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STAFF RECOMMENDATION

ON CONSISTENCY DETERMINATION

Consistency Determination No.	CD-061-10
Staff:	MPD-SF
File Date:	11/16/10
60th Day:	1/16/11
75th Day:	1/30/11
Extended to:	2/12/11
Commission Meeting:	2/9/11

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 a rock revetment (at the St. Andrews Lift Station) and a vertical wall (at the Vista del Mar Lift Station) (Exhibits 5-7)

SUBSTANTIVE FILE DOCUMENTS: See Page 33

Staff Recommendation: **Objection** (based on lack of information). Motion is on p. 8.

List of Exhibits

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

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, while the Corps has not affirmatively committed to such a design, or submitted actual detailed project plans that show an aesthetic treatment, the Corps appears to now be proposing sculpted 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 shoreline protection policy of the Coastal Act (Section 30235) as limiting the construction of shoreline protective structures to those required to protect existing structures or public beaches in danger from erosion, and provides that any such protective structure 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. 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 cause adverse impacts on a number 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 from the Corps in a letter dated December 13, 2010 (Exhibit 19), 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.

In addition, the National Marine Fisheries Service (NMFS) indicated concerns over potential offshore impacts (such as turbidity) and recommended a vertical wall rather than a revetment at the St. Andrews site, and pre- and post-construction monitoring of rocky reef and seagrass habitat (with provisions for mitigation if monitoring results indicate impacts occurring). As discussed below, the Corps has agreed to the first request in its response to the Commission staff; however the Corps has not yet responded to NMFS' second request.

On January 24, 2010, the Commission staff received the Corps's response to these information requests. This response, which also contains the information requests made, is contained on pages 17-24 of this report. While the Commission staff has not had adequate time to fully review the response by the date for mailing of staff reports for the Commission's February meeting, the Commission staff's initial reaction is that a number of issues raised in the above-summarized information requests are still outstanding, specifically, a greater level of detail or consideration of alternatives and/or mitigation measures addressing the following concerns:

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

These information needs are explained in greater detail on pages 9-12, and again on pages 24-27, of this report.

At this time, the Commission therefore 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. Accordingly, the Commission lacks sufficient information to determine the project's consistency with Sections 30235, 30253, 30210-30223, 30251, 30230, 30240, and 30231 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,[1] 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, 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[2], upcoast at the end of Florin St. in Pismo Beach, are feasible alternatives. Thus, while the Corps has not affirmatively committed to such a design, or submitted actual detailed project plans that include a "sculpted treatment," the Corps appears to now be proposing sculpted walls at both sites.

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 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*

[1] A sewer lift station houses a pump that raises sewage from a lower elevation sewer line to a higher elevation sewer line.
[2] 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

> *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 described the originally-proposed revetment at the St. Andrews Lift site as follows:

> *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.*

The Corps states the beach footprint for the St. Andrews Lift Station revetment would be 0.18 acres, the length 110 ft., and the width (i.e., distance from the bluff face to the seawardmost point) approximately 60 ft. The top of the wall would be at +22 ft. MLLW, with the base of the toe at 0 ft. MLLW. The quantity of rock would be 3,500 tons (Exhibit 14).

Alternatively, if a vertical wall is used at the St. Andrews Lift Station site, the Corps states 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' original submittal considered two additional alternatives for the St. Andrews Lift Station site, a vertical wall, and a more aesthetic sculpted concrete/shotcrete vertical wall. The Corps states the latter of these:

> *… 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 states that recent conversations with the City of Pismo Beach have led it to switch from the revetment to a vertical wall at the St. Andrews Lift Station Site.

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.

The Corps further states that both the revetment and seawall alternatives would require trench excavation work for rock placement down to 0 feet MLLW. The seawall alternative would require 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 - 250 trips for rock revetment alternative, 170-180 trips for vertical wall alternative; and (2) Vista del Mar Lift Station - 130-140 trips for vertical wall (the slightly larger number for the vertical walls would be for a “sculpted” alternative).

II. <u>Federal Agency’s Consistency Determination</u>. 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 Corps of Engineers for the proposed project, finding that the consistency determination for the proposed project does not supply sufficient information to determine the project's consistency 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 objects based on lack of information. Section 930.43ba) of the federal consistency regulations (15 CFR § 930.43(b)) requires that, if the Commission's objection is based on lack of information, the Commission must identify the information necessary for it to assess the project's consistency with the CCMP. That section states:

If the State agency's objection is based upon a finding that the Federal agency has failed to supply sufficient information, the State agency's response must describe the nature of the information requested and the necessity of having such information to determine the consistency of the Federal agency activity with the enforceable policies of the management program.

As described fully in Sections V. A.-D. of this report below, the Commission has found this consistency determination to lack the information that the Commission has requested from the Corps to enable the Commission to determine whether the proposed project is consistent to the maximum extent practicable with Sections 30235, 30253, 30210-30223, 30251, 30230, 30240, and 30231 of the Coastal Act. In order to determine the project's consistency with the CCMP, the Commission has requested the Corps to provide it with the following necessary information:

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

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 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 expectance 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.

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.

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

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.

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.

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.

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.

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).

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.

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.

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.

These information needs, as well as the reasons the information is needed to determine the project's consistency with the applicable Coastal Act policies, are described in greater detail in Sections V. A-D of this report below. In summary, the information is needed to fully analyze the project under the shoreline processes and protection (Section 30235), geologic hazards (30253), public access and recreation (Sections 30210-30223 & 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.

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."[3] The Corps of Engineers did not 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:

[3] 15 CFR Section 930.32.

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(a) 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 landform altering protective measures 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 the shoreline protection policy of the Coastal Act (Section 30235) as limiting the construction of shoreline protective works to those required to protect existing structures or public beaches in danger from erosion. The Coastal Act provides these limitations because shoreline structures can result in a variety of adverse effects on coastal resources, including adverse affects 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 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), existing roads adjacent to the blufftop (Seacliff Dr. and Ocean Blvd.), and other subsurface utilities. 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 notes 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 Engineering Appendix summarized past Pismo Beach shoreline analyses and studies, including 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.*

The Engineering Appendix also cited a more recent study (Fugro, 2002), that it summarizes 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).*
>
> *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 a memo dated January 24, 2010, which stated as follows (the passages in italics are the Commission staff's information requests; the responses by the Corp are in regular (non-italicized) text):

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 … *[attached as Exhibit 8]*. The design intent is to place the shore protection structure just seaward of the bluff toe to minimize further

toe erosion. The 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 is 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.*

    …

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 X 21 in = 25.2 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 [sic.] 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.

Upon reviewing these responses, the Commission has the following remaining concerns:

Revised Project Plans: Detailed revised project plans are needed, and the projects need to be redesigned to conform to the concerns expressed below.

More Details Concerning Project Need and Alternatives: The Pismo shoreline, like most of the California coast, is exposed to storm waves and erosive forces. The Corps states the Lift Station locations are at risk from current and accelerated shoreline erosion. There is no more specific discussion of risks; however, the discussion of the no action alternatives indicates, if no bluff protection is built, “the bluffs at these sites would continue to erode and impact property, infrastructure, and coastal access.” (EA/NegDec Page 42) The discussion of project need and

the no action alternative does not provide any estimate of how long it will take for these impacts to occur. The "Need for the Proposed Action" states that Price Street (one of the four projects excluded from this review) likely will be damaged by erosion within the next decade: but, no such estimates are given for the St. Andrews Lift Station area or the Vista Del Mar Lift Station Area. The only options that were considered for these two locations were a revetment, a vertical concrete wall, a vertical concrete wall with a facing for visual quality, an offshore breakwater, a groin system or beach nourishment. The offshore breakwater, the groin system and beach nourishment were quickly eliminated from consideration and the remaining options were the direct shoreline hardening with either a revetment or a vertical wall. Options of managed retreat or relocation of the lift stations were not considered. The proposed option is to harden 110 feet of shoreline at St. Andrews and 120 feet of shoreline at Vista Del Mar. The project need and the examination of alternatives do not provide the level of information or project detail that is normally provided for projects of this scale.

This information needs to include previously-requested, but not provided, details describing the age, condition, and remaining life expectance 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 in response number 4 above (which states: "Also there would be a loss of recreational amenities such as the walking trail and park benches which would not be easily replaced …").

Finally, on this issue, in stating the area is subject to "accelerated" erosion, the Corps 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.

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 design that 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 as 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 back fill between the bluff face and the wall – is that the backfill area will accommodate sloughage from the upper bluff. However, 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 technical infeasibility, without 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 project, 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.

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.

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' 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.

Fixing the Location of the Back Beach: In the discussion on the effects from sea level rise, the EA/NegDec states, "Over the 50-year time period, the sea level rise would result in a gradual loss of beach. This loss would occur with or without the construction of a rock revetment or seawall." (page 88) In reality, this loss would not occur without the construction of the seawall. The Corps' statement ignores the impacts from fixing the back of the beach and the link between erosion of the bluff and expansion of the useable beach area. 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. In areas without shoreline armoring, the beach-bluff retreat can be expected to continue and new beach will be formed. Based on the 2007 USGS Report, "National Assessment of Shoreline Change, Part 4: Historic Coastal Cliff Retreat along the California Coast, Open File Report 2007-1133, and as cited in the Moffatt-Nichol Coastal Engineering Report, bluff retreat in the Pismo Beach area ranges from 0.2 to 0.5 meters per year (0.66 to 1.64 feet per year). 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.

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.

Sand Used for Backfill. The Corps indicated sand used for backfill behind walls would be a "small amount" of sand excavated for the rocks at the toe as backfill. 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 Corp has not indicated why the excavated that sand could not be placed on the beach to remain in the littoral cell and imported soil be used as backfill.

Thus, given this information provided to data, the Commission finds that the Corps has not provided specific detailed basic project information, has not provided sufficient information on the availability, and feasibility, of alternatives, has not provided sufficient commitments for implementation of needed mitigation and monitoring measures, including the need for mitigation for sand supply losses due to structures that sealing off bluffs and inhibit sand from reaching the beach, and loss of recreational beach from both direct and passive displacement by a shoreline protective device, adverse onshore and offshore habitat, and water quality impacts. At this time, the Commission therefore concludes that it lacks sufficient information to determine: (1) the nature and degree of threat to existing structures, and thus whether shoreline protection is truly required; (2) whether non-armoring alternatives are feasible and available; (3) whether the proposed walls have been designed to enable a determination that they represent the least environmentally damaging feasible "armoring" alternative (including location, as well as aesthetics); and (4) whether the proposed structures, if they are needed, have been designed to

eliminate or mitigate adverse impacts on shoreline sand supply, and to minimize geologic hazards. Accordingly, the Commission therefore concludes that it lacks sufficient information to determine the project's consistency with Sections 30235 and 30253 of the Coastal Act.

B. 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 to the beach area below. In its initial submittal, the Corps stated that the proposed revetment would displace approximately 19% of the beach at the St. Andrews Lift Station site, but that this effect would not be significant due to the difficulty of accessing the site. After further discussions with the City of Pismo Beach, the Corps appears to be considering redesigning the proposed wall to a vertical wall design, which would displace much less beach. If this redesign were to occur, the actual beach displacement effect would be approximately 0.06 acres (or, roughly, 2,600 sq. ft.) for each of the two walls. While, the Corps has agreed in concept, it has not yet submitted such redesign for review, and as noted in the previous section of this report, the walls need to be pulled further landward to more closely conform to existing bluff contours.

In considering sand supply issues, as stated in the previous section the Corps believes effects would be minimal, because most of the sand from the Santa Maria River travels south (i.e., not towards Pismo Beach), barrier exists north of Pismo Beach preventing littoral drift from the north, and the bluff composition is predominantly fines, with insignificant 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.

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 lined 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).

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. Thus, assuming the issues addressed in the previous section of this report were resolved, in order to mitigate the project's impacts on loss of public beach, the Commission believes an appropriate manner in which to mitigate these impacts would be through construction of a public access staircase at the St. Andrews Lift Station site. The need for this mitigation would be based both on the future loss of recreational sandy beach at both sites, as well as the effect of constructing a wall at the St. Andrews site would render existing

access down the beach more difficult if not impossible. 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. In conclusion, because the Corps has not yet provided assurances for the implementation of such public access mitigation, the Commission lacks sufficient information to determine the project's impacts on public access and recreation, and, thus, whether the project can be found consistent with Sections 30210-30223 and 30240(b) of the Coastal Act.

C. <u>Visual Resources</u>. 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 revetment proposed for the St. Andrews Lift Station site would be highly visually intrusive, and the vertical wall proposed for the Vista del Mar Lift Station site is unaesthetic and unappealing. 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 addition, as discussed in the previous section of this report, after further discussions with the City of Pismo Beach, the Corps appears to be considering redesigning the proposed shore protection at St. Andrews Lift Station to a vertical wall design, which would be less visually intrusive and would displace much less beach. However, the proposed design for a vertical wall with a sculpted face would require modifications by the Corps to minimize impacts. The proposed wall design appears to be essentially a straight line, set several feet seaward of the bluff. As discussed in the above two sections of this report, a more preferable alignment, for beach processes, public access, *and* visual impact reasons, 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.

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 technical infeasibility, or providing any cost information or other reason why such treatment may be infeasible. The Corps needs provide this information, and work with the Commission staff to develop a mechanism that will assure the most aesthetic treatment feasible for the proposed walls.

Further, 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. Finally, the Corps has not provided plans at a scale, or with the aesthetic details, sufficient to enable a determination of the project's visual effect.

Absent these needed revisions, clarifications, and revised detailed plans, at this time, the Commission finds that it lacks sufficient information to determine the project's consistency with the scenic public view protection policy (Section 30251) of the Coastal Act.

D. <u>Marine Resources, Water Quality, and Environmentally Sensitive Habitat.</u>

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 redesign the proposed revetment at the St. Andrews Lift Station to reduce its beach footprint, and 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.

As noted in the previous two sections of this report, after further discussions with the City of Pismo Beach, the Corps does appear to be considering redesigning the proposed St. Andrews site wall to a vertical wall design, which may avoid direct effects on sensitive vegetation communities, and which would reduce sandy beach effects, and possibly offshore effects on marine habitat. However, the Corps has not yet submitted any such redesign for review, and the Commission is unaware as to what its precise location would be with respect to the existing vegetation communities, or whether the Corps is willing to consider habitat mapping and monitoring as requested by NMFS. 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. In order to find the project consistent with the Coastal Act, the Commission finds the Corps needs to provide the following assurances and commitments:

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.

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.

At this time, absent such information and assurances, the Commission finds that it lacks sufficient information to determine the project's effects on marine resources, water quality, and environmentally sensitive habitat. Accordingly, the Commission concludes that it lacks sufficient information to determine the project's consistency with 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. 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), and City of Santa Cruz Pleasure Point seawall (Appeal No. A-3-SCO-07-015 and CDP Application No. 3-07-019.

Figure 1-1
Project Vicinity

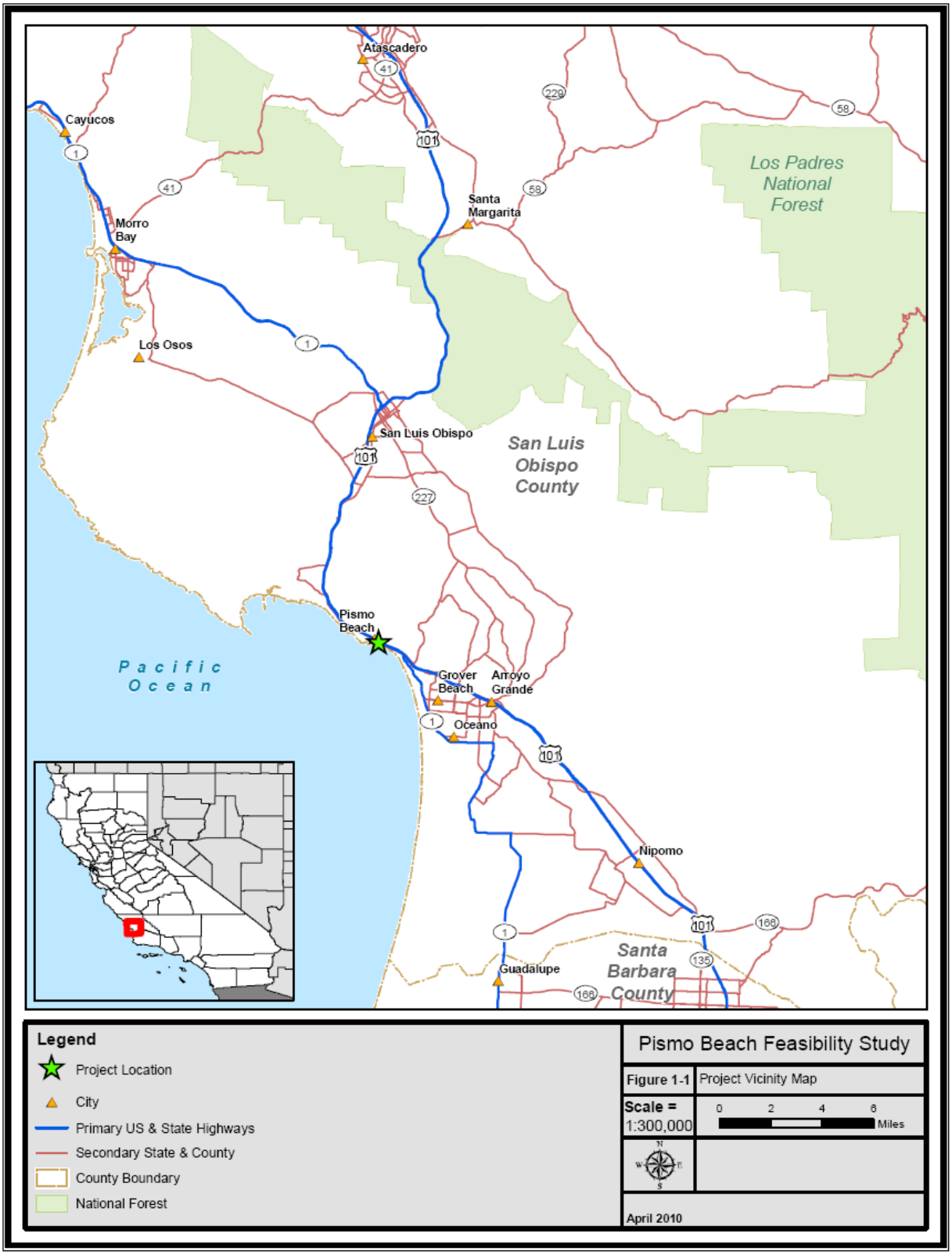


EXHIBIT 1
CD-061-10
Location Map

Figure 1-2
Project Location Map

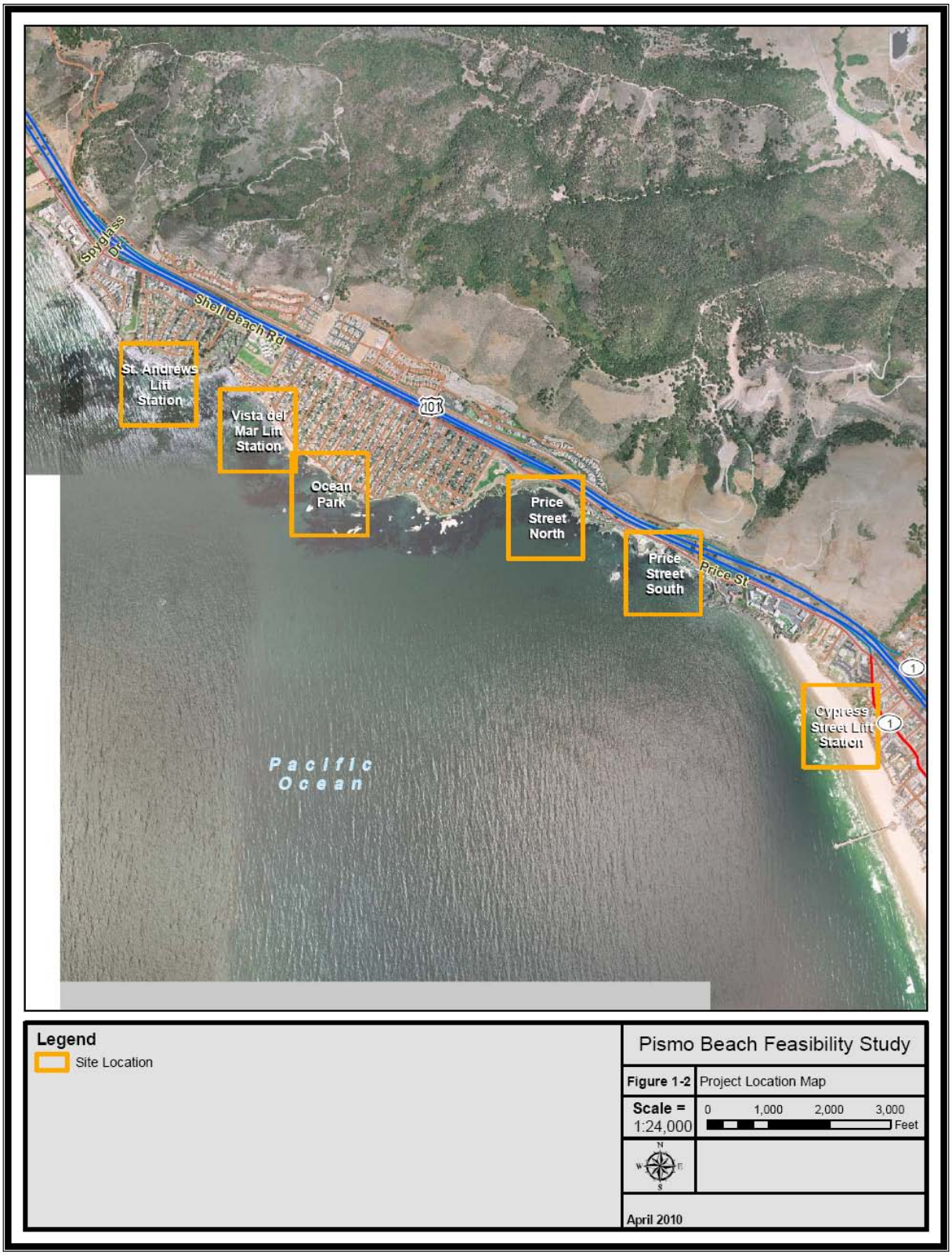


EXHIBIT 2
CD-061-10
Location Map

Figure 2-7
St. Andrews Lift Station Alternatives Footprints

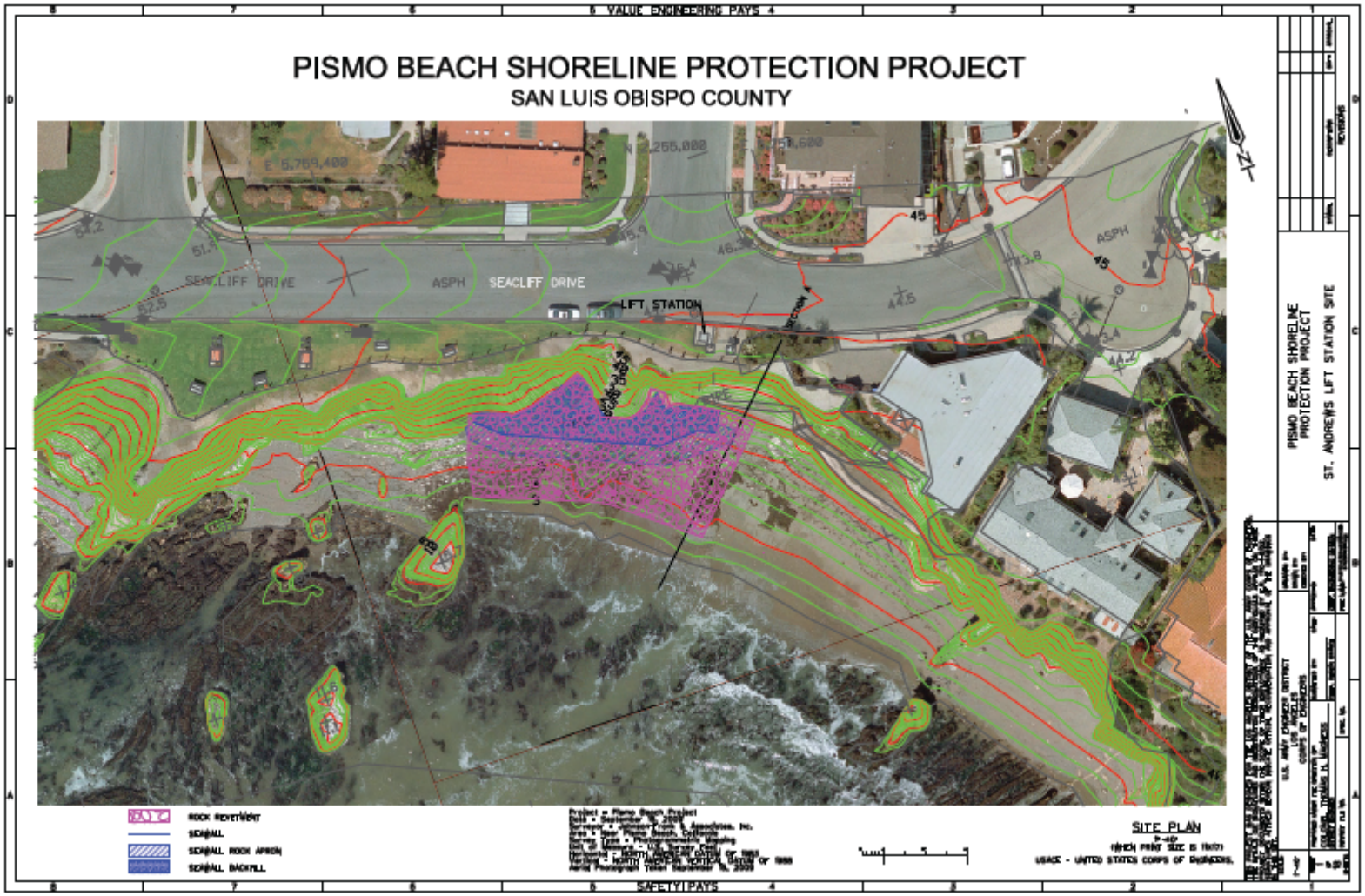


Figure 2-8
Vista del Mar Lift Station Alternatives Footprints

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

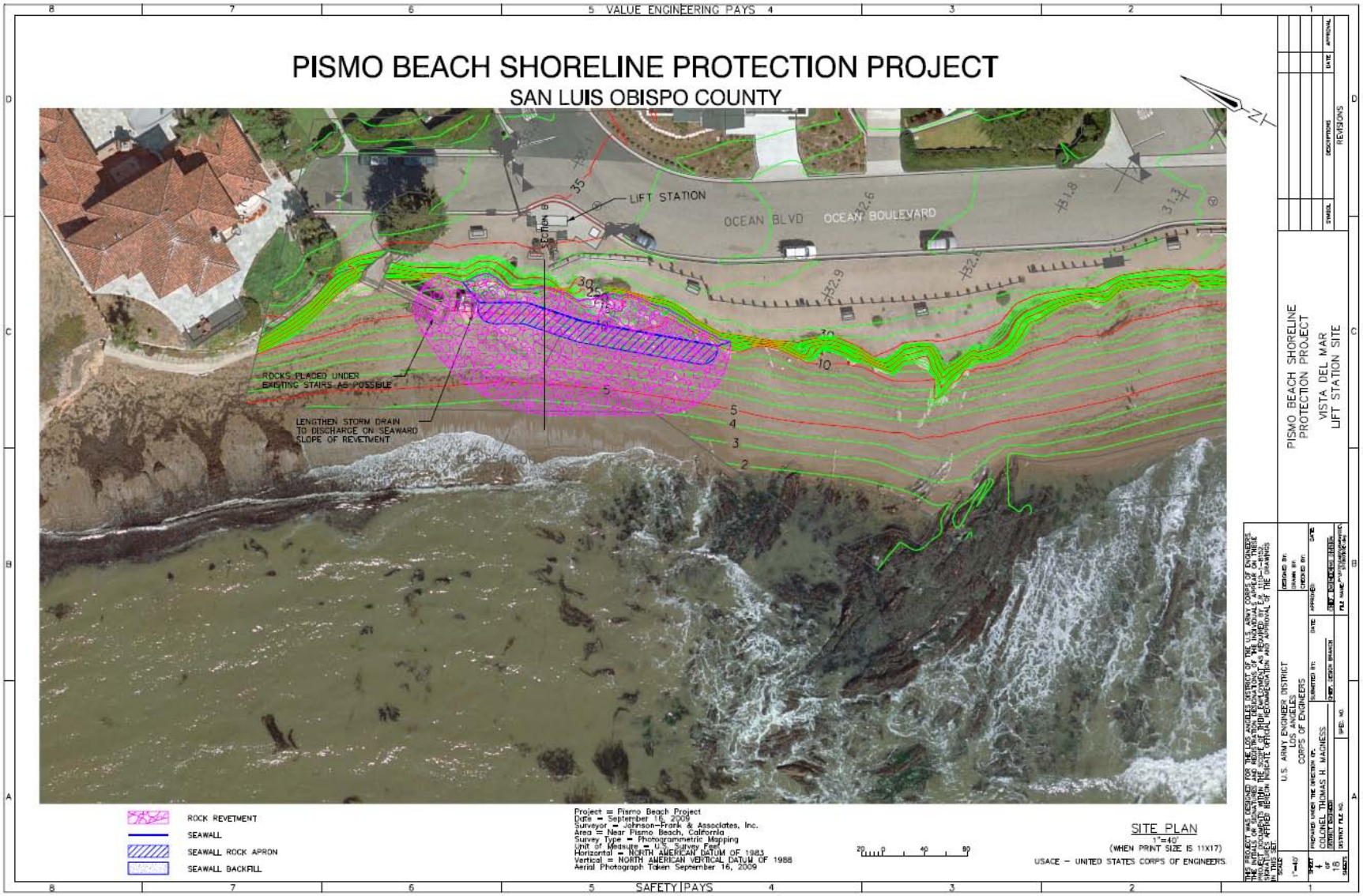


EXHIBIT *4*
CD-061-10
Vista del Mar Site - Footprint

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

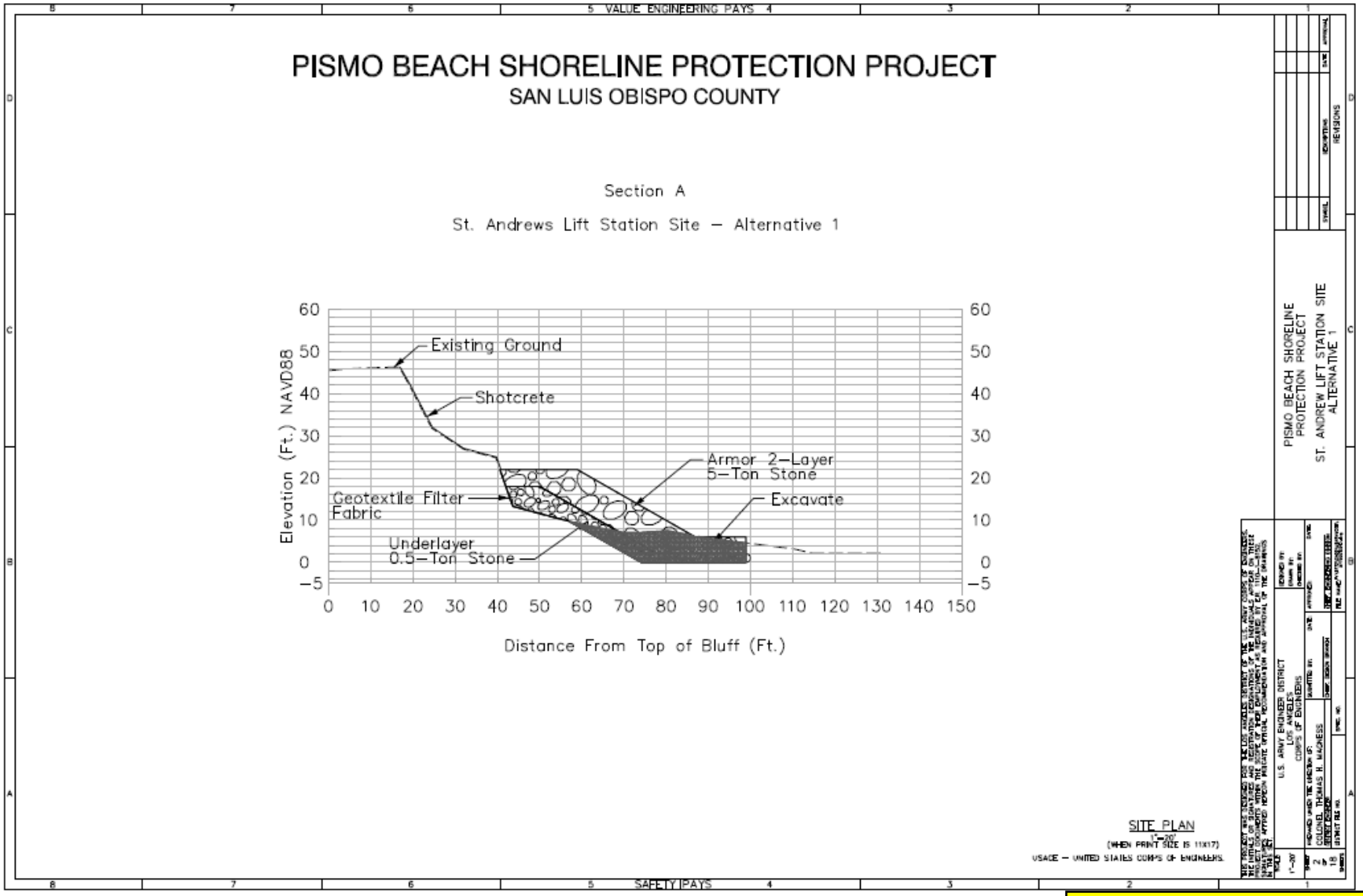


EXHIBIT 5
CD-061-10
St. Andrews - Revetment

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

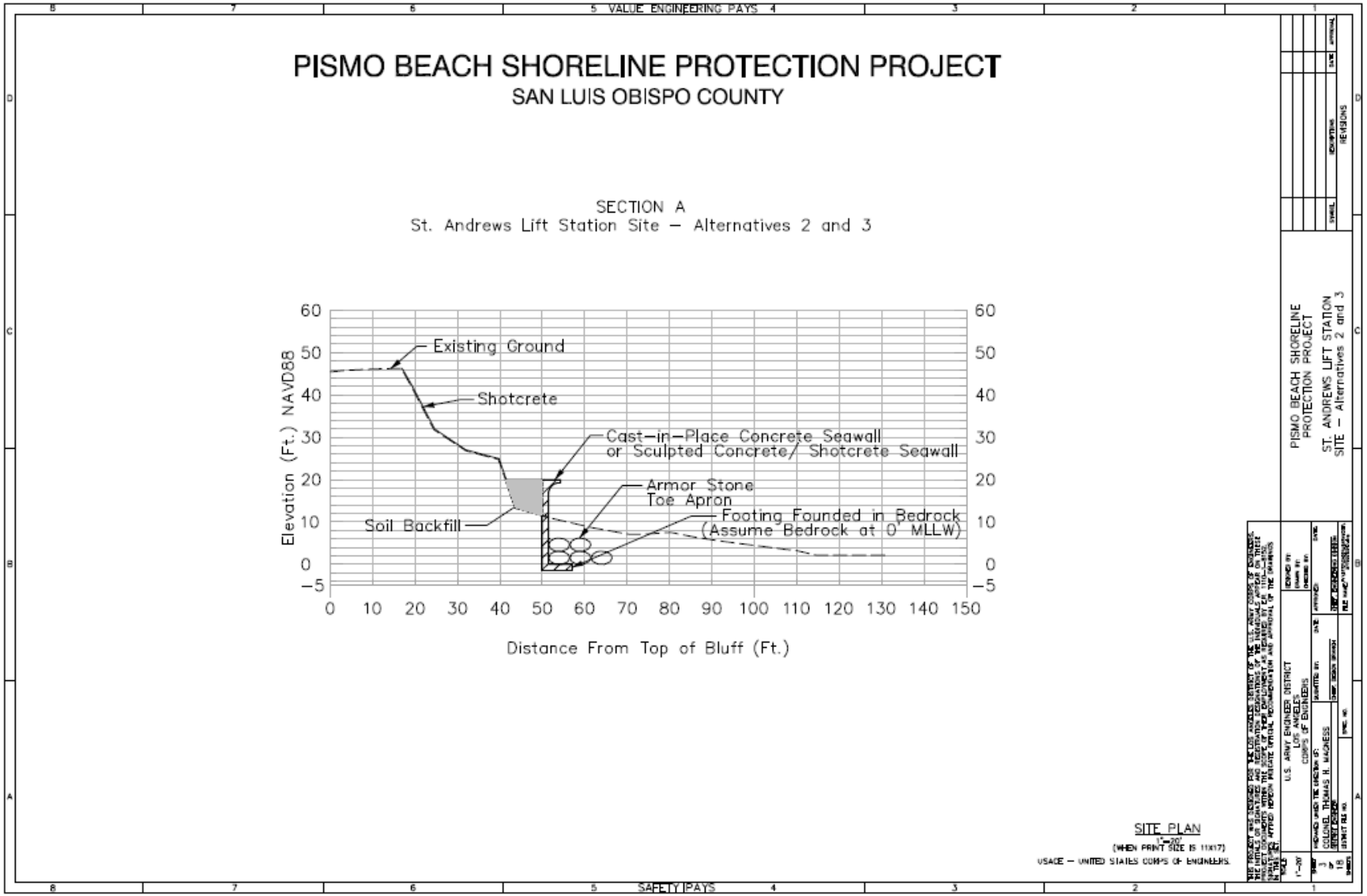


EXHIBIT 6
St. Andrews Site
Vertical Wall

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

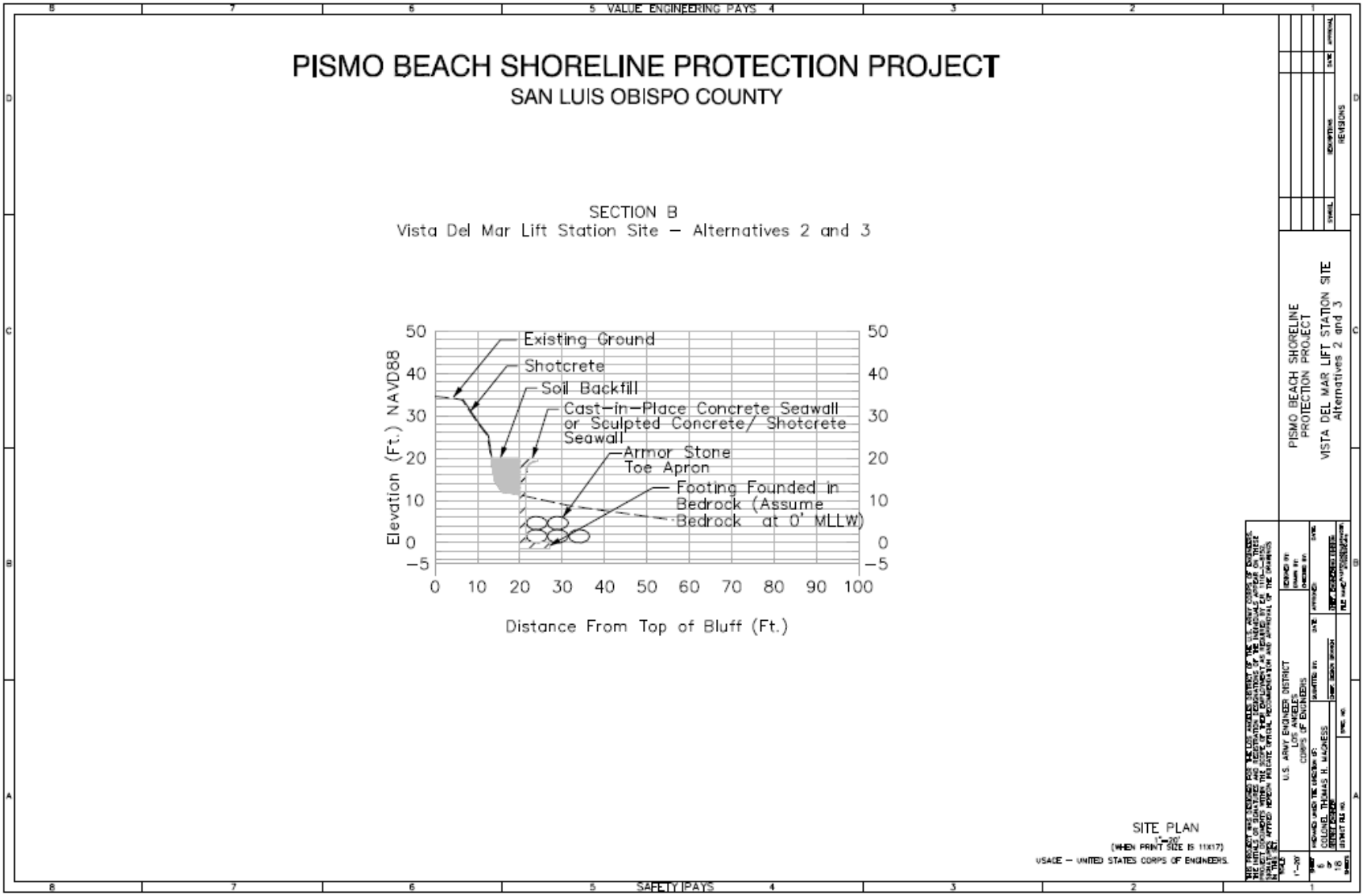


EXHIBIT *7*
Vista del Mar Site
Vertical Wall

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 is 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

EXHIBIT 8
St. Andrews Site
Aerial Photo (Ca. Coastal Records Project Photo)

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

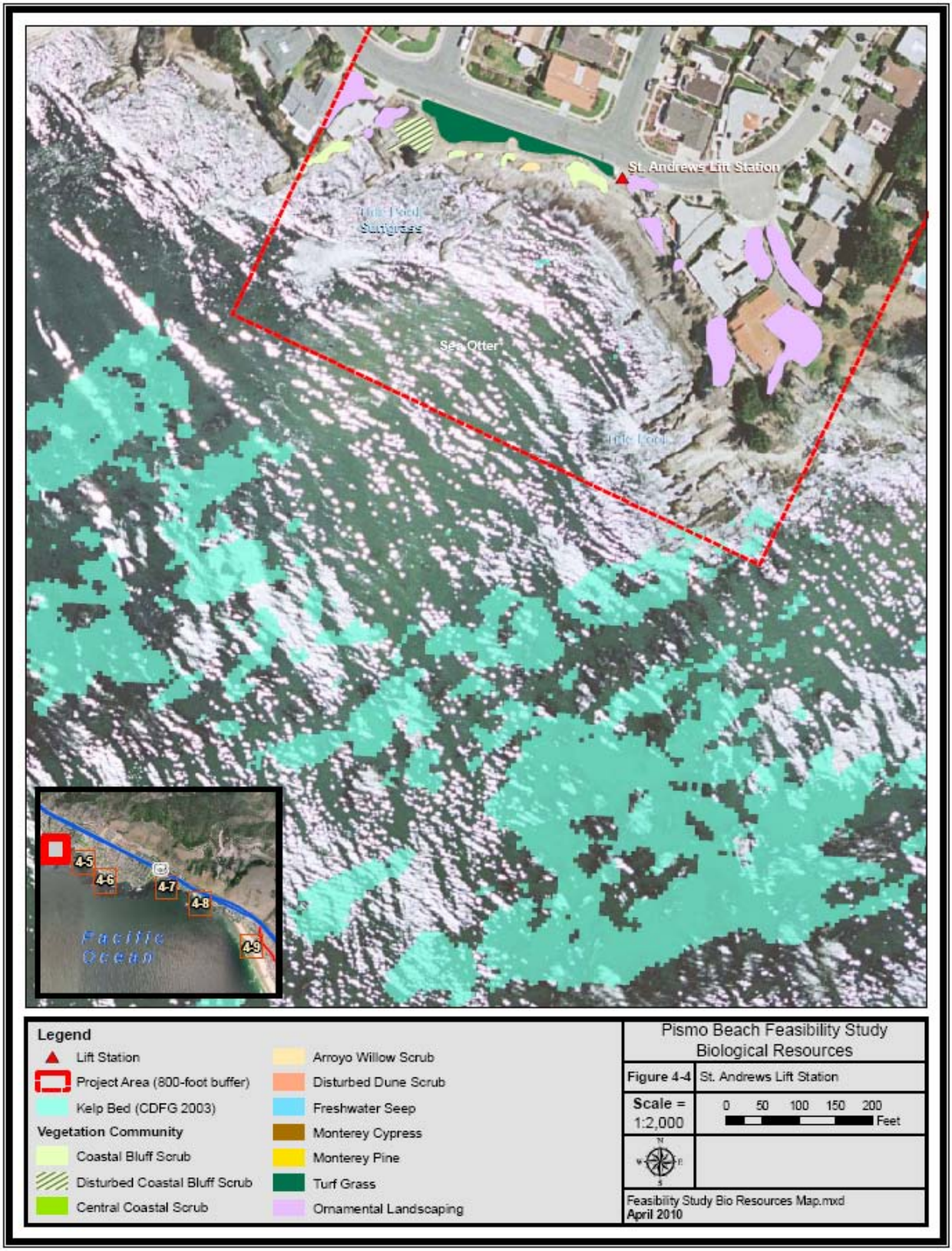


EXHIBIT 10
CD-061-10
St. Andrews Site
Biological Resources

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

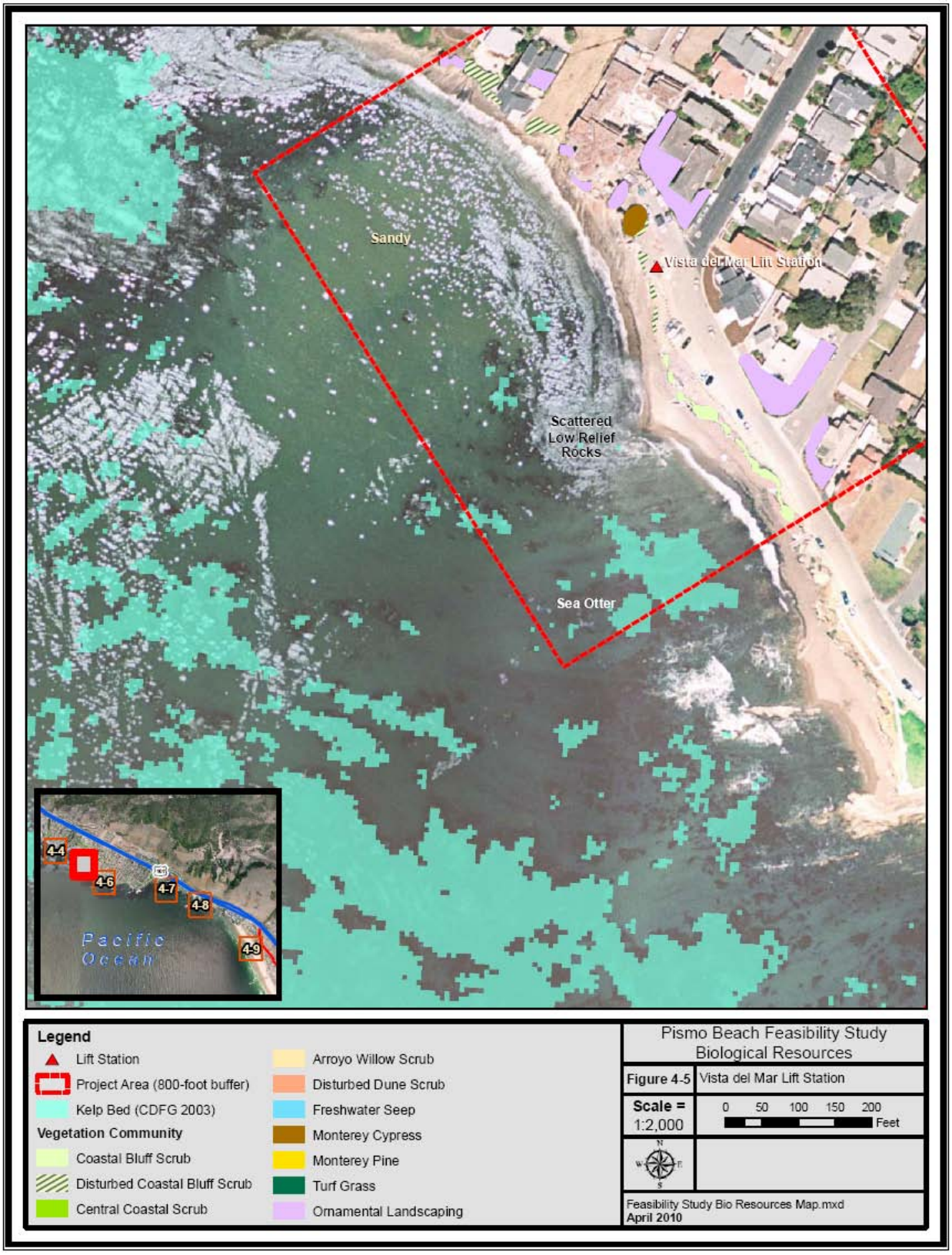


EXHIBIT 11
CD-061-10
Vista del Mar Site
Biological Resources

Figure 2-20
St. Andrews Lift Station Staging Area

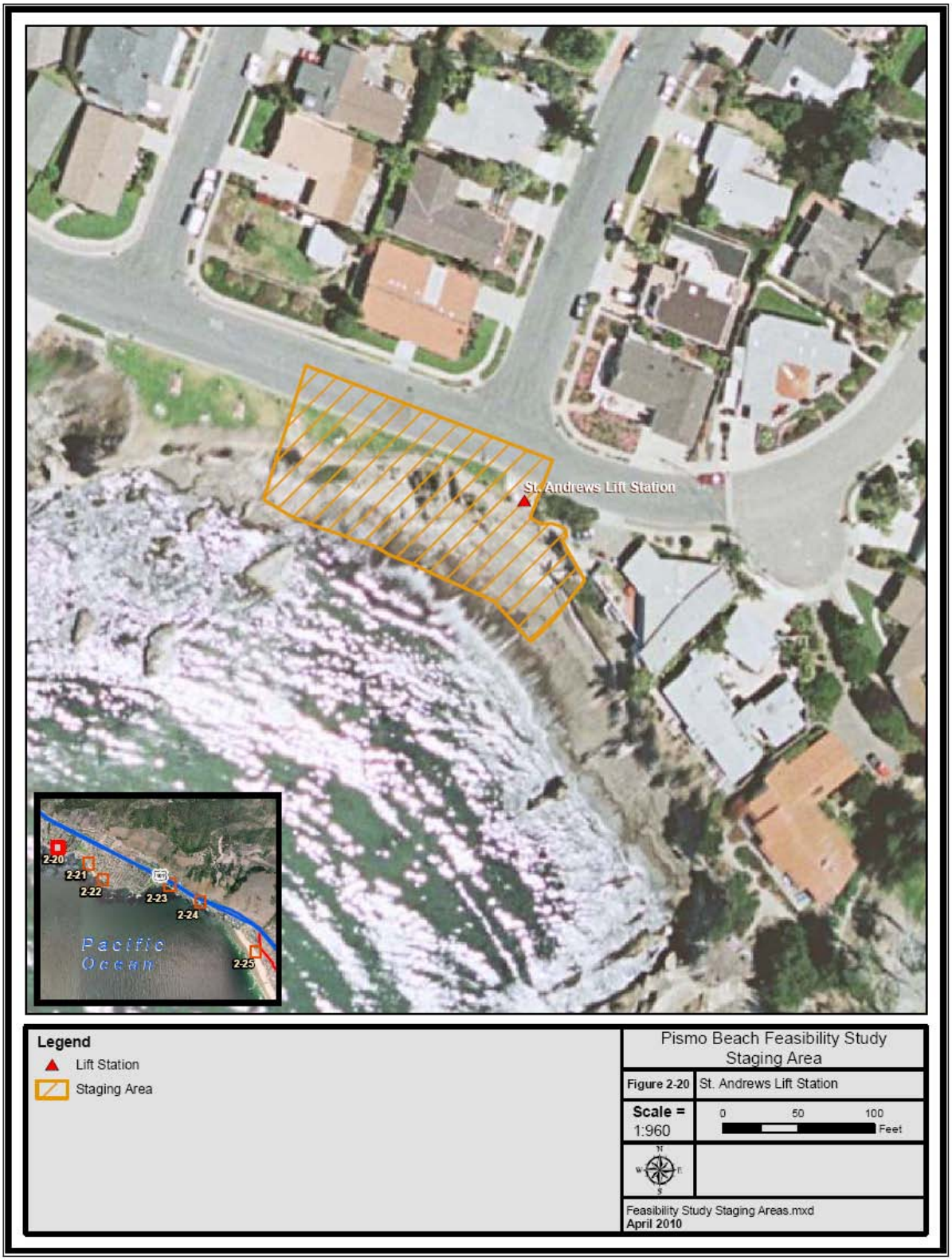


EXHIBIT 12
CD-061-10
St. Andrews Site
Staging Area

Figure 2-21
Vista del Mar Lift Station Staging Area

EXHIBIT 13
CD-061-10
Vista del Mar Site
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*

EXHIBIT 15
CD-061-10
Truck Trips

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)[1], 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:

[1] 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 or 562-980-4037.

Sincerely,

for Robert S. Hoffman
Assistant Regional Administrator
for Habitat Conservation

SIERRA CLUB
FOUNDED 1892

Santa Lucia Chapter
P.O. Box 15755
San Luis Obispo, CA 93406
(805) 543-8717
www.santalucia.sierraclub.org

January 26, 2011

California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, California 94105-2219
Attn: Mark Delaplaine
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

SURFRIDER FOUNDATION SAN LUIS OBISPO CHAPTER

January 26, 2011

California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, California 94105-2219
Attention: Mark Delaplaine
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.

EXHIBIT 18
CD-061-10
Correspondence

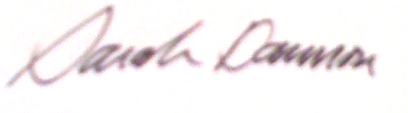
Additionally, there are a number of outstanding issues that Surfrider has raised regarding the project as proposed, which have yet to be resolved in a final EA/MND or EIS/EIR. Many of these issues relate to inconsistencies with various policies in Chapter 3 of the Coastal Act, namely sections pertaining 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,



Sarah Damron
Central California Regional Manager
Surfrider Foundation
sdamron@surfrider.org

/S/
Piper Reilly, Vice Chair
San Luis Obispo Chapter
Surfrider Foundation
slo@surfrider.org

STATE OF CALIFORNIA – NATURAL RESOURCES AGENCY
ARNOLD SCHWARZENEGGER, Governor

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.

EXHIBIT 19
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 required 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. <u>Possible Access Improvements</u>. 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)