

## CALIFORNIA COASTAL COMMISSION

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Click here to go to the staff  
report following the added  
correspondence received.



# W 25a

# Correspondence

**CD-061-10, U.S. Army Corps of Engineers, Pismo Beach**

**Attached are letters from John Belsher and David Tilton**

John W. Belsher  
Howard M. Becker  
Steven P. Roberts  
Gregory A. Connell



Belsher, Becker & Roberts  
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412 Marsh Street  
San Luis Obispo, CA 93401

February 25, 2011

Larry Smith  
U.S. Army Corps of Engineers  
P.O. Box 532711  
Los Angeles, California 90053-2325

**RE: Vista Del Mar Army Corp SeaWall Proposal  
(CD-061-10) Pismo Beach Shoreline Protection**

Dear Larry:

This firm represents neighbors to the proposed project to protect against erosion threatening the Vista Del Mar Lift Station and the adjoining public access improvements. Thank you for taking the time to discuss the project with me. It is my understanding that based on references you gave me, (§4.7.2.3 and the diagrams on page 14 of your environmental assessment) it is the intent of the Army Corp to include within the proposed bluff top protection construction behind the existing stairs which will protect the public access facility currently in place. We appreciate that the Army Corp will be working with the City of Pismo Beach on a design to accomplish this.

My clients wish to emphasize that the steps that you are proposing are important to protection of this public access. My clients have witnessed numerous failures of the slope in this area which have reduced the amount of public park and have threatened the public access for pedestrians and vehicles along this stretch of coastline.

As you are aware, this area is heavily used by the public and the staircase is used by many residents and visitors to Pismo Beach. We appreciate your efforts to protect the stairs as well as the lift station and other public improvements.

Sincerely,

A handwritten signature in black ink, appearing to read 'John W. Belsher', with a stylized flourish at the end.

John W. Belsher

JWB/ab

cc: California Costal Commission, San Francisco office  
clients (via email)

David Tilton  
2091 Shoreline Drive  
Pismo Beach, Ca 93449

**RECEIVED**  
MAR 03 2011  
CALIFORNIA  
COASTAL COMMISSION

March 2, 2011

VIA FACSIMILE 415-904-5400

California Coastal Commission  
45 Fremont St., Suite 2000  
San Francisco, CA 94105-2219  
[Coast4u@coastal.ca.gov](mailto:Coast4u@coastal.ca.gov)

RE: CD-061-10 Army Corps of Engineers Shoreline Protection at Vista Del Mar Ave.  
and Ocean Blvd.

Dear Coastal Commissioners:

I am a property owner with a house in the vicinity of the proposed referenced project. The beach at Vista Del Mar and Ocean Blvd. is a popular and frequently used public beach. The stairs down the bluff are used on a regular basis by the neighborhood, tourists and school children.

The bluff top has suffered a great deal of loss of surface area which is threatening the pedestrian walkways as well as roadway which many use as the only access to their homes. I am aware of the Army Corps plan to repair and install protection for the Vista Del Mar lift station. Without the proposed shoreline protection, we are certain to lose more of this precious resource, including the public stairs which adjoin and are included in the bluff top to be protected.

We encourage you to act swiftly to approve the proposed project and applaud the Army Corps for taking steps to protect this precious public resource.

Sincerely,



cc: Larry Smith, Army Corps of Engineers  
P. O. Box 532711  
Los Angeles, Ca 90053-2325  
[PublicAffairs.SPL@usace.army.mil](mailto:PublicAffairs.SPL@usace.army.mil) (Attention Larry Smith)

## CALIFORNIA COASTAL COMMISSION

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# W 25a

**REVISED STAFF RECOMMENDATION****ON CONSISTENCY DETERMINATION**

Consistency Determination No.	CD-061-10
Staff:	MPD-SF
File Date:	11/16/10
60 <sup>th</sup> Day:	1/16/11
75 <sup>th</sup> Day:	1/30/11
Extended to:	3/11/11
Commission Meeting:	3/9/11

**FEDERAL AGENCY:**      **U.S. Army Corps of Engineers**

**PROJECT**  
**LOCATION:**

St. Andrews Lift Station (seaward of Seacliff Dr. and Baker Ave.) and Vista del Mar Lift Station (seaward of Vista del Mar Ave. and Ocean Blvd.), Shell Beach area of Pismo Beach, San Luis Obispo Co. (Exhibits 1-4)

**PROJECT**  
**DESCRIPTION:**

Construction of a shoreline armoring consisting of vertical walls at the two lift stations (at the Vista del Mar Lift Station) (Exhibits 5-7)

**SUBSTANTIVE**  
**FILE DOCUMENTS:**

See Page 28

**Staff Recommendation:**      **Objection.** Motion is on p. 8.

**List of Exhibits**

Exhibits 1 & 2 – Location Maps  
Exhibit 3 – St. Andrews Site  
Exhibit 4 – Vista del Mar Site  
Exhibit 5 – St. Andrews - Revetment  
Exhibit 6 – St. Andrews Site – Vertical Wall  
Exhibit 7 – Vista del Mar Site – Vertical Wall

Exhibit 8 – St. Andrews Site – Aerial Photo (from Corps, courtesy of the California Coastal Records Project)  
Exhibit 9 – Existing Vertical Wall at Florin St. in Pismo Beach  
Exhibit 10 – St. Andrews Site – Biological Resources  
Exhibit 11 – Vista del Mar Site – Biological Resources  
Exhibit 12 – St. Andrews Site – Staging Areas  
Exhibit 13 – Vista del Mar Site – Staging Areas  
Exhibit 14 – Project Details  
Exhibit 15 – Anticipated Truck Trips  
Exhibit 16 – Letter, National Marine Fisheries Service  
Exhibit 17 – Letter, Sierra Club  
Exhibit 18 – Letter, Surfrider Foundation  
Exhibit 19 – Letter, CCC staff to Corps, December 13, 2010  
Exhibit 20 – Corps Response to CCC staff questions, January 24, 2011  
Exhibit 21 – Corps Response to CCC staff recommendation, February 2, 2011  
Exhibit 22 – Corps February 16, 2011, Response to February 4, 2011, COE/CCC staff discussion  
Exhibit 23 – Corps Cross Section and Erosion Rates, St. Andrews Site  
Exhibit 24 – Corps Cross Section and Erosion Rates, Vista del Mar Site  
Exhibit 25 – Aerial Photo with Infrastructure (Water and Sewer Lines), St. Andrews Site  
Exhibit 26 – Aerial Photo with Infrastructure (Water and Sewer Lines), Vista del Mar Site  
Exhibit 27 – Ex parte forms

### **EXECUTIVE SUMMARY**

The U.S. Army Corps of Engineers (Corps) proposes to construct shoreline armoring structures to protect existing utility infrastructure at two locations in Shell Beach/Pismo Beach. At the first of the two sites, the St. Andrews Lift Station, the Corps initially proposed a rock revetment; however in response to concerns raised by the Commission staff, and after further discussion with the City of Pismo Beach, the Corps now indicates its preference for a vertical wall. At the second site, the Vista del Mar Lift Station, the Corps also proposes a vertical wall, and the Corps further states that “sculpted” designs for both walls, similar to the Commission-approved vertical wall, built in 2004, upcoast at the end of Florin St. in Pismo Beach, are feasible alternatives. Thus, the Corps is now proposing “sculpted” vertical walls at both sites.

The Corps examined a total of six sites in Pismo Beach in need of protection which it characterizes as “dangerously eroding,” although it indicates it only has funding at this time for the westernmost two of the six sites. The six sites are, west to east: (1) St. Andrews Lift Station; (2) Vista del Mar Lift Station; (3) Ocean Park; (4) Price Street – North; (5) Price Street – South; and (6) Cypress Street Lift Station (Exhibit 2). The Corps maintains that shoreline protection measures are necessary to protect existing structures at each of these sites, stating:

*The six sites proposed for protection are suffering severe and accelerating erosion. At each of the sites, roadways, utilities, and/or parks and in some cases houses are threatened. Bluff protection in the past has consisted of a hodgepodge of emergency*

*measures, such as revetments and seawalls that are unsightly and ineffective. The erosion also makes it difficult and unsafe for the public to access the shoreline. Bluff erosion is an ongoing dynamic process that will continue to impact the Pismo Bluffs. On-going retreat is likely to continue to encroach upon existing structures located above the seacliff, undermine coastal stairways and seawalls, and erode adjacent lands, reducing building setbacks. At these sites, increased erosion eventually will result in the loss of utilities, park space and roads, and the construction of stopgap emergency protective structures. For example, Price Street likely will be damaged by erosion within the next decade, and Highway 101 also is in jeopardy. Protection of the bluff toe is needed to keep the seacliffs at these sites from additional wave erosion.*

Since only two of the six projects are actually proposed at this time, the Commission is limiting its review of the projects' consistency with the Coastal Act to only the two proposed (i.e., the St. Andrews and Vista del Mar Lift Station sites).

The Commission has consistently interpreted the policies in Chapter Three of the Coastal Act, including the specific shoreline protection policy (Section 30235), as limiting the construction of shoreline protective structures to those required to protect existing structures or public beaches in danger from erosion. Section 30235 also requires that any protective structure approved pursuant to that section be designed to eliminate or mitigate its adverse impacts on shoreline sand supply. Shoreline protective device proponents tend to propose hard structures prior to evaluating non-structural alternatives, or without fully evaluating all the causes of erosion problems. Section 302535 requires that new development avoiding creating or contributing to erosion. Due to their adverse effects on coastal processes in general, and the large number of such devices proposed and built throughout the California coast over the past four decades, the Commission's policy over time has increasingly been to scrutinize whether the structures are in fact needed, whether the erosion problems cited have been accurately characterized, whether managed retreat and other non-structural alternatives have truly been investigated before concluding that a "hard" structure is needed, whether the life of a shoreline structure, both in terms of its size and expected duration, is properly correlated with the life of the existing structure it is meant to protect, and whether its impacts on sand supply, recreation, and other coastal resources, have been adequately mitigated.

Thus, in interpreting Section 30235, the Commission historically considers: (1) whether there is an existing structure; (2) whether the existing structure is in danger from erosion, and if so, the degree of threat; (3) whether shoreline-altering construction is required to protect the existing threatened structure, which necessarily entails an examination of alternatives, including "managed retreat" and other non-armoring alternatives to a proposed armoring project; and (4) whether the proposed protection is designed to eliminate or mitigate its adverse impacts on shoreline sand supply. Moreover, additional Coastal Act policies come into play because shoreline structures typically result in adverse impacts on a number of coastal processes and resources. These policies include the public access and recreation (Sections 30210-30223 and

30240(b)), scenic coastal public views (Section 30251), environmentally sensitive habitat (Section 30240), marine resources (Section 30230), and water quality (Section 30231) policies of the Coastal Act.

In order to determine the project's consistency with these policies, after reviewing the Corps' initial submittal the Commission staff requested substantial additional information, initially in a letter dated December 13, 2010 (Exhibit 19), and after receiving the Corps responses, several additional exchanges of questions and information ensued. The requests included consideration of alternative wall designs, non-structural alternatives, and mitigation measures, and covered the following issues:

1. Project Plans, Including Aesthetic Treatment
2. More Details Concerning Project Need and Alternatives
3. Revised Vertical Wall Design
4. Recurved Wall
5. Assuring Wall Toe Keyed to Bedrock
6. Fixing the Location of the Back Beach/Public Access or Sand Supply Mitigation
7. Verification of Assumed Nearshore Slope
8. Sand Used for Backfill
9. Intertidal Impacts Monitoring
10. Environmentally Sensitive Habitat Monitoring
11. Public Access Improvements
12. Water Quality Improvements

The Corps' responses and additional information are contained in Exhibits 20-26.

Based on all the information now submitted, the project is inconsistent with Section 30235 because: (1) the project is a seawall that would alter natural shoreline processes and is therefore subject to the requirements of Section 30235; and (2) the project is not required to protect existing structures in danger from erosion. The question of whether the project is necessary to protect an existing structure in danger from erosion hinges on the following factors: (1) whether the structures are threatened within a relatively short time frame, as articulated in past Commission decisions (see p. 19-20); and (2) whether feasible less damaging alternatives are available that would avoid the need for the shoreline protective device. Neither of these tests is met in this situation.

The erosion rate is relatively low in the area, and one of the lift stations (which is the nearest of the two lift stations to the bluff edge) is already protected by a wall. The average erosion rate in the area is approximately half a foot per year. The St. Andrews lift station is 12 ft. from the bluff edge and the Vista del Mar station lift station is 20 ft. from the bluff edge. At half a ft./year based on these distances they would be at risk in approximately 24 and 40 years, respectively. In addition, according to Corps-submitted diagrams, (Exhibits 23-24), the lift stations are shown as being landward of an estimated 25 year erosion line. Thus, while it would clearly not be prudent to wait until they are actually exposed, these are nevertheless not short time frames, and the lift

stations therefore cannot be considered “threatened” in the near term for purposes of Section 30235. If erosion that has the potential for episodic bluff retreat begins to take place either in front of either lift station, or around the west side of the existing wall in front of the St. Andrews lift station, such as through formation of sea caves or notches in the bluff, these formations can be filled with material with a density intended to allow it to retreat neither faster or slower than the average rate of the surrounding bluff material. Upper bluff retreat can be retarded through drainage improvements, shotcrete or other means, without building a wall.

Moreover, the lift stations, which are already 80-90 years old, were initially installed with the understanding that they would be relocated when shoreline retreat necessitated their relocation. When they do become threatened, the lift stations and sewer lines (Exhibits 25-26) can be relocated inland, and the roads (Seacliff Dr. and Ocean Blvd.) can be narrowed. Narrowing the roads, including turning them into one way streets, and as occurred at East Cliff Dr. before the Commission approved the Santa Cruz Pleasure Point seawall, would provide the secondary benefit of making already City-owned right-of-way available for inland relocation of the lift stations, and would eliminate the substantial land acquisition costs cited by the Corps and the City. For these reasons, the project is not necessary to protect existing structures in danger from erosion, and has not been designed to eliminate or mitigate adverse impacts on shoreline sand supply, and is therefore inconsistent with the shoreline protection policy (Section 30235) of the Coastal Act.

Further, because the walls would “fix” the back beach and inhibit future erosion and the ability of the shoreline to retreat naturally, the project would not, in the long term, avoid contributing significantly to beach erosion, and is therefore inconsistent with the public hazards policy (Section 30253) of the Coastal Act.

For similar reasons to the above conclusion that alternatives are available that would have reduced effects on shoreline processes, the project is inconsistent with the requirement of the visual resource protection policy (Section 30251), as the project would not minimize alteration of natural landforms or scenic public views. Moreover, if the project were able to be found consistent with the shoreline processes policies, the Corps has not made a compelling case that an aesthetic treatment (similar to Pleasure Point and Pebble Beach seawalls) is not a feasible less visually damaging alternative.

Concerning consistency with the public access and recreation, marine resources, water quality, and environmentally sensitive habitat (Sections 30210-30223, 30230, 30231, and 30240), the Corps, with assistance from the City, has indicated its willingness to mitigate project impacts through provision of an access staircase at the St. Andrews site, water quality improvements, and monitoring of onshore and offshore habitat impacts. Thus, if the project were able to be authorized under Sections 30235, 30253, and 30251, it likely could, by memorialization of these commitments through conditions and other agreements, be found consistent with Sections 30210-30223, 30230, 30231, and 30240 of the Coastal Act.

## **STAFF SUMMARY AND RECOMMENDATION**

**I. Project Description.** The Corps of Engineers proposes to construct two shoreline armoring structures to protect existing utility infrastructure at two locations in Shell Beach/Pismo Beach. At the first of the two sites, the St. Andrews Lift Station,<sup>1</sup> the Corps initially proposed a rock revetment; however in response to concerns raised by the Commission staff, and after further discussion with the City of Pismo Beach, the Corps now indicates it would agree to build a vertical wall at this site. At the second site, the Vista del Mar Lift Station, the Corps also proposes a vertical wall. The Corps further states that “sculpted” designs for both walls, similar to the Commission-approved vertical wall, built in 2004<sup>2</sup>, upcoast at the end of Florin St. in Pismo Beach (Exhibit 9), are feasible alternatives. Thus, while the Corps has not submitted actual detailed project plans that include a “sculpted” treatment, the Corps is now proposing sculpted walls at both sites. The Corps’ written description of this “sculpted” treatment states that such a wall:

*... would be constructed to more closely match the alignment of the adjacent bluff toes, and it would have a shotcrete surface colored to blend in with the natural bluffs. The colored shotcrete facing would produce a more natural and pleasing aesthetic appearance than the vertical sea wall. Similar to Alternative 2, the pocket behind the wall would be filled with soil (or soil/gravel mix) to permit some sloughing of the upper bluff face, and shotcrete would be applied to the bluff face above the wall to minimize erosion caused by extreme wave run-up. This alternative would include weep holes to allow for drainage as described in Section 2.2 for the vertical concrete wall. The sculpted concrete/shotcrete wall could be designed to include protuberances for seabird roosting. Figure 2-18 shows an example of a sculpted concrete/shotcrete wall under construction at Florin Street in Pismo Beach.*

The Corps maintains the shoreline protection measures are necessary to protect existing structures, stating:

*The six sites proposed for protection are suffering severe and accelerating erosion. At each of the sites, roadways, utilities, and/or parks and in some cases houses are threatened. Bluff protection in the past has consisted of a hodgepodge of emergency measures, such as revetments and seawalls that are unsightly and ineffective. The erosion also makes it difficult and unsafe for the public to access the shoreline. Bluff erosion is an ongoing dynamic process that will continue to impact the Pismo Bluffs. On-going retreat is likely to continue to encroach upon existing structures located above the seacliff, undermine coastal stairways and seawalls, and erode adjacent lands, reducing*

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<sup>1</sup> A sewer lift station houses a pump that raises sewage from a lower elevation sewer line to a higher elevation sewer line.

<sup>2</sup> A photo of this wall can be found at the California Coastal Records Project site, at: <http://www.californiacoastline.org/cgi-bin/image.cgi?image=201007196&mode=sequential&flags=0&year=current>

*building setbacks. At these sites, increased erosion eventually will result in the loss of utilities, park space and roads, and the construction of stopgap emergency protective structures. For example, Price Street likely will be damaged by erosion within the next decade, and Highway 101 also is in jeopardy. Protection of the bluff toe is needed to keep the seacliffs at these sites from additional wave erosion.*

The Corps states that a vertical wall is used at the St. Andrews Lift Station site, the area of beach occupied by the wall would be 0.06 acres, the length 110 ft., and the width (i.e., distance from the bluff face to the seawardmost point) approximately 24 feet. The top of the wall would be at +20 ft. MLLW, with the toe at 0 ft. MLLW. The quantity of rock would be 800 tons.

The Corps states the beach footprint for the Vista del Mar Station vertical wall would be 0.07 acres, the length 120 ft., and the width (i.e., distance from the bluff face to the seawardmost point) approximately 24 feet. The top of the wall would be +20 ft. MLLW, with its toe at 0 ft. MLLW. The quantity of rock would be 900 tons.

Shotcrete would be applied to the bluff face above the walls to minimize erosion caused by extreme wave run-up. Shotcrete is concrete or mortar applied with a pressure hose. Construction equipment would include a truck crane, loader, excavator, concrete pump truck, and a compressor. The construction period would be 3 months for a revetment and 4 months for a vertical wall.

Constructing the seawalls would entail trench excavation work for rock placement down to 0 feet MLLW, and drilling for seawall embedment into the bedrock. Excavated material would be removed from the cut location and placed on the beach or used as backfill landward of the seawall. Excavated trench material would not need to be hauled off site. For all sites and all alternatives, (assuming the bluff face at all sites is relatively stable), shotcrete would be applied to the bluff face above the wall to minimize erosion caused by extreme wave run-up.

For the St. Andrews Lift Station, and Vista del Mar Lift Station, construction work would use a land crane located on the top of the bluff. Small construction equipment would be lowered onto the sand during low tides, and some work would occur from the beach. Staging areas at each of the sites would be similar for all alternatives (see Figure 2-20 to Figure 2-25 (Exhibits 12-13)) show the staging area at each site. Staging areas would involve closing part of the adjacent street. Beach construction activities would need to be conducted during lower tides. All or part of the beach at each site would need to be closed during construction activities.

Rock, concrete, and soil would be hauled in by truck. Table 2-3 (Exhibit 15) shows the number of truck trips for each alternative at each site. The most likely rock source would be Santa Margarita, approximately 23 miles from Pismo Beach. Total truck trips would be: (1) St. Andrews Lift Station - 170-180 trips for the vertical wall; and (2) Vista del Mar Lift Station - 130-140 trips for vertical wall. (For both, the slightly larger number for the vertical walls would be for a “sculpted” alternative.)

**II. Federal Agency's Consistency Determination.** The U.S. Army Corps of Engineers has determined the project consistent to the maximum extent practicable with the California Coastal Management Program (CCMP).

**III. STAFF RECOMMENDATION.**

The staff recommends that the Commission adopt the following motion:

**MOTION:** I move that the Commission **concur** with consistency determination CD-061-10 that the permit program described therein is fully consistent, and thus is consistent to the maximum extent practicable, with the enforceable policies of the California Coastal Management Program (CCMP).

**Staff Recommendation:**

The staff recommends a **NO** vote on the motion. Failure of this motion will result in an objection to the determination 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 OBJECT TO CONSISTENCY DETERMINATION:**

The Commission hereby **objects** to the consistency determination made by the U.S. Army Corps of Engineers for the proposed project, finding that: (1) the project is not consistent with the California Coastal Management Program; (2) the project is not consistent to the maximum extent practicable with the California Coastal Management Program.

**IV. Applicable Legal Authorities.** Section 307 of the Coastal Zone Management Act (CZMA) provides in part:

*(c)(1)(A) Each Federal agency activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs.*

**A. Procedure if the Commission finds that the proposed activity is inconsistent with the CCMP.** Section 930.43(a) of the federal consistency regulations (15 CFR § 930.43(a)) requires that, if the Commission's objection is based on a finding that the proposed activity is inconsistent with the CCMP, the Commission must identify measures, if they exist, that would bring the project into conformance with the CCMP. That section states that:

*(a) In the event the State agency objects to the Federal agency's consistency determination, the State agency shall accompany its response to the Federal agency with its reasons for the objection and supporting information. The State agency response shall describe:*

*(1) How the proposed activity will be inconsistent with specific enforceable policies of the management program; and*

*(2) The specific enforceable policies (including citations).*

*(3) The State agency should also describe alternative measures (if they exist) which, if adopted by the Federal agency, would allow the activity to proceed in a manner consistent to the maximum extent practicable with the enforceable policies of the management program. Failure to describe alternatives does not affect the validity of the State agency's objection.*

As described in Sections V. A and B of this report below, the proposed project is not consistent to the maximum extent practicable with the CCMP. Pursuant to the requirements of Section 930.43 of the federal regulations implementing the CZMA, the Commission is responsible for identifying measures, if they exist, that would bring the project into compliance with the CCMP to the maximum extent practicable. The Commission finds that at this time it would not be possible to modify the project to bring it into compliance with the CCMP to the maximum extent practicable. Moreover, when the structures to be protected are in danger of erosion, the Commission further finds that alternatives are available that could be feasibly implemented when needed to protect the threatened structures. These alternatives include: (1) filling of sea caves and notches with material designed to retreat these formations can be filled with material with a density intended to allow it to retreat neither faster or slower than the average rate of the surrounding bluff material; (2) installing bluff face drainage improvements to minimize rilling and upper bluff erosion, including shotcrete, (3) relocating lift stations and sewer lines inland; and (4) narrowing Seacliff Dr. and Ocean Blvd., including possibly modifying them into one-way direction streets.

**B. Consistent to the Maximum Extent Practicable.** Section 930.32 of the federal consistency regulations provides, in part, that:

*(a)(1) The term “consistent to the maximum extent practicable” means fully consistent with the enforceable policies of management programs unless full consistency is prohibited by existing law applicable to the Federal agency.*

The Commission recognizes that the standard for approval of federal projects is that the activity must be “consistent to the maximum extent practicable” (CZMA Section 307(c)(1)). This standard allows a federal activity that is not fully consistent with the CCMP to proceed, if compliance with the CCMP is “prohibited [by] existing Federal law applicable to the Federal agency's operations.” The Corps of Engineers did not assert that any inconsistencies are the result

of the requirements of existing federal law, or provide any documentation to support a maximum extent practicable argument, in its consistency determination. Therefore, there is no basis to conclude that existing law applicable to the Federal agency prohibits full consistency.

**C. Federal Agency Response to Commission Objection.** Section C(a)(i) of Chapter 11 of the CCMP requires federal agencies to inform the Commission of their response to a Commission objection. This section provides:

*If the Coastal Commission finds that the Federal activity or development project ... is not consistent with the management program, and the federal agency disagrees and decides to go forward with the action, it will be expected to (a) advise the Coastal Commission in writing that the action is consistent, to the maximum extent practicable, with the coastal management program, and (b) set forth in detail the reasons for its decision. In the event the Coastal Commission seriously disagrees with the Federal agency's consistency determination, it may request that the Secretary of Commerce seek to mediate the serious disagreement as provided by Section 307(h) of the CZMA, or it may seek judicial review of the dispute.*

The federal consistency regulations reflect a similar obligation; 15 CFR §930.43 provides:

***State agency objection. ...***

*(d) In the event of an objection, Federal and State agencies should use the remaining portion of the 90-day notice period (see §930.36(b)) to attempt to resolve their differences. If resolution has not been reached at the end of the 90-day period, Federal agencies should consider using the dispute resolution mechanisms of this part and postponing final federal action until the problems have been resolved. At the end of the 90-day period the Federal agency shall not proceed with the activity over a State agency's objection unless: (1) the Federal agency has concluded that under the "consistent to the maximum extent practicable" standard described in section 930.32 consistency with the enforceable policies of the management program is prohibited by existing law applicable to the Federal agency and the Federal agency has clearly described, in writing, to the State agency the legal impediments to full consistency (See §§930.32(a) and 930.39(a)), or (2) the Federal agency has concluded that its proposed action is fully consistent with the enforceable policies of the management program, though the State agency objects.*

*(e) If a Federal agency decides to proceed with a Federal agency activity that is objected to by a State agency, or to follow an alternative suggested by the State agency, the Federal agency shall notify the State agency of its decision to proceed before the project commences.*

## **V. Findings and Declarations:**

The Commission finds and declares as follows:

**A. Geologic Hazards/Shoreline Protective Devices.** Section 30235 of the Coastal Act provides:

*Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible.*

In addition, Section 30253 of the Coastal Act addresses the need to ensure long-term structural integrity, minimize future risk, and to avoid authorization of new development that would itself require landform-altering protective devices in the future. Section 30253 provides, in applicable part, that new development shall:

*(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*

*(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.*

Section 30235 of the Coastal Act acknowledges that seawalls, revetments, cliff retaining walls, groins and other such structural or “hard” methods designed to forestall erosion also alter natural landforms and natural shoreline processes. Accordingly, with the exception of new coastal-dependent uses, the Commission has consistently interpreted these policies of the Coastal Act (Sections 30235 and 30253), as well as others, as limiting the construction of shoreline protective structures to those required to protect existing structures or public beaches in danger from erosion. Section 30235 also requires that any protective structure approved pursuant to that section be designed to eliminate or mitigate its adverse impacts on shoreline sand supply. Section 30253 requires that new development avoid creating or contributing to erosion. The Coastal Act provides these limitations because shoreline structures can result in a variety of adverse effects on coastal resources, including adverse effects on sand supply, public access, coastal views, natural landforms, and overall shoreline beach dynamics on and off site, ultimately resulting in the loss of beach.

Section 30235 allows a shoreline structure to be approved despite these impacts only if: (1) there is an existing structure; (2) the existing structure is in danger from erosion; (3) shoreline-altering construction is required to protect the existing threatened structure; and (4) the required protection is designed to eliminate or mitigate its adverse impacts on shoreline sand supply.

In this case, the structures for which protective armoring is being considered are the existing sewer line pump stations, (i.e., the St. Andrews and Vista del Mar Lift Stations) (Exhibits 3-4 & 23-24), existing roads adjacent to the blufftop (Seacliff Dr. and Ocean Blvd.), and other subsurface utilities (Exhibits 23-26). In order to assist the Commission in determining whether the proposed armoring projects are necessary to protect these existing structures, the Commission staff has posed a number of questions to the Corps, intended to elicit elaboration of project need, the condition and age of the existing structures, feasible alternatives available to protect them, and the nature and rate of expected future erosion at the site.

To answer these questions, upon receiving the Corps' consistency determination, in a letter to the Corps dated December 13, 2010 (Exhibit 19), the Commission staff requested substantial additional information from the Corps including information regarding: property ownership; a more complete description of the degree of threat to the lift stations and other infrastructure; more expansive consideration of alternatives analysis (including non-structural "Managed retreat" options); consideration of whether a vertical wall rather than a revetment could be placed at the St. Andrews site; aesthetic treatment; more details concerning project plans; possible public access improvements (such as a stairway to the beach at the St. Andrews site), more details regarding construction-related effects on traffic, noise, visual, and the availability of public parking; clarification of monitoring and maintenance responsibilities; a history of shoreline protection structures previously installed at the sites; estimation of sand loss caused by placement of the shoreline structures; assessment of construction impacts, if any, on rocky intertidal habitat and sandy beaches; an agreement to prohibit beach sand from being used as back fill; a showing of calculations and assumptions used to predict future sea level rise; and consideration of whether water quality improvements (such as additional filtering or treatment of storm water or other effluent) could be incorporated into the project.

The Corps' initial response was that the information could be found, if not in the Draft Environmental Assessment/Mitigated Negative Declaration submitted with the initial consistency determination, then in a technical appendix it subsequently submitted entitled: Coastal Engineering Appendix To Pismo Beach Storm Damage and Shoreline Protection, CAP 103 Plan Formulation (Moffatt & Nichol, June 2010).

In reviewing that technical appendix, the Commission staff noted that it specifically did *not* examine alternatives other than bluff toe armoring; the report states:

*This appendix is for the coastal engineering aspects of the project and only addresses solutions related to the toe of the bluffs, i.e. bluff protection against coastal wave erosion. Solutions for bluff top erosion are being addressed by other studies.*

The Commission staff also noted past studies, such as the statement in the Corps' Engineering Appendix<sup>3</sup> which contained a summary of past Pismo Beach shoreline analyses (an Army Corps 1976 study) that included this statement:

*In 1976 the Los Angeles District conducted a brief study of serious bluff erosion reported by the City of Pismo Beach at three locations. The problem was believed to be primarily related to surface runoff drainage over the top of the seacliff as opposed to wave action.*

This Engineering Appendix also cited a more recent study (Fugro, 2002), its summary of which including the following excerpts:

- *...All six sites that are the subject of this appendix are within this stretch of coastline.*
- *Stated that the main factors affecting bluff erosion are wave attack at the base of the seacliff, gradual erosion and flattening of the terrace deposits above cliff, and the geologic makeup of the seacliffs.*
- *Provided estimates of bluff retreat rates over the study area, (ranged from 2 to 12 inches per year).*
- *Concluded that immediate bluff protection is needed. Suggested solutions were control of bluff top drainage, bluff toe seawalls and rock revetment, and bluff top underpinning of existing structures. Graphics were included which showed existing shore protection and the existing versus estimated 100-year bluff line for the entire 5 mile stretch of coastline.*

The Engineering Appendix further calculated maximum wave heights (+7.65 ft. MLLW, Highest Observed Water Level, factored in future Sea Level Rise (using a 50-Year projection of a range of 0.51 to 1.75 ft. over 50 years), and estimated a design wave height of 7.8-9.4 ft.

The Engineering Appendix also examined sediment transport in the littoral cell, which is the Santa Maria Littoral cell, and concluded that most of the sand from the Santa Maria River travels south (i.e., not towards Pismo Beach), that a complete barrier exists north of Pismo Beach preventing littoral drift from the north, and that:

*... there is essentially no net transport of sediment north of Pismo State Beach. Wave refraction around Point San Luis causes waves to strike Pismo State Beach directly onshore, and headlands at Shell Beach are a partial or complete barrier to the transport of sand (Fugro 2002 from Everts 2001).*

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<sup>3</sup> Coastal Engineering Appendix To Pismo Beach Storm Damage and Shoreline Protection, CAP 103 Plan Formulation (Moffatt & Nichol, June 2010).

*In general, the design criterion for all alternatives is to assume no or little littoral drift and little sediment transport.*

The Engineering Appendix includes some consideration of non-bluff toe armoring alternatives, including:

- (1) Cantilevered wall (Earth Systems 2007);
- (2) Caisson frame system (Earth Systems 2007);
- (3) Retaining wall with or without tiebacks driven down from the top of the bluff (Fugro 2002); and
- (4) Underpinning of existing buildings using grade beams, tie backs, and drilled shaft foundation driven down from the top of the bluff (Fugro 2002).

However, the Engineering Appendix states:

*Although the [first and second of these] ...solutions do provide bluff toe protection, they would be more appropriate as bluff-top solutions and are considered to be beyond the scope of this appendix. The last two solutions do not provide any toe protection against wave erosion and are also not studied as part of this appendix.*

The Appendix concluded that the feasible practical alternatives that were being considered were limited to revetments and vertical walls.

Thus, while the technical appendix did contain useful and relevant information, it did not address a number of fundamental questions raised by the Commission staff. The staff therefore continued to seek additional information from the Corps. In response, the Corps then submitted responses in three memos dated January 24, 2011, February 2, 2011 (in response to the staff's previous written recommendation), and February 16, 2011 (in response to a February 4, 2011 telephone conversation between the Commission staff and the Corps) (Exhibits 20-22).

In these memos, the Corps acknowledges the Commission staff's point that rilling and bluff face erosion are a significant part of the erosion problem; nevertheless the Corps maintains: "However, the overall plumbness of the bluff face of both the terrace soils and the bedrock is predominantly vertical. This suggests that the erosional rate of the soils and the bedrock toe are approximately equal."

The Corps states the erosion rate, on average, in the general area is approximately 8 inches/year. Slightly lower erosion rates were used in one of the Corps' attachments to its responses - the erosion rates cited in the Corps Storm Damage Analysis (which includes Economic Analysis). This study cited erosion rates of 0.475 ft. (5.7 inches) per year for the St. Andrews site, and

0.533 ft. (6.4 inches) per year for the Vista del Mar site, or roughly half a foot/year at each site. At the same time, the Corps acknowledges that “The erosion rate for the bluffs immediately below and adjacent to the [St. Andrews] lift station is truly much lower due to the construction of the existing seawall.” [Emphasis added]

The Corps explains that the reason the wall is being proposed upcoast of the St. Andrews site (approximately 80 ft. beyond (west of) the lift station) is because:

*The intent of the design is to provide enough length of seawall to cover both the existing seawall; and to protect the bedrock bluff bottom layers that are still exposed beneath the lift station and exposed just upcoast of the existing seawall. A well developed notch is still forming along the entire bluff face, just upcoast of the existing seawall and below the lift station. The location of the Corps seawall will prevent the expansion of the notch that follows bedrock and extends into the bluff top. The overlapping of the Corps seawall against the existing seawall will also eliminate future erosion of bedrock and bluff face that would follow the weak plane leftover from a gap between the two walls, if not covered.*

The Corps states the wall at St. Andrews is needed despite an existing seawall in front of the lift station because:

*In summary, the bedrock, although thin, is unfavorably orientated to the ocean and thus makes the bottom of the bluffs subject to ongoing marine erosion that is still severe, and subject to more direct wave attack, especially in the exposed areas just upcoast and downcoast of the existing seawall. The seawall is designed to baffle the effects of the more direct wave attack direction that occurs in the unfavorably orientated bedrock layers at the bottom of the bluff face, and to prevent continued notch type erosion features that are prevalent along the bluff face in the local vicinity of St. Andrews lift station.*

The Corps maintains that relocating lift stations would still leave other infrastructure (Seacliff Dr. and Ocean Blvd., and sewer and water lines underneath the streets (Exhibits 25-26)) and a public park unprotected, stating:

*Managed retreat would initially involve the relocation of the lift stations and utility lines. However, Ocean Boulevard and Seacliff Drive are also at risk. If those streets are lost, there would be no north-south access along the bluffs. Although utilities potentially could be relocated, those streets could not be replaced. Also there would be a loss of recreational amenities such as the walking trail and park benches which would not be easily replaced because seaward of Seacliff Drive and Ocean Blvd is all developed so there ... [are] no opportunities to replace lost north south access or recreational amenities if those streets are lost.*

The Corps maintains a more natural look (than the Corps-cited Florin St. wall (Exhibit 9)) may not be feasible and is “likely to render the project infeasible by increasing construction costs to the point where costs exceed benefits.”

To help mitigate sand loss (recreational component – loss of beach access), the Corps is not proposing access improvements; however it notes that “the City is amenable to potentially providing an access stairway at the St. Andrews site. This improvement is beyond the authority of the Corps and would have to be performed by the City.” This commitment is further elaborated on in the Public Access and Recreation Section (Section C) on page 24 of this report.

After completion, the Corps would turn the project over to the City, which would assume monitoring and maintenance responsibilities.

The Corps commits that beach sand would not be used as back fill for the walls.

The Corps provided more detailed project plans, mapped erosion rate and cross sections of existing infrastructure, economic analyses relied on for the Corps’ fundamental decision to fund the project, and responses to questions about moving the walls closer to the bluff, as well as to “managed retreat” alternatives.

The Corps’ elaboration on the project need included:

*That threat was established using erosion rates calculated by recent erosion losses. Erosion along this bluff is episodic in nature. Relatively few large events occur. Over time this yields an erosion rate that is somewhat misleading. That erosion rate leads to a predicted loss in the near future. However, a single episode of bluff failure could lead to an immediate loss at both sites. Hence the urgency to complete the proposed project.*

In this elaboration the Corps restated the estimated erosion rate of 8 inches/year. The Commission notes, again, it is likely much lower at the wall in front of the St. Andrews lift station, and deviates to some degree from the 0.475-0.533 ft./yr. rates cited in the Corps’ economic analysis. The Corps also discussed the notches and caves that tend to develop in a similar orientation as the bluff toe (and that “often merge” with the upper bluff rilling-type erosion), again suggesting similar erosion rates for bedrock and terrace deposits. The Corps did indicate a willingness to consider pulling the walls back further landward and closer to the bluff, as well as a possible redesign of the rock toes of the wall, both of which would represent less beach encroachment compared to the originally proposed walls. The Corps indicated that it has not yet reached the final design stage, and that it would “... commit to placing the seawall as close to the bluff as feasible from an engineering design perspective.” Concerning aesthetic treatment, the Corps indicated:

*The Pleasure Point and Pebble Beach examples would be considerably more expensive and are in a different aesthetic environment than the proposed wall at Pismo Beach. Cost limitations under the Continuing Authorities Program would preclude an identical*

*treatment at Pismo Beach, which is also considered unwarranted. The Corps will commit to working directly with staff to include features on the sculpted sea walls to the maximum extent that they are economically feasible. The level of detail requested is not appropriate for a conceptual design and will be provided in final design documents.*

*The Corps is committed to the use of sculpted sea walls at both the St Andrews Lift Station and Vista del Mar Lift station sites.*

The Corps further indicated a willingness to address Commission staff concerns related to the design of the curve at the top of the walls, the need to key the walls into bedrock, during final design states, and possibly, if feasible, moving the rocks at the toe of the wall further landward and considering a tie-back wall (which would move the vertical wall landward).

In its February 16, 2011, memo (Exhibit 22), based on information provided by the City, the Corps noted that the lift stations were constructed in the 1920s (when a wastewater treatment facility at Spyglass Park was decommissioned), and that they were, in fact, planned with the understanding that the shoreline may erode and require their relocation. This memo states:

*These facilities are planned to operate at their present locations until such time that the erosion occurring along Ocean Boulevard and Seacliff Drive makes the water, sewer and electrical infrastructure inoperable.*

*Bluff erosion will continue to occur at both the Vista Del Mar and Saint Andrews locations. This erosion will encroach into the public parks until the park has eroded away and then erosion will begin to compromise the public streets. As the street progresses from a two-lane roadway to a one-lane roadway it will ultimately require that the water, sewer, and electrical utilities be relocated.*

*The current project will allow both lift stations to continue to exist at their present locations until such time as the bluff erosion has made the current utility infrastructure within Ocean Boulevard and Seacliff Drive no longer viable. Once this occurs, the lift stations along with the other utility systems will need to be relocated. Currently the existing wastewater lift stations are approximately 15-20 feet deep and within 5 feet or less of the current bluff face. The project that is proposed by the Army Corp of Engineers would stabilize the bluffs in this area to allow the lift stations to have the same life cycle as the existing utility infrastructure within the roadway.*

Based on the graphics provided (Exhibits 25-26), the 5 ft. reference is likely for the above-ground electrical station, and the same memo states:

*The offset from the top of the bluff to the edge of the lift station(s) are approximately 12 and 20 feet for the St. Andrews and Vista Del Mar sites, respectively.*

Although as described above the originally plan for the sewage infrastructure was to relocate it if necessitated by shoreline erosion, the Corps and the City now maintain that the cost to relocate sewer, water, and electric lines would exceed \$50 million, and that even without acquisition costs factored in, the cost of relocating just the two lift stations would be \$5.8 million (\$2.5 million for St. Andrews and \$3.3 million for Vista del Mar). In its Cost-Benefit analysis the Corps listed these costs at approximately \$2 million per site: \$1.9 million in “Net Present Value” Cost, for relocation of the St. Andrews Lift Station (this figure assumes three separate lift stations would be needed to replace the one existing station, for reasons that are not spelled out), and \$2 million (undiscounted amount of \$2.6 million), for relocation of the Vista del Mar Lift Station. The Commission notes that, regardless of which are the accurate figures, they are relatively comparable to the cost to construct the proposed seawalls, which is approximately \$4.5 million.

The information submitted by the Corps, including the plans and cross sections, with erosion rates plotted on them (Exhibits 23-24), establish that the St. Andrews lift station is 12 ft. from the bluff edge and the Vista del Mar lift station is 20 ft. from the bluff edge. Based on these distances and plots, the lift stations (excluding the above-ground electric equipment boxes, which should not be difficult or expensive to relocate), the Commission believes it would likely be several decades before the lift stations would be at risk of failure. The first plan/profile (Exhibit 23) shows the St. Andrews lift station landward of the anticipated 25-Year Erosion line, and the 12 ft. distance from the bluff edge divided by the cited erosion rate of 0.475 ft./year gives the same 25-Year outcome ( $12 \div 0.475 = 25.26$ ). This estimate is without consideration of the fact that the existing seawall at the site likely lessens the erosion rate in front of the station. The second plan/profile (Exhibit 24) shows the Vista del Mar lift station also landward of the anticipated 25-Year Erosion line, and the 20 ft. distance from the bluff edge divided by a cited erosion rate of 0.533 ft./year gives a 37.5-Year outcome ( $20 \div 0.533 = 37.52$ ).<sup>4</sup> (Even using the larger of the cited average erosion rates (i.e., 8 inches/yr.) yields 18 and 30 years for the two sites, respectively.)

The Commission staff also requested that the Corps consider the relationship between the cited erosion rate and sea cave collapse, based on the concept that the greater episodic instances of erosion occurring when caves collapse may be remediable by fill of sea caves before they collapse, which appears intuitively obvious and was also supported by the Corps’ November 2010 geotechnical appendix, which stated:

*The sea caves are the result of ongoing marine erosion forces acting against the bluffs at all of the study areas. The sea caves add much to erosion mode, rate and loss of bluffs along the project study area. Much of the bluff loss that has occurred at Price Street and Dino Caves is the result of catastrophic collapse of sea caves. [Emphasis added]*  
(Geotech App., p. 7).

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<sup>4</sup> There is an apparent discrepancy between the plan and the profile in Exhibit 24 – the profile shows the very top of the lift station exposed before 25 years, while the plan below the profile shows the lift station landward of the 25 year erosion line. Given that the slight curve in the top of the bluff landward of the profile was simply extrapolated back over time, the information in the plan appears more likely to be accurate than the top of the line in the profile.

*Methods for stabilizing the seacliff area of the Memory Park bluff could include placement of a rock revetment or a seawall in the reentrants, or grouting or shotcreting for the local sea caves and (local) weaker bedding layers. [Emphasis added] (Geotech App, p. 17).*

The Corps responded that:

*The sea caves and all other related erosion type features, such as notches, voids, etc., are all included in the same erosion rates as calculated overall for the bluffs. There is no apparent distinction between the rates of erosion that cause the different erosional features, except that the sea caves and void features will eventually fail at times that are not constant, causing a general catastrophic failure of the overall bluffs. At the same time, there is constant, but smaller amounts of erosion of bedrock occurring at the bottom of the bluffs, as exhibited by the numerous leftover bedrock talus stones and gravels strewn amongst the bottom, as well as found farther out atop the wave cut platform area.*

*Filling of the sea caves and voids, etc., could be a workable solution. The filling would have to be a combination of erodible cement, like grout (in compliance with Coastal Commission policy), and/or rip-rap stone.*

*Sea caves are not present in the bluff areas immediately under either of the lift stations. Filling sea caves, while providing some protection to the streets and infrastructure above the sea caves, would not adequately protect the lift stations, nor would it reduce the historical rate of retreat of the bluffs.*

In reviewing the Santa Cruz Pleasure Point seawall (Appeal No. A-3-SCO-07-015/CDP Application No. 3-07-019), the Commission found that:

*While each case is evaluated based upon its own particular set of facts, the Commission has generally interpreted “in danger” to mean that an existing structure would be unsafe to use or otherwise occupy within the next two or three storm season cycles (generally, the next few years) if nothing were to be done (i.e., in the no project alternative). [Emphasis added]*

The Commission articulated a similar time frame regarding protection needs in the Pebble Beach Co. Beach Club Seawall (CDP 3-09-025) and the O’Neill Seawall (CDP 3-09-042).

In its approval of the Santa Cruz Pleasure Point seawall, the Commission noted that the very heavily used East Cliff Drive had already partially failed, and had in fact been narrowed from two lanes to one in response to erosion.

In 1991, in reviewing a proposed wall near the St. Andrews site (two lots east/downcoast of the St. Andrews lift station, at 185 Naomi St., Pismo Beach, Appeal No. A-4-PSB-91-48 (Loughead)), the Commission denied the applicant's request to build a 12 ft. high vertical wall, but allowed the applicant to fill two sea caves on the property. The Commission's findings indicated that it was feasible for the applicant to relocate the single-family home inland on the lot, and in fact that the applicant had already received a coastal development permit from the City for such relocation. According to the Commission's findings in that case, the 1989 Pacific Geoscience geology report for that project cited an erosion rate of 1-6 inches per year for the underlying bedrock (and 2-18 inches/year for the overlying terrace deposits, with the higher end of the range applying to deposits above sea caves).

Based on the facts present in the subject case, the Commission finds that the project is inconsistent with Section 30235 because: (1) the project is a seawall that would alter natural shoreline processes and therefore be subject to the requirements of Section 30235; and (2) the project is not required to protect existing structures in danger from erosion. The question of whether the project is necessary to protect an existing structure in danger from erosion hinges on the following factors: (1) whether the structures are threatened within a relatively short time frame, as articulated above; (2) whether there are less damaging feasible alternatives that would avoid the need for the shoreline protective device. Neither of these tests is met in this situation.

As noted above, the lift stations are landward of an estimated 25 year erosion rate, and cannot be considered "threatened" in the near term for purposes of Section 30235. The erosion rate is relatively low in the area, and the St. Andrews lift station (which is the nearest of the two lift stations to the bluff edge) is *already* protected by an existing wall. If erosion that has the potential for episodic bluff retreat begins to take place either in front of either lift station, or around the west side of the existing wall in front of the St. Andrews lift station, such as thru formation of sea caves or notches in the bluff, these formations can be filled with material designed to retreat at the same rate as the existing bluff. Upper bluff retreat can be retarded through drainage improvements, shotcrete or other means, without building a wall.

Moreover, as noted above, the lift stations, which are already 80-90 years old, were initially installed with the understanding that they would be relocated when shoreline retreat necessitated their relocation. When they do become threatened, the lift stations and sewer lines (Exhibits 25-26) can be relocated inland, and the roads (Seacliff Dr. and Ocean Blvd.) can be narrowed. Narrowing the roads, including turning them into one way streets, and as occurred at East Cliff Dr. before the Commission approved the Santa Cruz Pleasure Point seawall, would provide the secondary benefit of making already City-owned right-of-way available for inland relocation of the lift stations, and would eliminate the substantial land acquisition costs cited by the Corps and the City. Based on all these factors, the Commission concludes that the project is not necessary to protect existing structures in danger from erosion, and has not been designed to eliminate or mitigate adverse impacts on shoreline sand supply, and is therefore inconsistent with the shoreline protection policy (Section 30235) of the Coastal Act.

Further, because the walls would “fix” the back beach and inhibit future erosion and the ability of the shoreline to retreat naturally, the Commission finds that the project would not, in the long term, avoid contributing significantly to beach erosion, and is therefore inconsistent with the public hazards policy (Section 30253) of the Coastal Act.

**B. Visual Resources.** Section 30251 of the Coastal Act provides:

*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.*

In addition to the physical availability of public access discussed above, shoreline armoring in highly scenic areas such as the proposed sites adversely affects the quality of the recreational experience for aesthetic reasons. The proposed vertical walls revetment would be visually intrusive and unaesthetic. The Corps considered some form of visual treatment in its original submittal, indicating that the proposed vertical wall could be designed to be a curved form and similar to an existing wall in Pismo Beach further north, a sculpted concrete/shotcrete wall under construction at Florin Street in Pismo Beach (Exhibit 9). The Commission staff informed the Corps that in recent years the Commission has required and authorized far more aesthetically pleasing walls; two examples provided were the Pleasure Point seawall in Santa Cruz and the Pebble Beach seawall at the Pebble Beach golf course.

In its responses to Commission staff questions, and as discussed in the previous section above, the Corps has indicated a willingness to make a certain amount of modifications at later design phases, including moving the walls and their toes landward and conceivable to consider a tie-back wall design. However, concerning providing an aesthetic treatment comparable to Commission-approved Pleasure Point (Santa Cruz) and Pebble Beach (Monterey Co.) seawalls, the Corps indicates that degree of treatment may be infeasible. When requested to document the basis for this assertion, the Corps stated:

*The Pleasure Point/Pebble Beach sites are in different aesthetic environments than the Pismo Beach sites. They are much more open coastal sites more exposed than the cove locations of the Pismo Beach sites. Moffatt & Nichol dug up some costs for the "Disney" sculpted aesthetics effects, based on another project back in 2006. A contractor provided an estimate of \$15.00 to \$18.00 per square foot for a "best case scenario" and with a minimum of 1500 square feet. This included the sculpted shotcrete, integral color and the staining of shotcrete. For Pismo, without any wrap/factors, this comes out to be ~\$40K for the St. Andrews site and ~\$43K for the Vista del Mar site. The Corps has committed to working with city of Pismo Beach and Coastal Commission staff to achieve*

*the best aesthetic design feasible for the project, which fits within the cost limitations of the Continuing Authorities Program being used to fund construction. The City has expressed the desire to establish an example of the types of walls that would be approved in the City.*

It is unclear why an additional  $\pm$  \$80,000 cost for a \$4.5 million project would render it infeasible, especially when the Corps' Cost Benefit Analysis can take into consideration "social and economic factors. The Commission notes that the Corps' Cost Benefit Analysis states (p. 71) that since Hurricane Katrina, the Corps's economic considerations can include "Other Social Effects (OSE)," one of which can be based on "social well-being."

To conclude, for similar reasons to the conclusion in the previous section of this report that alternatives are available that would have reduced effects on shoreline processes, the Commission finds that the project is inconsistent with the requirement of the visual resource protection policy (Section 30251), because the project would not minimize alteration of natural landforms or scenic public views. Moreover, even if the project were able to be found consistent with the shoreline processes policies, the Commission notes that the Corps has not made a compelling case that the above more detailed aesthetic treatment (such as was used at Pleasure Point and Pebble Beach) is not a feasible less damaging alternative.

**C. Public Access and Recreation.** Sections 30210-30214 and 30220-30223 of the Coastal Act specifically protect public access and recreation; these Sections provide:

*Section 30210: 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 30211: Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

*Section 30212(a): Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects...*

*Section 30213: Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred. ...*

*Section 30220: Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.*

*Section 30221: Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.*

*Section 30223: Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.*

Coastal Act Section 30240(b) also protects public recreational access in relation to parks and recreation areas; Section 30240(b) provides:

*Development in areas adjacent to ... 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 ... recreation areas.*

Public access currently exists to the beaches on which the two shoreline protective structures are proposed. At the St. Andrews Lift Station site, a public picnic viewing with a grassy area and benches exists at the top of the bluff (Memory Park), and informal public access occurs on a regular basis when members of the public climb down the bluff to access the pocket beach below the site. At the Vista del Mar Lift Station site, public parking is available at the blufftop, and a stairway allows easy public access to the beach area below. Although the Commission does not have plans that show accurate beach displacement from a “sculpted” design, it appears each of the two vertical walls would displace approximately 0.06 acres (or, roughly, 2,600 sq. ft.) of beach.

In considering sand supply issues, as stated in the previous section, the Corps believes effects would be minimal, because: (1) most of the sand in the littoral cell, which comes from the Santa Maria River, travels south from the river (i.e., not towards Pismo Beach); (2) a barrier exists north of Pismo Beach preventing littoral drift from the north; and (3) the bluff composition is predominantly fines, lacking significant sand content. The Commission staff has requested that the Corps document these contentions, but even if they were valid, the “fixing” of the bluff by armoring, which constrains the bluff from eroding inland, combined with the inevitability of future Sea Level Rise, means that the proposed armoring would reduce the future availability of sandy beaches, compared to non-armoring alternatives, if for no other than that it would increase wave action and scour.

As discussed in the previous section of this report, the Commission staff requested additional information from the Corps, including analysis acknowledging existing public access opportunities that occur at the St. Andrews site, analysis of construction-related impacts on public access, recreation, and parking, analysis of future sand loss that would be generated by placement of the shoreline structures, and up-to-date calculation of assumptions made for future sea level rise. The additional information provided by the Corps did address parking and construction truck impacts, and did estimate future sand losses and indicate a price attributable to

the number of cubic yards of sand lost over time. This estimate was 7,782 cu. yds. for the St. Andrews site wall (with a cost to replace, \$25/cu. yd., of \$194,500), and 8,877 cu. yds. for the Vista del Mar (with a cost to replace, @ \$25/cu. yd., of \$221,900). (Note - These are rough estimates and based on a 50-year project life - to be more accurate they would likely need to be recalculated once a final design and footprint were selected.)

The Corps further stated that:

*Restrictions will be placed so that construction activities will not occur on weekends and holidays. Staging areas do not include existing parking areas and consist primarily of portions of nearby streets. Traffic impacts from these are clearly addressed in the EA. Construction is not expected to result in the loss of any parking spaces for the general public.*

Concerning the suggestion of a stairway at the St. Andrews site, the Corps further indicated that the City is open to implementing such a mitigation measures. The Corps states (Exhibit 22):

*Corps staff has had extensive discussions with City staff on this item. Bottom line is that the Corps commits to include in final design provisions for the shotcrete apron that allow access to the top of the sea wall (i.e. roughness and slope). The City will fund and build a staircase from that point to the beach, maintaining public access. Final sea wall design will accommodate inclusion of a staircase for public access. This is in line with Coastal Commission preference for direct onsite access improvements in lieu of payments to purchase sand offset losses. These provisions represent an improvement to existing beach access, which is essentially a path down the steep bluff face.*

*As discussed in item #6 above, the Corps commits to include in final design provisions for the shotcrete apron that allow access to the top of the sea wall (i.e. roughness and slope). The City will fund and build a staircase from that point to the beach, maintaining public access. The Corps will include provisions for the staircase in the final plans, which will be submitted to Coastal Commission staff for review. The mechanism for doing so is open to discussion with City and Coastal Commission staff.*

The Commission generally prefers direct onsite access improvements to in-lieu payments to purchase sand to offset losses, when programs are not in place and available to provide such sand purchase and beach placement. Given the nature of the above commitments, if the inconsistencies discussed in the previous section of this report were able to be resolved, these commitments could likely be memorialized, through conditions of concurrence and other agreements, such that the project could be found consistent with the public access and recreation policies (Sections 30210-30223) of the Coastal Act.

**D. Marine Resources, Water Quality, and Environmentally Sensitive Habitat.**

Section 30230 of the Coastal Act provides that:

*Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Section 30231 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.*

Section 30240 provides:

*(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.*

The nearshore areas offshore of the proposed revetment and wall contain valuable marine resources. In addition, the bluff face at the St. Andrews Lift Station, which could be affected by the proposed revetment, contains several sensitive vegetation communities, including coastal bluff scrub habitat and arroyo willow scrub habitat. The bluff face at the Vista del Mar site contains disturbed coastal bluff scrub habitat, which may be sensitive habitat. The National Marine Fisheries Service (NMFS) and the California Dept. of Fish and Game have expressed concerns to the Corps over effects on habitat and marine resources (Exhibit 16). NMFS's concerns include general effects on natural shoreline processes, loss of intertidal beach habitat, reduction in beach wrack, offsite (and offshore) effects on fish foraging, construction-related effects such as equipment fuel spills and turbidity. NMFS recommends that the Corps:

(1) redesign the proposed revetment at the St. Andrews Lift Station to reduce its beach footprint (which, as noted above, the Corps has agreed to); and (2) develop and perform habitat and

marine resource monitoring, including mapping and determining the quality of rocky reef and seagrass habitat seaward of the proposed walls. Also, because the project could adversely marine water quality, the Commission staff requested that the Corps consider incorporating water quality improvements (such as additional filtering or treatment of storm water or other effluent) into the project.

As noted in the previous two sections of this report, after further discussions with the City of Pismo Beach, the agreement to redesigning the proposed St. Andrews site wall to a vertical wall design may allow the avoidance of direct effects on any sensitive vegetation communities, and should reduce sandy beach effects, and possibly offshore effects on marine habitat. In the Commission staff recommended that order to find the project consistent with the Coastal Act, the following assurances and commitments would be needed:

Intertidal Impacts Monitoring. The Corps needs to commit to incorporating the marine resource monitoring recommended by NMFS recommendations for pre- and post-construction monitoring of rocky reef and seagrass habitat (with provisions for mitigation if monitoring results indicate impacts occurring).

Environmentally Sensitive Habitat Monitoring. The Corps needs to: (1) assure, in its project plans, avoidance of direct displacement of environmentally sensitive habitat, including coastal bluff scrub, or if such impacts are unavoidable, to mitigate such impacts; (2) commit to monitoring for the presence of any listed butterfly species in such habitat, and if they are present, perform construction during non-sensitive periods; (3) commit to a plan to remove any invasive species occurring within or adjacent to the project sites.

In response to the above habitat and water quality concerns expressed, the Corps has provided additional information and made additional commitments (Exhibits 20-22), as follows:

*The sites are pocket beaches and construction would not take place near high value rocky intertidal habitat which would not provide a good surface for construction. Construction equipment on the beach would be limited to only the equipment that cannot do its work from the bluff top. At the St. Andrews and Vista del Mar sites, construction work could occur from sandy beach areas at low tide hours.*

*Construction BMPs would be implemented to minimize water quality impacts to the ocean water during construction. Additional measures, unrelated to the proposed shore protection project, could be in-line trash separation devices or use of bioswales/bio-filtration on smaller storm drains.*

*Pre-project surveys have already been done at a level appropriate for project location and description. The Corps has concluded that the proposed project will not impact high value rocky intertidal habitat. The footprint of the structures does not extend into any high value rocky intertidal habitat. Construction equipment will not be placed within high value rocky habitat. Staging and servicing of equipment will be on the top of the*

*bluffs. When equipment is on the beach it will be working in the pocket beach area during low tide at the base of the bluffs not in the high value rocky intertidal and surfgrass habitat. As an extra precaution, a biologist will monitor construction activities. The environmental commitment for a monitor contained in the Draft EA/MND shall be revised to include anytime construction equipment is operating on the beach. In addition, project construction is not expected to have indirect impacts on high value rocky intertidal habitat. Staging and servicing of construction equipment will be done on the bluffs not near the water. Best Management Practices will be implemented to ensure that fuels, lubricants, or other toxic materials are not introduced to the ocean. Construction would not be expected to introduce turbidity to project waters. Imported soil for the backfill would be stored in the staging area on the bluffs not on the beach. Best Management Practices would be implemented during construction to make sure that backfill material does not get washed into the water. With these measures no impacts to sensitive rocky intertidal and surfgrass habitat would occur. Therefore, no monitoring of the type recommended by the NMFS is needed.*

*The City has committed to performing the requested monitoring.*

*(1) Coastal bluff scrub is not considered to be “environmentally sensitive habitat”. In addition, this habitat is present at the site in extremely small, highly disturbed pockets. The St. Andrews site has one patch of coastal bluff scrub. The Vista del Mar site has three patches of disturbed coastal bluff scrub. Disturbed means that there are a lot of non-natives in the patch. The habitat value of these patches is considered negligible owing both to their size and to their disturbed state. However, patches will be identified immediately prior to construction and avoided where feasible. The Corps’ onsite monitor will identify and flag patches of coastal bluff scrub. The patches are susceptible to erosion and would be lost in the no project condition.*

*(2) There are no listed butterfly species or habitat suitable for listed butterfly species present on any of the sites.*

*(3) Invasive species will likely be removed during construction. However, the Corps cannot commit to planning for their removal on or adjacent to project sites.*

*The city of Pismo Beach currently has an approved Stormwater Pollution Prevention Plan with the Central Coast Regional Water Quality Control Board. Provisions of that plan include the installation of in-line trash separation devices on all storm drains. There is one active remaining storm drain present at each of the two sites addressed in the Coastal Consistency Determination. Other storm drain pipes at the two locations are no longer active and will be cut off by the sea wall. The City is in the process of outfitting all storm drains, but has not yet done so for the two sites. However, they are required to do so by their approved Stormwater Pollution Prevention Plan. The City has committed to prioritizing the two active storm drains to have in-line trash separation devices installed immediately following construction of the seawalls. The sea wall will*

*accommodate the discharge of the storm drains at their current locations. These measures are already required by the City, compliance with the approved Stormwater Pollution Prevention Plan is the mechanism that ensures that the devices will be installed.*

*The City is required to provide water quality drainage improvements by their Storm Water Pollution Prevention Plan. Provisions of this plan are enforceable by the Regional Water Quality Control Board (RWQCB). Failure to do so could result in enforcement action by the RWQCB. The City has volunteered to provide the funding to design and construct an access at the St Andrews site and to conduct habitat monitoring at both sites. The Corps will include these measures in the plans & specifications as a betterment work closely with the City to ensure completion of both measures as part of the construction contract. The funding agreement between the City and the Corps will include these items that the City has agreed to fund. The seawall must be completed at St Andrews before it is possible to install an access down the face of the sea wall. Habitat monitoring would occur upon completion of construction.*

Given these commitments, the Commission finds that if the inconsistencies discussed in the first two sections of these findings were able to be resolved, these commitments could likely be memorialized, through review of final plans that would avoid any sensitive habitat, if present, and review of water quality plans and habitat monitoring efforts, through conditions of concurrence and other agreements, such that the project could be found consistent with the marine resources, water quality, and environmentally sensitive habitat policies (Sections 30230, 30231, and 30240(b)) of the Coastal Act.

## **VI. SUBSTANTIVE FILE DOCUMENTS:**

1. Draft Pismo Beach Shoreline Protection Project Environmental Assessment/Mitigated Negative Declaration, U.S. Army Corps of Engineers, Los Angeles District, November 2010.
2. Coastal Engineering Appendix To Pismo Beach Storm Damage and Shoreline Protection, CAP 103 Plan Formulation (Moffatt & Nichol, June 2010).
3. Geotechnical Appendix of Pismo Beach Bluff Erosion (Including TRACES MII version 2.2 Cost Estimate, U.S. Army Corps of Engineers, Los Angeles District, November 2010.
4. Coastal Commission Coastal Development Permits for Seawalls: CDP 3-09-042 (O'Neill Seawall), CDP 3-09-025 (Pebble Beach Co. Beach Club Seawall), Appeal No. A-3-PSB-02-016 (Grossman-Cavanagh seawall), CDP 6-06-153 (City of San Diego La Jolla seawall), CDP 6-09-033 (O'Neal Family Trust, Garber, et al., Solana Beach seawall), City of Santa Cruz Pleasure Point seawall (Appeal No. A-3-SCO-07-015 and

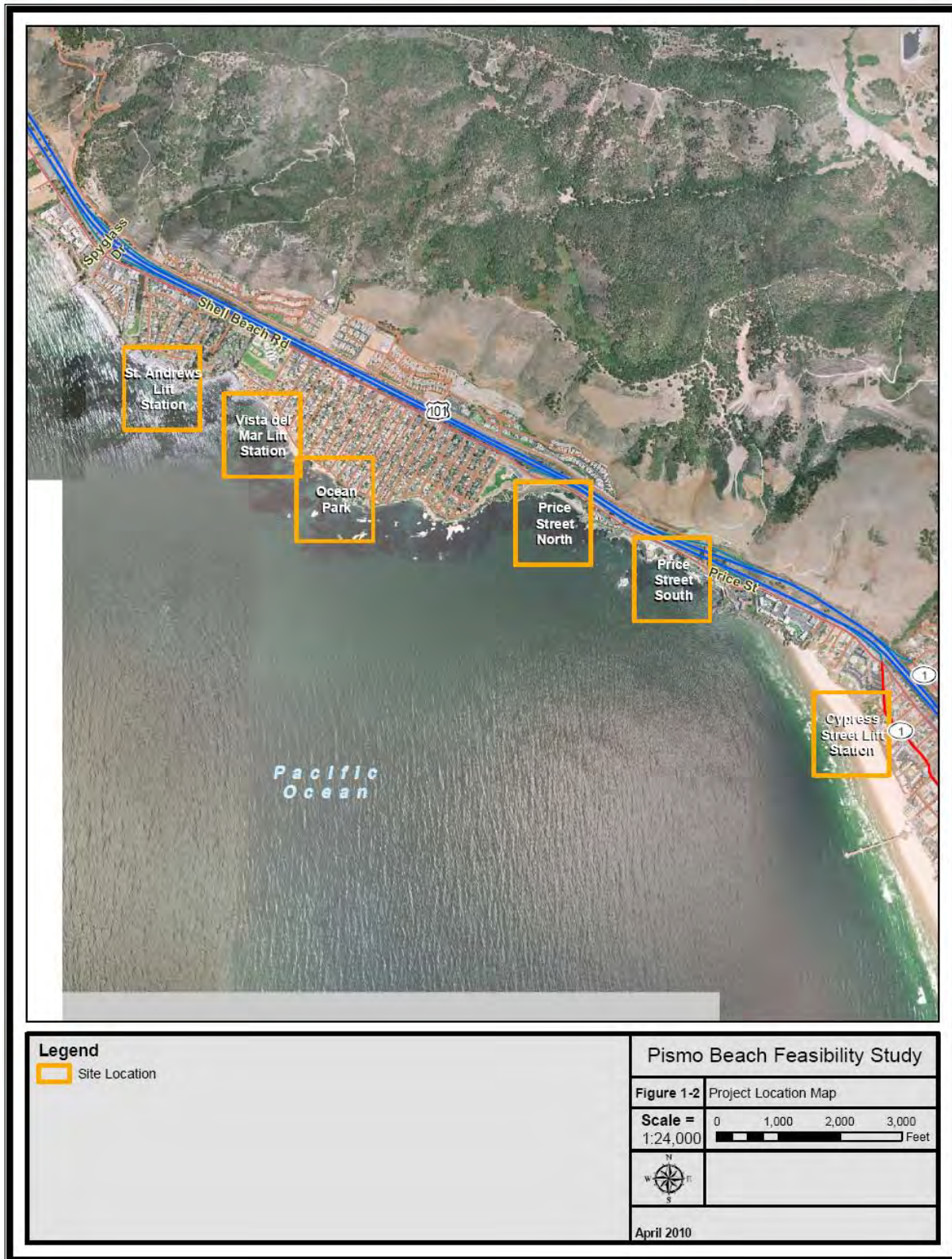
CDP Application No. 3-07-019, and Appeal No A-4-PSB-91-49 (Loughead, Pismo Beach).

5. Pismo Beach Coastal Storm Damage Analysis Report, With-Project Economic Analysis, Draft, U.S. Army Corps of Engineers, February 2011.

**Figure 1-1  
Project Vicinity**



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



**Figure 2-7**  
**St. Andrews Lift Station Alternatives Footprints**



**Figure 2-8**  
**Vista del Mar Lift Station Alternatives Footprints**

EXHIBIT 3  
CD-061-10  
St. Andrews Site - Footprint

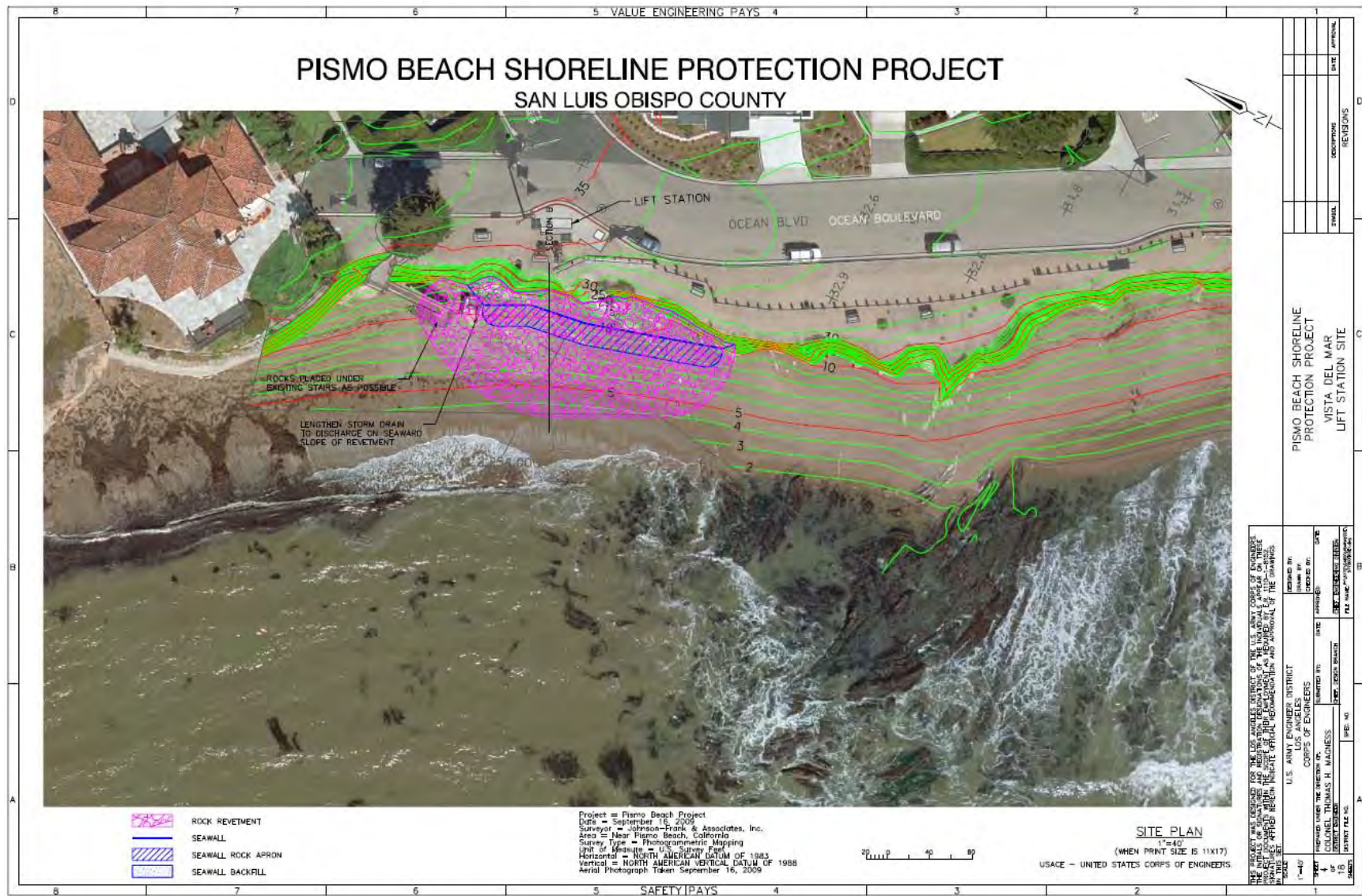
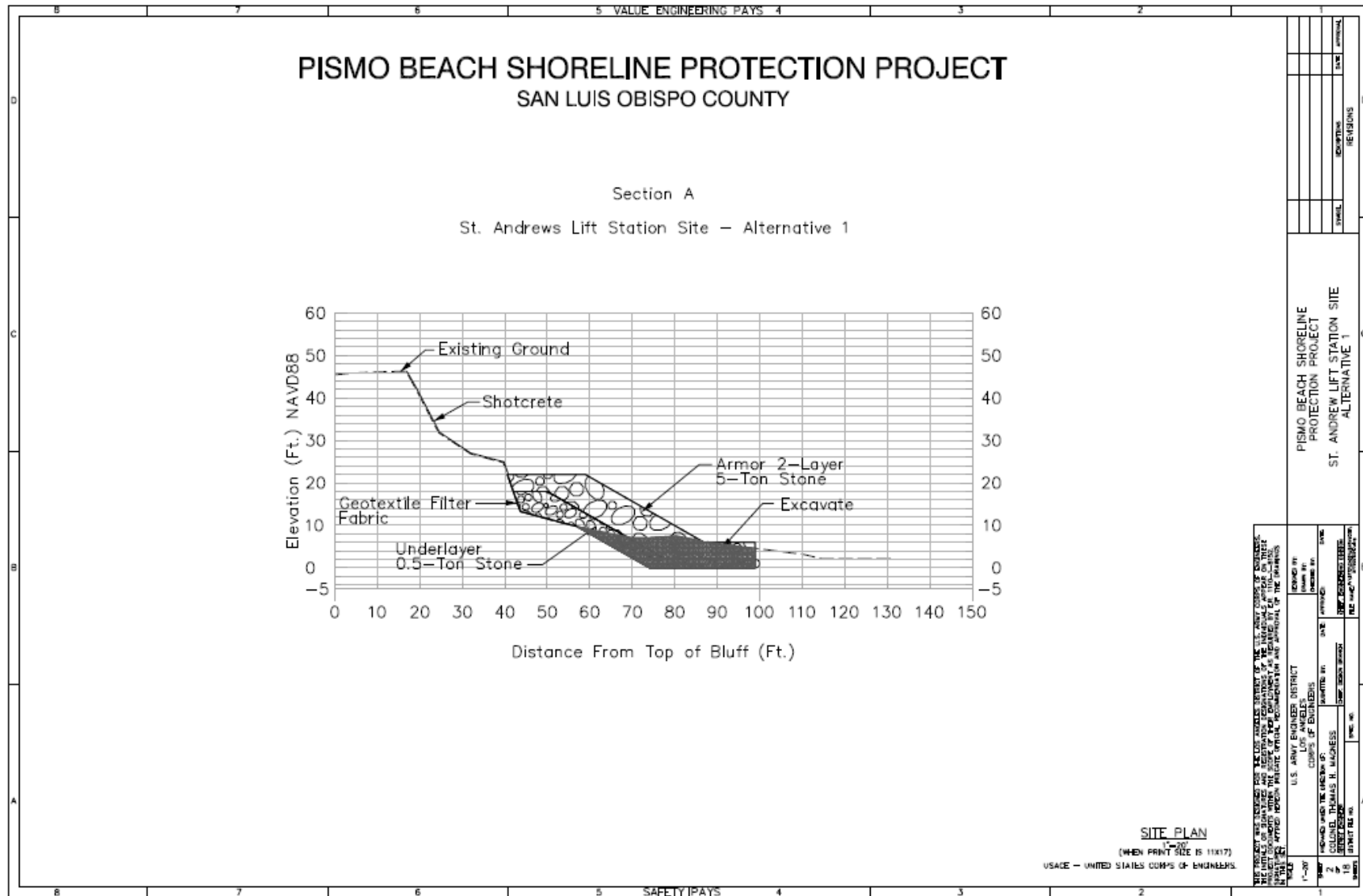
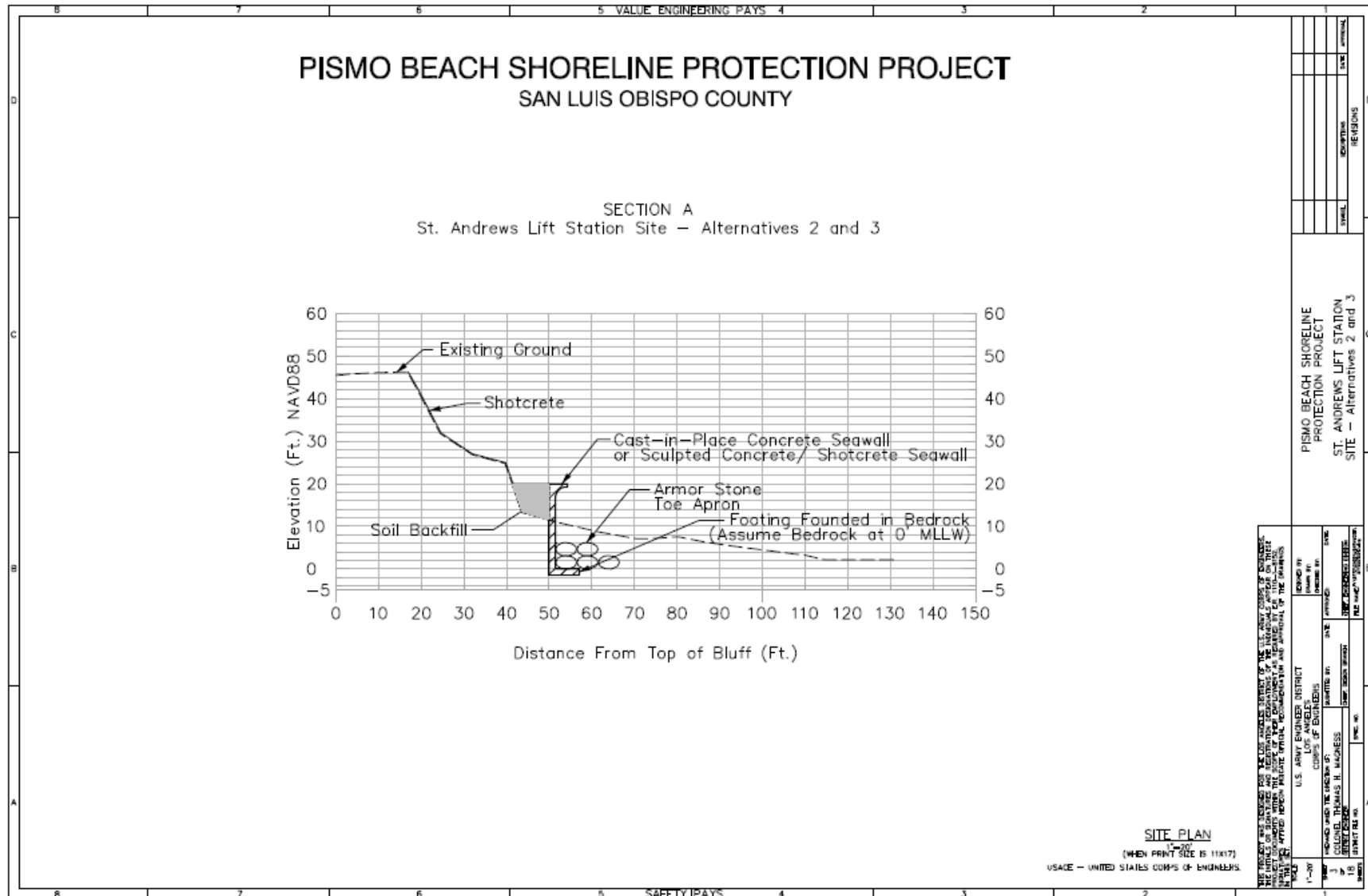


EXHIBIT 4  
CD-061-10  
Vista del Mar Site - Footprint

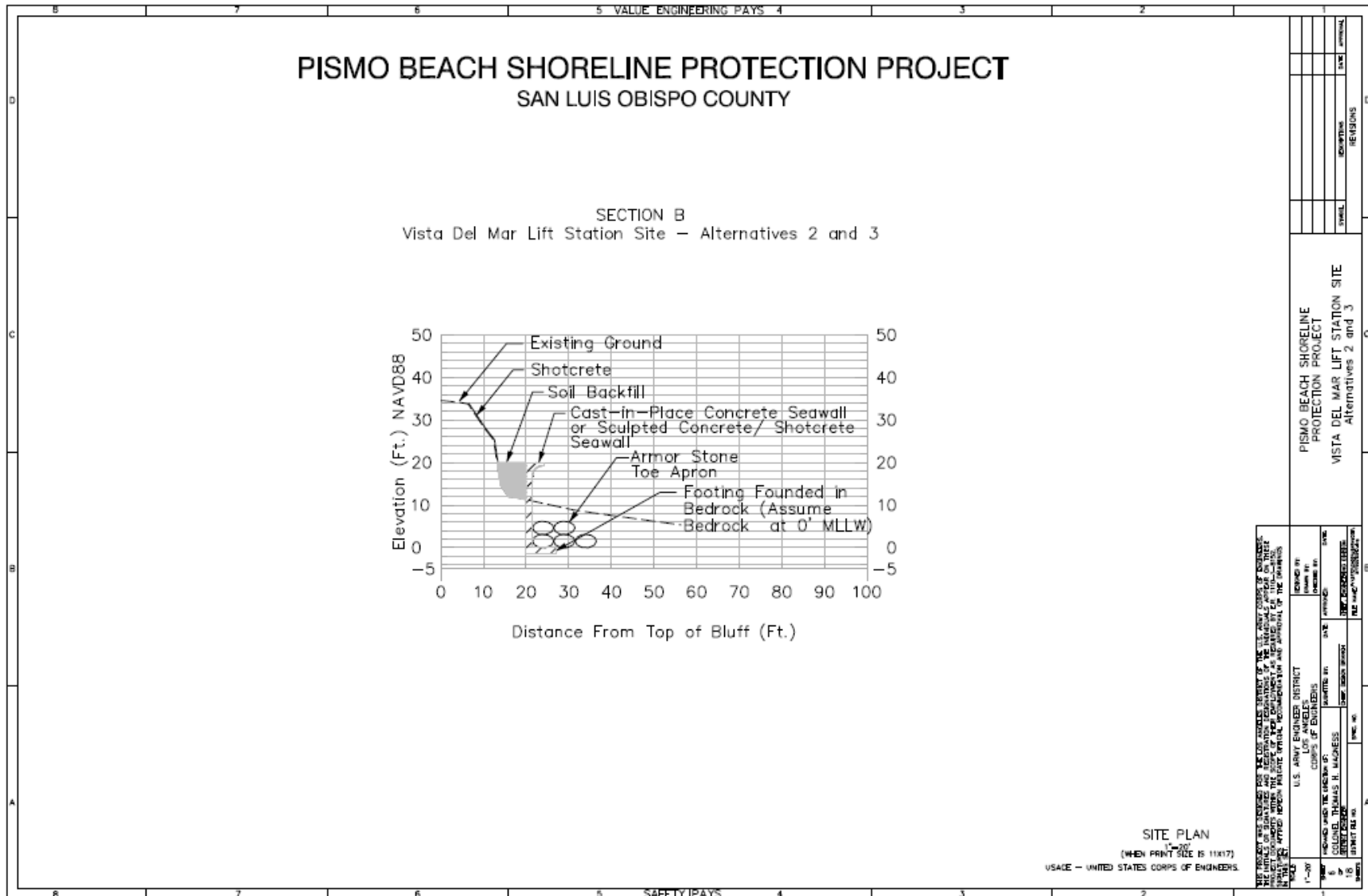
**Figure 2-1**  
**St. Andrews Lift Station Retevment Alternative Cross-section**



**Figure 2-13**  
**St. Andrews Lift Station Seawall Alternative Cross-section**



**Figure 2-14**  
**Vista del Mar Lift Station Seawall Alternative Cross-section**



length of the proposed seawall would extend farther north than the existing seawall which would address end effect erosion risks to the lift station associated with the existing seawall. Additionally, the soil backfill and bluff-face shotcrete application would help to stabilize the bluff at this location, where the lift station is already very close to the edge of the bluff.



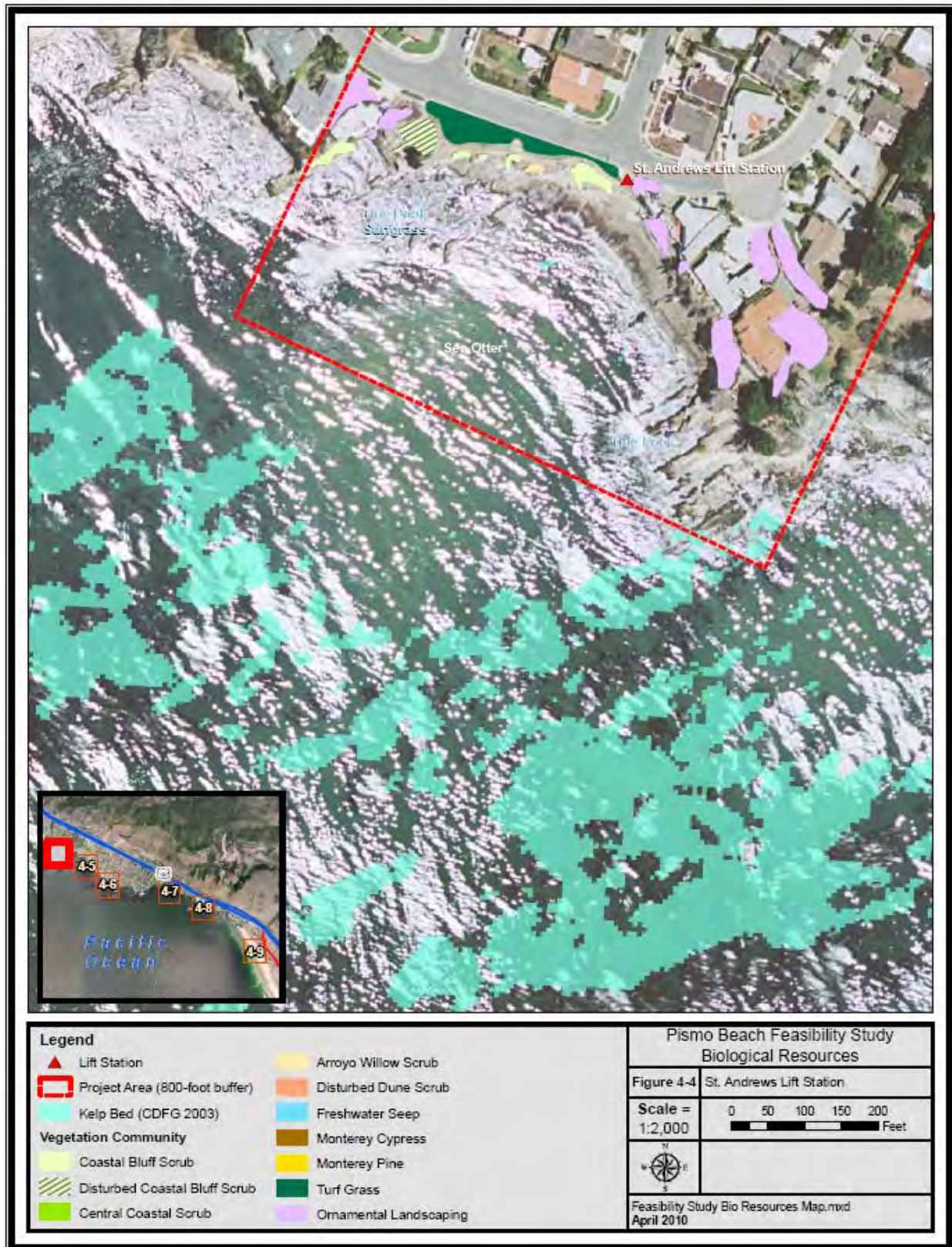
The rate of erosion for the bluffs in the vicinity (approximately 1,000 feet downcoast and 1,000 feet upcoast) of St. Andrews lift station area is approximately 8 inches per year. This is an average erosion rate for the bluffs in this particular localized area. The erosion rate for the bluffs immediately below and adjacent to the lift station is truly much lower due to the construction of the existing seawall. There are bedrock exposures downcoast and upcoast of this seawall. Most of the bluff face in this area is made up of terrace soils. The bottom of the bluff face is made up of a thin bedrock layer. This bedrock layer is pocketed with small 2 to 6 foot diameter sea caves voids, and smaller 1 to 2 foot wide open fractures that parallel the bedding plane direction (east to west orientation) of the layers of bedrock. This orientation of the bedrock layers is also more in line with the direction of the ocean waves. There are also numerous large notches (shoehorn shaped), which are eroded into the entire height of the bluffs, as evidenced by the spurlike traces of the bluffline in this vicinity. These notches follow this same orientation as the bedrock bluff bottom layer. There is also smaller rilling erosion features evident only along the upper bluff face within the terrace soils. The rilling indicates that sheetwash or terrestrial directed erosion is still occurring along the upper bluff face. There are also a few storm drainage pipes that exit the bluff top soils in this vicinity, and most of the pipes overextend in length towards the ocean. This indicates that stormwater

**Figure 2-18**  
**Sculpted Concrete/Shotcrete Wall at Florin Street in Pismo Beach**

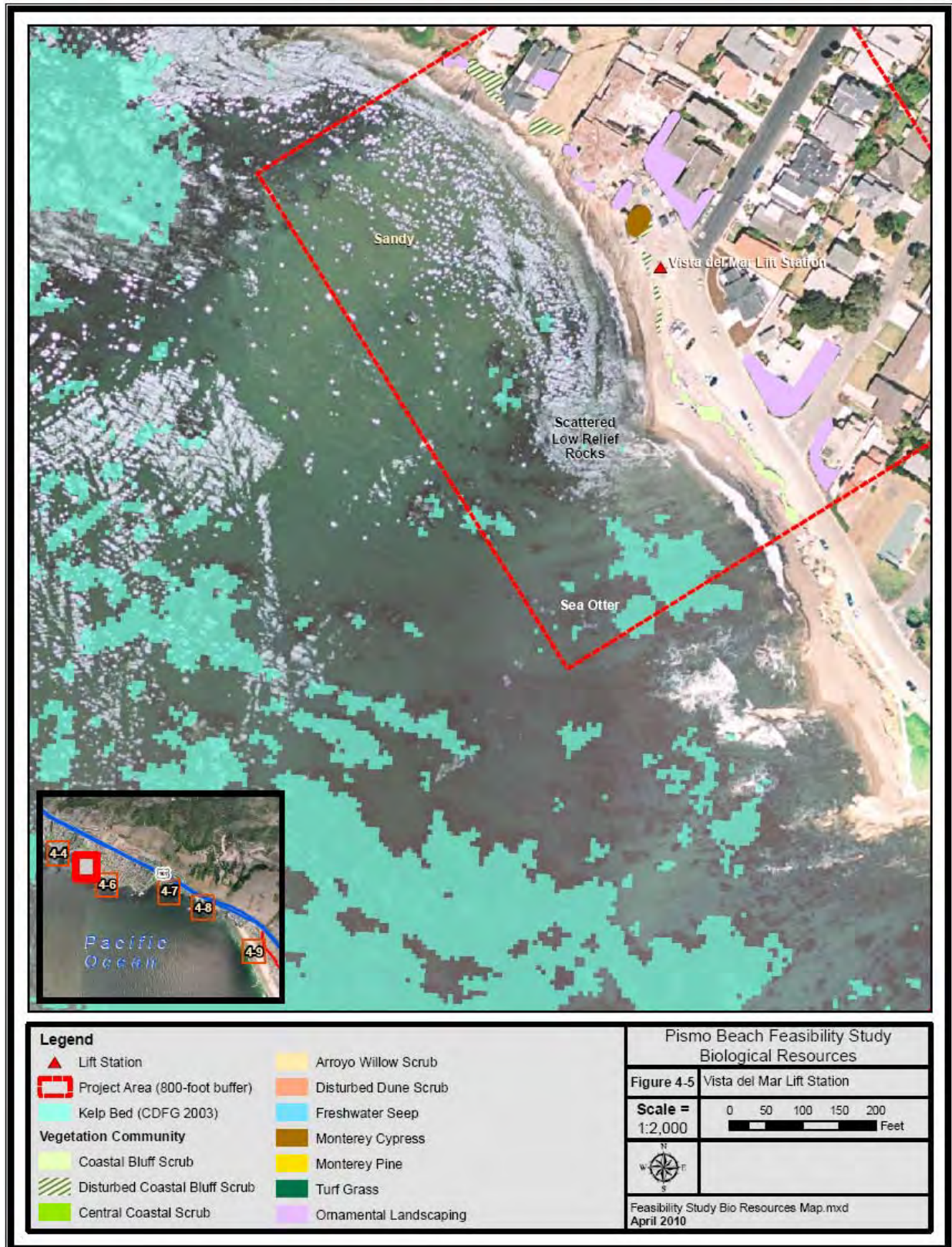


EXHIBIT 9  
CD-061-10  
Florin St. - Existing Vertical Wall

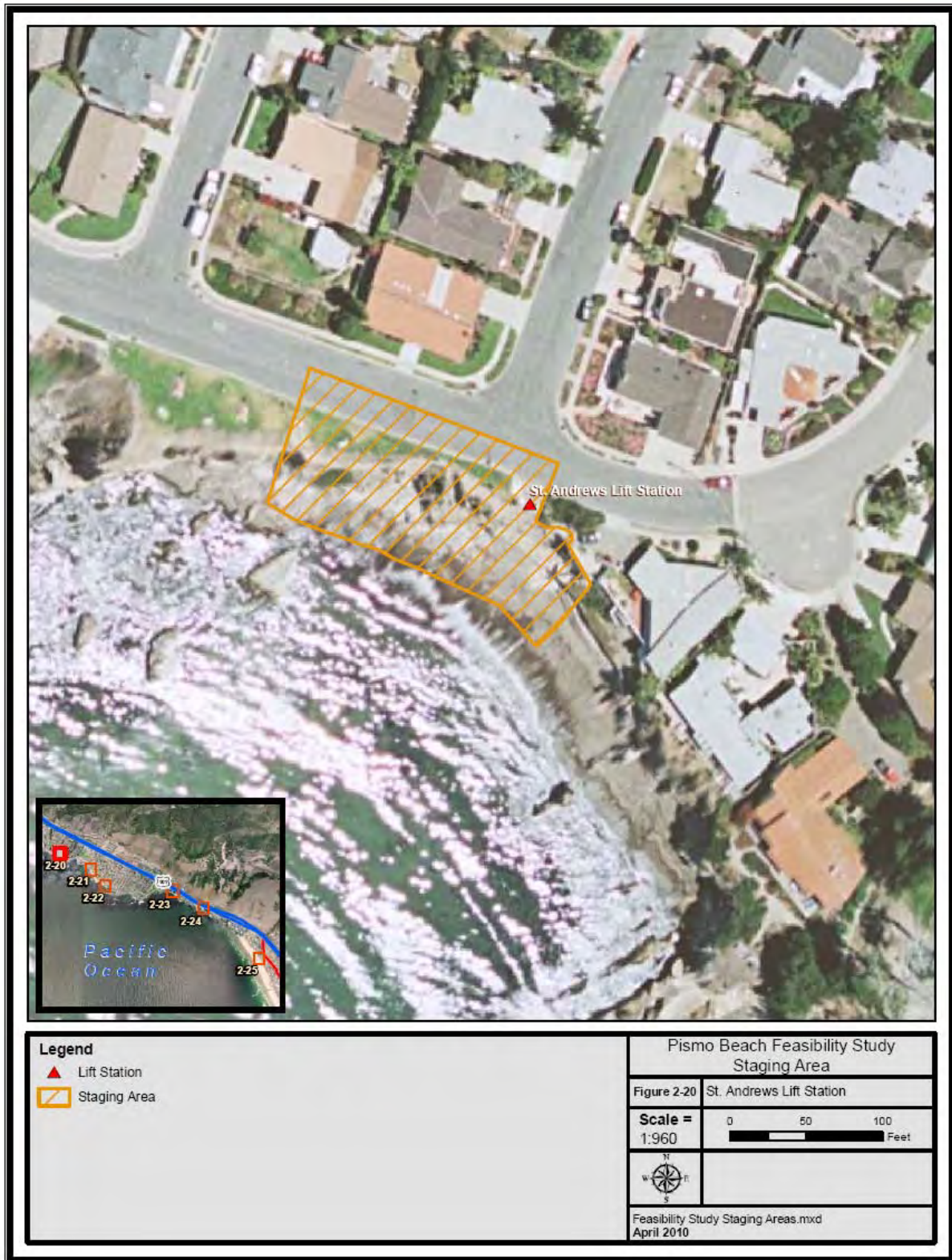
**Figure 4-4**  
**Biological Resources at St. Andrews Lift Station**



**Figure 4-5**  
**Biological Resources at Vista del Mar Lift Station**



**Figure 2-20**  
**St. Andrews Lift Station Staging Area**



**Figure 2-21**  
**Vista del Mar Lift Station Staging Area**



## SECTION 2.0 – DESCRIPTION OF THE PROPOSED ALTERNATIVES

Four alternative designs are proposed for this Project. Not all sites are appropriate for every design alternative. Table 2-1 identifies which design alternatives apply to each site and provides approximate dimensions.

**Table 2-1 Characteristics of Alternatives at Each Site**

Site	Alternative	Approximate Beach Footprint (acres)	Approximate Alongshore Length (feet)	Revetment Crest/Wall Top/Toe Elevation (feet, MLLW*)	Rock Quantity (tons)
St. Andrews Lift Station	1	0.18	110	+22/+4	3,500
	2/3	0.06	110	+20/+8	800
Vista del Mar Lift Station	1	0.17	120	+22/+4	4,000
	2/3	0.06	120	+20/+8	900
Ocean Park	1	0.20	150	+22/+3	5,000
	2/3	0.08	150	+20/+8	1,100
Price St - North	1	0.39	270	+22/+4	8,300
	2/3	0.22	270	+20/+8	1,800
Price St - South	1	0.16	160	+22/+5	5,200
	2/3	0.16	160	+20/+6	1,100
Cypress Street Lift Station	1	0.87	680	+20/+14	20,700
	4	0.15	680	+20/+18	4,400

\*MLLW – Mean Lower Low Water

### 2.1 ALTERNATIVE 1: ROCK REVETMENT

The rock revetment alternative is proposed for all six sites. The use of a rock revetment for shore protection involves the placement of large stones at the base of the bluffs. Rock revetments protect bluffs from wave-induced scour by effectively dissipating wave energy within voids between stones. Except at the Cypress Street Lift Station site, the crest height of the revetments at Pismo Beach is +22 feet Mean Lower Low Water (MLLW). For the Cypress Street Lift Station site, the wave run-up would not be as high on the bluff face because of the wide beach and dunes. At the Cypress Street Lift station site, the crest height of the revetment would be +20 feet MLLW. The armor stone size of the revetment is 5 tons. Figure 2-1 to Figure 2-6 show the cross sections of the revetment alternative at each site. Figure 2-7 to Figure 2-12 show the footprints of the rock revetment at each site. Table 2-1 shows the characteristics of the revetment alternative at each site.

**Table 2-3**  
**Construction Details – Truck Trips**

Location	Alternative	Number of Truck Trips				Total # of Truck Trips Per Alternative Per Site	Number of Trucking Days		
		Rock Haul Truck Trips	Concrete Truck Trips	Sheetpile Delivery Truck Trips	Soil Haul Truck Trips		Rock Haul Trucking Days *	Concrete Trucking Days**	Soil Haul Trucking Days***
St. Andrews Lift Station	Alt 1	250	0	0	0	250	9	0	0
	Alt 2	60	70	0	40	170	2	2	2
	Alt 3	60	80	0	40	180	2	2	2
Vista del Mar Lift Station	Alt 1	200	0	0	0	200	7	0	0
	Alt 2	50	50	0	30	130	2	2	1
	Alt 3	50	60	0	30	140	2	2	1
Ocean Park	Alt 1	180	0	0	0	180	6	0	0
	Alt 2	40	80	0	30	150	2	2	1
	Alt 3	40	90	0	30	160	2	3	1
Price St - North	Alt 1	420	0	0	0	420	14	0	0
	Alt 2	90	220	0	70	380	3	6	3
	Alt 3	90	230	0	70	390	3	6	3
Price St - South	Alt 1	260	0	0	0	260	9	0	0
	Alt 2	60	130	0	70	260	2	4	3
	Alt 3	60	150	0	70	280	2	4	3
Cypress Street Lift Station	Alt 1	1,040	280	0	0	1,320	35	7	0
	Alt 4	220	280	20	0	520	8	7	0

\* based on 30 rock trucks per day

\*\* based on 40 concrete trucks per day

\*\*\* based on 30 soil trucks per day



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Southwest Region  
501 West Ocean Boulevard, Suite 4200  
Long Beach, California 90802-4213

**JAN 14 2011**

Colonel R. Mark Toy  
U.S. Army Corps of Engineers  
Los Angeles District, CESPL-CO-R  
P.O. Box 2711  
Los Angeles, California 90053-2325

Dear Colonel Toy:

NOAA's National Marine Fisheries Service (NMFS) has reviewed the U.S. Army Corps of Engineers' (Corps) Draft Environmental Assessment (DEA) for the Pismo Beach Shoreline Protection Project. NMFS offers the following comments pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Fish and Wildlife Coordination Act (FWCA).

#### **General Comments**

There is inconsistent language regarding the selected alternatives on page 30 of the DEA. Specifically, according to supporting text, both the rock revetment and sculpted concrete wall were selected for the St. Andrews Lift Station. NMFS presumes that the statement regarding selection of the sculpted concrete wall alternative for the St. Andrews Lift Station was a typographical error.

Section 8.0 regarding environmental compliance does not include MSA as one of the applicable federal laws. In addition, FWCA is improperly described in the sub-heading 8.10 as U.S. Fish and Wildlife Service Coordination. It should read Fish and Wildlife Coordination Act.

#### **Proposed Project**

For purposes of this consultation, the proposed project involves shoreline protection activities at the St. Andrews Lift Station and Vista del Mar Lift Station sites. According to the DEA, these two sites were selected as priority sites for initial construction by the City of Pismo Beach. The rock revetment alternative is proposed for the St. Andrews Lift Station and a sculpted concrete wall is proposed for the Vista del Mar Lift Station.

The rocky revetment at the St. Andrews Lift Station site is expected to extend seaward to + 4 feet Mean Lower Low Water (MLLW). The concrete sea wall at the Vista del Mar Lift Station site would extend seaward to an elevation of +8 feet MLLW.

EXHIBIT 16  
CD-061-10  
Correspondence



## **Magnuson-Stevens Fishery Conservation and Management Act Comments**

### **Action Area**

The proposed project occurs within essential fish habitat (EFH) for various federally managed fish species within Pacific Coast Groundfish, Coastal Pelagic Species, and Pacific Salmon Fishery Management Plans (FMPs). In addition, the project occurs within or in the vicinity of areas designated as a habitat area of particular concern (HAPC) for various federally managed fish species within the Pacific Groundfish FMP. HAPC are described in the regulations as subsets of EFH which are rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area. Designated HAPC are not afforded any additional regulatory protection under MSA; however, federal projects with potential adverse impacts to HAPC will be more carefully scrutinized during the consultation process. As defined in the Pacific Groundfish FMP, the proposed project occurs within or in the vicinity of rocky reef and seagrass HAPC.

### **Effects to EFH**

In general, coastal armoring has the potential to impact natural shoreline processes, such as placement loss, active erosion, and/or passive erosion. According to Dugan et al (2008)<sup>1</sup>, the combination of rising sea levels predicted by climate change models and the increasing extent of coastal development and armoring will accelerate beach erosion and loss and increase ecological impacts to sandy beach ecosystems on a scale that is unprecedented. Shoreline armoring often results in a reduction and/or loss of intertidal beach habitat and a reduction in macrophyte wrack.

The footprint of the rocky revetment at the St. Andrews Lift Station is expected to permanently impact 0.09 acres of beach habitat and 0.09 acres of rocky habitat. Impacts are expected to occur within the supratidal and upper intertidal zone. As described in the DEA, conversion of sandy beach habitat may result in the degradation of the macroinvertebrate community by changing community composition and reducing species diversity. Furthermore, impacts of the revetment on the macroinvertebrate community may extend beyond the footprint of the revetment itself. This may affect foraging resources for various fish species. In addition, although the rocky revetment will provide hard substrate, it's relatively high profile compared to existing rocky habitat will likely increase desiccation stress. Thus, the revetment rocks may not support the same abundance and diversity of organisms as provided by the natural rocky intertidal habitat.

The project description is not comprehensive, but the DEA indicates that activities, equipment, and workers during construction of a revetment at the St. Andrews Lift Station site would disturb wildlife on the beach. In addition, construction descriptions and figures in Section 2.0 indicate that excavation and trenching will occur in the intertidal zone. Construction within the intertidal zone would adversely affect EFH by:

---

<sup>1</sup> Dugan, J.E., Hubbard, D.M., Rodil, I.F., Revell, D.L., and S. Schroeter. 2008. Ecological effects of coastal armoring on sandy beaches. *Marine Ecology*: 29, 160-170

1) changing the physical, chemical, and biological characteristics of the substrate; 2) impacting or smothering immobile benthic communities in the footprint of the activity; 3) forcing mobile animals to migrate from the area; 4) creating limited short-term turbidity plumes; and 5) potentially directly or indirectly affecting adjacent habitats. Given that rocky reef and seagrass HAPC occur immediately adjacent to the construction site, NMFS believes these potential impacts require additional scrutiny.

Construction of a concrete sea wall at the Vista del Mar Lift Station site would impact 0.06 acre of sandy beach habitat above + 8 feet MLLW. Although less of an impact compared to a rocky revetment, the shoreline armoring may have adverse impacts to adjacent intertidal habitat given changes in natural shoreline processes.

#### EFH Conservation Recommendations

Based upon the above effects analysis, NMFS has determined that the proposed action would adversely affect EFH for various federally managed fish species within the Coastal Pelagic Species, Pacific Coast Groundfish, and Pacific Salmon FMPs. Therefore, pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS offers the following EFH conservation recommendations to avoid, minimize, mitigate, or otherwise offset the adverse effects to EFH.

1. Given that the rocky revetment alternative will result in a greater impact to sandy beach and rocky reef habitat and there is a higher likelihood of impacts to adjacent, sensitive intertidal habitats than the seawall alternative, the St. Andrews Lift Station site should utilize a seawall approach to shoreline protection. According to the DEA, the seawall alternative would meet the project purpose and would achieve a Benefit Cost ratio greater than one.
2. The Corps and/or City of Pismo Beach should conduct pre- and post-construction surveys to map the coverage of rocky reef and seagrass habitat and characterize the quality of the habitat. The survey methodology should be approved by the Corps, in consultation with NMFS and other relevant agencies, prior to construction. The post-construction survey should be conducted within 90 days of construction completion. If impacts are identified in the post-construction survey, the applicant should develop and implement a compensatory mitigation plan to offset any identified losses in the quantity or quality of adjacent HAPC.

#### Statutory Response Requirement

Please be advised that regulations at section 305(b)(4)(B) of the MSA and 50 CFR 600.920(k) of the MSA require your office to provide a written response to this letter within 30 days of its receipt and at least 10 days prior to final approval of the action. A preliminary response is acceptable if final action cannot be completed within 30 days. Your final response must include a description of measures to be required to avoid, mitigate, or offset the adverse impacts of the activity. If your response is inconsistent

with our EFH conservation recommendations, you must provide an explanation of the reasons for not implementing those recommendations. The reasons must include the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

#### Supplemental Consultation


Pursuant to 50 CFR 600.920(l), the Corps must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations.

#### Fish and Wildlife Coordination Act Comments

The purpose of the FWCA is to ensure that wildlife conservation receives equal consideration, and is coordinated with other aspects of water resources development [16 U.S.C. 661]. The FWCA establishes a consultation requirement for federal departments and agencies that undertake any action that proposes to modify any stream or other body of water for any purpose, including navigation and drainage [16 U.S.C 662(a)]. Consistent with this consultation requirement, NMFS provides recommendations and comments to federal action agencies for the purpose of conserving fish and wildlife resources. NMFS has determined that sandy beach and rocky reef habitat may be negatively impacted by proposed project activities. As such, EFH Conservation Recommendations provided above also serve as FWCA recommendations to address these negative impacts.

Thank you for consideration of our comments. If you have any questions regarding these comments, please contact Bryant Chesney at [Bryant.Chesney@noaa.gov](mailto:Bryant.Chesney@noaa.gov) or 562-980-4037.

Sincerely,

  
for Robert S. Hoffman  
Assistant Regional Administrator  
for Habitat Conservation



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January 26, 2011

California Coastal Commission  
45 Fremont Street, Suite 2000  
San Francisco, California 94105-2219  
Attn: Mark Delaplaine  
[mdelaplaine@coastal.ca.gov](mailto:mdelaplaine@coastal.ca.gov)

RE: Pismo Beach Shoreline Protection Project – Wednesday, Feb. 9, 9b

Dear Chair Wan and Commissioners,

The Sierra Club is concerned that the Commission is considering determination of federal consistency for this project prior to completion of the environmental review and final action by the lead agencies.

We have submitted comments to the USACE and City of Pismo Beach in which we pointed out the serious flaws in the project's EA/MND and the need for preparation of a full EIR/EIS. We noted that the analysis of the project's impacts is incomplete and underestimates the impact of sea-level rise resulting from climate change. The EA does not consider cumulative impacts, and its alternatives analysis is inadequate.

Since the submission of comments, we have seen no response to comments, no final EA/MND, and no indication that the Corps and the City intend to conduct the more appropriate level of review with an EIR/EIS as necessary to analyze the project's potential significant impacts.

In light of this, a federal consistency determination appears premature. The Commission does not have adequate information before it as a basis for determining the project's consistency with the Coastal Act, which a full environmental review would provide. Further, a consistency determination would likely prejudice the current environmental review process against project alternatives.

Absent a final CEQA/NEPA document, we believe the Commission should acknowledge that it cannot meet the requirement of the Coastal Zone Management Act to find this project to be consistent to the maximum extent practicable with the Coastal Act.

Thank you for your attention to these concerns,

Chapter Director

EXHIBIT 17  
CD-061-10  
Correspondence



January 26, 2011

California Coastal Commission  
45 Fremont Street, Suite 2000  
San Francisco, California 94105-2219  
Attention: Mark Delaplaine  
[mdelaplaine@coastal.ca.gov](mailto:mdelaplaine@coastal.ca.gov)

**RE: PISMO BEACH SHORELINE PROTECTION PROJECT – Wed. 9b**

*Via electronic mail to Mark Delaplaine*

Dear Chair Wan and Commissioners,

Please accept these written comments on behalf of the San Luis Obispo Chapter of Surfrider Foundation (“Surfrider”) in regards to the Commission’s consideration of federal consistency determination for the Pismo Beach Shoreline Protection Project (Item Wed.9b). Surfrider Foundation is a non-profit environmental organization dedicated to the protection and enjoyment of our world’s oceans, waves and beaches, for all people.

Surfrider is concerned that the U.S. Army Corps of Engineers (“Corps”) is requesting that the Commission consider this item before CEQA and NEPA review are complete. As of the time of submission of this letter to the Commission, the Corps and the City of Pismo Beach (“City”) have only issued a draft Environmental Assessment/Mitigated Negative Declaration (“EA/MND”) and accepted comments on this document; they have yet to respond to comments, publish a final EA/MND, or moved to conduct a more appropriate level of review in an Environmental Impact Statement/Environmental Impact Report (“EIS/EIR”).

Surfrider submitted comments on the draft EA/MND and highlighted reasons why the chapter believes the EA/MND is not the appropriate level of review for the proposed project; namely, that there is substantive evidence that the project has potentially significant impacts that need to be analyzed in an EIS/EIR. The chapter has neither learned of the agencies' decision to move forward or not move forward with more extensive review in the form of an EIS/EIR, nor has it received any notification that a final EA/MND has been published or adopted.

Without final action by the lead agencies, and without completion of environmental review, it seems premature in terms of process and in terms of completeness and adequateness of the information provided to the Commission for the Commission to make a consistency determination. Surfrider is particularly concerned that consistency determination at this point in time would act to build momentum behind the project as proposed, which could provide a strong incentive to ignore environmental concerns or project alternatives that have been raised via comments on the draft EA/MND and, instead, incentivize moving forward with the project as approved.

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Correspondence



Additionally, there are a number of outstanding issues that Surfrider has raised regarding the project as proposed, which have yet to be resolved in a final EA/MND or EIS/EIR. Many of these issues relate to inconsistencies with various policies in Chapter 3 of the Coastal Act, namely sections pertaining to protection of public access, oceanfront and upland recreation, visual resources, and minimization of adverse impacts (Sections 30210, 30211, 30212, 30221, 30223, 30235, 30240(b), 30251, and 30253(2)). Specific issues of concern are further enumerated in Surfrider's comments on the draft EA/MND, which Surfrider believes are being included as an exhibit to the staff report.

Section 930.32(a)(1) of the federal consistency regulations provides that:

*The term "consistent to the maximum extent practicable" means fully consistent with the enforceable policies of management programs unless full consistency is prohibited by existing law applicable to the Federal agency.*

As per Coastal Zone Management Act Section 307(c)(1), the standard for state agency approval of federal projects is that the activity must be "consistent to the maximum extent practicable" with the Coastal Act. Given these guiding policies and the noted inconsistencies of the project with numerous Coastal Act policies, which are compounded by the absence of a final CEQA/NEPA document, **Surfrider believes that the project cannot be found consistent with state regulations and respectfully urges the Commission to object to the consistency determination.**

Sincerely,

A handwritten signature in red ink that reads "Sarah Damron".

Sarah Damron  
Central California Regional Manager  
Surfrider Foundation  
[sdamron@surfrider.org](mailto:sdamron@surfrider.org)

/S/  
Piper Reilly, Vice Chair  
San Luis Obispo Chapter  
Surfrider Foundation  
[slo@surfrider.org](mailto:slo@surfrider.org)

**CALIFORNIA COASTAL COMMISSION**

45 FREMONT STREET, SUITE 2000  
SAN FRANCISCO, CA 94105-2219  
VOICE AND TDD (415) 904-5200



December 13, 2010

Josephine Axt, Chief, Planning Division  
U.S. Army Corps of Engineers  
ATTN: Mr. Larry Smith  
P.O. Box 532711  
Los Angeles, CA 90053-2325

RE: **CD-061-10**, Army Corps Consistency Determination, Pismo Beach Shoreline  
Protection Project, San Luis Obispo Co.

Dear Ms. Axt:

After receiving our November 30, 2010, letter requesting more information about the above-referenced activity, the Corps sent us an email dated December 2, 2010, stating:

*The Draft EA/MND contains all of the data and information supporting our conclusory statement. Anything else we provide you would simply be a repackaging of that information. The EA/MND prepared for this project is highly detailed and is easily on an EIS/EIR level of detail. I remind you that delays to the project risk loss of sewage pumping stations jeopardizing the coastal environment. It is imperative that we move forward while we still have a funded program from which to draw funding; the Continuing Authorities Program (CAP) is being phased out. The level of information in the Draft EA/MND clearly meets the requirements you quoted ("The amount of detail in the evaluation . . . shall be commensurate with the expected coastal effects of the activity . . . ." 15 CFR 930.39(a)).*

*Please provide a detailed list of the information you require that is not in the Draft EA/MND.*

We have gone over the Corps' Draft EA/MND, and it appears to us that the majority of questions we had have not been answered or addressed in that document. We understand the expressed urgency for protecting infrastructure in Pismo Beach. However we also note that shoreline armoring activities raise a number of Coastal Act concerns, and unless the Corps can establish that a proposed coastal armoring activity is the least environmentally damaging alternative, and that impacts will be mitigated, we cannot recommend concurrence.

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CD-061-10  
CCC to COE, 12/13/10

Accordingly, we will restate, and clarify where appropriate, our outstanding information and alternatives analysis needs in this letter. Most of the questions we have are based on the proposal for the two actually proposed activities - the revetment at the St. Andrews Lift Station, and the vertical wall at the Vista del Mar Lift Stations. Any questions about the remaining four activities not currently proposed are not as time-critical but will need to be answered before those become actively proposed projects. We would appreciate it if you would answer the following questions and provide the information requested:

**1. Engineering Studies.** The Draft Environmental Assessment (EA) repeatedly cites "Moffat and Nichol 2010." It is not clear whether this is anecdotal information or an actual engineering study. It is not listed in the References section at the end of the EA. If these references are to an actual study, please provide us with that document.

**2. Property Interest.** It is unclear who the property owner is, and whether the Corps has requested and/or received permission to construct the project. As you are aware, we have copied the State Lands Commission (SLC) on our initial letter to you, as it appears some if not all of the work is below Mean High Tide. We expect a response from the SLC staff shortly. We do not know who owns the bluff face.

**3. Project Need/Erosion Rate.** It is not clear from the EA the degree of threat to the lift stations and other infrastructure. What is the age of the lift stations, what condition are they in, and what is their expected useful life? What is the erosion rate (if this information is available), both at the base of the bluff and at the face of the bluff.

It would appear to us that the rock formations at the base of the bluff, the existing seawall in front of that Lift Station), would have a low rate of erosion, and, further, looking at shoreline photographs, that the real erosion problem is primarily from erosion of the bluff face. It appears from aerial photos that bluff rilling/erosion is occurring due to water sheetflowing down over the bluff, combined with pipes that now extrude out from the bluff, and that the base of the bluff is either stabilized due to native rock or an existing seawall. Moreover, there is already an existing wall in front of the St. Andrews Lift Station - the extension of the wall in front of the adjacent home to the east. Where that wall ends, natural rock begins. Therefore it appears unnecessary to armor the base of the bluff, as it is already somewhat armored. Please analyze the alternative of limiting the work to mid- to upper-bluff stabilization and improving drainage controls. Such an alternative would reduce the impact of armoring on the beach and the direct displacement of sandy beach, which would reduce the need to mitigate that impact.

**4. Alternatives.** The alternatives analysis in the EA is inadequate. Managed retreat options (i.e., relocating structures/facilities to be protected) must be evaluated. Conclusory statements that it would be cost prohibitive, without any underlying facts to support the conclusions, do not enable us to determine their validity. We would also request an analysis of the cost and feasibility of relocating the threatened lift stations further inland, as well as any other infrastructure that you believe is threatened.

Finally, concerning the Corps' analysis of design life and ability to withstand expected wave events, we would note that for a 50-year design life, we would expect the design storm event be the 75- or 100-year event. Using a 50-year event as the design condition for a structure that is supposed to be effective for 50 years assumes that there is about a 98% chance that the design conditions will be experienced over the life of the structure, which represents a high probability that the design conditions will be exceeded. We also request the Corps' actual calculations, so we can determine how the Corps is using sea level rise assumptions, and at what point in the design process this factor has been introduced. (See Question 15 below for further comments on Sea Level Rise.)

**5. Design & Aesthetics.** The example included in the EA of a curved wall providing an "aesthetic" treatment on a wall at Florin St. in Pismo Beach is not a good example of what we would consider an adequate aesthetic treatment at this date. We would direct you to several more recently designed and built examples which provide much greater aesthetic sensitivity. The first example is the wall the City of Santa Cruz recently built at Pleasure Point, which is above the rock formations for the most part, and aesthetically designed, and which can be seen in Santa Cruz shoreline photos at this website:

<http://www.californiacoastline.org>

See - Images 201009248-201009253 (taken 2 ½ months ago), the first of which can be found at:

<http://www.californiacoastline.org/cgi-bin/image.cgi?image=201009248&mode=sequential&flags=0&year=current>

The second example is the Pebble Beach Co. seawall at Cypress Point in Monterey County, a photo of which is attached (a pdf version will be emailed to you as well).

As we noted/requested previously:

*Please provide a visual simulation of the proposed seawall facing that includes a natural combination of colors that provide a mottled appearance, which is more consistent with the appearance of a natural bluff face than a single uniform color. If a specific contractor has been chosen to do the facing work, please provide photographs of representative samples of this contractor's work. Please also be aware that the only walls that have been approved by the Commission for the past 5 or 10 years have included a visual treatment. Even some revetments have had a visual treatment. It is unlikely that Option 2 – an untreated vertical wall – would be considered currently to be an acceptable alternative for any location on the coast.*

**6. Variations in Designs.** We do not understand why a vertical wall, which is proposed for the Vista del Mar Site, was not also selected for the St. Andrews site. The analysis states that this is partly due to cost, and partly to the lack of public access at the St. Andrews site. What

is the cost differential? Also, we do not understand why the Corps does not consider loss of beach access to be a concern for this site, as the EA acknowledges that some public use of the site occurs. As we noted/requested previously:

*Modified Vertical Wall Alternative: The vertical wall alternatives have a significant amount of beach encroachment (ranging from approximately 25 feet to almost 50 feet). Alternative wall designs might closely follow the contours of the bluff face with minimal back fill and alternative foundation designs might not require a 15-foot wide scour apron. Please consider vertical wall options that minimize encroachment and also have a visual treatment to make them blend into the surroundings.*

**7. Possible Access Improvements.** As noted above, the EA acknowledges that some public use of the site occurs, but that after construction of the wall at the St. Andrews site, that access would be lost. We would appreciate consideration of including a public stairway to this beach, to restore, and if feasible improve, this access. As we requested previously:

*The proposed project will have temporary and permanent unavoidable impacts to public recreation and beach habitat and possibly to rocky habitat. Are any mitigation measures being considered to address these impacts, such as public access stairs installed into the ends of the vertical walls, new access stairs or paths in the project vicinity, added recreational amenities, improved habitat value, on or off-site habitat enhancement or restoration, etc.? If some options are being considered, please provide information on them.*

To further this concept, we note that in your email to us dated June 10, 2010, you cited a seawall case in La Jolla (6-06-153-A1) in which the Commission did not impose a mitigation fee. Your email also asked the question as to whether mitigation fees had been historically imposed by the Commission outside San Diego County.

The case cited above is not typical of recent Commission actions statewide on seawalls, including project proposed by public agencies. However, please note that the Commission sometimes allows, and indeed *prefers*, actual public access improvements in lieu of mitigation fees. Such fees in San Diego County are more routinized and predictable in that County, as a program is already in place to assure that funds will be used to add sand to area beaches. In other parts of the state, the Commission has endeavored to identify access or similar types of improvements, on a case-by-case basis, that funds could be used to obtain. This is part of the reason we are recommending a stairway to the beach at the St. Andrews site – this could be considered alternative mitigation to an in-lieu mitigation payment for recreation loss impacts for this specific location.

Finally, see question #11 below for a response to your statement that the bluff is not contributing to the sand on the beach in this location.

**8. Construction Period.** The EA states the project would take 3-4 months to construct, and looks at traffic, noise, visual, and other issues. It does not indicate whether summer months, and/or weekends and holidays, could be avoided to minimize effects on access and recreation during peak periods. It also does not indicate whether public parking lots to be used for staging would already be at or near capacity at these times. Please indicate the extent to which the proposal may avoid peak recreational periods. Also, if local area streets are intended to provide replacement public parking, if such parking is needed, please indicate whether there are any parking restrictions (applicable to the general public, such as hourly limits or restrictions) on these streets, and/or whether these local streets have the capacity to accommodate public parking during peak recreational periods.

**9. Maintenance and Long-Term Responsibilities.** Who will be responsible for monitoring, maintaining and repairing the walls, and, in the event they are no longer needed, for removing them? How can we be assured they will be removed after their useful life, or if the structures/facilities they are protecting have outlived their useful life? A monitoring plan should be included, which should identify triggers for maintenance as well as details about how, where, and when the maintenance will be undertaken.

**10. Detailed Site Plans & Previous Development.** The scale of the 8.5 x 11 include plans contained in the EA makes them difficult to read. In addition, they do not depict the curved wall at the Vista del Mar Site – they only show a straight wall. Also, at this scale we cannot see how the proposed wall at the St. Andrews is intended to intersect and/or replace the existing wall at that site. As we requested previously (and hopefully the City could provide this if the Corps does not have access to this information), we would appreciate a narrative description of the history of all existing structures at the project sites, including seawalls, riprap and rubble. All City permits authorizing such development since 1972 should be identified. Also, please provide a description of how the project would incorporate or remove the existing structures and/or any riprap or rubble.

As we requested previously, please provide two sets of full-size and two sets of reduced-size plans of the proposed project. Site plans should be prepared or certified by a registered engineer with expertise in shoreline processes. Normally this means a civil engineer or engineering geologist. On occasion this can be a structural engineer or soils engineer with experience in coastal engineering. Ideally, the plans should included the items listed in Attachment 1.

**11. Sand Loss Estimate.** The Coastal Act requires that any shoreline armoring proposed be designed to eliminate or mitigate adverse impacts on local shoreline sand supply. To assist applicants in determining these effects, we have attached a “Sand Loss Estimate” worksheet to be completed by the applicant’s geotechnical experts to determine the amount of sand loss that will result from the proposed project. This worksheet covers losses resulting from encroachment of shore protection onto existing beach area, future beach losses resulting from fixing the back beach and losses of littoral sand from halting on-going supplies of bluff

sediment to the coast. Please have the geotechnical or coastal engineering experts contact Lesley Ewing at our San Francisco office (415-904-5200) if they have any questions regarding this worksheet.

**12. Construction Impacts to Rocky Intertidal Habitat.** If vehicles will be needed below street level and on sandy beaches, please provide detailed discussion of the measures that will be taken during construction to avoid vehicle traffic over rocky intertidal habitat.

**13. Back Fill.** Beach sand should not be used as back fill for construction projects. Please confirm that no beach sand will be used for backfill and that the truck trips for soil include all necessary backfill.

**14. Clarification of EA Table 4-24.** Please clarify Table 4-24. Will the entirety of beach area impacts be "Total Beach" plus "Intertidal Beach", or does "Total Beach" include "Intertidal Beach" plus the supratidal beach? This clarification is important for understanding recreational and habitat impacts.

**15. Climate Change, Greenhouse Gases, and Sea Level Rise.** Concerning the assumption of future sea level rise in the EA, please note that given recent interim guidance on sea level rise that has been recommended for consideration by the Ocean Protection Council (OPC) (attached), the general direction that the state is starting to plan and design for in uses the following projections:

2000 to 2050	All Conditions:	14" average (10" to 17" range)
2000 to 2070	Low	23" average (17" to 27" range)
	Medium	24" average (18" to 29" range)
	High	27" average (20" to 32" range)

We request that the Corps provide us with its actual calculation, and compare its assumptions to the OPC Draft Interim Guidance. We would request that this include additional calculations for the OPC high average projection.

**16. Cypress Sheet Pile Option.** Although not currently proposed, as we requested previously:

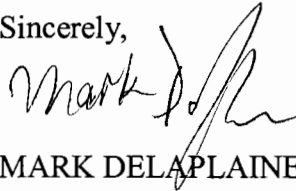
*Please identify approximate bedrock location on project plans. Also, if a wide beach at this location will reduce the likelihood for erosion, please explain in detail what is at risk in this location that would require shore protection.*

**Conclusion.** To conclude, we request the above-listed information (in particular items 1-15), in order to enable us to determine the project's consistency with the geologic hazards, shoreline protection, sand supply, public access and recreation, and view protection policies (Sections 30210-

30214, 30235, 30251, and 30253) of the Coastal Act. We are also *strongly recommending that the Corps extend the time for Commission review* beyond the 60-75 day time period for Commission review proscribed in the federal consistency regulations, in order to allow us adequate time to review the requested information. If the Corps does not extend the time period, the consistency determination will be scheduled at the Commission's January 12-14, 2010, meeting in Long Beach. Our deadline for mailing staff recommendations for that meeting is in less ten days (December 23, 2010).

Please feel free to contact me at (415) 904-5289 if you have any questions.

Sincerely,



MARK DELAPLAINE

Manager, Energy, Ocean Resources, and  
Federal Consistency Division

Attachments

1. Items needed in project plans
2. Sand Loss Estimate worksheet
3. Photo of Pebble Beach seawall
4. Sea Level Rise Guidance Documents

cc: Santa Cruz District Office (Madeline Cavalieri)

City of Pismo Beach (Jon Biggs)

CD-061-10

U.S. Army Corps of Engineers Consistency Determination  
Pismo Beach Shoreline Protection Project, San Luis Obispo County

January 24, 2010

Additional Information Request dated December 13, 2010.

1. *Engineering Studies. The Draft Environmental Assessment (EA) repeatedly cites "Moffat and Nichol 2010." It is not clear whether this is anecdotal information or an actual engineering study. It is not listed in the References section at the end of the EA. If these references are to an actual study, please provide us with that document.*

The reference Moffatt & Nichol 2010 is the Coastal Engineering Appendix to the Feasibility Study. The complete reference will be added to the Final EA. A copy was provided to the Coastal Commission in late December 2010.

2. *Property Interest. It is unclear who the property owner is, and whether the Corps has requested and/or received permission to construct the project.*

The footprint of the project is within state tidelands. We are submitting a joint lease application with the city of Pismo Beach to State Lands. After construction the lease will be only the City's.

3. *Project Need/Erosion Rate. It is not clear from the EA the degree of threat to the lift stations and other infrastructure. What is the age of the lift stations, what condition are they in, and what is their expected useful life? What is the erosion rate (if this information is available), both at the base of the bluff and at the face of the bluff?*

*It would appear to us that the rock formations at the base of the bluff, the existing seawall in front of the lift station), would have a low rate of erosion, and, further, looking at shoreline photographs, that the real erosion problem is primarily from erosion of the bluff face. It appears from aerial photos that bluff rilling/erosion is occurring due to water sheetflowing down over the bluff, combined with pipes that now extrude from the bluff, and that the base of the bluff is either stabilized due to native rock or an existing seawall. Moreover, there is already an existing wall in front of the St Andrews lift station – the extension of the wall in front of the adjacent home to the east. Where that wall ends, natural rock begins. Therefore it appears unnecessary to armor the base of the bluff, as it is already somewhat armored. Please analyze the alternative of limiting the work to mid- to upper-bluff stabilization and improving drainage controls. Such an alternative would reduce the impact of armoring the beach and the direct displacement of sandy beach, which would reduce the need to mitigate that impact.*

At the St. Andrews site, there is native rock along the base of the bluffs, but the toe of the bluffs are being undercut by wave erosion as seen in the California Coastal Records (<http://www.californiacoastline.org>) photo below. The design intent is to place the shore protection structure just seaward of the bluff toe to minimize further toe erosion. The

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length of the proposed seawall would extend farther north than the existing seawall which would address end effect erosion risks to the lift station associated with the existing seawall. Additionally, the soil backfill and bluff-face shotcrete application would help to stabilize the bluff at this location, where the lift station is already very close to the edge of the bluff.



The rate of erosion for the bluffs in the vicinity (approximately 1,000 feet downcoast and 1,000 feet upcoast) of St. Andrews lift station area is approximately 8 inches per year. This is an average erosion rate for the bluffs in this particular localized area. The erosion rate for the bluffs immediately below and adjacent to the lift station is truly much lower due to the construction of the existing seawall. There are bedrock exposures downcoast and upcoast of this seawall. Most of the bluff face in this area is made up of terrace soils. The bottom of the bluff face is made up of a thin bedrock layer. This bedrock layer is pocketed with small 2 to 6 foot diameter sea caves voids, and smaller 1 to 2 foot wide open fractures that parallel the bedding plane direction (east to west orientation) of the layers of bedrock. This orientation of the bedrock layers is also more in line with the direction of the ocean waves. There are also numerous large notches (shoehorn shaped), which are eroded into the entire height of the bluffs, as evidenced by the spurlike traces of the bluffline in this vicinity. These notches follow this same orientation as the bedrock bluff bottom layer. There is also smaller rilling erosion features evident only along the upper bluff face within the terrace soils. The rilling indicates that sheetwash or terrestrial directed erosion is still occurring along the upper bluff face. There are also a few storm drainage pipes that exit the bluff top soils in this vicinity, and most of the pipes overextend in length towards the ocean. This indicates that stormwater exiting the pipes

is still falling off and away from the cliff face and not running along the edges of the of the cliff face and is not a large contributor to the rilling type of erosion. The rills and the notches extend from the bluff face down to the bedrock bottom layers of the bluff. The slope of the soils at some of the very top portions of the bluff is gently sloping away from vertical. However, the overall plumbness of the bluff face of both the terrace soils and the bedrock is predominantly vertical. This suggests that the erosional rate of the soils and the bedrock toe are approximately equal. The proposed Corps of Engineers constructed seawall design shows a part of the downcoast seawall length overlapping against the existing seawall length. The length of the COE seawall also extends upcoast past the lift station. The intent of the design is to provide enough length of seawall to cover both the existing seawall; and to protect the bedrock bluff bottom layers that are still exposed beneath the lift station and exposed just upcoast of the existing seawall. A well developed notch is still forming along the entire bluff face, just upcoast of the existing seawall and below the lift station. The location of the Corps seawall will prevent the expansion of the notch that follows bedrock and extends into the bluff top. The overlapping of the Corps seawall against the existing seawall will also eliminate future erosion of bedrock and bluff face that would follow the weak plane leftover from a gap between the two walls, if not covered.

In summary, the bedrock, although thin, is unfavorably orientated to the ocean and is thus makes the bottom of the bluffs subject to ongoing marine erosion that is still severe, and subject to more direct wave attack, especially in the exposed areas just upcoast and downcoast of the existing seawall. The seawall is designed to baffle the effects of the more direct wave attack direction that occurs in the unfavorably orientated bedrock layers at the bottom of the bluff face, and to prevent continued notch type erosion features that are prevalent along the bluff face in the local vicinity of St. Andrews lift station.

4. *Alternatives. The alternatives analysis in the EA is inadequate. Managed retreat options (i.e., relocating structures/facilities to be protected) must be evaluated. Conclusory statements that it would be cost prohibitive, without any underlying facts to support the conclusions, do not enable us to determine their validity. We would also request an analysis of the cost and feasibility of relocating the threatened lift stations further inland, as well as any other infrastructure that you believe is threatened.*

*Finally, concerning the Corps' analysis of design life and ability to withstand expected wave events, we would note that for a 50-year design life, we would expect the design storm event to be the 75- or 100-year event. Using a 50-year event as the design condition for a structure that is supposed to be effective for 50 years assumes that there is about a 98% chance that the design conditions will be experienced over the life of the structure, which represents a high probability that the design conditions will be exceeded. We also request that Corps' actual calculations, so we can determine how the Corps is using sea level rise assumptions, and at what point in the design process this factor has been introduced.*

The storm drain at Vista Del Mar is abandoned and closed off. We would just remove the portion in the way of the seawall and not have any storm drains outside of weep holes to relieve

ground water pressures. I think we still need to accommodate the emergency sanitary sewer outfalls for the pump stations by passing outlets through the seawall. We would need to know if the storm drains at St Andrews are still connected to anything. If they are, we would normally just pass them through the seawall also. Storm water pollution improvements or rerouting of these would be considered a utility removal/relocation, I think, and then a non-federal responsibility.

The 50-year extreme water level is 7.76 feet MLLW and the 100-year extreme water level is 7.84 feet MLLW, i.e. a difference of only 0.08 feet (~1 inch). This difference is essentially insignificant as compared to the various sea level rise scenarios used in the design analysis. Three sea level rise scenarios (low, intermediate, and high) were assessed in the design; a discussion of how these were factored into the design is included in M&N 2010. The design wave case is a depth-limited breaking wave case controlled by water level.

Managed retreat would initially involve the relocation of the lift stations and utility lines. However, Ocean Boulevard and Seacliff Drive are also at risk. If those streets are lost, there would be no north-south access along the bluffs. Although utilities potentially could be relocated, those streets could not be replaced. Also there would be a loss of recreational amenities such as the walking trail and park benches which would not be easily replaced because seaward of Seacliff Drive and Ocean Blvd is all developed so there is no opportunities to replace lost north south access or recreational amenities if those streets are lost.

5. *Design & Aesthetics. The example included in the EA of a curved wall providing an "aesthetic" treatment on a wall at Florin St. in Pismo Beach is not a good example of what we would consider an adequate aesthetic treatment at this date. We would direct you to more recently designed and built examples which provide much greater aesthetic sensitivity. The first example is the wall the City of Santa Cruz recently built at Pleasure Point, which is above rock formations for the most part, and aesthetically designed, and which can be seen in Santa Cruz shoreline photos . . . . The second example is the Pebble Beach Co. seawall at Cypress Point in Monterey County . . . . As we noted/requested previously: Please provide a visual simulation of the proposed seawall facing that includes a natural combination of colors that provide a mottled appearance, which is more consistent with the appearance of a natural bluff face than a single uniform color. If a specific contractor has been chosen to do the facing work, please provide photographs of representative samples of this contractor's work. Please also be aware that the only walls that have been approved by the Commission for the past 5 or 10 years have included a visual treatment. Even some revetments have had a visual treatment. It is unlikely that Option 2 – an untreated vertical wall – would be considered currently to be an acceptable alternative for any location on the coast.*

The Florin St. wall was a nearby example of a sculpted wall. The two examples cited above are not comparable to the sites we are addressing. Additional aesthetic features beyond those described are likely to render the project infeasible by increasing construction costs to the point where costs exceed benefits.

6. *Variations in Designs. We do not understand why a vertical wall, which is proposed for the Vista del Mar Site, was not also selected for the St. Andrews site. The analysis states that this is partly due to cost, and partly due to lack of public access at the St. Andrews site. What is the cost differential?*

Initial economic analyses showed that construction costs for the sculpted seawall and for the untreated vertical seawall exceeded benefits. That rendered the sculpted sea wall and vertical sea wall infeasible. We have re-examined recreational benefits at this site following public comments and additional discussions with the City and now conclude that the sculpted sea wall at this site is a feasible alternative.

7. *Possible Access Improvements. As noted above, the EA acknowledges that some public use of the site occurs, but after construction of the wall at the St. Andrews site, that access would be lost. We would appreciate consideration of including a public stairway to this beach, to restore, and if feasible improve, this access.*

Although people do access the beach at St. Andrews, the trail is not officially designated and the City considers it somewhat unsafe. There are other safer coastal access points in the area. As I understand it, the City is amenable to potentially providing an access stairway at the St. Andrews site. This improvement is beyond the authority of the Corps and would have to be performed by the City.

8. *Construction Period. The EA states that the project would take 3-4 months to construct, and looks at traffic, noise, visual, and other issues. It does not indicate whether summer months, and/or weekends and holidays, could be avoided to minimize effects on access and recreation during peak periods. It also does not indicate whether public parking to be used for staging would already be at or near capacity at these times. Please indicate the extent to which the proposal may avoid peak recreational periods. Also, if local area streets are intended to replace public parking, if such parking is needed, please indicate whether there are any parking restrictions (applicable to the general public, such as hourly limits or restrictions) on these streets, and/or whether these local streets have the capacity to accommodate public parking during peak recreational periods.*

Construction may take place during the summer months to avoid weather delays, however winter is also good for low low tides to do the work in an expeditious manner. Restrictions will be placed so that construction activities will not occur on weekends and holidays. Staging areas do not include existing parking areas and consist primarily of portions of nearby streets. Traffic impacts from these are clearly addressed in the EA. Construction is not expected to result in the loss of any parking spaces for the general public.

9. *Maintenance and Long-Term Responsibilities. Who will be responsible for monitoring, maintaining and repairing the walls, and, in the event they are no longer needed, for removing them? How can we be assured they will be removed after their useful life, or if the structures/facilities they are protecting have outlived their useful life? A monitoring plan should be included, which should identify triggers for maintenance as well as details about how, where, and when the maintenance will be undertaken.*

After construction the Corps turns the project over to the City and they are responsible for any O&M. Putting together a monitoring plan is outside the Corps' authority for this project. The Coastal Engineering Appendix (M&N 2010) includes a discussion of maintenance requirements and costs associated with rock revetments (Section 8.1) and seawalls (Section 8.2).

*10. Detailed Site Plans & Previous Development. The scale of the 8.5 x 11 include plans contained in the EA makes them difficult to read. In addition, they do not depict the curved wall at the Vista del Mar Site – they only show a straight wall. Also, at this scale we cannot see how the proposed wall at St. Andrews is intended to intersect and/or replace the existing wall at that site. As we requested previously (and hopefully the City could provide this if the Corps does not have access to this information), we would appreciate narrative description of the history of all existing structures at the project sites, including seawalls, riprap and rubble. All City permits authorizing such development since 1972 should be identified. Also, please provide a description of how the project would incorporate or remove the existing structures and/or riprap or rubble.*

*As we requested previously, please provide two sets of full-size and two sets of reduced-size drawings of the proposed project.*

Full scale plans have been requested from the Corps' design consultant and will be provided to the Coastal Commission staff. The St. Andrews site has a seawall on the adjacent property. The intent is to overlap the proposed seawall over the existing, adjacent seawall and not try to tie into what is probably a substandard seawall. Vertical and sculpted seawalls at all sites have the same footprint.

*11. Sand Loss Estimate. The Coastal Act requires that any shoreline armoring proposed be designed to eliminate or mitigate adverse impacts on local shoreline sand supply. To assist applicants in determining these effects, we have attached a "sand Loss Estimate" worksheet to be completed by the applicant's geotechnical experts to determine the amount of sand loss that will result from the proposed project. This worksheet covers losses resulting from encroachment of shore protection onto existing beach area, future beach losses resulting from fixing the back beach and losses of littoral sand from halting on-going supplies of bluff sediment to the coast.*

See attached.

*12. Construction Impacts to Rocky Intertidal Habitat. If vehicles will be needed below street level and on sandy beaches, please provide detailed discussion of the measures that will be taken during construction to avoid vehicular traffic over rocky intertidal habitat.*

The sites are pocket beaches and construction would not take place near high value rocky intertidal habitat which would not provide a good surface for construction. Construction equipment on the beach would be limited to only the equipment that cannot do its work from the bluff top. At the St. Andrews and Vista del Mar sites, construction work could occur from sandy beach areas at low tide hours.

- 13. Back Fill. Beach sand should not be used as back fill for construction projects. Please confirm that no beach sand will be used for backfill and that the truck trips include all necessary backfill.*

Beach sand is not being used as back fill. Soil is being imported for backfill. Truck trips associated with importing fill were included in the EA. The Coastal Engineering appendix also discusses the possibility of sand from the excavation of the toe apron which potentially could be used for backfill, but this would be a very small amount. The construction cost estimates assume all the backfill would be imported.

- 14. Clarification of EA Table 4-24. Please clarify Table 4-24. Will the entirety of the beach area impacts be "Total Beach" plus "Intertidal Beach", or does "Total Beach" include "Intertidal Beach" plus the supratidal beach? This clarification is important for understanding recreational and habitat impacts.*

Total beach includes intertidal beach.

- 15. Climate Change, Greenhouse Gases, and Sea Level Rise. Concerning the assumption of future sea level rise in the EA, please note that given interim guidance on sea level rise has been recommended for consideration by the Ocean Protection Council (OPC) . . . We request that the Corps provide us with its initial calculation, and compare its assumptions to the OPC Draft Interim Guidance. We would request that this include additional calculations for the OPC high average projection.*

Coastal Engineering Appendix high range is 1.75 ft (21 in) in 50 years (2060) OPC Guidance high average Projection for 2070 (60 years) is 27 in. If we assume linear between 2060 and 2070, our projection would be  $6/5 \times 21 \text{ in} = 25.2 \text{ in}$  – close enough to 27 in for design purposes, especially since curves are concave up to our high projection for the 50 year SLR just about matches the OPC Draft Guidance for high average.

- 16. Cypress Street Pile Option. Although not currently proposed, as we requested previously: Please identify approximate bedrock location on project plans. Also, if a wide beach at this location will reduce the likelihood for erosion, please explain in detail what is at risk in this location that would require shore protection.*

Specific geotechnical information was not available for this study, but we did have geotechnical information from nearby sites. This is discussed in Section 3.4 and shown in Figure 6 of the Coastal Engineering Appendix (M&N 2010). For the conceptual design of the sculpted vertical walls, it was assumed that the bedrock was at 0' MLLW and that the footing would be founded in the bedrock. At the Cypress Street site, it was assumed that the sheet pile would be driven until point of refusal. At all sites, specific geotechnical information is needed for final design. Although Cypress Street currently has a wide fronting beach, it is our understanding that waves do attack the base of the bluffs during winter eroded beach and high tide conditions. The entirety of the bluff or cliffs along Cypress Street is made up of soils only. The soils are a very young deposit of marine terraces that are exposed all along the thin coastal plain in the

Pismo area. The marine soils overlie the entire coastal bluff area from Pismo Pier to north of the City. Unlike upcoast areas in the Pismo area, there are no bedrock exposures seen at the ground surface or along the bluff face at Cypress Street. Therefore bedrock instead must exist at deeper depths below the base of cliffs at this Cypress Street location. Geologic studies and references for Pismo area indicate the following: that the cliffs are bounded on the upcoast side by the local Wilmar fault, a reverse type of fault ; the land downcoast of the bluffs is flat topographically and very little exposures of the marine terrace soils or bedrock is seen; this downcoast area is also geologically mapped as a syncline; the syncline is believed to have formed by tectonic compressional forces; the bluffs at Cypress Street are on the downcoast edge of a local monocline, possibly the upcoast side of the larger local syncline; the marine terrace soil deposit thickens somewhat in a downcoast direction. This suggests that the area beneath these bluffs has been more severely impacted by ancient seismic and tectonic related activity that upcoast bluff areas. This has resulted in no bedrock exposures at Cypress Street and also in the nearby areas downcoast, i.e. Pismo Pier area and downtown Pismo. In summary, this area of the coastal bluffs has been depressed to where little to no bedrock is exposed, while the upcoast bluffs have been uplifted to the point where much bedrock is exposed. Based on these geologic factors, it can be inferred that the approximate bedrock depth below the bluff at Cypress Street occurs from between 20 to 60 feet below beach sand ground surface, i.e. below the base of the cliff at Cypress Street. This bedrock depth is the presumed depth, which is not currently not shown on the profile section F, for Cypress Street alternative 4.

*Water Quality: What water quality improvements (such as additional filtering or treatment of storm water or other effluent) could be incorporated into the project?*

Construction BMPs would be implemented to minimize water quality impacts to the ocean water during construction. Additional measures, unrelated to the proposed shore protection project, could be in-line trash separation devices or use of bioswales/bio-filtration on smaller storm drains.

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Pismo Beach Shoreline Protection Project  
Staff Recommendation  
Information Request  
February 2, 2011

The Staff Report lists twelve items containing information sought by Coastal Commission staff to evaluate the proposed project's consistency with the California Coastal Management Program (CCMP). The twelve items are listed below with responses provided for each.

*General Comments.* The plans provided to the Coastal Commission as part of the Coastal Consistency Determination are based on a conceptual design. As such, they do not include some of the details requested by Coastal Commission staff. Those details will be included in the final plans prepared by the Corps during Preconstruction Engineering Design along with Plans & Specifications to advertise the proposed project for a construction contract. It would be unproductive for the Corps to have final plans prepared prior to the completion of the environmental assessment process, including the final determination of consistency. That process has a large probability of including new elements that would invalidate final plans prepared too early in the process. Past projects (i.e. Port of Los Angeles Channel Deepening) have included the use of conceptual design documents for Coastal Consistency with Corps' commitments to include changes made to conceptual design and additional information requested to be shown in final design. This includes the possibility of a conditional concurrence by the Coastal Commission based on staff review of final plans.

The Corps has completed its economic reassessment of the project. The Corps is committed to the use of the sculpted sea wall alternative at both the St Andrews Lift Station and Vista del Mar Lift station sites.

The City has no records on the existing sea walls. Based on that and the apparent age of the existing sea walls, it is assumed that the sea walls were built prior to incorporation of the area known as Shell Beach from the San Luis Obispo County to the city of Pismo Beach in 1976.

FTP attachments can be found at: <ftp://ftp.usace.army.mil/pub/spl/Pismo%20Beach%20CCD/>

1 *Revised Project Plans:* *Detailed revised project plans, designed to conform to the concerns expressed below.*

Detailed, full-size preliminary project plans were delivered to Coastal Commission staff. These plans include some of the concerns expressed below (i.e. recurved portion at the top of the wall). Other concerns area at a level of detail not appropriate for conceptual plans, but that the Corps will be willing to commit to including in final plans developed during the Preconstruction Engineering Design Phase to follow. Those plans will be made available to the Coastal Commission staff for review for compliance.

2 *More Details Concerning Project Need and Alternatives:* *More extensive discussion of the threat to existing structures, including estimates of how long it will take for threatened structures*

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*to be compromised, and analysis of options available for managed retreat or relocation of the lift stations. This information needs to include previously-requested, but not to date provided, details describing the age, condition, and remaining life expectancy for the lift stations proposed to be protected. It also needs to include the location and feasibility of relocating of the trail, benches, and other recreational amenities the Corps states are in need of protection. The Corps also needs to explain the basis for why it believes the erosion is accelerating. The Corp should provide actual data justifying the cited historic and anticipated future bluff retreat rates. These data should be compared with data from the USGS National Assessment of Shoreline Change.*

Figures showing erosion at the two sites over time are posted on our FTP site, which show when existing structures would be threatened. The Corps does not believe that erosion is accelerating, but that the structures are in immediate need of protection to prevent loss. Past erosion has moved the bluff to where both of these lift stations, nearby roads, and homes are threatened. That threat was established using erosion rates calculated by recent erosion losses. Erosion along this bluff is episodic in nature. Relatively few large events occur. Over time this yields an erosion rate that is somewhat misleading. That erosion rate leads to a predicted loss in the near future. However, a single episode of bluff failure could lead to an immediate loss at both sites. Hence the urgency to complete the proposed project.

We have requested information on the existing lift stations from the City and will forward that as soon as it becomes available. However, what is clear from our discussions with the City is that the life expectancy of the two lift stations is indefinite. Once the pumps in the lift station exceed their life time they will be replaced in place. The houses served by the lift stations are expected to remain in place indefinitely, which requires the same for the servicing lift stations. See below for discussion on protecting amenities.

Erosion rates used to evaluate the threat to the lift stations is addressed in the Geotechnical Appendix, which is posted on the Corps' FTP site. The rate of erosion for the bluffs in the vicinity of St. Andrews lift station area is approximately 8 inches per year. This is an average erosion rate for the bluffs in this particular localized area. The erosion rate for the bluffs immediately below and adjacent to the lift station is truly much lower due to the construction of the existing seawall, which is imbedded mainly into the bedrock portion of the bluff. It is thin layered bedrock that makes up the entire bottom of the bluffs in this vicinity and which is also found exposed immediately downcoast and upcoast of this seawall. While the bluff bottom consists of bedrock, most of the overall bluff face in this area is made up of marine terrace derived soils. There are rilling erosion type features that exist mainly along the upper bluff face within the terrace soils. The rilling indicates that sheetwash or terrestrial directed erosion is still occurring along the upper bluff face. The bedrock layers are pocketed with small 2 to 6 foot diameter sea caves/voids, and smaller 1 to 2 foot wide open fractures that parallel the bedding plane direction (east to west orientation) of the bedrock. This orientation of the bedrock layers is also more in line with the direction of the ocean waves. There are also several large notches (shoehorn shaped), which are eroded into the entire height of the bluffs, as evidenced by the spurlike traces of the bluffline in this vicinity. These notches follow the same orientation as the bedrock bluff bottom layer and often merge with the smaller scale rilling features found in the upper bluff soils. Such notching is a larger scale expression of the rilling that occurs along portions of the bluff top face and is caused primarily by marine waves and marine directed

forces. The slope of the soils at some of the very top portions of the bluff is gently sloping away from vertical. However, the overall plumbness of the bluff face makeup of both the terrace soils and the bedrock is predominantly vertical. This suggests that the erosional rate of the soils and the bedrock toe are approximately equal. The bluff characteristics of vertical plumbness (profile), especially the notches, fractures, sea caves/voids within bedrock are further evidence that marine directed erosion is still occurring and is one of the primary forces causing bluff retreat in this area.

There are also a few storm drainage pipes that exit the bluff top soils in this vicinity, and most of the pipes overextend in length towards the ocean. This indicates that stormwater exiting the pipes is still falling off and away from the cliff face and not running along the edges of the of the cliff face and is not a large contributor to the rilling type of erosion.

The proposed Corps of Engineers constructed seawall design shows a part of the downcoast seawall length overlapping against the existing seawall length. The length of the COE seawall also extends upcoast past the lift station. The intent of the design is to provide enough length of seawall to cover both the existing seawall; and to protect the bedrock bluff bottom layers that are still exposed beneath the lift station and exposed just upcoast of the existing seawall. A well developed notch is still forming along the entire bluff face, just upcoast of the existing seawall and below the lift station. The location of the Corps seawall will prevent both the vertical and lateral expansion of the notch that follows bedrock and extends into the bluff top that is occurring upcoast of the seawall and below the lift station. If left unchecked, this upcoast notching will follow the bedding direction of the bedrock and expand into the bluff towards the lift station and outflank it. The overlapping of the Corps seawall against the existing seawall will also eliminate future erosion of bedrock and bluff face that would follow the weak plane leftover from a gap between the two walls, if not covered.

In summary, the bedrock, although thin, is unfavorably orientated to the ocean and thus makes the bottom of the bluffs subject to ongoing marine erosion that is still severe, and subject to more direct wave attack, especially in the exposed void and notch-like areas just upcoast of the existing seawall. The seawall is designed to baffle the effects of the more direct wave attack direction that occurs in the unfavorably orientated bedrock layers at the bottom of the bluff face and to prevent continued void and notch type erosion features that are prevalent along the bluff face in the local vicinity of St. Andrews lift station.

*3 Revised Vertical Wall Design: The apparently agreed-upon replacement of the wall at St. Andrews from a rock revetment to a vertical concrete wall, similar in design to what is proposed for the shoreline protection at Vista Del Mar, is an improvement over the original proposal. If the Commission's analysis of this project reaches the point that the Commission agrees that one or more areas are at risk and that in-situ protection is appropriate, a vertical wall would be a preferable option to a revetment. A vertical wall would reduce beach encroachment and, with coloring and texturizing, could be designed to minimize visual impacts. However, the proposed design for a vertical wall with a sculpted face would require design modifications to the Corps' current conceptual design to minimize impacts. The proposed wall design appears to be essentially a straight line, set several feet seaward of the bluff. A more preferable alignment would have an undulating base and the wall would be a far inland as possible with an alignment*

*that would follow the contours of the existing bluff. One reason for the proposed design – an upright wall with backfill between the bluff face and the wall – is that the backfill area will accommodate sloughage from the upper bluff. But, the proposed design would put a layer of shotcrete over the upper bluff, so the shotcrete should minimize any concerns about upper bluff sloughage.*

*In addition, the Corps indicates that aesthetic treatment comparable to Commission-approved Pleasure Point (Santa Cruz) and Pebble Beach (Monterey Co.) seawalls may be infeasible, without documenting the technical infeasibility or providing any cost information or other reason why such treatment may be infeasible. The Corps needs to provide this information, and work with the Commission staff to develop a mechanism, similar to those agreed to in those two Commission-approved projects, that will assure the most aesthetic treatment feasible for the proposed walls.*

*Finally, on this point, while the Corps indicates that a “sculpted” design would be “feasible” for both walls, the Corps has not specifically committed to implementing such a design.*

The wall alignment is conceptual and could be moved closer to the toe of the bluff. Attached please find drawings of the sea wall alternative only (with the rock revetment alternative removed for clarity). The Corps will commit to placing the seawall as close to the bluff as feasible from an engineering design perspective.

The Corps provided as an example of the sculpted sea wall a previously permitted wall in the area. That wall met with Coastal Commission requirements for aesthetics. The Pleasure Point and Pebble Beach examples would be considerably more expensive and are in a different aesthetic environment than the proposed wall at Pismo Beach. Cost limitations under the Continuing Authorities Program would preclude an identical treatment at Pismo Beach, which is also considered unwarranted. The Corps will commit to working directly with staff to include features on the sculpted sea walls to the maximum extent that they are economically feasible. The level of detail requested is not appropriate for a conceptual design and will be provided in final design documents.

The Corps is committed to the use of sculpted sea walls at both the St Andrews Lift Station and Vista del Mar Lift station sites.

*4 Recurved Wall: The analysis by Moffatt-Nichol and the small-scale designs for the vertical wall show a recurved element on the top of the vertical wall. The vertical wall height design depends upon this recurve feature. The description of the vertical wall does not call out this feature. If the Commission’s analysis of this project reaches the point that the Commission agrees that one or more areas are at risk, that in-situ protection is appropriate and that a vertical wall is the best option, this recurved feature will need to be included in the final design and shown clearly on the final plans, or the wall height needs to be adjusted to account for the lack of a top recurved element.*

The recurved feature on top of the vertical wall is clearly shown in the preliminary design figures previously provided to Coastal Commission staff. The Corps commits to including this feature in the final plans as well, which will be provided to Coastal Commission staff for review.

*5 Assuring Wall Toe Keyed to Bedrock: The proposed plans for the vertical wall show that the wall will be founded in sand at a depth of 0 ft. MLLW. The project discussion mentions that the bottom of the wall will be keyed into bedrock. If the Commission's analysis of this project reaches the point that the Commission agrees that one or more areas are at risk and that in-situ protection is appropriate, either the plans or the discussion should be modified to correctly present the bedrock position and, the toe should be deep enough that it is safe from scour.*

The level of detail requested is not appropriate for conceptual design plans. The Corps commits to including this detail in the final plans as well, which will be provided to Coastal Commission staff for review. It was always the Corps' intent to tie into bedrock to ensure a stable structure for the lifetime of the structure.

*6 Fixing the Location of the Back Beach/Public Access or Sand Supply Mitigation: If the back shore were not armored with a seawall or a revetment, the bluff would erode inland and the back beach would move inland, creating new beach to make up for some or all the beach lost due to rising sea level. These natural changes to the beach and bluff system will be stopped once the back shore location is fixed with a seawall or revetment. The seaward portion of the beach will erode with rising sea level, but there will be no additional beach created at the inland part of the beach since the bluff will no longer retreat. This disconnection between the retreat of the beach and the retreat of the bluff will cause a loss of beach area in those locations that have shoreline armoring. At the St. Andrews Lift Station, with a 110 foot-long seawall and this historic rate of bluff retreat, the seawall construction will prevent between 3,630 and 9,020 square feet of beach from forming due to bluff retreat over the 50-year expected life of structure. At the Vista Del Mar Lift Station, with a 120 foot-long seawall and this historic rate of bluff retreat, the seawall construction will prevent between 3,960 and 9,840 square feet of beach from forming due to bluff retreat over the 50-year expected life of structure. This will result in a combined passive loss of beach over 50 years that will be between 7,590 to 18,860 square feet (0.17 to 0.43 acres). These losses would be added to the encroachment losses due to the seawall or revetment and the small, but quantifiable benefits from adding bluff sediments to the littoral cell. The Corps needs to provide mitigation for these impacts. The Corps indicates that the City may be amenable and may assume responsibility for constructing a public access staircase at the St. Andrews. The Corps needs to work with the City and the Commission to provide a mechanism through which such improvements would be made concurrently with construction of the proposed walls.*

Corps staff has had extensive discussions with City staff on this item. Bottom line is that the Corps commits to include in final design provisions for the shotcrete apron that allow access to the top of the sea wall (i.e. roughness and slope). The City will fund and build a staircase from that point to the beach, maintaining public access. Final sea wall design will accommodate inclusion of a staircase for public access. This is in line with Coastal Commission preference for direct onsite access improvements in lieu of payments to purchase sand offset losses. These provisions represent an improvement to existing beach access, which is essentially a path down the steep bluff face.

7 Verification of Assumed Nearshore Slope: In the Moffatt-Nichol analysis, both the discussion of run-up and the discussion of rock size note that "it will be important to verify the assumed nearshore slope for final design of the selected alternative." (pages 8 and 14) The EA/NegDec does not have any information to indicate that there has been a survey of the nearshore slope; therefore the proposed designs cannot be finalized. Also, if the measured nearshore slope is significantly different from what was assumed in the Coastal Engineering analysis, the project design may change significantly for both wall height and size of stones used for toe protection. Ideally this information should have been obtained prior to submittal of the application so that the 100% design can be expected to conform to the proposed conceptual designs. If the Commission's analysis of this project reaches the point that the Commission agrees that one or more areas are at risk and that in-situ protection is appropriate, the nearshore slope must be surveyed and this information should be used for the final project designs and calculations of run-up and rock size.

The range M&N used for their preliminary designs were generic for all six sites. Looking specifically at St Andrews and Vista Del Mar shows nearshore slopes were 56:1 and 48:1 (see figure posted on FTP site showing the slopes measured at the two sites), close enough to validate the 50:1 assumption made in the preliminary design. The final design will include the elements discussed above. The Corps does not feel that there will be significant changes to any of the design features. Changes would be negligible and would not change major features such as wall height. The Corps commits to including this information in the final plans, which will be provided to Coastal Commission staff for review.

8 Sand Used for Backfill. The Corps indicated sand used for backfill behind walls would be a "small amount" of sand excavated to make room for the rocks at the toe of the wall. This amount was not quantified, and since it is unclear the depth to bedrock, it may be necessary to determine that distance before determining whether excavated sand could be used for backfill. Further, the Corps needs to explain why that excavated sand could not be placed on the beach to remain in the littoral cell and imported soil used as backfill.

Any sand excavated for the toe of the wall will be stockpiled on the beach and will not be used as backfill. It will remain on the beach side of the sea wall and will remain in the littoral cell. Imported material will be used as backfill as described in the Draft EA/MND.

9 Intertidal Impacts Monitoring. The Corps needs to commit to incorporating the marine resource monitoring recommended by NMFS- recommendations for pre- and post-construction monitoring of rocky reef and seagrass habitat (with provisions for mitigation if monitoring results indicate impacts occurring).

Pre-project surveys have already been done at a level appropriate for project location and description. The Corps has concluded that the proposed project will not impact high value rocky intertidal habitat. The footprint of the structures does not extend into any high value rocky intertidal habitat. Construction equipment will not be placed within high value rocky habitat. Staging and servicing of equipment will be on the top of the bluffs. When equipment is on the beach it will be working in the pocket beach area during low tide at the base of the bluffs not in the high value rocky intertidal and surfgrass habitat. As an extra precaution, a biologist will

monitor construction activities. The environmental commitment for a monitor contained in the Draft EA/MND shall be revised to include anytime construction equipment is operating on the beach. In addition, project construction is not expected to have indirect impacts on high value rocky intertidal habitat. Staging and servicing of construction equipment will be done on the bluffs not near the water. Best Management Practices will be implemented to ensure that fuels, lubricants, or other toxic materials are not introduced to the ocean. Construction would not be expected to introduce turbidity to project waters. Imported soil for the backfill would be stored in the staging area on the bluffs not on the beach. Best Management Practices would be implemented during construction to make sure that backfill material does not get washed into the water. With these measures no impacts to sensitive rocky intertidal and surfgrass habitat would occur. Therefore, no monitoring of the type recommended by the NMFS is needed.

The City has committed to performing the requested monitoring.

10 *Environmentally Sensitive Habitat Monitoring.* The Corps needs to: (1) assure, in its project plans, avoidance of direct displacement of environmentally sensitive habitat, including coastal bluff scrub, or if such impacts are unavoidable, to mitigate such impacts; (2) commit to monitoring for the presence of any listed butterfly species in such habitat, and if they are present, perform construction during non-sensitive periods; (3) commit to a plan to remove any invasive species occurring within or adjacent to the project sites.

(1) Coastal bluff scrub is not considered to be “environmentally sensitive habitat”. In addition, this habitat is present at the site in extremely small, highly disturbed pockets. The St. Andrews site has one patch of coastal bluff scrub. The Vista del Mar site has three patches of disturbed coastal bluff scrub. Disturbed means that there are a lot of non-natives in the patch. The habitat value of these patches is considered negligible owing both to their size and to their disturbed state. However, patches will be identified immediately prior to construction and avoided where feasible. The Corps’ onsite monitor will identify and flag patches of coastal bluff scrub. The patches are susceptible to erosion and would be lost in the no project condition.

(2) There are no listed butterfly species or habitat suitable for listed butterfly species present on any of the sites.

(3) Invasive species will likely be removed during construction. However, the Corps cannot commit to planning for their removal on or adjacent to project sites.

11 *Public Access Improvements.* The Corps indicates that the City may be amenable and may assume responsibility for constructing a public access staircase at the St. Andrews. The Corps needs to work with the City and the Commission to provide a mechanism through which such improvements would be made concurrently with construction of the proposed walls.

As discussed in item #6 above, the Corps commits to include in final design provisions for the shotcrete apron that allow access to the top of the sea wall (i.e. roughness and slope). The City will fund and build a staircase from that point to the beach, maintaining public access. The Corps will include provisions for the staircase in the final plans, which will be submitted to

Coastal Commission staff for review. The mechanism for doing so is open to discussion with City and Coastal Commission staff.

*12 Water Quality Improvements. The Corps indicates that the project will include Best Management Practices, but that additional water quality measures could be implemented, such as in-line trash separation devices or use of bioswales/bio-filtration on smaller storm drains. At the same time the Corps states these additional measures are "unrelated to the proposed ... project." It is unclear as to whether the Corps is agreeing to these additional measures, believes they are the City's responsibility, or believes they should not be required. The Corps needs to either: (1) agree to implement these measures; or (2) working with the City and the Commission, provide a mechanism through which such improvements would be made concurrently with construction of the proposed walls.*

The city of Pismo Beach currently has an approved Stormwater Pollution Prevention Plan with the Central Coast Regional Water Quality Control Board. Provisions of that plan include the installation of in-line trash separation devices on all storm drains. There is one active remaining storm drain present at each of the two sites addressed in the Coastal Consistency Determination. Other storm drain pipes at the two locations are no longer active and will be cut off by the sea wall. The City is in the process of outfitting all storm drains, but has not yet done so for the two sites. However, they are required to do so by their approved Stormwater Pollution Prevention Plan. The City has committed to prioritizing the two active storm drains to have in-line trash separation devices installed immediately following construction of the seawalls. The sea wall will accommodate the discharge of the storm drains at their current locations. These measures are already required by the City, compliance with the approved Stormwater Pollution Prevention Plan is the mechanism that ensures that the devices will be installed.

Additional information requested by California Coastal Commission staff to support Coastal Consistency Determination for Pismo Beach Shoreline Protection Project during conference call held February 4, 2011. Coastal Commission text in Times New Roman. Corps of Engineers and city of Pismo Beach response in Courier.

### **Project Need**

Additional project justification provided by City:

The Shell Beach area of Pismo Beach, California was subdivided in 1925. This subdivision occurred within the County of San Luis Obispo and was not incorporated into the City of Pismo Beach until 1964/1966. Prior to this annexation Shell Beach operated independently and their wastewater was treated at a separate wastewater treatment facility located at what is today known as Spyglass Park. The lift stations at Saint Andrews and Vista Del Mar were constructed during this period when the wastewater treatment facility at Spyglass Park was decommissioned in the 1920's. These facilities are planned to operate at their present locations until such time that the erosion occurring along Ocean Boulevard and Seacliff Drive makes the water, sewer and electrical infrastructure inoperable.

Bluff erosion will continue to occur at both the Vista Del Mar and Saint Andrews locations. This erosion will encroach into the public parks until the park has eroded away and then erosion will begin to compromise the public streets. As the street progresses from a two-lane roadway to a one-lane roadway it will ultimately require that the water, sewer, and electrical utilities be relocated.

The current project will allow both lift stations to continue existing at the present locations until such time as the bluff erosion has made the current utility infrastructure within Ocean Boulevard and Seacliff Drive no longer viable. Once this occurs, the lift stations along with the other utility systems will need to be relocated. Currently the existing wastewater lift stations are approximately 15-20 feet deep and within 5 feet or less of the current bluff face. The project that is proposed by the Army Corp of Engineers would stabilize the bluffs in this area to allow the lift stations to have the same life cycle as the existing utility infrastructure within the roadway.

Without the project the public will be required to relocate both lift stations the sewer mains, water mains and underground utility electrical lines. To relocate these facilities

**EXHIBIT 22**

**CD-061-10**

**Corps Memo, February 16, 2011**

sufficient distance from anticipated bluff erosion would require the acquisition of additional right of way and the combination of additional public and private property. The cost of a project of this size would cost in an excess of \$50M. A project of this size would likely require ten years to achieve without significant court action. Failure of the lift station during this period would provide considerable harm to the environment and negatively impact the beaches and ocean environment.

Cost estimates prepared by the Corps for relocation of the lift stations are attached. The cost for the St Andrew Lift Station Site is approximately \$2.5M. The cost for the Vista del Mar Lift Station Site is approximately \$3.3M. These costs are for the relocation of the lift stations only and do not include any real estate costs associated with potential new sites on or adjacent to private land.

What's the precise distance from the bluff edge to the lift stations (for both sites)? Please provide site plans that show the locations of the bluff edge, the lift stations, and any other structures that may be at risk from erosion. For the St. Andrews Lift Station, please include the location of the existing seawall that will be encased by the proposed new wall.

Attached are plan and profile drawings for the St. Andrews site and the Vista Del Mar site. The 2009 Bluff line is interpreted from controlled aerial photography obtained for this project. The offset from the top of the bluff to the edge of the lift station(s) are approximately 12 and 20 feet for the St. Andrews and Vista Del Mar sites, respectively. Electrical service equipment is located closer to the bluff. Sanitary sewer lines located within the frontage road are also at risk from erosion.

Where exactly is each lift station, in 3 dimensions? What is their size? How thick are the walls of their enclosures? Please provide a cross section, with elevations, of each project site, showing the bluff, the lift station and any other structures that may be at risk from erosion.

Drawing S093.pdf (attached) is the 1993 as-built for the lift station improvements at Vista Del Mar. The well outer dimension is approximately 10 feet with a wall thickness shown as 8-inches. The lift station at St. Andrews is smaller with an ID estimated to be 5-feet.

When are the lift stations likely to be compromised, based on the most accurate possible estimate of the erosion rate occurring at each site? In determining the erosion rate, indicate what portion of the calculation of the erosion rate is attributable to sea cave collapse, and, correspondingly, whether an alternative of simply filling sea caves (with material designed to erode in a comparable time period to the existing bluff material) in the areas where structures are

threatened, would be a feasible solution. If such an alternative would lower the erosion rate, by how much would it do so?

The sea caves and all other related erosion type features, such as notches, voids, etc., are all included in the same erosion rates as calculated overall for the bluffs. There is no apparent distinction between the rates of erosion that cause the different erosional features, except that the sea caves and void features will eventually fail at times that are not constant, causing a general catastrophic failure of the overall bluffs. At the same time, there is constant, but smaller amounts of erosion of bedrock occurring at the bottom of the bluffs, as exhibited by the numerous leftover bedrock talus stones and gravels strewn amongst the bottom, as well as found farther out atop the wave cut platform area.

Filling of the sea caves and voids, etc., could be a workable solution. The filling would have to be a combination of erodible cement, like grout (in compliance with Coastal Commission policy), and/or rip-rap stone.

Sea caves are not present in the bluff areas immediately under either of the lift stations. Filling sea caves, while providing some protection to the streets and infrastructure above the sea caves, would not adequately protect the lift stations, nor would it reduce the historical rate of retreat of the bluffs.

Related excerpts from Geotech App, 11/10, p. 7:

*The sea caves are the result of ongoing marine erosion forces acting against the bluffs at all of the study areas. The sea caves add much to erosion mode, rate and loss of bluffs along the project study area. Much of the bluff loss that has occurred at Price Street and Dino Caves is the result of catastrophic collapse of sea caves. [Emphasis added]*

Geotech App, 11/10, states, p. 17

*Methods for stabilizing the seacliff area of the Memory Park bluff could include placement of a rock revetment or a seawall in the reentrants, or grouting or shotcreting for the local sea caves and (local) weaker bedding layers. [Emphasis added]*

For the St. Andrews site, what is the reduction in the average erosion rate due to the location of the existing wall at the St. Andrews site (in front of 195 Naomi Ave, but also in front of the lift station)? When was it built? (It is not present in 1979 aerial photos, but present in 1989 aerial photos.) What has the erosion rate been at that site since it has been constructed?

It is not known at this time as to when the seawall was constructed. Nevertheless, it would be difficult to attribute a

specific erosion rate to this particular engineered remedy since no actual measurements of erosion rate or records on a consistent basis (yearly or more frequent) have been kept at this site. The erosion rate for the area according to aerial photogrammetric analysis is based on specific time of aerial photographic exposures that capture the features of the bluffs. The record of such exposures is infrequent such that a more specific erosion rate would be unclear. The time of the construction of this seawall and the progression of erosion along the bluffs after its construction has not been captured frequently by such exposures.

### Alternatives

Can the walls be pulled back, to bring them closer to the bluff?

During final design, the wall alignment will be adjusted to minimize encroachment onto the beach while providing adequate drainage provisions and structural tie in to existing ground.

Are tie-back walls a feasible alternative, designed to be flush with or just in front of, the bluff?

This seawall option can be further evaluated during final design.

Can the rock toes for the walls be eliminated or pulled back to be no further seaward than the rest of the walls, since the walls will be extended to bedrock? Where there is existing rock or rubble on the beach, can it also be removed?

The need for toe stone will also be re-evaluated during final design. Currently, there is no consideration for removal of naturally occurring rock talus at the base of the bluffs.

How much protection could be afforded the threatened structures using a combination fill sea caves and implement upper bluff protection (erosion controls, shotcrete)? See above Geotech quotes, and also:

Geotech App, 11/10, states, p. 3

*The top of the bluffs can be mitigated by incorporating a combination of administrative and coastal engineering and geotechnical stabilizing measures. Such measures should include those fixes that will least disturb the delicate un-cemented nature of the soil. Some of the least disturbing type of fixes would include: storm water pipe and drainage retrofitting and extensions; maintenance of existing road curbing and installation of new road curbing; filling in of vertical erosion notches and rills with riprap/soil; closing of private pedestrian trails and replacement with engineered-erosion resistant trails; re-vegetation of soil slopes with native plants; and local/city administrative ordinances/codes/permits that have provisions for*

*protecting the bluffs during new construction/maintenance events on both public and private property.*

What is the cost, and what is the feasibility, of relocating lift stations to inland side of the street paralleling the shoreline at both sites? In response to our request for an examination of lift station relocation, we were told that this option had been addressed as part of the no action alternative in the economic analysis. Please provide this analysis and, if the economic analysis only provides an itemization of the costs of new equipment and installation, please supplement the analysis with a written description of the actions that would be taken, a conceptual plan that shows the relocation options and an evaluation of the environmental benefits and costs of an alternative that would avoid or postpone the need for shoreline armoring.

What is the need for 110 ft. of wall at St. Andrews site? Why does it need to be extended as far west as proposed?

The seawall extension to the west is designed to capture and contain the upcoast bedrock erosional features of voids, notches, and cavities and in particular the vertical notching that is occurring from the bedrock into the upper bluffs just upcoast of the existing seawall. The notching is severe in this particular location and is a mature form of rilling type of notching features that are evident elsewhere along the bluffs in the vicinity.

The sanitary sewer trunk line in the frontage road is also at risk from erosion.

Can the upper bluff erosion be minimized through vegetating, or partially vegetating, rather than shotcrete? If the pump stations are concrete cells and if the bases of the pump stations are protected from erosion by seawalls, what is at risk from upper bluff retreat?

The upper bluff is already over-steepened and subjected to wave spray. The existing bluff is devoid of vegetation as a result, with the exception of the sloped area of bluff failure. There is no reason to expect vegetation to grow where it currently does not. Stabilization of the top of bluff requires both slope stabilization and toe protection.

Finally, we suggest you review Exhibit E from the CCC's Pleasure Point seawall CDP, which contains a thorough alternatives analysis in an appendix to the City of Santa Cruz EIR. This can be found at:

<http://documents.coastal.ca.gov/reports/2008/4/F7c-s-4-2008-a2.pdf>

(The alternatives analysis begins on at p. 12 of the document at this link).

## Mitigation

Can visual impacts of the walls be lessened through vegetation (as was required in the Santa Cruz Pleasure Point seawall, where the tops of wall were be covered/softened with vegetative plantings)?

The upper bluff is already over-steepened and subjected to wave spray. The existing bluff is devoid of vegetation as a result, with the exception of the sloped area of bluff failure. There is no reason to expect vegetation to grow where it currently does not.

The Corps states it would be too costly to provide aesthetic treatment similar to Pleasure Pt./Pebble Beach. Specifically, the Corps' report states: *"The Pleasure Point and Pebble Beach examples would be considerably more expensive and are in a different aesthetic environment than the proposed wall at Pismo Beach. Cost limitations under the Continuing Authorities Program would preclude an identical treatment at Pismo Beach, which is also considered unwarranted"*.

What's the basis for this statement? Do you have any cost estimates to back up this statement?

The Pleasure Point/Pebble Beach sites are in different aesthetic environments than the Pismo Beach sites. They are much more open coastal sites more exposed than the cove locations of the Pismo Beach sites. Moffatt & Nichol dug up some costs for the "Disney" sculpted aesthetics effects, based on another project back in 2006. A contractor provided an estimate of \$15.00 to \$18.00 per square foot for a "best case scenario" and with a minimum of 1500 square feet. This included the sculpted shotcrete, integral color and the staining of shotcrete. For Pismo, without any wrap/factors, this comes out to be ~\$40K for the St. Andrews site and ~\$43K for the Vista del Mar site. The Corps has committed to working with Coastal Commission staff to achieve the best aesthetic design feasible for the project, which fits within the cost limitations of the Continuing Authorities Program being used to fund construction.

If, as implied, the City is to provide a stairway, habitat monitoring, and water quality/drainage improvements, how can we be able to review the plans for these, and be assured they will be implemented, and implemented in a time period coincident with construction of the shoreline protective devices. Will the Corps commit to undertake these measures if the City does not complete its portion of the project, or else commit to delay work on the seawalls until City commitments are in place?

The City is required to provide water quality drainage improvements by their Storm Water Pollution Prevention Plan. Provisions of this plan are enforceable by the Regional Water

Quality Control Board (RWQCB). Failure to do so could result in enforcement action by the RWQCB. The City has volunteered to provide a stairway at the St Andrews site and to conduct habitat monitoring at both sites. The Corps will work closely with the City to ensure completion of both measures. Delaying work on the seawalls until commitments are in place would not be feasible under Corps' policy. The seawall must be completed at St Andrews before it is possible to install a stairway down the face of the sea wall. Habitat monitoring would occur upon completion of construction.

### **Observations**

Page 8 of the Geotech App, 11/10, states:

*The later aerial photo time period (from 1974 to 2009) shows less indication of bluff loss for this 35 year time interval and particularly less catastrophic bluff loss along certain areas within the reaches that were measured. Less catastrophic bluff loss is most likely due to the numerous engineered remedies, such as sea walls, revetments, fills etc., that have been constructed since 1974. These remedies have seemed to stabilize the worst or most highly erosional bluff areas along each reach since 1974.*

The Corps' 2/2/11 response to the CCC staff recommendation states:

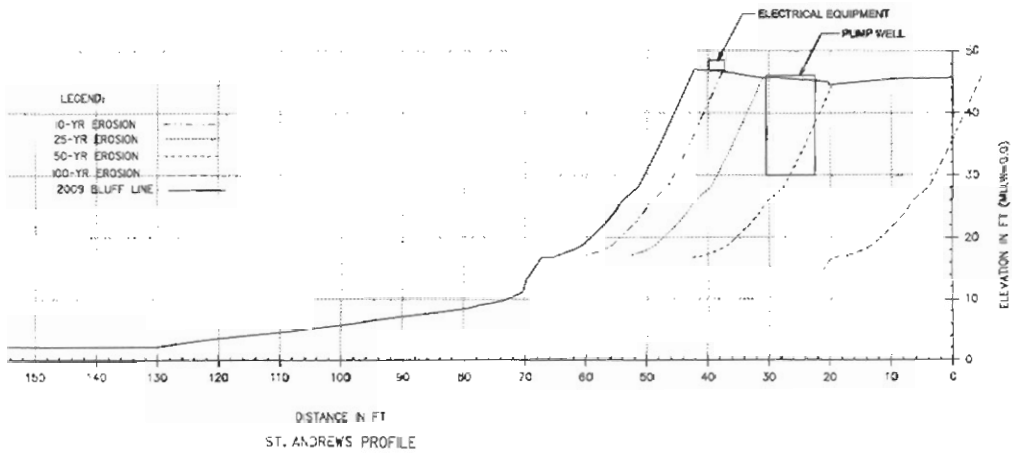
*The City has no records on the existing sea walls. Based on that and the apparent age of the existing sea walls, it is assumed that the sea walls were built prior to incorporation of the area known as Shell Beach from the San Luis Obispo County to the city of Pismo Beach in 1976.*

These statements would appear to be mutually exclusive. Please clarify. Also, if walls were permitted by the County rather than the City, prior to incorporation, then the County should also be contacted to determine whether it has any permitting and authorization records.

It is not known as to when the seawalls were constructed. As we stated, the City has no records of when the seawalls were built and who was responsible for their construction. The comment in the Geotech Appendix is a general one that the most highly erosional bluff areas appear to have been protected since 1974. This does not preclude the possibility of other walls constructed prior to 1974. The City's position is that records on seawalls would not have existed prior to 1976 when Shell Beach was incorporated into the city of Pismo Beach. The key point is that the existing seawalls are old and were not subject to permitting at the time they were constructed.

Finally, for monitoring of habitat, surfing, aesthetics, water quality, and other impacts, we advise you review the Commission's adopted findings for the Santa Cruz Pleasure Point seawall, which can be found at this link:

<http://documents.coastal.ca.gov/reports/2008/4/F7c-s-4-2008.pdf>



0 5 10 20 FT  
SCALE: 1" = 10'

**PLAN  
ST. ANDREWS LIFT STATION**

SHEET OF SHEETS	U.S. ARMY ENGINEER DISTRICT LOS ANGELES CORPS OF ENGINEERS	DESIGNED BY: DRAWN BY: CHECKED BY:	SECTION 103 CAP STUDY PISMO BEACH STORM DAMAGE AND SHORELINE PROTECTION SITE 1 - ST. ANDREWS LIFT STATION PLAN AND PROFILE - FUTURE EROSION
DISTRICT FILE NO. 100-100	FILE NAME:		

**EXHIBIT NO. 23**

**APPLICATION NO.**

**CD-61-10**

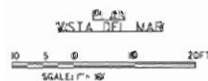
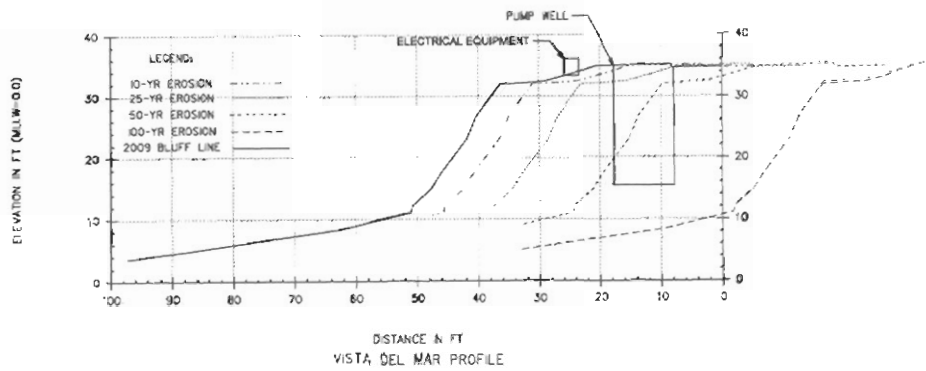


EXHIBIT NO. 24

APPLICATION NO.

CD-61-10

SHEET OF SHEETS	U.S. ARMY ENGINEER DISTRICT LOS ANGELES CORPS OF ENGINEERS	DESIGNED BY: DRAWN BY: CHECKED BY:	SECTION 108 CAP STUDY PISVO BEACH STORM DAMAGE AND SHORELINE PROTECTION SITE 2 - VISTA DEL MAR LIFT STATION PLAN AND PROFILE - FUTURE EROSION
	DISTRICT FILE NO. / SERVICE	FILE NAME:	

C-ANI  
 C-DO  
 10-Ye  
 25-Ye  
 50-Ye  
 100-Y  
 C-SS  
 pismo-bl  
 Layer  
 V-BEC  
 V-BEC

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U.S.

PISMO BEACH

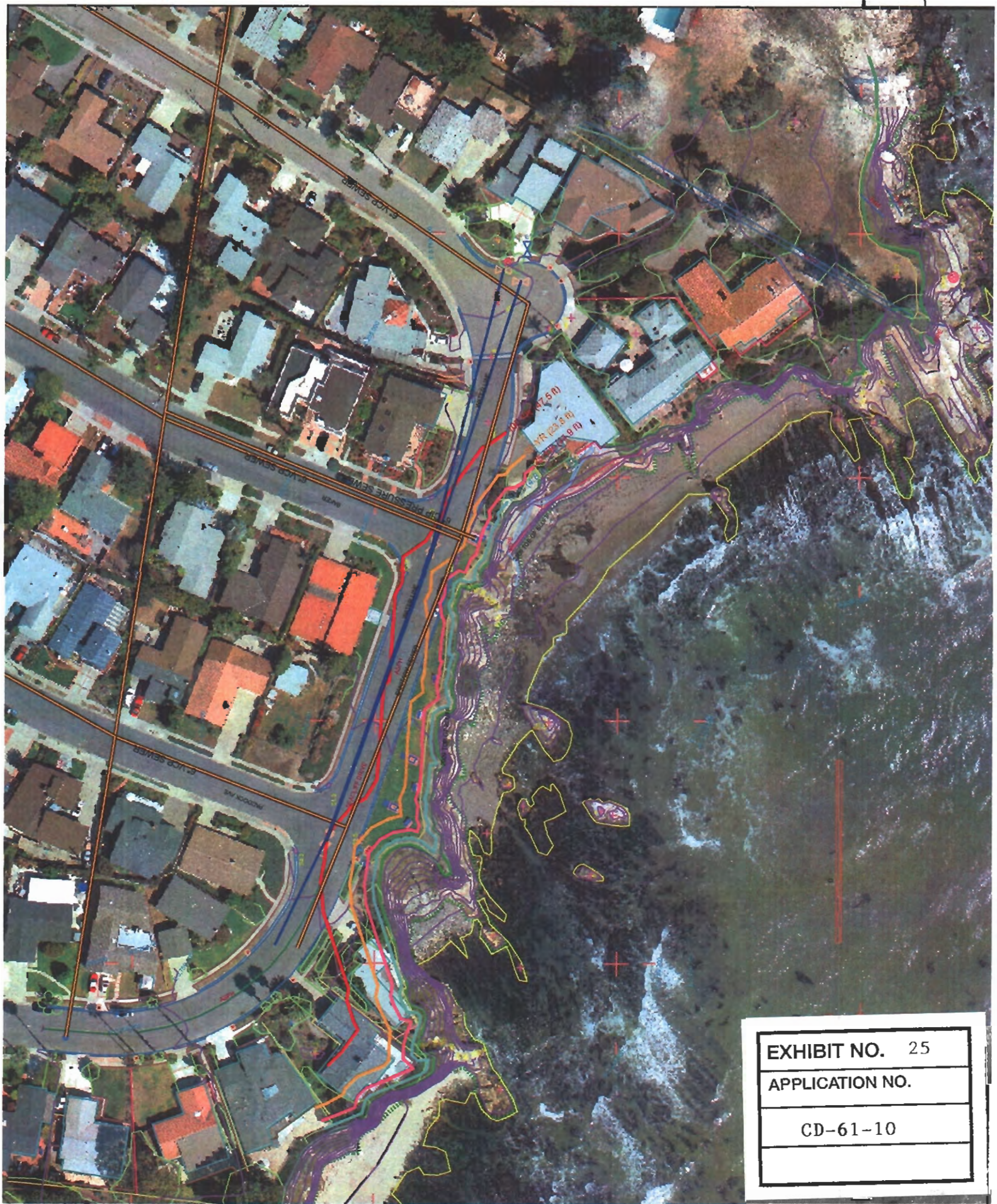


EXHIBIT NO. 25

APPLICATION NO.

CD-61-10

V-BEC  
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PISMO BEACH

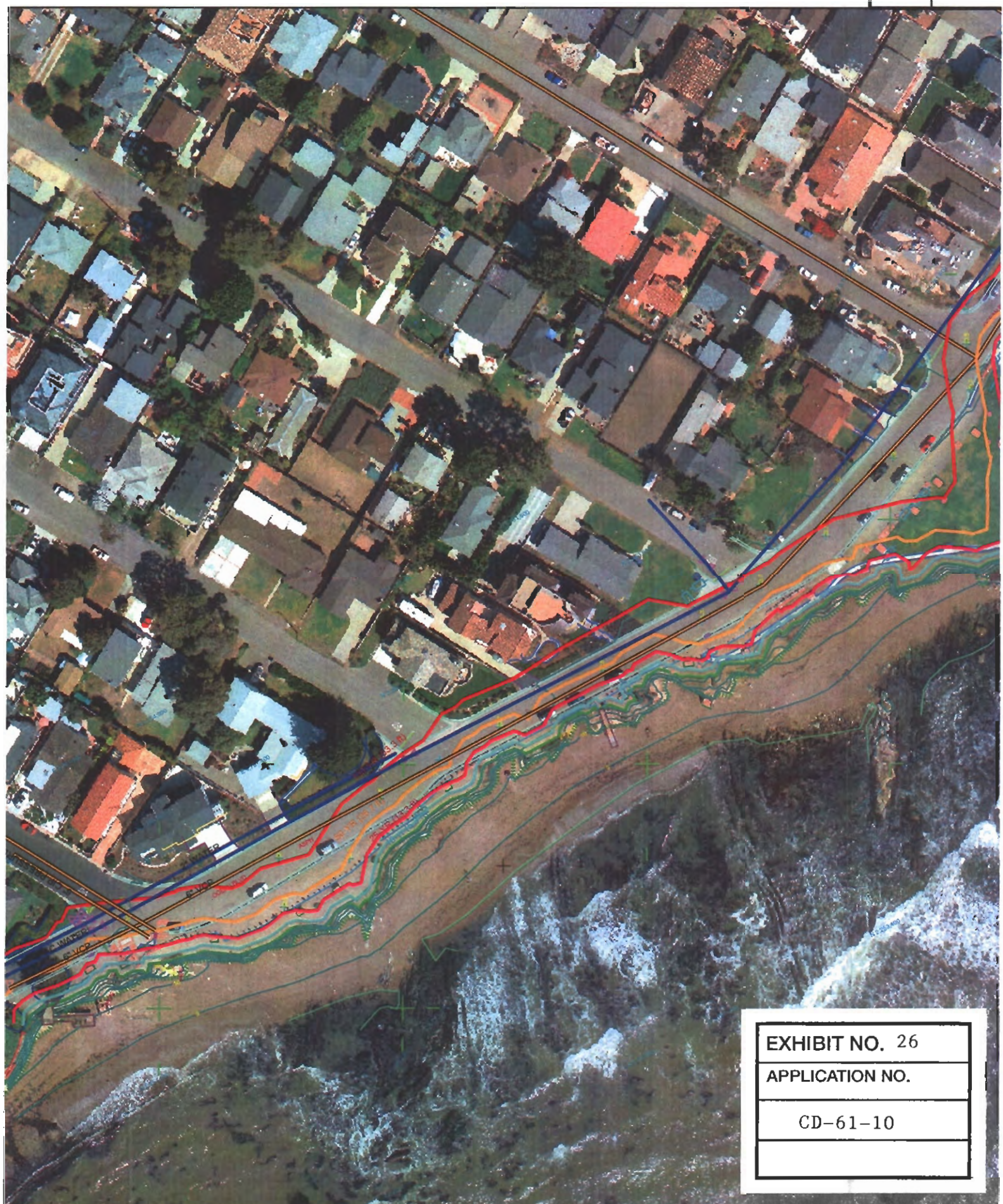


EXHIBIT NO. 26

APPLICATION NO.

CD-61-10

**FORM FOR DISCLOSURE  
OF EX PARTE  
COMMUNICATIONS**

Name or description of project, LCP, etc.: W 25a. CD-061-10 (Corps of Engineers)

Date and time of receipt of communication: 2/3/11

Location of communication: Office of the Board of Supervisors, Santa Cruz, CA

Type of communication: In-person Meeting

Person(s) initiating communication: Sarah Damron  
Margie Kay

Person(s) receiving communication: Mark Stone

Detailed substantive description of content of communication:  
(Attach a copy of the complete text of any written material received.)

I met with Sarah Damron and Margie Kay on 2/3/11 at 1:00 pm at my offices. They were speaking for the San Luis Obispo Chapter of Surfrider Foundation and Sierra Club who agree with staff report recommending objection.

This project is not ripe for consistency determination. The Commission lacks sufficient information to determine: (1) the nature and degree of threat to existing structures; (2) whether non-armoring alternatives are feasible and available; (3) even if they are not, whether the proposed wall designs and locations represent the least environmentally damaging feasible "armoring" alternatives; and (4) whether the proposed structures, if needed, have been designed to eliminate or mitigate adverse impacts on shoreline sand supply, public access and recreation, scenic coastal public views, environmentally sensitive habitat, marine resources, and water quality.

Furthermore, there are conditions which the Corps can't/won't commit to implementing that the City will need to implement (i.e. building stairs at the St. Andrews lift station site), and there is currently no mechanism in place (i.e. a CDP) to hold the City accountable for implementing such conditions.

For these reasons, we respectfully urge the Commission to follow staff's recommendation and object to the consistency determination.

Date: 2/22/11 Signature of Commissioner: Mark Stone

If the communication was provided at the same time to staff as it was provided to a Commissioner, the communication is not ex parte and this form does not need to be filled out.