

FOOTHILL TRANSPORTATION CORRIDOR – SOUTH (FTC-S)

**ROADWAY DESCRIPTION & RELATED DESIGN FEATURES
IN THE COASTAL ZONE**

FOOTHILL/EASTERN

TRANSPORTATION CORRIDOR AGENCY (TCA)

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EXHIBITS:

- Exhibit 1A: General Layout Plan
- Exhibit 2A: General Layout Plan
- Exhibit 3A: General Layout Plan
- Exhibit 1B: Grading and Disturbance Plan
- Exhibit 2B: Grading and Disturbance Plan
- Exhibit 3B: Grading and Disturbance Plan
- Exhibit 1C: Utility Plan
- Exhibit 2C: Utility Plan
- Exhibit 3C: Utility Plan
- Exhibit 3: Trail Location

OVERVIEW

A. Project Description

This report pertains to the southernmost 3.5 miles of the Foothill Transportation Corridor – South project (FTC-S) (2.5 miles of improvements within the Coastal Zone) and provides a description of construction details for roadway structures, drainage infrastructure, the Basilone Road interchange, San Onofre Gate security improvements, sound and wildlife walls, landscape restoration, utility relocation, and the maintenance of traffic flow and beach access within this area. Although outside of the Coastal Zone, this report also addresses improvements up to the entrance of the San Mateo Campground, including the Cristianitos Road overcrossing.

In its entirety, the FTC-S is proposed in northwestern San Diego County and southeastern Orange County, and is approximately 16 miles in length. At its southern terminus, the FTC-S connects to Interstate 5 (I-5) within the existing boundaries of Marine Corps Base (MCB) Camp Pendleton. From here, the FTC-S runs northward through Orange County to Oso Parkway, where it joins the operating section of the SR-241 which extends from Oso Parkway where it presently terminates northward to the Eastern Transportation Corridor which connects to SR-91.

The FTC-S has been separated into four design sections. Section breaks and lengths are based on design criteria, and are not in regards to jurisdictional boundaries or physical features. Section 1 and Section 2 are the southernmost sections and the focus of this report. The boundary of the Coastal Zone crosses the project at an angle, and therefore does not align with the design section boundary between Section 1 and Section 2. (See **Exhibit 1A, 2A, and 3A: General Layout Plan**)

Section 1 stretches from I-5 to the south, to a point just south of Cristianitos Road, and includes 2.3 miles of improvements (0.4 miles of improvements along SR-241, 1.9 miles of improvements along I-5). Section 1 is entirely within the Coastal Zone, and includes the following project components:

- Construction of the 3,860 lineal foot northbound and 3,910 lineal foot southbound connectors to I-5 over San Mateo Creek and approaches;
- Widening of I-5 to accommodate the southbound and northbound connectors to the FTC-S;
- Improvements to and widening of the existing I-5 bridge over San Onofre Creek;
- Reconstruction of the Basilone Road Overcrossing of I-5 and SR-241 Connectors;
- Anti-terrorist Task Force Program improvements for the Camp Pendleton San Onofre Gate at Basilone Road including a military access road undercrossing;
- Water quality features for existing and proposed I-5 and SR-241 (2 ~~extended detention~~ sand filter basins, etc.); and
- Various retaining walls and sound walls.

Section 2 stretches from the terminus of Section 1 just south of Cristianitos Road to south of Avenida Pico, 0.2 miles of which are within the Coastal Zone. A description of a portion of Section 2 not within the Coastal Zone is included to provide a description of project components adjacent to the Coastal Zone. Project components within Section 2 include:

- Construction of the FTC-S roadway consisting of two 12-foot lanes in both the northbound (~~approximately 3,860 lineal feet within the Coastal Zone~~) and southbound direction (~~approximately 3,910 lineal feet within the Coastal Zone~~) including an unpaved bioswale median;
- SR-241 and Cristianitos Road Interchange (not in Coastal Zone);
- Realignment of Cristianitos Road from El Camino Real (within Coastal Zone) to the San Mateo Campground (approximately 600 lineal feet of realignment within the Coastal Zone);
- Various retaining walls, sound walls, and wildlife management walls.

B. Disturbance Limit Line and Grading Limit Line

The project's "disturbance limit line" (DLL) is the line established by TCA during the environmental process that defines the maximum area that may be affected by construction of the FTC-S. The disturbance limit has been set to include the least amount of area feasible to minimize impacts to the surrounding area. All construction will be conducted within the disturbance limit as provided by the Final South Orange County Transportation Infrastructure Improvement Project (SOCTIIP) Subsequent Environmental Impact Report ("Final SEIR") dated November, 2005. (See **Exhibit 1B, 2B, and 3B: Grading & Disturbance Plan.**)

Also within the DLL is the "grading limit". The grading limit is the area within the DLL that is affected by grading operations for the new roadway. Other construction activities that are within the DLL include remedial grading, utility relocation materials storage, site access and construction staging.

Within the Coastal Zone, the disturbance limit encompasses an area of approximately 139 acres of area, 129 acres within Section 1, and 10 acres within Section 2.

C. Project Components

The final project will be entirely within or coincident with the established disturbance limit line. The final condition of the roadway in the Coastal Zone will be four lanes (two northbound, and two southbound), carrying traffic to/from SR-241 to I-5.

Within the Coastal Zone, the project includes the following components:

Highway Improvements

- Widening of I-5 to transition the southbound and northbound connectors between the extension of the FTC-S and I-5;
- Construction of the 3,810 lineal feet northbound and 3,910 lineal feet long southbound SR-241 connector bridges over San Mateo Creek;
- Reconstruction of the Basilone Road Bridge Overcrossing of I-5 and SR-241 Connectors;
- A sound wall southwest of Basilone Road;
- Improvements to and widening of the existing I-5 bridge over San Onofre Creek;
- A sound wall on the south side of I-5;

- A sound wall east of the San Mateo Point housing area on MCB Camp Pendleton west of I-5;
- Realignment of Cristianitos Road;
- Addition of two new public sidewalks, one along Cristianitos Road and the other at the Basilone Road Overcrossing;
- Mass grading to achieve final road grades;

Water Quality Improvements

- Two on-site ~~extended detentions~~ sand filter basins (~~EDB's~~SFB's), one adjacent/ tributary to San Mateo Creek (41 acre area: System 1) and the other adjacent /tributary to San Onofre Creek (62 acre area: System 2);
- A bioswale, vegetated with native grasses, for treatment of roadway storm water discharged and SR-241;
- Approximately 2 miles of existing I-5 (within Section 1) will be retrofitted for storm water treatment;

Military and National Security Improvements

- Complete reconstruction and replacement of the San Onofre Gate to provide entry to MCB Camp Pendleton, which will include new enhanced security facilities per Anti-Terrorist Force Protection Program, including military access road undercrossing;
- Construction of "Green Beach" military access road under the southerly span of the existing I-5 bridge at San Mateo Creek;

Habitat Protection and Restoration Improvements

- Construction of a widened approximately 1,600 lineal feet of a mouse barrier wall for the protection of the Pacific pocket mouse in the Coastal Zone and additional 4,300 lineal feet outside the Coastal Zone.

D. Construction Methods

The construction methods will be implemented with the utmost care, and will be consistent with all mitigation measures, measures to minimize harm, and other conditions applicable to the project, including those specified and established by the Final SEIR, and in the permits and approvals from the California Department of Fish and Game, State Water Resources Control Board, San Diego Regional Water Quality Control Board, US Army Corps of Engineers, National Marine Fisheries Service, the US Fish and Wildlife Service, and the future provisions of the California Coastal Commission Coastal Development Permit. Construction methods used to build the structural components of Sections 1 and 2 are described in detail within this report.

During construction, the contractor will provide monitoring by an on-site biologist and paleontologist as required by the Final SEIR. Geotechnical borings, including rotary-wash, hollow-stem auger, bucket-auger, and cone penetrometer soundings, will be performed in the Coastal Zone to advance the structure and roadway design.

SECTION 1

SR-241 connects to the I-5 just south of the Basilone Road overcrossing, within Section 1 of the project. The existing I-5 consists of 4 northbound and 4 southbound lanes, each 12 feet wide, with 10-foot outside shoulders and 8-foot median shoulders.

Section 1 includes the outside widening of I-5 to accommodate the southbound and northbound connectors to/from the SR-241, the improvements to and widening of the existing I-5 bridge over San Onofre Creek, the construction of new SR-241 connector bridges over San Mateo Creek, the construction of a new Basilone Road overcrossing of I-5 and SR-241, the reconstruction of the entrance to Camp Pendleton at Basilone Road (including a new military access road undercrossing), and the addition of water treatment features for roadway drainage for this section of I-5.

A. Section 1 Roadway Description

1. I-5 AND SR-241 CONNECTION

The joining of SR-241 to I-5 is approximately 2,000 feet south of the Basilone Road overcrossing. In order to accommodate the northbound connector (I-5 north to SR-241 north) and the southbound connector (SR-241 south to I-5 south), auxiliary lanes will be added to the outside of I-5. The northbound auxiliary lane will be approximately 2,700 feet long, starting approximately 5,300 feet south of the Basilone Road overcrossing. The southbound auxiliary lane will be approximately 3,200 feet long, ending approximately 6,300 feet south of the Basilone Road overcrossing. The northbound and southbound auxiliary lanes will be 12 feet wide with a 10 feet wide shoulder. The Connectors will be two lanes wide at the entrance and exit gore areas of I-5. The I-5 width just north and south of the Basilone overcrossing will remain, as it presently exists, with only minor widening at the tie-in points of the new Basilone Road ramps. Over the course of project design, these project features have been designed to Caltrans standards.

The northbound and southbound connectors will both consist of two lanes 12 feet wide with 10 feet outside shoulders. The inside shoulders for both connectors typically, will be 5 feet wide. These connector roadways provide a direct link for SR-241 to the I-5 for the location of the northbound and southbound connectors.

2. BASILONE ROAD OVERCROSSINGS AND NATIONAL SECURITY IMPROVEMENTS

At Basilone Road, the project's design build contractor will remove the existing I-5 overcrossing and replace it with a new overcrossing consisting of three separate structures, one over I-5, one over the northbound connector, and one over the southbound connector and a military access road undercrossing by the San Onofre Gate. A six-foot-wide sidewalk is provided along the south side of Basilone Road across the structures. The Basilone Road overcrossing will consist of two 12-foot wide through lanes, and one 12-foot wide shared left turn lane; eight-foot wide outside shoulders will be constructed on each side of Basilone Road. The Basilone Road through lanes will be increased to 13 feet wide just west of the overcrossing to accommodate the sharp horizontal curve alignment.

To the northeast of the overcrossing, Basilone Road has been realigned as part of the San Onofre Gate area improvements as requested by Camp Pendleton, to meet new homeland security requirements (the Anti-Terrorist Force Protection Program) by providing a separate area for truck inspection. This area will include an overhead canopy, parking area, guard shacks, and access gates. Inside Camp Pendleton, the project will provide a new access road to the agricultural fields through a structure under Basilone Road.

The four existing Basilone Road ramps will be realigned and reconstructed to accommodate the northbound and southbound connectors to pass under Basilone Road and to connect the ramps to the newly realigned Basilone Road.

An access road (Green Beach Access Road) is also provided for Camp Pendleton along the southerly abutment of the San Mateo Creek Bridge. Completion of this access road will require construction of retaining walls to accommodate the roads 50-foot width. The road will extend approximately 400 feet across the Caltrans right-of-way. This new access point will allow military vehicles and equipment from Green Beach to cross under I-5 without having to impact sensitive wetlands habitat in San Mateo Creek.

B. Grading

The northbound and southbound connectors from SR-241 to and from I-5 and the overcrossing replacement at Basilone Road will require standard cut/fill grading operations to achieve final roadway grades. Grading activities will be performed using bulldozers, loaders, roller compactors, scrapers, motor graders, and water trucks. (See **Exhibit 1B, 2B, and 3B: Grading & Disturbance Plan.**)

The grading limits for Section 1 will be within the DLL set in the environmental document. The grading disturbance area in Section 1 within the Coastal Zone is 55 acres. The preliminary earthwork quantities require 250,000 cubic yards of cut and 850,000 cubic yards of fill in Section 1 within the Coastal Zone. To balance the earthwork quantities in this section fill will be imported from Section 2.

Remedial grading will be required to remove any unsuitable material under areas proposed to receive fill. Remedial removal depths are anticipated to range from 5 to 10-feet below existing grade. Remedial grading may also be required in some cut areas if unstable slope conditions are determined to be present. All remedial grading will occur within the project DLL.

Due to concerns of potential liquefaction and lateral spreading during seismic events (earthquakes), ground stabilization improvements are anticipated for the connector structure foundations. The ground improvement will consist of pressure grouting or installation of stone columns to densify the upper 50 feet of soil and reduce the potential for liquefaction and associated subsidence.

C. Structures

The project includes several improvements to existing structures within Section 1, including widening of the existing bridge over San Onofre Creek, and construction of the new Basilone Road overcrossing. Additionally, there will be two new connectors, a northbound and southbound, that link the SR-241 and I-5 roadways.

1. NORTHBOUND AND SOUTHBOUND CONNECTORS

Northbound Connector. The contractor will use a cast-in-place pre-stressed (CIP/PS) concrete box girder bridge for the northbound connector bridge. The bridge will be a 10-foot deep, 16-span structure, with single column bents. The structure will be founded on pile foundations consisting of 12-foot diameter Cast-In-Steel-Shell (CISS) or cast-in-drilled-hole (CIDH) concrete piles at the bents; and 36-inch and 24-inch CIDH piles at the abutments. The columns supporting the bridge above the foundations will have a diameter of approximately 10-feet.

The proposed connector bridge will support two lanes of northbound SR-241 traffic with a 5-foot shoulder to the left, a 10-foot shoulder to the right, and concrete barriers on each edge. The total width of the bridge is 41 feet, 10 inches. The total length of the bridge will be 3,860 feet, with 16 spans.

All project aspects of the northbound Connector have been designed to required Caltrans standards.

Southbound Connector. The contractor will use a cast-in-place pre-stressed (CIP/PS) concrete box girder bridge for the southbound connector separation. The 15-span bridge will be 11-feet deep with single column bents and two outrigger bents with similar columns where the connector crosses the I-5 freeway. The structure will be founded on pile foundations consisting of 12-foot diameter (CISS or CIDH concrete piles at bents and 24-inch diameter CIDH concrete piles at abutments. The columns supporting the bridge will have a diameter of approximately 10-feet.

The connector bridge will support two lanes of southbound SR-241 traffic with a 5-foot inside shoulder to the left, a 10-foot outside shoulder to the right, and concrete barriers on each edge. The total width of the bridge is 41-feet, 10-inches. The total length of the bridge will be 3910-feet, with 15 spans.

All project aspects of the southbound Connector have been designed to required Caltrans standards.

Construction Methodology. The schedule for Section 1 reflects a three-phase completion of these connectors working from the east side to the west side of I-5, and proceeding north to completion from one side to the other. Pre-construction biological surveys will be conducted as identified in the EIR. The biologist will designate areas where construction activity can occur, and areas that are off-limits, either temporarily or permanently.

Advance notice to the public will be required before construction begins. The contractor will submit traffic plans to local authorities for truck travel for imported material. Traffic plans for I-5 will include concrete barrier placement, warning sign location, expected temporary lane closures, and temporary re-routing of car and pedestrian traffic. Traffic control and warning devices will be placed prior to the start of work. Water quality construction measures will be implemented, as outlined in the water quality mitigation measures in the Final SEIR.

Section 1 work will include the demolition of portions of existing roadways and structures. The resulting concrete and asphalt debris will be removed from the site.

Earth removal and grading will be done in the footprint area of the new bridges to allow for the construction of the permanent foundations, temporary bents and steel pipe supports for the falsework. The CIDH and/or CISS concrete foundations will be drilled out and the foundations and support columns poured. Cranes will be used to set the reinforcing steel in the foundations and support columns prior to concrete placement. Earth excavated from the drilled foundations will be removed from the site. If CISS or other driven poles are used for pile driving, hammers will be employed. Falsework will be installed to form the bridge soffit and stems, with rebar placed and tied. Concrete will be pumped into the forms using a boom pump truck. The bridge deck is then formed and concrete placed. Concrete pumps and concrete trucks will be directed to the appropriate wash out stations to contain all cement products during equipment wash downs. After prestressing operations, the falsework will be removed from the site, leaving the concrete structure.

2. SAN ONOFRE CREEK BRIDGE WIDENING

Within Section 1, this project includes widening of the two I-5 bridges (northbound and southbound) over San Onofre Creek. The existing structures are four-span continuous cast-in-place reinforced concrete box girder structures. These structures are 354 feet long, and the superstructure is 68.0 feet wide and 5.5 feet deep for both bridges.

The two I-5 bridges will be widened to accommodate the I-5/SR 241 direct northbound and southbound. The three existing piers of each bridge will be lengthened. The details of this widening are described below.

Original Bridge Structures. The original structures were constructed in 1968, and are supported on pier walls and seat type abutments. The existing foundation system consists of driven steel piles. The structures were retrofitted in 1998 using timber blocking behind the end diaphragm at the abutments to address major seismic events. The existing bridge piers are proposed to be widened to accommodate the construction of the new connector ramps. The existing San Onofre Creek Bridge is actually made up of 2 separate structures, to carry the northbound and southbound I-5 traffic, respectively.

Bridge Widening. The proposed new construction will include widening the existing left and right bridges to accommodate the geometric requirements for the northbound and southbound connectors to and from SR-241. The proposed widening will match existing grade and cross slopes. Due to the roadway geometry, the widening on the outside of the San Onofre Creek Bridge are variable widths. The northbound structure will be widened by an additional 38 to 55 feet. The southbound structure will be widened by an additional 41 to 58 feet. Current analysis indicated scour concerns for the existing structure. If scour is a problem, the existing foundations would need to be strengthened to prevent collapse. The existing footings would then be widened by approximately 5 feet on each side.

Construction Methodology. The foundation for the bridge widening will consist of 24-inch and 36-inch CIDH concrete piles. Earth excavated from the drilled foundations will be removed and stockpiled then used in embankments where suitable. The CIDH pile will be constructed by drilling each hole, inserting reinforcing steel and filling with concrete. A pile cap will be placed to form a base foundation for the pier walls that will support the bridge superstructure. ~~No falsework will be used within San Onofre Creek as beams will span across the creek and be supported on the pier walls.~~ Falsework will be temporarily erected in San Onofre Creek to facilitate construction of the bridge widening. The falsework will consist of temporary bents and steel pipe supports installed to form the bridge soffit and stems. After the concrete has been poured and cured and the bridge pre-stressed, the falsework will be removed from the site, leaving the concrete bridge structure. The falsework will be secured together so as not to allow debris and material to fall into the creek waterway.

3. BASILONE OVERCROSSINGS

As part of Section 1 improvements, new overcrossing Basilone Road structures will be constructed – one over I-5 and one over each of the SR-241 connectors (described above). A six-foot wide sidewalk will be provided along the south side of the structures, to continue pedestrian access. The four existing ramps will be realigned and reconstructed to allow for the I-5/SR 241 connectors and to connect the new Basilone Road overcrossing to I-5.

Original Structure. The existing Basilone Road overcrossing was originally constructed in 1969 and consists of a two-span reinforced concrete box girder structure. To accommodate the roadway alignment changes and the Caltrans-proposed I-5 build-out cross section requirements upon completion of the new structures, the existing bridge will be removed.

The existing bridge columns will be demolished and removed for recycling. Demolition will be done by several hydraulic breakers mounted on track excavators, and debris will be loaded on trucks by loaders or excavators.

New Basilone Overcrossing. The new Basilone Road overcrossing will provide one through lane of traffic in each direction, a two way left turn lane, and a sidewalk on the south side of the bridge. The overcrossing configuration will allow I-5 to be widened in the future to its ultimate configuration without additional structural construction.

The new overcrossing is a two-span cast-in-place pre-stressed concrete box girder bridge structure. The horizontal distance between the edges of I-5 and bridge abutments are carefully planned to accommodate the embankment slopes and the future I-5 widening.

The proposed overcrossing has a total width of 64 feet, 5 inches, and a total length of 279 feet, with spans lengths of 133 feet and 146 feet.

Construction Methodology. The Basilone Road overcrossing replacement has three support locations: Abutment 1, Bent 2 (located in the center of the I-5 freeway) and Abutment 3. The foundation at each support location will consist of (CIDH) concrete piles, with a pile cap to form a base foundation for three 4-foot by 6-foot columns. The

CIDH will be accomplished by drilling each hole, inserting reinforcing steel and filling with concrete. There will be two size piles: Abutments 1 and 3 will use 24-inch diameter piles, while Bent 2 will use 36-inch diameter piles. As an alternative to pile foundations, a spread footing foundation system may be utilized.

Dust control will be maintained at all times during demolition and construction by using water trucks to spray water on debris or soil. Additionally, a storm water pollution prevention plan (SWPPP) will be implemented continuously and monitored throughout the project.

The support columns will be constructed by using reusable column forms and placing reinforcing steel and concrete into the forms. Concrete washout pits will be provided to contain any cement during the wash out of concrete trucks and boom pumper trucks.

Temporary false work columns of steel pipe will be used to support steel beams and falsework that forms soffit of the new bridge. Rebar will be incorporated into the bridge deck and tied into the new columns. Concrete will be placed directly on the bridge deck to construct the over-crossing road. Materials used to form the bridge will be placed by portable hydraulic crane. Building materials are transported to the cranes using a telescoping forklift.

All onsite equipment will be monitored for wear and equipment leaks. Equipment will be shut down and repaired if any leaks occur. Emergency spill kits will be near to handle any spills. Clean up of any spills will be immediate and disposed of properly. Final cleanup of any debris or equipment will be done prior to the bridge opening to the public.

D. Storm Water Drainage and Water Quality

Currently within Section 1, roadway drainage (on-site drainage) infrastructure along I-5 consists of storm drains that outlet to longitudinal surface ditches. These surface ditches drain directly into the San Onofre and San Mateo Creeks, and then to the Pacific Ocean. Present storm water infrastructure does not provide treatment of storm water draining from the I-5 pavement.

Cross drainage (off-site drainage) of water that currently flows under I-5 or in the vicinity of I-5 (but not from the I-5 roadway) is conveyed into San Onofre and San Mateo Creeks. This stormwater crosses the I-5 at the existing bridge structures over these two creeks.

Section 1 improvements include retrofitting two miles of I-5 with storm water treatment infrastructure for roadway runoff. Drainage and drainage treatment systems to be constructed along I-5 and the FTC-S will tie into the existing storm drains. The storm drain improvements will convey storm water to two ~~extended detention basins (EDBs)~~ sand filter basins (SFBs) adjacent to San Onofre and San Mateo Creeks, where storm water treatment will take place. EDB-SFB 1 is 4.21.8 acres (3.7 ac. ft. capacity) and will capture a 62-acre drainage area and EDB-SFB 2 is 4.51.2 acres (2.5 ac. ft. capacity) and will capture a 41-acre drainage area. The EDBs-SFBs are an accepted best management practice (BMP) for water quality.

1. CROSS DRAINAGE (OFF-SITE)

Existing Cross Drainage Conditions. Offsite drainage consists of cross-drainage where runoff generated uphill or upstream of the roadway is passed under the roadway at its

bridges. The existing bridges are designed to pass the 100-year flood (1% probability). Along I-5, off-site drainage crosses the freeway under the San Onofre and San Mateo Creek bridge structures.

The existing San Onofre Creek is a relatively narrow natural channel vegetated with low-lying shrubs and grasses. The watershed area for this stream is 43 square miles and the 100-year flow rate is estimated at 16,700 cfs. The creek crossing at I-5 consists of two separate structures carrying southbound and northbound traffic. Flood flow at this location extends over the 240-foot wide mainstream channel, contained within the high channel banks and bridge abutments. Proposed improvements consist of widening the existing structure on the upstream (northbound) side by an additional 38 to 55 feet and on the downstream (southbound) side by an additional 41 to 58 feet.

The existing San Mateo Creek is a natural channel vegetated by dense riparian woodlands, with a very wide floodplain upstream of I-5, which narrows at the I-5 crossing. The watershed area for this stream is 133 square miles and the 100-year flow rate is estimated at 40,300 cfs. The crossing at I-5 consists of two parallel 5-span reinforced concrete box girder bridges supported on pile-supported reinforced concrete pier walls. The northbound and southbound structures are symmetrical. Flood flow extends over the 320-foot wide mainstream channel and is contained within the high channel banks and bridge abutments.

Cross Drainage Improvements. Section 1 cross drainage improvements will include construction of two connector bridges to SR-241 over San Mateo Creek, one upstream of the I-5 bridge structures and one directly above them. The proposed bridges will result in a maximum increase in water surface elevation of 0.4 feet upstream of the I-5 bridge structure, diminishing to zero approximately 0.75 miles upstream of the proposed bridge structures. This very small increase is within all applicable allowable design standards.

During construction, temporary best management practices (BMPs) for water pollution control will be in place. Specific BMPs for work above and adjacent to waterways such as San Onofre and San Mateo Creeks will be employed during construction. These include:

1. Minimizing demolition and construction activities over the creek during the wet season.
2. Use of non-shattering demolition methods that would normally scatter debris.
3. Securing all materials adjacent to the creek to prevent discharges into the channel via wind.
4. Using attachments on equipment to catch debris from small demolition operations.
5. Stockpiling accumulated debris and waste generated from demolition away from the creek.
6. Isolating work areas within the creek from flow using sheet piling, k-rails or other methods of isolation.
7. Using drip pans during equipment operation, maintenance, cleaning, fueling and storage for spill prevention.

8. Keeping equipment leak-free and out of the stream. Equipment in the creek bed will be limited and only permitted when in use and as required. No equipment will be allowed to operate in standing or running water. Water will be temporarily routed around the required construction area. Areas requiring the crossing of water will be bridged over for equipment access. Type of equipment would include pickup trucks, trucks, backhoes, excavators, scrapers, and cranes. Construction operations within the creeks will comply with the various permitting agency requirements regarding approved times of the year for work within the creeks.
9. Directing water from concrete curing and finishing operations away from inlets and watercourses to collection areas for dewatering.

2. ROADWAY DRAINAGE (ON-SITE)

Existing Conditions. Current on-site drainage along I-5 consists of a series of storm drains and inlets that outlet to longitudinal surface ditches draining directly to San Onofre and San Mateo Creeks, and ultimately the Pacific Ocean, without providing any storm water treatment.

Section 1 Roadway Drainage Improvements. The proposed on-site storm drain network along I-5 and along the SR-241 connectors consists of two systems which convey storm water from the roadway to ~~extended detentions~~ sand filter basins adjacent to San Onofre Creek and San Mateo Creek.

The San Onofre Creek System ("System 1") includes a storm drain system along I-5 from Basilone Road southward for approximately 1.5 miles. The system flows to the east side of I-5 where it will connect to a 3.7 acre-ft newly constructed ~~extended detention~~ sand filter basin (located at the south embankment of San Onofre Creek) for storm water treatment. Treated runoff then flows from the ~~detention-sand filter~~ basin into a pipeline routing the water to San Onofre Creek. For erosion control, the outlet will consist of a 100 square foot riprap energy dissipater located on the south embankment of San Onofre Creek. This system will include approximately 12,000 feet of 18- to 36-inch storm drain and 45 inlet/junction structures.

The San Mateo Creek System ("System 2") includes a storm drain system along I-5 from Basilone Road northward to San Mateo Creek. This system will convey flows to the east side of I-5 where it will connect to a 2.5 acre-ft newly constructed ~~extended detention~~ sand filter basin (located on the south side of San Mateo Creek) for storm water treatment. The ~~detention-sand filter~~ basin will outlet into a pipeline routing the treated runoff to San Mateo Creek. For erosion control, the outlet will consist of a 100 square foot riprap energy dissipater located on the south embankment of San Mateo Creek. The system will also include storm drains provided at the toe of embankment along the east side of I-5 to convey storm flow from the above-grade SR-241 Connector Structures. Deck drainage from these bridges will be routed down columns, outletting to the system storm drains. All system storm drains will connect to the ~~extended detentions~~ sand filter basin (~~EDB~~) prior to discharge into San Mateo Creek. This system will include approximately 7500 feet of 18- to 36-inch storm drain, 30 inlet/junction structures, six to eight column down drains connecting to the storm drain system, and a deck drainage system on the two proposed bridges.

Construction Methodology. During construction, temporary best management practices (BMPs) for water pollution control along the freeway will be in place. Control procedures include:

1. Placement of mulch/soil binder on inactive disturbed areas.
2. Fiber rolls along slopes.
3. Silt fences at the boundaries of the construction site.
4. Stabilized construction entrances and exits.
5. Check dams placed strategically to reduce flow velocity and to filter flows in defined drainage-ways.
6. Drain inlet protection.
7. Designated concrete washout areas.

E. Camp Pendleton/Basilone Entrance (San Onofre Gate) National Security Improvements

The San Onofre Gate, including the existing access road (Toby's Road) from Basilone Road to the agricultural fields, will be reconstructed to align with the new Basilone Road configuration (new realigned four-lane entry roadway)—as requested by Camp Pendleton (at no cost to the U. S. government) to meet current homeland security guidelines. The new gate area facility will include a new state of the art enhanced security facility, six sentry houses, a 510 square foot gatehouse, dual guard stations, three truck inspection area with canopy, a watchtower, a visitor processing office, upgraded control gates and perimeter fencing and a parking area. The paved area (including the access road) will be 3.5 acres and will include drainage facilities, lighting (pole-mounted lighting and roadway lighting), signing and utilities.

As part of Section 1 improvements, the Camp Pendleton access gate at Basilone Road will be reconstructed and Toby's Road will be realigned. Toby's Road will pass under the realigned Basilone Road via an arch culvert. Toby's Road will provide access to the agricultural fields and will also be extended to provide a new access under the southerly abutment of the San Mateo Creek. This access road will provide access for Camp Pendleton personnel between one side of I-5 to the other in this area, where currently, no access exists.

A Caltrans maintenance access road will be provided from the I-5 shoulder to a ~~n-extended detention-sand filter~~ basin (~~EDB-SFB~~) located south of San Onofre Creek. One hundred percent of the San Onofre ~~EDB-SFB~~ is already existing and being used by Camp Pendleton. Camp Pendleton access will be maintained on the existing military access road, while a new fence and gate will provide the Camp access to the remaining Camp ~~detention-water quality~~ basins. Caltrans and Camp access roads will be completely separated at this location.

Construction Methodology. The contractor will implement staged construction for the new improvements to the Camp Pendleton access gate. This will ensure that daily operations of the Marine Corps and the public are not impeded. This includes continuous access to the base for vehicles and pedestrian traffic. Furthermore, construction of the new sentry houses and gatehouse will occur in total or part before any existing facilities are demolished.

Asphalt roads will be cut in sections using a concrete asphalt saw. Sawed asphalt allows for the demolition of sections of road without lifting road sections needed for traffic. At the completion of the new road section, traffic can be shifted to the new road and the next section can be completed. Demolition debris will be exported by truck for recycling.

F. Walls

Section 1 improvements include various retaining walls and sound walls along the corridor in accordance with the geometric and environmental needs. All designs will be masonry or concrete per Caltrans design criteria, and approved by various other agencies.

Four sound walls and thirteen retaining walls are located within Section 1. Sound walls will be constructed of concrete block. The retaining walls will be of various types of construction. (See **Exhibit 1A, 2A, and 3A: General Layout Plan.**)

1. RETAINING WALLS

Section 1 improvements include a number of retaining walls. Wall heights vary, with a maximum wall height of about 25 feet for the southbound connector. Most walls will be a few hundred feet long, and vary from approximately 6 to 24 feet high, although a few walls may exceed 1000 feet in length. Wall types proposed include conventional Caltrans Standard Plan walls, Mechanically Stabilized Earth (MSE) walls, and tie back walls.

Construction Methodology. Retaining walls are built through the excavation of a defined trench, or by building wooden forms to create a foundation base. The foundation base supports the retaining wall. Steel reinforcement is then placed in the foundation, prior to placing concrete into the footing. Concrete is placed into the formed retaining wall and vibrated to consolidate in place and to remove any air pockets that formed during the concrete placement.

A mechanically stabilized earth (MSE) wall is a pre-cast system that uses a geogrid or strap attached to the back face of the wall. The geogrid/strap is buried as an anchor behind the wall. The next layer of panels is locked into the prior course, and the geogrid/strap is laid and backfilled, usually in 6-inch to 12-inch layers. The courses of panels or blocks are repeated to the desired elevation. The top of the MSE wall is then capped to tie all top panels together. (See **Exhibit 1A, 2A, and 3A: General Layout Plan.**)

2. SOUND WALLS

Section 1 improvements include three sound walls. The sound wall locations and dimensions were determined from the Noise Assessment for the SOCTIIP EIS/SEIR (December, 2003).

The first soundwall (SW1091/SW001) will mitigate noise impacts to the Camp Pendleton Beach Club and Campground. This 14-foot high sound wall will be constructed along the southbound I-5, south of San Onofre Creek, and will be approximately 3,400 feet long.

The second soundwall (SW1130/SW003) will mitigate noise impacts to the San Onofre Child Development Center, on Camp Pendleton. Constructed adjacent to the Center, this wall is located along northbound I-5 south of Basilone Road, and will be approximately 8 feet tall and 800 feet long.

The third soundwall (SW1181/SW007) will mitigate noise impacts to the Camp Pendleton housing at San Mateo Point. This sound wall will be located along the westerly side of I-5, between Cristianitos Road and San Mateo Creek, and be approximately 16 feet tall and 1,350 feet long.

A fourth soundwall will be constructed in Section 2 adjacent to the SOSOP campground, outside of the Coastal Zone. (See Section 2.)

Construction Methodology. Sound walls are constructed in a similar manner as retaining walls. They provide for the reduction of sound and are generally freestanding with backfill over the footing. To be effective, sound walls are required to have a surface density of at least 83 kilograms per square meter (3.5 pounds per square foot), and have no openings or cracks. They may be a solid wall, an earthen berm, or a combination of the two. They may be constructed of wood studs with stucco exterior, 1/4-inch plate glass, 5/8 inch plexiglas, any masonry material, or a combination of these materials. Wood and other materials may be acceptable if properly designed as sound walls. (See **Exhibit 1A, 2A, and 3A: General Layout Plan.**)



Soundwall Example 1



Soundwall Example 2

G. Landscape Restoration

The contractor will install landscape planting utilizing native vegetation restoration in disturbed areas throughout the corridor to minimize erosion, reduce runoff, provide forage and cover for wildlife, and to provide aesthetically pleasing landscape treatments representative of surrounding communities and local native vegetation patterns.

Non-urban areas of the corridor shall use native, non-invasive, drought tolerant plant species from the scrub, grassland, and chaparral communities of the same general type that occur in the vicinity of the project.

Special landscape enhancement will include measures to soften walls and structures and provide thematic plantings in major urban interchange areas. Permanent irrigation systems will be installed for urban landscape treatment areas.

H. Utility Relocation

No new utilities are proposed within Section 1. There are existing utilities in Section 1 that will require relocation including “wet” utilities and “dry” utilities as shown on Figures 1C, 2C, and 3C. The “wet” utilities to be relocated included waterlines, gas lines, and a sewer main. Relocated “dry” utilities include communication lines (AT&T telephone cable and MCI Fiber optic) and SDG&E electrical lines. All proposed utility relocations will be performed within the project disturbance limit without disruption of customer service. Where necessary, temporary connections will be installed prior to the permanent relocation.

I. Maintenance of Traffic

1. I-5 TRAFFIC

Existing Condition. Through San Clemente and Camp Pendleton, I-5 is an eight lane facility, with four southbound lanes and four northbound lanes. There are on ramps and off ramps in both directions at Cristianitos and Basilone Roads.

Condition During Construction. All lanes will remain open during construction for the majority of time. There will be intermittent night closures to place falsework for the bridges that overcross I-5. These closures will occur approximately between 10:00 p.m. and 5:00 a.m. and will be scheduled and coordinated with Caltrans. Some of the ramps will be total ramp closures for less than 48 hours at a time. Detour signing will be provided. Some overnight detouring of I-5 mainline traffic will be necessary to allow time for such construction activities as erecting and removing falsework for the southbound Connector and Basilone Road overcrossing, as well as the removal of the existing Basilone Road bridge. Overnight detouring of I-5 could include shifting all traffic of I-5 over to one side of the existing I-5 or using the Basilone ramps to exit and then re-enter I-5. Other detouring may be implemented with prior Caltrans approval.

I-5 will be re-striped during construction to allow the placement of falsework and the construction of lanes for the northbound and southbound connectors. K-rail will be placed along the outside and/or inside lanes to protect the public from the adjacent construction.

No disruption to I-5 traffic will occur during peak AM and PM periods. The contractor will place early construction signs on the road to warn the public of construction.

2. BASILONE/I-5 INTERCHANGE

Present Condition. Basilone Road is currently a two-lane bridge over I-5 that provides access to Camp Pendleton, San Onofre Nuclear Generating Station, and San Onofre State Beach. There are northbound and southbound on- and off-ramps to and from the I-5 connecting to Basilone Road. The ramps have two 12-foot lanes and 2-foot, and 4-foot substandard shoulders. There is an existing 5-foot wide sidewalk on the south side of the bridge. The existing Basilone alignment crosses perpendicular to I-5. Just west of the overcrossing is a tight (150-foot radius) curve. To the east of the overcrossing, Basilone Road is on a tangent alignment connecting straight into the gate MCBCP area.

Condition During Construction. The contractor will construct the new Basilone overcrossing structure just north of the existing bridge. While minimal weekend closures may be required to accommodate tie-ins to existing conditions, ramp movements at Basilone Road will remain open during the majority of construction. Occasional required weekend closures will be coordinated with all adjacent property owners, and will occur when traffic volumes are light. One weekend closure for each ramp is anticipated.

In order to construct the new join areas for the Basilone ramps, I-5 will be shifted towards the median in temporary 11-foot wide lanes. The existing median shoulder may need to be reconstructed or rehabilitated in order to accommodate this shift in traffic. The work area on the outside will be protected with temporary K-rail barrier.

Old Pacific Coast Highway within the project area (Basilone Road to Cristianitos Road) will remain open to pedestrian and bicycle traffic as it is today throughout the duration of the project construction, except for temporary single lane closures for minor utility relocations.

3. CRISTIANITOS/I-5 INTERCHANGE

Present Condition. Currently, Cristianitos Road is a two-lane road providing access to San Mateo Campground and Camp Pendleton. There are northbound and southbound on- and off-ramps to Cristianitos Road from Interstate 5.

There will be no construction at the I-5/Cristianitos Road Interchange. Therefore, all existing ramps at Cristianitos Road will remain open during construction.

To the east of the Cristianitos Road/I-5 interchange, portions of Cristianitos Road within and outside the Coastal Zone will be reconstructed to accommodate the construction of the FTC-S roadway. During construction, Cristianitos Road will be kept open to allow access to the campground and to Camp Pendleton. There will be staging required and a temporary Cristianitos detour will be constructed. Traffic will be switched to the temporary roadway while the permanent Cristianitos Road is constructed. We anticipate there will be brief periods of traffic disruption when traffic is switched to and from the temporary road.

J. Beach Access

Vehicular access between Camp Pendleton and Green Beach will be maintained via the existing Beach Club Road.

Trail access from the San Mateo Campground to the beach currently crosses over the Cristianitos Road overcrossing and then proceeds on the south side of I-5 down Old PCH to the beach trail. This trail will remain open throughout construction.

Trail access from the campground to the beach also exists on the north side of I-5, crossing under the San Mateo Creek Bridge. This trail will be temporarily closed to accommodate the construction and removal of falsework for the northbound and southbound connectors. An alternate route via Cristianitos Road will be available. (Also see Section 2, H., Beach Access).

Signs and temporary fencing will guide pedestrians through and around any on-going construction. (See **Exhibit 3: Trail Location.**)

SECTION 2

A small portion of FTC-S Section 2 is within the Coastal Zone. It includes construction of the SR-241 roadway, a portion of the realignment of Cristianitos Road, construction of various retaining and sound walls, and the treatment of roadway and off-site water drainage for this section of SR241. Although outside of the Coastal Zone, construction activities for a stretch north of the zone is also discussed including the construction of the Cristianitos Road overcrossing.

A. Roadway Description

Section 2 begins just north of the northbound and southbound connectors. The roadway pavement for Section 2 will consist of two 12-foot wide northbound lanes and two 12-foot wide southbound lanes. Both northbound and southbound SR-241 will have 10-foot outside shoulders and 5-foot inside shoulders. The median will be unpaved and contain a drainage bio-filtration swale. The swale will be seeded with low growing grasses to reduce erosion.

The Coastal Zone boundary crosses Section 2 at a sharp angle near the San Diego and Orange County line, and does not correspond with the design section boundary. Only a small portion of the southwest end of Section 2 lies within the Coastal Zone. Within Section 2, the portion of the roadways within the Coastal Zone are the most southerly approximately 600 feet of the northbound connector and 900 feet of the southbound connector and the most southerly approximately 1000 feet of realigned Cristianitos road.

Approximately 2,000 feet north of the Section 2 limit is the future Cristianitos Road interchange. This interchange is outside of the Coastal Zone. The interchange configuration is a half diamond which provides a northbound SR-241 on-ramp from Cristianitos Road, and a southbound SR-241 off-ramp to Cristianitos Road. Both ramps will have one 12-foot wide lane at their connection points to the SR-241 but will have two 12-foot wide lanes at their connection points to Cristianitos Road. Both ramps will have a 4-foot inside shoulder and an 8 or 10-foot outside shoulder. The northbound on-ramp will include the placement of a sound wall.

Cristianitos Road will be re-aligned to cross over the new SR-241 alignment. The re-alignment will begin at the El Camino Real intersection and end at the entrance to San Mateo Campground. The entire re-alignment is 4,950 feet long. The first 700 feet of the re-alignment is within the Coastal Zone. The existing Cristianitos Road cross section has two 12-foot wide lanes with 8-foot outside shoulders. The proposed cross section will maintain the existing cross section with two changes: the addition of an 8-foot sidewalk on the northbound side, and the addition of a left turn pocket at the interchange area to allow traffic turning left onto the northbound on-ramp to have a separate dedicated lane. The northbound on-ramp from Cristianitos Road will add a third 12-foot wide northbound lane on SR-241 as a climbing lane. The SR-241 profile has a grade of about 4% towards the north. This lane will be used to accommodate slow moving vehicles.

B. Grading

The grading limits for Section 2 will be completely within the disturbance limit lines set in the environmental document. The grading disturbance area in Section 2 within the Coastal Zone is 9 acres. The preliminary earthwork quantities require 300,000 cubic yards of excavation and 5,000 cubic yards of fill within the Coastal Zone. Excess cut in this area will be used as fill in either Section 1 or other areas within Section 2.

Standard mass grading cut/fill operations will be utilized to achieve final road grades. Grading activities will be performed using bulldozers, loaders, trucks, roller compactors, scrapers and water trucks, and motor graders.

Remedial grading will be required to remove any unsuitable material under areas proposed to receive fill. Remedial removal depths are anticipated to range from 5 to 10-feet below existing grade. Remedial grading may also be required in cut areas if unstable slope conditions are determined to be present. All remedial grading will occur within the project DLL.

C. Structures

The future Cristianitos Road Overcrossing lies approximately 500 feet outside of the Coastal Zone and is the closest structure to the Coastal Zone Boundary. Although this structure is outside the Coastal Zone, a description is provided for reference below.

The Cristianitos Road Overcrossing will be a four span cast-in-place pre-stressed concrete box girder structure. It will be founded on pile supported cantilever abutments. The intermediate bents will be either pile supported footings, or large diameter concrete shafts. The intermediate bents are currently proposed to be single column bents with oblong column shapes (7-foot by 10½-foot). The bridge will be approximately 400 feet in length and 70 feet wide. The structure will cross SR-241 at a skew of approximately 70 degrees.

Construction Methodology. The overcrossing will be a typical CIP/PS Concrete Box Girder bridge, with two abutments, and three single column bent locations. Foundations for the support locations are anticipated to be pile foundations or spread footings. Some grading at each abutment is expected to receive the abutment forms, however the material generated will be minimal.

Traffic will be temporarily diverted around the construction area to allow for the construction of falsework and the pouring of concrete to construct the bridge.

The bridge will match the existing 12-foot lanes with the addition of an 8-foot sidewalk on the south side of the bridge, and a 12-foot pocket turn lane to enhance traffic flow.

A 6-inch water line will be relocated and directed through the interior space of the newly constructed bridge.

D. Storm Water Drainage and Water Quality

Storm water runoff north of San Mateo Creek currently flows southward into the stream. Erosion over time has produced hillside, streams, and gullies that collect and concentrate the flow. In general, the offsite (non-roadway) drainage along SR-241 in this area will consist of cross-drainage where runoff generated uphill of the roadway will be passed under the roadway via culverts at concentrated flow areas.

On-site (roadway) runoff in this area will be conveyed to treatment BMP's via storm drain systems equipped with flow splitters that capture and convey the initial water quality flows to the BMPs, and allow peak flows to continue on their original flow path. Treatment BMPs in this vicinity include a ~~detention sand filter~~ basin and a series of bio-filtration swales.

1. CROSS DRAINAGE (OFF-SITE)

Existing Conditions. The drainage area for Section 2 is located along the north bank of San Mateo Creek, at the downstream end of the watershed. In this area, storm water runoff sheet flows southward down the hillside to the creek. In some cases, the sheet flow concentrates and forms small streams and gullies that convey the flow to the creek.

Cross Drainage Improvements. The proposed off-site system will consist of culverts and longitudinal ditches that intercept and convey surface water generated uphill of SR-241 under and across the roadway to existing watercourses. The culverts are designed to pass the 10-year flood without causing the headwater elevation to rise above the inlet top of culvert and to pass the 100-year flood without causing objectionable backwater depths, outlet velocities, or ponded water outside the right-of-way. One 36-inch cross-culvert is proposed where a major flow path is located along the hillside approximately 5,000 feet north of the San Mateo Creek crossing and outside of the Coastal Zone. South of this location, off-site runoff consists mainly of sheet flow that is intercepted and conveyed through a storm drain system to an outlet at an existing riprap lined section of San Mateo Creek (located immediately north of I-5 in the CZ).

Construction Methodology. Since much of this area is adjacent to San Mateo Creek, construction will require specific temporary best management practices BMPs for work above and adjacent to waterways. These include:

1. Minimizing demolition and construction activities adjacent to the creek and creek bed during the wet season.
2. Use of non-shattering demolition methods that would normally scatter debris.
3. Securing all materials adjacent to the creek to prevent discharges into the channel via wind.
4. Using attachments on equipment to catch debris from small demolition operations.
5. Stockpiling accumulated debris and waste generated from demolition away from the creek.
6. Isolating work areas within the creek from flow using sheet piling, k-rails or other practice methods of isolation.
7. Using drip pans during equipment operation, maintenance, cleaning, fueling and storage for spill prevention.

8. Keeping equipment used leak-free. Equipment in the creek bed will be limited and only permitted when in use and as required. No equipment will be allowed to operate in standing or running water. Water will be temporarily routed around the required construction area. Areas requiring the crossing of water will be bridged over for the equipment access. Type of equipment would include pickup trucks, trucks, backhoes, excavators, scrapers, and cranes. Construction operations within the creeks will comply with the various permitting agency requirements regarding approved times of the year for work within the creeks.
9. Directing water from concrete curing and finishing operations away from inlets and water courses to collection areas for dewatering.

2. ROADWAY DRAINAGE (ON-SITE)

Existing Conditions. This section of SR-241 includes a reconfiguration of Cristianitos Road. Along the existing Cristianitos Road, pavement drainage flows via sheet flow to the adjacent hillside (north bank of San Mateo Creek) and is presently untreated.

Proposed Conditions. On-site runoff in this area will be conveyed to treatment BMPs via two storm drain systems

The first system includes a series of pipelines that direct flow from the shoulders into the median where a series of 300-foot long bio-filtration swales will treat the runoff. There are 400 lineal feet of biofiltration swales within the Coastal Zone and 1,300 lineal feet outside the Coastal Zone. The swales will outlet into grated catch basins that connect to the offsite cross drainage system described above (which ultimately outlets to San Mateo Creek).

The next system includes a storm drain system that intercepts and conveys on-site runoff to a 1 acre-ft EDB-SFB 3 located 2500 feet north of the San Mateo Creek crossing and 1,500 feet outside the Coastal Zone. This system is equipped with flow splitters that convey water quality flows to the EDBSFB. The -EDSFB then outlets into the off-site storm drain system.

Construction Methodology. During construction, temporary best management practices (BMPs) for water pollution control along the freeway will be in place and maintained. Control procedures include placement of mulch on inactive disturbed areas, fiber rolls along slopes, silt fences at the boundaries of the construction site, stabilized construction entrances, check dams placed strategically to reduce flow velocity and to filter flows in defined drainage-ways, drain inlet protection, and designated concrete washout areas. Fiber rolls are standard practice for Caltrans and are part of the standard SWPPP. The details of the Storm Water Pollution Prevention Plan (SWPPP) have not been developed yet, but will conform to the latest Caltrans requirements/standards.

E. Walls

Various retaining walls, sound walls, and wildlife management walls are proposed within Section 2, in accordance with both geometric and environmental needs. All designs will be masonry or concrete and per Caltrans design criteria, approved by the various agencies. (See **Exhibit 1A, 2A, and 3A: General Layout Plan.**)

1. RETAINING WALLS

There are two retaining walls along the northbound lanes of Section 2, supporting the roadway fill from encroaching into San Mateo Creek. These walls are proposed to be Mechanically Stabilized Earth (MSE) walls and are approximately 30 feet high. Three walls are within the Coastal Zone. The first wall along the northbound connector is 280 feet long with a maximum height of 35 feet. The second wall is in the median along the southbound connector and is 1,000 feet long with a maximum height of 15 feet. The third wall inside the Coastal Zone is 450 feet long with a maximum height of 20 feet. This third wall extends beyond the Coastal Zone for another 250 feet with a maximum height of 20 feet. Other walls are located in cut locations along the southbound off ramp located approximately 2,700 feet outside the Coastal Zone to protect the realigned Cristianitos road. These cut walls will be approximately 25 feet high. The wall designs may be a Soil Nail or Tie back system, to minimize the excavation or temporary shoring associated with conventional retaining walls or MSE walls. All construction will be within the disturbance limits.

Construction Methodology. Retaining walls are built by excavating a defined trench, or building wooden forms to create a foundation base. The foundation supports the retaining wall to be built. Steel rebar is placed in the foundation prior to placing concrete into the footing. Concrete is then placed into the formed retaining wall.

A mechanically stabilized earth (MSE) Wall is a pre-cast system that uses a geogrid/strap system attached to the back of the wall and the geogrid/strap is buried as an anchor behind the wall. The next layer of the wall is then locked into the prior course, the geogrid/strap is laid and backfilled, usually in 6-inch to 12-inch layers. The courses of panels or blocks are repeated to the desired elevation. The top of the MSE wall is then capped to tie all top panels together. (See **Exhibit 1A, 2A, and 3A: General Layout Plan.**)

2. SOUND WALLS

The sound wall in Section 2 (SW009) will be located outside the Coastal Zone. It will mitigate noise impacts to the San Mateo Campground and is located along Cristianitos Road northbound on-ramp to SR-241 and continue along the northbound SR-241 edge of shoulder. The wall will be approximately 4,000 feet long with a maximum height of 14 feet. The final recommendation for the length will come from the Caltrans approved Noise Study currently underway.

Construction Methodology. Sound walls are constructed in a similar manner as retaining walls. However, they provide for the mitigation of sound only and are generally freestanding with backfill over the footing. To be effective, sound walls are required to have a surface density of at least 3.5 pounds per square foot, and have no openings or cracks. They may be a solid wall, an earthen berm, or a combination of the two. They may be constructed of wood studs with stucco exterior, 1/4-inch plate glass, 5/8-inch plexiglas, any masonry material, or a combination of these materials. Wood and other materials may be acceptable if properly designed as sound walls. (See **Exhibit 1A, 2A, and 3A: General Layout Plan.**)

3. MOUSE BARRIER

The project's contractor will construct a "mouse barrier wall" along the western side of the project within Section 2 to mitigate the potential of a Pacific Pocket Mouse (PPM) crossing into the alignment and being hit by a vehicle. A mouse undercrossing will be located at the southern end of the mouse wall to provide a safe crossing point under Cristianitos Road. A drainage culvert will be located at the northern end of the mouse wall to provide the same.

The mouse barrier wall will be a block wall 18 inches high with a chain link fence on top. The chain link fence will represent the Caltrans right of way for the section along the southbound off-ramp. The mouse barrier wall will be 5,900 feet long. A portion of the mouse barrier (approximately 960 feet) will be a retaining wall with the Caltrans right of way. This retaining wall portion will have a maximum height of about 25 feet. 1,600 feet of the mouse wall will be located within the Coastal Zone.

During construction, a temporary barrier will be constructed along the western disturbance limit line of Section 2 to keep PPM out of the construction zone. This temporary barrier will be a silt fence, and be left in place until the final mouse barrier wall and culvert crossings are complete (1 to 1 ½ years).

Revisions to the construction plans for the mouse barrier may change per the requirements of a pending Biological Opinion.

Construction Methodology. Because of the sensitive nature of PPM habitat, it is suggested that biologists survey the area for any signs of PPM in the construction area. If there are plants or animals of concern, relocation should be done to remove the species from construction area.

The footing for the Mouse Barrier Wall will be excavated by backhoe. Excess earth will be loaded in a truck and removed. A concrete foundation masonry block will be laid by hand to form the wall, and fence poles or pole sleeves will be installed during the wall construction. A fencing company will stretch the fence fabric. Fencing will be installed on top of this wall.

Culverts will be installed by excavating a trench and placing the culvert on grade. Excavation will be done using a backhoe. Earth generated by excavation activities will be used as backfill with any excess material used for adjacent fills.

Revisions to the construction methodology of the mouse barrier may change per the requirements of a pending Biological Opinion. (See **Exhibit 1A, 2A, and 3A: General Layout Plan.**)

F. Landscape Restoration

The project's contractor will install landscape planting utilizing vegetation restoration in disturbed areas throughout the corridor to minimize erosion, reduce runoff, provide forage and cover for wildlife, and to provide aesthetically pleasing landscape treatments representative of surrounding communities and local native vegetation patterns.

G. Utility Relocation

No new utilities are proposed within Section 2. There are existing utilities in Section 2 that will require relocation including “wet” utilities and “dry” utilities as shown on Figures 1C, 2C, and 3C. The “wet” utilities to be relocated include a waterline and sewer lines. Relocated “dry” utilities include communication lines (AT&T and Cox and MCI Fiber optic) and SDG&E electrical lines.

H. Beach Access

There is an existing dirt trail that connects the San Mateo Campground to the Cristianitos/Old PCH paved trail to Trestles Beach south of I-5. The trail will be relocated along the northbound side of Cristianitos Road in the form of an 8-foot sidewalk placed behind temporary concrete barrier (K-rail). Near the south end of Section 2, by El Camino Real, the concrete sidewalk will again match up with the existing Cristianitos/Old PCH trail all the way to Trestles Beach. At no time during the construction of this project shall the paved Cristianitos/Old PCH trail be closed.

EXHIBITS

Exhibit 1A: General Layout Plan

Exhibit 2A: General Layout Plan

Exhibit 3A: General Layout Plan

Exhibit 1B: Grading and Disturbance Plan

Exhibit 2B: Grading and Disturbance Plan

Exhibit 3B: Grading and Disturbance Plan

Exhibit 1C: Utility Plan

Exhibit 2C: Utility Plan

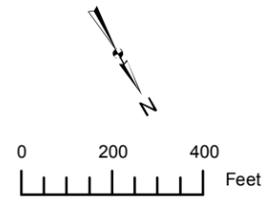
Exhibit 3C: Utility Plan

Exhibit 3: Trail Location

**SECTION 1
FOOTHILL TRANSPORTATION CORRIDOR - SOUTH
GENERAL LAYOUT PLAN
REVISED EXHIBIT 2A
AUGUST, 2007**

Legend

-  Coastal Zone Boundary
-  Mouse Barrier
-  Retaining Wall
-  Sound Wall
-  Bridge
-  Water Quality Basin
-  Disturbance Limits
-  Culvert



TRESTLES BEACH

Burlington Northern Santa Fe & AMTRAK Railway

San Mateo Creek

SAN DIEGO COUNTY
ORANGE COUNTY

CITY OF
SAN CLEMENTE

MARINE CORPS BASE
CAMP PENDLETON

COASTAL ZONE BOUNDARY

I-5 SB

I-5 NB

Old Pacific Coast Highway

SR-241

Cristianitos Rd.

I-5 SB

I-5 NB

Proposed SR-241 SB Connector

Proposed SB Off-Ramp

Proposed Access Road

Proposed SR-241 NB Connector

Proposed Access Road Undercrossing

Proposed Camp Pendleton San Onofre Gate

Proposed NB On-Ramp

Proposed Sand Filter Basin #2

Proposed SR-241 NB Connector

Proposed Green Beach Access Road

I-5 SB / San Mateo Creek Bridge

I-5 NB / San Mateo Creek Bridge

Military Housing

MATCHLINE - SEE EXHIBIT 3A

MATCHLINE - SEE EXHIBIT 1A

RW1149

RW1151

RW1153

RW1154

RW1152

RW1148

RW1150

RW1154

RW1177

RW1179

SW1161

CITY OF
SAN CLEMENTE

Orange County
San Diego County

MARINE CORPS BASE
CAMP PENDLETON

SB I-5
NB I-5

Existing
Public Parking

Proposed
SB Off-Ramp

Proposed Lower San Mateo
Wildlife Undercrossing

Proposed
NB On-Ramp

SR-241 SB
SR-241 NB

Proposed
Cristianitos Rd.
Overcrossing

Proposed
Sand Filter
Basin #3

Cristianitos Rd.

SW1249

Proposed
Extended
Detention
Basin #4

San Mateo State Beach Campground

Utility Pole

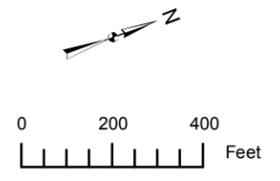
MARINE CORPS BASE
CAMP PENDLETON

COASTAL ZONE BOUNDARY

**SECTION 1 & 2
FOOTHILL TRANSPORTATION CORRIDOR - SOUTH
GENERAL LAYOUT PLAN
REVISED EXHIBIT 3A
AUGUST, 2007**

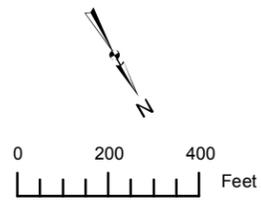
Legend

-  Coastal Zone Boundary
-  Mouse Barrier
-  Retaining Wall
-  Sound Wall
-  Bridge
-  Water Quality Basin
-  Disturbance Limits
-  Culvert



Legend

- Coastal Zone Boundary
- Limits of Grading
- Limits of Disturbance
- Limits of Cut
- Limits of Fill



SURFER BEACH

GREEN BEACH

MARINE CORPS BASE
CAMP PENDLETON

COASTAL ZONE BOUNDARY

Burlington Northern Santa Fe & AMTRAK Railway

Old Pacific Coast Highway

I-5 SB
I-5 NB

Military Access Rd.

Beach Club Rd.

San Onofre Creek

Basilone Rd.

Proposed San Onofre Creek Bridge Widening

Proposed SR-241 SB Connector

Proposed SB On-Ramp

Proposed Basilone Road Overcrossing

Proposed Sand Filter Basin #1

Proposed San Onofre Creek Bridge Widening

Proposed SR-241 NB Connector

Proposed NB Off-Ramp

Proposed Access Road Undercrossing

Proposed Camp Pendleton San Onofre Gate

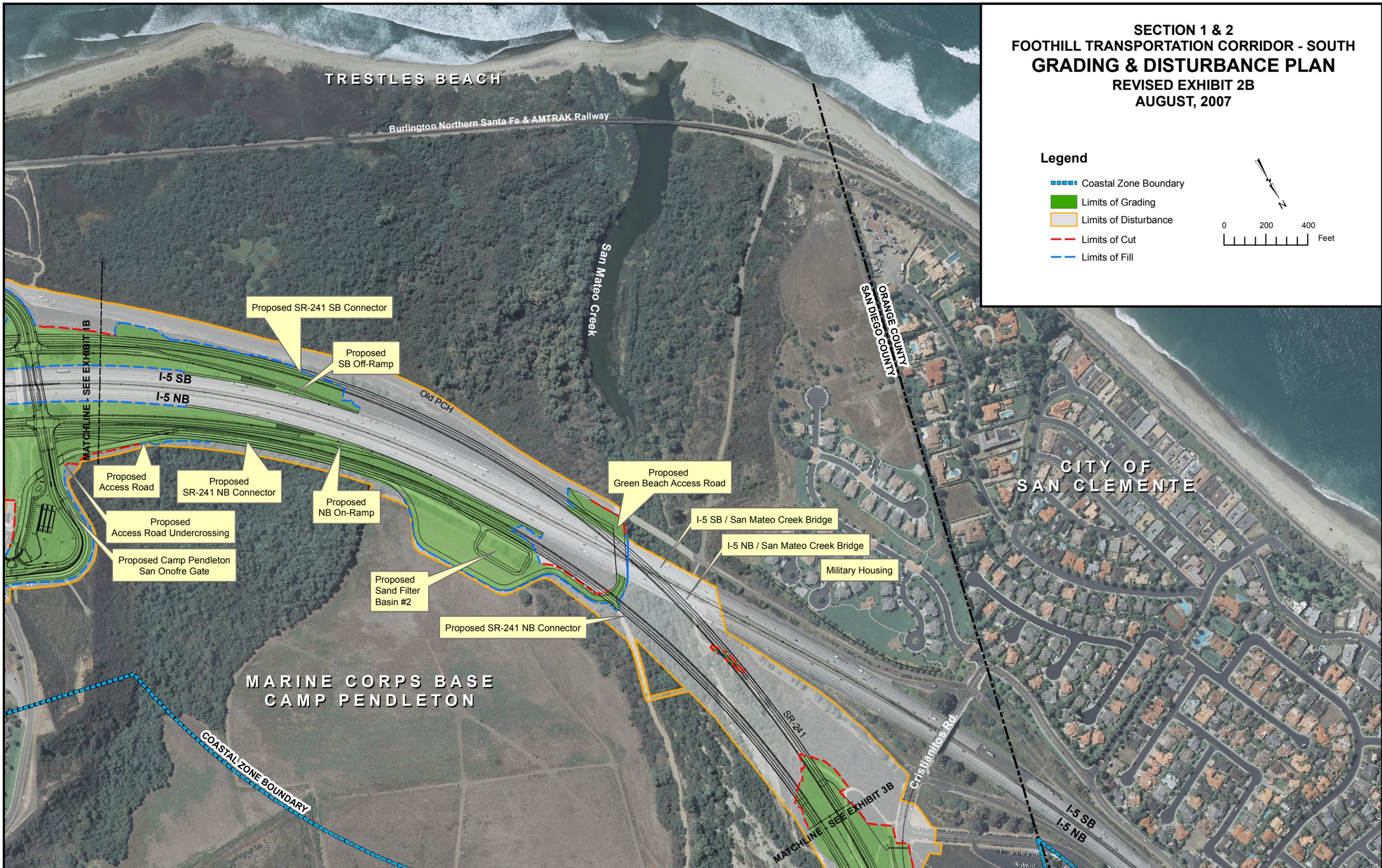
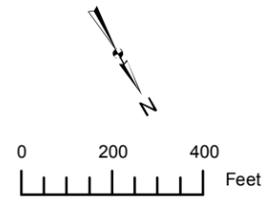
MATCHLINE - EXHIBIT 2B

SECTION 1
FOOTHILL TRANSPORTATION CORRIDOR - SOUTH
GRADING & DISTURBANCE PLAN
REVISED EXHIBIT 1B
AUGUST, 2007

SECTION 1 & 2
 FOOTHILL TRANSPORTATION CORRIDOR - SOUTH
GRADING & DISTURBANCE PLAN
 REVISED EXHIBIT 2B
 AUGUST, 2007

Legend

-  Coastal Zone Boundary
-  Limits of Grading
-  Limits of Disturbance
-  Limits of Cut
-  Limits of Fill



CITY OF
SAN CLEMENTE

Orange County
San Diego County

MARINE CORPS BASE
CAMP PENDLETON

SB I-5
NB I-5

Existing
Public Parking

Proposed
SB Off-Ramp

Proposed Lower San Mateo
Wildlife Undercrossing

Proposed
NB On-Ramp

SR-241 SB
SR-241 NB

Proposed
Cristianitos Rd.
Overcrossing

Cristianitos Rd.

Proposed
Sand Filter
Basin #3

Proposed
Extended
Detention
Basin #4

San Mateo State Beach Campground

MARINE CORPS BASE
CAMP PENDLETON

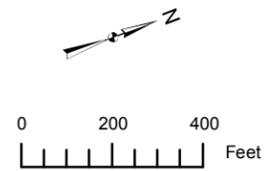
Utility Pole

COASTAL ZONE BOUNDARY

**SECTION 1 & 2
FOOTHILL TRANSPORTATION CORRIDOR - SOUTH
GRADING & DISTURBANCE PLAN
REVISED EXHIBIT 3B
AUGUST, 2007**

Legend

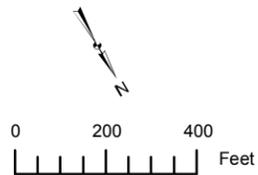
- ▬▬▬ Coastal Zone Boundary
- Limits of Grading
- Limits of Disturbance
- - - Limits of Cut
- - - Limits of Fill



SECTION 1
SECTION 2
SECTION 3
SECTION 4
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SECTION 100

Legend

- Proposed Electrical
- Proposed Communications
- Proposed Gas
- Proposed Sewer
- Proposed Water
- - - Coastal Zone Boundary
- - - Existing Utility



SURFER BEACH

GREEN BEACH

MARINE CORPS BASE
CAMP PENDLETON

Burlington Northern Santa Fe & AMTRAK Railway

Old Pacific Coast Highway

I-5 SB
I-5 NB

Military Access Rd.

COASTAL ZONE BOUNDARY

Beach Club Rd.

San Onofre Creek

Beach Club Rd.

Basilone Rd.

Proposed San Onofre Creek
Bridge Widening

Proposed Sand Filter
Basin #1

Proposed San Onofre Creek
Bridge Widening

Proposed SR-241 SB Connector

Proposed SR-241 NB Connector

Proposed SB On-Ramp

Proposed NB Off-Ramp

Proposed Basilone Road
Overcrossing

Proposed Access Road
Undercrossing

Proposed Camp Pendleton
San Onofre Gate

MATCHLINE - EXHIBIT 2C

SECTION 1
FOOTHILL TRANSPORTATION CORRIDOR - SOUTH
UTILITY PLAN
REVISED EXHIBIT 1C
AUGUST, 2007

CITY OF
SAN CLEMENTE

Orange County
San Diego County

MARINE CORPS BASE
CAMP PENDLETON

SB I-5
NB I-5

Existing Public
Parking

Proposed
SB Off-Ramp

Proposed
NB On-Ramp

Proposed Lower San Mateo
Wildlife Undercrossing

Proposed
Cristianitos Rd.
Overcrossing

Proposed
Sand Filter
Basin #3

Cristianitos Rd.

SR-241 SB
SR-241 NB

Proposed
Extended
Detention
Basin #4

San Mateo State Beach Campground

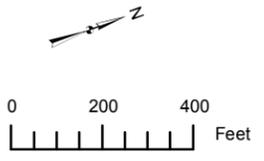
Utility Pole

MARINE CORPS BASE
CAMP PENDLETON

SECTION 1 & 2
FOOTHILL TRANSPORTATION CORRIDOR - SOUTH
UTILITY PLAN
REVISED EXHIBIT 3C
AUGUST, 2007

Legend

- Proposed Electrical
- Proposed Communications
- Proposed Gas
- Proposed Sewer
- Proposed Water
- - - - Coastal Zone Boundary
- - - - Existing Utility



MATCHLINE SECTION 1
SECTION 2
EXHIBIT 3C

COASTAL ZONE BOUNDARY

CITY OF
SAN CLEMENTE

Orange County
San Diego County

MARINE CORPS BASE
CAMP PENDLETON

SB I-5
NB I-5

Existing Public
Parking

Proposed
SB Off-Ramp

Proposed
NB On-Ramp

Proposed Lower San Mateo
Wildlife Undercrossing

Proposed
Cristianitos Rd.
Overcrossing

Proposed
Sand Filter
Basin #3

Cristianitos Rd.

SR-241 SB
SR-241 NB

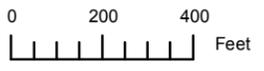
Proposed
Extended
Detention
Basin #4

San Mateo State Beach Campground

Utility Pole

MARINE CORPS BASE
CAMP PENDLETON

SECTION 1 & 2
FOOTHILL TRANSPORTATION CORRIDOR - SOUTH
UTILITY PLAN
REVISED EXHIBIT 3C
AUGUST, 2007



Legend

-  Proposed Electrical
-  Proposed Communications
-  Proposed Gas
-  Proposed Sewer
-  Proposed Water
-  Coastal Zone Boundary
-  Existing Utility

MATCHLINE SECTION 1
SECTION 2
EXHIBIT 3C

COASTAL ZONE BOUNDARY

