG	Association of Bay Area Governments
ACOE	U.S. Army Corps of Engineers
APE	Area of Potential Effect
ARB	California Air Resources Board
BA	Biological Assessment
BART	Bay Area Rapid Transit
BAAQMD	Bay Area Air Quality Management District
BMP	Best Management Practices
BO	Biological Opinion
CAAA	Clean Air Act Amendments
CAP	Clean Air Plan
Caltrans	California Department of Transportation
CCAA	California Clean Air Act
CCA	California Coastal Act
CCC	California Coastal Commission
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CMSA	Consolidated Metropolitan Statistical Area
CNPS	California Native Plant Society
CO	Carbon Monoxide
CRF	California Red-legged Frog
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Program
DEIS/R	Draft Environmental Impact Statement/Report
DOT	Department of Transportation
DPR	California Department of Parks and Recreation
DTSC	Department of Toxic Substance Control
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Environmentally Sensitive Area
ESC	Engineering Service Center
FEIS/R	Final Environmental Impact Statement/Report
FHWA	Federal Highway Administration
ha	Hectare
HASR	Historic Architecture Survey Report
HC	Hydrocarbons
HPSR	Historic Properties Survey Report

ISA	Initial Site Assessment
KP	Kilometer Post
LCP	Local Coastal Program
LOS	Level of Service
m	meter
MTC	Metropolitan Transportation Commission
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NPDES	National Pollution Discharge Elimination System
NO_2	Nitrogen Dioxide
O_3	Ozone
PCM	Permanent Control Measures
PM	Post Mile
PM_{10}	Small Particulates
ppb	parts per billion
ppm	parts per million
ROD	Record of Decision
RTP	Regional Transportation Plan
RTIP	Regional Transportation Improvement Program
RWQCB	Regional Water Quality Control Board
SamTrans	San Mateo County Transit
SSEIS/R	Second Supplemental Environmental ImpactStatement/Report
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SSEIS	Second Supplemental Environmental Impact Statement
STIP	State Transportation Improvement Program
SWPPP	Storm Water Pollution Prevention Plan
TIP	Transportation Improvement Program
TCM	Transportation Control Measures
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 INTRODUCTION

1.1 HISTORY

The 1986 Devil's Slide Final Environmental Impact Statement (FEIS) includes a chronology of events and activities related to resolving the problems at Devil's Slide from 1951 to February 1986. Refer to the 1986 FEIS (pp. 15-25) for the prior history and specific chronological events for that period. The following is a more general history of the Devil's Slide project in a narrative format for the period of late 1983 to the present.

Caltrans and the Federal Highway Administration (FHWA) circulated a draft Environmental Impact Statement (DEIS/DEIR) in December 1983, for a proposal to improve State Route 1 in San Mateo County, California. The project study limits of alternatives considered in the document extended from Half Moon Bay Airport, between Moss Beach and El Granada, on the south to Linda Mar Boulevard in Pacifica on the north, a distance of approximately 11.3 km (7 miles). As part of the public review process, Caltrans conducted a public hearing on the draft on January 12, 1984.

The San Mateo County Planning Commission and the City of Pacifica also held separate public hearings on the draft EIS during the following weeks. In late January and early February 1984, the San Mateo County Planning Commission, the City of Pacifica, and the City of Half Moon Bay each selected a different alternative as their "preferred" alternative. The San Mateo County Board of Supervisors conducted a public hearing on the draft EIS on February 14, 1984 in Half Moon Bay and on March 6, 1984 selected their preferred alternative. In April of 1984, the County Board of Supervisors rescinded their previous action regarding their preferred alternative and approved the concept of an inland bypass with the alignment and design option to be identified after Caltrans submittal of the Final Environmental Impact Report to the Board.

A Final EIR was certified by Caltrans on January 3, 1985 and distributed on January 16, 1985. The "adopted alignment," a 6.8 mile route between Half Moon Bay airport and Linda Mar Boulevard in Pacifica, was identified as the preferred alternative. This was followed by multiple reviews and public hearings conducted by the San Mateo County Board of Supervisors and the California Coastal Commission regarding the various project alternatives and whether they were consistent with the certified Local Coastal Program (LCP) and the Coastal Act. Additional public hearings regarding amendments to the LCP were conducted and several attempts to certify these amendments failed when the Commission's action resulted in tie votes.

On October 8, 1985, Caltrans announced to the Board of Supervisors that the preferred alternative would be modified to what was to be referred to as the Martini Creek Alignment. A Supplemental Environmental Impact Report (SEIR) which discussed this modified Martini Creek Alignment Alternative was distributed on November 15, 1985.

The City of Pacifica, on December 9, 1985 and the San Mateo County Board of Supervisors on December 12, 1985 each held a public hearing on the draft SEIR. The California Coastal

Commission on February 11, 1986 determined that the Preferred Alternative (Martini Creek Alignment alternative) was consistent with the Coastal Zone Management Program.

The Final EIS (FEIS/FEIR) was approved by FHWA on April 16, 1986. The Martini Creek Alignment alternative was selected by FHWA for project construction in the Record of Decision (ROD) on May 30, 1986.

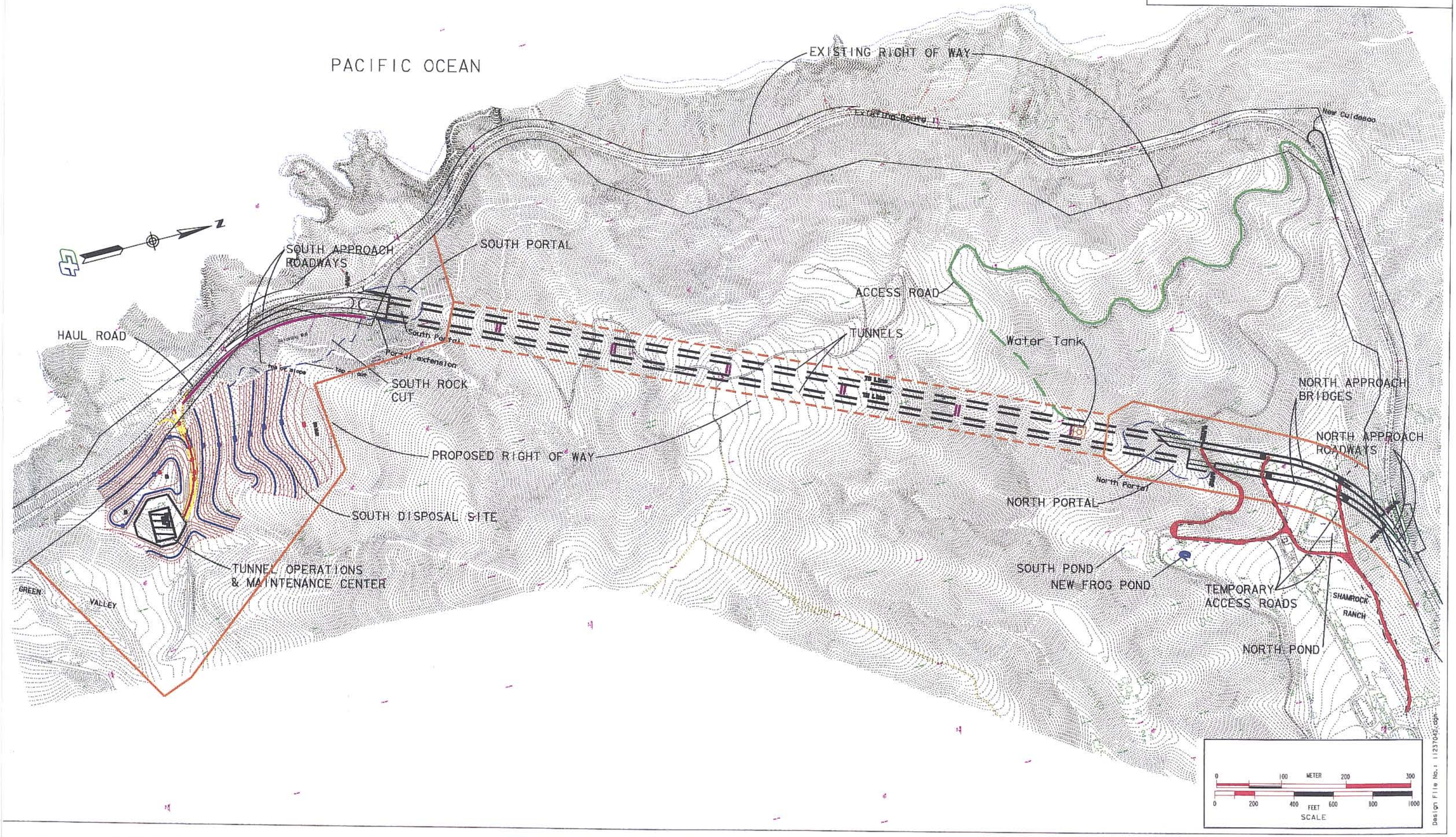
Public opposition and legal challenges regarding the project's environmental document resulted in litigation in U.S. District Court in the Northern District of California in June 1986 (Sierra Club, et al. v. United States Department of Transportation, et al., Civ. No. 86-3384 DLJ). The project has been enjoined since September 1986, prior to the commencement of any construction. Ultimately, the District Court found that the 1986 FEIS was inadequate only in its discussion and analysis of noise impacts and required a re-analysis of those impacts, as set forth in the Court's Orders of April 3, 1989, and April 2, 1990. Thereafter, in March 1995, FHWA and Caltrans prepared a draft supplemental EIS/R for the purpose of addressing the noise impact analysis deficiencies of the 1986 FEIS.

Public comments on the 1995 draft SEIS/R called for consideration of a tunnel alternative, and the August 10, 1995 Record of Decision for the Devil's Slide Project included a commitment by the FHWA to address the issue of a tunnel alternative in the reevaluation of the 1986 FEIS. A tunnel alternative had been considered earlier in the project development process, but had been withdrawn from active consideration prior to the issuance of the 1983 draft EIS. The reevaluation was to be undertaken since major steps to advance the project had not occurred within three years after the approval of the FEIS (23 C.F.R. Sec. 771.129(b)).

In 1996, in response to requests from local agencies and the public, Caltrans hired an independent consulting firm to conduct a tunnel feasibility study. Based upon the results of "The Devil's Slide Tunnel Study" (Woodward-Clyde Consultants, 1996) and the updated cost estimates for the revised Martini Creek alignment alternative ($145 million), FHWA and Caltrans determined that a tunnel alternative was, in fact, a reasonable alternative that should be fully evaluated in the environmental process. Therefore, Caltrans and FHWA determined that a new supplement to the 1986 FEIS was necessary to provide new information relevant to the tunnel alternative. Based on the decision to supplement and update the 1986 FEIS, a separate reevaluation of the 1986 FEIS was no longer necessary.

In addition, on November 5, 1996, the voters of San Mateo County passed the Devil's Slide Tunnel Initiative known as Measure T. Passage of Measure T initiated the process to amend the County's land use plan portion of the San Mateo County certified LCP, to "provide a tunnel for motorized vehicles only behind Devil's Slide through San Pedro Mountain, and to delete references to a two-lane highway bypass along the Martini Creek alignment." The Initiative requires that the tunnel be designed consistent with restricting Route 1 to a two-lane scenic highway using minimum state and federal tunnel standards, and that a separate trail for pedestrians and bicycles be provided outside the tunnel. The Measure also requires voter approval of any other alternative to the tunnel, except repair or reconstruction of the existing

Figure 3-2
TUNNEL ALTERNATIVE



highway. On January 9, 1997, the California Coastal Commission voted to certify the LCP amendment as submitted by the County.

1.2 CURRENT STATUS

This Final SSEIS supplements the 1986 FEIS and together with the 1995 Final SEIS provides new information to the public, interested entities, and decision makers about the project alternatives and their impacts.

As set forth in Part 771 of Title 23 of the Code of Federal Regulations regarding Environmental Impact and Related Procedures:

Section 771.130. Supplemental environmental impact statements:

(a) A draft EIS, final EIS, or supplemental EIS may be supplemented at any time. An EIS shall be supplemented whenever the Administration determines that:

(1) Changes to the proposed action would result in significant environmental impacts that were not evaluated in the EIS; or
(2) New information or circumstances relevant to environmental concerns and bearing on the proposed action or its impacts would result in significant environmental impacts not evaluated in the EIS.

As stated in Section 15163(c) of the California Environmental Quality Act (CEQA) guidelines:

(a) The Lead or Responsible Agency may choose to prepare a supplement to an EIR rather than a subsequent EIR if:
(1) Any of the conditions described in Section 15162 would require the preparation of a subsequent EIR, and
(2) Only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation.
(b) The supplement to the EIR need contain only the information necessary to make the previous EIR adequate for the project as revised.
(c) A supplement to an EIR shall be given the same kind of notice and public review as is given to a draft EIR under Section 15087.
(d) A supplement to an EIR may be circulated by itself without re-circulating the previous draft or final EIR.
(e) When the agency decides whether to approve the project, the decision-making body shall consider the previous EIR as revised by the supplemental EIR. A finding under Section 15091 shall be made for each significant effect shown in the previous EIR as revised.

This Final SSEIS presents "new information or circumstances relevant to environmental concerns and bearing on the proposed action" as per Section 771.130(a)(2) stated above.

In accordance with the National Environmental Policy Act (NEPA), a supplement to an FEIS may be circulated by itself without re-circulating the original document. Pursuant to Section 771.130 of the Federal Highway Administration Regulations governing the preparation of an EIS and Section 15163(c) of the California Environmental Quality Act (CEQA) guidelines, revised December 1991, the 1999 Draft SSEIS was given the same kind of notice and public review as the 1983 Draft EIS/EIR and the 1995 Draft SEIS/EIR. For project information preceding this Second Supplement, the reader is referred to the 1986 FEIS and the 1995 FSEIS.

Copies of the 1986 FEIS, the 1995 Final SEIS, the 1999 Draft SSEIS, and this Final SSEIS are available for public viewing at the locations listed on the following page. These documents are also available for public viewing during normal business hours (between 8:00 AM and 5:00 PM) at the Caltrans District 4 Office of Public Affairs on the first floor at 111 Grand Avenue, Oakland, California. Copies of the technical studies identified in Section 10.0 of this document are also available for review at the Caltrans District 4 Office in Oakland, the City of Half Moon Bay City Hall, and the City of Pacifica City Hall. Copies of the references identified in Section 11.0 are available upon request for review at the Caltrans District 4 Office in Oakland.

Public Review Locations

San Mateo County
Planning Department
455 County Center
Redwood City, CA 94063

San Mateo County
Transportation Authority
1250 San Carlos Ave.
San Carlos, CA 94070

City of Pacifica
City Hall
170 Santa Maria Avenue
Pacifica, CA 94044

City of Half Moon Bay
City Hall
501 Main Street
Half Moon Bay, CA 94019

Pacifica Public Library
Hilton Way and Palmetto Avenue
Pacifica, CA 94044

Half Moon Bay Library
620 Correas Avenue
Half Moon Bay, CA 94019

Pacifica Chamber of Commerce
225 Rockaway Beach Ave-Suite 1
Pacifica, CA 94044

Half Moon Bay Chamber of Commerce
520 Kelly Avenue
Half Moon Bay, CA 94019

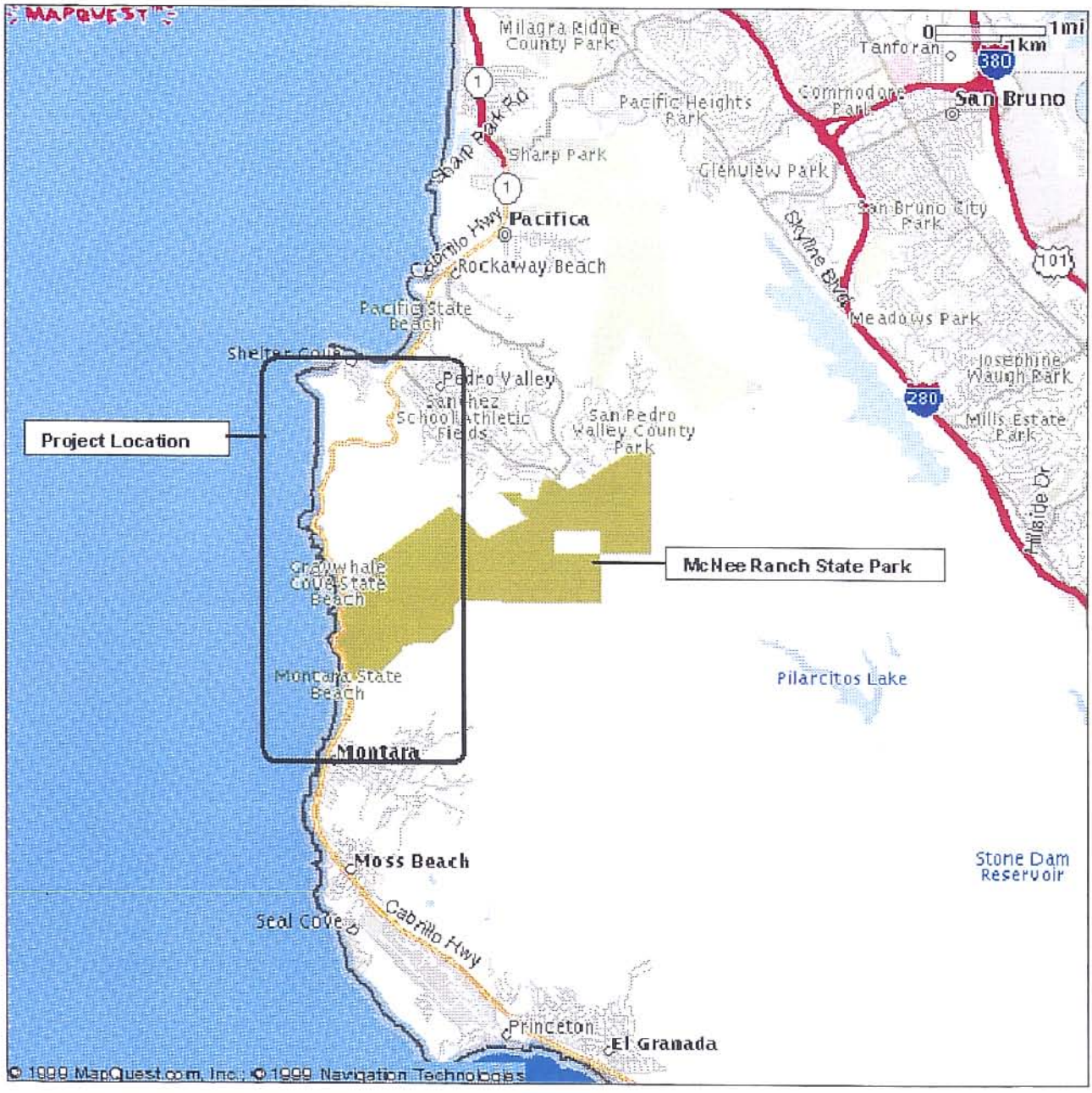
2.0 PURPOSE OF AND NEED FOR PROJECT

The purpose of this project is to provide a safe, dependable and stable State highway route to bypass the geologically unstable area of Route 1 at Devil's Slide in San Mateo County (see Project Location Map, Figure 2-1 and Project Area Map, Figure 2-2). The instability of Devil's Slide and the problems with the existing roadway through that area, remain the same as set forth in the FEIS approved on April 16, 1986. Since construction of the existing Devil's Slide portion of Route 1 in 1937, several geologic factors have contributed to landslides, rock falls, and subsiding grade, resulting in diminished roadway width. Despite drainage improvements, pavement reinforcement, and rock anchors, Route 1 continues to experience problems and closures due to landslides and roadway subsidence. Such closures create a tremendous inconvenience to coastal residents and result in severe economic impacts on Coastside businesses and families.

In addition to the road closures listed in the 1986 Devil's Slide FEIS (Table 2, page 23), similar closures have continued to occur since that document was prepared. One of the longest lasting road closures in the area was in 1995 when the road was closed 158 days (from 1/22/95-6/30/95), and the repair cost was $2,983,000. Since then, there have been minor closures usually caused by rock slides.

FIGURE 2-1: Regional Location Map

FIGURE 2-2: Project Location Map



3.0 ALTERNATIVES

The original 1986 FEIS presented three alternative alignments with various design options to provide a safe and dependable highway in a geologically stable area between the Half Moon Bay Airport and Linda Mar Boulevard in the City of Pacifica. From these alternatives, the FHWA and Caltrans selected the Martini Creek Alignment, a two-lane facility with an uphill climbing lane in each direction where grades are 6% or greater, as well as traffic safety design features.

The 1995 SEIS/R included public comments, which proposed a tunnel alternative for the project. This tunnel is in a slightly different location from the tunnel option referenced in the 1986 FEIS (pp.61-62). The original tunnel option was considered as "not a reasonable alternative primarily because construction costs greatly exceeded the cost for the construction of the Martini Creek alignment alternative and was therefore rejected. At the request of the San Mateo County Board of Supervisors, a tunnel feasibility study was undertaken between May and October, 1996. Based upon the results of that report, and the updated cost estimates for the revised Martini Creek alignment alternative, FHWA and Caltrans determined that a tunnel alternative should be considered a reasonable alternative for the proposed project and should be fully evaluated.

3.1 PREFERRED ALTERNATIVE – Tunnel Alternative Design Variation A

3.1.1 Design and Cost

The preferred alternative is a 9.1 m (30 ft) wide and 1,219 m (4,000 ft) long, double bore tunnel facility with one lane in each direction. The north approach road is approximately 457 m (1,500 ft) long, and the south approach road is approximately 305 m (1,000 ft) long. Proceeding south from Pacifica, the alignment curves away from existing Route 1 along a 7% uphill grade, crosses the valley at Shamrock Ranch via a bridge structure, passes through a small ravine, enters a tunnel through San Pedro Mountain, and exits the tunnel just south of the Devil's Slide area. It will then conform back to the existing highway (see Figures 3-1 and 3-2). The tunnel profile is basically level with a 2% down grade to the south.

Temporary construction access roads through Shamrock Ranch will be utilized for access to the bridge piers and to the north portal area. A separate haul road will be utilized to transport material from the tunnel excavation at the south portal area to the south disposal site. Other elements of the project include the Operations and Maintenance Center (OMC) and a water supply tank and access road.

The northerly limit of this tunnel alternative is located at approximately Kilometer Post 64.1 (Post Mile 39.8), which is the location where the north approach road connects or joins with the existing highway. The southerly limit of this alternative is located at approximately Kilometer Post 61.0 (Post Mile 37.9), which is the south end of the area identified for disposal of excess material from the project. The disposal area is southeast of where the south approach road connects or joins with the existing highway. The tunnel location and alignment is inland of the

unstable slide plane area and will meet the project's purpose and need to bypass the geologically unstable area of Devil's Slide.

Tunnel Alternative Design Variation B is the same as Design Variation A except with a wider cross section of 11.0 m (36 ft). See Figure 3-3. Total project cost estimates for the 1996/1997 Fiscal Year (FY), including construction capital, engineering support cost, and ROW cost for the 30-foot and 36-foot tunnels were estimated to be $113,269,000 and $115,762,000, respectively.

The escalated cost for the proposed 2003/2004 FY construction of the 30-foot and 36-foot tunnels will be $272,519,000 and $279,325,000, respectively. The increased cost compared to the 1996 estimates reflect inflation, a less favorable market for the tunnel construction business, increases to the engineering cost as a result of the current recommended construction contract documents, upgrading of the structures to current seismic standards, modifications of bridges over wetlands and California red-legged frog habitat, lengthening of the tunnel and additional retaining walls to reduce the excavation limits, and other environmental mitigation cost. These cost estimates are broken down as follows (in $1,000):

Design Variation	Tunnel Width	Construction Cost	Engineering Cost	ROW Cost	Total Cost 03/04 FY	Total Cost 96/97 FY
A	30-foot	$229,570	$41,624	$1,325	$272,519	$113,269
B	36-foot	$236,000	$42,000	$1,325	$279,325	$115,762

Caltrans is concerned about safety and has always considered the safety of all users of any facility that is part of the State Highway and Freeway system. This includes, not only the motoring public, but also maintenance personnel, bicyclist and pedestrians, and occupants of stalled or disabled vehicles. Tunnel Variation B provides a physical separation between traffic inside the tunnel and the pedestrian and bicycle access. Variation A does not provide any such separation between traffic and the pedestrian/bicycle path inside the tunnel, but instead proposes the use of the existing highway as the designated pedestrian/bicycle path.

The existing Highway 1 is a conventional highway with limited shoulder widths but nevertheless is used by bicyclists. Early in the process, there was much discussion on the cross sectional width of the tunnel and whether or not bicycle access would be provided. Many of those in the bicycle community have concerns regarding any restrictions on bicycles. As mentioned above, safety is a major concern of Caltrans and therefore, a separated bicycle access was considered in the proposed design of the tunnel project in order to protect bicyclists from high-speed traffic within an enclosed space. This of course results in the need for a tunnel with a wider cross section and higher cost. Following much discussion and debate over this issue, Caltrans decided to request that the San Mateo County Board of Supervisors identify their preferred alignment for a bicycle facility associated with the tunnel project.

The San Mateo County Board of Supervisors passed Resolution #61060, which authorized and directed the president of the Board, to notify Caltrans "*that the Board's preferred alignment for a bicycle/pedestrian trail be located within the existing Highway 1 Devil's Slide right-of-way, with*

an alternative alignment around Devil's Slide should it fail." A copy of Resolution #61060 is provided in Appendix B. It was decided to incorporate into the project design, the placement of informational/directional signs directing bicyclists to use the existing Highway 1 rather than the tunnel. In the absence of any ban or restrictions (which will need to be initiated by local government), some bicyclists may still choose to ride with vehicular traffic through the tunnel.

Upon completion of the tunnel construction, Caltrans will relinquish the section of existing Highway 1 right-of-way to the County of San Mateo for use as a non-motorized facility. Operations, maintenance, and management of the property and the bicycle/pedestrian trail will then be within the jurisdiction of the County of San Mateo. The County may choose to operate and maintain this facility or arrange for the management or transfer of the facility to an appropriate public recreational agency.

Initially, as part of the tunnel alternative, Caltrans considered utilizing Old San Pedro Mountain Road as a possible alternate bicycle/pedestrian trail around Devil's Slide. This trail follows a similar alignment as the Martini Creek alignment alternative, but with a northern terminus near Linda Mar school in Pacifica. However, it was determined that this is not an acceptable option for several reasons, including the excessive length and steep grades along this alignment that are not conducive to daily bicycle use. In addition, the construction and use of such a trail might result in possible adverse environmental impacts near the saddle area between San Pedro Mountain and Montara Mountain where heavy trail use could potentially affect the endangered San Bruno elfin butterfly. It was also determined that this alternate bicycle/pedestrian trail did not qualify for emergency relief funding, which is the most likely source of federal funds for this project.

3.1.2 Project Funding

The Transportation Equity Act for the 21st Century (TEA-21) (Public Law 105-178), as approved by Congress and the President in June 1998, addresses the funding for the Devil's Slide project by authorizing the use of emergency relief (ER) funds for the selected alternative. Section 1217(a), states: San Mateo County, Calilfornia – Not withstanding any other provision of law, a project to repair or reconstruct any portion of a Federal-aid primary route in San Mateo County, California, that –

(1) was destroyed as a result of a combination of storms in the winter of 1982-1983 and a mountain slide; and

(2) until its destruction, served as the only reasonable access route between 2 cities and as the designated emergency evacuation route of 1 of the cities;

shall be eligible for assistance under section 125(a) of title 23, United States Code, if the project complies with the local coastal plan.

Under the provisions noted in TEA-21 and the current budgeting procedures, Caltrans will request funding for the Devil's Slide Project when Plans, Specifications, and Estimates (PS&E) for the project have been developed and approved. Prior to approval of the 1998 State Transportation Improvement Program (STIP), the Federal Transportation Reauthorization Bill allocated $6,000,000 in Federal Demonstration funds for the Devil's Slide project. In June 1999, the FHWA informed Caltrans that 100% of the project costs are eligible for Emergency Relief Fund reimbursement.

Since the 1998 STIP approval process, as amended by Senate Bill 45 (Kopp), was already underway prior to the enactment of TEA-21, the final provisions of TEA-21 were not developed yet. To assure against project delays and to maintain continuity for the environmental process, design, and right of way activities, funding for these activities was included in the 1998 STIP and was then approved with the adoption of the 1998 STIP.

An additional STIP amendment was approved by the California Transportation Commission (CTC) on January 20, 2000 which programmed $6,000,000 in Federal Demonstration Funds for construction in the 2001/2002 FY, and revised the Emergency Relief funds to reflect FHWA's increased participation in the project. The project is currently in the 2000 STIP, and an amendment was approved by CTC on March 28, 2001 to move the construction funds to the 2003/2004 FY due to delays in the schedule.

3.1.3 Tunnel System Operations

There are a number of tunnel infrastructure systems that are necessary for safety and operations. These include tunnel control, tunnel surveillance, traffic control, communications, emergency evacuation, environmental monitoring and tunnel maintenance.

The Tunnel Operations and Maintenance Center (OMC) will be located approximately 549 m (1800 ft) south of the tunnel and will include a control room where the tunnel control computers will be housed. In the event that a storm or earthquake breaks communication between the Caltrans Transportation Management Center (TMC) in Oakland and the tunnel, the tunnel could be operated locally. A closed circuit television (CCTV) system will function as a security and safety aid for the Devil's Slide Tunnel. Pan, tilt, zoom cameras will be located every 305 m (1000 ft) within the tunnel and on the first approach variable message sign (VMS) structure.

The goal of the design of the Devil's Slide Tunnel is to provide a safe and cost-effective facility. With state of the art surveillance, control, and communications, it may no longer be necessary that the tunnel be under constant supervision. Computers will monitor remote sensing devices and if problems arise, an alarm will be triggered. Traffic signals, the radio override system, and the VMS are operated remotely and can provide communication of valuable traffic information to the motorist in the event of an emergency.

Tunnel Control System

A computerized Tunnel Control System (TCS) will control the tunnel equipment and the traffic. It will have an uninterruptible power supply (UPS) and will be controlled from the Caltrans TMC in Oakland. The emergency response strategy will be semi-automatic. To speed the response, the TCS computer will provide the tunnel control operator with a pre-programmed set of appropriate responses for each emergency depending on its type and location in the tunnel.

Tunnel Surveillance System

The surveillance system will include traffic sensors, closed circuit television, linear heat detectors, fire alarms, equipment sensors and intrusion alarms for the cross passages, and refuge rooms.

Traffic Control System

The traffic control system will include VMS and traffic signals as well as an AM/FM radio broadcast system. The VMSs will be placed at the portals and spaced inside the tunnel so that one will be visible to motorists at all times. They will also be placed on the approaches to warn and inform motorists if the tunnel was closed due to stopped traffic, reduced speed or other hazards.

Communication System

The communication system includes an emergency telephone system with emergency telephones located along the right wall of the tunnel and at both approaches. The link between the tunnel and the TMC in Oakland, will be via leased telephone lines.

Tunnel Maintenance

The tunnel and any associated equipment will be maintained to manufacturer's standards and will include preventive maintenance. Equipment or elements in the ceiling or walls of the tunnel such as lights, VMS, radio rebroadcast equipment, and linear heat detectors should be designed and located to allow for maintenance without interrupting traffic through the tunnel. During maintenance operations that do require personnel or equipment on the roadway, the VMS will alert motorists of necessary lane restrictions.

Emergency Evacuation System and Response

The emergency evacuation system will include cross passages. An emergency helipad will be provided on the roadway at each tunnel portal. In situations where there is a threat to human life such as a fire, hazardous substance spill, or traffic blockage combined with a Carbon Monoxide (CO) level exceeding standards, it may be necessary to evacuate one side of the tunnel.

In all of these cases, traffic in the opposite direction will be stopped and prevented from entering the tunnel. This safety measure will allow motorists to exit through cross passages without being

endangered by traffic in the other bore. Cross passages are proposed at approximately every 156 m (511 ft) to provide an exit from the tunnel into a safe area. Strobe lights next to the cross passage doors will identify these exits.

The emergency response plan will be based on local municipal personnel responding to emergency situations. The responsible agencies will be the same as those currently responsible for this section of Route 1 which is located in a steep and undeveloped area between the City of Pacifica and unincorporated Montara. The highway itself is patrolled by the California Highway Patrol (CHP) which estimates a typical response time of 20 minutes to the tunnel site.

The section of Route 1 between Half Moon Bay and Pacifica is patrolled regularly by the San Mateo County Sheriff's Department and thus, a County Sheriff's Deputy typically is the first to arrive at the scene of an accident. The San Mateo County Sheriff's Department has an office in Moss Beach and could probably respond to the tunnel site in approximately five minutes. In the event of an accident, local police or sheriff's deputies will maintain traffic control and contact other necessary emergency personnel. There is a Caltrans maintenance station in Half Moon Bay but the closest facility with 24-hour maintenance personnel is the Bay Bridge or San Mateo Bridge Toll Plazas.

Fire Protection

Fire protection facilities will be essentially the same as what currently exists. The new pump station at Route 1 and Linda Mar Boulevard connects to the North Coast County Water District line. This 20.3 cm (8 inch) diameter water line will be continued through the tunnel and rise vertically in a drilled shaft to a 2.7 meter (9 foot) high by 7.9 meter (26 foot) diameter holding tank. A gravel access road will be constructed to the tank location.

The fire alarm system will provide fire detection for the Operations and Maintenance Center, miscellaneous equipment rooms, and the tunnel areas. The system will function as an announcement/alarm system to alert operating personnel and to provide a detailed location of the fire. The systems includes linear heat detectors, smoke detectors, water pressure and fire valve position sensors and manual pull stations.

Ventilation

Ventilation requirements for the Devil's Slide Tunnel proposal were addressed early in the tunnel feasibility study. The use of jet fans was highly recommended for ventilation in the double bore tunnels. A jet fan unit is an axial fan with a direct drive motor designed to deliver a wide range of thrust capabilities in both the forward and reverse direction. The jet fan system will force air to the downstream (direction of traffic) portal and out of the tunnel, while introducing fresh air into the tunnel at the upstream end.

The key factors, which affect the number of jet fans, are pedestrian/bicycle path facilities, and the number of traffic lanes. The design option without pedestrian/bicycle facilities allows a higher 120 ppm CO limit. The design option for pedestrian/bicycle path facilities, with a more

restrictive 65 ppm CO limit will be used. To meet the 65 ppm CO limit for bicycle use, a total of 32 fans will be installed in the tunnel vs 18 required for the higher threshold.

In addition, the proposed tunnel design includes a "real time" air quality monitoring system that includes variable message signs that can advise bicyclists when unacceptable air quality conditions exist in the tunnel. It is anticipated that adverse conditions will be infrequent.

Environmental Monitoring

The environmental monitoring system provides data on wind speed, carbon monoxide (CO) and volatile hydrocarbons (HC) to allow operations personnel to react and respond accordingly when an incident or emergency occurs. Monitoring of oxides of nitrogen (NO) is not proposed for the Devil's Slide tunnel since analysis of pollutant levels in other tunnels (Posey and Webster tubes in Alameda) has shown that the threshold standard for CO is reached before the threshold standard is reached for oxides of nitrogen. The need to monitor for oxides of nitrogen for the Devil's Slide Tunnel will be investigated and addressed in the final design phase.

FIGURE 3-1: Tunnel Alignment

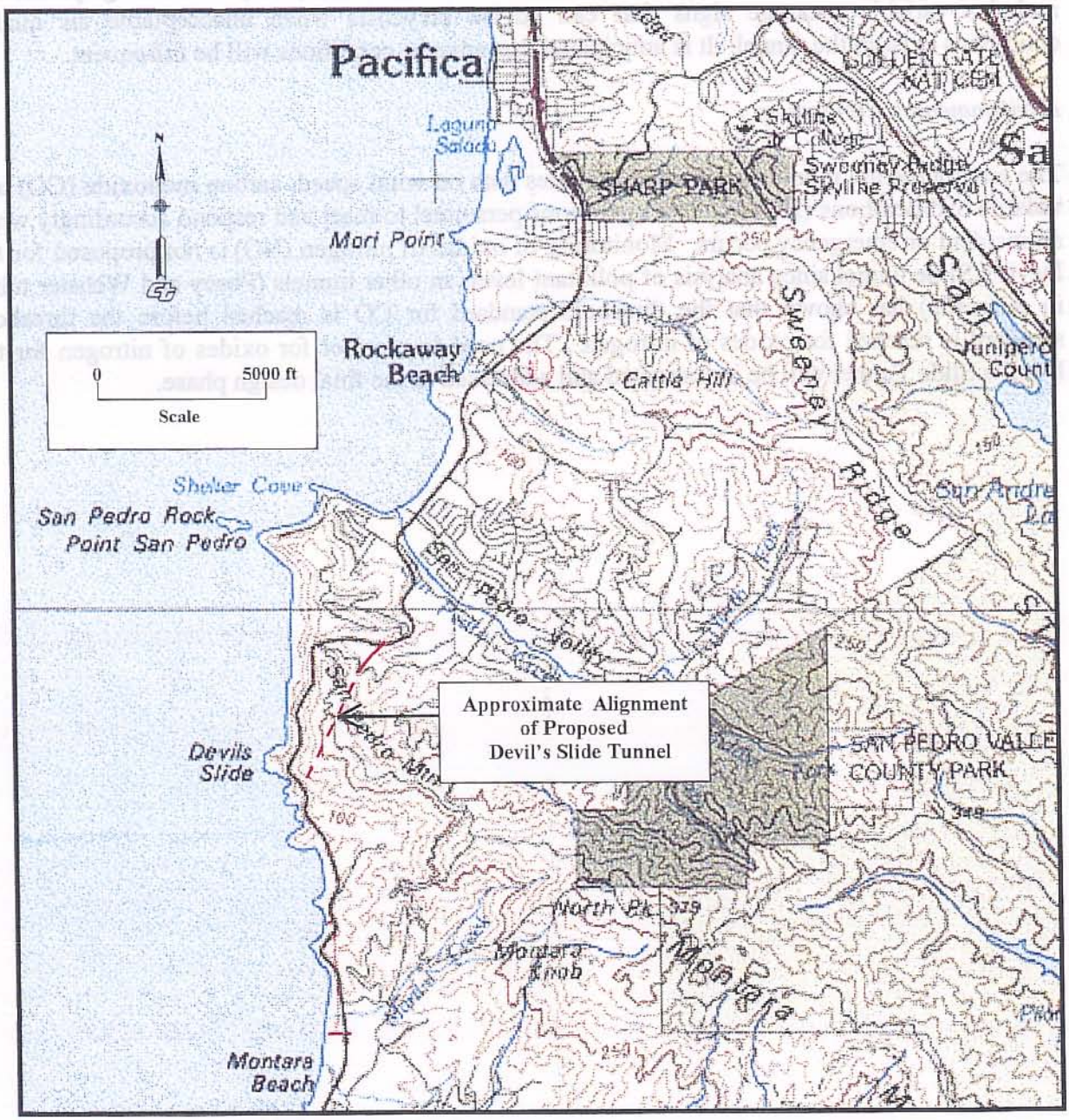


Figure 5-0.1
Construction Sequencing
For The Tunnel Alternative

PACIFIC OCEAN

EXISTING RIGHT OF WAY

Existing Route 1

New Culdesac

SOUTH APPROACH ROADWAYS 1 2

SOUTH PORTAL 2

ACCESS ROAD 1

TUNNELS 3 4

Water Tank 4

HAUL ROAD 1

South Portal

Portal extension

Toe of slope

Top of slope

SOUTH ROCK CUT 1

NORTH APPROACH BRIDGES 1 2

NORTH APPROACH ROADWAYS 1

PROPOSED RIGHT OF WAY

North Portal

NORTH PORTAL 3 4

SOUTH DISPOSAL SITE 1 2 3 4

SOUTH POND

NEW FROG POND

TEMPORARY ACCESS ROADS 1

SHAMROCK RANCH

NORTH POND

TUNNEL OPERATIONS & MAINTENANCE CENTER 3 4

GREEN VALLEY

0 100 METER 200 300

0 200 400 FEET 600 800 1000

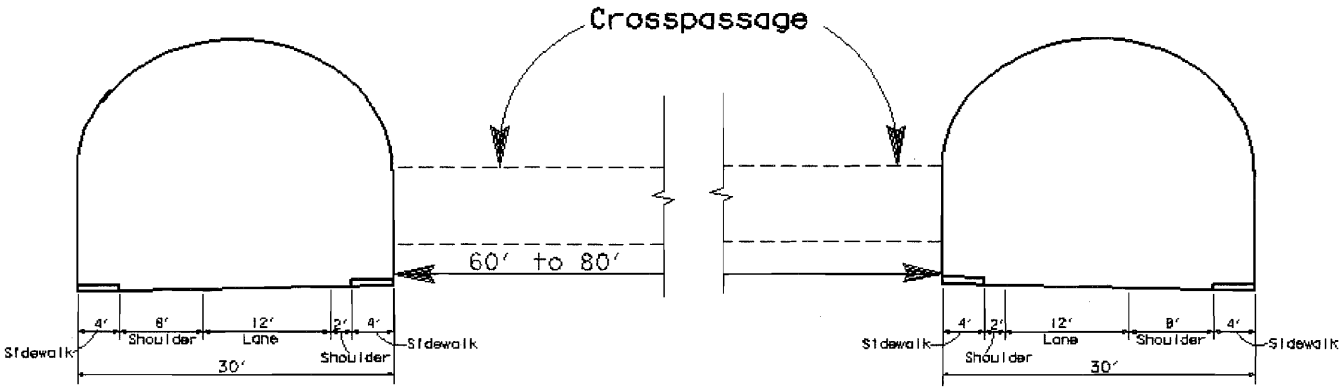
SCALE

LEGEND:

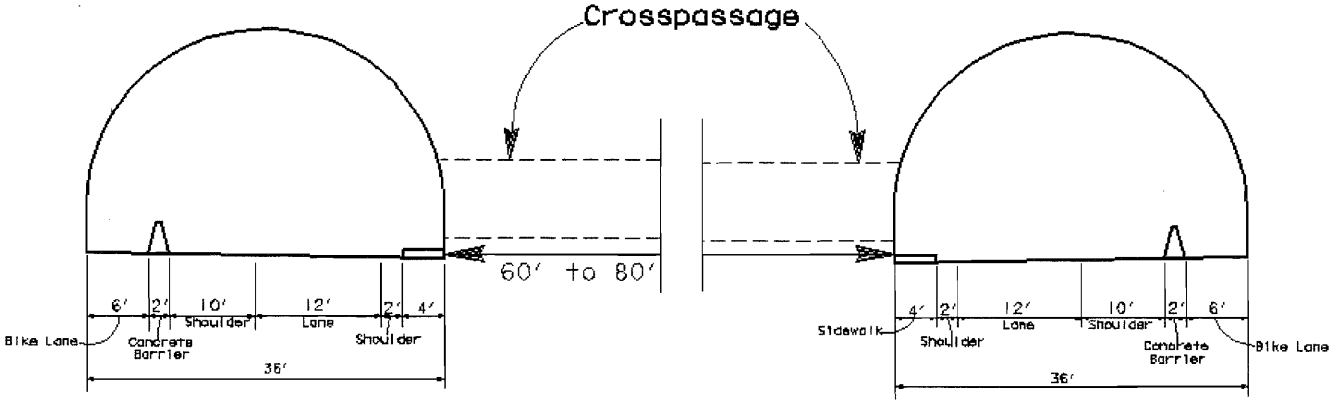
X SEQUENCING NUMBER (X = 1...4)

Design File No.: 1123704.dgn

FIGURE 3-3: Tunnel Cross Sections



PREFERRED ALTERNATIVE
DESIGN VARIATION A



DESIGN VARIATION B

3.2 MARTINI CREEK ALIGNMENT ALTERNATIVE

The Martini Creek Alignment Alternative (1986 FEIS preferred alternative) is a new two-lane highway facility located inland of the existing highway (see Figure 3-4). It is approximately 7.2 km (4.5 miles) in length and includes an uphill climbing lane in each direction where grades are 6% or greater. Northbound on Route 1, this alternative begins at approximately 0.40 km (0.25 mile) north of Montara near the Chart House restaurant, where it proceeds inland at a northeasterly direction ascending the south side of Martini Creek and crossing it in a northerly direction. The alignment swings northwesterly past a proposed vista point, then northerly to skirt Green Valley, and continues to the summit of the San Pedro Mountain saddle. North of the summit, the alignment proceeds northwesterly along the flat portion of Shamrock Ranch, swings back in a northeasterly direction on the north side of the ranch, then proceeds northerly to join the existing Route 1 at Linda Mar Boulevard in Pacifica. Since grades exceed 6% on either side of the summit, the design includes climbing lanes for approximately 3.2 km (2 miles) in each direction. A slow vehicle lane is required to extend a short distance over the summit in both directions to allow slower vehicles to regain speed before merging into the single downhill lane. A non-paved vehicle recovery area is included in the downhill directions for safety reasons.

The Martini Creek Alignment Alternative, as identified in the 1986 FEIS, was selected in the FHWA 1986 Record of Decision. In September of 1986, approximately $47 million in special Federal emergency relief (ER) funds and $5 million in other funds were obligated when the Federal government approved the Plans, Specifications and Estimates (PS&E) for constructing the Martini Creek Alignment Alternative. Current cost estimates for the Martini Creek Alignment Alternative have increased due to inflation, upgrading of structures to current seismic standards and various design changes as discussed in the following section.

3.2.1 Changes in Design and Cost

Certain elements of the current project design have been modified to specifically avoid or minimize impacts to sensitive habitat and/or plant and animal species which were discovered as being present in the project area following the original proposal in 1986. Bridge structures have been extended to clear-span valuable riparian and wetland habitat at Martini Creek, Green Valley Creek, the Shamrock Ranch ponds, and San Pedro Creek. Cut and fill slopes have been modified to reduce disturbance to vegetation and thereby reduce siltation impacts both during construction and afterwards, during heavy winter rains. In addition, these design changes will lessen impacts to anadromous fish populations in San Pedro Creek.

Originally, this was a "balanced" project (i.e., the quantity of fill material would equal the cut material) whereby no excess material would have to be disposed of or imported. The extended bridge structures now reduce the need for fill material and result in a surplus of cut material. Rather than disposing of the excess material off-site, the profile of the Martini Creek Alignment Alternative has been increased by approximately 4.5 m (15 ft) along most of the alignment in order to keep the project balanced.

In 1996, Caltrans retained the services of an independent consulting firm, The National Constructor's Group, to prepare a separate analysis of the construction cost estimate for the Martini Creek alignment project. They determined that the project could be constructed for $91,617,000 (National Constructor's Group (NCG), 1996). This estimate did not include costs for state furnished materials, supplemental work, contract growth contingencies, right of way, and engineering costs. These items were expected to add an additional $17,000,000. The total estimate cost was about $108,917,000 for the 1996/1997 FY construction. With inflation, upgrading of structures to current seismic standards, lengthening of bridges over newly-determined wetlands and California red-legged frog habitat, and other environmental mitigation costs, the escalated cost for the 2003/2004 FY construction is expected to exceed $250,000,000.

In 1996, Caltrans also updated its previous Martini Creek Alignment Alternative construction cost estimate of $85,894,000 and included costs for engineering and right of way, for a total of $110,167,000 for the 1996/1997 FY construction. The escalated cost for the proposed 2003/2004 FY construction is expected to exceed $250,000,000. The increased costs, compared to the 1996 estimate, reflect inflation, upgrading of structures to current seismic standards, lengthening of bridges over newly-determined wetlands and California red-legged frog habitat, and other environmental mitigation costs.

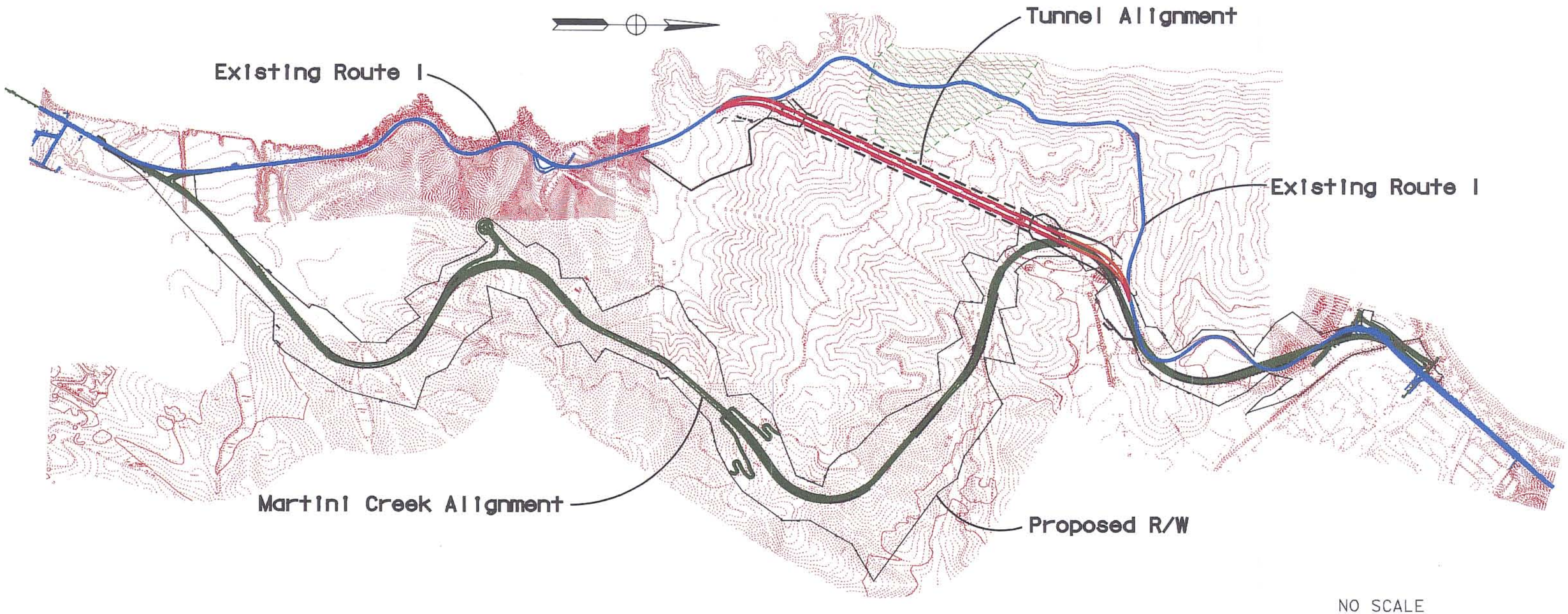
These 1996/1997 and 2003/2004 FY costs for the Martini Creek Alignment Alternative are comparable to the respective 1996/1997 and 2003/2004 FY costs for the tunnel project. As a result of current environmental constraints, the cost of the bridge structures connecting to the tunnel has increased significantly. Based on current environmental regulations and anticipated mitigation requirements, the cost increases for the eleven bridge structures included in the Martini Creek Alignment Alternative will likely be comparable or even greater than the cost increases for the tunnel project. This will result in a total increased cost comparable to the 2003/2004 cost for the tunnel alternative.

The Martini Creek Alignment required 18 parcels for right of way certification. There were 8 additional landlocked parcels to be acquired after construction. The $2.8 million ROW cost estimates match the ROW costs programmed in the 1995 TIP amendment.

Figure 3-4

Martini Creek Alignment Alternative

(Including Existing Route 1 and Tunnel Alternative for Reference)



NO SCALE

LEGEND:

- Existing Route 1
- Martini Creek Alignment
- Tunnel Alignment
- Landslide Limits (Devil's Slide)

Design File No.: 11273027

3.3 NO PROJECT ALTERNATIVE

The no project alternative, as described in the 1986 FEIS, consists of continuing with the general maintenance and repair of the existing alignment. The periodic slides and slipouts, resulting in road closures of various lengths of time, can be expected to continue. There is a high probability that a seismic event of sufficient magnitude will eventually occur and result in permanent closure of the existing roadway. This alternative does not meet the purpose and need of the project.

3.4 ALTERNATIVES CONSIDERED BUT WITHDRAWN

The alternatives which were considered but withdrawn from consideration as a viable alternative for the project include the Marine Disposal Alternative and a Slide De-watering proposal.

3.4.1. Marine Disposal Alternative

The 1986 FEIS included a discussion of alternatives evaluated but not selected. The "Existing Alignment Alternative" referred to what has been commonly known as the Marine Disposal Alternative (MDA), which involved realigning a 1,311 meter (4,300-foot) section of the highway at Devil's Slide approximately 76 m (250 ft) inland and uphill of the existing highway. The landslide would be stabilized by excavation of 14.5 million cubic yds of material to reduce and lessen the driving force on the slide plane. The material would be deposited into the ocean to serve as a buttress for the coastal slope supporting the roadway above. With this alternative, the highway would still be subject to the severe marine and geologic conditions unique to the Devil's Slide area. In 1986, the Marine Disposal Alternative was rejected primarily due to the additional cost and construction time (approx. $11 million and 1.8 years) involved when compared to the Martini Creek Alignment Alternative. Now, with the establishment and formal designation of the Monterey Bay National Marine Sanctuary in late 1992, the MDA would be inconsistent with federal laws that govern marine sanctuaries. In accordance with the regulations applicable to this Marine Sanctuary (15 C.F.R. Part 922, Subparts E and M), which is under the jurisdiction of the National Oceanic and Atmospheric Administration (NOAA), the MDA alternative would require prohibited activities related to this Sanctuary and almost certainly would not be eligible for a permit. Therefore, the MDA is no longer considered a reasonable alternative.

3.4.2. De-watering Alternative

Dr. John Hovland, a local engineer, had proposed (in 1997) that the existing highway could be preserved by an extensive effort to drain the active slide and the adjacent land mass. This effort, referred to as "de-watering," can be an effective means of increasing the stability of a slide mass but only under specific geological and hydro-geological conditions. Subsurface drainage efforts, such as passive horizontal drains, well points employing pumps, or a combination of these techniques, are dependent upon site specific conditions such as permeability of the geologic formations, connectivity and continuity of groundwater reservoirs, and the ability to intercept the groundwater with wells or drains.

Caltrans geologists had concerns about the potential success of a de-watering program at Devil's Slide based on information provided from previous drilling programs and de-watering efforts at Devil's Slide. It was the opinion of Caltrans Engineering and Geologic Staff that this de-watering proposal was not comparable to the certainty of the tunnel alternative in meeting the purpose and need of the project. However, there was insufficient data at that time to fully resolve the adequacy of de-watering as a permanent solution.

Senate Bill 45 (1997) provided a greater role for local agencies in the cost and scope of projects on the State Highway System. It also required extensive partnering with local agencies in the development of projects. In response to a group of constituents who strongly supported the de-watering proposal, the San Mateo County Board of Supervisors, in June of 1997, requested that Caltrans consider the de-watering proposal as a Devil's Slide project alternative. In response to this request and in conjunction with the Federal Highway Administration, it was determined that in the absence of conclusive cause for rejection, de-watering would be evaluated further as part of the environmental process.

Measure T, the countywide initiative passed in November of 1996, authorized the county to amend the Local Coastal Program (LCP) to require voter approval for "any alternative to the tunnel, except the repair or reconstruction of the existing road." De-watering is considered to be a repair of the existing road.

Following consultation between Caltrans geo-technical engineering staff from the District 4 Office and the Headquarters Engineering Services Center (ESC), a plan to further evaluate the de-watering proposal was developed. In November 1997, the ESC Roadway Geo-technical Engineering - North Section initiated a de-watering feasibility study to determine if de-watering Devil's Slide with deep wells was feasible as a long-term solution to the recurring slide movement within the most active portions of Devil's Slide. The major component of this effort was the installation of two test wells to provide a means to potentially improve roadway stability in anticipation of the projected wet "El Nino" winter. These wells were to also provide the data and information needed regarding the feasibility of using deep wells to de-water and stabilize this area in order to support and maintain a stable and permanent highway.

De-watering Feasibility Study

The study area for the de-watering feasibility study was western San Mateo County, 2.4 kilometers (1.5 miles) south of the City of Pacifica. Highway 1, at this location, traverses a west-facing coastal cliff and ranges between elevation 100 m (300 ft) and 137 m (450 ft) above sea level. The coastal bluff ranges in elevation from sea level to 274 m (900 ft) above mean sea level (MSL) and has an average slope angle of 45 degrees or greater. This section of highway has had a long history of landslides and roadway closures.

The history of landslides dates back in historic time to at least the 1906 San Francisco earthquake. This area is shown on an 1866 topographic map but geomorphic evidence suggests that landslide activity has been ongoing and a part of the normal coastal processes for thousands of years. The difficulties in maintaining a transportation system on this alignment are well documented and precede the construction of Route 1 in the 1930s. The Ocean Shore Railroad,

which began construction in 1905, was planned to run from San Francisco to Santa Cruz, California. It crossed Devil's Slide along its route and had a similar history of problems as has Route 1. The railroad project was eventually abandoned in 1921.

Landslide stabilization by removal of groundwater and reducing pore-water pressures has long been a mitigation measure given the right geologic and hydro-geologic conditions. Seepage, buoyancy, and hydrostatic forces act to increase the driving force or lower the restraining forces on the landslide, hence control of subsurface water can be of major importance. Drainage measures that are most often used for stabilization include one or a combination of the following: drainage blankets and trenches, horizontal drains, drainage wells, pumping wells, drainage galleries, and drainage tunnels. De-watering of a landslide as a measure of stabilization, applies to any slope where lowering the water table will increase slope stability. However, de-watering will not be effective in stabilizing a landslide mass if the material in the landslide has very low hydraulic conductivity.

Scope Of Work

The information in the feasibility study was based on review of the available geologic and hydro-geologic literature, existing files and reports on or nearby the study location, published and unpublished reports, topographic maps, logs of test borings, and a review of historic and contemporary stereo pair aerial photographs.

In early November of 1997, two production wells and four observation wells were drilled and constructed along the roadway bench on the east side of the roadway and near the two ends of the most active portion of the slide mass (see Figure 3-5). Both wells were more than 91 m (300 ft) deep and open to the formations for most of their lengths so as to intercept any groundwater flow between the elevation of the roadway and sea level. Four piezometers (instrument used to measure the pressure of a fluid) were installed, two near each well, to evaluate the drawdown and cone of influence characteristics of the well points. A 48-hour drawdown test was conducted whereby water was continuously pumped from the well points while water levels in the piezometers were recorded.

The observation wells were constructed with up to six nested piezometers that were isolated from each other and set at increasing depths within the boring. Following the construction and installation of the well system, a ground water pump test was conducted to determine the influence of pumping on ground water conditions within the study area.

General Geologic Setting

Montara Mountain and the Devil's Slide area are located within the California Coast Range Geomorphic Province, which consists of a series of northwesterly trending ridges and valleys formed by compressional tectonic forces.

The geologic units located within the study area consist of two separate rock units in unconformable fault contact. The oldest rock unit in the study area is the Cretaceous Montara Mountain granodiorite. Granodiorite is a coarse-grained plutonic rock consisting of quartz, plagioclase and potassium feldspar, biotite, hornblende, or, more rarely pyroxene. The term, granodiorate, applies to all rock intermediate in composition between granite and diorite. The Montara Mountain granodiorite is clearly exposed throughout the southern portion of the study area and the fault contact is thought to form the middle and lower southern edge of the active slide area. The granodiorite is in fault contact with the overlying Paleocene age unnamed sedimentary rock consisting of sandstone, shale, and conglomerate.

The sedimentary rock within the study area is steeply dipping, extremely folded, faulted, and further disturbed by repeated episodes of landslides. The sedimentary rock units exposed throughout the center and northern portions of the study area were the focus of the feasibility study; all active sliding is occurring within the sedimentary rocks. The fault separating these two units is described as an oblique fault that descends northwest across the cliff face, crosses through the study area between observation wells P-3 and P-4, and continues down the cliff face and offshore. Within the slide area, colluvium and shallow slide debris, both above and below the roadway have obscured much of the fault contact. This fault contact forms the southern boundary of the active slide area and is believed to play an important role in understanding slide activity in the area, both as a slide surface and as a possible area of subsurface water flow. The fault is considered inactive.

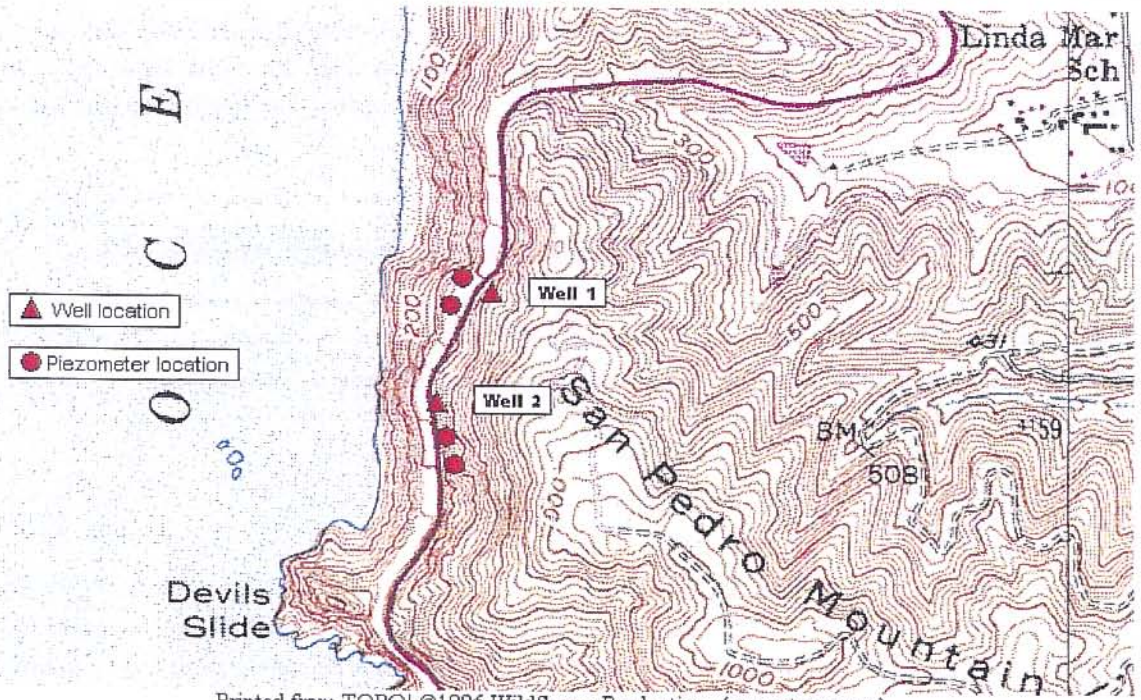
The study area is located within the seismically active San Francisco Bay Area and is within 48 kilometers (30 miles) of five large, active fault zones. These active fault zones all trend in a northwesterly direction and are designated as Alquist-Priolo Special Studies Zones by the California Division of Mines and Geology. These are the San Andreas, Seal Cove-San Gregorio, Hayward, Calaveras, and Rogers Creek fault zones. Due to their proximity to the study area it is anticipated that this area will experience strong ground motion during a maximum credible earthquake (MCE) on any of these fault zones. An MCE is the largest earthquake reasonably capable of occurring, based on current geological knowledge. The San Andreas fault is the most notable of these faults and is located 8 kilometers (5 miles) to the northeast. An earthquake on this fault system has the potential to cause the greatest damage to the Devil's Slide area due to very strong ground shaking.

Rainfall

Rainfall data for the duration of the de-watering feasibility study was based on information from the rainfall recording station in San Pedro Valley Park, located to the east of Devil's Slide. The rainfall year for this study was from July 1, 1997 to June 30, 1998. By May 1, 1998, there had been 59.62 inches of rainfall recorded at San Pedro Valley Park. Based on its geographic location and proximity

inches of rainfall recorded at San Pedro Valley Park. Based on its geographic location and proximity to the Devil's Slide area, in a slight rain shadow, it was estimated that at least 60 inches of rain must have fallen on Devil's Slide and Montara Mountain. Based on historic records, by the end of May 1998, the El Nino winter was the second wettest winter on record. Given that winter's heavy rainfall, any effects from rainfall should be evident in the groundwater data.

FIGURE 3-5: Well and Piezometer Location Map



Field Tests and Results

The following is a condensed summary of the field tests and the general results (see Table 3-1). For more specific or detailed information, please refer to the *Devil's Slide De-watering Feasibility Study*. After test wells and new observation wells were constructed and the groundwater table was stabilized, a short-term pump test was performed for each well (W-1 and W-2). The pump tests were conducted during the latter part of December 1997. During this period the wells were monitored for fluctuations in water level. Each pump test was conducted for a continuous 48 hour period followed by a recovery test of 5 hours. The purpose of these tests were to determine:

1. the rate at which water could be drawn from the subsurface, and
2. the effect pumping had on ground water in the surrounding area as measured in the observation wells.

TABLE 3-1: Short-term Pump Test Results

Well No	Average Pump Rate 48 hour test	Stabilized Pump Rate	Transmisivity (recharge)	Hydraulic Conductivity	Cone of Influence	Drop in Water Level
W-1	6.8 LPM (1.8 GPM)	1.9 LPM (0.5 GPM)	0.19 m ($0.63 ft^2$ /day)	2.2x10-5 cm/sec to 1.0x10-6 cm/sec	<14 meters (45 feet)	No measurable movement
W-2	1.7 LPM (0.45 GPM)	1.1 LPM (0.3 GPM)	0.11 m ($0.36 ft^2$ /day)	7.1x10-6 cm/sec	12 meters (39 feet)	No measurable movement

In addition to the four newly installed observation wells, two existing observation wells, which were installed in 1988 as part of the previous Marine Disposal Alternative (MDA) Study, were also used to collect subsurface water data. The monitoring wells consist of two drilled holes with as many as three nested piezometers in each hole. These wells are identified below in Table 3-2.

TABLE 3-2: Monitoring Wells (1988 MDA Study)

Well Number	Location	Groundwater Conditions
MDA/Pz-2	Southern edge of active slide mass 12 meters West of W-2	Groundwater conditions in the slide mass and the granodiorite
MDA/Pz-3	Northern edge of active slide mass 67 meters North Northwest of W-1	Groundwater conditions in sedimentary units

Long-Term Pumping System

The long term pumping system was installed and operational on February 11, 1998 and has been in continuous operation since that time. Review of the MDA Pz-2 and MDA Pz-3 groundwater data from 1988 to May 1998 indicated that there were fluctuations of up to 6 m (16 ft) and as little as 1 m (3.28 ft) in the piezometers.

The data suggest that the subsurface water remains within a given range and does not vary beyond that range regardless of the time of year or amount of rainfall. There were no large rises in ground water as a result of the winter rains, nor any significant drop due to natural draining of the slope. When charted on a graph, the data reflects gradual and continuous trends rather than distinctive changes or variations. An analysis of the data suggest that there was no short duration rise in ground water that may have activated the landslide just prior to and after the 1995 failure which resulted in the roadbed dropping approximately 1.5 m (5 ft).

The De-watering Study also considered the effects of the test wells on the stability of the roadway during the following winter when approximately 152 cm (60 inches) of rain fell. With the area of review estimated to be 18.6 hectares (46 acres), approximately 283,702 cubic m (230 acre-ft) of rain fell in the study area. Given a 30% infiltration rate, approximately 85,111 cubic m (69 acre-ft) of rainwater had infiltrated into the slide area that year. During the 64 days after pumping had begun, an average of 37,854 liters (10,000 gallons) of water per day had been removed for a total of 2,422,656 liters (640,000 gallons) or 2,418 cubic m (1.96 acre-ft). The

water removed by the pumps was calculated to be 2.89% of the water that had infiltrated the slide.

Due to the small amount of water removed from the system and the limited lateral influence on the active slide area, pumping produced negligible enhancement of roadway stability over the 1997/1998 winter. In addition, no significant increase in groundwater was noted in any of the observation wells that following winter, nor in the MDA sites since 1988. These conclusions indicate that the slide is not predominately driven by elevated groundwater conditions.

Without indications of elevated groundwater during the winter and spring months, de-watering of the slide mass at Devil's Slide is not likely to provide greater stability. The process of de-watering is designed to reduce hydrostatic pressure that develops in a subsurface environment as a result of heavy rains. However, if an increased hydrostatic pressure condition does not exist in the slide mass or the subsurface, then de-watering as the sole means of stabilizing a landslide is not likely to be successful.

Conclusions And Recommendations

The feasibility study confirmed that more water travels through the slide mass during heavy rainfall months as evidenced by the higher pumping rates and higher horizontal drain flow rates. However, the additional water had no apparent impact on the water levels within the slope. It appears that the additional water from heavy rainfall passes through the slide mass to the face of the cliff along the various bedding planes, fracture zones, or fault zones in an unconfined manner, like an open channel stream. The additional water in the subsurface applies seepage forces and additional weight to the slide mass that along with erosion at the toe of the slide may be the activation mechanism to sliding at Devil's Slide. However, elevated groundwater conditions in the winter months which act to reduce restraining forces and increase buoyancy of the slide mass do not exist and are not the critical driving force of slide movement at Devil's Slide. Given this condition, any attempted stabilization of Devil's slide will require extensive buttressing and erosion prevention at the toe of the slide and an extensive drainage system of de-watering wells and horizontal drains through the entire slide mass to manage and contain winter flows of groundwater.

Horizontal drains will also be needed to remove groundwater from the slide mass and will require extensive effort and expense to not only construct them but to also maintain them. The history of horizontal drains at the site has verified that they are very difficult to construct and to maintain in working order over time. In addition, there has been mixed success in removing groundwater from the slide mass. Horizontal drains have effectively removed water from the subsurface when constructed to an appropriate depth, but there is no clear, measurable indication that this results in lowering the water table within the slope. The data suggests that the horizontal drains are removing the water that infiltrates into and passes through the slide mass in an unconfined manner during heavy winter rains and that the flows begin to taper off as soon as the winter rains stop.

Any de-watering system attempted at this location will have been based on "risk design," which is design with unproven or questionable effectiveness. The conditions at Devil's Slide are not

conducive to meeting the basic criteria of de-watering, which is to get the water out of the slide mass and to keep it out as a means of stabilization. De-watering at that location should be considered only if no other alternative is available. In addition, it is anticipated that any de-watering system installed at the Devil's Slide is likely to be at least partially if not completely destroyed during future landslide events and will then require heavy maintenance costs and long road closures similar to what has occurred in the past. Past experience with shifting surfaces within the slide indicates that placement of an extensive de-watering system within the slide will be extremely expensive to maintain, if it could be maintained at all. Furthermore, it will be difficult to construct such an extensive de-watering system considering the topography, geology and accessibility of the area. This effort will likely result in adverse impacts to the environment and local traffic on existing Route 1.

It was recommended that the two existing wells continue to be pumped and monitored over the next year to obtain additional data during the summer and fall months.

The De-watering Feasibility Study concluded that the groundwater regime within the study area is complex, and de-watering will be extremely difficult. The slide mass has a low to very low hydraulic conductivity and removing groundwater from the slide mass is expected to be difficult and have limited lateral impact on the water table. This limited ability to remove groundwater from Devil's Slide supports the conclusion that de-watering this slide area is not feasible.

De-watering Devils Slide does not provide adequate assurance of long-term roadway stability, free of geologic and geo-technical hazards, which both the tunnel and bypass alternates do provide. Attempting to de-water Devil's Slide may or may not be a successful method for providing long-term stability for deep-seated slides. It is certain, however, that de-watering will not provide long-term stability for other existing hazards, such as the shallower slides, which resulted in lengthy road closures in the 1980's and in 1995. The continuing rockfalls and mass wasting of the bluff below the roadway, will eventually undermine the roadway bench. In addition, seismic stability was not addressed in the de-watering proposal. The steep unstable slopes above the road, and the precipitous slopes below it, are vulnerable to massive failure in the event of a nearby earthquake. This historic unstable condition was identified in the "Lawson Report" which stated that the entire Ocean Shore roadbed was swept away during the 1906 earthquake. (This report, The California Earthquake of April 18, 1906 - Report of the State Earthquake Investigation Commission, by Andrew C. Lawson, Chairman, was published in 1908 by the Carnegie Institution of Washington). The conditions of the existing slopes today are no safer or better able to withstand a similar seismic event than the slope conditions present back in 1906.

3.5 STATUS OF NEARBY PROJECTS

A slow vehicle lane and safety improvement project is proposed for Route 92 in San Mateo County between Route 35 South and Interstate 280. The draft of the final environmental document is currently under review and expected to be approved in early 2002 with construction scheduled for 2004. Construction of a similar project on Route 92 between Pilarcitos Creek and Route 35 South was completed in 2001. Together these two projects will provide a continuous slow vehicle lane on the steep uphill section of Route 92.

Construction for a project to widen Route 92 in Half Moon Bay between Highway 1 and the proposed Foothill Blvd. is expected to begin in the fall of 2002 and is to be administered by the City of Half Moon Bay. The San Mateo County Transportation Authority is sponsoring a proposal to straighten the tight radius curves and to widen the roadway to provide standard width lanes and shoulders on Route 92 between the proposed Foothill Blvd. and the Pilarcitos Creek Bridge. Preparation of the final environmental document for this proposal is in progress.

Construction of the San Pedro Creek Flood Control Project, sponsored by the Army Corps of Engineers (ACOE) and the City of Pacifica, has been initiated. State legislation conditionally authorized the transfer of a small portion of right of way, previously acquired for the Martini Creek Alignment alternative, to this flood control project. Sufficient right of way, however, has been retained for possible construction of the Martini Creek Alignment Alternative.

4.0 AFFECTED ENVIRONMENT

This section provides an overview of the physical and socioeconomic environments. To avoid duplication, descriptive details of the affected environment, are deferred to Section 5.0, which discusses the environmental consequences and mitigation measures.

4.1 PHYSICAL SETTING

The project area is located in the Santa Cruz Mountains, which are part of the Coast Ranges of California. Devil's Slide is a place name given to a steep, rocky coastal promontory located about midway between Montara and the Linda Mar District of Pacifica. Locally, however, Devil's Slide commonly refers to the entire stretch of rugged coastline extending north from the promontory to Point San Pedro.

San Pedro Mountain, which rises to over 305 m (1,000 ft) in elevation and is about a half mile inland from the ocean, backs Devil's Slide to the east and marks the northern end of the larger land mass known as Montara Mountain. The Montara Mountain range forms the high northwest trending ridge, which separates the San Mateo County coastline from San Francisco Bay.

The summit ridge of San Pedro Mountain trends west-northwest from Montara Mountain across the northern part of the proposed Martini Creek alignment. The terrain is characterized by steep eroding slopes with natural gradients ranging between thirty and seventy percent. Deeply incised gullies drain the ridges. An old, abandoned county road and several graded fire and utility maintenance roads, as well as trails, cross San Pedro Mountain.

McNee Ranch State Park is located southeast of the tunnel alignment and consists of two separate parcels. The westerly parcel is bounded on the north by San Pedro Mountain, on the south by Martini Creek, on the west by Route 1, and on the east by the Caltrans right-of-way for the Martini Creek alignment project. The easterly parcel is bounded on the north by San Pedro Mountain, on the east by San Pedro Valley County Regional Park and the San Francisco State Fish and Game Refuge, on the west by the Caltrans right-of-way, and on the south by private property.

The San Andreas Fault has been a major factor in the development of the topography and soils. Soils of the northern slopes of San Pedro Mountain are mostly developed on sedimentary rocks and consist of sandy loam and silt loam surface layers over silty clay and silty clay loam sub-soils. Boulders and cobbles derived from a conglomerate in the underlying geologic section are also present. Small coastal valleys occur throughout the length of the project along the major drainages within the Montara Mountain watershed. The soils in these valleys are deep and moderately well drained and have developed on low terraces and alluvial fans along the stream channels.

The climate of the project area is Mediterranean with a strong maritime influence, characterized by relatively warm winters with a short rainy season and relatively cool and dry summers. The maritime influence results in extended periods of coastal fog. Temperature ranges, both seasonally and diurnally, are narrow while air moisture remains relatively high. Wind is an important environmental factor on the exposed slopes of San Pedro and Montara Mountains.

Extremely dense northern coastal scrub covers most of the project vicinity, especially those portions over San Pedro Mountain and along the steeper foot slopes of Montara Mountain. This plant community is dominated by coastal sage (*Artemesia californica*) and coyote brush (*Baccharis pilularis*). Other common species include poison oak (*Toxicodendron diversilobum*), bush monkey flower (*Diplacus aurantiacus*), and California blackberry (*Rubus vitifolius*). Additional herbs include yarrow (*Achillea millefolium* v. *californica*), pearly everlasting (*Anaphalis margaritacea*), yerba buena (*Satureja douglasii*), coast figwort (*Scrophularia californica*), monardella (*Monardella villosa v. franciscanum*) and lizard tail (*Eriophyllum staechadifolium*). Small grassy openings and barren rocky areas are scattered throughout the scrub areas. The scrub extends westerly from the tunnel alignment to the cliffs above Devil's Slide, although coyote brush becomes less dominant nearer the coast. Poison oak and coastal sage dominate along the bluffs.

In addition to the northern coastal scrub community described above, the project area traverses other types of vegetation, both natural and introduced, including: aquatic sites and coastal freshwater marshes/seeps, willow riparian scrub, coastal grassland, non-native forest, and non-native brush. These are discussed in greater detail in Section 5.0.

4.2 SOCIOECONOMIC SETTING

The current socioeconomic setting has not significantly changed over what was described in the 1986 FEIS. Although the 2000 U.S. Census is the most current, at the time of this printing, the data has not been available and distributed. It is assumed that the 1990 data is still reflective of the area with only some minor modifications needed with regard to the population information. According to the 1990 data, the mid-coastal area population is about 20,000, which includes 8,890 people (44%) residing in the City of Half Moon Bay, and about 10,525 people (53%) living in the neighboring, unincorporated communities (U.S. Census Bureau, 1990). Section 5.14 of this document provides more detailed socioeconomic information.

5.0 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

This section describes the environmental consequences for the build alternatives and the no-project alternative. The discussion regarding each area of potential impact has been revised from what was presented in the 1986 FEIS to reflect the results of any new and updated information.

5.1 AESTHETICS

Setting

The following information supplements the 1986 *Aesthetics Setting* discussion by providing more detailed information regarding the Tunnel Alternative. The visual setting previously described in the 1986 FEIS for the Martini Creek Alignment Alternative still reflects the setting for this alternative.

The project area for the Tunnel Alternative is near State Route 1 in San Mateo County, approximately 3.2 km (two miles) south of Rockaway Beach and the town of Pacifica. It is two miles north of the community of Montara, and five miles north of the city of Half Moon Bay. State Route 1, along this section of the highway is eligible for designation as a State Scenic Highway (see Aesthetics discussion, page 71 of the 1986 FEIS for further information).

The tunnel alternative will traverse Shamrock Ranch, which is a local ranch operation offering grazing and boarding for horses and kennels for dogs. The tunnel bore is to be located through a portion of San Pedro Mountain in the Coast Range. The vegetation on the hillsides at the north and south portal is comprised of coastal scrub (*Ceanothus* sp., *Baccharis pilularis, Rhamnus* sp.), with concentrated patches of both native and exotic tree species widely dispersed through the coastal scrub. Tree species include coast live oak (*Quercus agrifolia*), Monterey pine (*Pinus radiata*), and *eucalyptus* ssp.

In the southbound direction, existing Route 1 approaches the northern end of the project area along an uphill grade adjacent to the hillsides and valleys of the Shamrock Ranch area, along the southeast side of the highway. The roadway grade continues through road cuts, eventually providing a vast, sweeping view of the Pacific Ocean. Existing Route 1 hugs the steep, rocky and barren hillsides and skirts by the coastal bluffs and hills interspersed along the highway. Route 1 continues south, with views broadening towards the southeast to the communities of Montara and Moss Beach, located at the base of the upsweeping Coast Range.

The northbound approach to the tunnel's south portal area is along a gradual upgrade and provides motorists along Route 1 with a transition from the residential neighborhoods and small commercial areas of Moss Beach and El Granada to the coastal scrub-covered hills and rocky coastal bluffs. The open area of Green Valley on the eastern side of the highway comes into view as the steep bluffs west of the highway drop to the ocean's edge where boulders and outlying rocks lie in the path of incoming waves, at times producing visible ocean sprays.

Impacts

Tunnel Alternative

Design Variation A and Design Variation B were analyzed in the Visual Assessment. Both design variations included two tunnel bores, each with a single lane of traffic in one direction and an outside shoulder and raised sidewalks for emergency and maintenance personnel access. The design variations differ in that Design Variation B has a wider cross-section to include a concrete barrier separating a bike lane from traffic and the outside shoulder. Design variation A will result in 724,076 cubic m (947,000 cubic yds) of excess material while design variation B will result in 763,071 cubic m (998,000 cubic yds) of excess material. The visual impacts at the North and South Portal Areas are similar in nature but somewhat more extensive under design variation B, due to the wider cross-sectional area and thus, the greater amount of fill material at the disposal site.

North Portal Area

The bridge structure, estimated to be 320 m (1,050 ft) in length, will span the small valley at Shamrock Ranch and connect the highway with the North Portal. The visual presence of the bridge will have a negative visual impact on this small valley, which currently enjoys minimal intrusions from development.

Trees and hillside vegetation will be cleared and grubbed for construction of the tunnel portal and the approach to the portal. The contrast between the cleared area and the chaparral-blanketed hillsides will result in a negative visual impact.

An access road and water tank on the hillside above the north portal will be visible in long range views and will result in a negative visual impact. The North Portal facade will be visible for a short duration to motorists and bicyclists.

The elements that comprise the North Portal, including the rock cut, tunnel portal, guardrails, and small structures will have a negative impact on the existing visual environment as viewed by motorists and bicyclists. The safety fence, proposed for the top of the rock cut, will also present a potential negative visual impact.

South Portal Area

A single location has been identified within the project limits, just south of the South Portal, for disposal of excavated material from the tunnel construction. The site, identified as the South Disposal Site, will undergo negative visual changes as a result of the placement of fill material in a coastal scrub-covered valley located close to the coastal bluffs. With Design Variation A, the disposal site will receive an estimated 674,076 cubic m (881,691 cubic yds) of excess material. The fill area will create a hill with 2:1 slopes, 180 m (590 ft) in diameter and reaching 90 m (295 ft) in height. Approximately 50,000 cubic m (65,400 cubic yds) may have to be disposed off site.

The Operations and Maintenance Center (OMC) will be located approximately 1,000 feet south of the south portal, on a portion of the disposal site for excavated material. Its location will be determined in conjunction with the design of final grading plans for the disposal site. Although it is intended that the site be graded so the building is shielded from view from Route 1, the building will still be visible from nearby hiking trails. The building will be a visually intrusive feature in a relatively undisturbed environment and thus result in a negative visual impact.

The South Portal facade will be visible from a short distance to motorists on the highway, and from much longer distances to those on boats on the ocean. There are no residents within the vicinity of the South Portal that will experience long exposure views of the South Portal.

A large rock cut at the South Portal Area is necessary to align the highway and to provide adequate sight distance and radius curve. A smaller rock cut is necessary at the top of the South Portal. The rock cuts will be visually prominent and will contrast with the vegetated hillsides.

The rock net fence, proposed at the base of the rock cut (to catch rock crumbling off the face of the rock cut), will also be a visually contrasting element. Other elements of the South Portal Area include drainage features, a turnaround area, and a guardrail.

Martini Creek Alignment Alternative

Potential visual impacts and proposed mitigation measures associated with the Martini Creek alignment alternative were addressed in the 1986 FEIS. The revised project proposal includes extending the lengths of certain bridge structures. This will reduce the quantities of cut and fill material identified in that document as well as the level of impacts.

Mitigation Measures

Tunnel Alternative

North Portal Area

The overall appearance of the bridge will have a negative visual impact on the Shamrock Ranch valley and the surrounding area. Mitigation for this visual impact will include consideration of aesthetics as an integral part of the bridge design. A well-designed bridge, which includes consideration of form, pattern, color, etc., as well as structural elements integrated with the natural surroundings, will mitigate the visual impact of the bridge. Standard monolithic concrete structures lacking form, pattern, or articulation will not provide adequate mitigation for this impact.

The proposed mitigation also includes a major re-vegetation effort. The re-vegetation strategy includes site-specific measures for erosion control and the collection, propagation, and planting of native plant species, as well as installation of automatic irrigation systems. Mitigation and monitoring measures include a plant establishment period of ten years.

Construction clearing and grubbing activities will have clearly defined limits. The negative visual impact from vegetation removal will be mitigated with re-vegetation. Over time, the successful establishment of trees, shrubs and other materials, is expected to provide a new land cover that will mitigate the visual impact of clearing and grubbing.

Mitigation for the impacts of construction of the access road and water tank includes screening of the water tank with vegetation. Preliminary studies identified gravel as the surface material for the access road. This is visually appropriate for the chaparral-covered hillside.

Mitigation for the potential negative visual impact of the North Portal facade includes the use of an architectural treatment for the tunnel portal in order to provide a cohesive, substantive design for the tunnel entrance that complements the environment. The architectural aesthetic treatment will provide the design theme for other built elements of the North Portal Area, and visual continuity of proposed facilities within the entire portal area will be included in project planning. Aesthetic treatment includes landscaping for a softening effect and transition of the built elements into the hillside.

The proposed safety fence will be designed to blend with the background. The choice of fence material will be carefully considered. Vinyl cladding or painting is recommended as mitigation if fabric fence is the chosen material.

South Portal Area

The proposed mitigation for the visual impact of the placement of fill material in the South Disposal Site will include contour grading of the fill to match the adjacent hillsides and the floor of the valley and re-vegetation with plants that blend with the surroundings.

The South Portal will present an aesthetically pleasing exterior that matches the North Portal's aesthetic treatment. Architectural surface treatment will be included in the project cost estimate. The final location of the south portal and adjoining retaining walls will be determined during the design phase of the project, after geo-technical testing.

The rock cuts required in this area will not be left with a machined or unnatural appearance. The faces of existing rock cuts in this area have a natural, uneven, coarse appearance consistent with natural rock faces. The faces of the new rock cuts will be made to match the appearance of existing rock cuts.

The Operations and Maintenance Center will be shielded from view of the highway through the use of earthen berms and small-scale screen plantings.

The proposed safety fence will be epoxy-coated to reduce corrosion. An appropriate color for the epoxy coating will be specified to help blend the fence with its surroundings and to mitigate for its unnatural appearance.

Mitigation measures for the proposed drainage features, turnaround area, and guardrail facilities include the consideration of these elements as a whole, and to present a comprehensive, unified

design effort for the South Portal Area. Architectural treatments, surface treatments, scale, and positioning of features will be included in the design, along with functional considerations, in order to reduce visual impacts.

Martini Creek Alignment Alternative

It is expected that the extensive re-vegetation effort described as mitigation for the original Martini Creek Alignment alternative will still be necessary to reduce any potential impacts.

The original proposal was considered a balanced project, which meant that essentially all of the 6.2 million cubic yds of excavated material generated with this alternative would be used as fill in certain areas, including the Green Valley Area.

Under the current, revised proposal for the Martini Creek Alignment alternative, bridge structures will be lengthened. This substantially reduces the amount of fill material needed in the Green Valley area and potentially creates an excess of approximately 3 million cubic yds of excavated material. To address this issue, it is proposed that the 1.6 million cubic yds of excess material (that would have been used as fill in the Green Valley Area) be placed instead on the embankment supporting the new roadway. This raises the profile (height) of the roadway by approximately 15 ft along most of the alignment. This higher roadway profile however, reduces the amount of material that must be excavated in cut areas in order to construct the road. The reduction is approximately 1.5 million cubic yds. Together, the reduced amount of excavated material (1.5 million cubic yds) and use of excess material on the roadway embankment (1.6 million cubic yds) accounts for the 3 million cubic yds of material no longer needed as fill in the Green Valley Area. In terms of visual impacts associated with the revised Martini Creek alignment alternative, design changes such as the use of longer bridge structures, the reduction of fill in the Green Valley Area, the increase in roadway profile, and reduction of cuts will not result in any additional adverse visual changes.

5.2 AIR QUALITY

Setting

Air pollution in the Bay Area has been determined to be a serious health problem by the Environmental Protection Agency (EPA), the California Air Resources Board (ARB), and the Bay Area Air Quality Management District (BAAQMD). Since a major share of this pollution is caused by motor vehicles, Caltrans addresses the impact of highway projects on air quality in accordance with the following: the Clean Air Act and its amendments, the EPA Final Rule [Federal Register: August 15, 1997 (Volume 62, Number 158)], NEPA, and CEQA.

This project is included in the current 1998 Regional Transportation Plan (RTP), adopted by MTC on Oct. 28, 1998, and the current 2001 Transportation Improvement Program (TIP), adopted by MTC on September 27, 2000 and approved jointly by Caltrans, FHWA and FTA on October 6, 2000. The project is identified in the current TIP as SM-979013 01-20 with the following description: *(Devil's Slide Bypass) Between Second Street in Montara and Linda Mar Boulevard in Pacifica in San Mateo County - Construct new bypass with tunnel(s) and approaches.* All projects in the TIP must be derived from or consistent with the long-range transportation plan for the Bay Area (i.e., the RTP). Under federal law and regulations, the TIP must be analyzed by MTC to determine if it complies, or "conforms," with the Bay Area's approved Air Quality Plan (also referred to as the State Implementation Plan, or SIP) and with federal air quality regulations. The TIP conformity analysis was approved by the MTC in September of 2000.

Federal Standards

The project area is in attainment for all criteria pollutants except ozone. Because of exceedances of the one-hour ozone standard in 1995 and 1996, the Bay Area's status changed from an ozone attainment area to an ozone non-attainment area. This change was announced in the Federal Register on July 10, 1998 (63 Fed. Reg. 37258-37280) and became effective August 10, 1998.

State Standards

The California Air Resources Board (CARB) coordinates and oversees the activities of California's many local air quality agencies and is also responsible for incorporating local non-attainment plans into the SIP. The CARB has established state ambient air quality standards, many of which are more stringent than federal standards. See Table 5.1 for a comparison of state and federal standards for criteria pollutants. The CARB and the local air quality agencies operate a number of air quality monitoring stations throughout the state and the data collected at these stations are used by CARB to classify areas and air basins as attainment or non-attainment for each criteria air pollutant. This classification is based on achievement of the federal and state standards.

The California Legislature passed the California Clean Air Act in 1988. Effective beginning January 1, 1989, this legislation provided a planning framework for attainment of California Air Quality Standards. Local air quality agencies in violation of state ambient air quality standards are required to prepare plans for attaining the state standards.

The San Francisco Bay Area has been classified as a state non-attainment area for ozone. The Bay Area 1994 Clean Air Plan included a comprehensive strategy to reduce ground-level ozone in the Bay Area. After being updated, this became the Bay Area 1997 Clean Air Plan which includes changes in the organization and scheduling of some of the control measures originally in the 1994 Clean Air Plan. It includes new stationary and mobile source control measures as well as new transportation control measures to reduce motor vehicle use.

The Bay Area is also considered non-attainment for state PM-10 ambient air quality standards. However, there are no attainment programs required for PM-10 at this time. The Legislature, when it passed the California Clean Air Act, recognized that PM-10 attainment could not be easily achieved but it did require CARB to report on the prospect of achieving state ambient air quality standard for PM-10. The CARB recommended certain actions but did not impose a planning process to require attainment by any certain date.

The following are the relevant criteria pollutants and a brief discussion of each:

Carbon Monoxide

Carbon Monoxide (CO) is a colorless, odorless, and poisonous gas produced by the incomplete burning of carbon in fuels. It is almost exclusively emitted by motor vehicles. This pollutant binds the oxygen-carrying protein in blood to hemoglobin, reducing the amount of the oxygen reaching the heart and brain. Exposure to CO, even at low levels, can endanger people with coronary artery disease. It can also cause headaches, fatigue, and slow reflexes, even among healthy people.

Ozone

Ozone (O_3) is the primary constituent of photochemical smog. It is not emitted directly into the atmosphere, but is formed through a complex series of chemical reactions involving hydro-carbons (HC) and oxides of nitrogen (NO_x) in the presence of sunlight. Vehicle exhaust emissions contribute slightly less than half of the pollutants that form ozone. High ozone levels occur primarily in the summer and early fall. The Federal standard for ozone is .12 part per million (ppm) for one hour. The State standard is .09 ppm for one hour. High ozone levels aggravate asthma, bronchitis, and other respiratory ailments, as well as cardiovascular disease. High concentrations of ozone may also cause dizziness, headaches, burning of eyes and throat, and nausea.

Small Particulates (PM-10)

PM-10 is the term used to describe the small particles, of any composition and origin, with nominal sizes of 10 micrometers or less. Such particles are so small and fine, that individually, they are not visible but are, however, a health threat because they penetrate deep into the lungs during breathing and lodge there. (Large particles, by contrast, are filtered out in the upper respiratory passages, or are cleared by coughing, sneezing, etc.) PM-10 standards are 150 micrograms/cubic meter for the 24-hour average and 50 micrograms/cubic meter for the annual average.

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is a brownish, highly reactive gas present in all urban atmospheres. It can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections. Nitrogen oxides are an important precursor both to ozone (O3) and acid rain, and may affect both terrestrial and aquatic ecosystems. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant, nitric oxide (NO). NOx plays a major role, together with volatile organic compounds (VOC), in the atmospheric reactions that produce O3. NOx forms when fuel is burned at high temperatures. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

Impacts

Current methodologies for calculating ambient air quality have changed since air quality studies were conducted for the approved 1986 FEIS. Air quality calculations now include a "roll back" factor which is the ratio of expected future year emissions to the estimated base year emissions. Computer programs, which estimate vehicle emissions in order to predict pollution concentrations adjacent to the roadway, have also been revised since project air quality calculations were performed for the 1986 FEIS. Based on the current emission factors, projections of pollution for the year 2010 are lower than those derived from previous calculations using the former emission factors.

In the 1986 FEIS, it was determined that air quality standards for carbon monoxide would not be exceeded for the design year for any of the alternatives. Although air quality regulations and measurement methodologies have been revised since 1986, the Martini Creek alignment alternative has not essentially changed. The tunnel alternative does not add any additional capacity beyond that of the Martini Creek alignment alternative and since neither build alternative increases roadway capacity nor moves the roadway closer to any receptors, there will be no violation of State or Federal CO standards.

According to the tunnel feasibility study (Woodward-Clyde Consultants, 1997), the ventilation requirements for the tunnel were based on acceptable levels of pollution in the tunnels during

normal or congested traffic operation. The minimum air quality requirements are based on an approved computer-generated estimate of carbon monoxide (CO) emissions as well as maximum CO concentrations within tunnels as established by EPA and FHWA. The allowable CO concentrations and exposure times are:

- Maximum 120 ppm for 15 minute exposure time
- Maximum 65 ppm for 30 minute exposure time
- Maximum 45 ppm for 45 minute exposure time
- Maximum 35 ppm for 60 minute exposure time

The feasibility study recommended the use of jet fans for ventilation in double bore tunnels. A jet fan unit is an axial fan with a direct drive motor to deliver a wide range of thrust capabilities in both the forward and reverse direction. The jet fan system will force air to the downstream (direction of traffic) portal and out of the tunnel, while introducing fresh air into the tunnel at the upstream end. A design option without pedestrian/bicycle access would allow the higher 120 ppm CO limit. However, since the design option does not preclude pedestrian/bicycle access, a more restrictive 65 ppm CO limit will be used for the tunnel ventilation design.

There are no established EPA or FHWA requirements with regard to tunnel ventilation and potential tunnel air quality impacts to bicyclists. It is anticipated that adverse conditions will be infrequent if at all.

With regard to construction-related impacts, either build alternative will generate air pollutants during the construction stages. The exhaust and odors from trucks and other construction equipment will contain hydrocarbons, Nitrogen Dioxide, carbon monoxide, and particulates, especially PM-10's. The largest percentage will be windblown dust generated by excavation, grading, hauling, and various other activities. The impacts from the above activities will vary from day to day as construction progresses.

Mitigation Measures

Caltrans will incorporate the lower 65 ppm CO limit and the recommended ventilation systems to provide acceptable air quality conditions for bicyclists. The proposed tunnel design will also include a "real time" air quality monitoring system that includes variable message signs to advise bicyclists if unacceptable air quality conditions exist in the tunnel.

To reduce dust generated by construction, hauling, and grading, as well as other activities that might generate dust, Caltrans construction specifications for dust control will include standard emission controls on construction vehicles, and sufficient watering of the area to accompany such activities. This watering will be included in the contract provisions for this project and will effectively mitigate most particulate air quality impacts for the build alternatives.

Table 5.1

State and Federal Air Quality Standards

		California Standards		National Standards	
Criteria Pollutant	**Averaging Time**	**Concentration**	**Bay Area Attainment Status**	**Concentration**	**Bay Area Attainment Status**
Ozone (O_3)	1-hour	0.09 ppm (180 ug/m3)	Non-attainment	0.12 ppm (235 ug/m3)	Non-attainment
Carbon Monoxide (CO)	1-hour	9.0 ppm (10 mg/m3)	Attainment	9 ppm (10 mg/m3)	Attainment
	8-hour	20.0 ppm (23 mg/m3)	Attainment	35 ppm (40 mg/m3)	Attainment
Nitrogen Dioxide (NO_2)	Annual Average	Not applicable	Not applicable	0.053 ppm (100 ug/m3)	Attainment
	1-hour	0.25 ppm (470 ug/m3)	Attainment	Not applicable	Not applicable
Suspended Particulate Matter (PM-10)	Annual Arithmetic Mean	Not applicable	Not applicable	50 ug/m3	Attainment
	Annual Geometric Mean	30 ug/m3	Non-attainment	Not applicable	Not applicable
	24-hour	50 ug/m3	Non-attainment	150 ug/m3	Unclassified

5.3 CONSTRUCTION

Setting

The project is located in an area of steep and rugged terrain where extensive grading will be required for each of the build alternatives. The major components of the tunnel construction are the north and south portals, the south disposal area, and the tunnel bore. See Figure 5-0.1. Other elements of the tunnel project include the bridge approach structures, temporary construction access roads to the bridge piers and to the north portal area, a haul road for transporting excess material from the south portal area to the south disposal area, the north and south roadway approaches, the south disposal site, the operations and maintenance building, and a water supply tank and access road.

A specific construction plan will be developed during the final design stage to establish the limits for the various construction phases and construction contracts. This plan will be updated to reflect the final design and to allow for possible changes in the construction sequencing.

Construction Sequencing

A preliminary construction sequence has been developed which identifies the components of the construction, the various associated activities, and the order in which they are to occur. See Appendix E for detailed information.

A practical sequence for construction of the 1220 meter (4,000 ft) double-bore tunnel is to construct the bores simultaneously beginning at the south end, since it is closer to the south disposal area designated for placement of the excavated material. The tunnel and the bridge construction will be staged simultaneously. Construction of the bridge is anticipated to take approximately two years and will be completed prior to construction of the tunnel, which is expected to take approximately three years. This will allow construction of the north portal to be completed before the tunnel "daylights" (breaks through) at the north side. Then, if necessary, excess material could also be transported out over the new bridges to Route 1 and south to the disposal site.

Stage One

The temporary construction access roads at Shamrock Ranch (see Figure 5-0.2), as well as the separate construction haul road to remove material from the tunnel excavation at the south end to the south disposal area, will be the first orders of work. The haul road will be located east of and adjacent to existing Route 1 near the south portal area. The separate haul road and the staging sequence will minimize the impact of transporting material through Shamrock Ranch.

The south rock cut, construction of the north roadway approach, and the drilling and construction of the bridge foundation are also included in Stage One. Concurrently, the south disposal site will be cleared and grubbed and the foundation prepared to receive the excavated materials. The

placement of fill material into the south disposal site will be continuous, as needed, through Stage Four.

Stage Two

Stage Two involves construction of the bridge substructure and superstructure, the south roadway approaches, and the south portal. The previously referenced temporary construction access road will provide access to the Shamrock Ranch valley where four piers are to be constructed to support the bridge structures. Considering the environmental sensitivity of the area, a large diameter drilled shaft foundation has been chosen due to its smaller footprint and lesser potential for permanent impacts to the environment. A segmental balanced cantilever approach will be used to construct the bridge superstructure. This technique eliminates the need for ground supported falsework for the support columns located in sensitive areas. Short segments of the roadway will be constructed simultaneously in both directions from these support columns to maintain balance. Previously constructed sections will then provide the falsework support for construction of each new segment of roadway.

The location of the roadway approaches at the south portal area was selected to take advantage of a wide area east of the existing Route 1. The "conform" to the existing highway occurs on a tangent section with Route 1. The curve radius necessary for the roadway will require additional cutting into the existing cut slope on the east side of the highway.

The south portal is located between existing Route 1 and a small drainage channel to the east. Special treatment, such as steeper slope inclinations and supported excavations will likely be required to avoid or minimize impacts to the stream channel.

Stage Three

Construction of the two bores will occur simultaneously beginning at the south end of the tunnel utilizing a drill and blast mining method for the excavation and the use of rock dowels, spiles, and shotcrete for support and stabilization. Construction techniques will depend upon soil conditions, rock types, ground water hydrology, type of tunneling equipment, and rate of tunnel advancement. The excavation process will involve drilling, blasting, ventilation, "mucking" or the removal of spoils, and the installation of internal support. This will generate approximately 260,000 cubic m (338,000 cubic yds) of excavated material, which will be hauled by trucks to the south disposal site.

Stage Four

This fourth and final stage includes construction of the north portal, the on-site water supply tank, and the tunnel Operations and Maintenance Center (OMC). An on-site water supply tank with a capacity of 132,500 liters (35,000 gallons) will be constructed uphill from the north end of the tunnel. The tank will be approximately 7.9 m (26 ft) in height, with a diameter of 2.7 m (9 ft), and will be approximately 76 m (250 ft) above the elevation of the tunnel invert at the north excavation. There will also be a gravel access road to the tank location from Route 1.

After the fill materials have been placed and the disposal site contoured graded, the foundation pad for the OMC will be prepared for construction of the OMC, which is to be located approximately 549 m (1800 ft) south of the south portal. After completion of the building construction, the parking area will be paved.

Impacts

Activities such as phased clearing, grubbing, construction of the access roads, and construction in general, will typically result in increased levels of truck traffic, noise, dust, and visual impacts.

Temporary traffic impacts can be expected, particularly at the Route 1 and San Pedro Terrace Road intersection where construction related traffic will be headed to and from the Shamrock Ranch entrance area, located off San Pedro Terrace Road. Construction of the access road to the water tank will result in some cuts and fill for the roadway and the clearing of the existing vegetation from the access road alignment.

Temporary noise impacts will occur from pile driving, blasting, and general construction activities. Construction activities also typically result in the generation of substantial quantities of dust.

As noted in the preceding Aesthetics section, construction clearing and grubbing activities will result in visual impacts from the lost of existing vegetation. Construction operations within view of the public and the presence of construction equipment and vehicles in an undisturbed natural area are visual impacts.

Mitigation Measures

Most construction workers typically arrive at and depart from the work site during non-peak traffic period. Truck trips will generally be restricted to off peak hours at critical locations such as the Route 1 and San Pedro Terrace Road intersection. Public notices and the posting of roadways signs will be implemented to alert the public of any temporary road closures, lane reductions, or other construction scenarios which may affect traffic. No long-term traffic impacts are expected.

Noise suppression devices will be employed on equipment and vehicles and the use of enclosures will be considered if feasible or necessary in certain situations. Construction activities will be limited at locations where there may be sensitive receptors and where night work can be avoided. Standard construction methodologies and dust control measures will be implemented.

Re-vegetation and the provision of a new land cover will mitigate the visual impacts of clearing and grubbing activities. Where possible, construction staging areas will be located in less visible areas. Most construction impacts are unavoidable, however, they will be temporary during the course of the three-year construction period and wherever possible, every effort will be made to minimize the impacts.

Figure 5-0.3

Key For Jurisdictional Maps

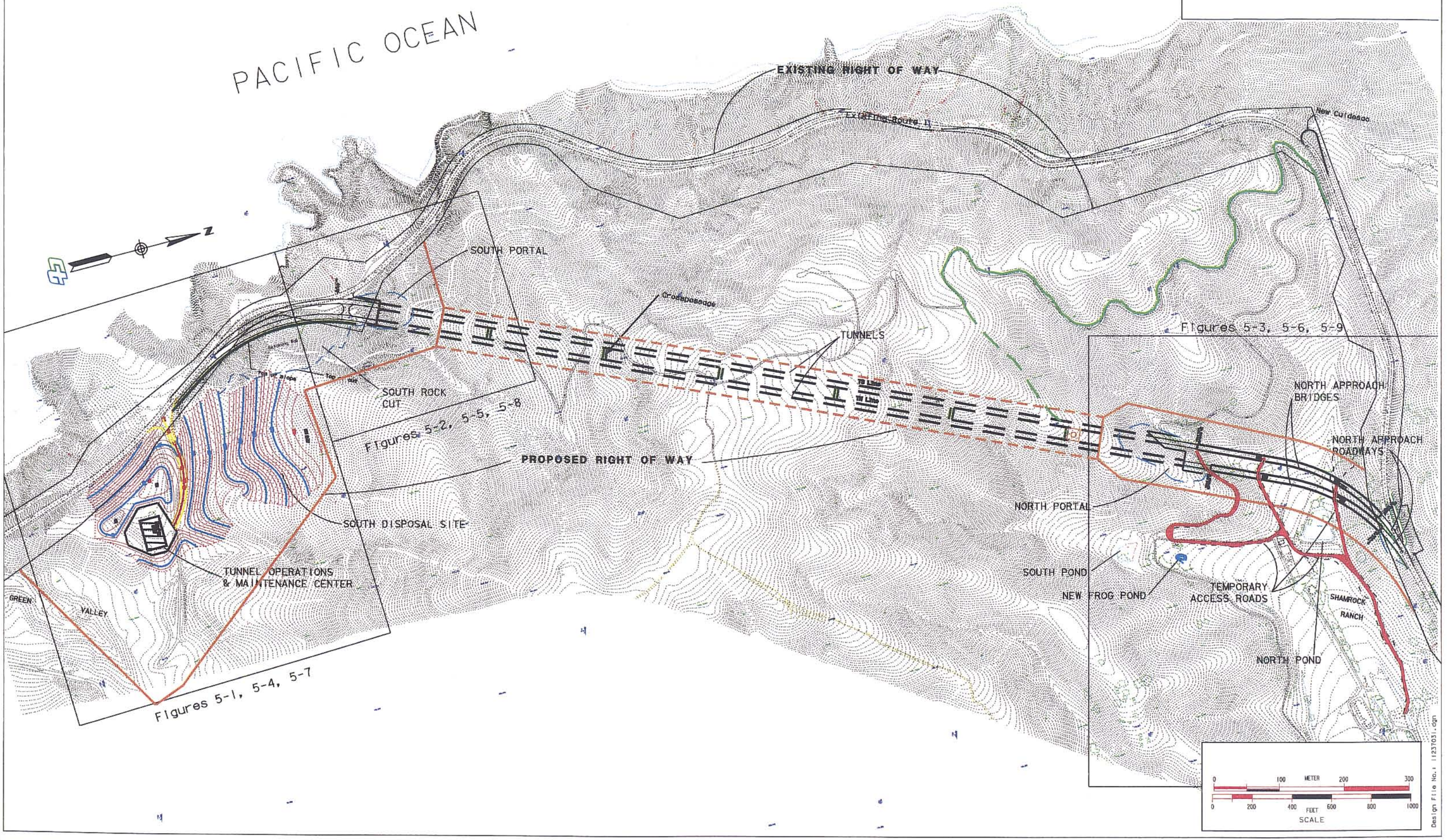


Figure 5-0.2

TEMPORARY CONSTRUCTION ACCESS ROAD
NORTH PORTAL AND APPROACHES

EXISTING ROUTE 1

TO PACIFICA

NORTH POND

SHAMROCK RANCH

NORTH PORTAL

NEW POND

SOUTH POND

N

LEGEND:

- ACCESS ROAD
- TEMPORARY CULVERT FOR CONSTRUCTION
- FROG EXCLUSION FENCE
- ESA/PLASTIC FENCE
- ESA SEDIMENT/FROG BARRIER FENCE
- COE JURISDICTIONAL

SCALE: NONE

Design File No. 1 11237028.dgn

5.4 CONSISTENCY WITH LOCAL AND REGIONAL PLANS

Regional Plans

The California Coastal Commission (CCC) reviews federal assistance activities within or affecting the coastal zone to make a determination regarding consistency with the Coastal Zone Management Program (CZMP). Coastal development permits are issued by the County of San Mateo under the Local Coastal Program (LCP), and the standard of review for this permit is consistency of the project with the certified LCP and the public access polices of the Coastal Act.

The Consistency Certification submitted to the Coastal Commission is reviewed and acted upon by the Commission following preparation of a staff report, public notice, and a public hearing. The Commission is then required to act on the consistency certification within 6 months. The certification is based on an evaluation of the relevant provisions of the California Coastal Management Plan (CCMP), and must include a detailed description of the proposed activity, its associated facilities, and their combined coastal effects.

A consistency certification was submitted to the California Coastal Commission for the proposed project, and on October 10, 2000 the Commission determined that the preferred alternative was consistent with the California Coastal Act. A copy of the certification is included in Appendix I.

The Metropolitan Transportation Commission (MTC) establishes regional transportation policies for the Bay Area. The 1998 Regional Transportation Plan (RTP) includes a Devil's Slide tunnel as a project within San Mateo County (MTC, 1998) and also identifies emergency relief funding and funds originally earmarked for the Martini Creek alignment alternative as potential funding sources for a tunnel project.

Local Plans

In November of 1996, the voters of San Mateo County passed the Devil's Slide Tunnel Initiative known as Measure T. This initiated the process to amend the Land Use Plan portion of the San Mateo County certified LCP, to provide "a tunnel for motorized vehicles only behind Devil's Slide through San Pedro Mountain" as the County's preferred alternative for Highway 1 around Devil's Slide, and to delete references to a two-lane bypass along the Martini Creek alignment.

The Initiative requires that the tunnel be designed consistent with the Coastal Act limits restricting Route 1 to a two-lane scenic highway using minimum Federal and State tunnel standards, and that a separate trail for pedestrians and bicycles be provided outside the tunnel. The Measure also requires voter approval of any other alternative to the tunnel, except repair of the existing highway. In January of 1997, the California Coastal Commission voted to certify the LCP amendment as submitted by the County.

5.5 CULTURAL RESOURCES

Setting

The project setting remains unchanged from that described in the 1986 FEIS with regard to the Martini Creek alignment with one exception. See Section 4.1 for a more detailed discussion of the environmental setting. An archaeological site was identified in the Supplemental HPSR prepared in 2000 for the revised Martini Creek Alignment Alternative. (See next page).

Historic Properties

Section 106 of the National Historic Preservation Act and its implementing regulations Title 36, Code of Federal Regulations (CFR), Section 800 require federal agencies to take into account the effect of their undertakings on historic properties. Historic properties are historic architectural or archaeological resources, which meet the criteria for listing on the National Register of Historic Places.

A previous historic property survey of the Martini Creek alignment alternative was described in the 1984 Historic Properties Survey Report (HPSR), and a report of negative findings was submitted and cited in the 1986 FEIS. An HPSR summarizes the results of the Historic Architecture Survey Report (HASR) and the Archaeological Survey Report (ASR). An additional archaeological survey was conducted in October 1997 (Archaeological Survey Report 1998) at the locations of the proposed tunnel alignment portals, and at an excess soil disposal site located at the south portal. The SHPO concurred with the report's conclusion that no archeological resources were located within the APE for the Tunnel Alternative.

Eleven prehistoric sites have been recorded within 1 mile of the Route 1 right of way between PM 34.0 and 41.0 (KP 54.7-60.0). There are no previously recorded historic architectural or archaeological sites within the Area of Potential Affect (APE) of the proposed tunnel portal locations and excess soil disposal site. The 1998 archaeological survey and the 2000 historic architectural and archaeological surveys did not find any new resources. The State Historic Preservation Officer (SHPO) concurred that no historic properties were located within the APE for either alternative. In the fall of 2000, the U.S. Army Corps of Engineers (ACOE), in a separate undertaking, the San Pedro Creek Flood Control Project, (see Section 3.5 Status of Nearby Projects), identified an archeological site within the 1984 Martini Creek Alignment. The site, which had been previously unrecognizable because of vegetation and a recycling operation, was determined eligible for the National Register in consultation with SHPO. Therefore, the only National Register-eligible property is within the project APE for the Martini Creek Alignment Alternative.

Impacts

Tunnel Alternative

Surveys conducted in 1998 and 2000, for the area of potential effect (APE) beyond the 1984 APE, confirmed that no significant historic architectural or archaeological resources, which are listed on or eligible for inclusion on the National Register, will be affected by this alternative. The SHPO was consulted and concurred with these findings.

Martini Creek Alignment Alternative

The cultural resources investigations for the 1986 FEIS concluded that there is no evidence of historic architectural or archaeological resources that meet the National Register of Historic Places criteria within the APE for the Martini Creek Alignment Alternative. The SHPO was consulted and concurred with these findings. Although the revised Martini Creek Alignment Alternative includes extended structures (i.e. bridges) on essentially the same alignment, some areas of potential impact by the revised Martini Creek Alignment Alternative appear to extend outside of the 1984 APE. Therefore, a revised APE map was prepared and additional historic architectural and archaeological surveys were conducted in October 2000 for those few areas outside of the 1984 APE.

Of the 32 properties evaluated in the 1984 Historic Architecture Survey Report (HASR), none were determined to be eligible for National Register listing. Similarly, the series of roads and trails in the vicinity of the proposed Martini Creek Alignment Alternative were determined to lack the proper integrity and significance to be eligible for listing on the National Register. These include the Native American Trail, the Portola Trail, the Ocean Shore Railroad alignment, the Colma Road, and the Coastside Boulevard. The SHPO concurred with these findings. One National Register eligible property, CA-SMA-163, was acknowledged in the October 2000 supplemental surveys as having been recently identified by an ACOE survey in the area of potential effect for the Martini Creek Alignment Alternative. The SHPO was again consulted and concurred with these identification efforts. Except for CA-SMA-163, no significant historic architectural or archeological resources (historic property) would have a potential to be affected by the Martini Creek Alignment Alternative. In the unlikely event that the Martini Creek Alignment alternative was to be chosen, SHPO will be consulted regarding the potential to affect CA-SMA-163.

Mitigation Measures

No mitigation is proposed at this time. If the Martini Creek Alignment alternative were to affect CA-SMA-163, consultation with SHPO will determine appropriate mitigation. If previously unknown cultural resources are encountered during project construction, all work in the vicinity of the find must temporarily halt until a qualified Caltrans archeologist has evaluated the site and determined appropriate mitigation measures.

5.6 FARMLANDS

Setting

As was described earlier in this document, the terrain throughout the proposed tunnel project area is characterized by steep, eroded slopes with natural gradients ranging between 30% and 70% with dense northern coastal scrub covering most of the project area. Please see previous Environmental Setting discussions in this report (especially section 4.1) and the Farmland Setting section in the 1986 FEIS for more detailed information.

Impacts

No prime farmland will be removed from production as a result of the proposed tunnel alternative. The Martini Creek alignment alternative will permanently remove 4.2 ha (10.4 acres) of prime farmland from production.

The impacts and mitigation measures identified in the 1986 FEIS for the Martini Creek alignment alternative are still applicable. While the southerly portion of the revised project includes a slight shift in alignment to the north (to avoid impacts to wetlands and Hickman's Cinquefoil, an endangered plant species), this change will not reduce the impacts to prime farmland as identified in the previous document.

Mitigation Measures

No mitigation measures are proposed for the tunnel alternative. Mitigation for the Martini Creek alignment alternative is discussed in the 1986 FEIS (pp. 92-93).

5.7 FOG

Setting

Extended periods of coastal fog are quite common along the northern California coast, primarily during the summer months, and tend to be heaviest during the morning hours of those months.

Impacts

Information in the 1986 FEIS shows that the higher elevations along the coast in the Devil's Slide area are more affected by fog than the lower elevations. The areas where reductions in sight distances occur due to fog are usually at elevations above 198 m (650 ft). The north and south entrances of the proposed tunnel are at approximate elevation 107 m (350 ft) and 91 m (300 ft), respectively. With the tunnel bore inside the mountain where it is less exposed to fog, potential visibility problems are not expected to occur.

The impacts and mitigation measures identified in the 1986 FEIS (pp. 95-97) for the Martini Creek alignment alternative still apply to the revised project alternative. The maximum elevation for the Martini Creek Alignment alternative is approximately 222 m (730 ft). Based on the assumption that there is a linear increase of 5.5% fog occurrence per 30.4 m (100 Ft) rise in elevation, the Martini Creek Alignment alternative will likely be affected by fog more frequently and for longer duration than the tunnel alternative.

Mitigation Measures

Exterior night lighting at the tunnel approaches will be provided to improve visibility. The entire lighting system will be computer controlled and have an uninterruptable power supply.

5.8 GEOLOGY

Setting

The proposed tunnel project area is located along the western edge of the Coast Ranges geomorphic province of California. This province is characterized by a general northwest trending structural grain (mountains, valleys, regional faults), and the existence of two entirely different core complexes existing side-by-side (the Jurassic-Cretaceous Franciscan sedimentary rocks, and the Jurassic to Cretaceous granitic rocks).

In many locations, including the project site, the sedimentary and granitic core complex rocks are overlain by later Cretaceous to Cenozoic clastic sedimentary rocks. Unconformable sedimentary contacts between rock units, folds, thrust faults, steep reverse faults, and strike slip faults are all evidence of the complex tectonics that have deformed the rocks and shaped the terrain in the study area through geologic time.

Montara Mountain and San Pedro Mountain (through which the proposed tunnel will pass) are underlain at depth and locally at the surface, by the granitic core complex rocks. Over most of the tunnel alignment, the granitic rocks are overlain by Paleocene to Cretaceous sedimentary rocks. The granitic mass comprising Montara Mountain covers about 30 square miles along the coast, the northernmost outcrop occurring on the cliff face below the existing landslide mass north of Devil's Slide. The Franciscan core complex rocks are found about a mile to the northeast, separated from the granitic complex by the Montara and Pilarcitos faults.

The project site is within a seismically active region, although it is not known whether it is crossed by any holocene-active faults. The San Andreas fault (the longest and most notable fault in California) is located about 6.4 km (4 miles) to the east.

The proposed tunnel alignment crosses at least two geologic formations, the Montara granodiorite and a series of folded and faulted unnamed Paleocene sedimentary rocks that overlie the granodiorite. The granitic rocks will be encountered at the south end of the tunnel for about 457 to 487 m (1,500 to 1,600 ft). The remainder of the tunnel will encounter the unnamed Paleocene sedimentary rocks. Depending on the geologic structure at depth beneath the central portion of the alignment, the tunnel may also encounter Cretaceous sedimentary rocks. While not penetrated by the proposed tunnel alignment, there are alluvial deposits within the valley north of the North Portal, which will be crossed by the proposed roadway between the North Portal and where the new roadway will join existing Route 1.

Small local slides have occurred in the vicinity of the North and South Portals. Please refer to the 1986 FEIS for a description of the geologic setting for the proposed Martini Creek alignment alternative.

Impacts

The Devil's Slide area at San Pedro Mountain is located within a seismically active area and therefore the project will be subject to earthquakes and ground shaking. The San Andreas Fault is less than four miles east of the study area, the active Hayward fault is 37 km (23 miles) to the northeast, and the potentially active Seal Cove Fault is 2.4 km (1.5 miles) off-shore to the west.

The project site is adjacent to the boundary zone between the North American and Pacific tectonic plates. The faults associated with this zone are predominantly northwest trending, strike-slip faults that exhibit right-lateral displacement. The San Andreas Fault, which extends 740 miles from the Gulf of California to Cape Mendocino, is the major fault within the plate boundary zone. The nearest major fault is the San Gregorio Fault, which is about two miles offshore and southwest of the site.

The tunnel alternative will be exposed to vibrations and ground movement during earthquakes. Please refer to the 1986 FEIS for a discussion of impacts and mitigation measures associated with the Martini Creek Alignment alternative.

Mitigation Measures

In general, tunnels survive earthquakes significantly better than surface structures at a given site. The effects of earthquakes on underground structures may be broadly grouped into two general classes, faulting and shaking. Sympathetic fault displacement in the rock mass along the tunnel alignment will result in relatively minor architectural damage.

The effect of an earthquake is to impose deformations on the underground structure, which cannot be overcome by strengthening the structure. The object of earthquake resistant design is therefore, to produce a structure of sufficient ductility to absorb the imposed deformation without losing the capacity to carry static loads, rather than produce a structure which can resist seismic loads at a certain stress level. It should also be recognized that, although the absolute amplitude of earthquake displacement may be large, this displacement is usually spread over a long length. The degree of earthquake distortion is generally low and often within the elastic deformation capacity of the structure.

The magnitudes and duration of straining in the perimeter of a tunnel in rock are not the critical concerns regarding overall tunnel stability. Local displacement of the rock around the tunnel can occur and can damage the tunnel lining. Aside from measures to strengthen portals and insure good contact between concrete lining and the surrounding rock, it is normal procedure to repair such damage to localized areas of the tunnel after it occurs rather than to design the tunnel to prevent such infrequent damage from occurring.

5.9 HAZARDOUS WASTE

Setting

A hazardous waste Initial Site Assessment (ISA) for the proposed tunnel alternative site was completed on February 19, 1997. A records search of the following list showed no known contamination in or near the project site: (1) the Cal EPA Hazardous Waste and Substances Sites List, (2) the Cal EPA DTSC Calsites, (3) the Regional Water Quality Control Board (RWCQB) LUST Sites, and (4) the RWQCB Fuel Leaks Public List.

Impacts

Typically the top layer of unpaved areas adjacent to older and/or heavily traveled highways may be contaminated with aerial deposited lead (ADL) from motor vehicle exhaust resulting from historic usage of leaded gasoline. There is a potential for aerial deposited lead contamination at the approaches to the tunnel where they intersect existing Route 1.

No hazardous waste impacts were identified in the 1986 FEIS for the Martini Creek Alignment alternative. However, there is some potential for aerial deposited lead contamination at the alignment intersections with existing Route 1.

Mitigation Measures

Testing will be conducted for the selected alternative during the final design stage. If test results reveal lead levels which exceeds California hazardous waste criteria, the contaminated soils will be handled according to regulatory requirements. The Department of Toxic Substances Control has issued Caltrans a variance (dated September 22, 2000) for the management of ADL material. Material with lead levels exceeding California hazardous waste criteria may be reused within Caltrans projects under the conditions of the variance. Any material with lead that cannot be reused under the variance will have to be hauled off to a Class I landfill.

5.10 HYDROLOGY

Setting

The North Portal area of the tunnel alternative is located in a steep watershed area of the Shamrock Ranch. It has steeply sloping drainages dominated by dense coastal scrub habitat. The drainages flow toward the main ranch area and converge in a valley that has been altered as a result of previous land clearing and the disposal of mulch and organic material. Within this valley area are two ponds, which were developed in the mid-1950s when the existing drainages were impounded to form stock or irrigation ponds. One of these ponds is spring fed and contains water year round.

A steep natural drainage supporting riparian vegetation is located just east of the South Portal area. The uphill portion of this drainage is very steep and has a small cascading waterfall during the winter and spring. This drainage discharges to a depression formed by the existing Route 1 roadway embankment and drains through a standpipe and culvert and then on to the ocean. Within the proposed south disposal site, there is also a depressed area immediately adjacent to the existing highway embankment that includes a standpipe and culvert. This embankment impounds a natural drainage and results in intermittent ponding.

Impacts

No floodplains will be affected by the current proposed tunnel design.

The tunnel alternative will not result in any fill impacts to the north pond nor will there be any adverse impacts to the south pond. The steep drainage area, where there is a cascading waterfall located up the slope and east of the South Portal, will be avoided and will not be impacted.

The impacts and mitigation measures for the Martini Creek alignment alternative are described in the 1986 FEIS.

Mitigation Measures

No mitigation necessary for the tunnel alternative.

5.11 NATURAL ENVIRONMENT

Setting

See section 4.1 for a discussion of the environmental setting.

Species of Concern

"Species of concern" are plant and animal species that are either listed, proposed for listing, or are candidates for listing by the U.S. Fish and Wildlife Service (USFWS) or the California Department of Fish and Game (CDFG). Species, which appear to meet the definitions of rare or endangered under the California Environmental Quality Act (CEQA), are also included. Loss or change of habitat, overexploitation, predation, competition or disease jeopardizes the prospect for survival of these species of concern.

The original 1983 species of concern list for the Martini Creek alignment alternative was verbally updated by the USFWS in 1995. In 1995, Dr. Samuel McGinnis, Herpetologist with California State University - Hayward conducted a limited survey for the San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) and the California red-legged frog (*Rana aurora draytonii*). Dr. Richard Arnold, Entomological Consulting Services, Ltd., conducted field surveys for the butterfly species of concern during the spring of 1995 and 1996. Caltrans biologists supplemented the above surveys.

Field surveys to determine the presence of plant species of concern were conducted during the blooming periods from 1995 to 1997. The above normal precipitation in the winter and spring of 1995 and the winter of 1997 had a major influence on the early blooming periods for most plant species during these years.

Following passage of the tunnel initiative (Measure T) in 1996, a new species list was requested from the USFWS. The list was provided on November 15, 1996. Dr. McGinnis then conducted further surveys for the garter snake and red-legged frog along the alignment of the tunnel alternative between 1997 and 1998.

Caltrans requested and received a later updated list of species of concern from the USFWS on December 3, 1998. This list is provided in Appendix D. Three species with proposed status on the 1996 list had been upgraded to listed status by 1998. Two anadromous fish, central California coast coho salmon (*Oncorhynchus kitsutch*) and central California steelhead (*O. mykiss*), were listed as threatened. A plant, Hickman's potentilla (*Potentilla hickmanii*), was listed as endangered and is discussed below. Critical habitat for the marbled murrelet (*Brachyranphus marmorata*) also appears on the 1998 list but is not found in the vicinity of either build alternative.

No fish species will be affected by the tunnel alternative. The two anadromous fish species could be affected by the Martini Creek alignment alternative, which crosses San Pedro Creek and tributaries to Willow Brook. Willow Brook is, itself, a tributary to San Pedro Creek. The project

area is within the boundaries of the central California coast steelhead evolutionarily significant unit (ESU). The Martini Creek alignment alternative will include a new bridge over San Pedro Creek, which is open to anadromous fish such as coho salmon and steelhead. Although field surveys were not conducted for this species, the National Marine Fisheries Service (NMFS) has determined that the Martini Creek Alignment Alternative may adversely affect this species. If the Martini Creek Alignment Alternative is chosen, then potential impacts will have to be identified and consultation with the NMFS could be required to minimize potential adverse effects. Surveys also were not conducted for the tidewater goby (*Eucyclogobius newberryi*), another endangered fish species on the 1998 list.

There has been informal consultation on the listed species, including the red-legged frog, throughout the natural environment study process. The USFWS biological opinion, issued on December 18, 2000 in accordance with section 7 of the Endangered Species Act of 1973, determined that the tunnel alternative as proposed is not likely to adversely affect the federally endangered San Francisco garter snake. The USFWS further found that the tunnel alternative, with specific conservation measures, is not likely to jeopardize the continued existence of the red-legged frog or destroy or adversely modify proposed critical habitat (see Appendix J).

Focused surveys were not conducted for all species for which potential habitat may be present in the vicinity of the Martini Creek alignment alternative. Marginal habitat for the San Francisco garter snake and the California red-legged frog is present along San Pedro Creek, the tributaries to Willow Brook, and Martini Creek. These areas have not been trapped or even surveyed using visual encounter techniques. The proposed corridor for the Martini Creek alignment alternative was not surveyed for the following plant species from the 1996 list: Presidio manzanita, San Bruno manzanita, western dwarf flax, San Francisco lessingia and white-rayed pentachaeta. These plants are not expected to be present due to the lack of suitable habitat. Surveys were conducted for Hinkman's potentilla and the mission blue butterfly.

Wildlife Species

San Bruno Elfin Butterfly (*Callophyrs mossii bayensis*)

The San Bruno elfin butterfly is a Federal endangered species found only in northern San Mateo County on San Bruno Mountain, Montara Mountain, and Milagra Ridge. This species usually occurs in areas of rocky outcrops located on steep, north facing slopes in the fog belt. It is always associated with stonecrop (*Sedum spathulifolium*) which is the sole larval foodplant. Adult nectar plants must also be present or in close proximity to the stonecrop in order to support an elfin butterfly population. The primary nectar plant on San Bruno Mountain is lomatium (*Lomatium utriculatum*). Secondary sources consist of yarrow (*Achillea millefolium*), ranunculus (*Ranunculus californicus*), coast rock cress (*Arabis blepharophylla*), and wallflower (*Erysimum franciscanum).*

In 1986, Dr. Richard Arnold conducted a field survey for the San Bruno elfin butterfly in the vicinity of the Martini Creek alignment alternative. Stonecrop, which is one of the butterfly's foodplant, was found adjacent to the alignment. The results of that survey determined that a

population of the San Bruno elfin butterfly was located on Montara Mountain adjacent to the Martini Creek alignment alternative right-of-way approximately 75 m (245 ft) above the proposed construction zone. The only observed nectaring by adults occurred on Montara arctostaphylos (*Arctostaphylos montaraensis*).

Dr. Arnold conducted field surveys again in 1995 and 1996 to update the findings of the 1986 survey. Results of the 1995 and 1996 San Bruno elfin butterfly surveys corroborate the findings of the original 1986 survey. There have been no major changes in the distributions of the larval or adult foodplants over the past decade. Stonecrop, the larval foodplant, and the life forms of the butterfly were not found within the right-of-way for the Martini Creek alignment alternative.

During the field surveys in 1997 for the tunnel alternative, neither the San Bruno elfin butterfly, nor its foodplants, were found within the proposed right-of-way or immediate vicinity.

Mission Blue Butterfly (*Plebejus icarioides missionensis*)

The mission blue butterfly is listed as a Federal endangered species. This butterfly is known to exist only at Twin Peaks in San Francisco, Fort Baker in Marin County, San Bruno Mountain, Milagra Ridge, and scattered locations around Skyline College in San Mateo County.

There are four locations where one of the larval foodplants, variegated lupine, grows within the project area of the proposed Martini Creek alignment alternative. During the 1995 and 1996 field surveys conducted by Dr. Arnold, no life stages of the mission blue butterfly or signs of larval feeding damage were observed at these four locations. Furthermore, the absence or limited number of nectar plants at these four locations suggests that all habitat requirements for the mission blue butterfly are not satisfied at these locations.

Finally, these four lupine occurrences are small, quite isolated, and several miles from the nearest known populations of the mission blue butterfly. Much of the intervening habitat is dense coastal scrub, which is not the type of habitat in which this butterfly species is commonly found.

The larval food plants for the mission blue butterfly were not found along the proposed tunnel alignment during the 1997 plant surveys and the tunnel alternative will not affect the butterfly.

Peregrine Falcon (*Falco peregrinus anatum*)

The peregrine falcon was removed from the federal list of endangered wildlife on August 25, 1999 but is still listed as a State endangered species. The peregrine falcon is also fully protected during the nesting season under the federal Migratory Bird Treaty Act. It is a resident, breeding bird in California and is found from the Pacific coast to the middle elevations of the Sierra Nevada. Breeding birds from the Pacific Northwest also migrate through California, and some birds overwinter here, usually along the coast. The peregrine falcon is historically known from the sea cliffs of San Mateo County, including the Devil's Slide area.

Field reconnaissance and observations for the peregrine falcon were conducted at rock outcrops in the project vicinity. It was determined that an active peregrine falcon nest was located on a rock outcropping just west of Route 1 in the project vicinity. A field review occurred on September 25, 1996 with Ms. Ina Pisani, Biologist for the USFWS, and Mr. Brian Walton, Coordinator for the Santa Cruz Predatory Bird Research Group.

The 1996 field reconnaissance detected no other evidence or sign of nesting or perching by raptors on the east side of Route 1. A field survey of that same area back in 1983 also found no evidence or sign of peregrine falcon use.

California Red-Legged Frog (*Rana aurora draytonii*)

The California red-legged frog is listed as a Federal threatened species and is also designated as a State "Species of Special Concern". The red-legged frog is a pond frog that frequents marshes, slow portions of streams, lakes, reservoirs, ponds, and other usually permanent water bodies. They are attracted to ponding areas that contain extensive plant cover, including rushes and reeds. A permanent water source is required for any extended occupancy of a site by this species. Breeding periods are short, lasting only between one and two weeks from January to April.

During the 1995 field survey conducted by Dr. Samuel McGinnis, populations of the California red-legged frog were found at the two Shamrock Ranch ponds in the northern part of the tunnel alternative project site. Individuals of this species were also found in two small pool sites along the course of the Green Valley drainage.

The Shamrock Ranch ponds originated in the mid 1950's when the existing drainages were impounded to form stock or irrigation ponds. The south pond site represents a relatively ideal habitat for the red-legged frog. There is adequate shoreline cover for protection of foraging frogs from most predators, and the permanent spring-fed water supply permits year round residency within the sanctuary of the immediate pond habitat.

During field surveys in 1997 and 1998, Dr. McGinnis found that a small population of adult California red-legged frogs occupied the seasonal north pond from the time it is filled during the rainy season until it dries in late summer or early fall. During the 1997-98 survey period, no evidence of their presence was observed within the west and southwest valleys adjacent to the north pond even though drift fences and track plates were placed to detect frog movement into these areas.

No evidence of successful frog reproduction was observed at either pond site in 1997. Egg and larval predation by water birds and raccoons (north pond) and egg predation by introduced koi carp (south pond) appeared to be the most likely causes for these reproductive failures. In the opinion of Dr. McGinnis, the apparent total reproductive failure at both ponds, coupled with the past effects of shoreline stock grazing and siltation at the north pond site, combined to create a most uncertain future for the California red-legged frog populations at Shamrock Ranch.

At the Green Valley Creek location, individual adult red-legged frogs were observed in two small pool areas. These frogs appeared to be members of small populations that occasionally inhabit the creek pools. During a field survey by Caltrans biologists in the spring of 1997, an adult red-legged frog was observed on the shore of a very small pond adjacent to Green Valley Creek just east of the foot of the Route 1 roadway embankment. A field review of this same small pond in the spring of 1998 showed that the pond had been severely disturbed by the massive movement of sediment through the drainage during the El Nino storms of the 1997/98 winter. In 1998, no California red-legged frogs were observed at this site.

San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*)

The San Francisco garter snake is listed as a Federal and State endangered species. This snake is endemic to the San Francisco Peninsula and historically has been found from approximately the San Francisco County line south along the eastern and western bases of the Santa Cruz Mountains and to Ano Nuevo Point. This garter snake is now known only from San Mateo County. In 1995, Dr. McGinnis conducted a field trapping survey for the San Francisco garter snake along the Martini Creek alignment alternative at locations that provide suitable habitat. The two ranch ponds and other suitable habitat areas, including the Green Valley Creek drainage and the Montara wetland, were also surveyed using observation techniques.

The San Francisco garter snake was not trapped or observed during the 1995 field survey. Only 3 individual Santa Cruz garter snakes and 9 individual coast garter snakes were captured at the Shamrock Ranch ponds during the three-month study. It appears that the reason that San Francisco garter snake is not present, even though suitable habitat exists, is the inaccessibility of the habitats to San Francisco garter snake populations in other drainages in the vicinity.

The oldest remaining possible source for San Francisco garter snake colonization is the San Pedro Creek drainage. In 1992, Dr. McGinnis surveyed this creek, but no San Francisco garter snakes were captured or observed even though numerous coast garter snakes and several Santa Cruz garter snakes were captured.

These results lend final support for the conclusion that, although habitat conditions are very favorable to the San Francisco garter snake at the south pond on the Shamrock Ranch, no specimens exist there due to the lack of a nearby population that could supply colonizing specimens. The San Francisco garter snake was not found during any of the field surveys conducted for the California red-legged frog between 1997 and 1998. In addition, this species was not found during any of the other biological field studies, including wildlife surveys, in 1997.

Plant Species

Montara Manzanita (*Arctostaphylos montaraensis*)

The Montara manzanita is a federal species of concern. Historic locations for this species have been documented on Montara Mountain. The plant is found adjacent to the right-of-way corridor for the Martini Creek alignment alternative at the summit ridge of San Pedro Mountain and is used by adults of the endangered San Bruno elfin butterfly as a nectar source.

The Montara manzanita was not found within the tunnel alternative corridor or immediate vicinity during the 1997 plant surveys and will not be affected by the tunnel alternative.

Hickman's Potentilla (=Cinquefoil) (*Potentilla hickmanii*)

In San Mateo County, this State listed endangered plant species was known only from a single historic map location near the outfall of San Vicente Creek at Moss Beach and was last documented in 1933. Hickman's potentilla was afforded Federal endangered status on August 12, 1998.

Prior to 1995, the only known existing population was located at the Indian Village site in Monterey County. During the 1995 spring plant surveys for the Martini Creek alignment alternative, a new population of Hickman's potentilla was discovered by Caltrans biologists. The species was found growing in the grassland hills above Martini Creek. The CDFG was notified of the discovery, and Dr. Barbara Errter, of the University of California Jepson Herbarium, confirmed the identification of the plant at this location during a field meeting on June 21, 1995.

Caltrans conducted spring field surveys in 1995 and 1996 to determine the population size and boundaries for the Hickman's potentilla. A total potentilla population of 2,600 plants was surveyed on June 21, 1995, and a total population of 1,990 plants was surveyed on May 21, 1996. Sticky cinquefoil (*Potentilla glandulosa*), a common species of cinquefoil, was also found in the vicinity during the surveys.

This species was not found within the tunnel alternative corridor or immediate vicinity during the 1997 plant surveys.

Impacts

San Bruno Elfin Butterfly

Tunnel Alternative

The San Bruno elfin butterfly and its foodplants were not found within the tunnel alternative proposed right-of-way or immediate vicinity during the 1997 field surveys. The project will have no direct adverse effect on this species. In addition, the tunnel alternative will result in less potential secondary effects to this species, such as dust and automobile exhaust, since the tunnel alignment is approximately 1,097 m (3,600 ft) further away from the known population than the

Martini Creek alignment alternative. The fact that a portion of the roadway will be enclosed in the tunnel will also tend to reduce the adverse impacts. The tunnel alternative could be expected to reduce potential impacts to all insect species compared to the existing Route 1 roadway, which is a surface road.

Martini Creek Alignment Alternative

There is potential for adverse indirect impacts to the San Bruno elfin butterfly from the Martini Creek Alignment alternative, primarily during construction and as a consequence of the operational phase. On August 25, 1996, the USFWS issued a biological opinion, finding that the Martini Creek alignment alternative, with protective measures, would not jeopardize the continued existence of the San Bruno elfin butterfly.

The location and design of the Martini Creek alignment alternative in the vicinity of the population remains unchanged, and the measures stipulated in the 1986 Biological Opinion are still part of the alternative proposal. The design profile grade of the alignment where it passes through the summit ridge of San Pedro Mountain has been raised approximately 4.6 m (15 ft) above the original 1983 proposal. This change has the effect of reducing the excavation at the summit, and will result in a greater buffer zone width between the eastern limits of the project and the elfin butterfly habitat. These design changes will decrease the potential for impacts to the species and its host plants. This alternative is not likely to adversely affect the San Bruno elfin butterfly.

Mission Blue Butterfly

Tunnel Alternative

The results of the field surveys showed no evidence of mission blue butterfly occurrence in the vicinity of the tunnel alternative. The tunnel alternative will have no effect on this species.

Martini Creek Alignment Alternative

Crucial habitat elements for the mission blue butterfly are extremely limited in the vicinity of the Martini Creek alignment. No life forms of the mission blue were observed during any field surveys; therefore, the alternative is not likely to adversely affect the butterfly.

Peregrine Falcon

Tunnel Alternative

The tunnel alternative corridor is within the foraging territory of a nesting pair at the Devil's Slide promontory. However, since this alternative will relocate a portion of existing Route 1 inside a tunnel, and the peregrine falcon being an aerial predator, the tunnel alternative is expected to have almost no effect on foraging activities.

Construction activities associated with the tunnel alternative could affect the nesting activity of the peregrine falcon. The south portal area of the tunnel alternative is located approximately 1,219 m (4,000 ft) from the peregrine falcon nest. This distance between the nest and the tunnel will likely be sufficient to avoid any effect on the hatchlings during the January through July nesting period.

Martini Creek Alignment Alternative

Construction of the Martini Creek alternative is not expected to affect falcon nesting at Devil's Slide. The Martini Creek alignment is located approximately 1.5 kilometers (0.93 miles) inland from the existing eyrie, and construction activities are not likely to affect nesting success. This alternative is not likely to adversely affect the falcon.

California Red-Legged Frog

Tunnel Alternative

The tunnel alternative will not result in any adverse impacts to the south pond at Shamrock Ranch. While the south pond at Shamrock Ranch is not within the project limits for the tunnel alternative, the pond will be designated as an Environmentally Sensitive Area (ESA) to ensure that the habitat will be protected from any construction activities. This designation prohibits any construction activities including the movement and location of heavy equipment within its boundaries.

At the north pond, one of the original design options for the tunnel alternative would have resulted in fill effects to portions of this pond and its associated drainages. However, this alternative now includes bridge structures that will clear-span the north pond and its associated drainages, and result in no fill impacts to the north pond.

Direct effects to the red-legged frog include the potential for harassment, injury, and mortality. Frogs that are captured and moved from the north pond will be subject to all the above adverse effects. Frog exculsion fences may fail or may actually trap frogs on the construction side of the fencing, leading to increased chances of the frogs being crushed by construction activities.

This alternative will result in a temporary loss of red-legged frog foraging and potential breeding habitat at the north pond. Frogs displaced by construction activities or actual relocation may experience increased competition for food and space. Petrochemicals, solvents, soaps or concrete overwash that spill or leak from vehicles or construction sites could kill frogs in all life stages. Sediment discharges to the north pond could suffocate frog embryos and tadpoles. Noise and vibration from construction activities may harass frogs.

Indirect effects may result from disturbance of the natural soil horizons during grading because reestablishment of existing type vegetation may be difficult and problematic in some locations, leading to invasion by exotic, noxious weeds. Construction activities can also lead to the accumulation of trash and garbage that might attract predators such as raccoons and skunks.

Martini Creek Alignment Alternative

Potential impacts to the red-legged frog will be similar to those associated with the tunnel alternative. However, the impacts can be expected to be greater for the Martini Creek Alignment alternative because of the larger exposure to potential frog habitat.

This alternative includes a structure to span the north pond and its associated drainages. The alignment passes directly over the western portion of the pond and the shading effect of the bridge could adversely impact emergent vegetation critical to the frog reproductive process and tadpole-rearing phase. The alignment also crosses the drainages feeding the south pond. This alternative includes a structure that spans those drainages well upstream of the south pond. The alignment also affects potential upland retreat habitat for the frog between the two ponds.

The Martini Creek Alignment alternative affects a large area of the western portion of the Shamrock Ranch red-legged frog habitat. The access roads required to construct the bridge spanning the drainages leading into the south ranch pond, will result in a greater adverse effect on the California red-legged frog and it's habitat. There is greater potential for accidental oil, fuel, or other pollutant spills during construction and such an event could harm all the life stages of the frog.

The original plans for the Martini Creek Alignment alternative involved permanent fill and extensive drainage improvements in the Green Valley drainage upstream from where red-legged frogs were observed. A longer bridge is now proposed across the upper slopes of the drainage. This will not only reduce fill into the Green Valley tributaries but the longer bridge will also eliminate the need for massive drainage facilities that will be required in the upper end of the main valley. In depth surveys for the frog were not conducted in upper Green Valley after the species was listed as a federal threatened species because the tunnel alternative will not affect Green Valley. Additional field surveys will be required to verify the frog's presence and to evaluate the level of possible project impacts if the Martini Creek alignment alternative was selected. Based on current information, it is likely that the Martini Creek alignment alternative could adversely affect the California red-legged frog in the Green Valley drainage.

Suitable to marginal habitat for the California red-legged frog is also present along other drainages along the Martini Creek alignment. However, these areas, including the Martini Creek drainage itself, have not been surveyed for the frog. Habitat along the upper tributaries of Willow Brook is typical of San Francisco bay area coastal streams in which the frog is found. There are expected temporary construction impacts to adjacent retreat habitat and movement corridors, even though Caltrans will employ all feasible best management practices to minimize such effects. Based on current information, the Martini Creek alignment alternative is likely to adversely affect California red-legged frogs that may be present at various locations along the alignment.

New Pond at Shamrock Ranch

During informal consultation with the USFWS, a strategy was developed to maximize protection for the California red-legged frog during construction of the project. The plan called for creation of a third pond on Shamrock Ranch. Prior to construction of any access roads, frogs will be trapped and relocated from the existing north pond to the new pond. The frogs will be held in the new pond for the duration of the construction activities. This new pond will become a permanent feature and will continue to provide additional habitat for the red-legged frog following completion of the project.

The USFWS biological opinion (Appendix J) recognizes that a new pond provides mitigation for indirect impacts to the frog resulting from construction of the tunnel alternative. The USFWS fully endorsed this plan by including the new pond in the *Conservation Measures* stipulated in the biological opinion. This strategy will be applicable and required for either the tunnel alternative or the Martini Creek Alignment alternative. Furthermore, benefits to the frog will accrue regardless of the alternative selected, including the No-Build.

Due to the overall benefits to the frog and in an effort to minimize potential project delays, Caltrans, with the approval of the USFWS, went ahead with creation of the new pond in fall 2000, using State-only funds. Creation of this new pond was determined to have met the criteria for a categorical exemption under CEQA. The new pond was constructed just below the existing south pond in a horse pasture dominated by introduced annual grasses and weedy forbs. The area was swept for red-legged frogs and a perimeter frog exclusion fence was erected around the site prior to construction. Construction of the pond did not have any adverse impacts on the California red-legged frog or other sensitive resources, such as wetlands.

Upon further approval of the USFWS, frogs were trapped at the north pond and relocated to the new pond between April and July 2001. Egg masses were also collected and moved to both the new pond and the south pond. The relocation process directly affected frogs and eggs. The frogs may have been subjected to physiological stress and may have experienced difficulty adapting to the habitat at the new pond. Frogs that attempt to leave the new habitat, which is enclosed in a frog-proof fence, may be exposed to avian predators and may become further stressed and suffer a decrease in physical fitness. Eggs could become desiccated or otherwise adversely affected by the relocation, which could result in a lack of development of the embryo. Adult and juvenile frogs will be competing for food and space in a smaller, more confined area than exists at the north pond.

In spite of these potential adverse impacts, the USFWS allowed the relocation on the premise that the long-term benefits to the red-legged frog population outweigh the immediate short-term impacts. Habitat for the California red-legged frog at Shamrock Ranch has been enhanced by creation of the third pond. The new pond is shown on the wetland jurisdictional maps (see Figures 5-3, 5-6 and 5-9).

San Francisco Garter Snake

Tunnel Alternative

The1996 field survey results show that San Francisco garter snake is not present at the Shamrock Ranch pond areas. The tunnel alternative will not adversely affect this species.

Martini Creek Alignment Alternative

In 1992, Dr. McGinnis surveyed the San Pedro Creek drainage for the San Francisco garter snake using a three-month trapping protocol. No San Francisco garter snakes were captured or observed, although numerous coast garter snakes and several Santa Cruz garter snakes were captured. This creek, like most other coastal drainages, has no sizable quiet pool areas that could be expected to support a population of red-legged frogs, a major prey item for the snake.

In 1995 Dr. McGinnis conducted a field survey of portions of the Martini Creek alignment, focusing on locations that might provide the most suitable habitat for the San Francisco garter snake. Two additional suitable habitat areas, the Green Valley Creek drainage and the Montara wetland were also surveyed using visual encounter techniques. The San Francisco garter snake was not trapped or observed during the 1995 surveys. This finding supports the conclusion that although favorable habitat conditions exist, no frogs are present due to the lack of a nearby population that might supply colonizing individuals.

Although the species was not observed during field surveys, additional design details, further trapping efforts, and visual encounter surveys at all three locations including the Willow Brook drainage will be required before a conclusive determination of no effect could be made for the Martini Creek alignment alternative.

Montara Manzanita

Tunnel Alternative

The Montara manzanita is not found within the tunnel alternative corridor or immediate project vicinity, and therefore will not be affected.

Martini Creek Alignment Alternative

Montara manzanita is found on a steep drainage along the summit of San Pedro Mountain just east of, and above, the Martini Creek alignment. The plants are all outside the alignment corridor and would not be affected by the project. That area is also where the San Bruno elfin butterfly is found and would be protected as an ESA during construction.

Hickman's Potentilla (=Cinquefoil)

Tunnel Alternative

Hickman's potentilla is not found within the tunnel alternative corridor or immediate vicinity and will not be affected.

Martini Creek Alignment Alternative

The Martini Creek alignment alternative as originally designed would have affected portions of the potentilla population discovered by Caltrans biologists in 1995. The original alignment would have required substantial excavation into the hillside on which the plant is found. Following Caltrans delineation of the population limits in 1995 and 1996, the segment of the alignment south of Martini Creek was realigned and retaining walls were added to reduce hillside cuts, thereby avoiding the population. The Martini Creek alignment alternative as redesigned is not likely to adversely affect this species.

Mitigation Measures

Tunnel Alternative

Of the wildlife species of concern, one threatened species is present on the proposed project site and one *former* endangered species is located in the immediate project vicinity. The threatened California red-legged frog (*Rana aurora draytonii*) is found in association with the three ponds on the western end of Shamrock Ranch, at the north end of the tunnel alternative and in close proximity to the Martini Creek alignment alternative. The peregrine falcon (*Falco peregrinus anatum*), a delisted federal endangered species, nests on a coastal bluff near the south portal for the tunnel alternative.

An environmentally sensitive area (ESA) was developed in consultation with USFWS biologists to protect red-legged frog habitat. The ESA will be off-limits to construction personnel, vehicles, construction materials, falsework or other ground disturbances.

As previously noted in Section 2.0, Project Description, the segmented balanced cantilever method will be used to construct the bridges in order to avoid direct impacts to the ESA. The bridge piers and abutments, located outside the ESA, will be erected first. The superstructure between the north and south piers will then be constructed by cantilevering out from the piers. Field surveys determined that the hillside areas northwest and southwest of the north pond are not included within the home range of the Shamrock Ranch California red-legged frog population. Therefore, falsework could be utilized to support the counterbalancing superstructure outside the ESA between the piers and their adjacent north and south abutments.

With the following measures planned and successfully implemented as part of the tunnel alternative, potential direct impacts to the red-legged frog will be avoided and indirect impacts minimized:

a) A frog exclusion fence will be installed around the immediate perimeter of the north pond prior to initiation of any exploration or construction activities associated with the north portal and approaches (see Figure 5-0.2). The frog exclusion fence is unique in that it includes one-way funnels that allow frogs that might be in the adjacent construction areas or ESA to "escape" to the pond, while frogs already in the pond are "excluded" from the construction zone. Frog exclusion fencing is also required in the vicinity of the proposed embankment repair at the south pond.

b) Following installation of the frog exclusion fence, ESA fencing will be installed (see Figure 5-02). This fence will consist of solid sediment/frog barrier panels along segments of the temporary construction access roads. High visibility orange polypropylene fabric can be used along portions of the ESA. These fences must be completely in place prior to access road construction at the north portal and approaches.

c) The sediment/frog barrier fence will be designed so that surface runoff from all areas above and within the construction zones will drain into small temporary desilting basins spaced along the construction side of the fence. The spacing of these basins will be determined in the field based on the size and characteristics of the individual drainage sheds involved. Silt deposits will be removed once they fill more than one third of any basin or if the integrity of the sediment/frog barrier fence is threatened.

d) Construction of temporary access roads and pier foundations will be limited to the dry season (April 15 to October 15) to reduce the likelihood of a large-scale silt deposition on the valley floor. Requirements of Section 7-1.01G, Water Pollution of the Caltrans Standard Specifications and project specific Storm Water Pollution Prevention Plan measures will be implemented in early fall to ensure that erosion in all disturbed areas will be kept to a minimum.

e) After construction is completed, the construction access roads will be regraded to match the original ground contours as close as possible. Restoration of the plant communities within all disturbed areas will begin, including the installation of erosion control fabric and a fabric silt fence to prevent any loose soil from entering the pond basin. All disturbed areas will then be hydroseeded with a non-invasive seed mix.

f) The revegetation effort will include full maintenance of the installed plants during a ten-year plant establishment period (PEP). Success criteria will be established and a ten-year monitoring program will be implemented after the initial planting to document the success of the revegetation effort. Replanting will be performed during the ten-year PEP if necessary to meet the success criteria. Once the soil in the disturbed areas has stabilized, the fabric silt fences will be removed and hand-carried from the site by monitoring personnel.

g) During the operational phase, roadway runoff on the bridges will be contained and directed northward to a drainage on the existing Route 1 roadway which will not be affected by the project and which does not drain to the ponds and their surrounding habitats.

The tunnel alternative will also include enhancement measures at the north and south ponds to alleviate or eliminate the existing adverse conditions that now threaten to reduce the California red-legged frog population. These measures include conditions of the USFWS Biological Opinion and will also compensate for potential direct impacts resulting from construction activities such as ground vibration, dust and noise:

a) Conservation easements will be sought for both the north and south ponds as well as the new pond in order to protect the habitat for the California red-legged frog in perpetuity. If a USFWS approved conservation easement cannot be secured, an off-site mitigation area or other agreement satisfactory to USFWS will be secured.

b) Following completion of the highway project, a one-time, pond silt removal project will be implemented at the north pond in order to lessen the current heavy silt load in the north pond basin. This operation will be undertaken in late summer following removal of the sediment/frog barrier fences but prior to removal of the frog exclusion fence at the pond.

c) To insure that the north pond does not continue to dry up in mid-summer, thereby negating successful metamorphosis of any California red-legged frog larval crop, the pond will be supplied with a pressurized water line and a heavy duty float valve system. In addition, the shoreline and inshore areas will be planted with a complex of indigenous emergent reed, sedge, and forb species. These actions will create a permanent pond habitat in which perennial inshore vegetation will continue to grow and provide frog protection, and where the frog can complete larval metamorphosis, even during drought years.

d) The koi carp population will be removed from the south pond to eliminate koi carp predation on frog eggs and tadpoles.

e) A three-year monitoring plan will be implemented following the roadway construction to assess and evaluate the California red-legged frog population and the effects of the proposed mitigation measures.

In addition to the measures described above, the USFWS (Service) biological opinion (Appendix J) imposes several nondiscretionary terms and conditions to further minimize the impacts of incidental take of the California red-legged frog due to direct impacts to the species and its critical habitat if the tunnel alternative is implemented. These terms and conditions are listed below:

a) Caltrans shall implement the project, along with the proposed protection measures for red-legged frogs, as described in the proposed project description [refer to Biological Assessment – Species of Concern, issued by Caltrans on December 15, 1999].

b) Individuals that handle and remove red-legged frogs, tadpoles or egg masses must be preapproved by the Service prior to trapping, capturing or collecting on-site.

c) *Red-legged frogs shall be marked only with Service approval. The method of marking red-legged frogs must be approved by the Service.*

d) *Annual management at the mitigation* [new] *pond shall be determined each year based on the anticipated carrying capacity of the pond. The determination as whether or not to move egg masses, where those egg masses shall be moved to, or allow the red-legged frogs to disperse from the new pond shall be at the Service's discretion. Experimental releases of adult or newly metamorphosed red-legged frogs fitted with radio-transmitters or PIT tags shall be at the Service's discretion in cooperation with Caltrans.*

e) *All translocated or moved egg masses shall be monitored daily to determine the level of coddling.*

f) *Regular inspection of the fence around the construction access road and the north pond shall ensure that red-legged frogs do not cross the road and enter the north pond. Caltrans shall install an electric fence around the new pond fence to prevent mammalian predation.*

g) *The trapping dates of April 15 through June 30, set forth in the Minimization Measures 2000* [Appendix J: Biological Opinion, page 4], *may be changed at the Service's discretion.* [Trapping actually occurred between April 15 and June 30, 2001, with the approval of the Service.]

h) *Caltrans shall install sediment control structures around the perimeter of the dirt access road where runoff is likely to drain to any of the three ponds or the creek. Any silt control structures that breach or become damaged during a storm event shall be repaired or replaced within 24 hours. Any straw/hay bales that may be used for sediment control shall be free of star thistle seed.*

i) *Caltrans personnel shall inspect the environmentally sensitive area fence every day when construction activities are being conducted for openings and/or breaks in the fence that would allow red-legged frogs to enter the construction area. The exception to this is when construction activities are occurring solely on the bridges and no traffic is within the environmentally sensitive area. Any openings in the fence where red-legged frogs could enter the environmentally sensitive area shall be repaired within 12 hours.*

j) *Before any construction activities begin on the project, a Service-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the natural history* [of the] *red-legged frog and its habitat, the importance of the red-legged frog and its habitat, the general measures that are being implemented to conserve the red-legged frog as they relate to the project, the penalties for non-compliance, and the boundaries (work area) within which the project may be accomplished. Training sessions shall be repeated for all new employees before they access the project site. Sign up* [sic] *sheets identifying attendees and the contractor/company they represent shall be provided to the Service within one week of such training.*

k) A Service-approved biologist shall be present at the work site until all red-legged frog removal and worker instruction have been completed.

l) Stockpiling of construction materials, including portable equipment, vehicles and supplies, including chemicals, will be restricted to the designated construction staging areas.

m) Refueling of construction equipment and vehicles may not occur within 300 feet of any water body or anywhere that spilled fuel could drain to a water body. Caltrans shall check and maintain equipment and vehicles operated in the project area daily to prevent leaks of fuels, lubricants or other fluids.

n) Equipment may not be washed in a place where wash water could drain to the creek or the ponds.

o) Caltrans shall clean hazardous material spills immediately. Such spills shall be reported to the Service immediately. Spill cleanup and remediation shall be detailed in post-construction compliance reports.

p) Caltrans shall comply with all reporting requirements in this opinion, including those proposed in the project description [refer to *Biological Assessment – Species of Concern*, issued by Caltrans on December 15, 1999].

The USFWS biological opinion also specifies the following terms and conditions to minimize the impacts of incidental take resulting from indirect effects of construction:

a) Caltrans shall remove litter and construction debris from the construction site daily and contain the waste at an appropriate site. All trash that may attract predators shall be securely covered at all times in locking metal containers, removed from the work site and disposed regularly. Following construction, all trash and construction debris shall be removed from the work areas.

b) No captured bullfrogs shall be released back into the wild.

Finally, the biological opinion includes terms and conditions to minimize the take of red-legged frogs from future bridge maintenance activities:

a) Prior to implementation, future bridge maintenance activities and remedial actions that may impact red-legged frog habitat must be reviewed and approved by the Service.

b) If Caltrans is unable to secure a Service approved conservation easement as proposed in the Conservation Measures [Appendix J: Biological Opinion, page5], Caltrans must secure a Service approved off-site mitigation area or other agreement satisfactory to the Service.

c) Caltrans shall provide an endowment to provide for management of the conservation easement area and a copy of the endowment agreement to the Service for review and

approval prior to construction. The agreement shall contain specific information on the endowment to manage the site for the red-legged frog in perpetuity.

d) Caltrans shall prepare and implement a detailed habitat monitoring plan within the proposed conservation easement. The plan shall include, but not limited to, specific performance standards, monitoring methods and requirements, exotic species control (plant and animal), and contingency measures for habitat to be restored and managed for red-legged frogs. The site shall provide hydrologic stability, habitat complexity and food production potential. Caltrans shall submit the final plan to the Service for review and approval prior to initiation of any project work.

With the mitigation measures and terms and conditions listed above, permanent impacts will be avoided and short-term temporary construction impacts to, and incidental take of, the California red-legged frog will be minimized and compensated.

Under provisions of the federal Migratory Bird Treaty Act, nest monitoring is typically required for projects that could affect the nesting activity of the peregrine falcon. If it were determined during monitoring that project activities are interrupting egg incubation or the feeding of the chicks, it will be necessary to suspend certain construction activities or remove the eggs or chicks.

Eggs removed from a nest are to be artificially incubated at a facility such as that operated by the Santa Cruz Predatory Bird Research Group (SCPBRG). Any chicks that hatched out are to then be hacked-out to occupied nests. In the event that construction activities were interrupting the raising of hatched chicks, those chicks could be removed and hacked-out to other nests. With such a monitoring program in place, the tunnel alternative is not likely to adversely affect the peregrine falcon.

As an alternative to the active monitoring program, the SCPBRG has suggested an up-front contribution of funds for the implementation of a multi-project hacking program coordinated with and approved by the USFWS. This contribution would preclude the necessity of nest monitoring and would provide a positive mitigation measure to benefit the long-term recovery of the peregrine falcon.

Martini Creek Alignment Alternative

The original Martini Creek alignment alternative was addressed in a Biological Assessment prepared in 1983. At that time only a single listed species, the San Bruno elfin butterfly, was recorded in the vicinity of the proposed project. The U.S. Fish and Wildlife Service issued a non-jeopardy opinion in 1986 relative to the elfin butterfly. The Martini Creek alignment alternative includes the measures outlined in the 1986 final EIS (Section VII.L.3. Mitigation [pages 136 through 138]).

The current design of the Martini Creek alignment alternative includes features and measures to avoid and protect the San Bruno elfin butterfly, Montara manzanita and Hickman's cinquefoil [potentilla]. The alternative is not likely to adversely affect those species. The Martini Creek

Alignment alternative will displace suitable foraging habitat for the peregrine falcon, although nesting sites would not be affected and the alternative is not likely to adversely affect the falcon. This alternative will incorporate measures similar to those detailed for the tunnel alternative to protect the California red legged frog.

5.12 AQUATIC RESOURCES AND ASSOCIATED HABITATS

Setting

Aquatic resources, including wetlands, within the project area fall under the jurisdiction of three separate agencies: the U.S. Army Corps of Engineers (ACOE or Corps), the California Coastal Commission (CCC or Coastal Commission) and the County of San Mateo (County). These agencies, all of which have regulatory authority, define wetlands using different criteria related to one or more of the following components: soils, vegetation, and hydrology. In some instances their authority and jurisdiction are overlapping or individually limited to prescribed boundaries, such as the Coastal Zone or local county jurisdictions.

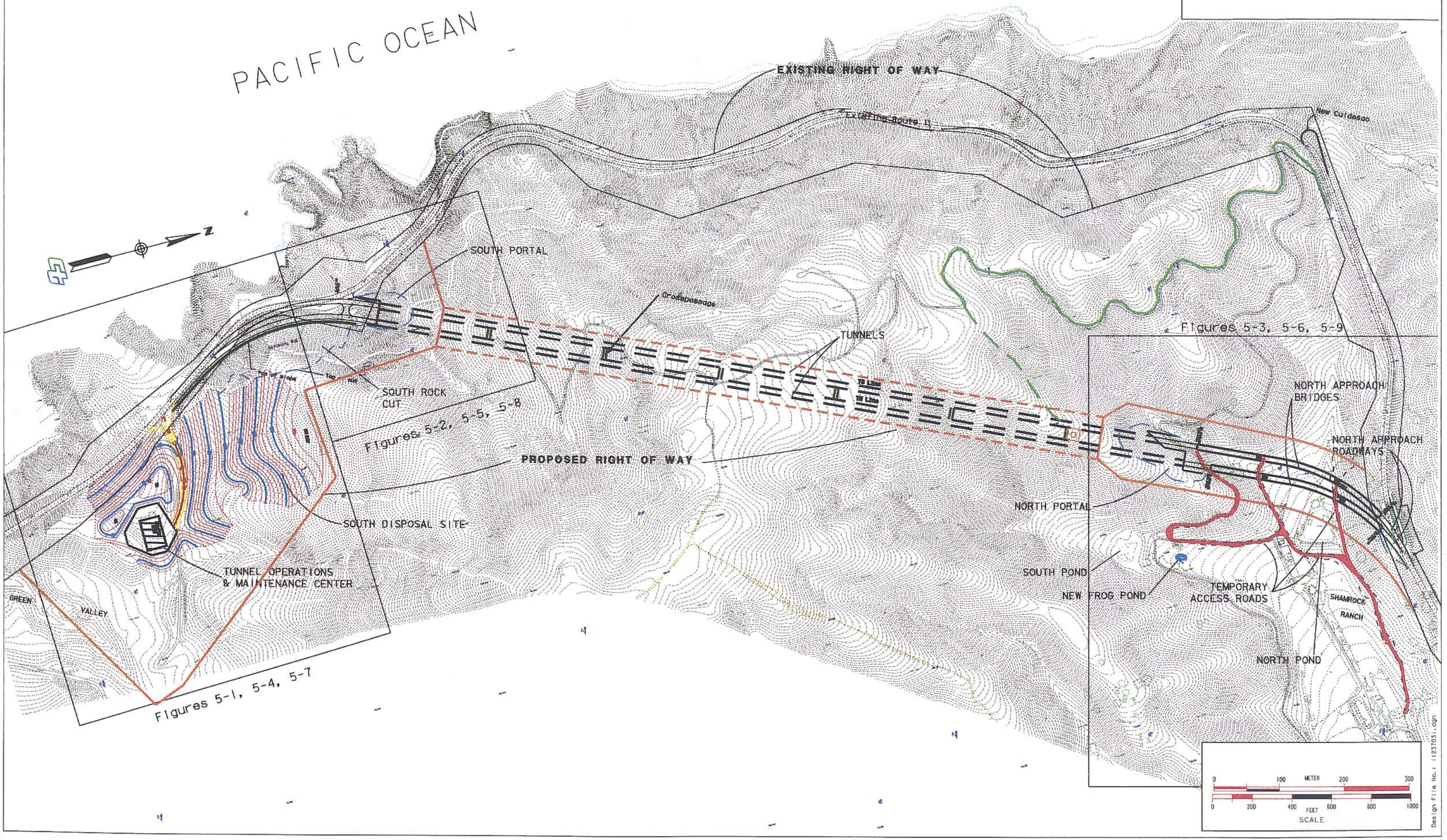
The Army Corps of Engineers' regulatory authority is defined under Section 404 of the federal Clean Water Act and applies to the discharge of dredged or fill material into jurisdictional waters of the United States, including wetlands. The California Coastal Commission's authority is limited to those aquatic resources located in the "Coastal Zone," which generally extends 1,000 yds inland from the mean high tide line of the sea. In significant coastal and estuarine habitat and recreational areas, this zone extends inland to the first major ridgeline paralleling the sea or five miles from the mean high tide line of the sea, whichever is less. The County of San Mateo has jurisdiction over wetlands as defined in their Local Coastal Program, and is the agency responsible for issuing a coastal development permit for the project.

In addition, the Coastal Commission monitors all federal license and permit activities that reasonably can be expected to affect the coastal zone. The Coastal Commission must certify that the project and its associated impacts to wetlands and other sensitive coastal resources is consistent with the Coastal Act and the federally approved California Coastal Management Program (CCMP). No federal license or permit may be issued until the Coastal Commission concurs with a consistency certification prepared by the project applicant. On October 10, 2000, the Coastal Commission concurred with the consistency certification prepared by Caltrans that the tunnel alternative was consistent with the enforceable policies of the CCMP. A copy of the certification is included as Appendix I.

Aquatic resources are present for the tunnel alternative at the tunnel approaches and at the site proposed for disposal of the excess material from the tunnel construction. Aquatic resources are present for the Martini Creek alignment alternative along the several creeks and smaller tributaries or drainages crossed by the roadway alignment as well at the Shamrock Ranch ponds and associated drainages. Since the project will affect aquatic resources within the jurisdiction of three different agencies, a description of the resources and associated habitats, as identified by each of these jurisdictions, and the impacts to those resources, are provided under separate sub-headings. Exhibits depicting the location and extent of project impacts follow the discussions in sub-sections 5.12.1 - U.S. Army Corps of Engineers Jurisdiction, 5.12.2 - California Coastal Commission Jurisdiction, and 5.12.3 - San Mateo County Jurisdiction. Figure 5-0.3 - Key for Jurisdictional Maps, has been added to help orient the reader with the individual jurisdictional maps.

Figure 5-0.3

Key For Jurisdictional Maps



5.12.1 U.S. Army Corps of Engineers Jurisdiction

Section 404 of the federal Clean Water Act authorizes the U. S. Army Corps of Engineers to regulate the discharge of dredged or fill material into the waters of the United States. Waters of the United States (Title 33, Code of Federal Regulations (CFR), § 328.3(a)(3)) include "... *intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds ...*" Also included are "*all impoundments of waters defined as waters of the United States* (33, CFR, § 328.3(a)(4)); *tributaries of waters ...*" identified above (33, CFR, § 328.3(a)(5)); and "*wetlands adjacent to waters (other than waters that are themselves wetlands) ...*" identified above (33, CFR, § 328.3(a)(7)).

Waters of the United States under the jurisdiction of the ACOE are present in the vicinity of the Devils Slide project. These waters of the United States are represented by small perennial and intermittent coastal drainages (termed *waters*), man-made impoundment ponds (termed *wetlands*, if vegetated by hydrophytic plants, or *waters*, if unvegetated) and naturally, as well as artificially, occurring wetlands and seeps (*wetlands*).

Wetlands are defined (33, CFR, § 328.3(b)) as "... *those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.*" The Corps utilizes a three-parameter diagnostic methodology, as outlined below, to identify and delineate wetlands under its jurisdiction. Evidence of a minimum of one positive wetland indicator from each parameter must be present in order to make a positive wetland determination.

Diagnostic Environmental Characteristics:

- Vegetation: The prevalent vegetation [hydrophytes] consists of macrophytes that are typically adapted to areas having soil and hydrologic conditions described below. Hydrophytic species, due to morphological, physiological, and reproductive adaptation(s), have the ability to grow, efficiently compete, reproduce, and/or persist in anaerobic soil conditions.

- Soil: Soils are present and have been classified as hydric, or they possess characteristics that are associated with reducing soil conditions.

- Hydrology: The area is inundated either permanently, or periodically at mean water depths = 2 m (6.6 ft), or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation. The period of inundation or soil saturation varies according to the hydrologic/soil moisture regime and occurs in both tidal and non-tidal situations.

In the absence of adjacent wetlands, ACOE jurisdiction along the coastal drainages extends to the ordinary high water (OHW) mark (33, CFR, § 328.4(c)(1)). Where adjacent wetlands are present, or where the waters consist solely of wetlands, ACOE jurisdiction extends to the limit of

the wetland (33, CFR, § 328.4(c)(2) and § (c)(3)). Portions of perennial and intermittent drainages (*other waters*) may also meet the definition of *wetlands* where conditions of soil and hydrology combine to allow for the development of hydrophytic vegetation and if, under normal circumstances, all three parameters are satisfied.

On April 13, 2001, the Corps verified a wetland delineation for the tunnel alternative, including the proposed wetland mitigation site. This delineation is represented by Figures 5-1, 5-2 and 5-3. The following discussion provides more detailed information regarding Corps jurisdictional areas for the tunnel alternative.

Tunnel Alternative

a. Fill Disposal Drainage Area (Figure 5-1)

The only Corps jurisdictional areas at the fill disposal site are wetlands at a downhill seasonal ponding depression and also at an uphill seasonal ponding depression. These two locations are isolated and described below.

Downhill seasonal ponding depression
This seasonal ponding depression has developed on the east side of Route 1 at the base of the roadway embankment around a drainage culvert riser. During normal or above normal rainy seasons, the runoff from the surrounding hillsides will pond around the riser for at least two weeks. This has allowed wetland plant species to become established in the depression. Wetland vegetation growing in the depression consists of cut-leaved plantain (*Plantago coronopus*), lowland cudplant (*Gnaphalium palustre*), sneezeweed (*Helenium puberulum*) and willow (*Salix* spp.). This wetland dries early in the spring during average rain years.

Uphill seasonal ponding depression
This uphill seasonal depression has formed within the alignment of an abandoned road located on the northerly hillside. The soil at the bottom of this depression is compacted and barren, and has low permeability. Water ponds in the depression and will occasionally last into summer before disappearing. The edge of the pond supports rush (*Juncus* spp.) but is dominated by invasive pampasgrass (*Cortaderia selloana*).

b. South Portal Drainage Area (Figure 5-2)

The south portal drainage area consists of an intermittent coastal drainage with a seasonal waterfall and a seasonal ponding depression that has formed around another drainage riser at the bottom of the Route 1 roadway embankment. Again, wetland species have become established because the riser allows water and sediment to collect around its inlet. The wetland vegetation found in this seasonal ponding depression includes poison hemlock (*Conium maculatum*), stream monkey flower (*Mimulus guttatus*) and loosestrife (*Lythrum hyssopifolia*). In an average rainfall year, the water in this depression dries early in the spring so it is not even good habitat for amphibians.

An abandoned road which crosses the upper portion of the intermittent drainage has allowed additional wetlands to develop within the bench of the old road alignment. The lower portion of this drainage remains in a very natural state. The vegetation in the drainage is dominated by arroyo willow (*Salix lasiolepis*), poison hemlock, stream monkey flower, California blackberry (*Rubus vitifolius*), water parsley (*Oenanthe sarmentosa*), and panicled bulrush (*Scirpus microcarpus*).

c. North Portal/Shamrock Ranch Drainage Area (Figure 5-3)

The western end of Shamrock Ranch valley is predominately used for horse grazing. There are seven distinct areas of ACOE jurisdiction in the vicinity of the tunnel alternative (see Figure 5-3; A through G). Three of those areas (C, D, & E) could be affected by construction of the tunnel alternative.

A. Seasonal depression (wetland) and ephemeral drainage (other waters);
B. North pond (other waters) and associated wetlands (wetlands);
C. Intermittent coastal drainage impounded by the north pond (other waters with wetland);
D. Intermittent coastal drainage adjacent to the tunnel north portal (other waters);
E. Perennial wetland, with ephemeral pond, below the south pond (wetlands);
F. South pond and the perennial outfall drainage (wetlands);
G. New pond (constructed 2000) and connecting inflow/outflow drainages (other waters).

Vegetation in the seasonal depression and ephemeral drainage (A, above) includes semaphore grass (*Pleuropogon californicus*), Italian ryegrass (*Lolium multiflorum*) and curly dock (*Rumex crispus*) in the depression and poison hemlock (*Conium maculatum*) and California blackberry in the drainage.

Earthen impoundments were constructed across two different drainages at Shamrock Ranch in the 1950's to form the north and south ponds (B and F, above). These ponds were created as stock and irrigation ponds. Wetlands and riparian strips have evolved over time and now surround the perimeter of both ponds. Wetland vegetation at the ponds includes arroyo willow, California blackberry, tule (*Scirpus californicus*), curly dock, and rush (*Juncus balticus*). The dominant wetland plants associated with the perennial outfall drainage from the south pond (E, above) include willows, California blackberry, thimbleberry (*Rubus parviflorus*), poison hemlock and giant chainfern (*Woodwardia fimbriata*).

The intermittent coastal drainage (C, above) impounded by the north pond is bounded by coastal scrub and Monterey cypress (*Cupressus macrocarpa*) upstream of the pond. At the immediate outfall of the pond, vegetation is dominated by poison hemlock. Further downstream there is riparian corridor containing willow, California blackberry and horsetail (*Equisetum arvense*).

The north portal drainage (D, above) is intermittent with a very steep gradient. It is vegetated by a variety of coastal scrub species and a narrow band of plants adapted to seasonal moisture. These plants include California blackberry, stinging nettle (*Urtica dioica* ssp. *Gracilis*), *Juncus* spp, giant chainfern, horsetail and poison hemlock.

The perennial wetland (E, above) evolved over time and is apparently fed by seeps and perhaps underground seepage from the south pond. Wetland indicator species present include *Juncus* spp., horsetail and California blackberry.

The new pond (G, above) was vegetated using a plant palette derived primarily from those species present at the north pond. In fact, many plants were simply transplanted from that existing pond.

Martini Creek Alignment Alternative

The original Martini Creek alignment alternative was addressed in a Natural Environment Study prepared in 1983. A preliminary description of the wetlands affected by the Martini Creek alignment alternative is included in the 1986 Devil's Slide FEIS. A preliminary wetland delineation was never completed for the Martini Creek alignment alternative.

The Charthouse wetland, a Corps jurisdictional area, is adjacent to existing Route 1 on the east side of the highway at the south terminus of the Martini Creek alignment alternative (this is the same area proposed as the wetland mitigation site for the tunnel alternative). The wetland is associated with several small drainages. These drainages, at least one of which is perennial, converge in the wetland before flowing under the highway to the ocean. Potential Section 404 waters and/or wetlands also are associated with Reservoir Creek, Martini Creek and several smaller tributaries. Martini Creek is the major watercourse and is dominated by a dense cover of willow and bulrush. The tributaries are dominated by horsetail, bulrush, oenanthe, poison hemlock, and water cress (*Rorippa nasturtium-aquaticum).*

Wetland vegetation does not extend up Green Valley Creek or its tributaries to the Martini Creek alignment. However, north of the summit ridge of San Pedro Mountain, the Martini Creek alignment crosses a perennial tributary to Willow Brook and parallels that tributary for several hundred feet. The tributary supports a dense riparian corridor dominated by willow and dogwood (Cornus spp.).

Many of the Section 404 waters and wetlands at Shamrock Ranch, described above for the tunnel alternative, are also in proximity to the Martini Creek alignment alternative. This alternative will also cross the drainages leading into the south pond. A small drainage is located on the east side of Route 1 near the San Pedro Terrace Road junction. At the north terminus of this alternative, the alignment crosses San Pedro Creek, which is a permanent creek with a riparian corridor dominated by willow.

Impacts

Tunnel Alternative

This alternative will temporarily affect 323 sq m (3472 sq ft) of waters of the U. S. during construction of the project. Most of these temporary impacts, 213 sq m (2293 sq ft), will occur along the intermittent coastal drainage near the proposed south abutment of the bridges over the Shamrock Ranch valley (Figure 5-3; D). The remaining 110 sq m (1179 sq ft) of temporary impacts will occur where the construction access road crosses the outfall drainage from the north pond (Figure 5-3; C).

The only permanent effect to other waters of the U. S. will occur in the intermittent coastal drainage near the tunnel's north portal (Figure 5-3; D) where a total of 140 sq m (1500 sq ft) of other waters of the U. S. will be placed in a culvert. This alternative will permanently impact a total of 1,042 sq m (11,217 sq ft) of wetlands. Permanent and temporary impacts to wetlands and other waters of the U.S. under the regulatory jurisdiction of the U.S. Army Corps of Engineers are described in the following discussion.

a. Fill Disposal Drainage Area (Figure 5-1)

The fill disposal drainage area is the only location within the project limits designated to receive excess material from the tunnel construction. Most of the site consists of a bowl-shaped valley dominated by coastal scrub located close to the coastal bluffs. Under design variation A, the south disposal site will receive an estimated 674,076 cubic m (881,691 cubic yds) of excess material. The disposal of that material will result in a maximum 90 m (295 ft) increase in ground elevations at the site. The site will be contour graded with approximately 2:1 slopes and re-vegetated using native species.

The valley containing the downhill seasonal ponding depression at the fill disposal site will be completely filled by the tunnel alternative. This will result in permanent fill into an estimated 669 sq m (7,201 sq ft) of wetlands under the jurisdiction of the Corps, as described above under sub-section 5.12.1. This impact is depicted on Figure 5-1.

The downhill seasonal ponding depression has low habitat value. Ponding evaporates in early spring even in the wettest years, therefore, the site only provides marginal habitat for amphibians.

The uphill seasonal ponding depression will not be affected by the disposal.

b. South Portal Drainage Area (Figure 5-2)

The south portal location was selected at a rock nose between Route 1 and a small drainage just south of Devil's Slide. This location was selected because it provides natural side cover between the tunnel and the cliff face along the east side of existing Route 1, allows adequate space between tunnels for the double bore configuration, and provides adequate depth of good quality rock above the tunnel portal. The configuration of the portal will avoid the environmentally sensitive intermittent coastal drainage and waterfall immediately east of the rock nose.

An estimated 309 sq m (3,326 sq ft) of ACOE jurisdictional wetlands at the approach to the south portal will be filled. The affected wetlands consist of the seasonal ponding depression associated with the drainage riser at this location and a strip of wetland leading from the coastal drainage. These wetlands are described above in sub-section 5.12.1 and the area of impact is shown on Figure 5-2.

This seasonal ponding depression also has very low habitat value because of its small size and location. The depression provides only marginal habitat for amphibians due to the lack of a permanent water source.

c. North Portal/Shamrock Ranch Drainage Area (Figure 5-3)

Every effort has been made to avoid permanent impacts to ACOE jurisdictional areas on Shamrock Ranch. However, a small wetland area just downslope from the south pond will be affected by the construction access road to the north portal. A total of 64 sq m (690 sq ft) of wetlands will be filled at this location (Figure 5-3; E). These areas are described above under sub-section 5.12.1.

The following tables summarize permanent and temporary impacts of the tunnel alternative to Section 404 wetlands and other waters of the U. S. under the jurisdiction and permit authority of the ACOE.

Permanent
Section 404 Wetlands Impacts

Location	Area Affected	Cause of Impact	Exhibit
Fill Disposal Drainage Area			
Downhill seasonal ponding depression	669 sq m (7,201 sq ft)	fill disposal	Fig. 5-1
South Portal Drainage Area			
Approach to the South Portal	309 sq m (3,326 sq ft)	fill disposal	Fig. 5-2
North Portal/Shamrock Ranch Drainage Area			
Small wetland area near South Pond	64 sq m (690 sq ft)	access road	Fig. 5-3; E
	Total 1,042 sq m (11,217 sq ft)		

Permanent
Section 404 Other Waters of the U.S. Impacts

Location	Area Affected	Cause of Impact	Exhibit
North Portal/Shamrock Ranch Drainage Area			
Intermittent coastal drainage near North portal	140 sq m (1500 sq ft)	bridge abutment	Fig. 5-3: D

Temporary
Section 404 Other Waters of the U.S. Impacts

Location	Area Affected	Cause of Impact	Exhibit
North Portal/Shamrock Ranch Drainage Area			
Intermittent coastal drainage near south abutment	213 sq m (2293 sq ft)	bridge construction	Fig. 5-3; D
Intermittent coastal drainage outfall from North Pond	110 sq m (1179 sq ft)	access road.	Fig. 5-3; C
Total	323 sq m (3472 sq ft)		

Martini Creek Alignment Alternative

An area of 114,110 sq m (1,227,823 sq ft) of Section 404 wetlands and other waters of the U.S. could potentially be affected as a result of this alternative. These total approximately 11 ha (28 acres). Waters of the U. S., including wetlands, occur along the Martini Creek alignment at the Charthouse wetland, Reservoir Creek, Martini Creek, the Green Valley drainage, Willow Brook watershed drainages, Shamrock Ranch south and north ponds and associated drainages, and San Pedro Creek. The Martini Creek alignment alternative will likely require an individual permit from the Army Corps of Engineers.

The south terminus of this alternative will encroach on a freshwater wetland (Charthouse wetland). Potential erosion associated with extensive cut and fill slopes of the Martini Creek alignment alternative could cause short-term impacts to Martini Creek, Green Valley Creek, Willow Brook drainages and San Pedro Creek. Turbidity and sedimentation in streams is expected to increase during construction as well as following construction, until slopes are fully stabilized. In addition to the impacts at the Shamrock Ranch north pond and associated wetlands, the Martini Creek Alignment alternative also cuts across the drainages feeding the

south pond. Although a bridge is included at this location, there will be potential impacts to these drainages and the south pond during both the construction and operational phases of the project. Construction of the proposed bridge over San Pedro Creek could impact anadromous fish such as coho salmon and steelhead, particularly during construction.

Figure 5-1

US Army Corps of Engineers
Section 404 Jurisdictional Map
Fill Disposal Drainage Area

PACIFIC OCEAN

EXISTING ROUTE 1

UPHILL SEASONAL PONDING DEPRESSION

DOWNHILL SEASONAL PONDING DEPRESSION

PERM. WETLAND IMPACT
(669 SQ M/7201 SQ FT)

Y 620,500

Y 620,400

N

LEGEND:

SECTION 404 WETLANDS

PERMANENT WETLAND IMPACT

0 50 METER 100 150

0 100 200 FEET 300 400 500

SCALE

X 1,821,800

X 1,821,900

X 1,822,000

X 1,822,100

X 1,822,200

Design File No.: 123702FHWA.dgn

Figure 5-2

US Army Corps of Engineers
Section 404 Jurisdictional Map
South Portal Drainage Area

EXISTING ROUTE 1

UPHILL DRAINAGE

SEASONAL PONDING DEPRESSION

PERM. WETLAND IMPACT
(309 SQ M/3326 SQ FT)

PACIFIC OCEAN

N

Y 620,300

LEGEND:

- SECTION 404 WETLANDS
- SECTION 404 OTHER WATERS OF THE U.S.
- PERMANENT WETLAND IMPACT

0 50 METER 100 150

0 100 200 FEET 300 400 500

SCALE

Design File No.: 11237024FHWA.dgn

Figure 5-3

US Army Corps of Engineers
Section 404 Jurisdictional Map
North Portal/ Shamrock Ranch Drainage Area

EXISTING ROUTE 1

(A) SEASONAL DEPRESSION

(B) NORTH POND

EARTHEN BANK

(C)

TEMP. IMPACT OTHER WATERS OF THE U.S.
(110 SQ M/1179 SQ FT)

(D) TEMP. IMPACT OTHER WATERS OF THE U.S.
(213 SQ M/2293 SQ FT)

PERM. IMPACT OTHER WATERS OF THE U.S.
(140 SQ M/1500 SQ FT)

Water tank

(F)

(E) PERM. WETLAND IMPACT
(64 SQ M/690 SQ FT)

Junction of Dirt Roads

Water tank

(G) NEW POND

GATE

EARTHEN BANK

HORSE TRAIL BRIDGE

SOUTH POND

(F)

N

LEGEND:

- SECTION 404 WETLANDS
- SECTION 404 OTHER WATERS OF THE U.S.
- TEMPORARY IMPACT TO OTHER WATERS OF U.S.
- PERMANENT IMPACT TO OTHER WATERS OF U.S AND WETLANDS
- (X) AREAS OF ACOE JURISDICTION (SEE SECTION 5.12.1C)
- PROJECT STUDY AREA

0 50 METER 100 150
0 100 200 FEET 300 400 500
SCALE

Design File No.: 123702GFHM4.dgn

5.12.2 California Coastal Commission Jurisdiction

The California Coastal Commission has jurisdiction over wetlands within the coastal zone subject to regulation under the California Coastal Act. The following are definitions of wetlands under the jurisdiction of the CCC:

California Code of Regulations (CCR), Title 14, Section 13577(b)
California Coastal Commission Administrative Regulations

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

Public Resources Code (PRC) Section 30121
California Coastal Act

> *Wetland means lands within the coastal zone that may be covered periodically or permanently with shallow water and includes saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, or fens.*

The Coastal Commission also claims jurisdiction over buffer zones in undeveloped areas surrounding those wetlands. Buffer zones minimize disturbances to the wetlands, control the effects of erosion, sedimentation and pollution, and provide transitional habitat for species present in the wetlands and adjacent uplands. These buffer zones have a minimum width of 100 ft and, where development poses increased hazards to a wetland or wetland species, larger buffers are required. Figures 5-4, 5-5 and 5-6, reflect the Coastal Commission jurisdiction, the extent of permanent and temporary impacts to wetlands, and the buffer zones. The areas of ACOE jurisdictional wetlands and other waters of the U. S. are also shown on the figures for comparison purposes.

Tunnel Alternative

a. Fill Disposal Drainage Area (Figure 5-4)

Downhill seasonal ponding depression

In addition to the wetland at the downhill seasonal ponding depression, described and identified as being under the jurisdiction of the ACOE (sub-section 5.12.1), the CCC also considers the willow copse that extends uphill to the north and east of that wetland, to meet their wetland criteria. This additional area is dominated by arroyo willow mixed with California blackberry but does not exhibit hydric soils or wetland hydrology and, therefore, did not meet the ACOE criteria.

Uphill seasonal ponding depression
The CCC wetland at this location coincides exactly with the ACOE wetland (sub-section 5.12.1) and there is no additional wetland area.

Former roadway alignment
Just west of the uphill depression there are several very small and isolated locations along the trace of an old abandoned roadway where wetland plants have developed. Hydric soils and seasonal wetland hydrology are present. Wetland indicator plants present are *Juncus* spp. and California blackberry. The wetland occurrences are so small and spotty that the ACOE declined to take jurisdiction over these areas.

The CCC requires a 100-foot wide buffer zone around all three of the wetland areas discussed above. These buffer zones consist primarily of typical coastal scrub vegetation dominated by coyote brush (*Baccharis pilularis*), coastal sage (*Artemesia californica*), poison oak, California blackberry, bush monkey flower (*Diplacus aurantiacus*) and various herbs. Pampasgrass and iceplant (*Mesembryanthemum edule*) are invading the coastal scrub in barren disturbed areas and along the graded slopes of Route 1.

b. South Portal Drainage Area (Figure 5-5)

The area of CCC wetland jurisdiction at the south portal drainage area is also expanded over that delineated under Corps criteria, by the presence of wetland indicator species in the drier upslope borders of the ACOE wetlands. Around the seasonal ponding depression at the drainage culvert riser, these species consist primarily of California blackberry, poison hemlock and hedge nettle (*Stachys pyncnantha*). Arroyo willow is the dominant indicator along the upper intermittent coastal drainage.

The buffer zones around these wetland features are characterized by coastal scrub vegetation.

c. North Portal/Shamrock Ranch Drainage Area (Figure 5-6)

As is evident from Figure 5-6, the area of CCC wetland jurisdiction on Shamrock Ranch in the vicinity of the north portal and approaches is rather extensive. The area around the north pond and its associated wetland has been disturbed by ranching activities, primarily clearing to create pastureland. Much of that area is seasonally colonized by poison hemlock, with California blackberry persisting along the fence lines and dirt roads. The more damp and shady borders of the intermittent coastal drainage also support stands of stinging nettle. None of these areas exhibit the wetland hydrology or hydric soils required by the ACOE criteria, but the CCC takes jurisdiction solely on the basis of the presence of these plant species.

The additional CCC jurisdictional area along the intermittent drainage near the north portal is dominated by stinging nettle and California blackberry.

In the vicinity of the south pond and the perennial coastal drainage flowing out of the pond, the hydrophytic vegetation is more diverse. In addition to stinging nettle, California blackberry and poison hemlock, *Juncus* spp., coast figwort (*Scrophularia californica*), hedge nettle, fleabane (*Erigeron philadephicus*) and scarlet pimpernel (*Anagallis arvensis*) are present in varying abundance. Willow is also the dominant overstory plant along the outfall drainage.

Almost the entire construction area will fall within the 100-foot buffer zone that is required by the CCC for all of the above jurisdictional resources.

Martini Creek Alignment Alternative

California Coastal Commission wetland jurisdiction has not been determined for the Martini Creek alignment alternative. This alternative is no longer considered to be consistent with the approved Local Coastal Program. This alternative, however, in its entirety, is within the coastal zone. Based on the jurisdictional determinations for the tunnel alternative and the familiarity with the general environmental setting, Caltrans biologists have assumed that the area of ACOE jurisdiction along the Martini Creek alignment will need to at least be doubled to reflect the extent of CCC wetland jurisdiction. Buffer zones will again be required around all wetlands.

Impacts

Tunnel Alternative

This alternative will result in 5,985 sq m (63,760 sq ft) of permanent impacts to CCC jurisdictional wetlands and 32,673 sq m (351,693 sq ft) of permanent impacts to buffer zones around those wetlands. The following discussion provides a break down of these impacts by drainage areas.

Temporary construction impacts to CCC wetlands and buffer zones all occur at the North Portal/Shamrock Ranch Drainage Area (Figure 5-6), primarily from the construction and use of the temporary access roads. These temporary impacts are estimated at 2,450 sq m (25,770 sq ft) for wetlands and 18,425 sq m (198,307 sq ft) for the buffer zones.

a. Fill Disposal Drainage Area (Figure 5-4)

Permanent impacts to CCC jurisdictional wetlands and buffer zones in this area will result from the proposed disposal of excess material from the tunnel. The area of wetlands that will be permanently lost at the fill disposal site totals 4,020 sq m (43,260 sq ft). The total area of permanent buffer zone impacts at the fill disposal site is 23,905 sq m (257,314 sq ft).

The habitat value of the wetlands at this location is low. The habitat values of the buffer zone throughout the disposal site will be largely replaced over the long term by the proposed revegetation of the site using indigenous plant species.

The uphill seasonal depression itself will not be affected.

b. South Portal Drainage Area (Figure 5-5)

The approach roadway to the tunnel will completely fill the existing depression between the highway and the coastal cliffs to the east. The uphill drainage, seasonal waterfall and associated wetlands will not be affected by the tunnel alternative.

As is the case at the fill disposal site, the habitat values of the seasonal depression at the south portal are very low due to its location and small size. The lack of persistent water precludes use of the depression for breeding by amphibians.

c. North Portal/Shamrock Ranch Drainage Area (Figure 5-6)

Permanent wetland impacts at the north portal/Shamrock Ranch drainage area will result from excavation and fill to construct the northern portal entrance and approach to the tunnel. The only permanent impacts to CCC wetlands, totaling 1,390 sq m (14,310 sq ft), will occur in the intermittent coastal drainage at the north portal. This drainage has relatively high habitat value because of the presence of dense cover and seasonal water. The drainage also exhibits higher plant species diversity than the surrounding ubiquitous coastal scrub, adding to its habitat value. In addition, approximately 390 sq m (4,200 sq ft) of the north pond will be shaded by the bridges during portions of the day.

Permanent impacts to buffer zones occur at the bridge footings, affecting non native Monterey cypress, northern coastal scrub, and invasive species such as poison hemlock and German ivy (*Senecio mikanioides*), and in the area between the south end of the bridge and the portal. This latter area is dominated by coastal scrub. These areas of permanent buffer zone impacts total 2,408 sq m (25,920 sq ft).

A total of 2,450sq m (25,770 sq ft) of CCC wetland will be temporarily impacted in this area by access roads and bridge construction. The majority of the CCC wetland areas subject to temporary impacts are dominated by poison hemlock. The species has colonized disturbed ground on the ranch that results in nearly monocultural stands of the plant. These areas have very low habitat value except for passerine birds and small rodents. Temporary buffer zone impacts include construction access roads, staging areas, and the area surrounding the bridge structure that will span the Shamrock Ranch valley. Temporary impacts will also result from dredging and restoration of the north pond.

The tables on the following pages provide the breakdown of CCC jurisdictional wetlands and buffer zone impacts:

Permanent
CCC Wetland Impacts

Location	Area Affected	Cause of Impact	Exhibit
Fill Disposal Drainage Area			
Downhill seasonal ponding depression	3,595 sq m (38,685 sq ft)	fill disposal	Fig. 5-4
Abandoned roadway	425 sq m (4,575 sq ft)	fill disposal	Fig. 5-4
	4,020 sq m (43,260 sq ft)		
South Portal Drainage Area			
seasonal ponding depression	575 sq m (6,190 sq ft)	approach road	Fig. 5-5
North Portal/Shamrock Ranch Drainage Area			
N. portal inter. coastal drainage	1,390 sq m (14,310 sq ft)	portal construction	Fig. 5-6
Total	5,985 sq m (63,760 sq ft)		

Permanent
CCC Buffer Zone Impacts

Location	Area Affected	Cause of Impact	Exhibit
Fill Disposal Drainage Area			
Downhill seasonal ponding depression	11,420 sq m (122,925 sq ft)	fill disposal	Fig. 5-4
Abandoned roadway	10,315 sq m (111,031 sq ft)	fill disposal	Fig. 5-4
Uphill seasonal ponding depression	2,170 sq m (23,358 sq ft)	fill disposal	Fig. 5-4
	23,905 sq m (257,314 sq ft)		
South Portal Drainage Area			
seasonal ponding depression	6,360 sq m (68,459 sq ft)	approach road	Fig. 5-5
North Portal/Shamrock Ranch Drainage Area			
Intermittent coastal drainage	188 sq m (2,024sq ft)	bridge footings	Fig. 5-6
N. portal inter. coastal drainage	2,220 sq m (23,896 sq ft)	portal construction	Fig. 5-6
	2,408 sq m (25,920 sq ft)		
Total	32,673 sq m (351,693 sq ft)		

Temporary
CCC Wetland Impacts

Location	Area Affected	Cause of Impact	Exhibit
North Portal/Shamrock Ranch Drainage Area			
Intermittent coastal drainage near Seasonal depression	65 sq m (700 sq ft)	access road	Fig. 5-6
North pond earthen bank	1,325 sq m (14,260 sq ft)	access road	Fig. 5-6
N. portal inter. coastal drainage	760 sq m (7,960 sq ft)	bridge construction	Fig. 5-6
S. pond inter. coastal drainage	300 sq m (2,850 sq ft)	access road	Fig. 5-6
Total	2,450 sq m (25,770 sq ft)		

Temporary
CCC Buffer Zone Impacts

Location	Area Affected	Cause of Impact	Exhibit
North Portal/Shamrock Ranch Drainage Area			
Intermittent coastal drainage near Seasonal depression	1,800 sq m (19,375 sq ft)	Access Road	Fig. 5-6
N. pond Earthen Bank	225 sq m (2,422 sq ft)	Access Road	Fig. 5-6
Intermittent coastal drainage near North pond	4,065 sq m (43,756 sq ft)	Access Rd/Bridge Constr.	Fig. 5-6
N. portal inter. coastal drainage	7,285 sq m (78,416 sq ft)	Bridge Construction	Fig. 5-6
S. pond inter. Coastal drainage	5,050 sq m (54,338 sq ft)	Access Road	Fig. 5-6
Total	18,425 sq m (198,307 sq ft)		

Martini Creek Alignment Alternative

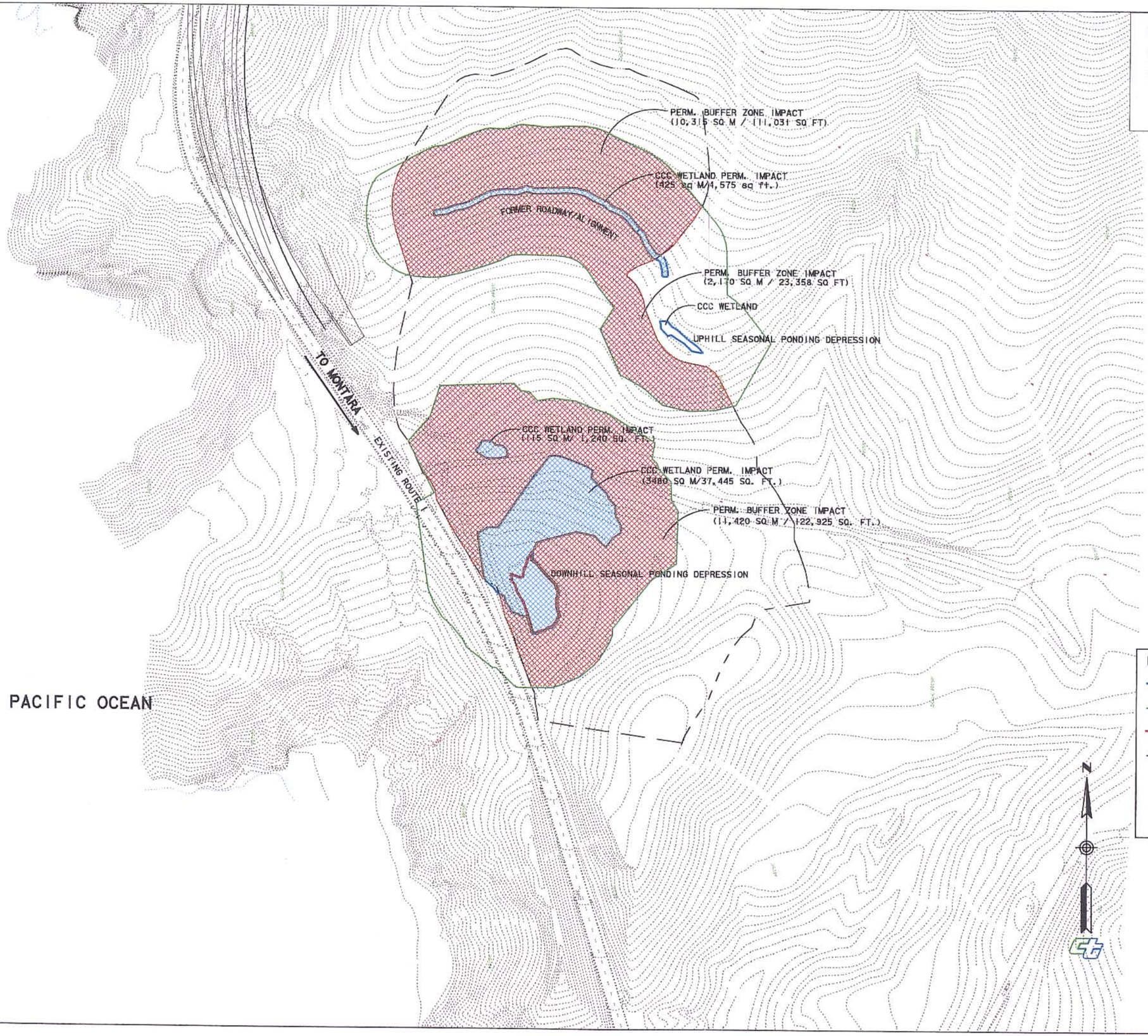
This alternative was considered inconsistent with the approved Local Coastal Plan and the Coastal Act and thus technical studies for this alternative were not completed. The magnitude of the impacts of this alternative to CCC jurisdictional wetlands and buffer zones has not been fully quantified. However, the alternative will encroach upon the Charthouse wetland and will affect four perennial coastal streams with well-developed riparian corridors. Since the Coastal Commission's jurisdiction is wider ranging than the ACOE, a greater range of CCC wetland and buffer zone impacts will be expected.

Figure 5-4

California Coastal Commission

Wetland Jurisdictional Map

Fill Disposal Drainage Area



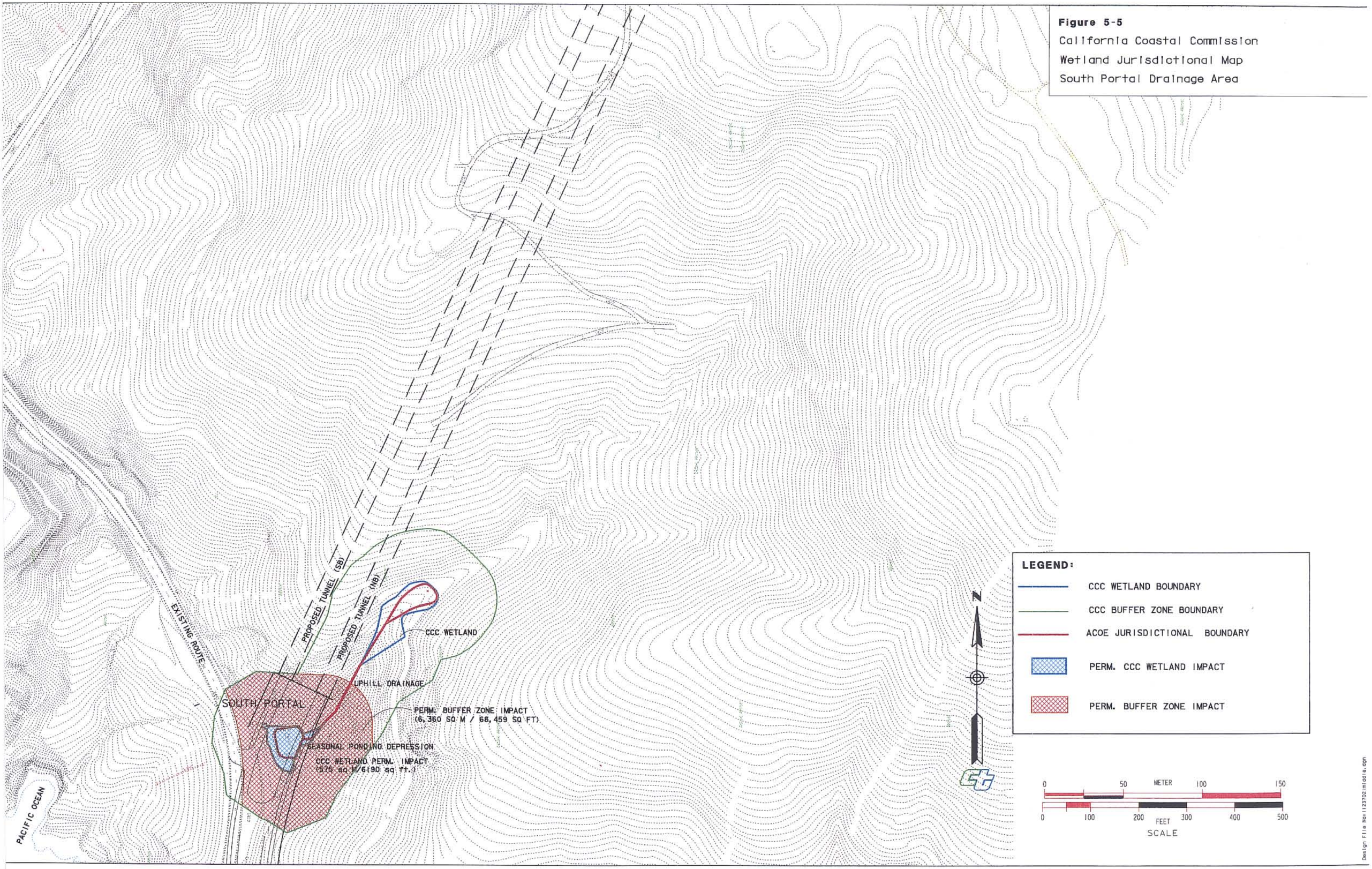
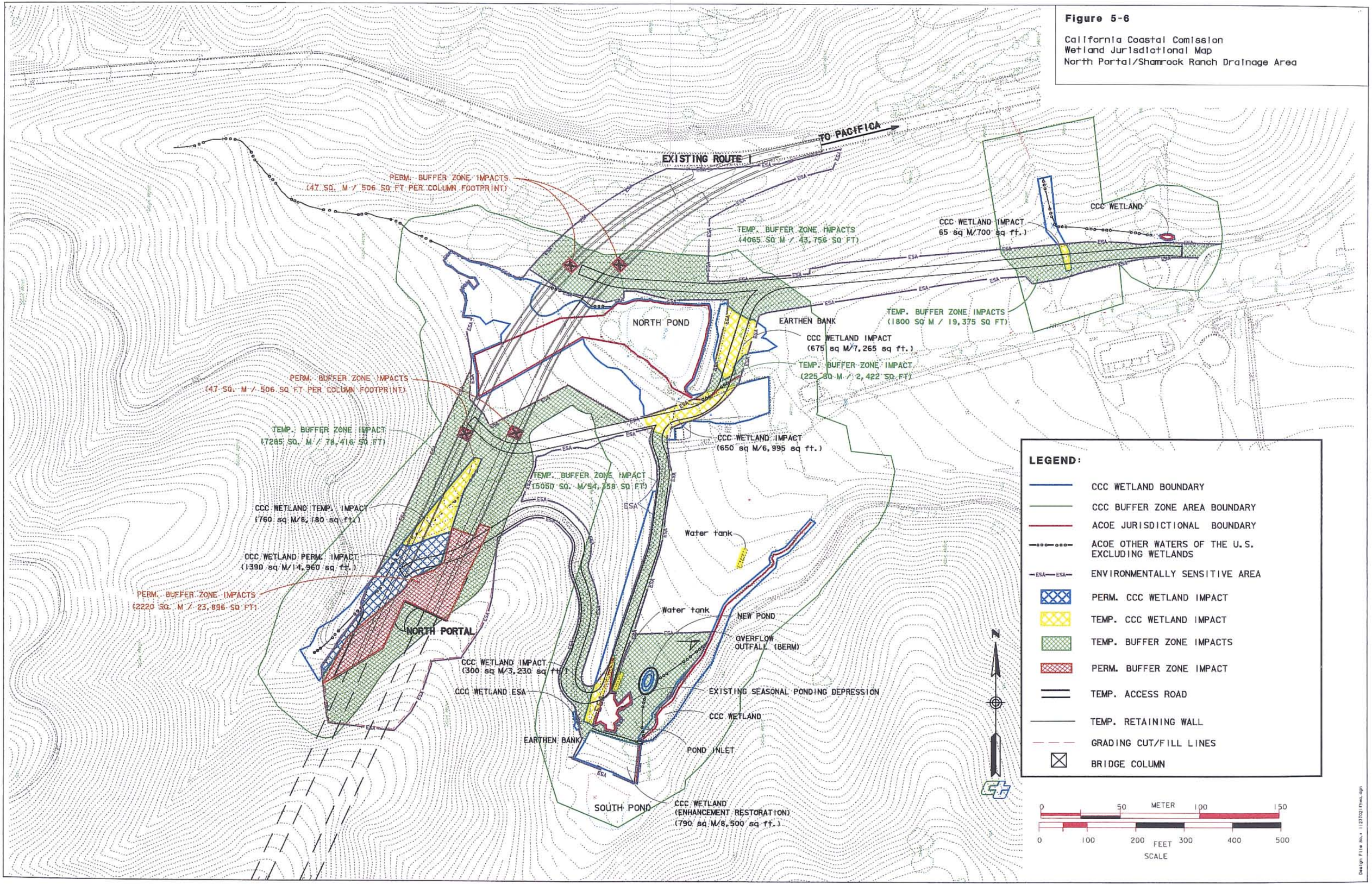


Figure 5-5
California Coastal Commission
Wetland Jurisdictional Map
South Portal Drainage Area

Design File No: 123702imiddle.dgn

Figure 5-6

California Coastal Comission
Wetland Jurisdictional Map
North Portal/Shamrock Ranch Drainage Area



5.12.3 San Mateo County Jurisdiction

The County of San Mateo jurisdiction is based on its responsibility for implementation of the Local Coastal Program (LCP) policies and amendments. All development in the coastal zone requires either a Coastal Development Permit or an exemption. In order to obtain a permit, the proposed development must comply with the Land Use policies of the LCP.

The County definition of wetlands uses the criteria of hydric soils and vegetation, and includes a requirement of percent coverage by specific plant species to qualify. The County defines wetland as *"an area where the water table is at, near or above the land surface long enough to bring about the formation of hydric soils or to support the growth of plants which normally are found to grow in water or wet ground. Such wetlands can include mudflats (barren of vegetation), marshes, and swamps. Such wetlands can be either fresh or saltwater, along streams (riparian), in tidally influenced areas (near the ocean and usually below extreme high water of spring tides), marginal to lakes, ponds, and man-made impoundments. Wetlands do not include areas which in normal rainfall years are permanently submerged (streams, lakes, impoundments), nor vernally wet areas where the soils are not hydric."*

In San Mateo County, wetlands typically contain the following plants: cordgrass, pickleweed, jaumea, frankenia, marsh mint, tule, bullrush, narrow-leaf cattail, pacific silverweed, salt rush, and bog rush. To qualify as a wetland, there must at least a 50% cover of some combination of these plants, unless it is a mudflat.

Riparian corridors are also protected under provisions of the LCP. Riparian corridors are defined in the LCP by the presence of some combination of the following plants: jaumea, pickleweed, narrow-leaf cattail, broadleaf cattail, horsetail, creek dogwood, big leaf maple, red alder, arroyo willow, black cottonwood and box elder. To meet the definition of "riparian corridor" under the LCP, the cover must contain at least 50% of some combination of those plants.

The County LCP also establishes buffer zones around some sensitive habitat areas, including wetlands, and along riparian corridors. Wetland buffer zones extend a minimum of 100 ft landward from the outermost line of wetland vegetation. Along lakes, ponds, and other wet areas, the buffer zone extends 100 ft from the high water point, with the exception of man-made ponds and reservoirs that are used for agricultural purposes, in which case, no buffer is required. The two man-made ponds on Shamrock Ranch are exempt from the buffer zone requirement since they qualify as agricultural ponds as defined in the LCP. For riparian corridors, Section 7.11 of the LCP prescribes a 50-foot buffer zone from the limit of riparian vegetation along perennial streams, and a 30-foot buffer for intermittent streams. Where no riparian vegetation exists along both sides of a corridor, buffer zones extend 50 ft from the predictable high water point for perennial streams and 30 ft from the mid-point of intermittent streams.

The exhibits at the end of this section depict the LCP wetlands and riparian corridors as well as the areas of impacts to those resources.

Tunnel Alternative

a. Fill Disposal Drainage Area (Figure 5-7)

Downhill seasonal ponding depression

This site does not meet the specific species cover criteria of the LCP for a County jurisdictional wetland. However, a portion of the area dominated by willow does meet the definition of a riparian corridor under the provisions of the LCP. The riparian corridors on Figure 5-7 are characterized by dense arroyo willow thickets. Coastal scrub dominates the 30-foot wide buffer zone around these areas.

Uphill seasonal ponding depression

This depression also does not meet the LCP wetland criteria. However, it also does meet the criteria for a riparian corridor with a dominance of arroyo willow. The 30-foot buffer zone is coastal scrub.

b. South Portal Drainage Area (Figure 5-8)

The seasonal ponding depression around the drainage riser at this location meets the LCP wetland criteria in that over 90% of the cover is represented by *Juncus* spp. (including bog rush). Hydric soils and wetland hydrology are also present. The 50-foot buffer zone around the wetland is dominated by poison hemlock.

c. North Portal/Shamrock Ranch Drainage Area (Figure 5-9)

There are no areas in the vicinity of the north portal or approaches that meet the wetland criteria as defined in the LCP. Since the two ranch ponds were originally constructed for agricultural purposes, they are exempt from buffer zones requirements. Riparian buffer zones do occur along the coastal drainages associated with both ponds and along the drainage near the tunnel's north portal.

The drainages associated with the north pond and the north portal are both intermittent and have 30-foot buffer zones along both sides. The drainage feeding the north pond does not meet the LCP riparian corridor criteria. The buffer zone upstream of the pond consists of coastal scrub vegetation with a canopy of introduced Monterey cypress. Downstream of the pond, the drainage is bordered by arroyo willow with an understory dominated by horsetail and does meet the LCP criteria. The buffer zone is a mixture of coastal scrub and pastureland, with scattered Monterey cypress. The buffer zone along the north portal drainage is primarily dense coastal scrub.

The drainage flowing out of the south pond is perennial, with a well-developed arroyo willow riparian corridor. A 50-foot buffer zone extends along both sides of this watercourse. The buffer zone consists of pastureland and coastal scrub.

Martini Creek Alignment Alternative

The wetland/riparian and buffer zones jurisdiction of the County under the LCP has not been determined for this alternative. The Charthouse wetland may meet the LCP criteria as a wetland and, if so, will have a 100-foot buffer zone. Reservoir Creek, Martini Creek, the Willowbrook tributaries and San Pedro Creek are all perennial drainages with developed LCP riparian corridors and will all have 50-foot buffers. The drainages and ponds in the Shamrock Ranch valley have been described above.

Impacts

Tunnel Alternative

The south portal drainage area (Figure 5-8) is the only location where wetlands, as defined in the San Mateo LCP (Sensitive Habitats Component, Section 7.14), are permanently affected. The permanent wetland impact at this location is 274 sq m (2,948 sq ft). Permanent impacts to riparian corridors and buffer zones occur at the fill disposal and south portal drainages and at the north portal.

Temporary impacts to LCP buffer zones in the Shamrock Ranch valley will occur as a result of the construction of access roads and the approach structures to the north portal. These temporary impacts are estimated at 2,419 sq m (26,030 sq ft).

The following pages provide a breakdown of the impacts by drainage area:

a. Fill Disposal Drainage Area (Figure 5-7)

A total of 2,985 sq m (32,130 sq ft) of designated riparian corridors associated with the downhill seasonal ponding depression will be permanently impacted in this area. These riparian corridors are dominated by arroyo willow. An additional 3,556 sq m (38,277 sq ft) of coastal scrub buffer zone permanent impacts will occur around these riparian corridors. The area has moderate habitat value for small mammals and passerine birds.

The arroyo willow riparian corridor and its buffer zone at the uphill seasonal ponding depression will not be affected.

Permanent
LCP Riparian Corridor Impacts

Location	Area Affected	Cause of Impact	Exhibit
Fill Disposal Drainage Area			
Downhill seasonal ponding depression	2,870 sq m (30,893 sq ft)	(fill disposal)	Fig.5-7
Adjacent willow thicket	115 sq m (1,237 sq ft)	(fill disposal)	
Total	2,985 sq m (32,130 sq ft)		

Permanent
LCP Riparian Buffer Zone Impacts

Location	Area Affected	Cause of Impact	Exhibit
Fill Disposal Drainage Area			
Around riparian corridors	3,556 sq m (38,277 sq ft)	(fill disposal)	Fig. 5-7

b. South Portal Drainage Area (Figure 5-8)

As noted previously, this is the only area where permanent impacts to an LCP wetland will occur. This 274 sq m (2,948 sq ft) wetland will be completely filled by the approach to the south portal. There will also be approximately 3,829 sq m (41,200 sq ft) of permanent impacts to buffer zones associated with this seasonal ponding depression. The habitat values of this ponding depression and the buffer zone surrounding are quite low due to the limited area and its location immediately adjacent to the existing highway.

Permanent
LCP Wetland Impacts

Location	Area Affected	Cause of Impact	Exhibit
South Portal Drainage Area *Seasonal ponding depression*	274 sq m (2,948 sq ft)	approach road	Fig. 5-8

Permanent
LCP Wetland Buffer Zone Impacts

Location	Area Affected	Cause of Impact	Exhibit
South Portal Drainage Area *Seasonal ponding depression*	3,829 sq m (41,200 sq ft)	approach road	Fig. 5-8

c. North Portal/Shamrock Ranch Drainage Area (Figure 5-9)

An estimated 848 sq m (9,124 sq ft) of permanent impacts to the buffer zone along the intermittent coastal drainage at the north portal will result from construction of the portal and the approach roadway between the portal and the bridge. This section of roadway will be on fill that will extend into the drainage.

This alternative will result in a total of 2,419 sq m (26,030 sq ft) of temporary impacts to buffer zones associated with intermittent coastal drainages at the north portal/Shamrock Ranch drainage area. Most of these temporary impacts are associated with construction of the approach bridges to the north portal. The other temporary impacts will result from construction of the access roads.

The buffer zone along the north portal intermittent coastal drainage consists of dense coastal scrub. The buffer zone that will be affected near the north columns of the bridge is dominated by introduced Monterey cypress. The cypress creates such a dense canopy that there is presently very little understory and habitat values are quite low. Coastal scrub species comprise the buffer zone in those areas that will be impacted by the access roads.

Permanent
LCP Riparian Buffer Zone Impacts

Location	Area Affected	Cause of Impact	Exhibit
North Portal/Shamrock Ranch Drainage Area			
Intermittent coastal drainage at North Portal	848 sq m (9,124 sq ft)	portal and approach rd. construction	Fig. 5-9

Temporary
LCP Riparian Buffer Zone Impacts

Location	Area Affected	Cause of Impact	Exhibit
North Portal/Shamrock Ranch Drainage Area			
Seasonal Depression	427 sq m (4,595 sq ft)	access road	Fig. 5-9
North Pond	422 sq m (4,541 sq ft)	access road	Fig. 5-9
Earthen Bank	27 sq m (291 sq ft)	access road	Fig. 5-9
North Portal	1,543 sq m (16,603 sq ft)	bridge construction	Fig. 5-9
Total	2,419 sq m (26,030 sq ft)		

Martini Creek Alignment Alternative

This alternative was considered inconsistent with the approved Local Coastal Plan and the Coastal Act and thus technical studies for this alternative were not completed. The magnitude of the impacts of this alternative to LCP jurisdictional wetlands, riparian corridors and associated buffer zones has not been fully quantified. However, the alternative will encroach upon the Charthouse wetland and will affect four perennial coastal streams with well-developed riparian corridors and 50-foot buffers. The Charthouse wetland may meet the LCP wetland criteria and then will require a 100-foot buffer, which will also be impacted. This alternative could also affect the area of perennial seeps that feed the south pond on Shamrock Ranch. This area could also qualify as an LCP wetland with the requisite 100-foot buffer.

Figure 5-7

San Mateo County Local Coastal Program
Wetland Jurisdictional Map
Fill Disposal Drainage Area

PACIFIC OCEAN

TO MONTARA

EXISTING ROUTE 1

LCP RIPARIAN BUFFER ZONE

LCP RIPARIAN CORRIDOR

UPHILL SEASONAL PONDING DEPRESSION

PERMANENT RIPARIAN CORRIDOR IMPACT
(115 sq M/1,237 sq. ft.)

PERMANENT RIPARIAN CORRIDOR IMPACT
(2,870 sq M/30,893 sq. ft.)

PERMANENT BUFFER ZONE IMPACT
(3,556 sq M/38,277 sq. ft.)

DOWNHILL SEASONAL PONDING DEPRESSION

0 50 METER 100 150

0 100 200 FEET 300 400 500

SCALE

N

LEGEND:

- LCP RIPARIAN CORRIDOR (as defined by Section 7.7)
- RIPARIAN CORRIDOR BUFFER ZONE BOUNDARY
- PERMANENT RIPARIAN CORRIDOR IMPACT
- PERMANENT BUFFER ZONE IMPACT

Design File Name: 11237025.dgn

Figure 5-8

San Mateo County Local Coastal Program
Wetland Jurisdictional Map
South Portal Drainage Area

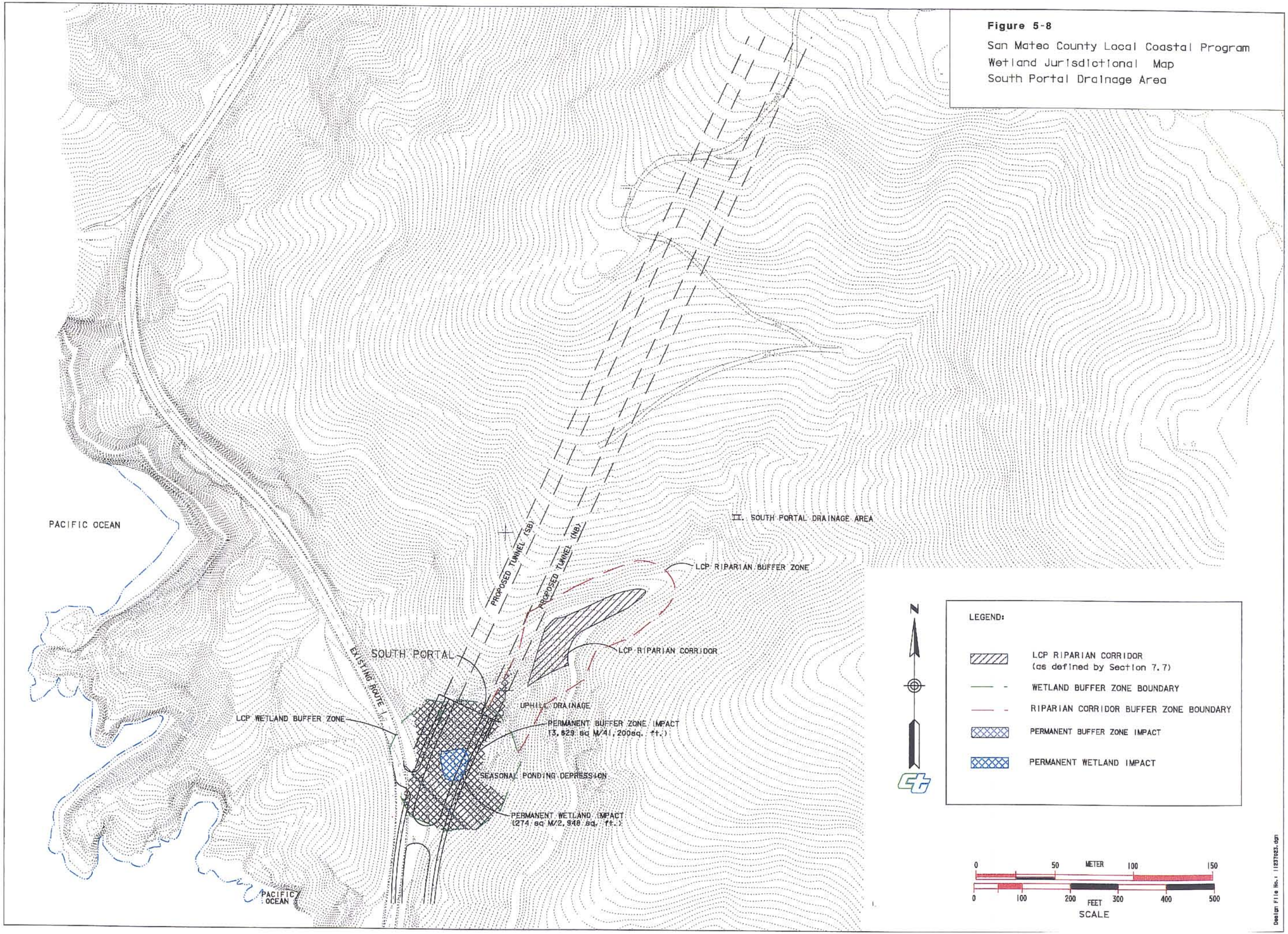


Figure 5-9

San Mateo County Local Coastal Program

Wetland Jurisdictional Map

North Portal/Shamrock Ranch Drainage Area

TO PACIFICA

EXISTING ROUTE 1

TEMPORARY BUFFER ZONE IMPACT
(422 sq M/4,541 sq FT.)

LCP RIPARIAN BUFFER ZONE

30' BUFFER ZONE

Maximum Water Surface

NORTH POND

LCP RIPARIAN

LCP RIPARIAN BUFFER ZONE

SEASONAL DEPRESSION

30' BUFFER ZONE

TEMPORARY BUFFER ZONE IMPACT
(427 sq M/4,595 sq FT.)

EARTHEN BANK

LCP RIPARIAN

LCP RIPARIAN BUFFER ZONE

30' BUFFER ZONE

TEMPORARY BUFFER ZONE IMPACT
(27 sq M/291 sq FT.)

LCP RIPARIAN BUFFER ZONE

TEMPORARY BUFFER ZONE IMPACT
(1,543 sq M/16,603 sq FT.)

LCP RIPARIAN BUFFER ZONE

Water Tank

PERMANENT BUFFER ZONE IMPACT
(848 sq M/9,124 sq FT.)

30' BUFFER ZONE

NORTH PORTAL

Water Tank

50' BUFFER ZONE

EXISTING SEASONAL
PONDING DEPRESSION

LCP RIPARIAN

New Pond

EARTHEN BANK

SOUTH POND

LEGEND

- INTERMITTENT CREEK
- PERENNIAL CREEK
- LCP RIPARIAN CORRIDOR (as defined by Section 7.7)
- RIPARIAN CORRIDOR BUFFER ZONE BOUNDARY
- MAN-MADE POND BOUNDARY
- BRIDGE COLUMN
- PERMANENT BUFFER ZONE IMPACT
- TEMPORARY BUFFER ZONE IMPACT

N

0 50 METER 100 150

0 100 200 FEET 300 400 500

SCALE

Design File No. 1237022.dgn

Mitigation

Tunnel Alternative

I. Avoidance Measures

To avoid impacts to the north ranch pond and associated wetlands, a bridge will be constructed across the valley, at the westerly end of Shamrock Ranch. These wetlands support a known population of the California red-legged frog. Filling this canyon to support the approach road (as originally proposed) would have resulted in permanent impacts to wetlands, the north pond, adjacent uplands and upstream drainages. The avoidance of these wetland impacts is substantial, because the original fill design variation would have resulted in permanent impacts to frog habitat, wetlands and adjacent buffer zones.

An environmentally sensitive area (ESA) has been developed in consultation with the U.S. Fish and Wildlife Service to protect wetlands and upland refuges utilized by the frog. The ESA's will function to restrict all construction activities and the movement and location of heavy equipment. These areas will be delineated and marked with high visibility fencing. Where appropriate, temporary silt barriers will be provided in addition to the ESA fencing. The ESA's and silt barriers will also be monitored during construction by a staff biologist.

A segmented balanced cantilever method will be used to construct the bridge. The bridge piers and abutments, located outside the ESA, will be constructed first and then the superstructure between the north and south piers will be advanced, by cantilevering out from the piers. Falsework will be used to support the counterbalancing superstructure outside the ESA between the piers and their adjacent north and south abutments.

II. Ranch Pond Restoration

The existing earthen impoundment (dam) at the south ranch pond will be repaired. This dam sustained serious damage during heavy winter storms a few years ago. Vegetation will be removed from the dam and spillway area, the face of the dam will be re-graded, and slope protection fabric and a system of drainage pipes will be installed. The repairs are necessary to ensure that the pond, which also supports the frog, continues to function as a viable habitat.

III. Compensatory Mitigation Plan

The Army Corps of Engineer's *"Habitat Mitigation and Mandatory Proposal Guidelines"* requires a detailed mitigation plan to compensate for unavoidable impacts to jurisdictional wetlands. The California Coastal Commission's *"Procedural Guidance for Evaluating Wetland Mitigation Projects in California's Coastal Zone,"* also requires mitigation. For the purposes of this document, mitigation required for impacts to resources regulated by the California Coastal Commission includes wetland creation, wetland restoration and wetland enhancement. On October 10, 2000, the Coastal Commission approved the conceptual mitigation measures that

were outlined in the Federal Consistency Certification. The County of San Mateo will also review the mitigation plan during the coastal development permit process.

The type of compensatory mitigation, its location relative to the impact site, and the mitigation ratio are elements that affect the design and implementation of any mitigation proposal. The goal of the mitigation is to replace the functions and values of the resources impacted by the project. Conceptual mitigation to compensate for the unavoidable impacts to ACOE and CCC wetlands, buffer zones, riparian corridors and sensitive habitat areas has been developed. A final more detailed mitigation plan will be coordinated with the various permitting agencies once replacement ratios for the various habitat elements have been determined.

The mitigation ratio determines the overall size of the mitigation project and is defined as the ratio of values gained per unit area to values lost per unit area. The actual mitigation ratio is based on several factors such as the relative values of the affected resources, regional wetland resources, expected temporal losses of functional habitat, and the chances of success. Ratios required by resources or regulatory agencies such as the Army Corps of Engineers, the California Coastal Commission, and the County of San Mateo can range from 1:1 to 4:1, depending on the criteria stated above. In the case of the later two agencies, mitigation ratios may include temporary and permanent impacts to wetlands, sensitive habitats, riparian corridors, and their adjacent buffer zones.

IV. Off-Site Mitigation

The off-site mitigation, proposed to compensate for temporary and permanent impacts to wetlands, sensitive habitat areas, and buffer zones, involve the restoration and enhancement of a partially filled-wetland area located south of the tunnel alternative on Route 1. This site is across the highway from the Charthouse Restaurant (see Figure 5.10 Proposed Mitigation Site). The parcel is approximately 33,784 sq m (363,648 sq ft), and is under private ownership. The tunnel alternative will result in 5,925 sq m (63,752 sq ft) of permanent impacts to wetlands, and 30,453 sq m (327,672 sq ft) of permanent impacts to buffer zones. The proposed mitigation site could provide for a ratio of just under 6:1 for wetland impacts, but a portion of the site will also be used to mitigate permanent impacts to coastal buffer zones.

The existing land use on this site is agricultural. There are row crops grown north of the site and residential land uses on the south side of the site. To the west, the land use is open space and recreational. The existing Route 1 roadway separates the mitigation site from the open space and recreational area. This parcel of land has been disturbed by past agricultural activities and by the placement of fill material. Prior plowing and grading have disrupted the northern drainage and since the site has not been used for agricultural purposes, wetlands have evolved over time and have increased in size. A culvert under Route 1 allows the parcel to drain and ultimately flow to the Pacific Ocean.

The fill material previously placed on this site is now an upland area that does not contain hydrophytic vegetation. The proposed mitigation is to remove this fill material in order to create a seasonal pond and to enhance the total wetland area. This will be accomplished by excavation of the previously filled areas, restoration of the disturbed areas, and re-grading of the existing

upland area back to wetland elevations. Other measures include planting the re-graded areas with targeted wetland plant species and eliminating non-native species.

The mitigation site also includes a relatively undisturbed drainage in the southern portion of the property. Hydrophytic vegetation is present in association with both drainages. Willow dominates this undisturbed drainage channel which parallels Route 1 before it crosses under the roadway.

Martini Creek Alignment Alternative

No mitigation is currently proposed for this alternative other than that included in the 1986 FEIS (pp. 136-138). Prior to the development of a conceptual mitigation plan, several studies including a wetland delineation, focused surveys for species habitat, and other biological research will be required if this alternative was to be selected. These plans and mitigation measures will be prepared in coordination with the USFWS, CDFG and the ACOE, which will require verification of preliminary wetland delineations prior to the approval of any proposed mitigation.

Figure 5.10
PROPOSED MITIGATION SITE
TUNNEL ALTERNATIVE

PACIFIC OCEAN

EXISTING ROUTE 1

CHART HOUSE RESTAURANT

MONTARA

Proposed removal of fill for creation of pond

EXISTING ROUTE 1

LEGEND:

ACOE JURISDICTIONAL WETLANDS

MITIGATION SITE BOUNDARY

0 25 METER 50 75
0 50 100 FEET 150 200 250
SCALE

NOTE: TOTAL AREA OF PROPOSED MITIGATION SITE
33,784 SQ M / 363,648 SQ FT

File: f:\design\George\Seaming\ 11237030.dgn

5.13 NOISE

Setting

Existing land uses within the Devil's Slide area include the McNee Ranch State Park and the Shamrock Ranch. There is also a system of trails within the mountains and valleys between Pacifica and Montara.

Environmental noise is typically a conglomeration of distant noise sources which results in a relatively steady background noise with no identifiable source (e.g. traffic, wind, and industrial activities). Superimposed on this slow and varying background is a succession of identifiable noise events typically brief in duration (e.g. single vehicle pass-bys, aircraft flyovers, etc.).

The existing noise environment for the proposed tunnel and Martini Creek alignment project areas includes vehicular traffic on existing Route 1, commercial and general aviation, and natural sounds such as surf, wind, and birds.

Impacts

One noise receptor will be affected by the proposed tunnel project. This private residence located on Shamrock Ranch currently experiences noise levels of 51 dBA, Leq(h) during the noisiest hour of the day. During the period when noise measurements were obtained, frequent airplane fly-overs were noted but were not included in the analysis. Without construction of the project, it is estimated that noise levels will increase 1 dBA as the result of increased traffic. Future predicted noise levels, with the tunnel alternative, will increase 6 dBA, from 52 dBA to 58 dBA, Leq(h). Although this is a noticeable increase, it is well below the FHWA and Caltrans threshold of 67 dBA for noise abatement consideration for land use activity B, as defined in 23 CFR Section 772. The increase is also well below the definition of a *substantial noise increase* of 12 dBA as defined in the *Traffic Noise Analysis Protocol (1998)* and thus, noise abatement is not required.

Hauling of material during construction of the proposed tunnel alternative will be within the project limits and will not present any significant long-term noise-related impacts. Any construction-related noise (e.g. blasting, heavy equipment operation) will be temporary and limited to the duration of construction.

For a discussion of the noise impacts and proposed mitigation measures for the Martini Creek alignment alternative, please refer to the 1995 Final Supplemental EIS/R.

Mitigation Measures

No Mitigation measures are required or proposed

5.14 PARKLAND AND RECREATIONAL AREAS

Setting

McNee Ranch State Park is located south of the project area for the tunnel alignment alternative. The south portal is 609 m (2,000 ft) from the existing State Park boundary. The tunnel alternative will not encroach upon or affect any public parklands.

The Martini Creek Alignment alternative bisects two separate parcels at McNee Ranch State Park. These parcels are bounded on the north by San Pedro Mountain and on the south by Martini Creek. Existing State Route 1 serves as the western boundary, private properties and San Pedro Valley Park form the eastern boundary, and the right of way identified for the Martini Creek Alignment alternative separates the two park parcels.

The National Park Service's "Pacifica Boundary Study" (April 1998) evaluates the potential of several tracts in the Pacifica area for addition to the Golden Gate National Recreation Area (GGNRA). These include parcels, which are located within the limits of the City of Pacifica and near existing State Route 1 and the northerly limits of the Tunnel Alternative. State Route 1 and the Pacific Ocean bound one tract of land and the other tract is the northern slope of San Pedro Point. Figure 5-13 shows the proximity of the Tunnel Alternative to these parcels, which are referred to, as the San Pedro Point Headlands. These properties are undeveloped and currently managed by the Pacifica Land Trust but are under the ownership of the California State Coastal Conservancy and the City of Pacifica. The plan is for these properties to ultimately be transferred to the National Park Service for inclusion into the GGNRA.

Another study entitled "San Mateo County Boundary Study – Golden Gate National Recreation Area" (May 2001) was prepared recently by the Peninsula Open Space Trust. This study evaluates the feasibility of expanding the boundary of Golden Gate National Recreation Area to include about 5,000 acres of undeveloped land at the park's existing southern limit. Federal legislation has been introduced to authorize acquisition of some of these properties, some of which are in the vicinity of the Devil's Slide project area. None of the properties proposed for acquisition by this legislation are part of the Tunnel Alternative.

Trails

There are sections of trails and remnants of old trails and local historic roads within the project vicinity. These include sections of the long abandoned Half Moon Bay-Colma Road and Old San Pedro Mountain Road. Since these sections of trails and old roads are known to some segments of the public and are used by hikers, mountain bikers and equestrians, there have been questions regarding whether these are public recreational trails and whether they should be considered as "4(f) properties." This refers to Section 4(f) of the Department of Transportation Act (49 U.S.C. 303 and 23 U.S.C. 138), which specifies that *"publicly owned land from a park, recreation area, or wildlife or waterfowl refuge, or land from a historic site may be used for Federal Aid highways only if:*

(1) There is no feasible and prudent alternative to the use of such land, and
(2) *The proposal includes all possible planning to minimize harm to the Section 4(f) land resulting from such use.*

These trails and local historic roads do not meet the definition of *"publicly owned land from a park, recreation area, or wildlife or waterfowl refuge, or land from a historic site."* As mentioned above, these trails and old roads are known and used by hikers, mountain bikers, and equestrians; however, they are not publicly owned recreational trails. They are on privately owned property. As noted in Section 5.5 Cultural Resources, the series of old roads and trails in the area have been evaluated and determined to lack the proper integrity and significance for eligibility on the National Register. Traces of these old roads are still apparent in spite of the overgrowth of vegetation, primarily pampas grass. Barbara VanderWerf references these old roads in her local guidebooks, such as Montara Mountain. However, these old roads are not officially designated as public trails under the formal jurisdiction of any public agency.

The California Coastal Trail refers to a concept or a proposal for a trail along the entire length of the California coastline. There is considerable public interest in establishing some formal recognition for this trail. However, as noted on the website for the California Coastal Trail (www.californiacoastaltrail.org), *"there is no comprehensive plan and in spite of legislative and public calls for the trail, funding has not been provided for planning or implementation. Additionally, it is a huge task, given the length of the coast and the multitude of interests involved."* It also noted private ownership as one of the *"more difficult issues"* associated with creating this Coastal Trail.

The California Coastal Commission and the State Coastal Conservancy are the principal agencies involved in the establishment of this proposed trail. Although some sections of the proposed Coastal Trail have been acquired and have been officially designated as such, this trail is not complete and much of the land needed to complete this trail remains in private ownership or is under the jurisdiction of other agencies. Within the project area or project vicinity, the existing section of State Route 1 has been suggested as an ideal segment of the Coastal Trail after it has been relinquished and is no longer used as a highway. Other segments of existing trails, which could be linked or connected to this possible segment of the Coastal Trail are under private ownership and have neither been acquired nor placed in public ownership. There is no formal Coastal Trail designation or any official Coastal Trail alignment that has been identified on any official plans for the Trail within the project area.

Impacts

The tunnel alternative will not impact any established publicly owned parklands but it will affect sections of existing trails on private property within the project area. The placement of fill material at the South Disposal Area will impact that section of the abandoned Half Moon Bay-Colma Road through the disposal area (see Fig. 5-11). Consultation with the San Mateo County Planning Department and an analysis of Assessor's records indicates that these trails are on private property. While there may be the possibility of claims of implied dedication of public

access over these trails, there are no easements on record and there is no established jurisdiction by any public agency over any of the trails within the project area.

Access to the San Pedro Point Headlands property, located north of the project area, is provided by a gated dirt road, connecting to existing Route 1, approximately 200 ft from the northern approach to the project area. This access location will not be impacted by construction of the tunnel alternative. The physical and operational conditions should also not be impacted by this alternative.

The Martini Creek alignment alternative and its potential impacts to parklands are discussed in detail in the 1986 FEIS (pp. 143-152). The conclusion was this alternative will not involve Section 4(f), since there will be no physical take of 4(f) lands or "constructive use." The term, constructive use, refers to when "*the transportation project does not incorporate land from a section 4(f) resource, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the resource are substantially diminished.*" One of the primary issues of the litigation (commenced in U.S. District Court in the Northern District of California in June 1986), regarding the project was compliance with Section 4(f). Ultimately, the Ninth Circuit Court's opinion and the District Court's decision was that there was no constructive use based on joint planning between Caltrans and the Department of Parks and Recreation (DPR). The other issue was adequacy of the 1986 Final EIS under NEPA. The finding of the District Court was that this document complied with NEPA in all respects except, it was inadequate in its discussion and analysis of noise impacts. The resulting 1995 Supplemental EIS/EIR process, which addresses noise issues only, acknowledges that with this alternative, there would be substantial increases in predicted noise levels at several locations within McNee Ranch State Park (the proposed Martini Creek Campground, the Northern Trail Crossing, and the Southern Trail Crossing).

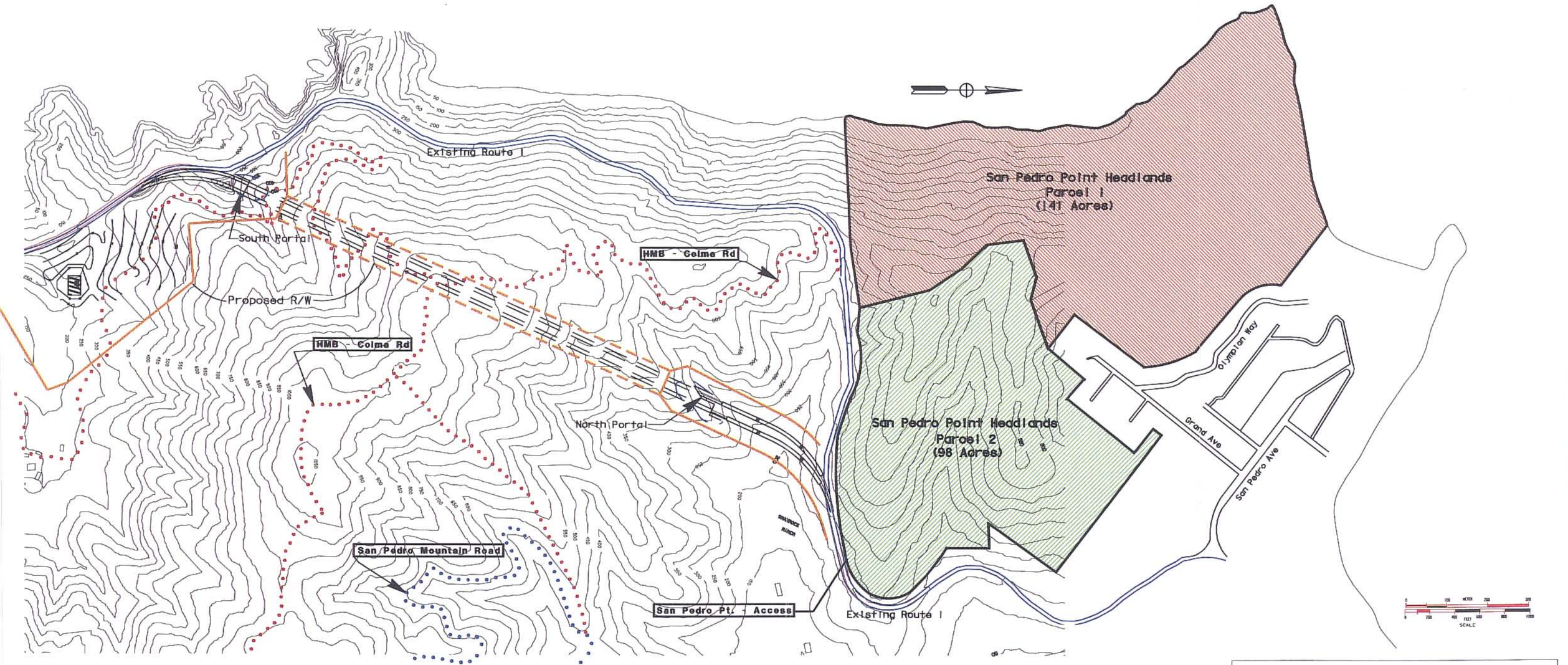
Mitigation

During construction of the tunnel alternative, trail access will be maintained by means of trail detours. After construction, any trail affected by the project, including the impacted section of the old Half Moon Bay-Colma Road trail, will be reestablished or realigned and reconnected to maintain trail continuity.

For the Martini Creek Alignment alternative, noise barriers were proposed to mitigate predicted project related impacts to the proposed Martini Creek Campground, the Northern Trail Crossing, and the Southern Trail Crossing. However, the public review process for the 1995 Supplemental EIS/EIR resulted in a preponderance of written and verbal opposition to the proposed noise barriers and the State Department of Parks and Recreation also stated that the noise barriers should not be constructed. Caltrans and the FHWA jointly determined that it is in the best overall public interest to not include the proposed noise barriers in the project for this alternative.

Figure 5-11

San Pedro Point Headlands
Proximity Map



Legend:

- Parcel 1 San Pedro Point Headlands
- Parcel 2 San Pedro Point Headlands
- HMB - Colma Rd
- San Pedro Mountain Road

11237029

5.15 REQUIRED PERMITS

California Department of Fish and Game - Section 1601 of the California Fish and Game Code requires a Streambed Alteration Agreement for activities that would divert, obstruct, or change the natural flow or adversely affect the bed, channel, or bank of a stream and its associated fish and wildlife values, including contiguous riparian habitat. The Martini Creek Alignment Alternative as well as the tunnel alternative will require a stream bed alteration agreement.

U.S. Army Corps of Engineers - The discharge of dredged or fill material into the waters of the U.S. is regulated by the U.S. Army Corps of Engineers (ACOE) under Section 404 of the Clean Water Act. The tunnel alternative bridge structure will span ponds and drainages at the Shamrock Ranch and have minor wetland impacts. The wetland delineation for the tunnel alternative was verified by the Corps on October 15, 1998. A revised delineation for the tunnel alternative was re-submitted and verified on April 13, 2001. The Martini Creek alternative will require continuance of the NEPA/404 integration process due to potential impacts to wetlands and waters of the U.S. These impacts are further described in Section 5.12 Aquatic Resources and Associated Habitats. On April 4, 2001 the Corps indicated that the tunnel alternative appears to qualify for a Nationwide Permit pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344). See Appendix C.

California Coastal Commission - All development in the Coastal Zone requires either a Coastal Development Permit (CDP) or an exemption from Coastal Permit requirements. In order to obtain a permit for Federally funded projects, the development proposal must comply with the policies of the certified Local Coastal Program (LCP) and the State Coastal Zone Management Program (CZMP). The California Coastal Commission (CCC) reviews federal assistance activities within or affecting the coastal zone to make a determination regarding its consistency with the CZMP. On October 10, 2000, by a unanimous vote, the Coastal Commission concurred with the consistency certification submitted by Caltrans and found the tunnel alternative to be consistent with the California Coastal Management Program. See Appendix I.

San Mateo County Planning Department - The County of San Mateo issues Coastal Development Permits for projects in the county's coastal zone. In order to obtain a permit, the development must comply with the policies of the Local Coastal Plan (LCP) and ordinances adopted to implement the LCP.

Regional Water Quality Control Board: The proposed project will involve activities in and near wetlands and other waters of the U.S. The RWQCB has the authority to regulate projects that affect water quality through Section 401 of the Clean Water Act. A water quality certification or a waiver of certification will be required from the RWQCB in order to implement the proposed alternatives.

5.16 SOCIOECONOMIC

5.16.1 Social Setting

The 1986 FEIS evaluated socially-related data from the 1980 Census for the Coast-side study area which includes Montara, Moss Beach and Princeton (Census Tract 6136); El Granada, Miramar, and the unincorporated area east of Half Moon Bay (Census Tract 6135); and the City of Half Moon Bay (Census Tract 6137). Geographically, the study area is bounded on the north by Pacifica, on the south by Lobitos Creek, on the west by the Pacific Ocean, and on the east by Skyline Blvd. This study region is designated by the Association of Bay Area Governments (ABAG) as the City of Half Moon Bay and Half Moon Bay Unincorporated.

While there were absolute changes in Coastside population and housing characteristics between 1980 and 1990, the study area's various social attributes, as a proportion of the County's as a whole, remained fairly constant during the decade. For example, in 1980, the study area consisted of 2.81% of the County's overall population, which increased slightly to 3.08% in 1990 (see Table 5-1).

While the overall proportion of population and housing numbers between the Coastside area and the County remained fairly constant between 1980 and 1990, the rate of change of these same attributes was generally much greater in the study area than throughout the County as a whole. For example, the population on the Coastside grew by 21.3% over the ten year period, while the population in San Mateo County rose by only 10.6% (see Table 5-2).

A trend which began throughout the study area in the late 1970's and continued throughout the 1980's, saw the influx of a more affluent, working-professional population. The ideal setting of the Coastside region, including its relative seclusion from metropolitan pressures, but still within reasonable distance to urban job centers, has contributed to its shift from an agricultural area to more of a bedroom community for middle and upper middle class working professionals.

According to ABAG, the total number of jobs within the Coastside region in agriculture and mining fell between 1980 and 1990, while jobs in all other sectors increased (ABAG, 1995). At the same time, there was a 51.1% increase in Coastside residents holding professional/managerial positions, compared to only a 30.7% jump County-wide; and there was 28.5% decrease in the number of families below the poverty level, compared to a 2.2% increase throughout the entire County (see Table 5-2). This demographic shift within the study area between 1980 and 1990 was also evidenced by the relatively large increase in other attributes such as median household income, median housing unit value, and median contract rent (see Table 5-3).

TABLE 5-2: County and Coastside Population and Housing Characteristics in 1980 & 1990

	1980			1990		
Characteristic	**County**	**Coastside**	**Percent**	**County**	**Coastside**	**Percent**
Population	587,329	16,499	2.81%	649,623	20,015	3.08%
Black	35,487	71	0.20%	35,288	124	0.35%
Hispanic Origin	73,339	1,484	2.02%	114,627	3,073	2.68%
Under 19 years	157,785	4,892	3.10%	157,584	5,459	3.46%
Over 65 years	62,048	1,131	1.82%	79,998	1,859	2.32%
Labor Force	313,558	8,779	2.80%	352,964	11,707	3.32%
Professional/Managerial	85,149	2,662	3.13%	111,293	4,022	3.61%
Workers Driving Alone	210,558	5,807	2.76%	251,218	8,393	3.34%
Families	154,205	4,391	2.85%	164,177	3,656	2.23%
Families below Poverty	6,886	158	2.29%	7,035	113	1.61%
Year-Round Housing Units	232,964	6,217	2.67%	251,782	7,649	3.04%
Autoless Housing Units	14,338	178	1.24%	14,683	222	1.51%
Occupied Housing Units	225,201	5,942	2.64%	241,914	7,113	2.94%
Owner-Occupied	134,341	4,397	3.27%	145,750	5,298	3.63%
Renter-Occupied	90,860	1,545	1.70%	96,164	1,815	1.89%
Units Built prior to 1960	132,584	1,657	1.25%	127,489	1,534	1.20%

Source: 1980, 1990 U.S. Census

TABLE 5-3: Changes in Coastside and County Population, Housing between 1980 & 1990

	Coastside			San Mateo County		
Characteristic	**1980**	**1990**	**% Change**	**1980**	**1990**	**% Change**
Population	16,499	20,015	**21.3%**	587,329	649,623	**10.6%**
Black	71	124	**74.7%**	35,487	35,288	**-0.6%**
Hispanic Origin	1,484	3,073	**107.1%**	73,339	114,627	**56.3%**
Under 19 years	4,892	5,459	**11.6%**	157,785	157,584	**-0.1%**
Over 65 years	1,131	1,859	**64.4%**	62,048	79,998	**28.9%**
Labor Force	8,779	11,707	**33.4%**	313,558	352,964	**12.6%**
Professional, Managerial	2,662	4,022	**51.1%**	85,149	111,293	**30.7%**
Families	4,391	3,656	**-16.7%**	154,205	164,177	**6.5%**
Families Below Poverty	158	113	**-28.5%**	6,886	7,035	**2.2%**
Work Force (16 yrs.+)	8,549	11,459	**34.0%**	305,833	346,559	**13.3%**
Workers That Drive Alone	5,807	8,393	**44.5%**	210,558	251,218	**19.3%**
Year-Round Housing Units	6,217	7,649	**23.0%**	232,964	251,782	**8.1%**
Autoless Housing Units	178	222	**24.7%**	14,338	14,683	**2.4%**
Occupied Housing Units	5,942	7,113	**19.7%**	225,201	241,914	**7.4%**
Owner-Occupied Units	4,397	5,298	**20.5%**	134,341	145,750	**8.5%**
Renter-Occupied Units	1,545	1,815	**17.5%**	90,860	96,164	**5.8%**
Units Built Before 1960	1,657	1,534	**-7.4%**	132,584	127,489	**-3.8%**

Source: 1980, 1990 U.S. Census

TABLE 5-4: Income/Housing Values for San Mateo County and Coastside in 1980 & 1990

Characteristic	1980			1990		
	County	Coastside*	Difference	County	Coastside*	Difference
Median Household Income	$23,172	$25,214	**8.8%**	$46,437	$57,247	**23.3%**
Median Housing Unit Value	$124,400	$123,000	**-1.1%**	$343,900	$355,600	**3.4%**
Median Contract Rent	$313	$340	**8.6%**	$711	$844	**18.7%**

Source: 1980, 1990 U.S. Census
*Median values for Coastside equal the average median value of the three census tracts in the study area.

Impacts

No impacts identified.

Mitigation Measures

None proposed.

5.16.2 Economic Setting

The 1986 FEIS suggested that the field agriculture industry may begin to lose its dominance as a major employer throughout the mid-coast area. According to ABAG, there was a 15% decline in agricultural jobs between 1980 and 1990 in the coastside region, while all other employment sectors saw positive growth (see Table 5-4). The biggest change was a 281% increase in manufacturing and wholesale trade jobs. The number of jobs in the services sector (1,290) actually surpassed those in the agricultural sector (1,220) by 1990.

The 1986 FEIS also reported that, between 1980 and 2000, employment growth within the coastside region was expected to be small compared to the predicted growth in employed residents. This trend appears to be underway, as total employment within the study area rose by 14% between 1980 and 1990, while the number of employed residents grew by 18% during that time. The trend for the County as a whole was just the reverse: a 20% increase in employment, and only a 13% increase in employed residents. Both the decline in agricultural jobs, and the rapid increase in employed residents, throughout the coastside region, are expected to continue through the year 2015 (ABAG, 1995).

TABLE 5-5: Employment in San Mateo County and the Coastside in 1980 and 1990

Employment	Coastside Region			San Mateo County		
	1980	1990	% Change	1980	1990	% Change
Agriculture/Mining	1,436	1,220	-15.0%	4,558	3,880	-14.9%
Manufacturing/Whlsl.	105	400	281.0%	59,510	58,550	-1.6%
Retail Trade	734	890	21.3%	42,875	55,190	28.7%
Services	1,002	1,290	28.7%	67,822	98,330	45.0%
Other	696	710	2.0%	85,030	95,650	12.5%
Total Employment	3,973	4,510	13.5%	259,795	311,600	19.9%
Employed Residents	8,522	10,034	17.7%	314,242	353,626	12.5%

Source: ABAG Projections '96

5.16.3 Environmental Justice

In 1994, President Clinton signed Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations. The Order requires that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States...".

The 1990 U.S. Census data indicates that the Coastside region has a comparatively low concentration of minority and low-income residents. For example, African Americans represent only 0.6% of the Coastside population, while they account for 5.4% of the population in San Mateo County, and 8.6% of the population within the San Francisco, Oakland, and San Jose Consolidated Metropolitan Statistical Area (CMSA). On the other hand, 93% of the Coastside is represented by a white population, compared with 72% and 69% of the County and the CMSA, respectively (see Table 5-5). The percentage of low-income Coastside residents is also much lower than similar percentages for the County and the CMSA. Since there are no readily identifiable minority or low-income populations in the Coastside region, neither the tunnel alternative nor the Martini Creek alignment alternative will cause disproportionately high and adverse impacts on minority or low-income populations.

TABLE 5-6: 1990 Minority, Low-Income Populations as a Percentage of a Specific Region

	Coastside		County		S.F., Oak., San Jose CMSA*	
Characteristic	**Total**	**Percent**	**Total**	**Percent**	**Total**	**Percent**
Population	20,015	------	649,623	------	6,253,311	------
White	18,582	92.8%	466,885	71.9%	4,334,064	69.3%
Black	124	0.6%	35,283	5.4%	537,753	8.6%
Indian, Eskimo, or Aleut	94	0.5%	2,987	0.5%	40,847	0.7%
Asian or Pacific Islander	619	3.1%	109,281	16.8%	926,961	14.8%
Other	596	3.0%	35,187	5.4%	413,686	6.6%
Hispanic Origin	3,073	15.4%	114,627	17.7%	970,403	15.5%
Persons Below Poverty	801	4.0%	40,405	6.2%	526,124	8.4%
Families	3,656	------	164,177	------	1,528,920	------
Families Below Poverty	113	3.1%	7,035	4.3%	93,069	6.1%
Median Household Income	$57,247**	------	$46,437	------	$41,459	------

Source: 1990 U.S. Census
*Consolidated Metropolitan Statistical Area
**Median value for Coastside equals the average median value of the three census tracts in the study area.

5.16.4 Right of Way Acquisitions/Relocations

Setting

The tunnel alternative will affect portions of six private parcels, however there will be no residential displacement as a result of the proposed project nor will any business be relocated.

Impacts

Permanent acquisition of approximately 74 acres will be required, including an underground easement, for the proposed tunnel alternative.

Mitigation Measures

Property acquisitions will be negotiated between Caltrans and the private property owners affected by the tunnel alignment. The costs for acquisition of land depends on the value of the property, which will be determined by the use and zoning of the property and numerous other relevant factors at the time of purchase.

In accordance with the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and the California Relocation Act (Chapter 16, Section 7260 et seq. of the Government Code), Caltrans will provide relocation assistance to any person, business, farm or nonprofit organization displaced as a result of the acquisition of real property for public use.

The impacts and mitigation measures for the Martini Creek alignment alternative are described in the 1986 FEIS (pp. 51,52,54).

Any previously acquired right-of-way not needed for the project will be declared as excess property and will be disposed of in accordance with appropriate right-of-way procedures.

5.17 TRAFFIC

Setting

The major freeways in San Mateo County, Highway 101 and Interstate 280, are generally oriented in a north-south direction. Other highways and local streets and roads act as arterials to complete the regional transportation system. As a result of increased residential development in the foothills, east-west traffic volumes have grown in the past decade and many of the east-west arterial roads carry more traffic than the roads were designed to carry.

Many east-west roads are narrow, winding, and lack shoulders. These roads create concern for safety and access of emergency vehicles because of poor sight distances and inadequate pavement widths. These local highway and road conditions impede access and result in a generally poor traffic circulation system.

The following projected traffic volumes include the year-2020 AM and PM peak-hour forecasts for various locations on Route 1 and Route 92 near the project area:

Route 1, Existing and Year 2020, Peak-Hour Traffic Volumes

Location	1998 AM Peak-Hour	1998 PM Peak-Hour	2020 AM Peak-Hour	2020 PM Peak-Hour
Devil's Slide				
NB Route 1	920	600	1080	704
SB Route 1	530	1000	622	1174
Half Moon Bay				
NB Route 1	1030	1950	1210	2290
SB Route 1	1712	1894	2010	2224

Note that the AM peak-direction on Route 1 north of Montara is different than the AM peak-direction south of Montara (northbound vs. southbound, respectively).

Route 92, Existing and Year 2020, Peak-Hour Traffic Volumes

Location	1998 AM Peak-Hour	1998 PM Peak-Hour	2020 AM Peak-Hour	2020 PM Peak-Hour
EB Route 92	1436	694	1686	815
WB Route 92	424	1018	498	1195

The projected AM peak-hour volumes indicate that the traffic split between eastbound Route 92, and northbound Route 1 (near Devil's Slide) is about 60:40 (1,686 vs. 1,080, respectively). Similarly, when comparing the projected AM, eastbound Route 92 volumes (1,686) to the northbound Route 1 volumes near Half Moon Bay (1,210), the split is also 60:40 in favor of eastbound Route 92.

The forecasts were derived from the MTC BAYCAST travel demand model and adjusted based on existing traffic volume counts.

Public Transit

The County public transportation system is based on rail service supplied by Caltrain, and diesel coaches operated by SamTrans (San Mateo Transit). The majority of public transit service operates on the Bay side of San Mateo County along the El Camino and Highway 101 corridors. SamTrans provides local and express bus service throughout San Mateo County. The district operates approximately 300 buses over 57 routes. Generally, local routes are operated weekdays with 30 or 60 minute headways with limited Saturday and Sunday service in the coastside area.

During 1993, both Federal and State gasoline taxes were increased for the first time in nearly a decade. A portion of the tax increase was applied to public transit, including the extension of the Bay Area Rapid Transit (BART) System into San Mateo County. These public transit options do not offer an efficient alternative for coastal residents.

The marginal level of regional service is continually overtaxed during the periodic closures of Devil's Slide while coastal traffic to and from Pacifica and northern points is forced to divert to Highway 92 or other east-west arterials.

Impacts

Neither project is capacity increasing, therefore no traffic operational changes, relative to existing conditions, are anticipated.

Mitigation Measures

None proposed

5.18 WATER QUALITY

Setting

The following discussion applies to both the tunnel alternative and the Martini Creek alignment alternative.

Since the release of 1986 FEIS, there have been changes in the regulatory setting with regard to water quality. Caltrans is currently subject to the National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0000003, Order # 99-06-DWQ, issued by the State Water Resources Control Board on July 15, 1999. This permit contains a comprehensive set of requirements that Caltrans shall adhere to in compliance with the Clean Water Act.

Among the requirements that apply on a project-by-project basis, is the consideration of Permanent Control Measures (PCM) or Treatment Control Best Management Practices (BMPs) to eliminate or minimize the discharge of pollutants associated with the new facility. The project design phase includes a process to determine the need for PCMs and provides a framework for documenting the selection and/or rejection of PCMs, prior to completion of final design for the alternative selected. PCMs are discussed further in the Mitigation Measures section below.

Impacts

Long-term and construction related water quality impacts will be better identified during the pre-construction process. Potential erosion impacts in the project vicinity of either alternative due to excavation and potential non-storm water discharges that could occur during construction activities will be addressed by the standard implementation of erosion and sediment control practices both during and after construction.

Construction-related Impacts

Non-storm water discharges include all liquids used by the contractor that have the potential to be discharged, either accidentally (spills) or as part of the construction process. Although these types of discharges are most likely to be small quantities, they have the potential to adversely impact receiving water quality in a localized area. Therefore, they will be managed accordingly with an appropriate Storm Water Pollution Prevention Plan (SWPPP).

Long-term Impacts

Potential long-term water quality impacts are associated with the operation and maintenance of this new facility, which will include additional paved areas and thereby increase the volume of storm water runoff. Although the concentration of pollutants discharged in storm water runoff is not expected to change, the loading (transport) of these pollutants may increase relative to the increase in runoff volume. These issues will be addressed during the final design phase for the project, which will include the PCM consideration process as well as inclusion of treatment control BMPs in accordance with the Caltrans Storm Water Management Plan.

Maintenance activities, primarily associated with tunnel washing operations to remove the build up of pollutant from vehicle exhaust, may result in water quality impacts if the wash waters are not properly managed before being discharged to receiving waters. The Caltrans Maintenance Operations Plan includes implementation of BMPs for all maintenance activities and specific BMPs for washing operations.

Mitigation Measures

Caltrans mitigation measures include those that will be required during construction of the project, as well as measures that consider long term benefits. Mitigation is implemented through the SWPPP, which is a two-step process. The conceptual SWPPP (step 1), which is prepared during design of the project will identify control measures and Best Management Practices (BMP) that may be implemented.

These BMPs can include:

a) Erosion and sediment control plans that incorporate vegetative stabilization such as seeding, planting and mulching.

b) Physical stabilization using geotextiles and mats, dust control implementation measures and temporary stream crossings, and the stabilization of access roads and construction staging areas.

c) Diversion of run-off using earth dikes, temporary drains and swales, and slope drains and also measures to reduce run-off such as slope terracing/roughing and check dams.

d) Trapping and filtering of runoff may be accomplished by the construction of silt fencing, straw bale barriers, brush and rock filters, sediment traps and basins, infiltration basins and trenches, and detention ponds.

Prior to the beginning of any construction activities, the final SWPPP (step 2) must be complete and in compliance with any applicable permits. A Storm Water Pollution Prevention Plan (SWPPP) Checklist is used by the Resident Engineer to verify that all required sections of the plan have been completed, and whether each item has been adequately addressed.

The final selection of appropriate control measures for erosion and sediment control and construction waste management can depend on several factors such as the type and location of the project, construction methods, and the location of equipment and materials. There are specific minimum controls required by the permit that must be considered, as well as a list of extended controls that must be evaluated for possible selection.

The final SWPPP will be prepared by the contractor after the contract has been awarded and the field conditions have been identified. The final SWPPP is based on the conceptual SWPPP prepared during the design process and addresses those BMPs and control measures related to special site conditions and construction staging. The final SWPPP is required to be amended any

time there is a change in the field conditions or construction activities which has not yet been addressed.

Long-term Mitigation

Caltrans long-term mitigation measures involve the evaluation of potential adverse impacts that the operation of the new facility may have on receiving water quality. The evaluation process considers all aspects of the project, and determines the need for inclusion of permanent control measures (PCM) into the design of the project as previously described. The process also provides for the evaluation of available PCMs and their feasibility in the projects. The evaluation includes consideration of the following criteria:

- Water quality benefits to be obtained from the PCM;
- Cost of the PCM relative to the project cost;
- Feasibility of the PCM;
- Maintenance of the PCM including safety, access, cost of maintenance, special personnel training, related maintenance impacts, disposal of accumulated pollutants; and any special monitoring needs of the PCM.

In addition to any permanent control measures or treatment control best management practices to be considered and included in the project, the landscape plan will include erosion and sediment control as well as landscape plantings.

5.19 THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The information provided in the 1986 environmental document is still relevant and also applies to both the revised Martini Creek alignment alternative and the proposed tunnel alternative. The primary difference between the two alternatives is that the loss in natural productivity of the land will be less severe with the proposed tunnel project than with the proposed Martini Creek alignment alternative.

5.20 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Implementation of the tunnel alternative will involve a commitment of natural, physical, human and fiscal resources. Approximately 29.9 ha (74 acres) of land will be committed to the preferred alternative. Direct and indirect energy consumption will occur during construction. Large amounts of highway construction materials and labor will also be expended. All of these resources, as well as the state and federal funds expended will generally be non-retrievable. However, the commitment of these resources will have direct benefits to residents of the area through improved safety, savings in time and fuel, and the provision of a dependable transportation system.

5.21 UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

No significant adverse impacts have been identified nor are expected as a result of the construction and operation of the tunnel alternative or the revised Martini Creek alignment alternative.

5.22 GROWTH INDUCING IMPACTS

The 1986 FEIS concluded that the proposed Martini Creek alignment project was not growth inducing essentially because it would not accommodate growth beyond that which was planned in the City and County general plans as well as that projected by ABAG. The tunnel proposal will likewise not add capacity to Route 1 nor accommodate any greater traffic demand beyond what currently exists.

Population growth estimates for the region have not changed significantly since the release of the 1986 FEIS. The 1992 San Mateo County Local Coastal Program (LCP) estimated the build-out population for the Coastside area to be 30,500-32,000 as compared to 30,000-31,500 projected 10 years ago. According to ABAG's Projections 96, the Coastside population would reach 31,200 by the year 2005, which is five years later than when ABAG's Projections 86 estimated the build-out population would be reached. According to Projections 96, it was assumed that complete build-out would not occur by 2005 but nevertheless, ABAG estimated that the region will continue to grow and will attain a population of 38,400 by the year 2015.

There have been no design changes with regard to the capacity of the proposed Martini Creek alignment project since the 1986 FEIS was finalized, nor does the proposed tunnel project add any additional capacity. The long-range population growth estimates for the coastside region used in the 1986 document still apply. Thus, the conclusion in the 1986 environmental document that the Martini Creek alignment alternative is not growth inducing is still valid. The tunnel alternative is similarly not growth inducing.

In addition, a 1991 study conducted by ABAG concluded that transportation networks in general affect land use patterns differently, and that highway improvements in and of themselves do not create a cause and effect relationship with land use (ABAG, 1991).

5.23 CUMULATIVE IMPACTS

The Council for Environmental Quality's (CEQ) regulations for implementing NEPA (40 CFR Section 1508.7) defines a "cumulative impact" as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

The proposed tunnel project is essentially a replacement of a section of highway to avoid the geologically unstable Devil's Slide area. There are no cumulative impacts expected as a result of the tunnel project. No significant cumulative impacts were identified in the 1986 FEIS for the proposed Martini Creek alignment project, and none are expected for the current tunnel project or the revised Martini Creek alignment project.

There is a potential for temporary traffic impacts for both of these alternatives, however, these are expected to be short term pending the construction schedule. Route 92 between Half Moon Bay and Interstate 280 is the primary east-west transportation corridor between the Coastside and the Bayside areas of San Mateo County. If construction of the proposed uphill climbing lane project on Route 92, between Route 35 South and I-280 coincides with construction of the Devil's Slide project, motorists who normally travel this corridor may choose to avoid construction-related traffic delays on Route 92 and utilize Route 1, past Devil's Slide.

Neither the tunnel nor the Martini Creek alignment are expected to create serious traffic delays along existing Route 1 during construction, since the majority of the construction activities will occur inland of Route 1. However, some delays will be expected as a result of heavy construction truck traffic and the movement of equipment, especially during construction at the north and south conforms to existing Route 1. Such delays could be intensified should traffic on Route 1 increase from motorists choosing to avoid Route 92. These delays, however, will be temporary.

There are projects underway to retrofit the San Francisco/Oakland Bay Bridge, the Richmond/San Rafael Bay Bridge, and the Hayward/San Mateo Bridge, as well as a plan to construct a new east span of the Bay Bridge. It is expected that all of these projects could effect nesting sites of the peregrine falcon. With monitoring of nesting activity, the tunnel alternative is

not likely to adversely affect the peregrine falcon. With the implementation of mitigation measures for the proposed tunnel alternative, no permanent adverse effects to the California red-legged frog are expected. Two other highway projects in San Mateo County, the State Route 92 Safety and Improvement Project (recently completed) and the Crystal Springs Dam Bridge Replacement Project are expected to affect the frog. Both projects are currently in the process of fulfilling Section 7 consultation requirements pursuant to the Endangered Species Act. With mitigation measures planned for these projects, no long-term effects will result.

Cumulative impacts to listed species are not anticipated because other projects in the area include measures to protect those species, if present, and to mitigate for unavoidable impacts. Neither alternative will increase the capacity of State Route 1 through the Devil's Slide area, and no growth inducement impacts are expected.

6.0 TITLE VI POLICY STATEMENT

This project was developed, and will be constructed consistent with the provisions of Title VI. The Caltrans Title VI Policy Statement is provided below:

July 26, 2000

TITLE VI
POLICY STATEMENT

The California State Department of Transportation under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, sex and national origin be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

Jeff Morales

JEFF MORALES
Director

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8.0 COORDINATION

Notice of Intent

A Notice of Intent (NOI) was published in the Federal Register by FHWA on April 8, 1997, to advise the public that a supplement to a Final Environmental Impact Statement will be prepared for a proposed highway project on State Route 1 by FHWA in cooperation with Caltrans. The NOI provides some historical background information pertinent to Devil's Slide as well as public involvement opportunities. A copy of the NOI is provided in Appendix A.

NEPA/404 Integration Process

Pursuant to Appendix A of the 1994 Memorandum of Understanding (MOU) between the Federal Highway Administration, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and Caltrans, an interagency meeting was held on January 16, 1997 and again on June 10, 1997. In accordance with the NEPA/404 Integration Process, this meeting was conducted to review the status of the Devil's Slide Project and also to discuss the construction of a tunnel as an alternative to the previously proposed Martini Creek alignment alternative.

The wetland delineation for the project was completed in 1997. The U.S. Army Corps of Engineers verified the delineation in October 1998. A revised wetland delineation including a proposed mitigation site was re-submitted to the Corps on March 16, 2001. A field meeting was subsequently held on March 28, 2001 to confirm formal jurisdictional determination. The project will qualify for a nationwide permit (NWP) #14 and #39. The estimated 1/3 acre of wetlands which will be filled is below the threshold limit of 1/2 acre for issuance of a nationwide permit.

U.S. Fish and Wildlife Service

In accordance with Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.), Caltrans submitted a Biological Assessment to the USFWS on December 15, 1999. A request for conferencing on the red-legged frog critical habitat was made on October 17, 2000 and a request to initiate consultation was made on January 27, 2000. A biological opinion was issued by the USFWS on December 18, 2000. The biological opinion stated that the project is not likely to jeopardize the continued existence of the red-legged frog or destroy or adversely modify proposed critical habitat. The project, as proposed, is also not likely to adversely affect the federally endangered San Francisco garter snake.

California Coastal Commission

On February 2, 2000, a meeting was conducted with commission staff to discuss the preferred field survey methodology for delineation of wetlands under the Coastal Act requirements. There was a subsequent meeting on June 28, 2000 with Commission staff to discuss potential project

impacts and appropriate mitigation measures. A Consistency Certification was submitted to the Commission on August 31, 2000 and on October 10, 2000 the Commission concurred with the Certification and found the Devil's Slide Tunnel to be consistent with the California Coastal Management Program (CCMP). See Appendix I.

San Mateo County Planning Department

A preliminary meeting was held on January 19, 2000 with the San Mateo County Planning Department staff, County Counsel, Coastal Commission Staff and Caltrans. The purpose of the meeting was to review issues related to a Coastal Development Permit for geo-technical exploration at the project site.

San Mateo County/Caltrans Coordination

Representatives from the San Mateo County Planning and Public Works Divisions; Federal, state, and local legislators; environmental groups; mid-coast business leaders; tunnel project advocates and de-watering supporters; the media; and MTC, FHWA and Caltrans have been meeting since January of 1997. Monthly coordination meetings were held to discuss any issues or concerns of the various representatives as well for Caltrans to provide regular progress reports on the Devil's Slide project. Issues such as project funding, tunnel width and alignment, pedestrian and bicycle access, de-watering, tunnel design options (bridge vs. fill), and the California red-legged frog have been addressed over the last year and a half. The coordination meetings have proven valuable as a means of addressing important issues that might otherwise have been overlooked in the development of this SSEIS/R. These meetings are expected to continue as needed.

9.0 PUBLIC INVOLVEMENT

The DSSEIS for the proposed Devil's Slide Improvement Project was circulated in March of 1999 to federal, state, and local agencies as well as interested civic groups, organizations, and individuals. The public notice, informing the public of the availability of the DSSEIS, was published in local newspapers and included the announcement for the Public Hearing-Open House held on April 27, 1999 in the town of Montara. Staff from Caltrans District 04 engineering and environmental offices were available at the Public Hearing to discuss the proposed project.

The Public Hearing-Open House on April 27, 1999 at the Farallone View School located in Montara, was attended by approximately 100 individuals. There were nine verbally recorded comments and eleven written comments submitted at the Public Hearing. A brief presentation described the history of the project, identified the proposed alternatives, and explained the environmental process for the project.

In addition, there have been regularly scheduled coordination meetings open to the public and attended by various segments of the public, legislative representatives, the media and press, San Mateo County officials and Caltrans. The first meeting convened on January 29, 1997 and became a monthly meeting chaired by San Mateo County Supervisor Rich Gordon. The purpose of the Devil's Slide Tunnel Coordination Meetings was to coordinate with all stakeholders in the project and to provide information regarding the progress of the project.

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Prepared by; Caltrans, Office of Landscape Architecture. December, 1997.

* Copies of the references listed above are available for review upon request.

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APPENDIX A
NOTICE OF INTENT

principles of trade, and to protect investors and the public interest.[11] Allowing the PSE to appoint up to six additional LMMs to the Book Pilot Program and increasing the number of options symbols available to the program by 110 constitutes a reasonable and limited expansion of the Book Pilot Program. The expansion should provide the Exchange with sufficient experience administering the pilot in order to better determine whether the Book Pilot Program should be made permanent upon its scheduled expiration on October 31, 1997.[12]

As noted in the Pilot Approval Order, before the Book Pilot Program can be approved on a permanent basis, or further extended, the Exchange must provide the Commission, within 6 months prior to its expiration, with a report on the operation of the Book Pilot Program. Specifically, the PSE must submit an updated pilot program report by April 1997 that addresses: (1) Whether there have been any complaints regarding the operation of the pilot; (2) whether the PSE has taken any disciplinary or performance action against any member due to the operation of the pilot; (3) whether the PSE has reassigned any options issues traded pursuant to the pilot; and (4) the impact of the pilot on the bid/ask spreads, depth and continuity in PSE options markets.

IV. Conclusion

It is therefore ordered, pursuant to Section 19(b)(2) of the Act,[13] that the proposed rule change (File No. SR–PSE–96–45), is approved.

For the Commission, by the Division of Market Regulation, pursuant to delegated authority.[14]

Margaret H. McFarland,

Deputy Secretary.

[FR Doc. 97–8877 Filed 4–7–97; 8:45 am]

BILLING CODE 8010–01–M

[11] In approving the rule change, the Commission has considered the proposed rule changes' impact on efficiency, competition, and capital formation. 15 U.S.C. §78c(f).

[12] The PSE has represented that it has experienced no operational problems and received no complaints regarding the operation of the Book Pilot Program. Telephone conversation between Janet W. Russell-Hunter, Special Counsel, Office of Market Supervision, Division of Market Regulation, SEC, and Michael D. Pierson, Senior Attorney, Regulatory Policy, PSE, April 1, 1997.

[13] 15 U.S.C. 78s(b)(2) (1988).

[14] 17 CFR 200.30–3(a)(12).

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

Environmental Impact Statement: San Mateo County, California

AGENCY: Federal Highway Administration (FHWA), DOT.

ACTION: Notice of intent to supplement a final environmental impact statement.

SUMMARY: The FHWA is issuing this notice to advise the public that a supplement to a final environmental impact statement will be prepared for a proposed highway project in San Mateo County, California.

FOR FURTHER INFORMATION CONTACT: John R. Schultz, Chief, District Operations-North, Federal Highway Administration, 980 Ninth Street, Suite 400, Sacramento, California 95814–2724; Telephone: (916) 498–5041.

SUPPLEMENTARY INFORMATION: The FHWA, in cooperation with the California Department of Transportation (Caltrans), will prepare a supplement to the final environmental impact statement (EIS) on a proposal to improve State Route (SR) 1 in San Mateo County, California. The original final EIS for the improvements (FHWA–CA–EIS–83–14–F) was approved on April 16, 1986. The project study limits of alternatives considered in the final EIS extended from Half Moon Bay Airport, between Moss Beach and El Granada, on the south to Linda Mar Boulevard in Pacifica on the north, a distance of approximately 11.3 km (7 miles).

The preferred alternative, identified in the final EIS and selected in the Record of Decision signed on May 30, 1986, is known as the Martini Creek alignment alternative. From the southern end, this alternative begins north of the southern project study limit on SR 1, 0.2 km (0.1 mile) north of Montara near the Chart House Restaurant. From there it swings inland, crosses Martini Creek, curves seaward (west) and then northeasterly, proceeds over the San Pedro Mountain saddle and down into the City of Pacifica where it rejoins SR 1 at Linda Mar Boulevard. The proposed project is a two-land, controlled access facility; however, since the entire project on both sides of the summit exceeds six percent, the project design includes an uphill slow vehicle lane in each direction. The proposed project is approximately 7.2 km (4.5 miles) in length.

Litigation regarding the project was commenced in U.S. District Court in the Northern District of California in June 1986 (Sierra Club, et al. v. United States Department of Transportation, et al., Civ. No. 86–3384 DLJ). The project has been enjoined since September 1986, prior to the commencement of any construction. Ultimately, the District Court found that the final EIS was inadequate only in its discussion and analysis of noise impacts and required a re-analysis of those impacts, as set forth in the Court's Orders of April 3, 1989, and April 2, 1990. Thereafter, in 1995, FHWA and Caltrans prepared a limited supplemental EIS for the purpose of addressing the noise impact analysis deficiencies in the final EIS, as determined in the litigation.

Based on public comments received, the August 10, 1995 Record of Decision regarding the supplemental EIS included a commitment by the FHWA to address the issue of a tunnel alternative in the reevaluation of the 1986 final EIS. A tunnel alternative was considered earlier in the project development process, but has been withdrawn from active consideration prior to the issuance of the draft EIS that was the basis for the 1986 final EIS. The reevaluation was to be undertaken since major steps to advance the project had not occurred within three years after the approval of the final EIS. 23 CFR 771.129(b). The intent of the reevaluation of the final EIS was to determine whether or not new information or circumstances relevant to environmental concerns and bearing on the proposed project or its impacts would result in significant environmental impacts not evaluated in the final EIS. 23 CFR 771.130(a)(2).

In response to requests from local agencies and the public, Caltrans hired an independent consulting firm to conduct a tunnel feasibility study. Based upon the results of the tunnel feasibility report issued in October 1996, and the updated cost estimates for the revised highway bypass alternative (now $117 million), FHWA and Caltrans have determined that a tunnel alternative is a reasonable alternative for the proposed project that should be fully evaluated in the environmental process. Therefore, a second supplement to the 1986 final EIS will be prepared and will include an analysis of both the updated Martini Creek bypass alternative and a tunnel alternative. Since the purpose of a reevaluation is to determine whether or not the original EIS remains valid, FHWA's decision to prepare a full supplemental EIS (as compared with the 1995 supplemental EIS which was of limited scope) means that a reevaluation of the 1986 final EIS is no longer necessary.

In the meantime, on November 5, 1996, the voters of San Mateo County passed the Devil's Slide Tunnel Initiative known as Measure T. Passage of the Measure initiated the process to amend the County's land use plan portion of the San Mateo County certified Local Coastal Program (LCP) to provide a tunnel for motorized vehicles only behind Devil's Slide through San Pedro Mountain as the preferred alternative for Highway 1 around Devil's Slide, and to delete references to a two-lane bypass along the Martini Creek alignment. The Initiative required that the tunnel be designed consistent with restricting Route 1 to a 2-lane scenic highway using minimum state and federal tunnel standards, and that a separate trail for pedestrians and bicycles be provided outside the tunnel. The Measure also requires voter approval of any other alternative to the tunnel, except repair of the existing highway. On January 9, 1997, the California Coastal Commission voted unanimously to certify the LCP amendment as submitted by the County.

The proposed tunnel alternative is a 1,219 m (4,000-foot) long, double bore facility with one lane in each direction. The north approach road is about 457 m (1,500 feet) long, and the south approach road is about 305 m (1,000 feet) long. Proceeding south from Pacifica, the alignment departs from existing Route 1 along a 7% uphill grade, crosses the valley at Shamrock Ranch, passes through a small ravine, enters the tunnel beneath San Pedro Mountain, and exits the tunnel just south of the Devil's Slide area where it rejoins the existing highway.

Two tunnel design variations, a 9.1 m (30-foot) wide tunnel (variation A), and an 11.0 m 36-foot) wide tunnel (variation B), will be analyzed in the SEIS/EIR. The total project costs of tunnel variations A and B are estimated to be $125,950,000 and $130,294,000, respectively. Tunnel variation B allows pedestrian and bicycle access inside the tunnel, while variation A provides a pedestrian/bicycle path outside the tunnel. Even though tunnel variation B is not consistent with the County's recently revised LCP, this design must be considered until an economically and environmentally feasible bicycle/pedestrian path alignment outside the tunnel (variation A) has been established through the environmental process. Until such time, variation B will be analyzed as a viable option that retains bicycle and pedestrian continuity along Route 1.

Letters describing this proposed action and soliciting comments will be sent to appropriate Federal, State, and local agencies, and to private organizations and individuals that have previously expressed, or are known to have, an interest in this proposal. In addition, two formal public hearings will be held on the draft supplemental EIS; one in Half Moon Bay, and one in Pacifica. Public notice will be given of the exact time and place of the hearings. The draft supplemental EIS will be available for public and agency review and comment prior to the public hearings.

To ensure that the full range of issues related to this proposed action are addressed and that all significant issues are identified, comments and suggestions are invited from all interested parties. Comments or questions concerning this proposed action and the supplemental EIS should be directed to the FHWA at the address provided above.

(Catalog of Federal Domestic Assistance Program Number 20.205, Highway Research, Planning and Construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities apply to this program)

Issued on: April 1, 1997.

G.P. Bill Wong,

Senior Transportation Engineer, Sacramento, California.

[FR Doc. 97-8948 Filed 4-7-97; 8:45 am]

BILLING CODE 4910-22-M

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

[Docket No. 97-019; Notice 1]

Notice of Receipt of Petition for Decision That Nonconforming 1990 Mercedes-Benz 420 SEC Passenger Cars Are Eligible for Importation

AGENCY: National Highway Traffic Safety Administration, DOT.

ACTION: Notice of receipt of petition for decision that nonconforming 1990 Mercedes-Benz 420 SEC passenger cars are eligible for importation.

SUMMARY: This notice announces receipt by the National Highway Traffic Safety Administration (NHTSA) of a petition for a decision that a 1990 Mercedes-Benz 420 SEC that was not originally manufactured to comply with all applicable Federal motor vehicle safety standards is eligible for importation into the United States because (1) it is substantially similar to a vehicle that was originally manufactured for importation into and sale in the United States and that was certified by its manufacturer as complying with the safety standards, and (2) it is capable of being readily altered to conform to the standards.

DATES: The closing date for comments on the petition is May 8, 1997.

ADDRESSES: Comments should refer to the docket number and notice number, and be submitted to: Docket Section, Room 5109, National Highway Traffic Safety Administration, 400 Seventh St., SW., Washington, DC 20590. (Docket hours are from 9:30 a.m. to 4 p.m.)

FOR FURTHER INFORMATION CONTACT: George Entwistle, Office of Vehicle Safety Compliance, NHTSA (202-366-5306).

SUPPLEMENTARY INFORMATION:

Background

Under 49 U.S.C. 30141(a)(1)(A), a motor vehicle that was not originally manufactured to conform to all applicable Federal motor vehicle safety standards shall be refused admission into the United States unless NHTSA has decided that the motor vehicle is substantially similar to a motor vehicle originally manufactured for importation into and sale in the United States, certified under 49 U.S.C. 30115, and of the same model year as the model of the motor vehicle to be compared, and is capable of being readily altered to conform to all applicable Federal motor vehicle safety standards.

Petitions for eligibility decisions may be submitted by either manufacturers or importers who have registered with NHTSA pursuant to 49 CFR part 592. As specified in 49 CFR 593.7, NHTSA publishes notice in the Federal Register of each petition that it receives, and affords interested persons an opportunity to comment on the petition. At the close of the comment period, NHTSA decides, on the basis of the petition and any comments that it has received, whether the vehicle is eligible for importation. The agency then publishes this decision in the Federal Register.

Champagne Imports, Inc. of Lansdale, Pennsylvania ("Champagne") (Registered Importer 90-009) has petitioned NHTSA to decide whether 1990 Mercedes-Benz 420 SEC passenger cars are eligible for importation into the United States. The vehicle which Champagne believes is substantially similar is the 1990 Mercedes-Benz 560 SEC that was manufactured for importation into, and sale in, the United States and certified by its manufacturer, Daimler Benz, A.G., as conforming to all applicable Federal motor vehicle safety standards.

APPENDIX B
SAN MATEO COUNTY RESOLUTION NO. 61060

RESOLUTION NO. 61060

BOARD OF SUPERVISORS, COUNTY OF SAN MATEO, STATE OF CALIFORNIA

* * * * * * * * * * *

RESOLUTION RECOMMENDING A
BICYCLE/PEDESTRIAN PATH ALIGNMENT
OUTSIDE THE PROPOSED
DEVIL'S SLIDE TUNNEL PROJECT

* * * * * * * * * * *

RESOLVED, by the Board of Supervisors, County of San Mateo, State of California, that

WHEREAS, in November 1996, 71 percent of the voters of San Mateo County approved Measure T to amend the San Mateo County Local Coastal Program (LCP) to allow for a Tunnel to bypass the Devil's Slide provided, in part, that (1) no non-motorized facilities are constructed within the Tunnel, and (2) a bicycle/pedestrian facility would be constructed outside the Tunnel; and

WHEREAS, the California Coastal Commission approved the San Mateo County Local Coastal Program amendment based, in part, on finding that Policy 2.56(a) of the amended Local Coastal Program requires a separate trail for pedestrians and bicycles outside the tunnel, and would thus ensure coastal access will be provided and maintained in the Devil's Slide area; and

WHEREAS, California Department of Transportation requested this Board of Supervisors to recommend a preferred alignment for a bicycle facility associated with the Tunnel project in order to proceed with project design and environmental review; and

WHEREAS, this Board of Supervisors has considered both oral and written testimony presented by agencies, organizations, and individuals about alternative alignments for a bicycle/pedestrian trail outside the Tunnel.

NOW, THEREFORE, IT IS HEREBY DETERMINED AND ORDERED that the President of the Board of Supervisors be, and he is hereby, authorized and directed to notify the California Department of Transportation that this Board's preferred alignment for a bicycle/pedestrian trail be located within the existing Highway 1 Devil's Slide right-of-way, with an alternative alignment around Devil's Slide should it fail.

Regularly passed and adopted this 20th day of May, 1997.

AYES and in favor of said resolution:

Supervisors: MARY GRIFFIN

TOM HUENING

RICHARD S. GORDON

RUBEN BARRALES

MICHAEL D. NEVIN

NOES and against said resolution:

Supervisors: NONE

Absent Supervisors: NONE

Michael D Nevin

President, Board of Supervisors
County of San Mateo
State of California

Certificate of Delivery
(Government Code section 25103)

I certify that a copy of the original resolution filed in the Office of the Clerk of the Board of Supervisors of San Mateo County has been delivered to the President of the Board of Supervisors.

RICHARD L. SILVER
Clerk of the Board of Supervisors

APPENDIX C
U.S. ARMY CORPS OF ENGINEERS-NATIONWIDE PERMIT AUTHORIZATION

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
333 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94105-2197

COPY FOR
DEPT. E/P SO
ATTN. K STYCKET

APR 04 2001

RECEIVED
APR 09 2001
Office of Environmental Planning, South

Regulatory Branch

SUBJECT: File Number 21581S

Mr. Sid Shadle, Branch Chief
Office of Environmental Planning, South
California Department of Transportation
P.O. Box 23660
Oakland, California 94623-0660

Dear Mr. Shadle:

This letter is in response to your request dated March 19, 2001 (revised on March 26, 2001) regarding the Devils Slide Tunnel Project located near the City of Pacifica in San Mateo County, California. Specifically, you requested information on whether or not your project would qualify for a Nationwide Permit Authorization pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344). You requested that this determination based on the proposed Project Impact Summary Totals (Attachment 1).

Based on our review of the information you submitted (Attachment 1), it appears that your project would qualify for Nationwide Permit No. 39: Residential, Commercial and Institutional Developments and No. 14: Linear Transportation Crossings. It is important to note that this preliminary determination was based on your draft project impact submittal and on the currently authorized Nationwide Permit Program (61 FR 65874, December 13, 1996 and 65 FR 12818, March 9, 2000).

Since your submittal was not accompanied by an application; it is not possible for the Corps to fully assess impacts and issue a final determination regarding compliance with the Nationwide Permit Program and the Nationwide Permit terms (61 FR 65874, December 13, 1996 and 65 FR 12818, March 9, 2000). A final determination on the level of Section 404 permit required for the project will be based on your completed Section 404 permit application. Please remember that when your application is received, it will be reviewed pursuant to the Nationwide Program in effect at the time of your submittal.

Your proposed project is within our jurisdiction and a permit will be required. You are advised to refrain from commencement of your proposed activity until a determination has been made that your project is covered an existing permit. Commencement of work before you have received our notification may be interpreted as a violation of our regulations.

If you have any questions, please call Victoria Alvarez of our Regulatory Branch at telephone 415-977-8472. All correspondence should reference the file number at the head of this letter.

Sincerely,

Edward A. Wyle

for Calvin C. Fong
Chief, Regulatory Branch

Enclosures

Attachment 1

DSLIDE TUNNEL PROJECT ADDITIONAL INFORMATION REQUESTED
RICHARD VONARB 3-19-01

****

PROJECT IMPACT SUMMARY TOTALS: *1

Permanent Wetland Fill Impacts = ~~11,287~~ 11,567 sq ft (~~1/4 Acre~~ 0.27 Ac) *2
Temporary Wetland Fill Impacts = ~~0~~ 0 sq ft (~~0~~ Acre) *2
Cubic Yards Of Fill Into Wetlands = 21,915 cu yd

Permanent Waters Of The U.S. Permanent Fill Impacts = 1,500 sq ft
Permanent Waters Of The U.S. Temporary Fill Impacts = 1,500 sq ft

****

I. Fill Disposal Site Drainage Area

1) Downhill Seasonal Ponding Depression
Nature Of Impact: Fill Disposal Site
Temporary Wetland Impact = 0 sq ft
Permanent Wetland Impact = 7,201 sq ft
Cubic Yards Of Fill = 19,250 cu yd

2) Trace Of Former Roadway Alignment
Nature Of Impact: Fill Disposal Site
Temporary Wetland Impact = 0 sq ft
Permanent Wetland Impact = 70 sq ft
Cubic Yards Of Fill = 35 cu yd

II. South Portal Drainage Area

1) Seasonal Ponding Drainage
Nature Of Impact: New Roadway
Temporary Wetland Impact = 0 sq ft
Permanent Wetland Impact = 3,326 sq ft
Cubic Yards Of Fill = 2,450 cu yd

1) Uphill Drainage
Nature Of Impact: New Roadway Fill
Temporary Wetland Impact = 0
Permanent Wetland Impact = 280 sq ft
Cubic Yards Of Fill = 170 cu yd

III. North Portal Drainage Area/Shamrock Ranch

1) Horse Trail Seep
Nature Of Impact: Widen Horse Trail To Be Used As An Access Road
Temporary Wetland Impact = 0 sq ft
Permanent Wetland Impact = 690 sq ft
Cubic Yards Of Fill = 10 cu yd

2) Intermittent/Ephemeral Drainage
Nature Of Impact: Perm. Due To North Portal Fill & Abutment / Temp. Due To Constr. Activities
Temporary Water Of The U.S. Impact = 1,500 sq ft
Permanent Waters Of The U.S. Impact = 1,500 sq ft

*1 All COE jurisdictional areas affected by the impacts are non-tidal waters.
~~*2 Impact unknown until the final design details = poss. Retaining wall/drainage relocation~~

Revised 3/26/01 SMS

APPENDIX D
U.S.FISH AND WILDLIFE SERVICE
UPDATED SPECIES LIST

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
3310 El Camino Avenue, Suite 130
Sacramento, California 95821-6340

IN REPLY REFER TO:
1-1-99-SP-275

December 3, 1998

Mr. Sid M. Shadle
District Branch Chief, Biology
Office of Environmental Planning, South
Caltrans-District 4
Attn.: Richard Vonarb
P.O. Box 23660-14th Floor
Oakland, California 94623-0660

RECEIVED
DEC 10 1998
Office of Environmental Planning, South

Subject: Updated Species List for Devil's Slide Bypass, Pacifica, San Mateo County, California

Dear Mr. Shadle:

We are sending the enclosed list in response to your Decmeber 1, 1998, request for information about endangered and threatened species (Enclosure A). These lists fulfill the requirement of the Fish and Wildlife Service (Service) to provide species lists under section 7(c) of the Endangered Species Act of 1973, as amended (Act).

The animal species on the Enclosure A quad list are those species we believe may occur within, *or be affected by projects within*, the following USGS quads, where your project is planned: Montara Mountain Quad.

Any plants on the quad list are ones *that have actually been observed* in the project quad(s). Plants may occur in a quad without having been observed there. Therefore we have included a species list for the whole county in which your project occurs. We recommend that you survey for any relevant plants shown on this list.

Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.

Species listed as threatened or endangered by the California Department of Fish and Game do not appear on your species list unless they have also been listed by us or by the National Marine Fisheries Service. Call (916) 322-2493 or write Marketing Manager, California Department of Fish and Game, Natural Diversity Data Base, 1416 Ninth Street, Sacramento, California 95814 for information about state-listed species.

Some of the species listed in Enclosure A may not be affected by the proposed action. A trained biologist or botanist, familiar with the habitat requirements of the listed species, should determine whether these species or habitats suitable for them may be affected. For plants, we recommend using the enclosed Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Species (Enclosure C).

Some pertinent information concerning the distribution, life history, habitat requirements, and published references for the listed species is available upon request. This information may be helpful in preparing the biological assessment for this project, if one is required. Please see Enclosure B for a discussion of the responsibilities Federal agencies have under section 7(c) of the Act and the conditions under which a biological assessment must be prepared by the lead Federal agency or its designated non-Federal representative.

Formal consultation, under 50 CFR § 402.14, should be initiated if you determine that a listed species may be affected by the proposed project. If you determine that a proposed species may be adversely affected, you should consider requesting a conference with our office under 50 CFR § 402.10. Informal consultation may be utilized prior to a written request for formal consultation to exchange information and resolve conflicts with respect to a listed species. If a biological assessment is required, and it is not initiated within 90 days of your receipt of this letter, you should informally verify the accuracy of this list with our office.

Candidate species are being reviewed for possible listing. Contact our office if your biological assessment reveals any candidate species that might be adversely affected. Although they currently have no protection under the Endangered Species Act, one or more of them could be proposed and listed before your project is completed. By considering them from the beginning, you could avoid problems later.

Your list may contain a section called *Species of Concern*. This term includes former *category 2 candidate species* and other plants and animals of concern to the Service and other Federal, State and private conservation agencies and organizations. Some of these species may become candidate species in the future.

If the proposed project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by the U.S. Army Corps of Engineers (Corps), a Corps permit will be required, under section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act. Impacts to wetland habitats require site specific mitigation and monitoring. You may request a copy of the Service's General Mitigation and Monitoring Guidelines or submit a detailed description of the proposed impacts for specific comments and recommendations. If you have any questions regarding wetlands, contact Mark Littlefield at (916) 979-2113.

We appreciate your concern for endangered species. Please contact Kenneth Sanchez at (916) 979-2752, if you have any questions about the attached list or your responsibilities under the Endangered Species Act. For the fastest response to species list requests, address them to the attention of the Section 7 Biological Technician at this address. You may fax requests to (916) 979-2723.

Sincerely,

Karen J. Miller

for Cay C. Goude
Chief, Endangered Species Division

Enclosures

ENCLOSURE A

Endangered and Threatened Species that May Occur in or be Affected by Projects in the Area of the Following California County or Counties

December 2, 1998

SAN MATEO COUNTY

Listed Species

Mammals

- salt marsh harvest mouse, *Reithrodontomys raviventris* (E)
- southern sea otter, *Enhydra lutris nereis* (T)
- Steller (=northern) sea-lion, *Eumetopias jubatus* (T)

Birds

- American peregrine falcon, *Falco peregrinus anatum* (E)
- California brown pelican, *Pelecanus occidentalis californicus* (E)
- California clapper rail, *Rallus longirostris obsoletus* (E)
- California least tern, *Sterna antillarum (=albifrons) browni* (E)
- marbled murrelet, *Brachyramphus marmoratus* (T)
- marbled murrelet critical habitat, *Brachyramphus marmoratus* (T)
- western snowy plover, *Charadrius alexandrinus nivosus* (T)
- bald eagle, *Haliaeetus leucocephalus* (T)

Reptiles

- leatherback turtle, *Dermochelys coriacea* (E)
- San Francisco garter snake, *Thamnophis sirtalis tetrataenia* (E)
- loggerhead turtle, *Caretta caretta* (T)
- green turtle, *Chelonia mydas (incl. agassizi)* (T)
- olive (=Pacific) ridley sea turtle, *Lepidochelys olivacea* (T)

Amphibians

- California red-legged frog, *Rana aurora draytonii* (T)

Fish

- tidewater goby, *Eucyclogobius newberryi* (E)
- winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)
- delta smelt, *Hypomesus transpacificus* (T)
- coho salmon - central CA coast, *Oncorhynchus kisutch* (T)
- Central California steelhead, *Oncorhynchus mykiss* (T)

Invertebrates

- mission blue butterfly, *Icaricia icarioides missionensis* (E)
- San Bruno elfin butterfly, *Incisalia mossii bayensis* (E)
- callippe silverspot butterfly, *Speyeria callippe callippe* (E)

Listed Species

Invertebrates

bay checkerspot butterfly, *Euphydryas editha bayensis* (T)

Plants

San Mateo thornmint, *Acanthomintha duttonii* (E)

fountain thistle, *Cirsium fontinale var. fontinale* (E)

Santa Cruz cypress, *Cupressus abramsiana* (E)

San Mateo woolly sunflower, *Eriophyllum latilobum* (E)

San Francisco lessingia, *Lessingia germanorum* (E)

white-rayed pentachaeta, *Pentachaeta bellidiflora* (E)

Marin dwarf-flax, *Hesperolinon congestum* (T)

robust spineflower, *Chorizanthe robusta* (E) *

Hickman's potentilla (=cinquefoil), *Potentilla hickmanii* (E) *

Proposed Species

Fish

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (PE)

Central Valley fall-run chinook crit hab, *Oncorhynchus tshawytscha* (PT)

Central Valley fall-run chinook salmon, *Oncorhynchus tshawytscha* (PT)

Sacramento splittail, *Pogonichthys macrolepidotus* (PT)

Candidate Species

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Species of Concern

Mammals

greater western mastiff-bat, *Eumops perotis californicus* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)

Pacific western big-eared bat, *Plecotus townsendii townsendii* (SC)

salt marsh vagrant shrew, *Sorex vagrans halicoetes* (SC)

Birds

tricolored blackbird, *Agelaius tricolor* (SC)

grasshopper sparrow, *Ammodramus savannarum* (SC)

Species of Concern

Birds

- Bell's sage sparrow, *Amphispiza belli belli* (SC)
- short-eared owl, *Asio flammeus* (SC)
- western burrowing owl, *Athene cunicularia hypugea* (SC)
- American bittern, *Botaurus lentiginosus* (SC)
- ferruginous hawk, *Buteo regalis* (SC)
- Lawrence's goldfinch, *Carduelis lawrencei* (SC)
- Vaux's swift, *Chaetura vauxi* (SC)
- lark sparrow, *Chondestes grammacus* (SC)
- olive-sided flycatcher, *Contopus cooperi* (SC)
- hermit warbler, *Dendroica occidentalis* (SC)
- white-tailed (=black shouldered) kite, *Elanus leucurus* (SC)
- Pacific-slope flycatcher, *Empidonax difficilis* (SC)
- common loon, *Gavia immer* (SC)
- saltmarsh common yellowthroat, *Geothlypis trichas sinuosa* (SC)
- least bittern, western, *Ixobrychus exilis hesperis* (SC)
- loggerhead shrike, *Lanius ludovicianus* (SC)
- Alameda (South Bay) song sparrow, *Melospiza melodia pusillula* (SC)
- long-billed curlew, *Numenius americanus* (SC)
- ashy storm-petrel, *Oceanodroma homochroa* (SC)
- rufous hummingbird, *Selasphorus rufus* (SC)
- red-breasted sapsucker, *Sphyrapicus ruber* (SC)
- elegant tern, *Sterna elegans* (SC)
- Xantus' murrelet, *Synthliboramphus hypoleucus* (SC)
- Bewick's wren, *Thryomanes bewickii* (SC)
- California Thrasher, *Toxostoma redivivum* (SC)

Reptiles

- northwestern pond turtle, *Clemmys marmorata marmorata* (SC)
- southwestern pond turtle, *Clemmys marmorata pallida* (SC)
- California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

- foothill yellow-legged frog, *Rana boylii* (SC)

Fish

- green sturgeon, *Acipenser medirostris* (SC)

Species of Concern

Fish

river lamprey, *Lampetra ayresi* (SC)

Pacific lamprey, *Lampetra tridentata* (SC)

longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Opler's longhorn moth, *Adela oplerella* (SC)

sandy beach tiger beetle, *Cicindela hirticollis gravida* (SC)

globose dune beetle, *Coelus globosus* (SC)

Ricksecker's water scavenger beetle, *Hydrochara rickseckeri* (SC)

Leech's skyline diving beetle, *Hydroporus leechi* (SC)

Marin elfin butterfly, *Incisalia mossii* (SC)

bumblebee scarab beetle, *Lichnanthe ursina* (SC)

unsilvered fritillary butterfly, *Speyeria adiaste adiaste* (SC)

Plants

Montara manzanita, *Arctostaphylos montaraensis* (SC)

San Francisco Bay spineflower, *Chorizanthe cuspidata var. cuspidata* (SC)

clustered lady's-slipper, *Cypripedium fasciculatum* (SC)

coast wallflower, *Erysimum ammophilum* (SC)

San Francisco wallflower, *Erysimum franciscanum* (SC)

fragrant fritillary, *Fritillaria liliacea* (SC)

San Francisco gumplant, *Grindelia hirsutula var. maritima* (SC)

Diablo rock-rose, *Helianthella castanea* (SC)

Point Reyes horkelia, *Horkelia marinensis* (SC)

legenere, *Legenere limosa* (SC)

Crystal Springs lessingia, *Lessingia arachnoidea* (SC)

San Mateo tree lupine, *Lupinus arboreus var. eximius* (SC)

Dudley's lousewort, *Pedicularis dudleyi* (SC)

Gairdner's yampah, *Perideridia gairdneri ssp. gairdneri* (SC)

Marin checkermallow, *Sidalcea hickmanii ssp. viridis* (SC)

Mission Delores campion, *Silene verecunda ssp. verecunda* (SC)

San Francisco owl's-clover, *Triphysaria floribunda* (SC)

northcoast bird's-beak, *Cordylanthus maritimus ssp. palustris* (SC) *

Kellogg's (wedge-leaved) horkelia, *Horkelia cuneata ssp. sericea* (SC) *

coast lily, *Lilium maritimum* (SC) *

KEY:

(E)	*Endangered*	Listed (in the Federal Register) as being in danger of extinction.
(T)	*Threatened*	Listed as likely to become endangered within the foreseeable future.
(P)	*Proposed*	Officially proposed (in the Federal Register) for listing as endangered or threatened.
(C)	*Candidate*	Candidate to become a *proposed* species.
(SC)	*Species of Concern*	Other species of concern to the Service.
*	*Extirpated*	Possibly extirpated from the area.
	Critical Habitat	Area essential to the conservation of a species.

ENCLOSURE A

Endangered and Threatened Species that May Occur in
or be Affected by Projects in the Following Selected Quads
December 2, 1998

QUAD : 448C MONTARA MOUNTAIN

Listed Species

Mammals

salt marsh harvest mouse, *Reithrodontomys raviventris* (E)

Birds

American peregrine falcon, *Falco peregrinus anatum* (E)

California brown pelican, *Pelecanus occidentalis californicus* (E)

California clapper rail, *Rallus longirostris obsoletus* (E)

marbled murrelet, *Brachyramphus marmoratus* (T)

western snowy plover, *Charadrius alexandrinus nivosus* (T)

bald eagle, *Haliaeetus leucocephalus* (T)

Reptiles

San Francisco garter snake, *Thamnophis sirtalis tetrataenia* (E)

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

Fish

tidewater goby, *Eucyclogobius newberryi* (E)

delta smelt, *Hypomesus transpacificus* (T)

coho salmon - central CA coast, *Oncorhynchus kisutch* (T)

Central California steelhead, *Oncorhynchus mykiss* (T)

Invertebrates

mission blue butterfly, *Icaricia icarioides missionensis* (E)

San Bruno elfin butterfly, *Incisalia mossii bayensis* (E)

Plants

white-rayed pentachaeta, *Pentachaeta bellidiflora* (E) *

Hickman's potentilla (=cinquefoil), *Potentilla hickmanii* (E) *

QUAD : 448C MONTARA MOUNTAIN

Proposed Species

Fish

Sacramento splittail, *Pogonichthys macrolepidotus* (PT)

Candidate Species

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Species of Concern

Mammals

greater western mastiff-bat, *Eumops perotis californicus* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)

Pacific western big-eared bat, *Plecotus townsendii townsendii* (SC)

Birds

tricolored blackbird, *Agelaius tricolor* (SC)

Bell's sage sparrow, *Amphispiza belli belli* (SC)

ferruginous hawk, *Buteo regalis* (SC)

ashy storm-petrel, *Oceanodroma homochroa* (SC)

Reptiles

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

southwestern pond turtle, *Clemmys marmorata pallida* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

foothill yellow-legged frog, *Rana boylii* (SC)

Fish

Pacific lamprey, *Lampetra tridentata* (SC)

QUAD : 448C MONTARA MOUNTAIN

Species of Concern

Fish

longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

sandy beach tiger beetle, *Cicindela hirticollis gravida* (SC)

globose dune beetle, *Coelus globosus* (SC)

Ricksecker's water scavenger beetle, *Hydrochara rickseckeri* (SC)

Leech's skyline diving beetle, *Hydroporus leechi* (SC)

bumblebee scarab beetle, *Lichnanthe ursina* (SC)

Plants

Montara manzanita, *Arctostaphylos montaraensis* (SC)

San Francisco Bay spineflower, *Chorizanthe cuspidata var. cuspidata* (SC)

fragrant fritillary, *Fritillaria liliacea* (SC)

San Francisco gumplant, *Grindelia hirsutula var. maritima* (SC)

Point Reyes horkelia, *Horkelia marinensis* (SC)

Crystal Springs lessingia, *Lessingia arachnoidea* (SC)

San Mateo tree lupine, *Lupinus arboreus var. eximius* (SC)

Mission Delores campion, *Silene verecunda ssp. verecunda* (SC)

KEY:

(E)	*Endangered*	Listed (in the Federal Register) as being in danger of extinction.
(T)	*Threatened*	Listed as likely to become endangered within the foreseeable future.
(P)	*Proposed*	Officially proposed (in the Federal Register) for listing as endangered or threatened.
(C)	*Candidate*	Candidate to become a *proposed* species.
(SC)	*Species of Concern*	May be endangered or threatened. Not enough biological information has been gathered to support listing at this time.
(*)		Possibly extinct.
	Critical Habitat	Area essential to the conservation of a species.

Enclosure B

FEDERAL AGENCIES' RESPONSIBILITIES UNDER SECTIONS 7(a) and (c) OF THE ENDANGERED SPECIES ACT

SECTION 7(a) Consultation/Conference

Requires: (1) Federal agencies to utilize their authorities to carry out programs to conserve endangered and threatened species; (2) Consultation with FWS when a Federal action may affect a listed endangered or threatened species to insure that any action authorized, funded, or carried out by a Federal agency is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. The process is initiated by the Federal agency after determining the action may affect a listed species; and (3) Conference with FWS when a Federal action is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat.

SECTION 7(c) Biological Assessment-Major Construction Activity[1]

Requires Federal agencies or their designees to prepare a Biological Assessment (BA) for major construction activities. The BA analyzes the effects of the action[2] on listed and proposed species. The process begins with a Federal agency requesting from FWS a list of proposed and listed threatened and endangered species. The BA should be completed within 180 days after its initiation (or within such a time period as is mutually agreeable). If the BA is not initiated within 90 days of receipt of the list, the accuracy of the species list should be informally verified with our Service. No irreversible commitment of resources is to be made during the BA process which would foreclose reasonable and prudent alternatives to protect endangered species. Planning, design, and administrative actions may proceed; however, no construction may begin.

We recommend the following for inclusion in the BA: an on-site inspection of the area affected by the proposal which may include a detailed survey of the area to determine if the species or suitable habitat is present; a review of literature and scientific data to determine species' distribution, habitat needs, and other biological requirement; interviews with experts, including those within FWS, State conservation departments, universities and others who may have data not yet published in scientific literature; an analysis of the effects of the proposal on the species in terms of individuals and populations, including consideration of indirect effects of the proposal on the species and its habitat; an analysis of alternative actions considered. The BA should document the results, including a discussion of study methods used, and problems encountered, and other relevant information. The BA should conclude whether or not a listed or proposed species will be affected. Upon completion, the BA should be forwarded to our office.

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[1]A construction project (or other undertaking having similar physical impacts) which is a major federal action significantly affecting the quality of the human environment as referred to in NEPA (42 U.S.C. 4332(2)C).

[2]"Effects of the action" refers to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action.

Enclosure C

GUIDELINES FOR CONDUCTING AND REPORTING BOTANICAL INVENTORIES FOR FEDERALLY LISTED, PROPOSED AND CANDIDATE PLANTS

(September 23, 1996)

These guidelines describe protocols for conducting botanical inventories for federally listed, proposed and candidate plants, and describe minimum standards for reporting results. The Service will use, in part, the information outlined below in determining whether the project under consideration may affect any listed, proposed or candidate plants, and in determining the direct, indirect, and cumulative effects.

Field inventories should be conducted in a manner that will locate listed, proposed, or candidate species (target species) that may be present. The entire project area requires a botanical inventory, except developed agricultural lands. The field investigator(s) should:

1. Conduct inventories at the appropriate times of year when target species are present and identifiable. Inventories will include all potential habitats. Multiple site visits during a field season may be necessary to make observations during the appropriate phenological stage of all target species.

2. If available, use a regional or local reference population to obtain a visual image of the target species and associated habitat(s). If access to reference populations(s) is not available, investigators should study specimens from local herbaria.

3. List every species observed and compile a comprehensive list of vascular plants for the entire project site. Vascular plants need to be identified to a taxonomic level which allows rarity to be determined.

4. Report results of botanical field inventories that include:

   a. a description of the biological setting, including plant community, topography, soils, potential habitat of target species, and an evaluation of environmental conditions, such as timing or quantity of rainfall, which may influence the performance and expression of target species.

   b. a map of project location showing scale, orientation, project boundaries, parcel size, and map quadrangle name.

   c. survey dates and survey methodology(ies).

   d. if a reference population is available, provide a written narrative describing the target species reference population(s) used, and date(s) when observations were made.

   e. a comprehensive list of all vascular plants occurring on the project site for each habitat type.

   f. current and historic land uses of the habitat(s) and degree of site alteration.

g. presence of target species off-site on adjacent parcels, if known.

h. an assessment of the biological significance or ecological quality of the project site in a local and regional context.

5. If target species is(are) found, report results that additionally include:

   a. a map showing federally listed, proposed and candidate species distribution as they relate to the proposed project.

   b. if target species is (are) associated with wetlands, a description of the direction and integrity of flow of surface hydrology. If target species is (are) affected by adjacent off-site hydrological influences, describe these factors.

   c. the target species phenology and microhabitat, an estimate of the number of individuals of each target species per unit area; identify areas of high, medium and low density of target species over the project site, and provide acres of occupied habitat of target species. Investigators could provide color slides, photos or color copies of photos of target species or representative habitats to support information or descriptions contained in reports.

   d. the degree of impact(s), if any, of the proposed project as it relates to the potential unoccupied habitat of target habitat.

6. Document findings of target species by completing California Native Species Field Survey Form(s) and submit form(s) to the Natural Diversity Data Base. Documentation of determinations and/or voucher specimens may be useful in cases of taxonomic ambiguities, habitat or range extensions.

7. Report as an addendum to the original survey, any change in abundance and distribution of target plants in subsequent years. Project sites with inventories older than 3 years from the current date of project proposal submission will likely need additional survey. Investigators need to assess whether an additional survey(s) is (are) needed.

8. Adverse conditions may prevent investigator(s) from determining presence or identifying some target species in potential habitat(s) of target species. Disease, drought, predation, or herbivory may preclude the presence or identification of target species in any year. An additional botanical inventory(ies) in a subsequent year(s) may be required if adverse conditions occur in a potential habitat(s). Investigator(s) may need to discuss such conditions.

9. Guidance from California Department of Fish and Game (CDFG) regarding plant and plant community surveys can be found in Guidelines for Assessing the Effects of Proposed Developments on Rare and Endangered Plants and Plant Communities, 1984. Please contact the CDFG Regional Office for questions regarding the CDFG guidelines and for assistance in determining any applicable State regulatory requirements.

APPENDIX E
CONSTRUCTION SEQUENCING

TABLE 5-6: Project Components, Construction Activities and Sequencing

Project Component	Activities	Construction Sequence			
		Stage 1	Stage 2	Stage 3	Stage 4
Access Roads	1, 2, 3, 6, 11, 12, 14	•			
Haul Road	1, 2, 3, 6, 11, 12, 14	•			
North Roadway Approach	1, 2, 3, 6, 11,12, 13, 14	•			
South Disposal Site	1, 2, 3, 4, 6, 12, 14	•	•	•	•
South Rock Cuts	1, 2, 6, 11, 12, 14	•	•		
Bridge Substructures	1, 2, 3, 4, 5, 12, 14	•	•		
Bridge Superstructures	5, 6, 13		•		
South Roadway Approach	1, 2, 3, 6, 11, 12, 13, 14		•		
South Portal	1, 2, 6, 11, 12, 14		•		
Tunnels	6, 7, 8, 9, 13			•	•
Operations & Maintenance Center Building	1, 2, 3, 4, 5, 6, 11, 12, 13, 14			•	•
North Portal	1, 2, 3, 6, 11, 12, 14			•	•
Water Tank	1, 2, 3, 4, 5, 11, 12, 14				•

Construction Activities

1. Clearing and Grubbing
2. Earthwork
3. Base Preparation
4. Foundation
5. Structures
6. Drainage
7. Dewatering
8. Tunneling
9. Tunnel Stabilization
10. Pile Driving/Drilling
11. Slope Stabilization
12. Permanent Erosion Control
13. Paving
14. Revegetation

Stage One

Access Roads: Three access roads will be constructed in sequence one. The temporary construction access roads at the Shamrock Ranch Valley that will provide access to the bridge pier foundations and the north portal areas, the access road to the proposed water tank site, and the proposed south haul road that will connect the south portal to the south disposal site.

Phased clearing, grubbing and construction of the access roads would result in increased levels of noise, dust and truck traffic, which could indirectly impact the local residence. Constructing the access roads would require earthwork within the limits set by the (ESA) fencing placed prior to the start of the construction activities. Sections of the access roads may need structures to temporary retain vertical or near vertical-cut slopes to limit the height of cut and the extent of fills in order to minimize impacts to the environmental sensitive habitat. These structures will be removed, and the temporary access roads will be graded and landscaped following construction.

Regarding the access road to the water tank, the cuts, fills, and retention structures will be permanent and the vegetation will remain cleared permanently. To minimize dust, the road will

Regarding the access road to the water tank, the cuts, fills, and retention structures will be permanent and the vegetation will remain cleared permanently. To minimize dust, the road will be surfaced with gravel and to provide visual screening from Route 1, additional trees will be planted.

The construction of temporary access roads will impact local road conditions from construction equipment and activities. It will also impact the level of service at the intersection of San Pedro Street (the proposed exit and entry construction route to the Shamrock Ranch) and Route 1 from increased traffic volumes. Such impacts would be minimized by using mitigation measures that would be implemented as part of construction Best Management Practices (BMPs), mitigation Heavy construction vehicles would also likely cause damage to the pavement on San Pedro Street. This street would be repaired following construction.

North Roadway Approaches: The north roadway approaches include the northbound approach: 41m (135 ft.), the southbound north portal approach: 59m (194 ft.), and the northbound roadway: 76m (250 ft.). The south-bound north bridge approaches will connect Route 1 to the proposed bridge structures. These are located to the south and north of a small deep valley near Shamrock Ranch. The roadway alignments must cross this valley before entering the tunnel into San Pedro Mountain.

South Rock Cut: A large rock cut would be made to obtain safe sight distance at the location where the new alignment rejoins the existing Route 1, south of the southern portal. Based on a geologic evaluation in the immediate vicinity, a slope inclination of the excavation (1h: 1v) was selected. The maximum height of the excavation is expected to be about 61m (200 ft.). The thin rock cover will be removed and preserved for possible re-vegetation after construction.

A mechanized face excavation method will be used to cut the slope. Where solid rocks are encountered, controlled blasting will be used for excavation. Route 1 will be temporarily closed during this period. Drains will be installed as a standard practice along the slope and benches to control runoff. Rock bolts will be used to stabilize the slope as needed. The estimated time of completion for the south rock cut is 96 days. This excavation will result in minor short term impacts to local traffic.

South Disposal Site: Located 550 m (1,800 ft.) south of the south portal, this area will be used to accommodate the majority of the excavated material from the project. Under design variation "A", the south disposal site would receive 724,076 cubic meters (947,000 cubic yards) of excess material. The fill area would create a hill with 2:1 slopes, 180 m (590 ft.) in diameter and reaching 90 m (295 ft.) in height.

The operations and maintenance center building, and the main construction staging area for the project will be located at the disposal site. The area will be cleared, grubbed, and the base prepared to receive the fill. This construction activity will begin in sequence 1

and it will continue through sequence four. A section of the engineered-fill will become the building pad for the operations and maintenance center building. The remainder will be added to the hillside. channel just east of the South portal.

Stage Two

Bridge Substructure: Four piers are proposed to support the bridge structures. The footprints of these pier foundations are within the environmentally sensitive Shamrock Ranch Valley that lies within the North Portal drainage area. The previously described temporary construction access road will be used to access the site. The foundation type has not yet been selected. However, a large diameter drilled shaft foundation would be appropriate, given its smaller footprint and less permanent impact on the environment. The site will be cleared and grubbed in preparation for the foundation construction. Additional ground disturbance is anticipated from the crane and construction equipment needed to assemble the piers and their foundations.

Bridge Superstructure: A 320 m (1,050 ft.) bridge will span Shamrock Ranch Valley and connect to Route 1. The bridge superstructures will be constructed using the segmental balanced cantilever approach. This technique eliminates the need for ground supported false work under the spans during construction. The planned sequence is detailed below.

1. Construct the supporting columns (piers) which require false work under the span to be constructed;
2. Cap the piers with the initial segment of the cast-in-place concrete segmental roadway;
3. Simultaneously construct short segments of the roadway in both directions away from the piers to maintain balance;
4. False work (a form traveler) for each segment is supported by those segments, which have been previously constructed; and
5. The process is continued until juncture at mid-point or with abutment.

Upon completion this bridge would present a negative visual impact on the Shamrock Ranch valley hither too devoid of development. To enhance the bridge aesthetics, the concrete for the bridge may be colored to blend with the natural rock outcrop

South Roadway Approach: The 306 m (1004 ft.) northbound roadway approach and 318 m (1043 ft.) southbound roadway approaches at the south portal were selected to take advantage of a wide area east of Route 1. The conform to the existing highway occurs on a tangent section with Route 1 with a 260 m (850 ft.) radius curve. The 260 m (850 ft.) curve impacts an existing cut slope on the east. The cut slope will be at 1:1 slope (horizontal: vertical). The construction of the road will involve cuts and fills. In order To minimize traffic impact on Route 1 the contractor must complete the south rock cut before the south roadway approaches are constructed.

South Portal: The south portal location was selected at a rock nose between Route 1 and a small drainage channel just south of Devil's Slide. This area has a good quality rock

above the tunnel portal. Slope inclinations of the portal slopes (1h: 1v) were selected based upon a geologic evaluation of the area. Special treatment (steepening and supporting) of the portal excavation on the east side will likely be required in other to minimize impacts to the stream channel. The maximum height of the excavation is expected to be 73 m (240 ft). This portal location will have a sufficient work area to avoid traffic during construction.

Stage Three

Tunnels: Two 1220 m (4,000 ft.), double-bore tunnels will be constructed simultaneously, beginning at the southern end of the project. Tunnel construction techniques depend on a number of factors including the overall geological setting, soil conditions, ground water hydrology, type of tunneling equipment, and rate of tunnel advancement. A variety of rock types are anticipated to be encountered in the tunnels. These include granitic rocks along approximately the southern third of the tunnel alignment, and a sequence of sedimentary shales, sandstone, and conglomerated rocks along the northern third of the alignment.

The tunnels will be constructed using the drill-and-blast mining method, and stabilized using rock dowels, spiles and shotcrete. The excavation process will consists of drilling, blasting, ventilating, mucking or spoils removal, and installing support. Construction of the tunnels will generate about 260,000 cu meters (338,000 cu yards) of material. Trucks will be used to remove the spoil from the tunnel face to the south disposal site. This operation cannot be considered separate from the method of excavation, particularly for long tunnel drives; it may well control the rate of advance of the tunnel face.

During construction of the tunnel, blasting would be short-term and would occur only when normal excavation methods could not remove solid rock formations. Noise vibration levels resulting from blasting are dependent on size, timing, the number of blasts, the blast area, transmitting medium, and distance to the receptor. The south portal could experience a high volume of truck activities.

Stage Four

North Portal: The North portal location was selected to minimize visual impacts on nearby Pacifica homes, and to minimize the overall length of the tunnels. This was accomplished by: 1) locating the alignment in a small ravine in the north portal area, 2) minimizing the height of cut into the lower eastern ridge that borders the ravine. The size and location of the portal excavation was determined based upon the need to provide a desired spacing between the double bore tunnels, and the desire for a minimum height of rock cover over the tunnels to maintain portal stability. Based upon geologic evaluations of the rock mass conditions to be exposed by the portal excavation, aslope inclination of 1 horizontal to 1 vertical (1h: 1v), was selected. The maximum height of the excavation is expected to be roughly 55 m (180 ft.). The North Portal would present a negative visual impact. To enhance its aesthetics, the concrete for North Portal may be colored to blend with the natural rock outcrop and the surrounding areas revegetated.

Water Tank: A 132,500 liters (35,000-gallon) water tank will be constructed up hill from the tunnel to provide an on site water supply. The tank is approximately 7.9 m (26 ft.) in height with a diameter of 2.7 m (9 ft.) and will be approximately 76 m (250 ft) above the elevation of the tunnel invert at the north excavation. The construction of the tank will involve clearing and grubbing to prepare the base for the foundation. A gravel access road will connect Route 1 to the tank location. The water tank and permanent access road will be visible form Route 1 on the hillside above the north portal causing visual impact. This will be mitigated by screening the tank with vegetation and by using gravel surface to match the Chaparral-covered hillside

Operations & Maintenance Center: The Tunnel Operation and Maintenance Center (OMC) would be located at the South Disposal Site, approximately 549 m (1800 ft.) south of the south portal. The fill will be prepared for the foundation pad. Upon completion of the building, the parking area will be paved.

TABLE 5-8: Construction Related Impacts and Mitigation Measures

Impacts	Mitigation Measures
Traffic: The construction phase of the project would create temporary traffic impacts at the intersection of San Pedro Terrace Road and Route 1. No long-term impacts are expected, and additional measures would be taken to ensure against traffic inconveniences during construction.	Most construction workers would arrive at site before 7:am and depart before 4:00 p.m., which would nearly eliminate impacts during peak-hours. Truck trips would be restricted to off peak hours, except in the case of an emergency. All construction-related traffic would enter and exit Shamrock Ranch at San Pedro Terrace Road. Signs would be clearly posted to alert motorists of temporary road closures or lane reduction at sites along the route.
Dust Control: The project could result in generation of substantial amount of dust during construction.	Standard construction methods and practices to control dust will be implemented. See main text for details.
Noise: Pile driving and / or blasting would create temporary impacts to nearby residences.	Construction hours will be limited at those sensitive receptor locations where nighttime work can be avoided. Noise suppression devices and enclosures will be employed.
Wetlands: The project will impact of wetlands and associated habitat. Details of these impacts are discussed in section 5.12.	Those wetlands impacted by construction will be protected using avoidance measures and ESA's. The ESA's will be monitored by a staff biologist, and restrict construction activities and the location of heavy equipment. An off-site mitigation site is planned to compensate for temporary and permanent impacts to wetlands, sensitive habitat areas and buffer zones.
Ground and Surface Water Resources: Short-term localized flooding and drainage problems caused by excessive rainfall may be encountered during grading and construction	During construction, interim grading and measures specified by construction practice and methods BMPs will be employed to mitigate any short term flooding due to storm water.
Aesthetics: The project would have significant aesthetic impacts during construction and minimal aesthetic impacts during operation to areas with direct views of the proposed facilities such as the North and South Portal Areas and the Disposal site	Where possible less visible staging site would be used prior to using more visible ones. For example the Disposal site will be used as a main staging area for the tunneling operation. The mitigation for the fill at the Disposal site would include contour grading of the fill to blend into the adjacent hillside and re-vegetation
Earth Resources: Moderate amounts grading an excavation would potentially result in erosion and slope stability problems.	Impacts would be minimized by designing staging location footprints to minimize grading.

APPENDIX F
ARCHEOLOGICAL SURVEY REPORT – SHPO CONCURRENCE

STATE OF CALIFORNIA – THE RESOURCES AGENCY

GRAY DAVIS, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@ohp.parks.ca.gov

December 18, 2000

Reply To: FHWA830912A

Mr. Michael G. Ritchie
Division Administrator
Federal Highway Administration
980 Ninth Street, Suite 400
Sacramento, CA 95814-2724

Subject: **Supplemental Historic Properties Survey Report, Devil's Slide Improvement Project, SR 1, KP 54.07/66.0 (PM 34.0/41.0), San Mateo County, California**

Dear Mr. Ritchie:

I have received the Supplemental Historic Properties Survey Report for the proposed State Route (SR) 1 Devil's Slide Bypass Project in San Mateo County. This report supplements the original HPSR for the proposed project. At that time the project consisted of a surface bypass (i.e., the Martini Creek Alternative) of the Devil's Slide area on SR 1. In letters dated between 1983 and 1986, the State Historic Preservation Officer concurred with FHWA's findings that there would be no effects to historic properties under the Martini Creek Alternative. I understand the Martini Creek Alternative is no longer a preferred alternative and will not be constructed, due to a voter mandate in 1996, and that the preferred alternative now consists of a tunnel connecting two parts of existing SR 1. Because the Tunnel Alternative will result in right-of-way acquisitions that are different than those required for the Martini Creek Alternative, the Area of Potential Effects (APE) of this project has changed substantially. The supplemental HPSR (November 2000) addresses the new project areas that were not covered by the 1982-1984 studies and examines small additions to the APE of the Martini Creek Alternative due to slight shifts in alignment since 1984. You have asked for my comments on the findings therein.

Review of the supplemental HPSR indicates that reasonable measures were taken to identify historic properties within the new project areas not previously addressed as well as the small APE additions referred to above. I note that all buildings located within the revised APE were included in studies previously submitted to this Office for review and that no new archaeological sites were identified within the revised APE. Although the Corps of Engineers recently discovered an intact deposit within the boundaries of archaeological site CA-SMA-163, located within the Martini Creek Alternative APE, this site is outside

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the APE for the preferred Alternative (i.e., Tunnel Alternative). On this basis FHWA has determined that no historic properties have been identified within the APE for the undertaking as presently designed.

These efforts to identify historic properties, as described in the supplemental HPSR, conform to applicable standards and the documentation provided is consistent with the requirements of § 800.11(d) for a finding of "no historic properties affected." Therefore, pursuant to § 800.4(d)(1), because I do not object to this adequately documented finding, your responsibilities under section 106 are now fulfilled.

Your consideration of historic properties in the planning of this undertaking is appreciated. If you have any questions, please contact staff archaeologist Charles Whatford at (916) 653 – 2716 or cwhat@ohp.parks.ca.gov

Sincerely,

Daniel Abeyta, Deputy
State Historic Preservation Officer

STATE OF CALIFORNIA—THE RESOURCES AGENCY

GEORGE DEUKMEJIAN, *Governor*

DEPARTMENT OF PARKS AND RECREATION

P.O. BOX 2390
SACRAMENTO 95811

(916) 445-8006

FEB 0 6 1986

Reply to: FHWA 830912A

FEB 10 1986

Mr. Bruce E. Cannon, Division Administrator
U.S. Department of Transportation
Federal Highway Administration
REGION 9 - California Division
P.O. Box 1915
Sacramento, CA 95809

Dear Mr. Cannon:

FAP-1, Devil's Slide, National Register of Historic Places
Eligibility of Presumed Radar Sets, Green Valley Area

On January 23, 1986, you requested my concurrence in your determination that the presumed SCR-271 radar set remnants overlooking Green Valley did not qualify for inclusion in the National Register of Historic Places.

Recapitulation of several points raised during the course of these proceedings is in order. First, substantive research appears to have demonstrated that these remnants are not what they were originally presumed to be by either Caltrans or NPS. However, neither has this research been able to establish positively that these are remnants of an SCR-271 radar set.

Secondly, the best guess at a date of construction encompasses the years 1941-1946. Lacking definitive corroborating data, one must assume this time frame seems reasonable. Accordingly, these remnants would appear to be less than fifty years of age and would have to be of exceptional significance to qualify for the National Register.

Thirdly, it has been stated that these remnants should be evaluated for significance not only individually but as a potential contributor to a discontiguous historic district developed around the theme of coastal defense fortifications of the San Francisco Bay Area. Thus, these remnants would presumably have to be compared with others either identical in design and function or at least similar in these respects.

Finally, it has been suggested that further research should be conducted to remove the remaining uncertainties clouding the true identity of the remnants.

Let me assure you that, from my perspective, there is no point to going further just as comparisons of the sort alluded to above would be pointless. One inescapable fact haunts these remnants: they lack integrity. Of course, that's been said before.

Why might this property be significant? In my judgment, for its association with an important historic theme in a strategic location. The theme encompasses many decades and a diversity of technological solutions to the

military problem of national defense. Important, no doubt. But does this remnant exhibit the truly essential physical features that (assuming it was a radar set) define the historic character and function of radar sets? Does it still possess those quintessential elements that would clearly distinguish it from other "bunkers" of an observational type such as base-end stations? Does it clearly convey to the observer the function for which it was presumably important -- the electronic detection of aircraft at some distance? I don't think so. The basis for those associations is substantively gone. Radar towers are absent, and only deteriorated concrete pads and pylons remain. No other detection gear that would give us a clue to function is in evidence. Clearly, properties change over time. To qualify for the National Register, not all of the physical features or characteristics possessed by the property during its period of significance need be present. Nevertheless, those essential features that clearly convey the property's past identity or character and thus its specific significance must be present.

In the case at hand, integrity of location does not make up for a loss of that fabric and those features that would allow one to recall the specific functional association the property might have with an important theme. Significance cannot be justified simply on the basis of general association with a theme.

Occasionally, factors such as rarity and condition of other extant examples of a property type may justify accepting a higher degree of integrity loss but only if enough of a property survives for it to be considered significant. In this instance, the absence of truly critical distinguishing features, combined with removal of internal compartment walls, doors, and other elements, have carried integrity loss beyond reasonable or acceptable levels.

In its present condition, the property conveys little of its original associations with the historic theme propounded. What it does convey is vaguely commemorative in nature, and that argues against any prospects for National Register eligibility.

If you have any questions concerning these remarks, please call Hans Kreutzberg of my staff at (916) 322-9621.

Sincerely,

Kathryn Gualtieri
State Historic Preservation Officer
Office of Historic Preservation

G-3474H

cc: E. Blackmer
D. Reynolds

STATE OF CALIFORNIA—THE RESOURCES AGENCY

GEORGE DEUKMEJIAN, *Governor*

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JAN 21 1986

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OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
POST OFFICE BOX 2390
SACRAMENTO, CALIFORNIA 95811
(916) 445-8006

JAN 13 1986

Mr. Bruce E. Cannon
Division Administrator
California Division
Federal Highway Administration
P.O. Box 1915
Sacramento, CA 95809

Dear Mr. Cannon:

FAP-1, Devil's Slide – National ~~Register of Historic~~ Places Eligibility of the "Shamrock Ranch"

In accordance with your recent request, all documentation received in this office concerning the Shamrock Ranch has been reviewed. Several OHP staff members and I participated in the review and our conclusion regarding the potential National Register eligibility of this property was unanimous: in our opinion, the Shamrock Ranch is not eligible for inclusion in the National Register of Historic Places. Were it to be nominated, we would reject the application. If that were appealed, we would of course forward the application to our State Review Board, albeit with a negative recommendation.

It has been asserted that the Shamrock Ranch is significant under all National Register Criteria. We completely disagree. Virtually no specific, convincing evidence has been adduced to demonstrate when, how and how significantly the Shamrock Ranch may have contributed to a pattern, event or series of events of importance in local, state or national history. It is our belief that pursuing this avenue of research would be futile because the integrity issue, discussed below, cannot be ignored. Nor are we confident that, apart from the integrity issue, further research would be productive. Simply claiming, in the most general terms, that the Ranch "demonstrates the continuity of a long-standing tradition of ranch activity and agrarian open space on the San Mateo County coast" is insufficient. Moreover, it is not at all clear if this property ever significantly demonstrated any such "tradition", especially during the one period in which some prospective importance might have been possible — 1872-1930. Both the requisite contextual framework as well as the property's significant relationship to that framework must be established under Criterion A. Thematically, agriculture and culturally defined open space are valid areas under the Register Criteria. However, we are unable to accept the assertion that the Shamrock Ranch represents these themes in a significant way.

Neither, in our opinion, does the property qualify under Criterion B. With the possible exception of the Tobins, a clearly prominent San Francisco family, none of the property's owners appear to have been important in the context of significant themes to which this property might relate. The Tobin family may have made some important contributions to regional commerce and banking and

community service; however, the property, under their ownership, does not appear to have been associated thematically with those areas in which the family distinguished itself. The most we can reasonably state with assurance is that the Tobin family once owned the property but that it is not the property principally associated with the reasons for the family's prominence. There is, for example, no conclusive evidence to prove that any of the structures now comprising the Ranch were associated with Richard Tobin. No structure currently on site appears to predate 1892. Richard Tobin died in 1887. It seems clear that important members of the family spent less of their time at the Ranch than at other properties they owned. We conclude that the significant association of the property with the Tobin family is minimal.

It has been claimed that the Ranch is eligible under Criterion C and that it "possesses remarkable integrity of location, design, setting, materials, workmanship, feeling and association." We completely disagree. Whatever architectural value the oldest of the surviving structures may have had has been compromised by alterations. In this case it isn't simply a matter of intact fabric beneath recent sheathing. The property has been altered in substance as well as in appearance. Presumably, the five structures noted as the oldest were erected during the Tobin family's period of ownership and are conjectured to date to the "last decades of the 19th century and the first decades of the 20th century...." On the basis of association with the Tobin family, one might postulate a period of significance for the five oldest structures that would begin in 1892 and terminate at the latest in 1930. In our view, not one of these structures conveys with sufficient strength the appearance, feeling and association of a late nineteenth or early twentieth century building; and that for a very simple reason: modifications to basic, critical elements such as fenestration, porches, roofs combined with various additions and changes of setting have compromised the essential physical features that may have enabled these buildings to convey their past identity or character. We doubt that members of the Tobin family, whose principal association with the property seems to have been the fact that they once owned it, would recognize the structures in question or the general setting as they appear today.

Finally, it has been claimed that the property qualifies for the Register under Criterion D. In our opinion, the fact that a prehistoric site or site component exists on the property is irrelevant to any discussion of the significance of the Shamrock Ranch as a strictly historic property. Consideration of the significance of the prehistoric values in the area will be dealt with separately. However, the claim alluded to above appears to extend to some evidence of historic archeological materials some have speculated might be associated with the Tobin family's summer home. These speculations appear idle since there is, to our knowledge, no solid evidence indicating that the potential for a significant historic archeological deposit really exists. Further work to determine what potential actually does exist may recently have been completed. In any case, should that potential be there and, if effects are anticipated, the significance of the resource will be dealt with individually.

To summarize, it is my opinion that the Shamrock Ranch is emphatically not eligible for inclusion in the National Register of Historic Places. I trust this letter is responsive to your inquiry. If you have any questions, please call Hans Kreutzberg at 322-9621.

Sincerely,

Kathryn Gualtieri

Kathryn Gualtieri
State Historic Preservation Officer

cc: EBlackmer
MBuss

STATE OF CALIFORNIA—THE RESOURCES AGENCY GEORGE DEUKMEJIAN, Governor

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
POST OFFICE BOX 2390
SACRAMENTO, CALIFORNIA 95811
(916) 445-8006

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ENVIRONMENTAL PLANNING

JUN 28 1984

IN REPLY TO: FHWA830912A

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34.0/41.0
04210-120771

Bruce E. Cannon, Division Administrator
California Division
Federal Highway Administration
P.O. Box 1915
Sacramento, CA 95809

Dear Mr. Cannon:

RE: FAP-1 Addendum Two - Archeological Survey Report For Three Revisions to Devil's Slide Bypass Project, San Mateo County

In response to your request of June 6, 1984, we herewith concur that the Section 106 studies for the undertaking noted above are satisfactory and that the requirements of 36 CFR 800 for the three noted revisions have been satisfied.

If we can be of further assistance, please call Hans Kreutzberg of this office at (916) 322-9621.

Sincerely,

Marion Mitchell-Wilson, Deputy State
Historic Preservation Officer
Acting Chief, Office of Historic
Preservation

cc: EWBlackmer

FB

State of California

Memorandum

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ENVIRONMENTAL PLANNING

The Resources Agency of California

Date : March 16, 1983

To : Walt Hagen
Office of Environmental Planning
Department of Transportation
1120 N Street
Sacramento, CA 95814

From : Department of Parks and Recreation

Subject: HPSR Proposed Devil's Slide Bypass Project 04-SM-1-34.0/41.0
CTRS 830308A San Mateo Co.

Thank you for the opportunity to review the above report pursuant to 36CFR800.

This report represents a particularly well-researched and well-documented survey of the cultural resources within the project area.

No architecturally or historically significant buildings eligible for nomination to the National Register appear to be located within the APEI as it is now defined.

When the relationship between CA-SMa-115 and the APEI is established, I will be able to arrive at a determination of effect on this site. In light of the evaluation of the survey archaeologist and of the fact that there is a paucity of such significant sites in the region, this office strongly suggests avoidance of this cultural resource.

If you have any questions, please contact Georgie Waugh, Staff Archaeologist, at (916) 445-6766.

Sincerely,

Knox Mellon

Dr. Knox Mellon
State historic Preservation Officer

APPENDIX G
STATE BOARD OF REGISTRATION FOR GEOLOGISTS AND GEOPHYSICISTS

State of California Department of Consumer Affairs

STATE BOARD OF REGISTRATION FOR
GEOLOGISTS AND GEOPHYSICISTS
2535 CAPITOL OAKS DRIVE, SUITE 300A, SACRAMENTO, CA 95833-2926
TELEPHONE: (916) 263-2113
FAX: (916) 263-2099
E-mail: geology@dca.ca.gov
Web site: www.dca.ca.gov/geology

May 11, 2000

Thomas G. Whitman
1528 Arbutus Drive
Walnut Creek, CA 94595

Dear Mr. Whitman:

Re: Case 01-99-17

The Board of Registration for Geologists and Geophysicists (Board) has completed the investigation of the complaint against you concerning the Devil's Slide landslide dewatering evaluation. The complaint alleged that the conclusion in the November 1998 report *Devil's Slide Dewatering Feasibility Study* that dewatering of the Devil's Slide landslide is not feasible contradicts geologic evidence. The complaint also alleged that there is a conflict of interest between your role as the licensed geologist and your employer, Caltrans because of your duty to objectively evaluate options to address the landslide.

The complaint and related reports were sent to a technical expert for review and evaluation. The technical expert concluded there is insufficient evidence to support the complaint of conflict of interest. The technical expert also concluded that Devil's Slide is complex and several factors including rapid coastal erosion along the toe of the landslide, a setting prone to violent earthquake ground shaking, and a complex system of fractures and shear zones from faulting and landsliding contribute to the instability.

In consideration of those factors, the technical expert concluded that it is difficult to conclude with reasonable certainty that dewatering measures alone would provide a stable site for the Devil's Slide portion of Highway 1. He further stated that a more reliable but costly stabilization scheme would likely involve supplementing drainage measures with one or more of the following: erosion protection of the toe, unloading of the crown, and reinforcement/retention of the slide mass. Finally, he concluded that avoidance of the clear landslide hazard appears to be a reasonable alternative.

Based on the technical expert's opinion, there is no violation of the Geologist and Geophysicist Act and the case is closed. If you have questions or comments, please call me at (916) 263-2113.

Sincerely,

Mary Scruggs
Enforcement Manager

cc: Roger Formanek, Caltrans Legal

APPENDIX H
WETLANDS ONLY PRACTICABLE ALTERNATIVE FINDING

Wetlands Only Practicable Alternative finding

Pursuant to Executive Order 11990 (23 CFR 771.125(a)(1) - Protection of Wetlands

Alternatives

The purpose of this project is to provide a safe, dependable and stable State highway route to bypass the geologically unstable area of Route 1 at Devil's Slide in San Mateo County. The primary alternatives analyzed to date have been: (1.) the no-project alternative; (2.) various tunnel designs studied in the Devil's Slide Tunnel Study (Woodward-Clyde Consultants, 1996); (3.) two alternatives for approaching the north portal across Shamrock Ranch (a bridge option and a fill option); and (4.) alternatives at the south portal involving varying degrees of wetland fill.

Three alternatives were considered in the second supplemental EIS/EIR. The preferred alternative (Tunnel Variation "A"), is a 1,219-m (4,000-foot) long, double bore tunnel with one lane in each direction. The preferred alternative would eliminate approximately 511 square meters (5,500 square feet)/ (0.05 ha) (1/10 acre) of wetland habitat as defined by the Code of Federal Regulations(CFR), Title 33, Section 328.3(b).

An estimated area of 114,110 square meters (1,227,970 square feet) of wetlands would be affected by the Martini Creek alternative. The previously approved "Martini-Creek" Devil's Slide bypass was far more environmentally damaging than the tunnel, not only to wetlands and environmentally sensitive habitat, but to public access and recreation, scenic public views, and the overall character of the San Mateo County mid-coastside. There would be no effect to wetlands under the "No-build Alternative" which would consist of continuing with the general maintenance and repair of the existing alignment. The slides and slipouts, resulting in road closures can be expected to continue. There is a high probability that a seismic event of sufficient magnitude will eventually occur and result in permanent closure of the existing roadway.

Measures to Minimize Harm

To avoid impacts to wetlands at the north portal, a bridge will be constructed instead of filling the large area across the upper end of Shamrock Ranch. filling this canyon to support the approach road would result in permanent impacts to wetlands, the north pond, and adjacent uplands and upstream drainages. The avoidance of these wetland impacts is substantial as the fill design would have created permanent impacts to wetlands totaling 43,000 square feet. A segmented balanced cantilever method will be used to construct the bridge. The bridge piers and abutments, located outside the Environmentally Sensitive Area (ESA), would be constructed first and the superstructure between the north and south piers would be advanced by cantilevering out from the piers. Falsework would be used to support the counterbalancing superstructure outside the ESA between the piers and their adjacent north and south abutments.

Off-site mitigation to compensate for temporary and permanent impacts to wetlands, sensitive habitat areas and buffer zones will involve the restoration and enhancement of a filled-wetland,

south of the project on Route 1 across from the Charthouse Restaurant. The area is approximately 23,212 square meters (249,761 square ft.) Replacement ratios recommended by the Army Corps of Engineers (ACOE) and the California Coastal Commission (CCC) will consider the habitat value and type, and there will be no permanent net loss of wetland habitat

Finding

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

APPENDIX I
CALIFORNIA COASTAL COMMISSION-CONSISTENCY CERTIFICATION CC-94-00

STATE OF CALIFORNIA -- THE RESOURCES AGENCY GRAY DAVIS, *Governor*

CALIFORNIA COASTAL COMMISSION
45 FREMONT STREET, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200

October 12, 2000

Ed Pang
Office of Environmental Planning, South
Caltrans District 4
P.O. Box 23660
Oakland, CA 94623-0660

Re: **CC-94-00** California Dept. of Transportation (Caltrans), Devil's Slide Tunnel, San Mateo County

Dear Mr. Pang:

On October 10, 2000, by a unanimous vote, the California Coastal Commission concurred with the above-referenced consistency certification. The Commission found the Devil's Slide Tunnel to be consistent with the California Coastal Management Program. During the public hearing Caltrans agreed to incorporate into its water quality component of the project a commitment that its Best Management Practices will attempt to treat, infiltrate or filter stormwater from each runoff event, up to and including the 85th percentile, 24-hour runoff event. Also, during the public hearing, Caltrans stated its agreement with the attached interpretation of the San Mateo County Counsel's office (and which the Commission also expressed its agreement with) that it would take an LCP amendment (including a citizen vote) before any additional motorized vehicle lanes could be added to the tunnel project.

Sincerely,

Mark Delaplaine

Mark Delaplaine
Federal Consistency Supervisor

cc: North Central Area Office
NOAA Assistant Administrator
OCRM
Department of Water Resources
Governor's Washington D.C. Office
FHWA
Army Corps, San Francisco District

STATE OF CALIFORNIA – THE RESOURCES AGENCY GRAY DAVIS, *Governor*

CALIFORNIA COASTAL COMMISSION
45 FREMONT STREET, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200

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ADOPTED STAFF RECOMMENDATION

ON CONSISTENCY CERTIFICATION

Consistency Certification No.	**CC-94-00**
Staff:	MPD-SF
File Date:	8/31/2000
3 Months:	11/30/2000
6 Months:	2/28/2001
Commission Meeting:	10/10/2000

APPLICANT: **California Dept. of Transportation (Caltrans)**

PROJECT LOCATION: Between Highway 1 near Shamrock Ranch (approximately one mile south of Linda Mar Avenue in Pacifica) to the north, and Highway 1 south of Devil's Slide, San Mateo County (Exhibits 1-2)

PROJECT DESCRIPTION: Construction of two single-bore, ¾ mile long tunnels (one in each direction) underneath San Pedro Mountain, with appurtenant approaches to the north and south connecting the tunnels with existing Highway 1 (Exhibits 3-5)

SUBSTANTIVE FILE DOCUMENTS: See page 32.

EXECUTIVE SUMMARY

On November 5, 1996, the voters of San Mateo County passed "Measure T," the Devil's Slide Tunnel Initiative, which modified the San Mateo County Local Coastal Program (LCP) to substitute a tunnel alternative at Devil's Slide in place of a more inland bypass of Highway 1, as a permanent solution to the problems caused by frequent closures of Highway 1 from continuing rock and mud slides at Devil's Slide. On January 9, 1997, the Commission certified

the measure as San Mateo County LCP Amendment No. 1-96, finding the Devil's Slide Tunnel Initiative consistent with the Coastal Act and incorporating it into the Land Use Plan (LUP) portion of the County's LCP.

Federal Highway Administration (FHWA) procedures require Commission concurrence in a consistency certification prior to finalization of an Environmental Impact Statement (EIS) and issuance of a record of decision (ROD) . (Consistency review is also necessitated by the fact that the project requires a permit from the U.S. Army Corps of Engineers.) Accordingly, Caltrans has now submitted to the Commission for its review a consistency certification for the Devil's Slide tunnel project. Yet another (third) Commission review may also occur because, once the environmental documents are finalized, Caltrans will apply to San Mateo County for a coastal development permit, and that permit would be appealable to the Commission. Given the historic controversy surrounding Devil's Slide issues, such an appeal appears likely.

In these situations, the Commission performs its federal consistency review in a "phased" manner. The "phase" of the Commission's review that is before it at the present time is for the limited purpose of assuring that the fundamental concept, goals and objectives of the project are consistent with the applicable California Coastal Management Program (CCMP)/Coastal Act policies. (The standard of review for the subsequent coastal development permit will be the policies of the San Mateo County LCP.) More detailed review at this time is precluded by the fact that final design, engineering, and final mitigation measures and monitoring plans have not been fully developed, although they have been substantially more fully developed than when the Commission reviewed the Measure T LCP amendment.

As adopted by the electorate of San Mateo County Measure T provided for:

> *... construction of a tunnel for motorized vehicles only behind Devil's Slide through San Pedro Mountain. The tunnel design shall be consistent with (a) Coastal Act limits restricting Route 1 to a two-lane scenic highway; and (b) minimum state and federal tunnel standards. A separate trail for pedestrians and bicycles shall be provided outside the tunnel as specified in Policy 2.56 a.*

When it reviewed the LCP amendment to incorporate Measure T into the LCP, the Commission found the tunnel, as described in Measure T, consistent with the applicable Coastal Act policies. Specifically, the Commission found the tunnel consistent with the requirement of Section 30254 of the Coastal Act to maintain Highway 1 in rural areas as a two-lane scenic highway. The Commission acknowledged that the tunnel raised concerns over potential adverse effects on wetlands environmentally sensitive habitat, including: (1) direct displacement of wetlands; (2) potential elimination or degradation of habitat of endangered species habitat; and (3) sedimentation into environmentally sensitive wetland habitat. The Commission determined that while a tunnel could be found environmentally preferable to the far more environmentally damaging Devil's Slide bypass through McNee Ranch State Park, design details, alternatives, and mitigation measures would need to be refined, and the ultimate

tunnel design and alignment would need to constitute the least environmentally damaging feasible alternative.

Caltrans has refined the design and alignment sufficient to enable such a determination. Caltrans has minimized wetland fill and endangered species impacts by selecting the north portal bridge alternative which eliminates the need for fill of the wetland/agricultural pond on Shamrock Ranch that contains endangered red-legged frog habitat. Caltrans has further limited the south portal wetland impacts to a degree that justifies a determination that all feasible wetland avoidance measures have been taken, that unavoidable impacts will be mitigated to the maximum extent feasible, and that, therefore, the project represents the least environmentally damaging feasible alternative for the project.

In reviewing Measure T the Commission acknowledged that the wetland fill for the tunnel would not be an allowable use under Section 30233(a) of the Coastal Act. The Commission determined that a conflict existed between competing Coastal Act policies which, on the one hand, promote public access, and which, on the other, seek to prevent or minimize wetland fill and protect wildlife habitat . The Commission noted the "traffic nightmare" that occurs when the existing Highway 1 at Devil's Slide is closed, which greatly impedes the public's ability to achieve access to this coastal area (and also has a severe adverse effect on the heavily tourist-dependent economy of the San Mateo County MidCoastside). The Commission also noted that the previously-approved "Martini Creek" Devil's Slide bypass was far more environmentally damaging than the tunnel, not only to wetlands and environmentally sensitive habitat, but to public access and recreation, scenic public views, and the overall character of the San Mateo County Mid-Coastside. That bypass included several orders of magnitude more wetland fill than the proposed tunnel (see page 20); the Commission further noted that:

> *... the tunnel called for by the proposed amendment would have far less impact on the State Park than the Martini Creek Bypass called for by the existing LUP policies to be deleted as part of the amendment. The bypass would bisect the park and would result in significant adverse effects on the quality of recreational experience that can occur in the park.*

Thus, the Commission concluded that any tunnel to be built based on Measure T would be far more protective of coastal resources than the Martini Creek bypass proposal. Based on the conflict resolution provision of the Coastal Act (Section 30007.5), the Commission concluded that the tunnel:

> *...would promote public access and recreation along the coast, as well as implement the public access and recreation policies of Sections 30210, 30211, 30212, 30212.5, 30213, 30252 and 30254 of the Coastal Act. These benefits will be lost if the project is not approved.*
>
> *Balanced against these beneficial aspects of the project is the competing fact that the project also will fill wetlands and environmentally sensitive habitat for a use that is not allowed by either Sections 30233 and 30240 of the Coastal Act. However, the impacts*

of this fill can be mitigated by a wetland replacement and environmentally sensitive habitat restoration program that will be required through the coastal development permit that must be obtained for the project, pursuant to the wetland fill and habitat protection policies of the certified San Mateo County LCP. The Commission also notes that the placement of the fill and the encroachment into environmentally sensitive habitat is the least environmentally damaging feasible alternative.

For these reasons the Commission finds, pursuant to Sections 30007.5 and 30200 of the Coastal Act, that on balance it is more protective of coastal resources to resolve this conflict by approving the project and allowing the proposed wetland fill and encroachment into environmentally sensitive habitat.

Based on Caltrans' incorporation into the project design of 1) a number of features intended to avoid wetland impacts, including alignment refinements and the bridging rather than filling of the more environmentally sensitive wetlands at the north portal, and 2) further mitigation measures (including wetland mitigation (on-site restoration and offsite mitigation as described on pages 14-18), restoring trail crossings, water quality measures, and revegetation of disturbed slopes), the Commission again concludes that, while inconsistent with the allowable use test of Section 30233 (a) of the Coastal Act, the tunnel is consistent with the Coastal Act based on the conflict resolution section (Section 30007.5) of the Coastal Act.

The tunnel is also consistent with the public access and recreation (Sections 30210-30214), view protection (Section 30251), public works (Section 30254), and water quality (Section 30231) policies of the Coastal Act. These findings are contingent on the mitigation and monitoring measures Caltrans has committed to. The detailed designs for these measures will be provided during the subsequent coastal development permit application to San Mateo County (and, possibly, on appeal to the Commission).

The Commission also has the ability to independently "re-open" its federal consistency review of the project if the monitoring and mitigation measures are inadequate.

STAFF SUMMARY AND RECOMMENDATION

I. Project Description. The California Dept. of Transportation (Caltrans) has submitted a consistency certification for a 1,219 meter (m) (4,000-foot) long, double bore tunnel with one lane in each direction, in northern San Mateo County (Exhibits 1-5). The north approach road is approximately 457 m (1,500 feet) long and includes 320 meter (1,050 feet) long parallel bridges (Exhibit 7). The south approach road is 305 m (1,000 feet) long (Exhibit 8). Proceeding south from Pacifica, the alignment departs from existing Highway 1 along a 7% uphill grade, crosses the valley at Shamrock Ranch (which is located approximately one mile south of Linda Mar Avenue in Pacifica), passes through a small ravine, enters a tunnel through San Pedro Mountain, and exits the tunnel just south of the Devil's Slide area where it rejoins

the existing highway. The tunnel is basically flat with a 2% grade. Approximately 1,600 meters (5,250 feet) of the existing road will be abandoned as a result of the realignment, with cul-de-sacs proposed at both ends of the abandoned highway.

The bridge structures will be approximately 36.5 meters (120 feet) above the valley floor of Shamrock Ranch. In addition to end abutments, intermediate piers would be required on either side of the valley.

Each tunnel would be 30 feet wide, which would include 4 foot interior walkways on both sides, a 12 foot lane, and an 8 foot and 2 foot shoulder (Exhibit 5). Approximately 763,000 cu. meters (1 million cu. yds. of material will be generated by tunnel excavation. Most of the material (an estimated 674,000 cubic meters would be placed at the south disposal site near the South Portal area (Exhibits 3 & 9); the remainder (up to 50,000 cubic meters) would be disposed off-site. The exact routes and locations of the off-site disposal sites are currently under consideration; Caltrans indicates that there are several sites near Highway 92 or in Pacifica that could be used.

In order to accommodate bicyclists, which are allowed on existing Highway 1, Caltrans consulted with bicycle groups and San Mateo County. The result of this consultation was a decision to place informational/directional signs directing bicyclists to use the existing Highway rather than the tunnel. However, Caltrans notes that in the absence of any ban or restrictions (which would need to be initiated by local government), some bicyclists may still choose to ride with vehicular traffic through the tunnel. Upon completion of the tunnel construction, Caltrans will relinquish the section of the existing Highway 1 right-of-way to San Mateo County to own and manage.

The project also includes tunnel infrastructure systems needed for safety and operations. These include tunnel control, tunnel surveillance, traffic control, communications, emergency evacuation, environmental monitoring and tunnel maintenance. A Tunnel Operations and Maintenance Center (OMC) would be located approximately 549 meters (1800 feet) south of the tunnel (Exhibits 3 & 4) and would include a control room where the tunnel control computers would be housed.

II. Background/Project Purpose & History. Highway 1 at Devil's Slide is geologically unstable. Since the highway was built in 1937, Caltrans has sought various permanent solutions to the problems posed by the slide. Despite drainage improvements, pavement reinforcement and rock anchors, Highway 1 continues to experience difficulties and closures due to landslides and roadway subsidence, causing tremendous inconvenience to coastal residents, severe economic hardships for Coastside businesses and families, and adverse effects on public access to the many recreation opportunities in the Mid-Coast region. When Highway 1 is closed, travelers are forced to detour to Highway 92 to reach the coast (Exhibit 16), and with Highway 92's limited capacity and mountainous terrain, the result is extreme traffic congestion for the entire region. The 1986 Devil's Slide FEIS listed the numerous historic road closures (Exhibit 15); similar closures have continued to occur since that document was written. One of the longest lasting road closures in the area occurred in 1995, lasted 158 days (from 1/22/95 thru 6/30/95), and cost $2,983,000 to repair.

In the early 1970's, when NEPA (the National Environmental Policy Act) and CEQA (the California Environmental Quality Act) first became law, the Sierra Club and several other organizations filed a lawsuit over Caltrans' proposal to construct a bypass through McNee Ranch State Park, and the U.S. District Court enjoined further construction pending preparation of an Environmental Impact Report.

The Coastal Commission certified San Mateo County's Local Coastal Program (LCP) in 1981. The LCP recognized the geologic problems at Devil's Slide and provided for a 2-lane bypass with uphill passing lanes along a "preferred alignment" called the "Martini Creek alignment" (Exhibit 2). Because the bypass was not being actively pursued at the time of LCP certification, it was not a subject of major controversy during the Commission's public hearings on the LCP. However closures of the existing road continued, with a total of 22 closures occurring between 1973 and 1983. Public sentiment for a solution intensified as a result of 238 days of closure in 1980, and a 3 month closure caused by the winter storms of 1982-83.

In response, in 1983 Caltrans resumed preparation of its bypass EIR for a longer alignment than the 4.5 mile long Martini Creek alignment; this alternative was called the "Adopted" alignment and was a 6.8 mile long, predominantly 4-lane bypass, traversing past Martini Creek through Montara and rejoining Highway 1 near the Half Moon Bay airport. Both the "Adopted" and "Martini Creek" alignments bisected McNee Ranch State Park, but only the Adopted alignment necessitated an LCP amendment. The County submitted to the Coastal Commission LCP amendments to authorize this bypass, but in 1985 the Commission twice denied these LCP amendments (on June 27, 1985, and September 25, 1985).

Caltrans then abandoned the "Adopted" alignment and submitted a consistency certification to the Commission for a 4.5 mile long, 3-lane bypass along the Martini Creek alignment (up to 100 ft. wide, with continuous uphill passing lanes in each direction, 30 ft. wide vehicle recovery areas and 49 ft. wide vehicle retention lanes, and with 5.9 million cu. yds of grading). On February 11, 1986, the Commission concurred with Caltrans' consistency certification for this bypass. However, litigation ensued and controversy remained. As a result, Caltrans never submitted to the County a coastal development permit application for this bypass.

In the winter of 1995-1996, landslide activity again closed the Highway at Devil's Slide for several months, and public pressure again mounted for a solution to the Devil Slide problem. Although it had not been seriously studied previously as a potential feasible solution, at about this time proponents for building a tunnel as a permanent solution to Devil's Slide presented to County and state officials information supporting the viability of a tunnel. Thus, in 1996, in response to requests from local agencies and the public, Caltrans hired an independent consulting firm to conduct a tunnel feasibility study. Based upon the results of "The Devil's Slide Tunnel Study" (Woodward-Clyde Consultants, 1996), the Federal Highway Administration (FHWA) and Caltrans determined that a tunnel alternative would be a reasonable alternative that should be fully evaluated in the environmental process. Caltrans and FHWA determined that a new supplement to the 1986 FEIS was necessary in order to provide

new information relevant to the tunnel alternative. On March 19, 1999, the Draft Second Supplemental Environmental Impact Statement (DSSEIS) for the proposed Devil's Slide Improvement Project was circulated for public review.

On November 5, 1996, the voters of San Mateo County passed the Devil's Slide Tunnel Initiative known as Measure T. Passage of Measure T triggered initiation of the process to amend San Mateo County's Local Coastal Plan (LCP) to provide a tunnel for motorized vehicles behind Devil's Slide through San Pedro Mountain, and to delete references to a two-lane highway bypass along the Martini Creek alignment. The Initiative requires that the tunnel be designed consistent with restricting Highway 1 to a two-lane scenic highway using minimum state and federal tunnel standards, and that a separate trail for pedestrians and bicycles be provided outside the tunnel. Measure T also requires voter approval of any other alternative to the tunnel, except repair or reconstruction of the existing highway.

On January 9, 1997, the Commission certified this LCP amendment, finding the tunnel the least environmentally damaging alternative for providing a permanent solution to the road closure problems at Devil's Slide, and finding that while the project did not qualify as an allowable use pursuant to Section 30233(a), the project presented a conflict between Coastal Act policies addressing, on the one hand, protection of wetland resources, and, on the other, promotion of public access. Under Section 30007.5 (the conflict resolution section of the Coastal Act), the Commission concluded that it would be more protective of coastal resources to resolve this conflict by approving the project and allowing wetland fill and encroachment near environmentally sensitive habitat areas (with avoidance and mitigation measures).

III. Phased Review. Caltrans seeks this initial Commission concurrence in order to secure federal funding for the project. In this phase, the Commission is reviewing the concept, goals and objectives of the proposed project. At this stage in the review process, the information submitted to date does not include final plans or detailed mitigation and monitoring plans. Caltrans has not made final design decisions, and several project elements have not been finalized, including: (1) final detailed habitat configurations; (2) the biological, water quality, and other monitoring plans; (3) access and recreation measures (e.g., a truck traffic management plan, and trail crossing relocations where existing trails would be bisected by the tunnel approaches); and (4) final bridge and approach road designs.

Thus, the consistency certification submitted contains only a conceptual plan and conceptual mitigation measures. To the extent mitigation measures have been committed to and described, as discussed in the findings below, the Commission is able to find the project consistent with the applicable Coastal Act policies. Detailed design will follow and be the subject of a subsequent coastal development permit application submitted by Caltrans to San Mateo County (and, possibly, to the Coastal Commission on appeal).

Moreover, any changes to the project design or mitigation commitments raising Coastal Act policy concerns not previously identified could independently trigger additional federal consistency review under the provisions of Section 930.66(b) and/or Section 930.100(b) of the federal consistency regulations (15 CFR Part 930), which provide for re-review based on

"changed circumstances" of federally permitted and federally funded activities in which the Commission has previously concurred (i.e., based on a determination that the project is having coastal zone effects that are substantially different than originally proposed and, as a result, the project is no longer consistent with the applicable coastal management program policies).

IV. Status of Local Coastal Program. The standard of review for federal consistency determinations is the policies of Chapter 3 of the Coastal Act, and not the Local Coastal Program (LCP) of the affected area. If the LCP has been certified by the Commission and incorporated into the California Coastal Management Program (CCMP), it can provide guidance in applying Chapter 3 policies in light of local circumstances. If the LCP has not been incorporated into the CCMP, it cannot be used to guide the Commission's decision, but it can be used as background information. The San Mateo County LCP has been incorporated into the CCMP.

V. Applicant's Consistency Certification. Caltrans has certified that the project is consistent with the California Coastal Management Program.

VI. Staff Recommendation. The staff recommends that the Commission adopt the following motion:

MOTION: **I move that the Commission concur with consistency certification CD-94-00 that the project described therein is consistent with the enforceable policies of the California Coastal Management Program (CCMP).**

STAFF RECOMMENDATION:

Staff recommends a ***YES*** *vote on the motion. Passage of this motion will result in a concurrence with the certification and adoption of the following resolution and findings. An affirmative vote of a majority of the Commissioners present is required to pass the motion.*

RESOLUTION TO AGREE WITH CONSISTENCY CERTIFICATION:

The Commission hereby concurs with the consistency certification by Caltrans, on the grounds that the project described therein is consistent with the enforceable policies of the CCMP.

VII. Findings and Declarations:

The Commission finds and declares as follows:

A. Wetlands and Environmentally Sensitive Habitat.

1. **Coastal Act Policies**. The Coastal Act provides:

30233(a): The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

(l) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.

(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels ....

(3) In wetland areas only, entrance channels for new or expanded boating facilities ....

(4) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.

(5) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

(6) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(7) Restoration purposes.

(8) Nature study, aquaculture, or similar resource dependent activities.

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable long shore current systems.

30240. (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

2. Wetland Impacts. Caltrans has refined the tunnel design to avoid the most significant wetland fill at the north portal area, by bridging rather than filling the valley underneath the north approach roadbed. Nevertheless, the project still entails some degree of temporary and permanent fill in wetlands as defined under the Coastal Act, primarily at the disposal area and south portal approach, and therefore triggers the 3-part test under Section 30233(a) for projects involving wetland fill: (a) the allowable use test; (b) the alternatives test; and (c) the mitigation test.

(a) Allowable Use Test. Under the first of these tests, a project must qualify as one of the eight stated uses allowed under Section 30233(a). The only potentially applicable allowable use is Section 30233(a)(5), which authorizes fill for "*Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.*" In past cases the Commission has considered the circumstances under which fill associated with the expansion of an existing "roadbed or bridge" might be allowed under Section 30233(a)(5). Specifically, the Commission has considered the expansion of an existing road or bridge as an "incidental public service purpose" when no other alternative exists and the expansion is necessary to maintain existing traffic capacity.

The Court of Appeal has recognized this definition of incidental public service as a permissible interpretation of the Coastal Act. In the case of *Bolsa Chica Land Trust et al., v. The Superior Court of San Diego County* (1999) 71 Cal.App.4th 493, 517, the court found that:

... we accept Commission's interpretation of sections 30233 and 30240... In particular we note that under Commission's interpretation, incidental public services are limited to temporary disruptions and do not usually include permanent roadway expansions. Roadway expansions are permitted only when no other alternative exists and the expansion is necessary to maintain existing traffic capacity.

Thus, fill for the expansion of existing roadways and bridges may be considered to be an "incidental public service purpose" only if: (1) the expansion is limited; and (2) the expansion is necessary to maintain existing traffic capacity. The proposed project, a 2-lane tunnel replacing a failing 2-lane existing highway, qualifies as a project designed to maintain existing traffic capacity. However, it is less clear whether the project qualifies as a limited expansion of an *existing* road. The Commission has generally used this definition for activities

maintaining an existing road along its same alignment. Since the proposed tunnel essentially constitutes a new alignment, it therefore may not qualify as an expansion of an existing road. Furthermore, in approving the "Measure T" LCP amendment, the Commission has already determined that the proposed roadway fill is neither an incidental public service, nor an allowable use.[1] The Commission therefore concludes at this time that the project does not constitute an allowable use under Section 30233(a).

(b) Alternatives. The Commission also concluded in reviewing Measure T that construction of a tunnel, as called for by the proposed LCP amendment, is the least environmentally damaging feasible alternative for providing a permanent solution to the sliding and road closure problems at Devil's Slide consistent with Section 30233 of the Coastal Act. The issue before the Commission at this point is whether this conclusion is still supportable, given the more detailed design, field work, and alternatives analysis performed by Caltrans at this stage in the process.

The primary alternatives analyzed by Caltrans to date have been: (1) the no project alternative; (2) various tunnel designs studied in the Devil's Slide Tunnel Study" (Woodward-Clyde Consultants, 1996); (3) in greater detail, a 30 ft. wide versus a 36 ft. tunnel design comparison (see cross sections, Exhibit 6); (4) two alternatives for the approaching the north portal across Shamrock Ranch (a bridge alternative and a fill alternative); and (5) alternatives at the south portal involving varying degrees of wetland fill. Caltrans states:

> *The feasibility study prepared for the proposed tunnel considered six design variations for the project: three single bore designs and three double bore designs. The designs differ in width and the option to either bridge the north portal approach road or fill it. All of the variations considered envision creating a disposal area at a site located just south of the south portal.*

Caltrans determined that the 30 ft. wide tunnels would be less environmentally damaging that the 36 ft. wide alternative. Caltrans also determined that, because it would avoid direct loss of federally listed threatened species habitat (red legged frogs in the north pond on Shamrock Ranch), the bridge design alternative for the north portal approach road would be environmentally less damaging (See options A and B in the chart below [Option B is the proposed alternative]). Caltrans states:

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1 However, the Commission also found that, for purposes of PRC Section 30007.5 (resolving conflicts among competing Coastal Act policies), the project presented a conflict between competing policies of the Coastal Act, in that it would promote and encourage public access and recreation along the coast, as well as implement the public access and recreation policies of the Coastal Act. The Commission therefore found that balance, it was more protective of coastal resources to resolve this conflict by approving the proposed project and allowing the wetland fill and encroachment into environmentally sensitive habitat areas.

Alternative "A" Fill Option

This alternative was considered in the tunnel feasibility report for several reasons. By filling the gap between the existing highway with excavated material, the total amount of excess material could be split between the south disposal site and the north portal approach. Unfortunately, this design would have resulted in potential impacts to the Shamrock Ranch north pond, and a direct loss of portions of it's adjacent uplands and drainages. As a result of the NEPA/404 process and informal consultation between Caltrans and USFWS biologists, the fill option was rejected.

North Portal Alternatives

Wetlands Permanently Affected	(A.) Fill option	(B.) Bridge Option	(C.) Bridge Option w/South Portal Bridge & Retaining Wall
Shamrock Ranch-/North Pond	43,000 sq ft.	0	0
Shamrock Ranch-North Portal	14,310 sq ft.	14,310 sq ft.	14,310 sq ft.
South Portal Drainage Area	6,190 sq ft.	6,190 sq ft.	6,190 sq ft.
Fill Disposal Drainage Area	43,260	43,260	0
Total Sq ft.	**106,760**	**63,760**	**20,500**
Total Acres	**2.45**	**1.46**	**.47**
Total Sq meters	**9,918**	**5,923**	**1,904**
Total Hectare	**.99**	**.59**	**.19**
Option "C" Additional Costs			
Bridge over wetland @ South Portal	na	na	$1,500,000
Retaining Wall @ Route 1-East Side			$50,000
Option "B" Additional Costs			
Bridge over North Pond	na	$15-$17 million	$15-$17 million
Off Site Disposal Costs			
	na	$1.5 million	$2.5 million
Total	na	**$16.5-$18.5 million**	**$19.5-$21.5 million**

Concerning the proposed disposal in the south portal area, Caltrans states:

This area consists of a depressed area between a section of highway 1 built on a raised highway embankment and the adjoining hillside. The roadway embankment impounds a natural drainage which results in intermittent ponding of runoff water to create a seasonal, low quality wetland[2].

In analyzing the disposal options for the tunnel, Caltrans states:

In determining the feasibility of the options described in table above, Caltrans considered how the project would be accomplished in a successful manner within a

2 California Coastal Commission Staff Report No. 1-96, pp. 11 (1997)

reasonable amount of time as well as economic, environmental, social, and technological factors. This included:

- *The location of depressions at the project site available for fill*
- *Access to alternative disposal sites*
- *Locational characteristics such as the distance from the project and topography*
- *Aesthetic and visual impacts*
- *Impacts to the adjacent community and it's residents*
- *Development of access roads*
- *Traffic mitigation, congestion and disposal routes*
- *Noise-public safety-dust and erosion control*
- *Economic viability of alternative sites*
- *Design options that avoid wetlands and sensitive habitat*

Consideration of alternative sites within the project area for excavated material is not available at this point in the design stage. Access roads that would enable Caltrans to use alternative sites would require additional review of the USFWS to determine potential impacts to listed species. The topography of the project site is also unsuitable except for the areas located at the south portal. Economic considerations of off-site hauling would add additional costs to the project based on the options identified in the north portal alternatives (chart version) but this is considered the least environmentally damaging alternative. Bridge option "B", which would include off-site hauling of an estimated 150,000 cubic meters of excess material[3] would generate 15,000 truck trips over a nineteen month period and cost an additional $1.5 million dollars is the preferred option for providing a solution to the disposal of excess material. Option "C" would produce an estimated 250,000 cubic meters of excess material, generate an estimated 25,000 truck trips and cost and additional $3 million dollars.

Using option "B", with a trip generation rate of 15,000 truck trips, off site hauling per day could average between 50 to 100 trips depending on the stage of construction. Initially it is expected that a greater percentage of material will be hauled either to the fill disposal drainage area near the south portal or to the selected off-site location than during the later stages of the project. The tunnel excavation, earthwork and south rock cut are planned in 352 working days (1 year 7 months). If all of the off-site disposal occurs during this time period, average truck trip generation would be 42 trucks per day (tpd). Higher trip generation could occur depending on the location of the disposal site and loading considerations at the excavation areas.

The "No Project" alternative could mean taking no action, or possibly intensifying efforts to dewater the landslide at Devil's Slide. Caltrans performed a "Dewatering Feasibility Study," which concluded:

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[3] See footnote, page 24.

> *... that the groundwater regime within the study area is complex, and dewatering would be extremely difficult. The slide mass has a low to very low hydraulic conductivity and removing groundwater from the slide mass is expected to be difficult and have limited lateral impact on the water table. This limited ability to remove groundwater from Devil's Slide supports the conclusion that dewatering this slide area is not feasible. Dewatering does not meet the purpose and need and therefore is no longer considered as a viable project alternative.*

The Commission finds that Caltrans has examined feasible alternatives and proposes the least environmentally damaging feasible alternative. Where wetlands in the project area contain environmentally sensitive habitat (the red-legged frog ponds on Shamrock Ranch and, possibly, the Uphill Seasonal Ponding Depression in the Fill Disposal Area), Caltrans has modified the project to avoid adverse effects. Given the complex topography and geologic constraints in the area, feasible alternatives that would further reduce adverse impacts are either not available or are more environmentally damaging. The no project alternative would entail significant adverse effects on public access and recreation. The Commission therefore concludes that Caltrans has implemented design modifications that avoid significant wetland and environmentally sensitive habitat impacts, that the proposed project represents the least environmentally damaging feasible alternative, and that the project is therefore consistent with the alternatives test of Section 30233(a) of the Coastal Act.

(c) Mitigation. Caltrans has carefully delineated wetlands based on both Coastal Act and the U.S. Army Corps of Engineers definition, noting that the Coastal Act definition can be more inclusive than that contained in the Corps' manual. Using **Corps** manual definitions, Caltrans determined the overall project would involve approximately **0.1 acres of wetland fill and 0.2 acres of riparian habitat fill**. Using the broader **Coastal Act definition**,[4] Caltrans determined the overall wetland fill would be **1.46 acres of permanent wetland fill** (which will be mitigated off-site) **and 0.52 acres of temporary wetland fill** (which will be restored on-site). The wetland impacts occur in three general locations: the north portal/Shamrock Ranch, the south portal, and the tunnel spoils disposal site. Caltrans analyzes the impacts and accompanying mitigation measures on an area-by-area approach, is summarized in the following discussion.

The **north portal drainage area** and portions of Shamrock Ranch include five separate wetlands: a seasonal depression and strip of wetlands at the access road's north entrance, an earthen bank and pond (north) at the bridge structure, strips of wetlands that parallel the construction access road, a seasonal pond, and the south pond (earthen bank) (and adjacent small wetland area (Exhibit 11). The western end of Shamrock Ranch is predominately agricultural, including horse grazing as part of a private ranching operation. These uses have greatly altered the natural environment and disturbed native vegetation. Earthen dams were

[4] This definition is consistent with the U.S. Fish and Wildlife Service's wetland classification system entitled "Classification of Wetlands and Deep-Water Habitats of the United States," Cowardin, et al., December 1979, and with the definition used by the California Dept. of Fish and Game.

installed within two different drainage locations at Shamrock Ranch which created the North Pond and the South Pond. These Shamrock Ranch ponds date from the 1950's when the existing drainages were impounded to form stock or irrigation ponds. In spite of the agricultural land uses, wetlands have evolved over time and now surround the perimeter of the ponds. These wetlands function as habitat for wildlife and contain a high diversity of vegetation including willow (*Salix spp.*), tule (*Scirpus californicus*), rush (*Juncus spp.*), and blackberry (*Rumex vitifolius*). The ponds also provide habitat for the federally threatened wildlife species, the California red-legged frog (*Rana aurora draytonii*), which uses the area for breeding, feeding, and refuge habitat.

Through its bridge design spanning the valley on Shamrock Ranch, Caltrans has been able to avoid the most significant wetlands (i.e., those containing federally listed threatened species). However the north portal bridge abutment would still result in Coastal Act-defined (but not Army Corps-defined) wetland fill of approximately **0.33 acres of permanent fill**. Additional temporary wetland impacts would occur adjacent to this fill and in a few scattered locations on Shamrock Ranch for the temporary construction access roads and restoration of the earthen dam at the north portal south pond. Total temporary impacts in the north portal area would be approximately 0.5 acres.

The wetlands in the south portal drainage area (where the tunnel approach returns to Highway 1 and the fill disposal area (where tunnel spoils would be placed) are less environmentally sensitive than the north portal wetlands, are predominantly manmade, and contain significant amounts of exotic vegetation (Exhibits 9 & 10). The **south portal drainage area** wetland (Exhibit 10) consists of a seasonal ponding depression which carries water from the upper watershed to the bottom of the hill and to an above ground riser. Runoff flows from this standpipe under Route 1 and to the Pacific Ocean. The seasonal depression on the east side of Route 1 has formed due to a change in the topography and hydrologic regime after an above ground culvert riser was built to trap sediment and protect the culvert under the existing Route 1 roadway. The culvert riser allows water to collect in a depressional area under the inlet.

Wetland fill in this area total **0.14 acres**. Caltrans states that a large rock cut proposed at the south portal area is necessary to align the highway and provide adequate sight distance and radius curve. A smaller rock cut will top the south portal. The south portal location was selected at a rock nose between Route 1 and a small drainage channel just south of Devil's Slide. This location was selected because it provides acceptable side cover between the tunnel and the cliff face east of Route 1, adequate space between tunnels for the double bore configuration, avoids the environmentally sensitive stream channel to the east, and provides adequate depth of good quality rock above the tunnel portal. Caltrans further notes:

> *This seasonal ponding depression is similar to the depression described at the fill disposal drainage area* [described below]. *Prior to construction of route 1, runoff from this drainage flowed directly into the ocean. The new roadway blocked off the canyon, and a culvert was placed under Route 1 to allow continued drainage to the ocean. Sometime in the 1970's Caltrans determined that there were problems with the*

drainage due to blockage at the culvert. To resolve this, a 10 foot high by 4 foot wide standpipe (aboveground riser) was installed to allow slower drainage of the canyon via slits in the standpipe.

Eventually, the standpipe plugged at lower levels but continued to be effective because of the slits at higher elevations of the standpipe. As a result of this filling, favorable growth conditions for wetland species became available. Unexpectedly, the standpipe trapped siltation which in turn allowed wetland plant species to become established. If Caltrans had maintained the standpipe by removing the surrounding fill, there would likely be no wetland. Sediment continues to build around the above ground riser during times of peak runoff after heavy rainfall. During normal or above normal rainy seasons, water ponds within the depression for at least two weeks. Since the water in this depression dries early in the spring, it is not good habitat for amphibians. No threatened or endangered species have been found at the site.

The affected wetlands at the **fill disposal site**, the area proposed for excavation of the over ½ million cubic meters of material from the tunnel construction (Exhibit 9), are also manmade. These wetlands consist of (1) an old roadcut for an abandoned county road alignment (which continues to erode and affect the existing topography in such a way that additional wetlands have grown within the abandoned roadway, although its habitat value is low and the hydrophytic vegetation found in the seasonal depression does not form a dense cover); and (2) a downhill seasonal ponding depression that, like the south portal drainage area wetland, developed wetland characteristics due to manmade drainage improvements. Wetland fill in this area total almost **1 acre** (43,260 sq ft., or 0.99 acres), 90% of which would be in the downhill depression area and the other 10% in the old county roadway.

Thus, **total permanent wetland impacts** from the project total **1.46 acres** of wetland impacts, most of which constitute Caltrans-created (i.e., manmade) wetlands with little habitat value. Temporary construction-related impacts would add an additional 0.52 acres of impact. Mitigation measures consist of offsite mitigation for the permanent impacts and on-site restoration for the temporary impacts. Additional wetland avoidance measures developed in consultation with the U.S. Fish and Wildlife Service to protect the federally listed threatened red-legged frog, which resides in the north and south ponds on Shamrock Ranch, are discussed in the following section of this report. Caltrans describes the wetland avoidance and mitigation measures, as follows:

On-Site Mitigation

[As discussed in the following section of this report], *To avoid impacts to the north pond and associated Coastal Commission wetlands, a bridge will be constructed instead of filling the large area across the upper end of Shamrock Ranch.* [This measure avoids] ... *permanent impacts to wetlands totaling 43,000 square feet and adjacent buffer zones. A segmented balanced cantilever method will be used to construct the bridge,* ... [thereby avoiding construction impacts to these wetlands].

Off-Site Mitigation

Off-site mitigation to compensate for temporary and permanent impacts to wetlands, sensitive habitat areas and buffer zones will involve the restoration and enhancement of a filled-wetland, south of the project on Route 1 across from the Charthouse Restaurant [Exhibit 12]. *As soon as Caltrans is granted permission to enter the property, a preliminary wetland delineation will be made at the site in order to determine the existing conditions of the wetlands. The area is approximately 23,212 square meters (249,761 square ft.) Replacement ratios recommended by the Commission will consider the habitat value and type, and there will be no permanent net loss of wetland habitat as a result of the project.*

The existing land use of the property, which the mitigation site is a portion of, is agricultural. Row crops are grown on the north side of the mitigation site. Residential land uses are located on the south side of the site. Open space and recreational land uses, associated with the Pacific Ocean, are found to the west. The existing Route 1 roadway separates the mitigation site from the open space and recreational land uses.

The mitigation site has been disturbed in the past by agricultural activities and the placement of fill. Past plowing and grading at the mitigation site has disrupted the northern drainage. It appears that the past disruption of this drainage resulted in an increase in the size of the wetlands found here. This drainage currently flows under Route 1 and ultimately into the Pacific Ocean.

Past placement of fill in a portion of the mitigation site resulted in a decrease of the total wetlands. The mitigation option for this site would be to eliminate the fill and enhance the total wetland area. The existing fill area is an upland area that does not contain hydrophytic vegetation.

The mitigation site also includes an undisturbed drainage in the southern portion of the property. Hydrophytic vegetation is found in association with both drainages. Willow dominates this undisturbed drainage channel as it parallels Route 1 before it crosses under the roadway. A berm has been installed on the eastern boundary of the mitigation site, and a fence has been constructed on top of the berm. It does not appear that the mitigation site is currently used for agricultural purposes due to the wetlands that have evolved over time.

A map showing the location and boundaries of the off-site mitigation area is ... [shown in Exhibit 12].

This mitigation plan included in Caltrans' consistency certification is still conceptual at this point. It incorporates acceptable mitigation ratio commitments and locations, which were developed in consultation with CDFG and FWS. However, prior to final Commission authorization these will need to be supplemented with detailed mitigation and monitoring plans. The Commission finds that the commitments provided to date enable the Commission

to find, at this time, that the project satisfies the mitigation test of Section 30233(a) of the Coastal Act. Detailed design will follow and be the subject of the subsequent coastal development permit review stage (and, if needed, further federal consistency review as explained on pages 7-8).

(d) Environmentally Sensitive Habitat. As noted above, Caltrans has refined the tunnel design and incorporated avoidance, monitoring, and enhancement measures to avoid filling and adversely affecting federally listed threatened species habitat (red legged frogs in the ponds on Shamrock Ranch). These measures were developed in consultation with the U.S. Fish and Wildlife Service to protect red-legged frog habitat, which resides in the north and south ponds on Shamrock Ranch. Caltrans describes the wetland avoidance and mitigation measures, as follows:

> *An environmentally sensitive area (ESA) was developed in consultation with the USFWS biologists to protect red-legged frog habitat. The ESA will be off-limits to construction personnel, vehicles, construction materials, falsework or other ground disturbances.*
>
> *On-Site Mitigation*
>
> *To avoid impacts to the north pond and associated Coastal Commission wetlands, a bridge will be constructed instead of filling the large area across the upper end of Shamrock Ranch. Filling this canyon to support the approach road would result in permanent impacts to wetlands, the north pond, adjacent uplands and upstream drainages. The avoidance of these wetland impacts is substantial as the fill design would have created permanent impacts to wetlands totaling 43,000 square feet and adjacent buffer zones. A segmented balanced cantilever method will be used to construct the bridge. The bridge piers and abutments, located outside the ESA, would be constructed first and the superstructure between the north and south piers would be advanced by cantilevering out from the piers. Falsework would be used to support the counterbalancing superstructure outside the ESA between the piers and their adjacent north and south abutments.*
>
> *In order to protect the California red-legged frog population at the north pond during construction, a new pond will be constructed in the horse pasture between the north and south ponds. A detailed proposal describing construction access impacts to the red-legged frog, and the proposed permanent pond has been submitted to the U.S. fish and Wildlife Service (USFWS) as part of a conceptual mitigation plan. The mitigation plan is described fully in the 1999 Biological Assessment prepared for the project and incorporates:*
>
> *1. Relocation of the current frog population and egg clusters prior to construction*
>
> *2. Designation of existing red-legged frog habitat as Environmentally Sensitive Areas (ESA);*

3. Installation of fencing and filtration systems to protect the water quality of the ponds;

4. Planting and revegetation of the new pond with species type and plant densities that already occur in the north pond, and are preferred by the red-legged frog for egg cluster attachment;

5. Seasonal limitations (May 1 thru October15) for construction of access roads and pier foundations to reduce erosion potential; and

6. Formulation of a water quality assessment plan which will require approval from USFWS, CDFG and National Marine Fisheries Service (NMFS).

7. Revegetation of buffer areas temporarily and permanently affected by fill disposal or construction.

Restoration and Enhancement Measures

Caltrans has developed additional enhancement measures for the north and south ponds to alleviate existing adverse conditions that threaten the resident California red-legged frog population and other sensitive habitat areas. These enhancement measures would compensate for direct/indirect impacts of construction activities such as ground vibration, noise, and general disturbance. A Summary of these measures is provided and also appears in the 1999 Biological Assessment:

1. Conservation easements will be obtained from Shamrock Ranch for the three ponds to protect the California red-legged frog in perpetuity.

2. After project construction, silt will be removed from the north pond, prior to removing the frog barriers and allowing the frogs to return.

3. To ensure the successful metamorphosis of any annual red-legged frog larval crop, the north pond will be supplied with a pressurized water line and a heavy duty float valve to prevent it from drying in mid-summer. The shoreline and inshore areas will be planted with a complex indigenous emergent reed, sedge and forb species that will create a permanent pond habitat in which perennial inshore vegetation will continue to grow and provide frog protection.

4. The owners of Shamrock Ranch will discontinue the practice of feeding raccoons at a small pit near the north pond to reduce frog predation.

5. The koi carp population will be removed from the south pond to eliminate predation on red-legged frog eggs and tadpoles.

6. A three year monitoring program to assess and evaluate the effects of the enhancement measures will be implemented.

7. *The face of the south pond dam will be restored and stabilized to ensure that the habitat functions associated with the pond will continue into the future.*

With these measures being implemented in consultation with the U.S. Fish and Wildlife Service, the Commission finds that the project is not located within an environmentally sensitive habitat area and is therefore consistent with the requirements of Section 30240(a), and, further, that the project is consistent with the requirement of Section 30240(b) that "development in areas adjacent to environmentally sensitive habitat areas ... shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas."

3. Conclusion. To conclude, the Commission finds that the project: (1) is not an allowable use under Section 30233(a)(5); (2) is the least environmentally damaging feasible alternative; (3) provides commitments for mitigation measures to protect wetland and sensitive habitat resources; and (4) is not located within an environmentally sensitive habitat area and, with the avoidance, monitoring, and enhancement measures worked out with the U.S. Fish and Wildlife Service, is consistent with Section 30240. On January 9, 1997, the Commission certified an LCP amendment for this project, finding the tunnel the least environmentally damaging alternative for providing a permanent solution to the road closure problems at Devil's Slide, and that while the project did not qualify as an allowable use pursuant to Section 30233(a), the project presented a conflict between Coastal Act policies addressing wetland and public access. Under Sections 30007.5 (the conflict resolution section of the Coastal Act), the Commission determined that it would be more protective of significant coastal resources to resolve this conflict by approving the project and allowing wetland fill and encroachment near environmentally sensitive habitat areas (with avoidance and mitigation measures).

Given the more detailed design, field work, and alternatives analysis performed by Caltrans submitted with this consistency certification, the Commission reaffirms this conclusion. The Commission also reaffirms its previous conclusion that the previously-authorized bypass along the Martini Creek alignment would have involved several orders of magnitude more extensive wetland fill than the proposed tunnel. (For comparison purposes, based on *Army Corps* wetland definitions[5] Caltrans estimates the Martini Creek Bypass would have resulted in 28 acres of wetland fill and 14 additional acres of riparian habitat fill, compared to 0.1 acres of wetland fill and 0.2 acres of riparian habitat fill for the proposed tunnel.)

Finally, the Commission notes its conclusions are based on the commitments and information submitted to date, which do not include final detailed mitigation and monitoring plans. Detailed designs and plans will follow and be the subject of the subsequent federal coastal development permit application to San Mateo County (and, possibly, on appeal to the Commission). Further, any modifications to any of these commitments may also trigger the need for additional federal consistency review by the Commission (see discussion, pages 7-8).

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[5] "Army Corps" wetlands were used because "Coastal Act" wetlands were not available for a direct comparison; Coastal Act wetland impacts for the Martini Creek bypass have not been calculated. Aside from this comparison, the remainder of the Commission's wetland analysis is based on Coastal Act wetland definitions.

B. Public Access and Recreation. Sections 30210-30212 of the Coastal Act provide for the maximization of public access and recreation opportunities. Section 30210 provides:

> *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Section 30213 provides:

> *Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred.*

The project raises several a number of public access and recreation issues, including: (1) the overriding need for a permanent solution to the geologic stability problems at Devil's Slide in order to maintain the public's ability to continue to achieve access to the significant and numerous public beaches, spectacular tidepools, and other visitor-oriented recreational facilities south of Pacifica on the San Mateo Coastside; (2) the need to assure that any public trails bisected or interrupted by the project are reconfigured to maintain their integrity; (3) the need to assure that construction activities (primarily truck traffic) are scheduled in a manner minimizing adverse impacts during peak recreational periods; and (4) to the extent possible given the geologic instability at Devil's Slide, the maintenance of access along existing Highway 1 across Devil's Slide. The Commission will also consider the project's access and recreation impacts compared to the far more environmentally damaging, previously authorized Martini Creek bypass, which would have bisected McNee Ranch State Park.

1. Most Protective of Significant Coastal Resources. In reviewing the Measure T LCP amendment for the tunnel, the Commission found that failure to provide for a permanent solution to the Devil's Slide problem would thwart implementation of the public access provisions of the Act. The Commission noted the many and extended closures of Highway 1 at Devil's Slide that have greatly curtailed recreational use of the northern and central sections of the San Mateo County coastline. The Commission found:

> *When Highway 1 is closed, travelers to Pacifica, San Francisco and other points north from Half Moon Bay and other locations south of Devil's Slide must crowd onto State Highway 92 and climb over the coastal mountains to Interstate 280 and other roadways heading up the Peninsula (see Exhibit 16). Under such conditions, Highway 92 becomes overloaded, causing delays during peak periods. During the Highway One Closure of 1995-1996, travel times for commonly increased by over an hour each way, and involved a great deal of time inching through dense traffic.*

The traffic nightmare greatly impeded the general public's ability to access the coastal area which in turn had a devastating impact on the economy of the San Mateo County MidCoastside. Many visitor-serving establishments and other business were forced to go out of business.

Due to the seriousness of this problem, the Commission concluded that:

The present project presents such a conflict between the public access provisions of the Coastal Act and the wetland fill and habitat protection provisions [and that] this project will promote public access and recreation along the coast, as well as implement the public access and recreation policies of Sections 30210, 30211, 30212, 30212.5, 30213, 30252 and 30254 of the Coastal Act. These benefits will be lost if the project is not approved.

The Commission reiterates these conclusions here, finding that they are still warranted and appropriate.

2. Access Trails. Caltrans states:

The proposed project will ensure continued public access to the coast, although current access at the waters edge is limited due to the steep and rocky terrain below the edge of the highway. The superceded portion of Highway 1 which will be relinquished to the County of San Mateo to own and manage, will continue to provide access to hikers and bicyclists.

Three trails, the California Coastal Trail, the Half-Moon Bay Colma road and the San Pedro Mountain Road are in close proximity to the project ... The Half-Moon Bay Colma Road intersects the tunnel alignment in five locations, and the California Coastal Trail intersects the alignment at the southern portal. These trails connect to existing trails at Grey Whale Cove State Beach, Montara State Beach and McNee Ranch State Park.

South Portal Trail connections

At the south portal, construction will sever the California Coastal Trail at three locations due to excavation for the portal, realignment of Route 1 and construction of the excess material disposal site. Additional design options and grading plans will be investigated to determine if preserving the present trail is feasible. If it is not feasible to avoid impacts, the trail will be reconstructed around the impacted areas to restore continuity and provide continued access to McNee Ranch State Park and the San Pedro Point Headlands.

North Portal [Impacts]

Access to the San Pedro Point Headlands property [to the north of Highway 1 and Shamrock Ranch will not be affected] ... *by construction, and physical and operational conditions would be unchanged by the proposed tunnel. Existing public access to established recreation trails including McNee Ranch State Park, Grey Whale Cove State Beach and Montara State Beach will not be impacted by construction of the tunnel alternative.*

3. Construction Impacts. Due to the need for some degree of off-site hauling of tunnel spoils, Caltrans' consistency certification includes traffic analysis of construction-related truck traffic on Highway 1 and 92. For the offsite fill, Caltrans originally estimated a total of up to 15,000 truck trips overall[6], with off site hauling per day averaging between 50 to 100 trips depending on the stage of construction. Caltrans states:

Initially it is expected that a greater percentage of material will be hauled either to the fill disposal drainage area near the south portal or to the selected off-site location than during the later stages of the project. The tunnel excavation, earthwork and south rock cut are planned in 352 working days (1 year 7 months). If all of the off-site disposal occurs during this time period, average truck trip generation would be 42 trucks per day (tpd). Higher trip generation could occur depending on the location of the disposal site and loading considerations at the excavation areas.

Caltrans calculated changes in the current level of service (LOS) and projected delays based on the highest volumes of peak hour traffic within an 8 hour period of off site hauling, with and without construction traffic (Exhibits 13 & 14). Caltrans assumes that all truck loads of excavated material would be transported to the quarry located on Route 92, south of Devil's Slide (and east of Highway 1). Caltrans states:

The study indicated that delays would increase by about 6 minutes with 300 truck trips/day for the time period between 7:00 am to 3:00 pm. With 100 truck trips/day for the same time period the volume/capacity (V/C) would increase but no significant delays would occur. If hauling occurred between the hours of 8:00 am to 4:00 pm, delays for 100 truck trips/day would be 4 minutes, and 300 trips would increase to 19 minute delays. In order to avoid evening peak rush hour and minimize congestion impacts, off site hauling would have to be terminated by 3:00pm on weekdays.

In order to minimize adverse effects on public access and recreation, Caltrans has committed that off-site disposal would be restricted to non-peak hours, and that non-peak hours includes not only rush hour peaks but also recreational peak periods.

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[6] This number (both the amount of fill and number of truck trips) is subject to reduction downwards; updated information submitted by Caltrans prior to the hearing indicated the amount of fill to be trucked offsite would be 1/3 of the original amount (or a reduction from 150,000 cu. meters to 50,000 cu. meters).

4. **Bicycles and Access on Existing Highway 1**. In order to accommodate bicyclists, which are allowed on existing Highway 1, Caltrans consulted with bicycle groups and San Mateo County to consider bicycle use. In order to accommodate bicyclists, which are allowed on existing Highway 1, Caltrans consulted with bicycle groups and San Mateo County. Caltrans states:

> *Following much discussion and debate over this issue, Caltrans decided to request that the San Mateo County Board of Supervisors identify their preferred alignment for a bicycle facility associated with the tunnel project.*
>
> *The San Mateo County Board of Supervisors, in passing Resolution #61060, authorized and directed the President of the Board to notify Caltrans "that the Board's preferred alignment for a bicycle/pedestrian trail be located within the existing Highway 1 Devil's Slide right-of-way, with an alternative alignment around Devil's Slide should it fail". It was decided to incorporate into the project design, the placement of informational/directional signs directing bicyclists to use the existing Highway rather than the tunnel. In the absence of any ban or restrictions (which would need to be initiated by local government), some bicyclists may still choose to ride with vehicular traffic through the tunnel.*
>
> *Upon completion of the tunnel construction, Caltrans will relinquish the section of existing Highway 1 right-of-way to the County of San Mateo to own and manage. Maintenance and operations of the property and the bicycle/pedestrian trail will then be within the jurisdiction of the County of San Mateo. The County may choose to operate and maintain this facility or arrange for the management or transfer of the facility to an appropriate public recreational agency.*

5. **Commission Conclusion.** Based on the above discussions, the concludes that: (1) there is an overriding need for the project to the extent that the project presents a conflict between the public access and wetland policies of the Coastal Act; (2) with Caltrans' commitments for trail restoration and maintenance plans and construction traffic congestion plans, the project's adverse impacts on public access and recreation will be minimized; (3) the project and the relinquishment of existing Highway 1 to the County have been designed and proposed to maximize bicycle access and other non-motorized forms of access; and (4), as previously noted, from a public recreation perspective the proposed tunnel would be preferable to the far more environmentally damaging, previously-authorized Martini Creek Devil's Slide bypass through McNee Ranch State Park.

As noted in the wetland findings above, the Commission's conclusions are based on the information submitted to date. Detailed minimization and mitigation plans will follow and be the subject of a coastal development permit application to San Mateo County (which could be

appealed to the Commission). Further, any modifications to any of these commitments may also trigger the need for additional federal consistency review by the Commission (see discussion, pages 7-8).

C. Conflict Resolution. Section 30007.5 of the Coastal Act provides:

The Legislature further finds and recognizes that conflicts may occur between one or more policies of the division. The Legislature therefore declares that in carrying out the provisions of this division such conflicts be resolved in a manner which on balance is the most protective of significant coastal resources. In this context, the Legislature declares that broader policies which, for example, serve to concentrate development in close proximity to urban and employment centers may be more protective, overall, than specific wildlife habitat and other similar resource policies.

In reviewing the tunnel under the Measure T LCP amendment, the Commission found:

The Commission finds that this project presents a conflict between competing policies of the Act that requires resolution in conformity with the provisions of Sections 30007.5 and 30200. As determined by the Commission above, this project will promote public access and recreation along the coast, as well as implement the public access and recreation policies of Sections 30210, 30211, 30212, 30212.5, 30213, 30252 and 30254 of the Coastal Act. These benefits will be lost if the project is not approved.

Balanced against these beneficial aspects of the project is the competing fact that the project also will fill wetlands and environmentally sensitive habitat for a use that is not allowed by either Sections 30233 and 30240 of the Coastal Act. However, the impacts of this fill can be mitigated by a wetland replacement and environmentally sensitive habitat restoration program that will be required through the coastal development permit that must be obtained for the project, pursuant to the wetland fill and habitat protection policies of the certified San Mateo County LCP. The Commission also notes that the placement of the fill and the encroachment into environmentally sensitive habitat is the least environmentally damaging feasible alternative.

For these reasons the Commission finds, pursuant to Sections 30007.5 and 30200 of the Coastal Act, that on balance it is more protective of coastal resources to resolve this conflict by approving the project and allowing the proposed wetland fill and encroachment into environmentally sensitive habitat. The Commission therefore finds the project consistent with the Coastal Act in reliance on the conflict resolution provisions of Section 30007.5 and 30200.

Based on the information submitted to date, which provides additional alternatives analysis, habitat minimization, monitoring and avoidance measures, as well as other mitigation measures discussed in this report addressing public access and recreation, scenic public views, and water quality, the Commission finds these conclusions remain valid and that, based on Section 30007.5 of the Coastal Act, that it would be most protective of significant coastal resources to allow this project to proceed. The Commission therefore concludes that the project is consistent with the Coastal Act.

D. Public Works. Section 30254 of the Coastal Act provides that:

New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division; provided, however, that it is the intent of the Legislature that State Highway route 1 in rural areas of the coastal zone remain a scenic two-lane road.

This project raises two related "Section 30254" issues: the need to assure that the project is not excessively growth-inducing; and the need to maintain Highway 1 as a scenic 2-lane road in rural areas. In reviewing the Measure T LCP amendment the Commission found that: "The proposed amendment explicitly states the tunnel design "be consistent with ... Coastal Act limits restricting Route 1 to a two-lane scenic highway... Therefore, the Commission finds that the proposed amendment is consistent with Section 30254 of the Coastal Act." The clear intent of Measure T was that the tunnel be designed for two lanes, with the understanding that safety and tunnel standards and considerations could be incorporated into the design. Caltrans considered both a 30 ft. wide tunnel design (the proposed project) and a wider 36 ft. design (with a barrier separating motorized from non-motorized traffic). Concerns were raised at local public hearing on the designs that the 36 ft. designs could more easily be converted to multiple lane tunnels, thus raising both the concerns about inducing growth and maintaining the highway at two lanes. Caltrans therefore abandoned the wider tunnels. The Commission concludes that the safety and non-motorized access features of the proposed tunnel are reasonable and consistent with the intent of Measure T and the requirements of Section 30254 of the Coastal Act, both of which require that the tunnel be designed in a manner restricting Highway 1 to a two-lane scenic highway using minimum state and federal tunnel standards. The Commission also notes that the proposed tunnel is far narrower than the previously-authorized Martini Creek Devil's Slide bypass, which included three continuous lanes throughout the bypass and graded roadway widths of up to 100 ft. (including 30 ft. wide vehicle recovery areas and 49 ft. wide vehicle retention lanes within the graded areas).

E. Public Views. Section 30251 of the Coastal Act provides that:

The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the

alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

Caltrans states:

North Portal and Bridge Structure. *Initially, two options were considered to span the Shamrock Ranch Valley at the north portal. The fill option, which has been rejected, would split the disposal areas for excavated material between the north and south portal. The visual and environmental impacts of the fill option were significantly greater than those associated with the bridge option, and several ponds located in the valley would have been filled.*

The north portal location was selected to minimize excavation and visual impacts on nearby Pacifica homes, and to minimize the overall length of the tunnel. This was done by carefully locating the alignment in a small ravine in the north portal area, and minimizing the height of the cut into the higher western ridge, while maximizing the cut into the lower eastern ridge that borders the ravine. Based on geologic evaluations of the rock mass conditions to be exposed by the portal excavation, a slope inclination of one horizontal to one vertical (1h:1v) was selected. The maximum height of excavation is expected to be about 180 feet.[7]

With this option there is an opportunity for motorists and residents of Shamrock Ranch, equestrians, and bicyclists to see from certain viewpoints under or through the spaces between the bridge piers. The proposed bridge selected for the approach to the north portal will consist of 3 spans, approximately 320 meters (1,050 ft) in length. The deck of the bridge would be placed approximately 36.6 meters (120') above the valley floor. Views of the bridge would be insignificant for hillside residents of Pacifica. The bridge will not be visible from the Linda Mar-San Pedro Valley, with the existing vegetation and viewpoint angle.

Impacts. *The bridge that will span the Shamrock Ranch Valley to avoid impacts to wetlands and riparian habitat, and connect Highway 1 with the north portal. It will create a negative visual impact on this small valley which currently enjoys minimal intrusion from development. While the bridge structure is not visually compatible with the character of the surrounding area, it is the least environmentally damaging option*

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to cross the Shamrock Ranch valley. Trees and hillside vegetation will be cleared and grubbed for construction of the tunnel portal and approach road resulting in some contrast between the chaparral blanketed hillsides.

Mitigation. *Mitigation measures to minimize these visual impacts would include aesthetic design options that integrate form, pattern, color, texture and structural elements with the design. Standard monolithic concrete structures with no form, pattern or articulation would not provide adequate mitigation for this impact.*

North Portal Façade/Impacts. *The north portal facade presents a structure sited on a heavily vegetated hillside that would be visible for a short duration to motorists an bicyclists. An access road and water tank will also be visible from long range views resulting in a negative visual impact.*

Mitigation. *Planned mitigation includes architectural treatment for the tunnel portal to create a cohesive design that blends with the environment. Screening and vegetation would be used to mitigate the water tank, and a suitable surface material will be placed on the access road. The horizontal alignment for the north portal has been developed to minimize its visual impact by locating the tunnel portal within a recess in the side of the hill.*

South Portal. *Travelling north on route 1 towards the south portal area, the view is dominated on the eastern side of the highway by rolling green hillsides as they slope towards the ocean. ...*
The horizontal alignment for the south portal includes a 259 meter (850') radius curve shaving off the face of a large rock precipice located to the east of the alignment. This alignment will provide a 131 meter (430') clear stopping sight distance at the base of this rock cut. In addition to the portal, the area includes the south disposal site, which would receive all of the excavated material from the tunnel construction. Adjacent to the disposal site, an operations and maintenance center (OMC) will be constructed which includes a building and heavy equipment yard. This facility will be located on the east side of the highway, and views of it will be shielded from the highway by earth berms. Some drainage facilities will be visible from the highway.

Impacts. *The rock cut will present a visual change to the area, expanding a feature which is already present. No long term exposure of this area would be experienced by residents, as there are none within the sight-line of the south disposal site. Motorists travelling northbound on route 1 would view the greatest change to the south portal area.*

Mitigation. *This visual change would be mitigated with contour grading to blend the form of the fill area in to the existing surroundings of rolling hills. Revegetation would minimize visual impacts. The South Portal location was selected at a rock nose between Route 1 and a small drainage channel just south of Devil's Slide. This*

location provides minimal but acceptable side cover between the tunnel and the cliff face east of Route 1, adequate space between the tunnels for the double bore configuration, avoids the environmentally sensitive stream channel to the east, and provides adequate depth of good quality rock above the tunnel portal. The maximum height of the excavation is expected to be about 240 feet. This portal location will have a sufficient work area to avoid serious traffic impacts during construction.

South disposal Site/Impacts. *The south disposal site would receive an estimated [574,000 cubic meters] ... of excavated material creating a hill with 2:1 slopes, 180 meters (590') in diameter and reaching 90 meters (295') in height. This visual impact would be considered negative unless revegetation could successfully blend the fill into existing landforms. Mid-ground views would be the most affected, as well as the foreground view for motorists. Background views would be obstructed by topography from the road for motorists, but would be visible to recreational and commercial vessels.*

Mitigation. *There are no residents at the south portal, so long term exposure of this view is not an issue. Contouring the fill shape to transition gradually into the disposal site would aid in blending the appearance of the material. Revegetation with native plants would be called for to mitigate the appearance of the fill. Revegetation would take several years before complete cover would be achieved.*

Caltrans states that the project is consistent with the visual resources component of the Coastal Act, "... in that design options and treatments will be visually compatible with the existing geology and vegetation, and initial visual impacts will be temporary in nature." Caltrans notes that: "Although landforms with be altered at several locations, revegetation, contouring and aesthetic treatments will be applied to restore their character." The Commission notes the historic difficulty in revegetating steep cut slopes in the project area in general; Caltrans will need to be persistent in order to succeed in revegetating this fill area. The Commission nevertheless finds that Caltrans has incorporated project modifications to minimize adverse visual impacts on scenic coastal views, primarily in the north portal area, and, to the best of its ability, will revegetation plans to minimize adverse effects on the predominantly natural character of the scenic hillsides in the south portal fill disposal area. The Commission also notes that the proposed tunnel would have profoundly less adverse impact on scenic public coastal views than the previously-authorized Martini Creek Devil's Slide bypass, which included 5.9 million cubic yards (4.5 million cubic meters) of grading throughout McNee Ranch State Park and surrounding areas, including extensive grading at much higher elevations that would be seen for tens of miles from either north or south of the bypass. The Commission therefore concludes that the project is consistent with the requirements of Section 30251 of the Coastal Act.

As noted in the previous sections above, the Commission's conclusions are based on the information submitted to date. Detailed bridge, approach road, and revegetation plans will follow and be the subject of a coastal development permit (which could be appealed). Further,

any design changes or modifications to any of these commitments may also trigger the need for additional federal consistency review by the Commission (see discussion, pages 7-8).

F. Water Quality. Section 30231 of the Coastal Act provides:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Caltrans will incorporate measures into the project to protect water quality in the area. Caltrans states:

Among the requirements that apply on a project-by-project basis, is the consideration of Permanent Control Measures (PCM) to eliminate or minimize the discharge of pollutants associated with the new facility. The project design phase includes a process to determine the need for PCMs. The process provides a framework for documenting the selection and/or rejection of PCMs prior to completion of final design for the chosen alternative.

Impacts

Long–term and construction related water quality impacts will be better identified during the pre-construction process. Potential erosion impacts in the project vicinity of either alternative due to excavation and potential non-storm water discharges that could occur during construction activities would be addressed by the standard implementation of erosion and sediment control practices both during and after construction.

Construction-related Impacts

Non-storm water discharges include all liquids used by the contractor that have the potential to be discharged, either accidentally (spills) or as part of the construction process. Although these types of discharges are most likely to be small quantities, they have the potential to adversely impact receiving water quality in a localized area. Therefore, they would be managed accordingly with an appropriate Storm Water Pollution Prevention Plan (SWPPP).

Mitigation Measures

Caltrans mitigation measures include those that will be required during construction of the project, as well as measures that consider long term benefits. Mitigation during construction is implemented through the SWPPP, which is a two-step process. The conceptual SWPPP, which is prepared during design of the project will identify control measures and Best Management Practices (BMP) that may be implemented.

These BMPs can include:

a) Erosion and sediment control plans that incorporate vegetative stabilization such as seeding, planting and mulching.

b) Physical stabilization using geotextiles and mats, dust control implementation measures and temporary stream crossings and the stabilization of access roads and construction staging areas.

c) Diversion of run-off using earth dikes, temporary drains and swales, and slope drains and also measures to reduce run-off such as slope terracing/roughing and check dams.

d) Trapping and filtering of runoff may be accomplished by the construction of silt fencing, straw bale barriers, brush and rock filters, sediment traps and basins, infiltration basins and trenches, and detention ponds.

Prior to the beginning of any construction activities, the SWPPP must be complete and in compliance with any applicable permits. A Storm Water Pollution Prevention Plan (SWPPP) Checklist is used by the Resident Engineer to verify that all required sections of the plan have been completed, and whether each item has been adequately addressed.

The final SWPPP will be prepared by the contractor after the contract has been awarded and the field condition have been identified. The final SWPPP is based on the conceptual SWPPP prepared during the design process and addresses those BMPs and control measures related to special site conditions and construction staging.

Long-term Mitigation

Caltrans long-term mitigation measures involves the evaluation of potential adverse impacts that the operation of the new facility may have on receiving water quality. The evaluation process considers all aspects of the project, and determines the need for the

inclusion of permanent control measures (PCM) into the design of the project as previously described. The process also provides for the evaluation of available PCMs and the feasibility of their use in the projects.

In addition, during the public hearing Caltrans agreed to incorporate into its water quality component of the project a commitment that its Best Management Practices will attempt to treat, infiltrate or filter stormwater from each runoff event, up to and including the 85th percentile, 24-hour runoff event. The Commission finds that inclusion of the above-discussed measures will be necessary to protect coastal water quality in the project area. The Commission also notes that the proposed tunnel would have significantly less adverse impact on water quality than the previously-authorized Martini Creek Devil's Slide bypass, which included 5.9 million cubic yards of grading affecting numerous watersheds throughout McNee Ranch State Park and surrounding areas. In reviewing the Measure T LCP amendment, the Commission noted that, by constructing a roadway through San Pedro Mountain rather than over the top of the mountain, the tunnel would avoid contributing sediment and contaminant-laden runoff into the watersheds within the state park, and that drainage from the tunnel and its approaches would discharge at relatively low elevations near the ocean into streams located either completely outside of the park watersheds or along the edges of the park near the ocean. The Commission concludes that, with the commitment to implement the above water quality protection measures, the project would be consistent with Section 30231 of the Coastal Act.

As noted in the previous sections above, the Commission's conclusions are based on the information submitted to date. Detailed water quality construction and operations plans will follow and be the subject of a coastal development permit to San Mateo County (which could be appealed to the Commission). Further, any modifications to any of these commitments may also trigger the need for additional federal consistency review by the Commission (see discussion, pages 7-8).

SUBSTANTIVE FILE DOCUMENTS:

1. San Mateo County LCP Amendment No. 1-96, ("Measure T," the Devil's Slide Tunnel Initiative).

2. Draft Second Supplemental Environmental Impact Statement for the Devil's Slide Tunnel.

3. "The Devil's Slide Tunnel Study," Woodward-Clyde Consultants, 1996.

4. Addendum to the Devil's Slide Dewatering Feasibility Study," Caltrans, June 2000.

5. Preliminary Coastal Zone Wetland Delineation, State Route 1 Devil's Slide Bypass Project, Caltrans, June 15, 2000.

6. Draft Supplemental Environmental Impact Statement (DSSEIS) for the proposed Devil's Slide Improvement Project, March 19, 1995.

7. Draft Second Supplemental Environmental Impact Statement (DSSEIS) for the proposed Devil's Slide Improvement Project, March 1999.

8. San Mateo County LCP Amendments No. 1-85 and 2-85, Devil's Slide bypass ("Adopted" alignment bypass).

9. Consistency Certification CC-45-85, Caltrans, Devil's Slide bypass (Martini Creek bypass)

10. Consistency Certification CC-64-99, San Diego Metropolitan Transit Development Board, mid-coast light-rail extension, San Diego.

FIGURE 2-2: Project Area Map

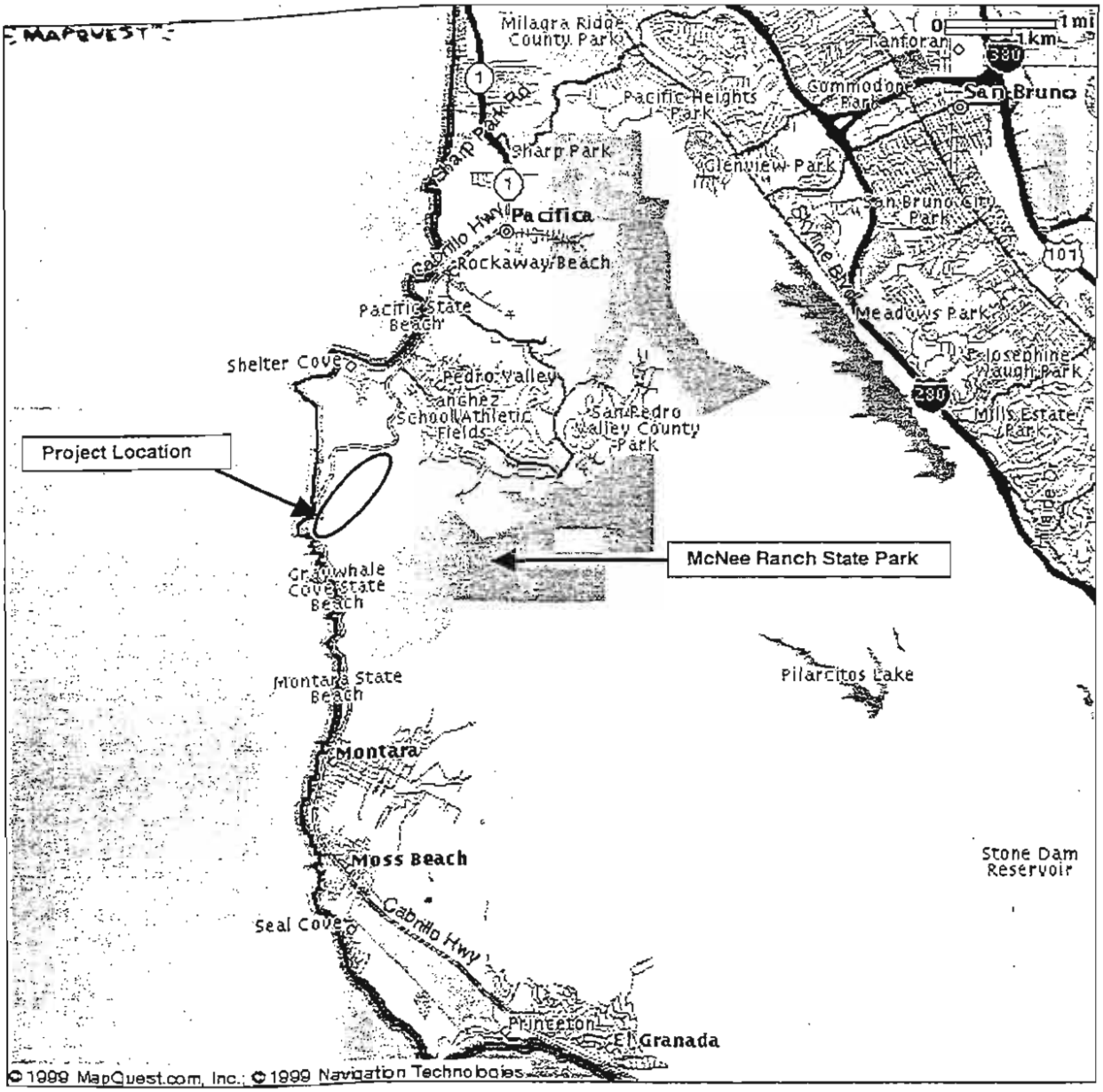


EXHIBIT NO. 1
APPLICATION NO.
CC-94-00
Caltrans

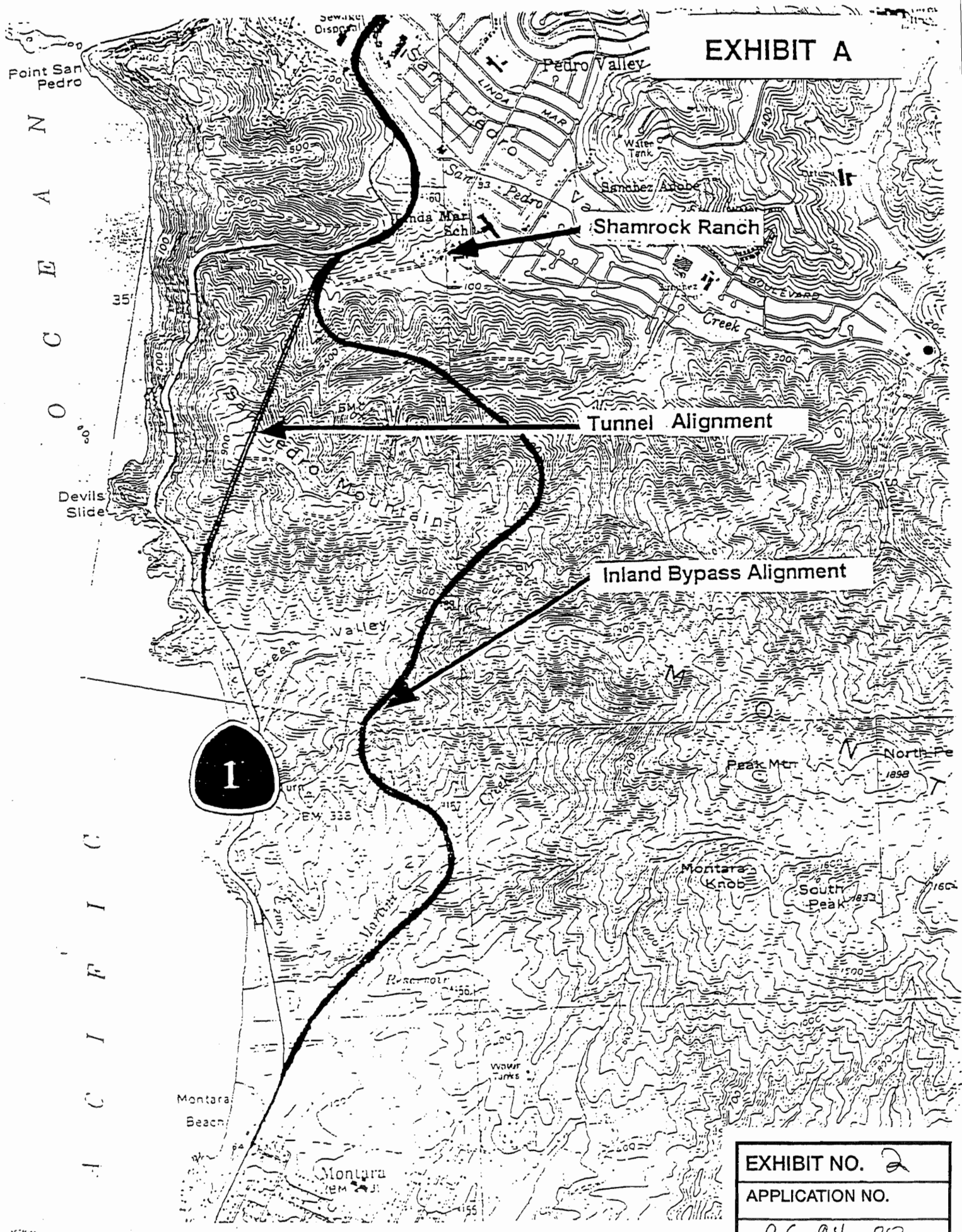
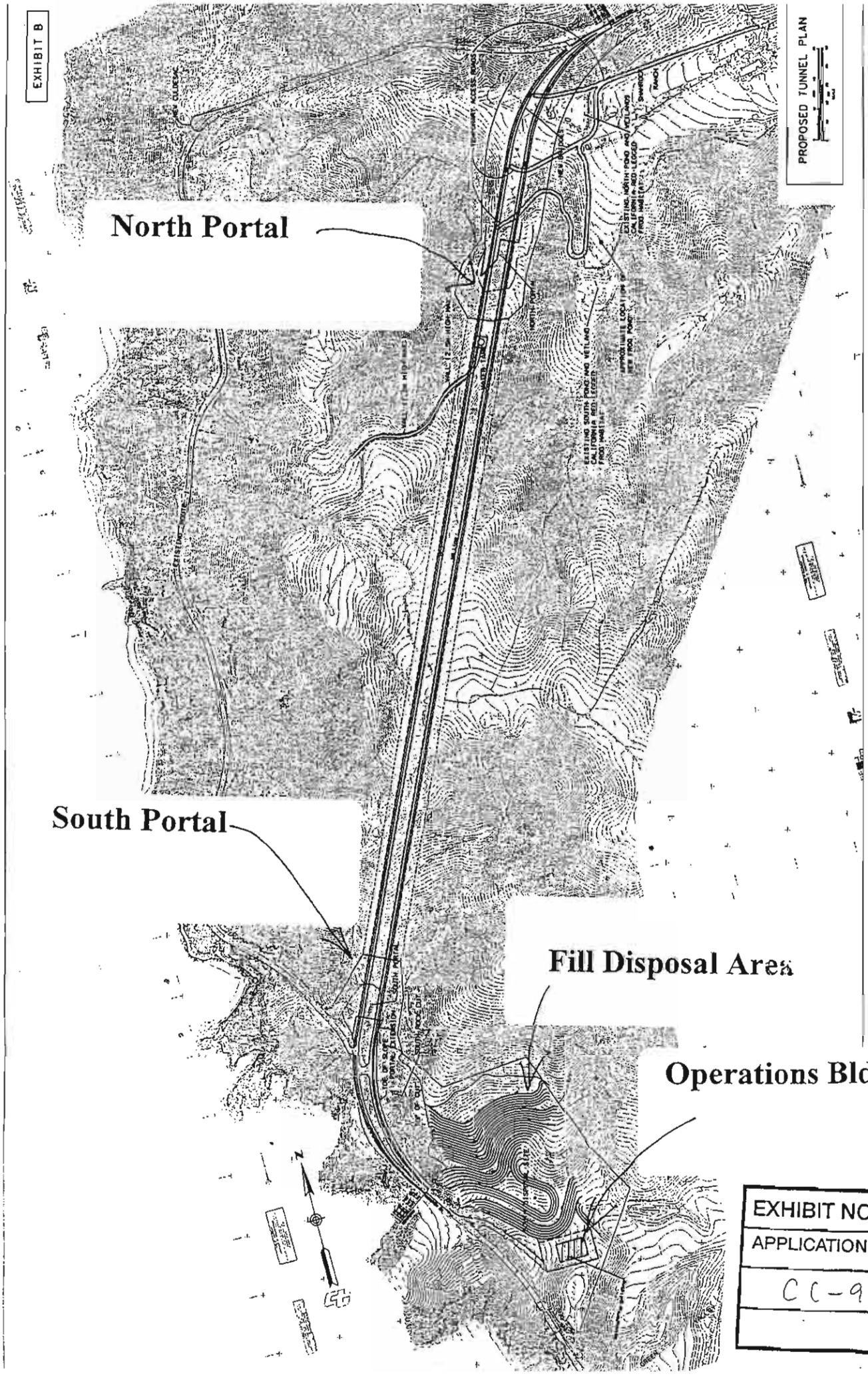


EXHIBIT NO. 2
APPLICATION NO.
CC-94-00

04-SM-
4243-1
Devil's

Caltrans



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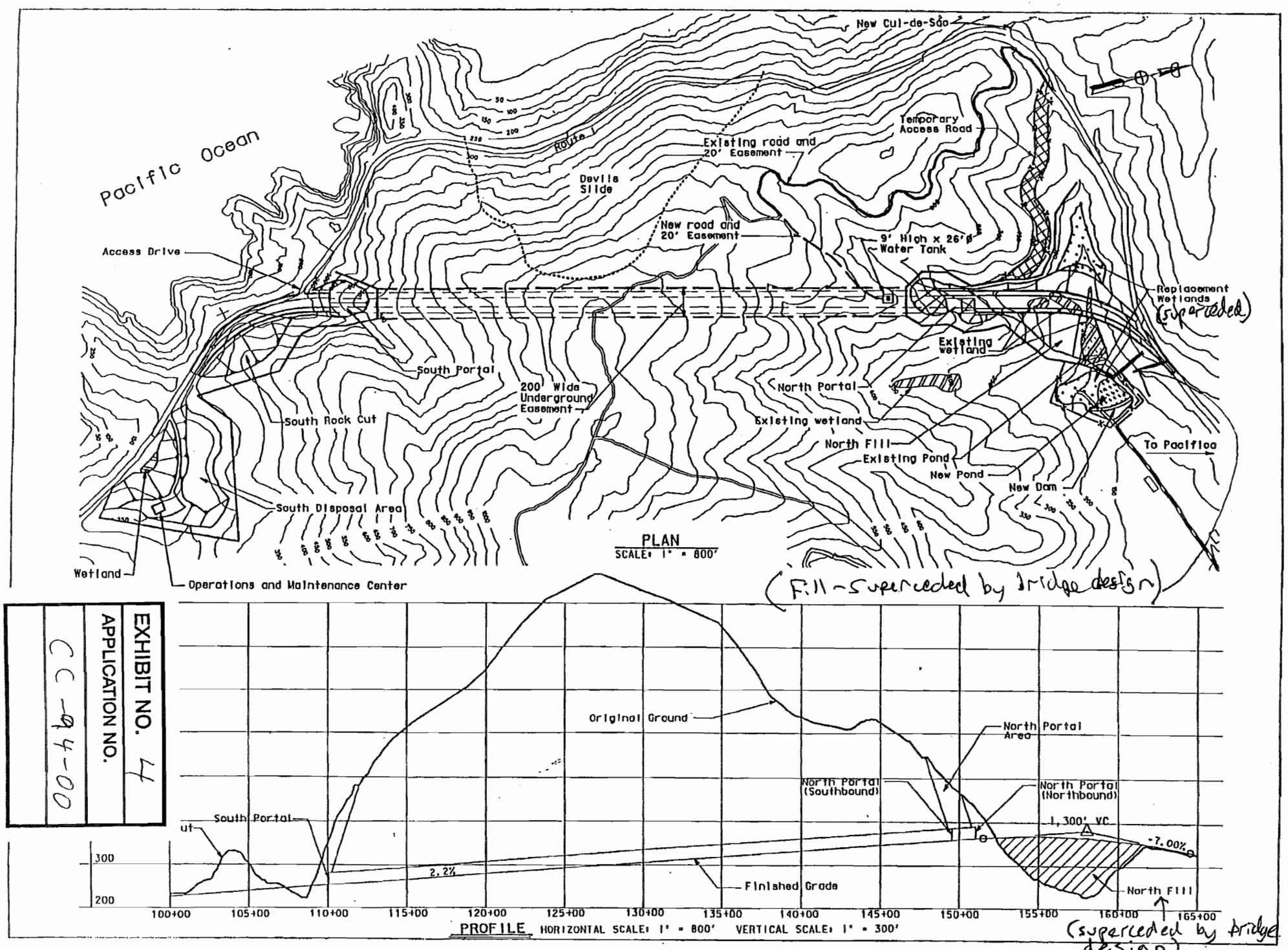
CC-94-00

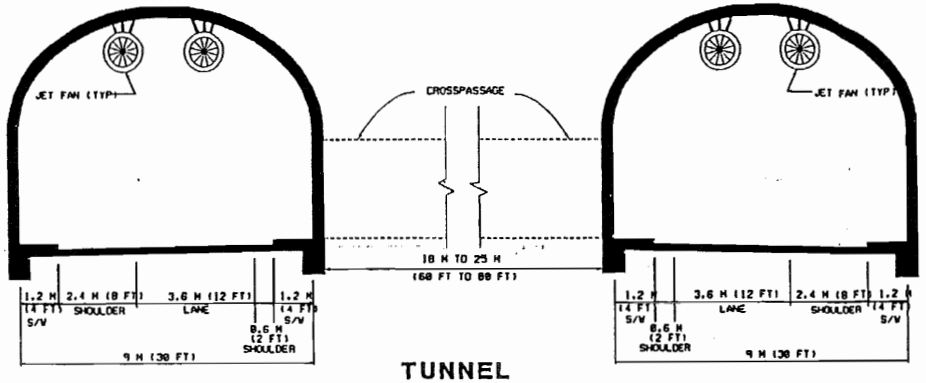


DOUBLE BORE TUNNELS PLAN AND PROFILE

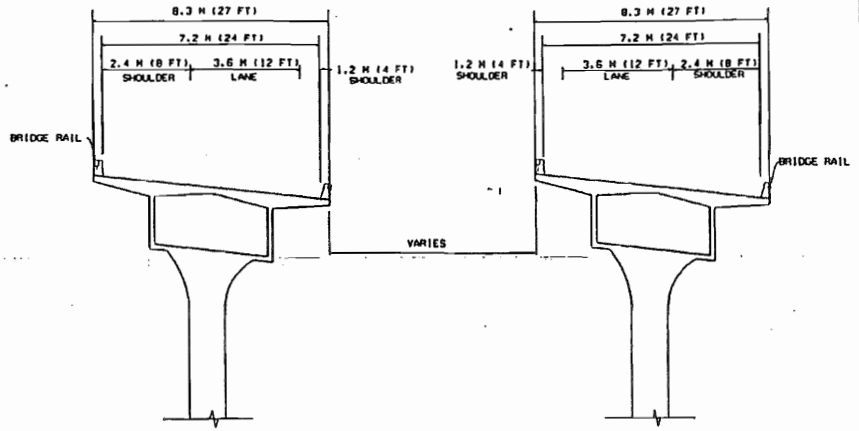
DEVIL'S SLIDE TUNNEL STUDY

Figure ES-2

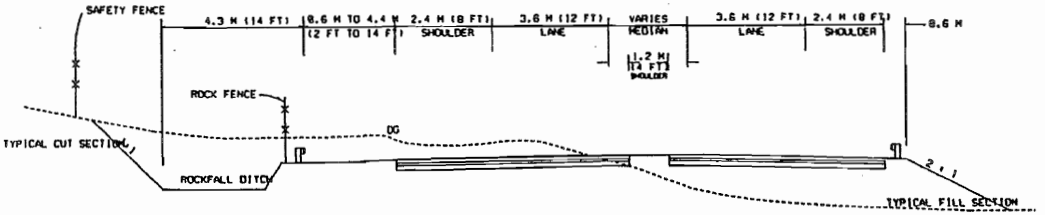
Woodward-Clyde Consultants



TUNNEL



BRIDGE



ROADWAY

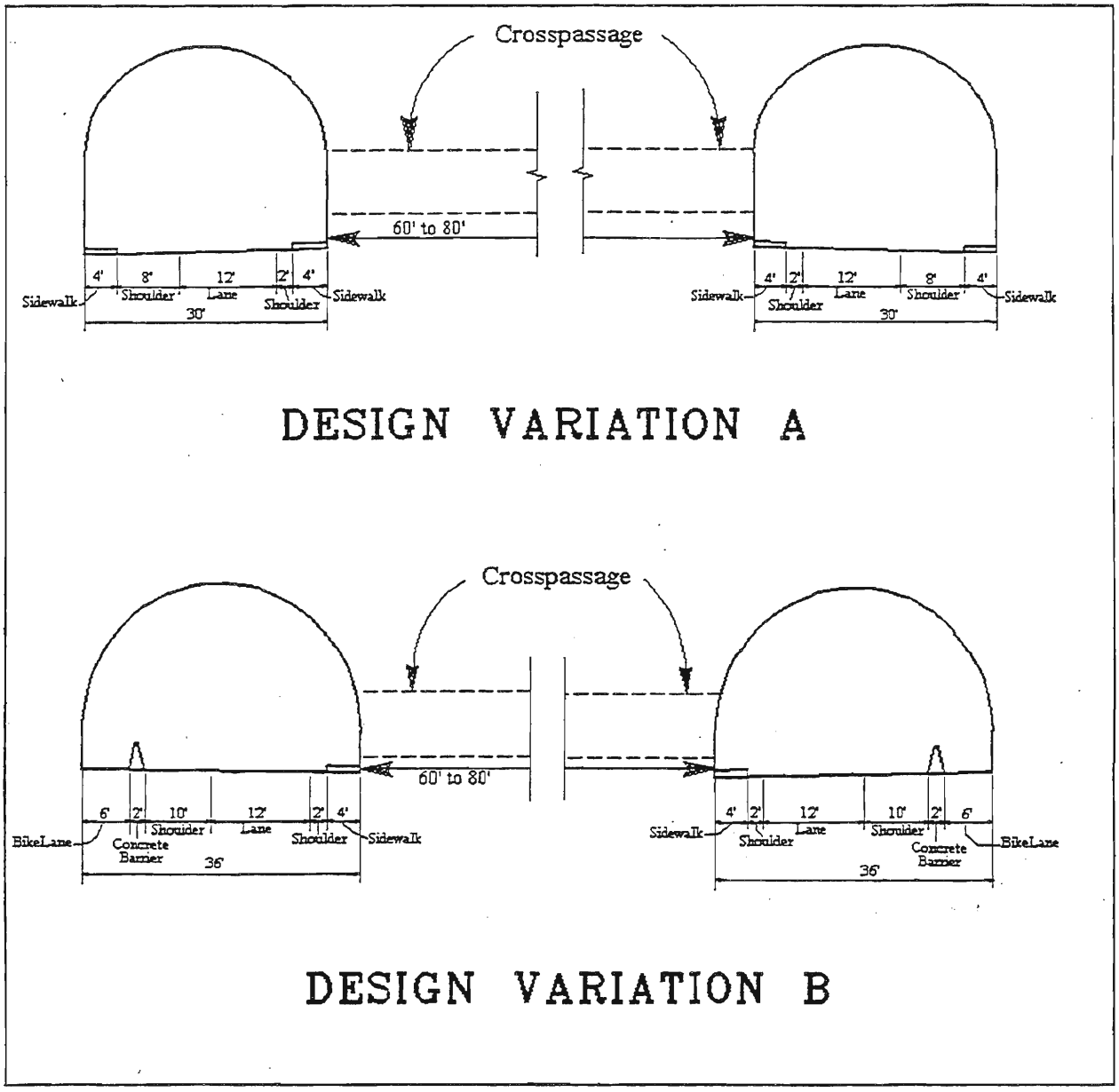
TYPICAL SECTIONS

NO SCALE

EXHIBIT NO. 5

APPLICATION NO. CC-94-00

FIGURE 3-3: Proposed Tunnel Cross Sections



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APPLICATION NO.
CC-94-00

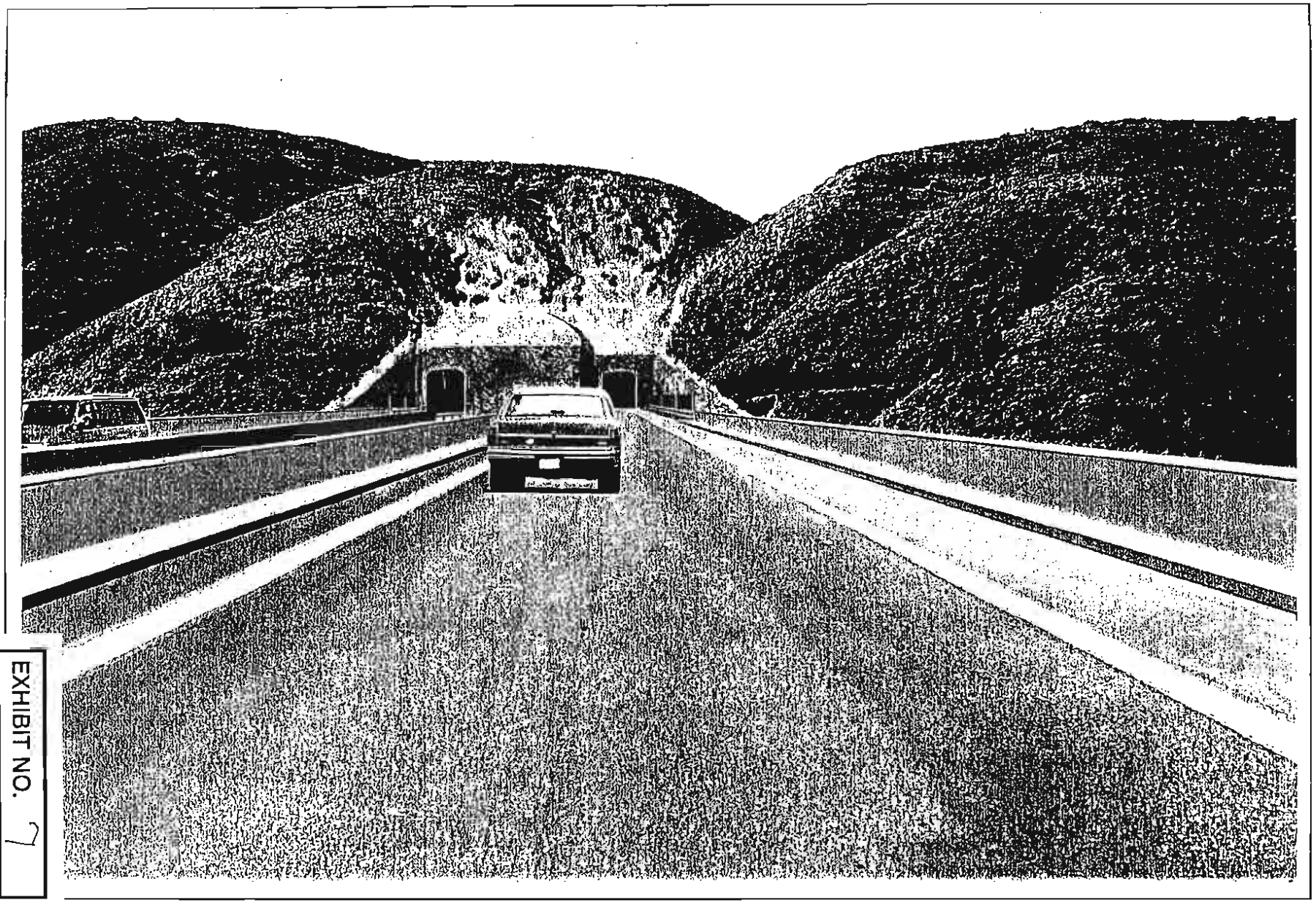


EXHIBIT NO. 7
APPLICATION NO. CC-94-00

Simulation of Proposed Project
North End Tunnel Portals

Devil's Slide Improvement Project
04 - SM 1 K P 45.7/66.0
04341 - 112371
Caltrans, Office of Landscape Architecture

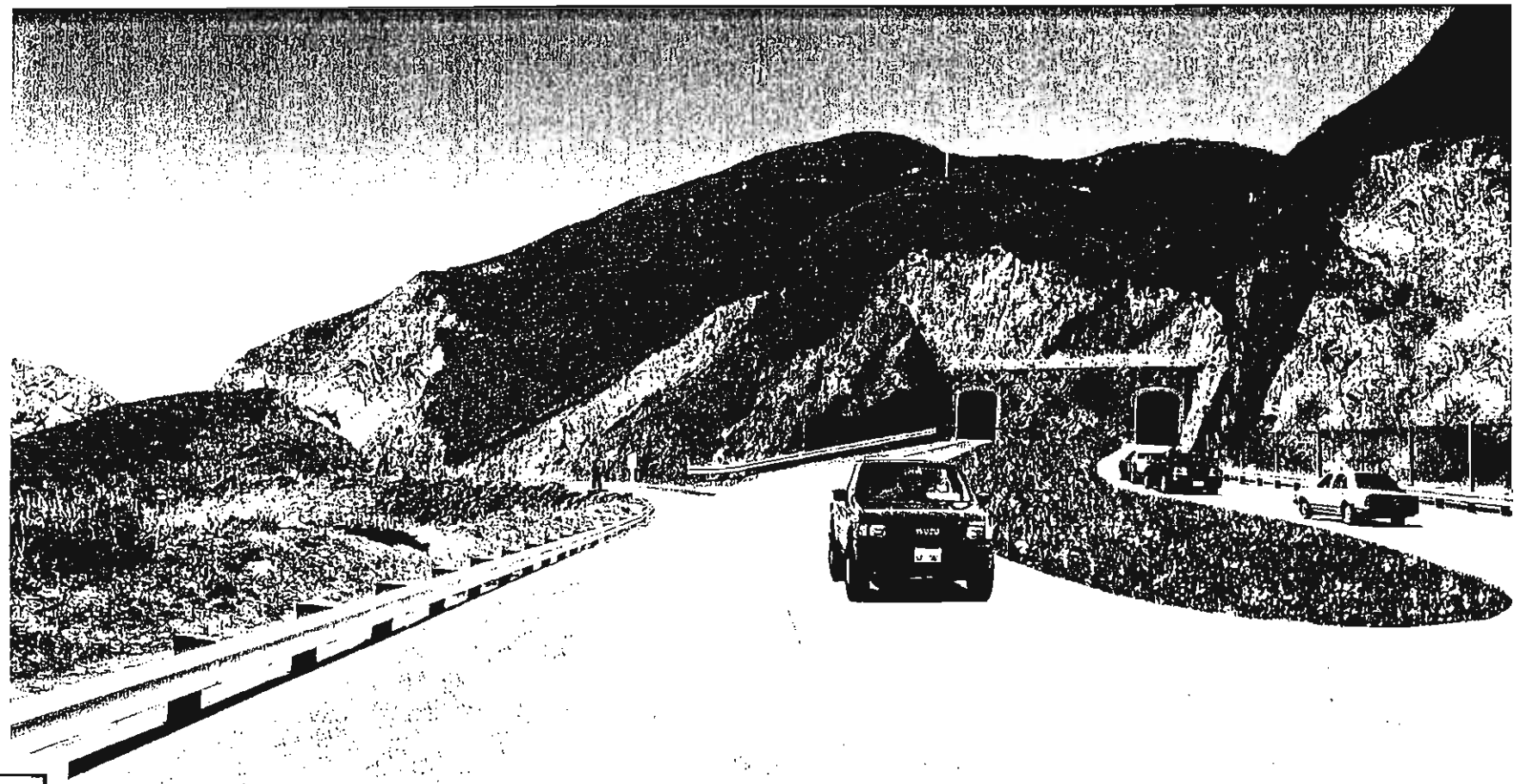


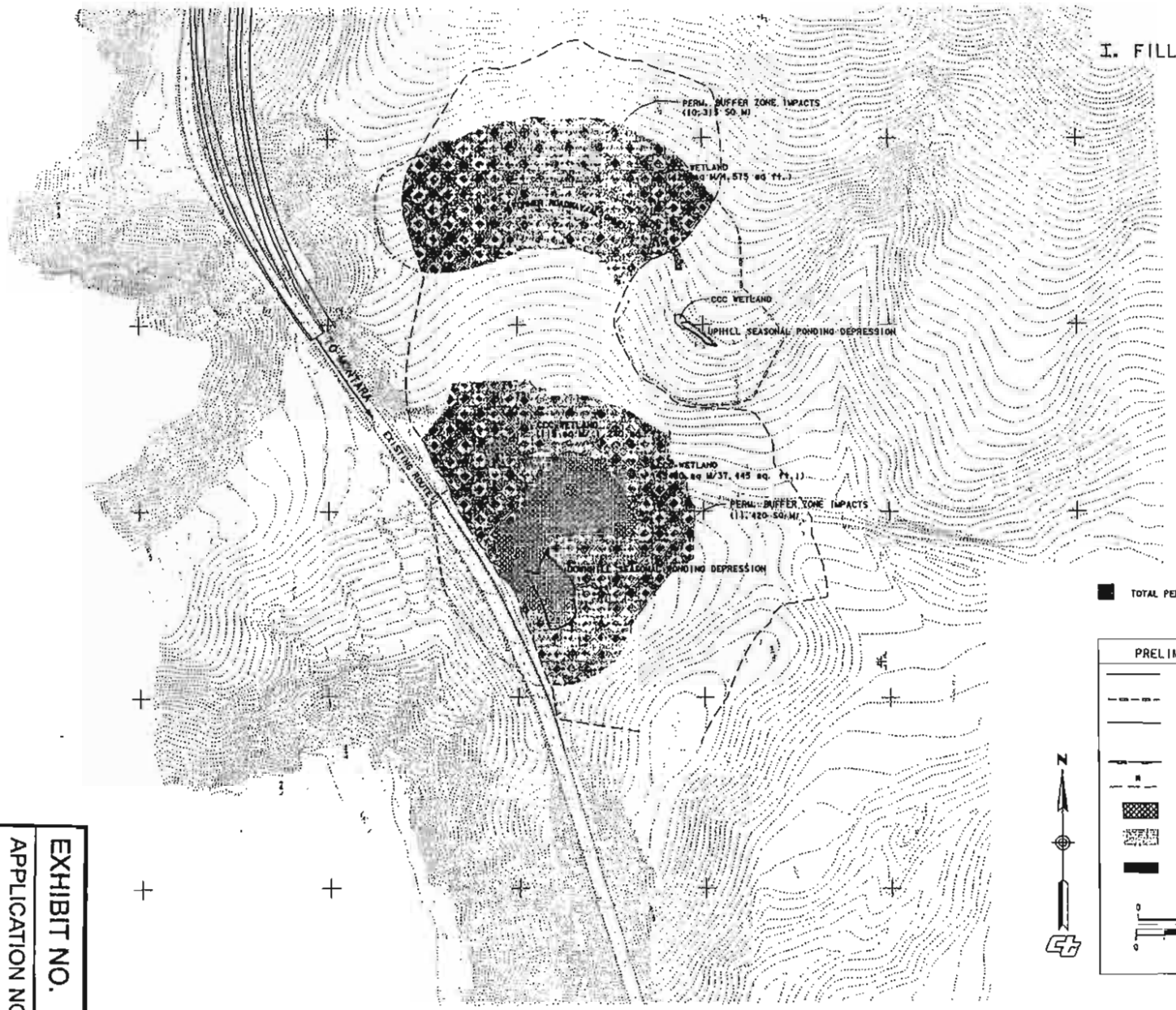
EXHIBIT NO. 8
APPLICATION NO. CC-94-00

ıulation of Proposed Project
South End Tunnel Portals

Devil's Slide Improvement Project
04 - SM 1 K P 45.7/66.0
04341 - 112371
Caltrans, Office of Landscape Architecture

EXHIBIT C

I. FILL DISPOSAL DRAINAGE AREA

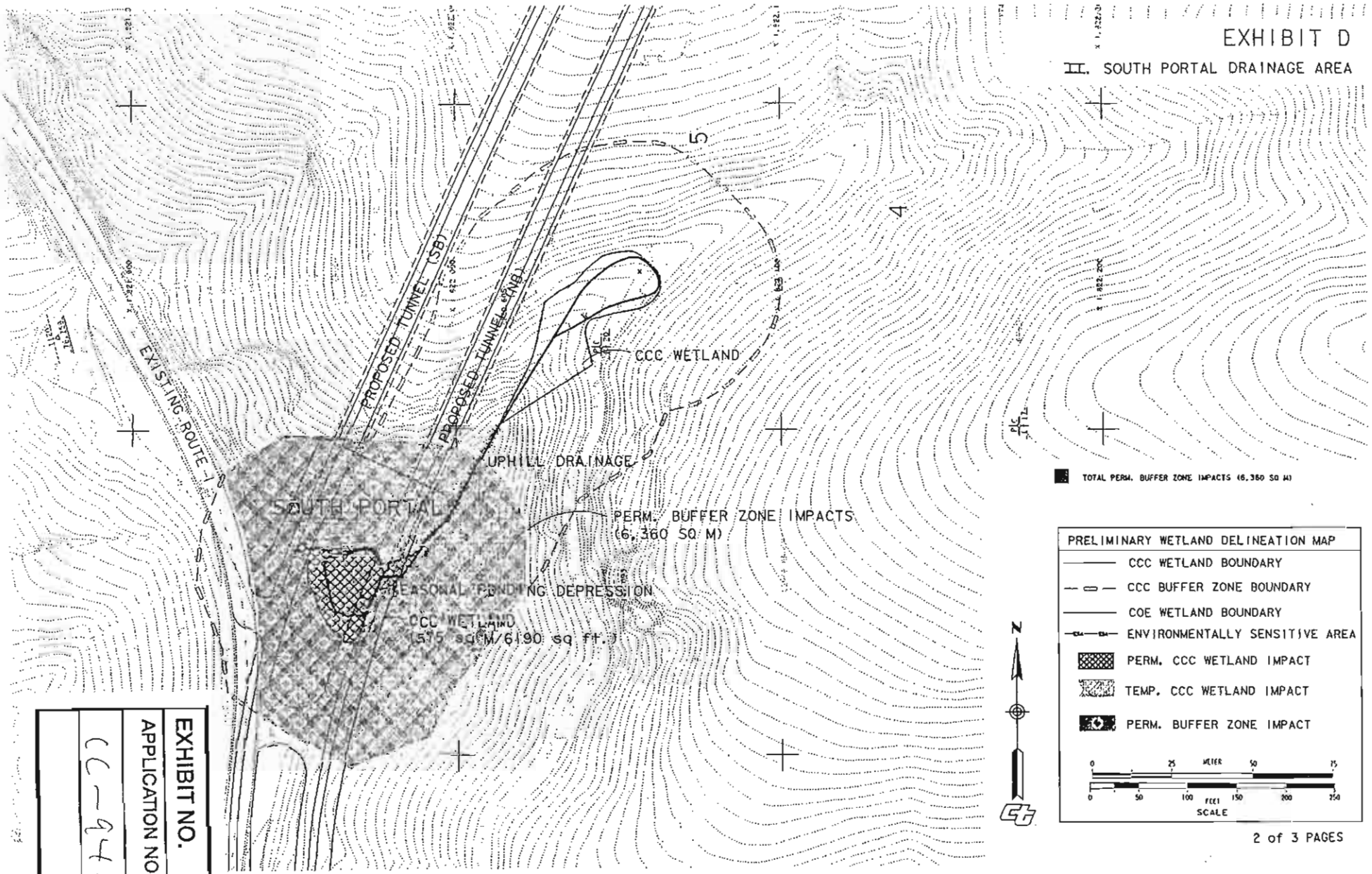


1 OF 3 PAGES

EXHIBIT NO. 9
APPLICATION NO.
CC-94-00

EXHIBIT D

II. SOUTH PORTAL DRAINAGE AREA



2 of 3 PAGES

EXHIBIT NO. 10
APPLICATION NO.
CC-94-00

EXHIBIT E

III. NORTH PORTAL DRAINAGE AREA/ SHAMROCK RANCH

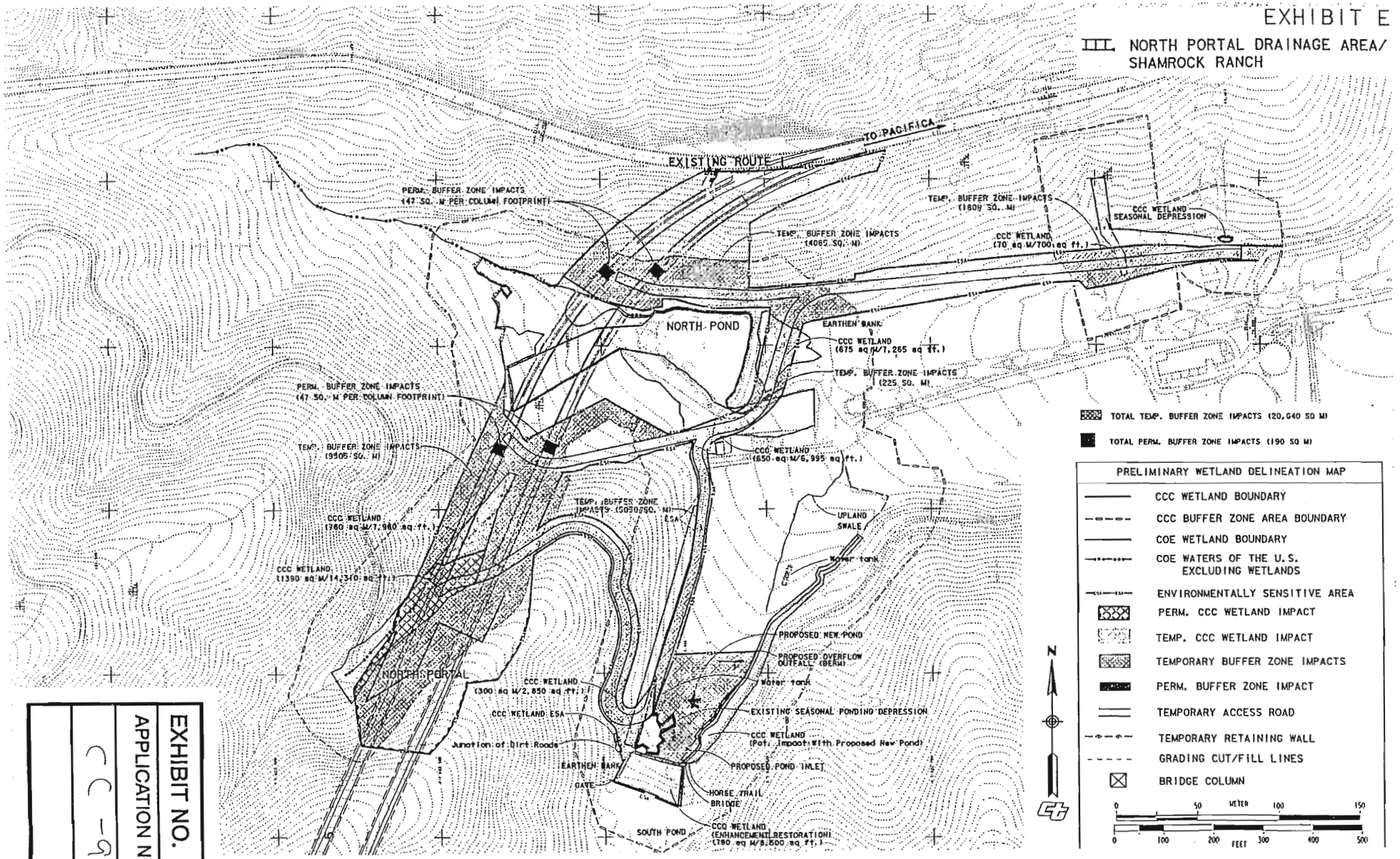


EXHIBIT NO. 11

APPLICATION NO. CC-94-00

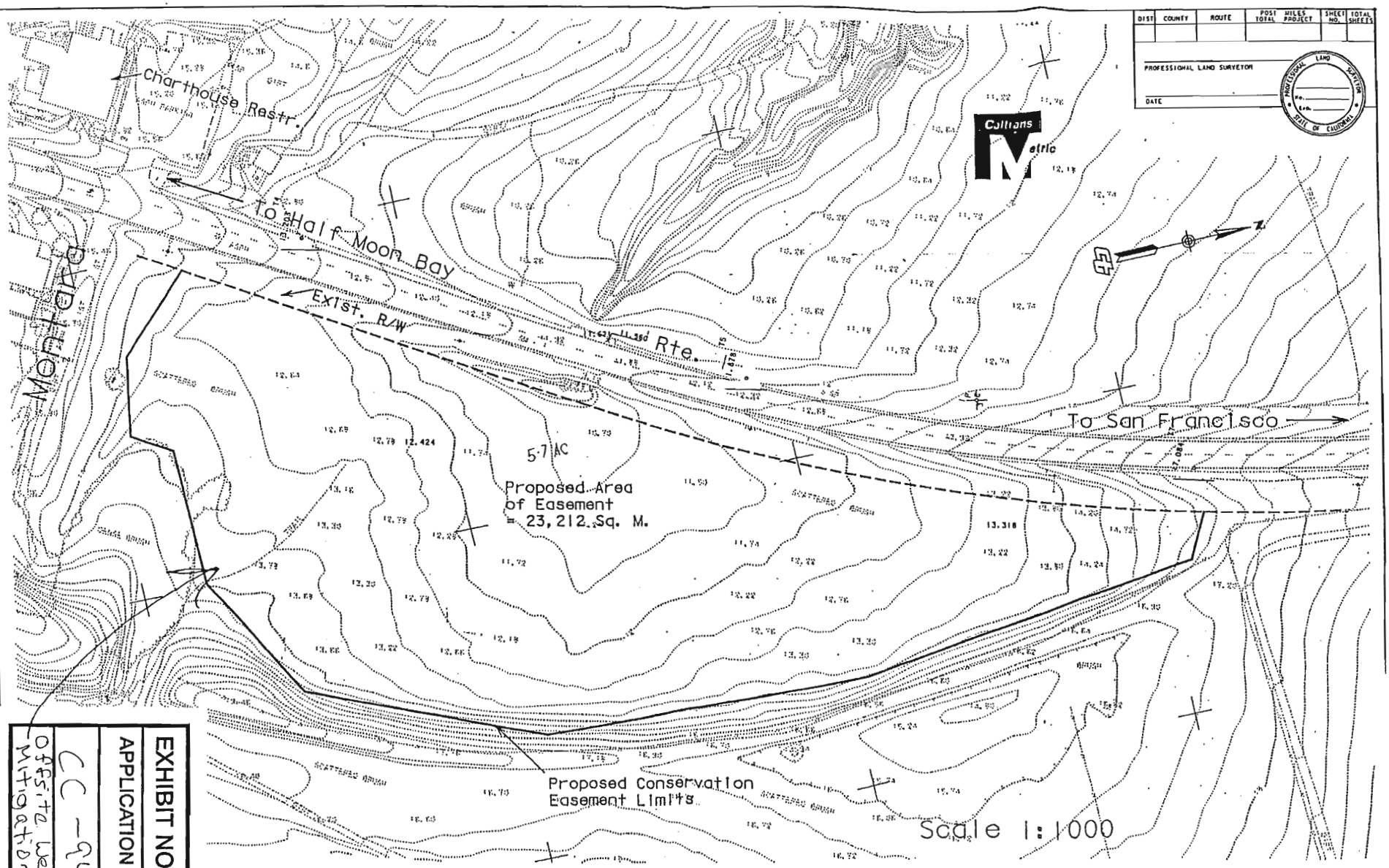


EXHIBIT NO. 12

APPLICATION NO.

CC-94-00

Offsite wetland Mitigation Site

EA 112371 Devil's Slide Project
Peak Hour Delay for Different Work Hours

TABLE A

Existing Conditions

Work Hours	Construction Trucks /day	Existing Volume (vph)	LOS	Capacity (vph)	V/C	Existing Delay (min.)
7:00 a.m. - 3:00 p.m.	0	1333	E	1741	0.77	0
8:00 a.m. - 4:00 p.m.	0	1719	E/F	1753	0.98	0
9:00 a.m. - 5:00 p.m.	0	1829	F	1731	1.06	3

Construction Conditions

Work Hours	Construction Trucks /day	Total Volume (vph)	LOS	Capacity (vph)	V/C	Total Delay (min.)	Existing Delay (min.)	construction Delay (min.)
7:00 a.m. - 3:00 p.m.	100	1359	E	1524	0.89	0	0	0
	300	1409	F	1286	1.10	6	0	6
8:00 a.m. - 4:00 p.m.	100	1745	F	1636	1.07	4	0	4
	300	1795	F	1365	1.31	19	0	19
9:00 a.m. - 5:00 p.m.	100	1855	F	1615	1.15	9	3	6
	300	1905	F	1347	1.41	25	3	22

First recommended operation
Second recommended operation

EXHIBIT NO. 13
APPLICATION NO.
CC-94-00

File: Table A,B.112371Devil's Slide.xls/Summary
Date: 8/29/00

CT/District 4, Highway Operations Branch

EA 112371 Devil's Slide Project
Hourly Volume used to determine the LOS and Delays

TABLE B

Hour	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17
NB Vol @ Cntrl Stn	542	483	435	468	501	494	542	574	811	671
SB Vol @ Cntrl Stn	363	422	474	589	648	586	582	558	671	906
Total	905	905	909	1057	1149	1080	1124	1132	1482	1577
Factor vol at cntrl stn by 1.16 to obtain vol at proj loc										
NB Vol @ Proj Loc	629	560	505	543	581	573	629	666	941	778
SB Vol @ Proj Loc	421	490	550	683	752	680	675	647	778	1051
Total	1050	1050	1054	1226	1333 [1]	1253	1304	1313	1719 [2]	1829 [3]
NB Split	60%	53%	48%	44%	44%	46%	48%	51%	55%	43%
Added 25 truck/hour/direction for project condition. (Assume average of 100 to 300 truck per day with 8 working hrs)										
NB Vol w/ truck	654	585	530	568	606	598	654	691	966	803
SB Vol w/ truck	446	515	575	708	777	705	700	672	803	1076
Total	1100	1100	1104	1276	1383	1303	1354	1363	1769	1879
NB Split	59%	53%	48%	45%	44%	46%	48%	51%	55%	43%
Truck %	9.3%	9.3%	9.3%	8.7%	8.4%	8.6%	8.5%	8.5%	7.7%	7.5%
Added 13 truck/hour/direction for project condition. (Assume 100 truck per day with 8 working hrs)										
NB Vol w/ truck	642	573	518	556	594	586	642	679	954	791
SB Vol w/ truck	434	503	563	696	765	693	688	660	791	1064
Total	1076	1076	1080	1252	1359 [1]	1279	1330	1339	1745 [2]	1855 [3]
NB Split	60%	53%	48%	44%	44%	46%	48%	51%	55%	43%
Truck %	7.3%	7.3%	7.3%	7.0%	6.8%	6.9%	6.9%	6.8%	6.4%	6.3%
Added 38 truck/hour/direction for project condition. (Assume 300 truck per day with 8 working hrs)										
NB Vol w/ truck	667	598	543	581	619	611	667	704	979	816
SB Vol w/ truck	459	528	588	721	790	718	713	685	816	1089
Total	1126	1126	1130	1302	1409 [1]	1329	1380	1389	1795 [2]	1905 [3]
NB Split	59%	53%	48%	45%	44%	46%	48%	51%	55%	43%
Truck %	11.4%	11.4%	11.4%	10.5%	10.1%	10.4%	10.2%	10.2%	9.0%	8.8%

Legend
[1] Represents the peak hour within the work hours of 7:00 a.m. to 3:00 p.m.
[2] Represents the peak hour within the work hours of 8:00 a.m. to 4:00 p.m.
[3] Represents the peak hour within the work hours of 9:00 a.m. to 5:00 p.m.

EXHIBIT NO. 14
APPLICATION NO.
CC-94-00

File: ea112371.xls.xls/Sheet1
Date: 8/28/00

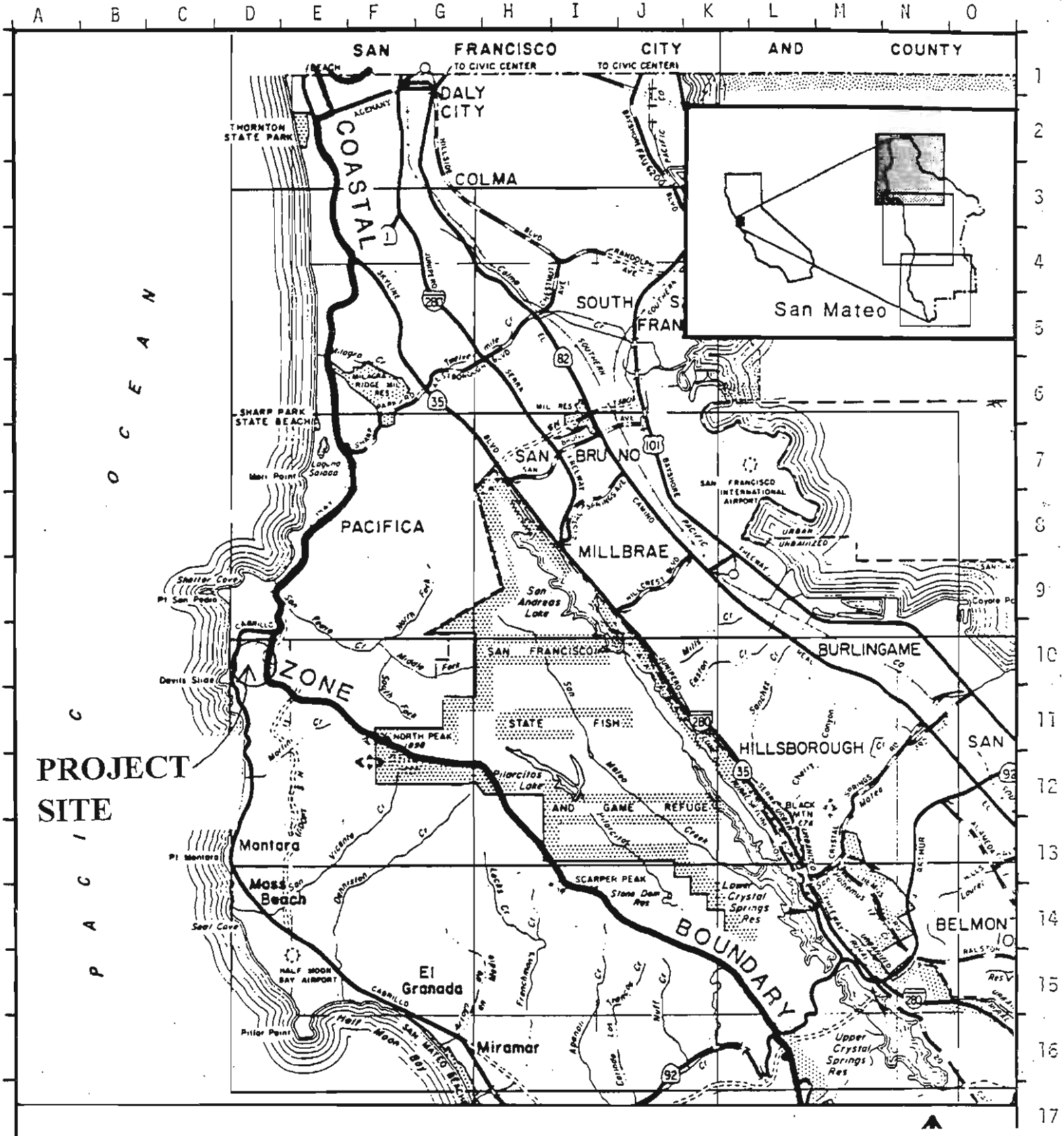
CT/District 4, Highway Operations Branch

TABLE 2

Summary of Road Closure
in the Vicinity of Devil's Slide
1973 – 1983

Date	Maintenance & Contract Cost	Duration	Reason
11/12/73	$45,000 (72/73)	9 hours	Slide
12/19/73		1 hour	Large Rock
1/3/74	$15,000 (73/74)	2 hours	Slide
3/27/74		1 hour	Slide
3/1-3/4/74		59 hours	Slide
4/1-4/2/74		32 hours	Slide
5/6/74		4 hours	Slide
7/9/74	$20,000 (74/75)	2 hours	Slide
12/30/74		6 hours	Slide
2/9-2/10/75		22 hours	Slide
3/13/75		4 hours	Rock Slide
10/21/75	Cost not available (1975-78)	3 hours	Accident
7/25-8/5/77		11 days	Construction Repairs
12/22/77		2 hours	Boulder in Roadway
1/6/78	$11,607 (78/79)	6 hours	Slipout
1/7/78		8 hours	Slipout
3/7-9/28/80	$189,400 (79/80)	200 days	Slipout
9/29-10/3/80		4 days	Repairs
9/29-10/6/80	$500,700 (80/81)	3 days	Repairs
10/6-10/7/80		31 days	Repairs
1/5-2/6/82	$482,800	1 month	Slide
3-4-5/26/83	$1,919,400 (82/83)	84 days	Slipout
11/9-11/10/84		9 hours	Rock Slide
11/12-11/13/84		9 hours	Rock Slide

EXHIBIT NO. 15
APPLICATION NO.
C.C-94-09



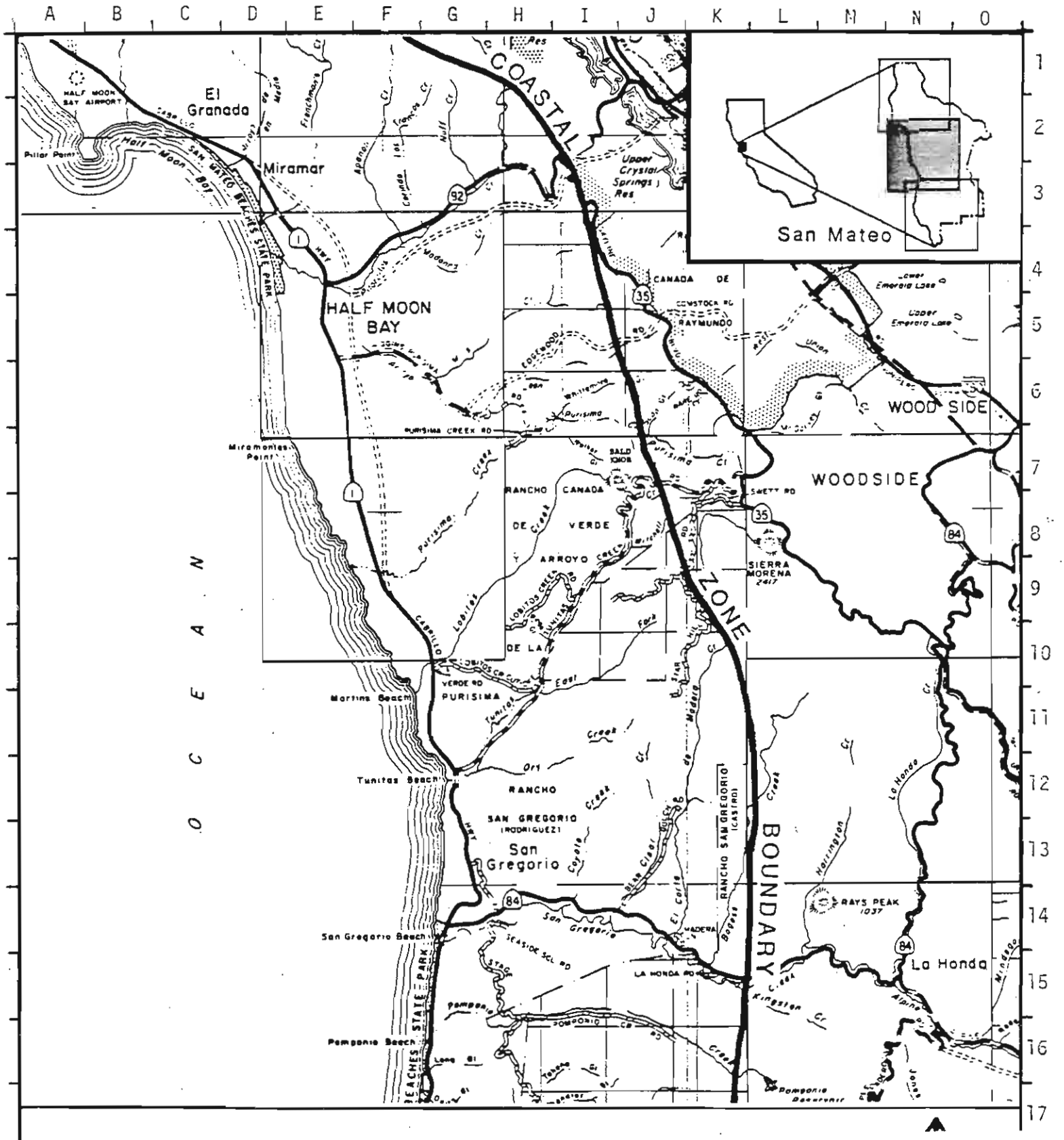
California Coastal Commission

LOCATION MAP

1 0 mi

County of San Mateo

EXHIBIT NO. 16
APPLICATION NO.
CC-9400
Routes 1 + 92



California Coastal Commission

LOCATION MAP

County of San Mateo

EXHIBIT NO. 16, p. 2

APPLICATION NO.

CC-94-00

Routes 1 and 92

APPENDIX J
USFWS BIOLOGICAL OPINION

Kit

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

IN REPLY REFER TO:
1-1-00-F-92

December 18, 2000

Mr. David Nichol
Federal Highway Administration
(Attn.: Ms. Joan Bollman)
980 Ninth Street, Suite 400
Sacramento, California 95814-2724

Subject: Formal Endangered Species Consultation on the Proposed Devil's Slide Tunnel Bypass Project, State Highway 1, Pacifica, San Mateo County, California

Dear Mr. Nichol:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion on Federal Highway Administration's (FHWA) proposal, in conjunction with California Department of Transportation (Caltrans), to construct the Devil's Slide project on Highway 1 in San Mateo County, and project effects on the federally threatened California red-legged frog (*Rana aurora draytonii*) (red-legged frog) and conference on the proposed critical habitat for this species. The project, as proposed, is not likely to adversely affect the federally endangered San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) and will affect the delisted American peregrine falcon (*Falco peregrinus anatum*). This opinion is provided in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act). Your January 27, 2000, request to initiate consultation was received in our office January 31, 2000, and your October 17, 2000, request for conferencing on the red-legged frog critical habitat was received in our office on the same day, October 17, 2000.

This biological opinion is based on information provided in (1) the December 15, 1999, Biological Assessment, (2) information in Service files; (3) numerous field visits, meetings, and telephone conversations with Cecilia Brown, Sheila Larsen, and Michael Thabault of my staff, Sid Shadle and Richard Vonarb of Caltrans, and Dr. Samuel McGinnis, biological consultant.

Consultation History

August 25, 1986: The Service issued a biological opinion on the Martini Creek alignment alternative (Service file 1-1-86-F-88).

November 1996: Citizens of San Mateo County passed a ballot initiative to allow construction of the tunnel bypass alternative.

January 1997: California Coastal Commission specified the tunnel as the preferred bypass alternative for Devil's Slide.

1997-2000: Service staff met with staff from Caltrans, FHWA, and with Dr. McGinnis to discuss minimization measures appropriate to protect the red-legged frog from adverse effects during and after highway construction.

January 27, 2000: FHWA initiated formal consultation on the tunnel bypass alternative.

March 16, 1999: FHWA published the Second Supplement to the 1986 Final Environmental Impact Statement/Environmental Impact Report for the project.

June 16, 2000: Service staff met with Caltrans staff and consultants to discuss location and construction details of the third pond.

July 20, 2000: Caltrans submitted additional information on construction and red-legged frog impact minimization measures to the Service.

September 26, 2000: The Service determined that construction of a third pond and diversion structure at the project site and the planting of aquatic emergent vegetation was not likely to result in take of the red-legged frog (Service file no.: 1-1-00-TA-2980).

October 17, 2000: FHWA requested a formal conference on the effects of the project on proposed critical habitat for the red-legged frog.

BIOLOGICAL OPINION

Description of Proposed Action

Action Area

Highway capacity will not increase, so tunnel construction will not facilitate growth. Therefore, the action area of the project is confined to Shamrock Ranch and the construction footprint.

Project Overview and Tunnel

Caltrans proposes to construct a permanent new highway to bypass the Devil's Slide portion of California State Highway 1. Devil's Slide is geologically unstable and has been subjected to numerous landslides, rock falls, and subsidence events since construction of the highway in

1937. Proceeding south from Pacifica, the new alignment will depart from the existing Highway 1 and bridge a small valley at Shamrock Ranch approximately 0.5 km (0.3 mi.) south of Linda Mar Boulevard in Pacifica (Figure 1). The tunnel would pass through San Pedro Mountain approximately 0.4 km (0.25 mi.) inland of the existing highway.

Two parallel tunnels of 1,219 meters (m) [4,000 feet (ft.)] will be drilled and blasted through the hill. Each tunnel will be 9.1 m (30 ft.) wide and will provide a single traffic lane. An estimated 724,000 cubic yards of material will be excavated. The majority of the tunnel excavation will occur from the south portal. Some blasting and excavation will occur at the north end of the tunnel when the north portal is constructed. Caltrans will dispose of excavated material on an upland site approximately 90 m (300 ft.) from the south tunnel portal. When construction is completed, the disposal site will be graded and planted with native coastal scrub species.

Bridge Construction

Two bridges, one for each traffic lane, will connect the existing highway to the tunnel and cross the small valley on Shamrock Ranch. The proposed bridges would be approximately 36.5 m (120 ft.) above the valley floor. Bridges will be constructed in a manner as to avoid direct impacts to aquatic habitat. They will be constructed by a segmented balanced cantilever method. Four bridge piers will be constructed on uplands, and the bridges will be built out from these piers, then connected to the existing highway and the north tunnel portal. The northbound lane will shade a portion of Shamrock Ranch's north pond. The bridges will be constructed so that roadway runoff will be contained and directed northward to a drainage on the existing Highway 1. This drainage does not enter the red-legged frog ponds.

Access Road

Caltrans will construct dirt roads on uplands through Shamrock Ranch for access to the four bridge pier sites and the north tunnel portal. The road will consist of a single lane, 6.5 m (21 ft.) wide with traffic controllers and limited turnouts. The access road lies between the two ponds; therefore, the entire length of the road will be surrounded with protective fencing to prevent red-legged frogs from crossing the road (Figure 1). Where side slopes are steep, Caltrans will construct timber retaining walls to eliminate the necessity of cut and fill on the hillsides. The portion of the road providing access to the north tunnel portal will pass within 18 m (59 ft.) of the south pond.

Construction of the temporary access roads will be limited to the dry season (April 15 to October 15). A solid fence will surround the entire road to minimize impacts to red-legged frogs. The fence will also direct surface runoff to small temporary desilting basins. Caltrans will remove silt from these basins when they become one-third full. After the bridges are complete, access roads will be regraded to match original ground contours as closely as possible. The site will be revegetated over a three-year period and monitored for an additional two years.

Conservation Measures

To avoid and minimize impacts to listed and sensitive species, Caltrans has proposed the following measures:

A. During the fall of 2000, Caltrans will construct a third pond, and is referred to as the "new pond" (Service File No. 1-1-00-TA-2980). The new pond will contain locally collected native aquatic emergent vegetation, propagated in wooden flats during the summer and fall of 2000. Frog-proof fencing will be installed around the new pond to contain resident adults. There will be an electric fence component of the frog-proof fencing to keep raccoons and other terrestrial predators away from the pond.

B. The Service will conduct a field inspection of the new pond on or about April 15, 2001. If the Service approves the new pond habitat, red-legged frog adults will be trapped from the north pond between April 15 and June 30, 2001, and moved to the new pond, constructed in the fall of 2000. Traps will consist of a five-gallon plastic bucket with a hardware cloth funnel. Buckets will be placed at each end of an aquatic drift fence consisting of two-foot-high fine mesh hardware cloth. Traps will be checked daily. Prior to transfer to the new pond, all captured red-legged frogs will be measured, weighed, sexed, and marked.

C. Biologists, hired or contracted by Caltrans, will conduct weekly shoreline surveys of the north pond from January through March 2001, to search red-legged frog egg masses. If any are found, they and the vegetation to which they are attached, will be moved to the inshore zone of the new pond.

D. Prior to project initiation, a qualified biologist will capture all red-legged frogs from the north pond area and move them to the new pond. The fence around the new pond will remain in place during the construction project to prevent red-legged frogs from reentering the work area. Entrance funnels and traps will be used every fall to trap any adult red-legged frogs which migrate to the north pond during all subsequent construction years.

E. Caltrans will designate an environmentally sensitive area where no construction activities will occur. The north pond will be fenced, as will the temporary access roads. The fence will consist of 4-ft. by 8-ft. sheets of wafer board or pressure treated plywood and be supported by metal T-shaped farm fence posts placed at approximately 4-ft. intervals.

F. Qualified biologists will be on site during construction activities to remove any remaining red-legged frogs and tadpoles. All captured bullfrogs (*Rana catesbeiana*) and other nonnative aquatic species will be euthanized and/or disposed of in a manner complying with California Department of Fish and Game Codes. Japanese koi carp will be captured from the south pond and disposed of in a manner in compliance with California Department of Fish and Game Codes and agreeable to the Shamrock Ranch owner.

G. When bridge construction is complete, the south pond's earthen dam, which currently leaks, will be repaired and reinforced. The pond will not be drained until late fall to allow metamorphosis of red-legged frog tadpoles. Any koi carp which might remain will be removed.

H. When bridge construction is complete, the frog fencing will be removed from the north pond. The north pond will be dredged to a depth where it will provide water at sufficient quantity and temperature to support breeding red-legged frogs. A pressurized water line and a float valve system will be installed to deliver water to the pond during dry years so the pond will continue to support breeding throughout the project. Biologists will monitor the north pond for evidence of breeding for three years following project completion.

I. Caltrans will seek a conservation easement from the owner of Shamrock Ranch for the three ponds to protect the red-legged frog in perpetuity. The conservation easement will be reviewed and approved by the Service. Caltrans or its representatives will conduct a three-year monitoring program to assess and evaluate the effects of the enhancement measures.

J. The tunnel's south outlet is near a peregrine falcon eyrie with a single nesting pair. Caltrans will minimize disturbance to the falcon during the breeding season. If the nesting pair produces young during construction, Caltrans will contract with the Santa Cruz Predatory Bird Research Center to hack the chicks to other nests.

Status of the Species

California red-legged frog

The red-legged frog was federally listed as threatened on May 23, 1996, (61 FR 25813) effective June 24, 1996. A detailed account of the taxonomy, ecology, and biology of the red-legged frog is presented in the *Draft Recovery Plan for the California Red-legged Frog (Rana aurora draytonii)* (Service 2000). This species is the largest native frog in the western United States (Wright and Wright 1949), ranging from 4 to 13 centimeters (1.5 to 5.1 inches) in length (Stebbins 1985). The abdomen and hind legs of adults are largely red; the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background color. Dorsal spots usually have light centers (Stebbins 1985), and dorsolateral folds are prominent on the back. Larvae (tadpoles) range from 14 to 80 millimeters (0.6 to 3.1 inches) in length, and the background color of the body is dark brown and yellow with darker spots (Storer 1925).

Female frogs deposit egg masses on emergent vegetation so the egg mass floats on the surface of the water (Hayes and Miyamoto 1984). Red-legged frogs breed from November through March with earlier breeding records occurring in southern localities (Storer 1925). Individuals occurring in coastal drainages are active year-round (Jennings *et al.* 1992), whereas those found in interior sites are normally less active during the cold season.

The largest densities of red-legged frogs currently are associated with deep pools with stands of overhanging willows and an intermixed fringe of cattails (*Typha latifolia*) (Jennings 1988). However, red-legged frogs also have been found in ephemeral creeks and drainages and in ponds that may or may not have riparian vegetation. Red-legged frogs disperse upstream and downstream of their breeding habitat to forage and seek sheltering habitat. Sheltering habitat for red-legged frogs potentially includes all aquatic, riparian, and upland areas within the range of the species and any landscape features that provide cover, such as existing animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris. Agricultural features such as drains, watering troughs, spring boxes, abandoned sheds, or hay ricks may also be used. Incised stream channels with portions narrower than 18 inches and depths greater than 18 inches also may provide important summer sheltering habitat. Accessability to sheltering habitat is essential for the survival of red-legged frogs within a watershed and can be a factor limiting frog population numbers and survival. During winter rain events, juvenile and adult red-legged frogs are known to disperse up to 1-2 km (Rathbun and Holland, unpublished data, cited in Rathbun *et al.* 1991).

Egg masses contain about 2,000 to 5,000 moderate sized (2.0 to 2.8 mm (0.08 to 0.11 inches) in diameter), dark reddish brown eggs and are typically attached to vertical emergent vegetation, such as bulrushes (*Scirpus* spp.) or cattails (Jennings *et al.* 1992). Red-legged frogs are often prolific breeders, laying their eggs during or shortly after large rainfall events in late winter and early spring (Hayes and Miyamoto 1984). Eggs hatch in 6 to 14 days (Jennings 1988). Increased siltation during the breeding season can cause asphyxiation of eggs and small larvae. Larvae undergo metamorphosis 3.5 to 7 months after hatching (Storer 1925, Wright and Wright 1949, Jennings and Hayes 1990). Of the various life stages, larvae probably experience the highest mortality rates, with less than 1 percent of eggs laid reaching metamorphosis (Jennings *et al.* 1992). Sexual maturity normally is reached at 3 to 4 years of age (Storer 1925, Jennings and Hayes 1985). Red-legged frogs may live eight to 10 years (Jennings *et al.* 1992).

The diet of red-legged frogs is highly variable. Hayes and Tennant (1985) found invertebrates to be the most common food items. Vertebrates, such as Pacific tree frogs (*Hyla regilla*) and California mice (*Peromyscus californicus*), represented over half the prey mass eaten by larger frogs (Hayes and Tennant 1985). Hayes and Tennant (1985) found juvenile frogs to be active diurnally and nocturnally, whereas adult frogs were largely nocturnal. Feeding activity probably occurs along the shoreline and on the surface of the water (Hayes and Tennant 1985). Larvae likely eat algae (Jennings *et al.* 1992).

Several researchers in central California have noted the decline and eventual disappearance of red-legged frog populations once bullfrogs became established at the same site (L. Hunt, in litt. 1993, S. Barry, in litt. 1992, S. Sweet, in litt. 1993). This has been attributed to both predation and competition. Twedt (1993) documented bullfrog predation of juvenile northern red-legged frogs, and suggested that bullfrogs could prey on subadult red-legged frogs as well. In addition to predation, bullfrogs may have a competitive advantage over red-legged frogs: bullfrogs are larger, possess more generalized food habits (Bury and Whelan 1984), possess an extended

breeding season (Storer 1933) where an individual female can produce as many as 20,000 eggs during a breeding season (Emlen 1977), and larvae are unpalatable to predatory fish (Kruse and Francis 1977). In addition to competition, bullfrogs also interfere with red-legged frog reproduction. Both California and northern red-legged frogs have been observed in amplexus with (mounted on) both male and female bullfrogs (Jennings and Hayes 1990, Twedt 1993, M. Jennings, in litt.1993, R. Stebbins in litt. 1993).

Proposed Critical Habitat

On August 31, 2000, a proposed rule designating critical habitat for the red-legged frog was published in the *Federal Register* (65 FR 54891; Service 2000a). A detailed account of the primary constituent elements for red-legged frog critical habitat is found in the proposed rule (Service 2000a). In designating critical habitat, the Service identified the following primary constituent elements essential to the conservation of the red-legged frog: suitable aquatic habitat, associated uplands, and suitable dispersal habitat connecting suitable aquatic habitat.

Aquatic Habitat. Suitable aquatic habitat consists of virtually all permanent still or slow-moving fresh water bodies, including natural and manmade ponds, backwaters within streams and creeks, marshes, lagoons, and dune ponds, except deep lacustrine habitat. Aquatic habitat suitable for breeding must have a minimum depth of 20 cm and maintain water during the entire tadpole rearing season (at least March through July). To be considered a critical habitat, the aquatic component must consist of two or more breeding sites located within 2 km of each other, if at least one of the sites is also a permanent water source, or two or more breeding sites and a permanent water source located within 2 km, if the breeding sites are not permanent water sources.

The south pond contains sufficient permanent water, space, food, and cover needed to sustain red-legged frog eggs, tadpoles, metamorphosing juveniles, subadults, and adults. In addition, this pond is located less than 2 km from San Pedro Creek, which supports breeding red-legged frogs. Caltrans will ensure that the new pond has sufficient water depth and vegetative cover to provide aquatic habitat for the species. The north pond does not sustain sufficient water at appropriate depth and temperature to sustain tadpoles until metamorphosis and, therefore, would not be considered critical habitat.

Associated Uplands: Associated uplands must provide food, nutrients, and protection from disturbance necessary for normal behavior. Key conditions include the timing, duration, and extent of water moving within the system, filtering capacity, and maintaining of habitat to favor red-legged frogs. Suitable upland habitat consists of all upland areas within 150 m (492 ft.), or no further from the watershed boundary, from the edge of suitable aquatic habitat. Uplands within 150 m (492 ft.) of the red-legged frog ponds on Shamrock Ranch consist of horse pastures surrounded by coastal scrub. Ground cover at the ponds and in the pasture have improved dramatically over the past five years, and the pasture provides sufficient cover and foraging area for normal behavior. The pasture also provides sufficient filtering capacity to prevent sediment-

laden runoff from entering any of the three ponds. The north pond has filled with silt to the point that it does not support red-legged frog breeding, the source of this sediment is not the horse pasture but rather the drainage that provides the water source for this pond.

Dispersal Habitat: Suitable dispersal habitat must be least 150 m (492 ft.) wide, consisting of all upland and wetland areas that are free of barriers connecting two or more patches of suitable aquatic habitat within 2 km (1.24 mi.) of one another. Dispersal barriers include, but are not limited to, heavily-traveled roads, moderate to high density urban or industrial developments, and large reservoirs. Agricultural lands such as row crops, orchards, vineyards, and pastures do not constitute barriers to red-legged frog dispersal. Shamrock Ranch is a large property with moderately dense development on less than ten acres of land located northeast of the ponds. The remainder of the property and the area south and east of the ranch is undeveloped and rural. The ponds drain into a tributary that flows both above and below ground into San Pedro Creek. Red-legged frogs can disperse down the drainage and travel overland to reach San Pedro Creek. Red-legged frogs can also disperse to the San Pedro Creek drainage to the northeast, where the species is known to occur.

Environmental Baseline

The environmental baseline used in this analysis includes past and ongoing impacts of Federal, State, Tribal, and private actions and other human activities in the vicinity of the project that have impacted, or are impacting the listed species.

Red-legged frogs have been extirpated or nearly extirpated from more than 70 percent of their historic range. Historically, this species was found throughout the Central Valley and Sierra Nevada foothills. As of 1996, red-legged frogs were known to occur in approximately 240 streams or drainages from 23 counties, primarily in central coastal California, Monterey, San Luis Obispo, and Santa Barbara counties support the largest extent of currently occupied habitat. The most secure aggregations of red-legged frogs are found in aquatic sites that support riparian and aquatic vegetation and lack non-native predators. Several researchers in Central California have noted the decline and eventual local disappearance of red-legged frogs in systems supporting bullfrogs (Jennings and Hayes 1990), red swamp crayfish (*Procambarus clarkii*), signal crayfish (*Pacifastacus leniusculu*), and several species of warm water fish including sunfish (*Lepomis* spp.), goldfish (*Carassius auratus*), common carp (*Cyprinus carpio*), and mosquitofish (*Gambusia affinis*) (L. Hunt, in litt. 1993, S. Barry, in litt. 1992, S. Sweet, in litt. 1993). Habitat loss, non-native species introduction, and urban encroachment are primary factors that currently pose the greatest threats to the red-legged frog throughout its range.

The draft recovery plan for the red-legged frog identifies eight Recovery Units. Within each Recovery Unit, core areas have been delineated and represent areas of moderate to high red-legged frog densities and are identified as areas where recovery actions will be focused. This project is located within a Core Area of the Central Coast Recovery Unit, which includes western

San Mateo and Santa Clara Counties, and portions of Santa Cruz, Monterey, and San Luis Obispo Counties.

The Core Area extends from Crystal Springs Reservoir west to Half Moon Bay and Pacifica. Within this Core Area, red-legged frogs historically bred in sag ponds which were common within this area. However, few sag ponds remain as they have been filled for urban development. The lack of available breeding sites within the Core Area has lead to the decline of the red-legged frog.

The red-legged frog has been found in two ponds, referred to as the north pond and south pond, at the western end of Shamrock Ranch near the north tunnel portal. The south pond appears to retain water year round of sufficient quantity and temperature to support breeding of red-legged frogs. However, successful breeding was not documented at this site during surveys for this project (McGinnis 1998). This pond contains a population of introduced Japanese koi carp, which may be preying upon eggs and tadpoles. The north pond covers a larger area. However, it is shallow and the water levels drop rapidly during the summer. Early drying of ponds increases the likelihood of predation by waterfowl and raccoons. McGinnis (1998) has concluded that in many years water levels in this pond are not of sufficient depth to support tadpoles through metamorphosis. Lands surrounding the project area are undeveloped and support primarily coastal scrub, which provides suitable habitat for upland cover and forage, and suitable habitat for dispersal.

The most recent surveys by qualified biologists at the site occurred from March 1997 through February 1998 (McGinnis 1998). The south pond retains sufficient water to support tadpoles through the metamorphosis; however, a population of introduced koi carp may be preying upon the eggs, severely reducing the likelihood of successful reproduction. The north pond, although larger in area, is shallower, and water temperatures probably get too high in the summer to allow red-legged frog tadpoles to mature. Red-legged frog adults are documented routinely at this pond.

Within the greater Pacifica area, which is within the Core Area of the Central Coast Recovery Unit, the Service issued a biological opinion to the U.S. Army Corps of Engineers (Corps) addressing the impacts of the Calera Creek Water Recycling Plant and Wetland Restoration project (Service file no. 1-1-96-F-163) to the U.S. Army Corps of Engineers. The project included realigning and restoring Calera Creek as well as constructing two new ponds to replace two quarry ponds that had previously been drained and filled without incidental take authorization. Red-legged frog surveys conducted in 1999 found frogs breeding within the new ponds and they were also found in Calera Creek. It is believed that these ponds may have been recolonized, in part, from red-legged frogs that moved from Laguna Salada to Calera Creek over uplands commonly known as Mori Point. During fall of 2000, a portion of Mori Point was purchased by The Trust for Public Lands for the purpose of maintaining open space. Red-legged frogs found in Laguna Salada and the lower section of Calera Creek may move up the Calera Creek watershed and disperse to Crystal Springs and Shamrock Ranch, and vice versa, thereby

providing genetic interchange between populations found in this portion of the Central Coast Recovery Unit.

The Service issued a biological dated March 27, 1997, to the Corps for the San Pedro Creek Flood Control Project (Service File no. 1-1-96-F-164). Project construction began in the fall of 2000. The project involves the reconfiguring and restoration of the San Pedro Creek from below the Adobe Drive bridge to the Pacific Ocean. The project included widening the flood plain, recreating sinuosity and backwaters, and removal of instream barriers. After construction the area will be planted with native vegetation. This project is expected to provide habitat for red-legged frogs.

Effects of the Proposed Action

Effects to the red-legged frog include direct effects to individual frogs and habitat during construction, indirect effects to frogs and their habitat within the project area vicinity, and cumulative effects to the local red-legged frog population. This project also will have direct and indirect effects on proposed critical habitat.

Direct Effects

Direct effects include the potential for harassment, injury, and mortality of juveniles and adults. Red-legged frogs will be affected directly when they are captured from the north pond and moved to the newly created third pond. Red-legged frogs that are moved may be subjected to physiological stress and may be disoriented and attempt to leave the pond. While attempting to leave the pond, frogs may be exposed to an increased stress level, which may decrease the physical fitness of individuals. In addition, frogs attempting to leave may expose themselves to avian predators. In the unlikely event that frogs enter the environmentally sensitive area, the possibility exists that individual frogs may be crushed if they disperse across the construction access road. No aquatic or wetland habitat will be disturbed while constructing the environmentally sensitive area fence construction, and this fence will keep construction activities from directly impacting the habitat.

The project will result in the temporary loss of red-legged frog nonbreeding and foraging habitat, specifically 0.4 acre in the north pond. This effect will be offset by the creation of the new pond, which will provide dispersal, foraging and breeding habitat. Because the north pond will be deepened after completion of the bridge construction, there will be a net increase in red-legged frog breeding habitat at the site as a result of this project. Long-term impacts from shading following bridge construction are expected to be minimal, as the bridges have a north-south alignment and will be perpendicular to the direction of the sun's travel.

Petrochemicals, soaps or solvents that are spilled or may be leaking from vehicles could kill red-legged frogs during all life stages. Sediment washing downstream after storm events could

suffocate embryos and tadpoles. Trapping or relocating red-legged frogs during the breeding season could cause reproductive failures as a result of stress.

Normal construction activities are likely to result in direct effects to red-legged frogs through spills and intrusion into habitat areas by crews and equipment. Noise and vibration from blasting at the north tunnel portal and the use of heavy equipment is expected to harass red-legged frog adults foraging near the project area. Frogs displaced by construction or other disturbance may be required to compete for food and living space with animals in adjacent areas. Petrochemicals, soaps or solvents leaking or spilled from vehicles could kill red-legged frog adults, embryos or tadpoles. Sediment washing downstream after storm events could suffocate embryos or tadpoles.

Draining the south pond is likely to harass red-legged frogs, and they may be killed or injured during the koi removal effort. There is expected to be some level of trap mortality associated with trapping and translocating frogs. The frog exclusion fences may fail, or trap frogs on the wrong side, leading to increased mortality. Eggs may coddle as a result of inadvertent inversion or dessication during transport. Adult frogs being transported may be subjected to diseases as a result of stress and dessication.

Indirect Effects

The grading and regrading at the site is likely to alter the soil horizon to such an extent that reestablishment of existing vegetation type may be difficult and problematic. In addition, disrupted soil profiles tend to favor establishment of exotic, noxious weeds.

Adverse indirect effects include the potential for increased sedimentation downstream from the project as a result of the construction activities. Runoff from the dirt access road and regraded portions of the access road may carry sediment to the north pond. The presence of construction crews on site could result in an increase in on-site trash and could attract potential predators, such as skunks and racoons.

Red-legged frogs are likely to benefit over time by the removal of koi from the south pond. Red-legged frogs placed in the new pond may be subjected to increased predation and decreased foraging until the pond establishes a well-established shoreline cover and prey-base. Once the new pond becomes fully established, the local red-legged frog population is expected to benefit. However, without targeted management actions and maintenance, the ponds are likely to sediment in and become overgrown over time.

Effects to Proposed Critical Habitat

The construction access roads will cover portions of the upland and dispersal elements of red-legged critical habitat. The portion of the road providing access to the tunnel portal will pass within 18 m (59 ft.) of the south pond at its closest point. The existing Highway 1, which already

constitutes a significant barrier to red-legged frog dispersal to the north and west, is parallel to the construction access road. Therefore, the addition of the access road will not appreciably reduce red-legged frog dispersal. Deepening the north pond to make it appropriate for red-legged frog breeding and creating the new pond will enhance the quality of critical habitat on site.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

The proposed raising of Crystal Springs Reservoir will significantly impact a known breeding population of red-legged frogs within the central coast range. The increase in water level will further subject the remaining breeding habitat to periods of flooding and drying related to water use by the San Francisco Public Utility Company. The loss of breeding habitat at Crystal Springs would severely decrease the red-legged frog population within this Core Area.

Continued urban growth in coastal cities such as Pacifica and Half Moon Bay, such as home construction, roads, and flood control projects, threaten remaining red-legged frog aquatic habitat, upland habitat, and dispersal corridors. Aside from the direct loss of habitat from construction, subsequent irrigation of lawns may cause an intermittent streams to become perennial, providing breeding habitat for the bullfrog. Urban development results in increased numbers of cats and dogs. Both feral and tame cats and dogs prey on aquatic and riparian species such as the red-legged frog. People exploring creeks can harass, collect and kill red-legged frogs. Many flood control projects enlarge stream channels and isolate them from their natural floodplains, disrupting natural hydrologic processes and degrading stream habitat. Flood channel maintenance often requires the removal of emergent aquatic and riparian vegetation, making these channels less suitable for red-legged frogs. Row crops grown in the small valleys along the coast load pollutants such as sediment, fertilizers, and pesticides to area creeks and ponds. Some streams may be channelized or moved to provide more space for crop production. Some hills along the coast are severely overgrazed, which can be detrimental to upland and aquatic habitat essential for red-legged frog survival.

Non-native species that prey upon, or compete with, red-legged frogs continue to be released in red-legged frog critical habitat. Bullfrogs, koi, goldfish, mosquito fish and warm water game fish species are all expected to continue to degrade the quality of red-legged frog habitat and prey upon red-legged frogs.

Conclusion

After reviewing the current status of the species, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the Service's biological opinion

that the Devils Slide Tunnel Bypass, including the conservation measures proposed, is not likely to jeopardize the continued existence of the red-legged frog or destroy or adversely modify proposed critical habitat.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. The Service defines harass as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited under the Act, provided such taking is in compliance with this Incidental Take Statement.

The measures described below are non-discretionary and must be implemented by FHWA so that they become binding conditions of any grant or permit issued to Caltrans, as appropriate, in order for the exemption in section 7(o)(2) to apply. FHWA has a continuing duty to regulate the activity covered by this incidental take statement. If FHWA (1) fails to require Caltrans to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Amount or Extent of Take

The Service anticipates incidental take of the red-legged frog will be difficult to detect or quantify because of: the elusive nature of this species, its small size, and cryptic coloration make the finding of a dead specimen unlikely. Therefore, take is estimated by the number of acres in which red-legged frogs could be killed, harassed, or harmed through trapping, capture and collection associated with this project. Upon implementation of the reasonable and prudent measures, take in the form of killing, harming, and harassing resulting from trapping, capturing and collecting and construction activities of red-legged frogs on approximately 10.67 acres of habitat, of which 0.85 acre is aquatic or wetland, as a result of the activities associated with the project will become exempt from the prohibitions described under section 9 of the Act for direct and indirect impacts. This exemption only applies to Caltrans staff whose duties involve implementation of the proposed project; individuals or contractors hired or contracted by

Caltrans to perform duties described in this opinion; or biologists hired using trust funds held for the conservation of red-legged frogs. The Service has developed the following incidental take statement based on the premise that the reasonable and prudent measures will be implemented. Upon implementation of the following reasonable and prudent measures, incidental take associated with the Devil's Slide tunnel project will become exempt from the prohibitions described under section 9 of the Act for direct and indirect impacts.

Effect of the Take

The Service has determined that this level of anticipated take is not likely to result in jeopardy to the red-legged frog or destruction or adverse modification of proposed critical habitat.

Reasonable and Prudent Measures

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize the impacts of take on the listed species:

1. Minimize the impact of direct effects to all life stages of the red-legged frog and its proposed critical habitat from construction.

2. Minimize the impact of indirect effects to red-legged frogs from construction.

3. Minimize the impact of take of red-legged frogs from future bridge maintenance activities.

Terms and Conditions

To be exempt from the prohibitions of section 9 of the Act, FHWA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

1. To implement reasonable and prudent measure number one FHWA shall ensure the following terms and conditions are met:

    a. Caltrans shall implement the project, along with the proposed protection measures for red-legged frogs, as described in the proposed project description.

    b. Individuals that handle and remove red-legged frogs, tadpoles or egg masses must be pre-approved by the Service prior to trapping, capturing or collecting on-site.

    c. Red-legged frogs shall be marked only with Service approval. The method of marking red-legged frogs must be approved by the Service.

d. Annual management at the mitigation pond shall be determined each year based on the anticipated carrying capacity of the pond. The determination as whether or not to move egg masses, where those egg masses shall be moved to, or allow the red-legged frogs to disperse from the new pond shall be at the Service's discretion. Experimental releases of adult and newly metamorphosed red-legged frogs fitted with radio-transmitters or PIT tags shall be at the Service's discretion in cooperation with Caltrans.

e. All translocated or moved egg masses shall be monitored daily to determine the level of coddling.

f. Regular inspection of the fence around the construction access road and the north pond shall ensure that red-legged frogs do not cross the road or enter the north pond. Caltrans shall install an electric fence around the new pond fence to prevent mammalian predation.

g. The trapping dates of April 15 through June 30, 2000, set forth in the Minimization Measures may be changed at the Service's discretion.

h. Caltrans shall install sediment control structures around the perimeter of the dirt access road where runoff is likely to drain to any of the three ponds or the creek. Any silt control structures that breach or become damaged during a storm event shall be repaired or replaced within 24 hours. Any straw/hay bales that may be used for sediment control shall be free of star thistle seed.

i. Caltrans personnel shall inspect the environmentally sensitive area fence every day when construction activities are being conducted for openings and/or breaks in the fence that would allow red-legged frogs to enter the construction area. The exception to this is when construction activities are occurring solely on the bridges and no traffic is within the environmentally sensitive area. Any openings in the fence where red-legged frogs could enter the environmentally sensitive area shall be repaired within 12 hours.

j. Before any construction activities begin on the project, a Service-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the natural history red-legged frog and its habitat, the importance of the red-legged frog and its habitat, the general measures that are being implemented to conserve the red-legged frog as they relate to the project, the penalties for non-compliance, and the boundaries (work area) within which the project may be accomplished. Training sessions shall be repeated for all new employees before they access the project site. Sign up sheets identifying attendees and the contractor/company they represent shall be provided to the Service within one week of such training.

k. A Service-approved biologist shall be present at the work site until all red-legged frog removal and worker instruction have been completed.

l. Stockpiling of construction materials, including portable equipment, vehicles and supplies, including chemicals, will be restricted to the designated construction staging areas.

m. Refueling of construction equipment and vehicles may not occur within 300 feet of any water body or anywhere that spilled fuel could drain to a water body. Caltrans shall check and maintain equipment and vehicles operated in the project area daily to prevent leaks of fuels, lubricants or other fluids.

n. Equipment may not be washed in a place where wash water could drain to the creek or the ponds.

o. Caltrans shall clean hazardous material spills immediately. Such spills shall be reported to the Service immediately. Spill cleanup and remediation shall be detailed in post-construction compliance reports.

p. Caltrans shall comply with all reporting requirements in this opinion, including those proposed in the project description.

2. To implement reasonable and prudent measure number two FHWA shall ensure the following terms and conditions are met:

a. Caltrans shall remove litter and construction debris from the construction site daily and contain the waste at an appropriate site. All trash that may attract predators shall be securely covered at all times in locking metal containers, removed from the work site and disposed of regularly. Following construction, all trash and construction debris shall be removed from the work areas.

b. No captured bullfrogs shall be released back into the wild.

3. To implement reasonable and prudent measure number three FHWA shall ensure the following terms and conditions are met:

a. Prior to implementation, future bridge maintenance activities and remedial actions that may impact red-legged frog habitat must be reviewed and approved by the Service.

b. If Caltrans is unable to secure a Service approved conservation easement as proposed in the *Conservation Measures*, Caltrans must secure a Service approved off-site mitigation area or other agreement satisfactory to the Service.

c. Caltrans shall provide an endowment to provide for management of the conservation easement area and a copy of the endowment agreement to the Service for review and approval prior to construction. The agreement shall contain specific information on the endowment to manage the site for the red-legged frog in perpetuity.

d. Caltrans shall prepare and implement a detailed habitat monitoring plan within the proposed conservation easement. The plan shall provide, but not be limited to, specific performance standards, monitoring methods and requirements, exotic species control (plant and animal), and contingency measures for habitat to be restored and managed for red-legged frogs. The site shall provide hydrologic stability, habitat complexity, and food production potential. Caltrans shall submit the final plan to the Service for review and approval prior to initiation of any project work.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. With implementation of these measures, the Service believes that take of all individuals within ~~7.75~~ 10.67 acres of red-legged frog habitat will be minimized.

If during the course of the action, this level of incidental take is exceeded, or take in a form not described in this opinion occurs, such incidental take represents new information requiring review of the reasonable and prudent measures. FHWA must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

Reporting Requirements

The Service must be notified within 24 hours of the finding of any injured or dead red-legged frogs, or any unanticipated damage to the species habitat associated with project construction, minimization measures, or operation. Notification must include the date, time, and precise location of the specimen/incident, and any other pertinent information. The Service contact person is Karen J. Miller, Chief, Endangered Species Division in the SFWO, at (916) 414-6620. Any dead or injured specimens will be reposited with the Service's Division of Law Enforcement, 2800 Cottage Way, Sacramento, California 95825, telephone (916) 414-6660.

Caltrans shall notify the Service within 90 days after completion of the project. A written report shall be submitted containing, at a minimum, the following information: (1) a brief summary of project actions; construction methods and materials used in the environmentally sensitive area fence; (2) the number of nonnative species removed from the project site; (3) the number and age class of red-legged frogs removed from the north pond; (4) any problems that occurred which might have prevented compliance with this biological opinion; and (5) methods to avoid these problems in the future. Photographs documenting the frog fencing and work progress should be included. Please reference the Service's file number in the subject line of the report. The report

should be sent to: U.S. Fish and Wildlife Service, Endangered Species Division, 2800 Cottage Way, Room W-2605, Sacramento, California 95825-1846.

The Service shall be notified within twenty-four (24) hours of the finding of any injured or dead red-legged frogs or any unanticipated harm to their habitat addressed in this biological opinion. Notification shall include the date, time, and precise location of the specimen/incident, and any other pertinent information. The Service contact person is Karen J. Miller, Chief, Endangered Species Division in the SFWO (916-414-6620). Any dead or injured specimen shall be deposited with the Service's Division of Law Enforcement, 2800 Cottage Way, Sacramento, California 95825, telephone (916) 414-6660.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to implement recovery actions, to help implement recovery plans, to develop information, or otherwise further the purposes of the Act.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations. We have the following recommendations:

1. The FHWA should host a series of meetings with Caltrans, the San Mateo County, California Department of Fish and Game, and the Service to discuss issues related to ongoing impacts to numerous federally listed species found within the Highway 1 corridor.

2. FHWA should implement conditions from the draft *Recovery Plan for the California red-legged frog* where their action(s) may affect the red-legged frog or its habitat. Some conditions for implementation include best management practices to maintain natural riparian habitat, compensation for habitat lost or impacted, and reduction in or avoidance of rock or concrete in streams and other water bodies;

3. FHWA should participate in the recovery planning process for the red-legged frog;

4. FHWA should participate in the recovery planning process for the San Francisco garter snake.

REINITIATION–CLOSING STATEMENT

This concludes formal consultation on the actions outlined in the request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have any questions regarding this opinion, please contact Sheila Larsen or Ken Sanchez at (916) 414-6625.

Sincerely,

Cay C. Goude
Acting Field Supervisor

Enclosures

cc: ARD (ES), Portland, OR
California Department of Transportation, Oakland, CA

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APPENDIX K
San Mateo County Letter – Clarification regarding wetland impacts

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January 25, 2001

Harry Yahata, District Director
Caltrans
District 4
P. O. Box 23660
Oakland, CA 94623-0660

Re: Devil's Slide Tunnel Project

Dear Mr. Yahata:

You have requested that the County clarify statements made in a letter dated May 11, 1999, from Paul M. Koenig, San Mateo County Director of Environmental Services, to Robert Gross and Ed Pang of your office. The letter offered comments regarding the Second Supplemental Environmental Impact Statement/Environmental Impact Report. Your specific request is that the County further explain the statement made at page four of the letter that off-site mitigation of wetland impact is not allowed under the Coastal Act, and that, as a result, the County could not find that the proposed tunnel design complies with the County's Local Coastal Program. After further review of this matter, we have concluded that this statement was made in error. Our view is that a coastal development permit for a tunnel at Devil's Slide could be approved as consistent with the County's Local Coastal Program notwithstanding some impacts to wetlands. The basis for our conclusion is set out below.

Background

To put our conclusion into context, we provide the following background:

1. In November 1996, the San Mateo County electorate approved Measure T, the Devil's Slide Tunnel Initiative. Measure T amended three policies in the San Mateo County Local Coastal

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Program, establishing the tunnel alternative as the preferred alternative for future improvements to State Highway Route 1 in the area of Devil's Slide. Measure T also included the following section:

"Section 4. Inconsistent County Plans and Ordinances.

"Except as approved by the voters of San Mateo County subsequent to the effective date of this ordinance, if an existing or subsequently enacted provision of the General Plan, the Local Coastal Program, an area or special plan or other ordinance or resolution of the County of San Mateo is inconsistent with the ordinance, that provision is superseded and rendered ineffective by this ordinance to the extent, but only to the extent, that it is inconsistent."

The adoption of Measure T by the County was challenged in state court. In February 2000, the court of appeal affirmed a trial court decision upholding Measure T.

2. On January 9, 1997, the California Coastal Commission certified Measure T as being consistent with the Coastal Act. In its comprehensive findings, the Commission concluded that the proposed project would result in wetland fill. The Commission further found that the impact to wetlands which would result from construction of a Devil's Slide tunnel would result in a conflict with Public Resources Code sections 30233(a) and 30240(a), which do not allow the construction of new roadways in wetlands and environmentally sensitive habitat areas. The Coastal Commission nevertheless certified Measure T after applying the "balancing testing" set forth in Public Resources Code section 30007.5. Section 30007.5 states:

"The Legislature further finds and recognizes that conflicts may occur between one or more policies of the division. The Legislature therefore declares that in carrying out the provisions of this division such conflicts be resolved in a manner which on balance is the most protective of significant coastal resources. In this context, the Legislature declares that broader policies which, for example, serve to concentrate development in close proximity to urban and employment centers may be more protective, overall, than specific wildlife habitat and other similar resource policies."

The Coastal Commission also relied on section 30200(b), which states:

"Where the commission or a local government in implementing the provisions of this division identifies a conflict between the policies of this chapter, Section 30007.5 shall

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be utilized to resolve the conflict and the resolution of such conflicts shall be supported by appropriate findings setting forth the basis for the resolution of the identified policy conflicts."

In certifying Measure T, the Commission noted that the project furthered important coastal access and recreation policies set forth in sections 30210, 30211, 30212, 30212.5, 30213, 30252 and 30254 of the Coastal Act, recognized the existence of a conflict between these policies and the habitat protection policies set forth in sections 30233 and 30240 of the Coastal Act, and found that "on balance it is more protective of coastal resources to resolve this conflict by approving the project and allowing the proposed wetland fill and encroachment into environmentally sensitive areas." The certification of Measure T by the Coastal Commission was challenged in state court, but dismissed at the demurrer stage.

3. On May 19, 1999, the County Director of Environmental Services, Paul Koenig, directed a letter to Caltrans staff commenting on the Second Supplemental Environmental Impact Statement/Environmental Impact Report ("EIS/EIR"). The letter reviewed the proposed project against Local Coastal Program policies addressing impacts to wetlands, noted that "[o]ff-site mitigation of such an impact is not currently allowed under the Coastal Act or Local Coastal Program," and concluded that "we cannot at this time find that the proposed tunnel design complies with the Local Coastal Program." The letter represented the comments of staff on the environmental document. No action on the project was taken by the Board of Supervisors.

4. On October 10, 2000, the Coastal Commission approved a federal consistency determination for the Devil's Slide tunnel. The findings again recognized the impact to wetlands that would result if the project were to be built. The Commission conducted the same conflict resolution analysis that it undertook when Measure T was certified in 1997, finding that the conflict should be resolved in favor of approving the project and allowing the proposed wetland fill and encroachment into environmentally sensitive areas.

Analysis

We have concluded that the County does have the authority to consider and approve a coastal development permit for the Devil's Slide Tunnel project notwithstanding that the project may result in some impacts to wetlands. This position is based on the provisions of Measure T itself, coupled with the action taken by the Coastal Commission certifying Measure T.

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The primary rule of statutory construction is to determine the intent of the legislative body. (Freedom Newspapers, Inc. v. Orange County Employees Retirement System (1993) 6 Cal.4th 821, 826.) It is well established that statutes and legislative codes must be read together and so construed to give effect, when possible, to all the provisions thereof. (Tripp v. Swoap (1979) 17 Cal.3d 671, 679; DeVita v. County of Napa (1995) 9 Cal.4th 763, 779.) The various parts of a statute must be harmonized by considering the particular clause or section in the context of the statutory framework as a whole. (People v. Craft (1986 41 Cal.3d 554, 560.) It is assumed that a legislative body has existing laws in mind at the time it enacts a new statute. (Schmidt v. Southern Cal. Rapid Transit Dist. (1993) 14 Cal.App.4th 23, 28.)

Here, Measure T was quite specific with respect to the solution to be implemented for Devil's Slide, specifying a tunnel as the preferred alternative. In addition, the electorate clearly indicated that the resolution of any conflicts among competing policies of the Local Coastal Program should weigh in favor of the Devil's Slide Tunnel alternative. (See, Measure T, section 4.) The voters properly resolved conflicts among competing Local Coastal Program policies in favor of the tunnel alternative, as the voters were entitled to do under the provisions of Public Resources Code section 30200(b).

Moreover, by certifying Measure T and employing a Section 30007.5 conflict analysis, the Coastal Commission confirmed that the choice made favoring the tunnel notwithstanding some impacts to wetlands was, on balance, more protective of coastal resources. Any County approval of a coastal development permit for the Devil's Slide project requires that the County find that the project conforms to the policies of the County's Local Coastal Program. By virtue of the Coastal Commission's certification, that Local Coastal Program now includes Measure T, which calls for a tunnel at Devil's Slide, and allows for some impact to wetlands as a result of tunnel construction.

In summary, Public Resources Code sections 30007.5 and 30200(b) require both the Coastal Commission and local governments to resolve conflicts between competing policies of the Coastal Act when carrying out the provisions of the Act. The electorate resolved policy conflicts in favor of the tunnel when it adopted Measure T. The Coastal Commission has twice performed the analysis prescribed in Section 30007.5, certifying Measure T despite the conclusion that construction of a tunnel would result in some wetland impacts. Measure T is now a part of the County's certified Local Coastal Program. It is our view that a coastal development permit can be approved for the construction of a tunnel despite some impact to wetlands.

Re: Devil's Slide Tunnel Project

Please feel free to contact the undersigned if you have any questions.

Very truly yours,

THOMAS F. CASEY III, COUNTY COUNSEL

By: _____
Michael P. Murphy, Chief Deputy

TFC:MPM/mw/gg

cc: Supervisor Rich Gordon
John Maltbie, County Manager
Marcia Raines, Director of Environmental Services
Skip Sowko, Caltrans
Ed Pang, Caltrans
Mark Delaplaine, Coastal Commission

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