CALIFORNIA COASTAL COMMISSION
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Filed:	7/26/02
49th Day:	9/13/02
180th Day:	1/22/3
Date of Extension Request:	1/21/03
Length of Extension	90 Days
Final Date for Commission Action	4/21/03
Staff:	GDC-SD
Staff Report:	2/13/03
Hearing Date:	3/4-7/03

REGULAR CALENDAR
STAFF REPORT AND PRELIMINARY RECOMMENDATION

Application No.: 6-02-84

Applicant: Mrs. Ninni Scism Agent: Bob Trettin

Description: After-the-fact construction of colored and textured concrete tiedback seawall approximately 35-ft-high, 50-ft-long and 2-ft-wide and underground upper bluff retention system, consisting of approximately nine, 35-ft-deep caissons, tiebacks, and grade-beam.

Site: On beach and bluff fronting 357 Pacific Avenue, Solana Beach, San Diego County. APN #263-301-05

STAFF NOTES:

Summary of Staff's Preliminary Recommendation: Staff is recommending approval of the subject development as the applicant has demonstrated that the existing blufftop residence is in danger from erosion. The subject site has recently sustained a bluff collapse that has exposed a layer of cohensionless, clean sands subject to rapid erosion approximately midway up the bluff. Due to the collapse and exposure of the clean sand layer, the applicant's geotechnical representative has concluded that the existing blufftop residence is now in danger. The Commission's staff engineer and geologist have reviewed the applicants' geotechnical assessment and concur with its conclusions. The seawall structure has already been constructed pursuant to an Emergency Permit issued by the Executive Director in September 2002 (ref. 6-02-130-G/Scism). The subject permit represents the follow-up regular coastal development permit for the seawall structure along with a new request to construct a below-grade upper bluff retention system consisting of a series of cast-in-place caissons.

The proposed development has been conditioned to mitigate its impact on coastal resources such as scenic quality, public access and recreation opportunities, and shoreline

sand supply. A special condition has been attached which requires the applicant to acknowledge that should additional stabilization be proposed in the future, the applicant will be required to identify and address the feasibility of all alternative measures which would avoid additional alteration of the natural landform of the public beach or coastal bluffs, and would reduce the risk to the principle residential structure and provide reasonable use of the property. If such alternatives are feasible, the Commission will require them instead of additional shoreline protective devices. The recommended conditions also require the applicant to pay a beach sand mitigation fee to mitigate the direct and long-term impacts on shoreline sand supply. Other conditions involve the timing of construction, the appearance of the seawall and upper bluff retention system, long-term monitoring of the seawall and below-grade upper bluff retention system, and approval from other agencies.

Substantive File Documents: City of Solana Beach General Plan and Zoning Ordinance; San Diego County LCP; City of Solana Beach Special Use Permit #17-01-38; "Preliminary Geotechnical Evaluation of Coastal Bluff 357 Pacific Avenue, Solana Beach" by Soil Engineering Construction, Inc. dated February 14, 2002; "Alternatives Analysis 357 Pacific Avenue Solana Beach" by Soil Engineering Construction, Inc. received on May 24, 2002; "Sand Mitigation Worksheet" for 357 Pacific Ave. Solana Beach dated 7/26/2002 by SEC (Soil Engineering Construction, Inc); CDP Nos. 4-87-161/Pierce Family Trust and Morgan, 6-87-371/Van Buskirk, 5-87-576/Miser and Cooper, 6-93-36-G/Clayton, 6-93-85/Auerbach, 6-93-131/Richards, et al, 6-93-136/Favero, 6-95-66/Hann, 6-98-39/Denver,Canter, 6-99-41/Bradley, 6-99-100/Presnell, et. al, #6-99-103/ Coastal Preservation Association, 6-00-66/Pierce, Monroe, 6-00-138/Kinzel,Greenberg, 6-02-78-G/Gregg, 6-02-130-G (Scism) and 6-03-008-G (Scism).

I. PRELIMINARY STAFF RECOMMENDATION:

The staff recommends the Commission adopt the following resolution:

MOTION: ***I move that the Commission approve Coastal Development Permit No. 6-02-084 pursuant to the staff recommendation.***

STAFF RECOMMENDATION OF APPROVAL:

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

RESOLUTION TO APPROVE THE PERMIT:

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. Standard Conditions.

See attached page.

III. Special Conditions.

The permit is subject to the following conditions:

1. Revised Final Plans. PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicants shall submit for review and written approval of the Executive Director, final seawall, site, landscape, irrigation and drainage plans in substantial conformance with the submitted plans dated 2/1/402 by Soil Engineering Construction. Said plans shall first be approved by the City of Solana Beach and revised to include the following:

a. Sufficient detail regarding the construction method and technology utilized for constructing a return wall on either side so as to gradually blend into the adjacent natural bluff. The return walls shall be designed and constructed to minimize the erosive effects of the approved seawall on the adjacent bluffs.

b. Sufficient detail regarding the construction method and technology utilized for texturing and coloring the seawall and below-grade upper bluff retention system. Said plans shall confirm, and be of sufficient detail to verify, that the seawall color and texture closely matches the adjacent natural bluffs, including provision of a color board indicating the color of the fill material.

c. Any existing permanent irrigation system located on the bluff top site shall be removed or capped.

d. All runoff from impervious surfaces on the top of the bluff shall be collected and directed away from the bluff edge towards the street.

e. Existing accessory improvements (i.e., decks, patios, walls, etc.) located in the geologic setback area on the site shall be detailed and drawn to scale on the final

approved site plan and shall include measurements of the distance between the accessory improvements and the bluff edge (as defined by Section 13577 of the California Code of Regulations) taken at 3 or more locations. The locations for these measurements shall be identified through permanent markers, benchmarks, survey position, written description, or other method that enables accurate determination of the location of structures on the site (the same as utilized for as-built plans required pursuant to Special Condition #5 below). The plan shall also identify all accessory improvements that will be removed and/or replaced as a result of constructing the below-grade retention system.

f. During construction of the approved development, disturbance to sand and intertidal areas shall be minimized to the maximum extent feasible. All excavated beach sand shall be redeposited on the beach. Local sand, cobbles or shoreline rocks shall not be used for backfill or for any other purpose as construction material.

The permittee shall undertake the development in accordance with the approved plans. Any proposed changes to the approved plans shall be reported to the Executive Director. No changes to the plans shall occur without a Coastal Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

2. Mitigation for Impacts to Sand Supply. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicants shall provide evidence, in a form and content acceptable to the Executive Director, that a fee of $9,836.00 has been deposited in an interest bearing account designated by the Executive Director, in-lieu of providing the total amount of sand to replace the sand and beach area that will be lost due to the impacts of the proposed protective structure. All interest earned by the account shall be payable to the account for the purposes stated below.

The purpose of the account shall be to establish a beach sand replenishment fund to aid SANDAG, or a Commission-approved alternate entity, in the restoration of the beaches within San Diego County. The funds shall be used solely to implement projects which provide sand to the region's beaches, not to fund operations, maintenance or planning studies. The funds shall be released only upon approval of an appropriate project by the Executive Director of the Coastal Commission. The funds shall be released as provided for in a MOA between SANDAG, or a Commission-approved alternate entity and the Commission, setting forth terms and conditions to assure that the in-lieu fee will be expended in the manner intended by the Commission. If the MOA is terminated, the Commission can appoint an alternative entity to administer the fund.

3. Monitoring Program. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicants shall submit to the Executive Director for review and written approval, a monitoring program prepared by a licensed geologist or geotechnical engineer for the site, upper bluff retention system and seawall which requires the following:

a. An annual evaluation of the condition and performance of the upper bluff retention system and lower seawall addressing whether any significant weathering or damage has occurred that would adversely impact the future performance of the structures. This evaluation shall include an assessment of the color and texture of the seawall and any exposed areas of the upper bluff retention system comparing the appearance of the structures to the surrounding native bluffs.

b. Annual measurements of any differential retreat between the natural bluff face and the seawall face, at both ends of the seawall and at 20-foot intervals (maximum) along the top of the seawall face/bluff face intersection. The program shall describe the method by which such measurements shall be taken.

c. Provisions for submittal of a report to the Executive Director of the Coastal Commission by May 1 of each year (beginning the first year after construction of the project is completed) for a period of three years and then, each third year following the last the annual report, for the life of the approved seawall and upper bluff retention system. However, reports shall be submitted in the Spring immediately following either:

    1. An "El Niño" storm event – comparable to or greater than a 20-year storm.

    2. A tectonic event magnitude 5.5 or greater affecting San Diego County.

    Thus reports may be submitted more frequently depending on the occurrence of the above events in any given year.

d. Each report shall be prepared by a licensed geologist or geotechnical engineer. The report shall contain the measurements and evaluation required in sections a, and b above. The report shall also summarize all measurements and analyze trends such as erosion of the bluffs or changes in sea level and the stability of the overall bluff face, including the upper bluff area, and the impact of the seawall on the bluffs to either side of the wall. In addition, each report shall contain recommendations, if any, for necessary maintenance, repair, changes or modifications to the project.

e. An agreement that the permittee shall apply for a coastal development permit within 90 days of submission of the report required in subsection c. above for any necessary maintenance, repair, changes or modifications to the project recommended by the report that require a coastal development permit.

The permittee shall undertake monitoring in accordance with the approved plan. Any proposed changes to the approved plan shall be reported to the Executive Director. No changes to the plan shall occur without a Coastal Commission approved amendment to

this coastal development permit unless the Executive Director determines that no amendment is legally required.

4. Storage and Staging Areas/Access Corridors. PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director for review and written approval, final plans indicating the location of access corridors to the construction site and staging areas. The final plans shall provide that:

a. No overnight storage of equipment or materials shall occur on sandy beach or within Fletcher Cove public parking spaces. During the construction stages of the project, the permittee shall not store any construction materials or waste where it will be or could potentially be subject to wave erosion and dispersion. In addition, no machinery shall be placed, stored or otherwise located in the intertidal zone at any time, except for the minimum necessary to construct the seawall. Construction equipment shall not be washed on the beach or in the Fletcher Cove parking lot.

b. Access corridors shall be located in a manner that has the least impact on public access to and along the shoreline.

c. No work shall occur on the beach on weekends or holidays between Memorial Day weekend and Labor Day of any year.

d. The applicant shall submit evidence that the approved plans/notes have been incorporated into construction bid documents. The staging site shall be restored to its pre-construction condition immediately following completion of the development.

The permittee shall undertake the development in accordance with the approved plans. Any proposed changes to the approved plans shall be reported to the Executive Director. No changes to the plans shall occur without a Coastal Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

5. Storm Design/As-Built Plans. PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit certification by a registered civil engineer that the proposed shoreline protective devices are designed to withstand storms comparable to the winter storms of 1982-83.

Within 60 days following completion of the project, the permittee shall submit as-built plans of the approved seawall, tiebacks and upper bluff retention device which include measurements of the distance between the residence (and remaining accessory improvements) and the bluff edge (as defined by Section 13577 of the California Code of Regulations) taken at 3 or more locations. The locations for these measurements shall be identified through permanent markers, benchmarks, survey position, written description,

or other method to allow annual measurements to be taken at the same bluff location and to allow accurate measurement of bluff retreat.

In addition, **within 60 days following completion of the project**, the permittee shall submit certification by a registered civil engineer, acceptable to the Executive Director, verifying the seawall and upper bluff retention system has been constructed in conformance with the approved plans for the project.

6. Future Response to Erosion. If in the future the permittee seeks a coastal development permit to construct additional bluff or shoreline protective devices, the permittee will be required to include in the permit application information concerning alternatives to the proposed bluff or shoreline protection that will eliminate impacts to scenic visual resources, recreation and shoreline processes. Alternatives shall include but not be limited to: relocation of all or portions of the principle structure that are threatened, structural underpinning, and other remedial measures capable of protecting the principal structure and providing reasonable use of the property, without constructing bluff or shoreline stabilization devices. The information concerning these alternatives must be sufficiently detailed to enable the Coastal Commission or the applicable certified local government to evaluate the feasibility of each alternative, and whether each alternative is capable of protecting existing structures that are in danger from erosion. No additional bluff or shoreline protective devices shall be constructed on the adjacent public bluff face above the approved seawall or on the beach in front of the proposed seawall unless the alternatives required above are demonstrated to be infeasible. No shoreline protective devices shall be constructed in order to protect ancillary improvements (patios, decks, fences, landscaping, etc.) located between the principal residential structure and the ocean.

7. Future Maintenance/Debris Removal. Within 15 days of completion of construction of the protective devices the permittee shall remove all debris deposited on the bluff, beach or in the water as a result of construction of shoreline protective devices. The permittee shall also be responsible for the removal of debris resulting from failure or damage of the shoreline protective devices in the future. In addition, the permittee shall maintain the permitted seawall, tiebacks and upper bluff below-grade retention system in its approved state. Maintenance of the seawall shall include maintaining the color, texture and integrity. Maintenance of the below-grade upper bluff retention device shall include maintaining the color, texture and integrity of any portions of the device that become exposed in the future. Any change in the design of the project or future additions/reinforcement of the seawall and upper bluff retention system beyond exempt maintenance as defined in Section 13252 of the California Code of Regulations to restore the structure to its original condition as approved herein, will require a coastal development permit. **However, in all cases, if after inspection, it is apparent that repair and maintenance is necessary, including maintenance of the color of the structures to ensure a continued match with the surrounding native bluffs, the permittee shall contact the Executive Director to determine whether a coastal development permit or an amendment to this permit is necessary, and, if necessary,**

shall subsequently apply for a coastal development permit or permit amendment for the required maintenance.

8. U.S. Army Corps of Engineers Permit. PRIOR TO COMMENCEMENT OF CONSTRUCTION, the permittee shall provide to the Executive Director a copy of a U.S. Army Corps of Engineers permit, letter of permission, or evidence that no Corps permit is necessary. Any mitigation measures or other changes to the project required through said permit shall be reported to the Executive Director. Such changes shall not be incorporated into the project until the applicant obtains a Commission approved amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

9. State Lands Commission Approval. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicants shall submit to the Executive Director for review and written approval, a written determination from the State Lands Commission that:

a) No state lands are involved in the development; or

b) State lands are involved in the development, and all permits required by the State Lands Commission have been obtained; or

c) State lands may be involved in the development, but pending a final determination of state lands involvement, an agreement has been made by the applicant with the State Lands Commission for the project to proceed without prejudice to the determination.

10. Public Rights. The Coastal Commission's approval of this permit shall not constitute a waiver of any public rights that exist or may exist on the property. The permittee shall not use this permit as evidence of a waiver of any public rights that exist or may exist on the property.

11. Assumption of Risk, Waiver of Liability and Indemnity Agreement. By acceptance of this permit, the applicant acknowledges and agrees (i) that the site may be subject to hazards from erosion and coastal bluff collapse; (ii) to assume the risks to the applicant and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

12. Condition Compliance. **WITHIN 90 DAYS OF COMMISSION ACTION ON THIS CDP APPLICATION**, or within such additional time as the Executive

Director may grant for good cause, the applicant shall satisfy all requirements specified in the conditions hereto that the applicant is required to satisfy prior to issuance of this permit. Failure to comply with this requirement may result in the institution of enforcement action under the provisions of Chapter 9 of the Coastal Act.

13. Deed Restriction. **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit to the Executive Director for review and approval documentation demonstrating that the landowner has executed and recorded a deed restriction, in a form and content acceptable to the Executive Director: (1) indicating that, pursuant to this permit, the California Coastal Commission has authorized development on the subject property, subject to terms and conditions that restrict the use and enjoyment of that property (hereinafter referred to as the "Standard and Special Conditions"); and (2) imposing all Standard and Special Conditions of this permit as covenants, conditions and restrictions on the use and enjoyment of the Property. The deed restriction shall include a legal description of the applicant's entire parcel or parcels. The deed restriction shall also indicate that, in the event of an extinguishment or termination of the deed restriction for any reason, the terms and conditions of this permit shall continue to restrict the use and enjoyment of the subject property so long as either this permit or the development it authorizes, or any part, modification, or amendment thereof, remains in existence on or with respect to the subject property.

IV. Findings and Declarations.

The Commission finds and declares as follows:

1. Detailed Project Description. The proposed project involves the construction of an approximately 35 foot-high, 50 foot-long, 2 foot-wide tiedback concrete seawall at the toe of the bluff and a below-grade upper bluff retention system consisting of 9 piers, approximately 30 inch in diameter, placed eight-foot on center in the rear yard of the residential structure extending for approximately 50 feet in length. The face of the proposed seawall is proposed to be colored, textured and sculpted to allow for a more natural appearance. At this time, the applicant is not proposing backfill behind the seawall except for a small amount of erodible concrete to connect the top of the wall with the landward bluff face.

The subject development is located at the base of an approximately 80 ft.-high coastal bluff below an approximately 2,900 sq. ft., two-story, single-family residence. Tide Beach Park public access stairway is located approximately 500 feet north of the site and Fletcher Cove, the City's central beach access park, is located approximately ¼ mile to the south.

The residence was constructed in the 1950's and the Commission has no record of development activity on the subject lot since the effective date of the Coastal Act. However, the Executive Director has recently approved an emergency permit to construct a seawall on the beach below the residence (ref. 6-02-130-G/Scism) and is currently reviewing an additional emergency request to construct a below grade retention system

on top of the bluff seaward of the residence (ref. 6-03-008-G/Scism). Except for its visual color and texture treatment, the seawall construction has been completed. The subject permit application represents the required follow-up permit to Emergency Permit No. 6-02-130-G.

The City of Solana Beach does not yet have a certified LCP. Therefore, Chapter 3 policies of the Coastal Act is the standard of review.

2. Geologic Conditions and Hazards. Section 30235 of the Coastal Act states, in part:

> 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.

In addition, Section 30253 of the Coastal Act states, in part:

> New development shall:
>
> (l) 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...

Coastal Act Section 30235 acknowledges that seawalls, revetments, cliff retaining walls, groins and other such structural or "hard" solutions alter natural shoreline processes. Thus, such devices are required to be approved only when necessary to protect existing structures and when designed to eliminate or mitigate adverse impacts on shoreline sand supply. The Coastal Act does not require the Commission to approve shoreline altering devices to protect vacant land or in connection with construction of new development. A shoreline protective device proposed in those situations is likely to be inconsistent with various other Coastal Act policies. For example, Section 30253 addresses new development and requires that it be sited and designed to avoid the need for protective devices that would substantially alter natural landforms along the bluffs and cliffs.

In addition, the Commission has interpreted Section 30235 to require the Commission to approve shoreline protection only for existing principal structures. The Commission must always consider the specifics of each individual project, but has found in many instances that accessory structures such as patios, decks and stairways are not required to be protected under Section 30235 or can be protected from erosion by relocation or other means that does not involve shoreline protection. The Commission has historically permitted at grade structures within the geologic setback area recognizing they are

expendable and capable of being removed rather than requiring a protective device that alters natural landforms along bluffs and cliffs.

The proposed project involves the construction of a 50-foot long, 35-foot high tiedback concrete seawall on the public beach below an existing single-family residence and construction of an approximately 50-foot long, 9-piered, below-grade upper bluff retention device seaward of the residence. The applicant has submitted a geotechnical report documenting the geologic structure and recent history of the bluffs in the project area. The bluffs in the location of the proposed project are approximately 80 feet in height and consist of an underlying layer of Torrey Sandstone, an approximately 8 foot-high layer of "clean sands" and an upper layer of Pleistocene terrace deposits. The coastal bluff below the subject residence slopes "at an overall average exceeding 45 degrees (from the base of the bluff to the top of the failure area and then rises at 90 degrees for an additional 22 +/- feet to the upper bluff edge)." (ref. cross section Exhibits #3 and #4). In addition, the report identifies the base of the bluff as "formed by a near vertical, and locally undercut, approximately 20 to 25+ foot high, unvegetated sea cliff (Torrey Sandstone). The undercuts are to a depth of 3 feet to 6 feet, with a developing seacave extending to a depth of approximately 11 feet and with vertical fractures apparent in the area of the seacave". ("Preliminary Geotechnical Evaluation of Coastal Bluff 357 Pacific Avenue, Solana Beach" by Soil Engineering Construction dated February 14, 2002).

In September/October 2001 the subject site experienced a significant mid and upper bluff sloughage resulting in the above described 22 ft.-high high, nearly vertical upper bluff and the exposure of the clean sand layer located at approximately elevation 25 to 35 ft. Mean Sea Level (MSL). The applicant engineer indicates that the imminent failure of the undercut and seacave areas of the lower sea cliff will accelerate the loss of the clean sands and upper bluff materials resting on the clean sand layer. The presence of this clean sand lens within the bluffs along the Solana Beach shoreline has previously been identified in geotechnical reports submitted in conjunction with seawall, seacave and notch infill projects south of the subject site (ref. CDP #6-99-100/Presnell, et. al, #6-99-103/ Coastal Preservation Association, 6-00-66/Pierce, Monroe). These reports document that the layer of clean sand extends south to Fletcher Cove. In addition, the Executive Director has recently issued an emergency permit to fill a small section of exposed clean sand with erodible concrete in a section of the bluff located near the northern terminus of the bluffs suggesting the layer extends throughout the entire extent of the bluffs from Fletcher Cove north (6-02-144-G/Steinberg).

The applicant's engineer indicates that "the most significant geotechnical issue affecting the site is the exposure, and ongoing failure, of a clean sand lens along the upper areas of the lower coastal bluff" ("Preliminary Geotechnical Evaluation of Coastal Bluff 357 Pacific Avenue, Solana Beach" by Soil Engineering Construction dated February 14, 2002). According to the Commission's staff geologist, the clean sand layer is consists of nearly cohesionless sand with a limited amount of capillary tension and a very minor amount of cohesion, both of which cause the material to erode easily, making this clean sand layer, once exposed, susceptible to wind blown erosion and continued sloughing as

the sand dries out and loses the capillary tension that initially held the materials together. Gentle sea breezes and any other perturbations, such as landing birds or vibrations from low-flying helicopters, can be sufficient triggers of small- or large-volume bluff collapses, since the loss of the clean sands eliminates the support for the overlying, slightly more cemented, terrace deposits.

The typical mechanism of sea cliff retreat along the Solana Beach shoreline involves the slow abrasion and undercutting of the Torrey Sandstone bedrock, which forms the sea cliff at the base of the bluffs, from wave action which becomes more pronounced in periods of storms, high surf and high tides. Other contributing factors to sea cliff retreat include fracturing, jointing, sea cave and overhang collapse and the lack of sand along the shoreline. When the lower sea cliff is undercut sufficiently, it commonly fails in block failures, leading to the sudden collapse of the lower bluff. The weaker terrace deposits are then unsupported, resulting in the collapse of the terrace deposits through circular failures. Such paired, episodic failures eventually result in a reduction in the steepness of the upper bluff, and the landward retreat of the bluff edge. Such retreat may threaten structures at the top of the slope. When failures of the upper bluff have sufficiently reduced the overall gradient of the upper bluff, a period of relative stability ensues, which persists until the lower bluff becomes sufficiently undercut to initiate a block failure once more, triggering a repetition of the entire process.

The subject geotechnical report indicates that the sea cliff erosion rate for Solana Beach from 1968 to 1983 was approximately 3 inches per year. According to the Commission's staff geologist, this figure is somewhat lower than the long-term average erosion rate reported by Benumof and Griggs (1999) of 0.49 feet per year for the period 1934 to 1998. Episodic erosion events such as sea cave or notch overhang collapses, and erosion related to severe winter storms can accelerate bluff retreat well above the long-term average. In the case of the subject site, the geotechnical report estimates that the El Niño storms of October 1997 to March 1998 resulted in approximately 3 to 7 feet of bluff retreat, and also resulted in the nearly complete removal of beach deposits. The applicant contends that during September/October 2001, the mid and upper portions of the subject bluff experienced a significant failure resulting in the exposure of the 8 ft.-high clean sand layer. The applicant's geotechnical report indicates "the upper bluff has now failed to within 7' to 12' of the residential structure at the subject site". The slope analysis performed by the applicant's engineer indicates that the collapse of the upper bluff resulting from loss of the clean sands would undermine the foundations of the residence. The factor of safety against sliding along the most likely slide plane is only ~1.1, well below the value of 1.5 that is the industry-standard value for new development. When the factor of safety drops to 1.0, failure occurs.

The mechanism of bluff retreat that occurs in conjunction with the exposure of the clean sand lens is somewhat different than the paired, episodic failure model described above. Because of the cohesionless character of the clean sands, once they are exposed they continue to slump on an ongoing basis as a result of very small triggers such as traffic vibrations or wind erosion. Continued slumpage results in the further exposure of more clean sand, and ongoing upper bluff collapse. This cycle occurs so quickly (over months

or days, rather than years) that the upper bluff never achieves a stable angle of repose. In 1998, following the exposure of the clean sands lens below 261 Pacific Avenue (approximately 15 lots south of the subject site), a section of the bluff collapsed suddenly and without warning, leaving a vertical head scarp upwards of 25 feet in height at the top of the bluff. Unless the base of the bluff is afforded shoreline protection, additional bluff failures can further expose the layer of clean sands and result in a potential upper bluff failure and an immediate threat to the residence at the top of the bluff. The proposed seawall at 35 ft. in height is designed to retain the clean sand layer which, according to the applicant's geotechnical report, is located at approximately elevation 25 to 35 ft. MSL.

Although the geotechnical report contends that a lower seawall is required to protect the home, it also indicates that following the installation of the seawall the home will still be in danger from erosion. According to the applicant's engineered plans, the angle of repose of the bluff, that is, the natural equilibrium angle of the bluff material (approximately 33-38 degrees for the material making up the subject bluff), will intersect with the foundation of the residence. The applicant's engineer has indicated that an alternative to the upper bluff below-grade retention system would be the construction of geogrid soil-filled structure behind the seawall which could be designed to be stable at a steeper angle than the angle of repose of the natural materials. However, because of ongoing bluff failures on the surrounding neighboring northern property, the installation of a geogrid structure or any backfill is infeasible at the present time. According to the applicant's engineer, the only available alternative to address the immediate threat the residence is the construction of the lower seawall and the upper bluff below-grade retention system.

The proposed 9 pier below-grade retention system represents the third such request for the protection of a blufftop residential home along the Solana Beach shoreline (ref. CDP No. 6-00-138/Kinzel,Greenberg and 6-02-78-G/Gregg). Its alignment in proximity to the bluff edge may, therefore, serve as an additional precedent for future devices along this section of the coast. The Commission has found in other permit actions involving below-grade retention systems that the alignment in proximity to the residence and bluff edge is important to reduce potential visual impacts. As the angle of the upper bluff reduces toward its natural angle of repose, portions of the below grade retention device will be exposed. The degree of that exposure depends upon how close the pier structures are to the edge of the bluff. As such, the Commission has generally required that such structures be placed as far landward as possible. In this case, the area between the edge of the bluff and the residence is a very limited 7 to 12 feet in distance. The pier structures will be installed approximately 5 feet landward of the bluff edge which the applicant's engineer has indicated is as far landward as possible. The Commission's engineer concurs with this assessment.

Thus, given the amount of documented erosion on the site following the El Nino storms of 1997 and 1998, the significant bluff collapse that occurred in September/October 2001, the presence of the clean sand lens and the extreme erodibility of these sands once exposed, and the low factor of safety on the subject bluffs, substantial evidence has been

provided to document that the existing primary blufftop structure is in danger from erosion. However, there are a variety of ways in which the threat from erosion could be addressed. Under the policies of the Coastal Act, the project must eliminate or mitigate adverse effects on shoreline sand supply and minimize adverse effects on public access, recreation, and the visual quality of the shoreline.

Alternatives

The applicant has submitted an analysis by a geotechnical engineer which reviews several alternatives to the proposed development including: construction of a seawall with reconstructed mid-bluff using compacted soil/geogrid; underpinning the residence; and removal and/or relocation of portions of or the entire primary structures; and drainage controls and landscaping restrictions.

As previously described, a seawall containing the clean sand layer and a backfill consisting of compacted soil and a geogrid structure is not currently an available option. The property on the north side of the subject site is experiencing upper bluff failures similar to that which is occurring on the subject site. Because the northern property owner is not currently proposing shoreline protection to stabilize this upper bluff, the applicant is precluded from installing any system of backfill behind the seawall at this time since any backfill would lack support on its northern side.

The applicant's engineer indicates that underpinning of the existing home alone could potentially be considered as an alternative to the proposed project; however, this would not stop the upper bluff collapses from continuing to undermine the home, unless the piers were 80 feet deep. The applicant's engineer has argued this amount of construction would be infeasible. Even if 80-foot deep piers were installed, the collapse on the site triggered by the erosion of the clean sands would continue to grow laterally, undermining the upper bluffs and eventually destabilizing adjacent bluff areas thereby threatening additional bluff-top structures to the north and south of the subject site.

The analysis also examined the feasibility of removal or relocation or some or all of the existing bluff-top residence. The applicant's engineer asserts that moving the home or portions of it would be infeasible since it currently is located in "close proximity to the street-side set-back". However, the applicants assert that even if the residences could be moved somewhat further away from the bluff, or, if seaward portions of the residences were removed, it would not eliminate or delay the need for the project. As described above, once exposed, the clean sand lens erodes rapidly, undermining the upper terrace deposits, which then collapse, exposing more clean sands, and continuing the cycle. Therefore, the applicant's engineer contends, moving the residences or removing seaward portions of the house would not significantly delay the need for the proposed shoreline protective devices.

The alternatives analysis supports the control of planting and irrigation on bluff top lots to prevent excess moisture from triggering collapses of bluff-top sediments. However, the analysis again emphasizes that the bluff collapse at the project site was due to wave

action and the current threat is due to the exposure of the clean sands layer, not from excess water resulting from bluff-top activities. Thus, instituting stricter landscaping and irrigation controls would not stabilize the bluff, and would not reduce or eliminate the need for the proposed project, but should still be instituted to reduce the potential for water-related collapses in the future.

In summary, the exposure of the clean sands lens presents a threat of rapid erosion and bluff collapses that must be addressed by a solution that effectively contains the clean sands and affords protection to the residence at the top of the bluff. Given the substantial amount of documented erosion on the site over the last year, the presence of the clean sands and the extreme erodibility of these sands, and the low factor of safety on the subject bluffs, substantial evidence has been provided to document that the existing primary blufftop structure is in danger from erosion. In addition, an alternatives analysis has been presented by the applicants. Therefore, the Commission is required to approve a shoreline altering device to protect the residence, pursuant to Section 30235 of the Coastal Act.

Sand Supply/In Lieu Mitigation Fee

Although construction of a seawall is required to protect the existing principle structures on the site, Section 30235 of the Coastal Act requires that the shoreline protection be designed to eliminate or mitigate adverse impacts on local shoreline sand supply. There are a number of adverse impacts to public resources associated with the construction of shoreline protection. The natural shoreline processes referenced in Section 30235, such as the formation and retention of sandy beaches, can be significantly altered by construction of a seawall, since bluff retreat is one of several ways that beach area and beach quality sand is added to the shoreline. This retreat is a natural process resulting from many different factors such as erosion by wave action causing cave formation, enlargement and eventual collapse, saturation of the bluff soil from ground water causing the bluff to slough off and natural bluff deterioration. When a seawall is constructed on the beach at the toe of the bluff, it directly impedes these natural processes.

Some of the effects of a shoreline protective structure on the beach such as scour, end effects and modification to the beach profile are temporary or difficult to distinguish from all the other actions which modify the shoreline. Seawalls also have non-quantifiable effects to the character of the shoreline and visual quality. However, some of the effects which a structure may have on natural shoreline processes can be quantified. Three of the effects from a shoreline protective device which can be quantified are: 1) loss of the beach area on which the structure is located; 2) the long-term loss of beach which will result when the back beach location is fixed on an eroding shoreline; and 3) the amount of material which would have been supplied to the beach if the back beach or bluff were to erode naturally.

Loss of beach material and loss of beach area are two separate concerns. A beach is the result of both sandy material and a physical area between the water and the back beach. Thus, beach area is not simply a factor of the quantity of sandy beach material. In Solana

Beach, the shoreline is a shallow bedrock layer covered by a thin veneer of sand. The bedrock layer provides an area for collection of sandy material. The sand material is important to the overall beach experience, but even without the sand, the bedrock layer provides an area for coastal access between the coastal bluff and the ocean. The loss of beach material that will be a direct result of this project can be balanced or mitigated by obtaining similar quality and quantity of sediment from outside the littoral cell and adding this sediment to the littoral cell. There are sources of beach quality sediment that can be drawn upon to obtain new sediment for the littoral cell. Unfortunately there is not a source of extra beach land that can be used to add new land area to the littoral cell. Beach nourishment is a method that allows us to shift the shore profile seaward and create a new area of dry beach. This will not create new coastal land, but will provide many of the same benefits that will be lost when the beach area is covered by a seawall or "lost" through passive erosion when the back bluff location is fixed.

It is possible to estimate the volume of sand needed to create a given area of dry beach through beach nourishment. The proposed project will result in a loss of 100 sq. ft. of beach due to the long-term physical encroachment of the seawall (based on a 50-foot length and 2 foot width). In addition, there will be 275 sq. ft. of beach area that will no longer be formed because the back of the beach will be fixed. This 375 sq. ft. of beach area [100+ 275] cannot be directly replaced by land, but a comparable area can be built through the one-time placement of 337.5 cubic yards of sand on the beach seaward of the seawall as beach nourishment. Further explanation of this calculation is provided below. Thus, the impact of the seawall on beach area can be quantified as 337.5 cubic yards of sand. This estimate is only a "rough approximation" of the impact of the seawall on beach area because a one-time placement of this *volume* of sand cannot result in creation of beach *area* over the long term.

In addition to the impact on beach area, there is the amount of beach material that would have been added to the beach if natural erosion had been allowed to continue at the site, which can be calculated at a volume of 569.05 cubic yards. This 569.05 cubic yards of sand that would have been added to the littoral cell, plus the 337.5 cubic yards of sand associated with the impact to beach area, totals 906.55 cubic yards of sand that are needed to balance the quantifiable impacts from the entire project. Special Condition #2 requires the applicant to deposit an in-lieu fee to fund beach sand replenishment of 906.55 cubic yards of sand, as mitigation for impacts of the proposed shoreline protective device on beach sand supply and shoreline processes.

In the case of the proposed project, the fee calculates to be $9,836.00, based on 906.55 cubic yards of sand multiplied by the cost of obtaining a cubic yard of sand, as proposed by the applicants' engineer at $10.85.

The following is the methodology used by Commission staff in developing the in-lieu fee amount. The methodology uses site-specific information provided by the applicant as well as estimates, derived from region-specific criteria, of both the loss of beach material and beach area which could occur over the life the structure, and of the cost to purchase

an equivalent amount of beach quality material and to deliver this material to beaches in the project vicinity.

The following is a description of the methodology. The actual calculations which utilize values that are applicable to the subject sites, and were used as the basis for calculating the estimated range of the mitigation fee, are attached as Exhibit #8 to this report.

Fee = (Volume of sand for mitigation) x (unit cost to buy and deliver sand)

$\mathbf{M = V_t \times C}$

where

M = Mitigation Fee

$\mathbf{V_t}$ = Total volume of sand required to replace losses due to the structure, through reduction in material from the bluff, reduction in nearshore area and loss of available beach area (cubic yards). Derived from calculations provided below.

C = Cost, per cubic yard of sand, of purchasing and transporting beach quality material to the project vicinity ($ per cubic yard). Derived from the average of three written estimates from sand supply companies within the project vicinity that would be capable of transporting beach quality material to the subject beach, and placing it on the beach or in the near shore area.

$\mathbf{V_t = V_b + V_w + V_e}$

where

$\mathbf{V_b}$ = Volume of beach material that would have been supplied to the beach if natural erosion continued, based on the long-term regional bluff retreat rate, design life of the structure, percent of beach quality material in the bluff, and bluff geometry (cubic yards). This is equivalent to the long-term reduction in the supply of bluff material to the beach resulting from the structure.

$\mathbf{V_w}$ = Volume of sand necessary to replace the beach area that would have been created by the natural landward migration of the beach profile without the seawall, based on the long-term regional bluff retreat rate, and beach and nearshore profiles (cubic yards)

$\mathbf{V_e}$ = Volume of sand necessary to replace the area of beach lost due to encroachment by the seawall; based on the seawall design and beach and nearshore profiles (cubic yards)

$$\mathbf{V_b} = (S \times W \times L/27) \times [(R\ h_s) + (\mathbf{h_u}/2 \times (R + (R_{cu} - \mathbf{R_{cs}})))]$$

where

R = Long-term regional bluff retreat rate (ft./yr.), based on historic erosion, erosion trends, aerial photographs, land surveys, or other accepted techniques. For the Solana Beach area, this regional retreat has been estimated to be 0.2 ft./year. The use of any alternative retreat rates must be documented by the applicant and should be the same as the predicted retreat rate used to estimate the need for shoreline armoring.

L = Design life of armoring without maintenance (yr.) If maintenance is proposed and extends the life of the seawall beyond the initial estimated design life, a revised fee shall be determined through the coastal development permit process.

W = Width of property to be armored (ft.)

h = Total height of armored bluff (ft.)

S = Fraction of beach quality material in the bluff material, based on analysis of bluff material to be provided by the applicant

h_s = Height of the seawall from the base to the top (ft)

h_u = Height of the unprotected upper bluff, from the top of the seawall to the crest of the bluff (ft)

R_{cu} = Predicted rate of retreat of the crest of the bluff, during the period that the seawall would be in place, assuming no seawall were installed (ft/yr). This value can be assumed to be the same as R unless the applicant provides site-specific geotechnical information supporting a different value.

R_{CS} = Predicted rate of retreat of the crest of the bluff, during the period that the seawall would be in place, assuming the seawall has been installed (ft/yr). This value will be assumed to be zero unless the applicant provides site-specific geotechnical information supporting a different value.

NOTE: For conditions where the upper bluff retreat will closely follow the lower bluff, this volume will approach a volume of material equal to the height of the total bluff, the width of the property and a thickness equal to the total bluff retreat that would have occurred if the seawall had not been constructed. For conditions where the upper bluff has retreated significantly and would not be expected to retreat further during the time that the seawall is in place, this volume would approach the volume of material immediately behind the seawall, with a thickness equal to the total bluff retreat that would have occurred if the seawall had not been constructed.

$\mathbf{V_W = R \times L \times v \times W}$

where

R = Long-term regional bluff retreat rate (ft./yr.), based on historic erosion, erosion trends, aerial photographs, land surveys, or other accepted techniques. For the Solana Beach area, this regional retreat has been estimated to be 0.2 ft./year. The use of any alternative retreat rates must be documented by the applicant and should be the same as the predicted retreat rate used to estimate the need for shoreline armoring.

L = Design life of armoring without maintenance (yr.) If maintenance is proposed and extends the life of the seawall beyond the initial estimated design life, a revised fee shall be determined through the coastal development permit process.

v = Volume of material required, per unit width of beach, to replace or reestablish one foot of beach seaward of the seawall; based on the vertical distance from the top of the beach berm to the seaward limit of reversible sediment movement (cubic yards/ft of width and ft. of retreat). The value of v is often taken to be 1 cubic yard per square foot of beach. In the report, Oceanside Littoral Cell Preliminary Sediment Budget Report" (December 1987, part of the Coast of California Storm and Tide Wave Study,

Document #87-4), a value for v of 0.9 cubic yards/square foot was suggested. If a vertical distance of 40 feet is used for the range of reversible sediment movement, v would have a value of 1.5 cubic yards/square foot (40 feet x 1 foot x 1 foot / 27 cubic feet per cubic yard). These different approaches yield a range of values for v from 0.9 to 1.5 cubic yards per square foot. The value for v would be valid for a region, and would not vary from one property to the adjoining one. Until further technical information is available for a more exact value of v, any value within the range of 0.9 to 1.5 cubic yards per square foot could be used by the applicant without additional documentation. Values below or above this range would require additional technical support.

W = Width of property to be armored (ft.)

$$V_e = E \times W \times v$$

where

E = Encroachment by seawall, measured from the toe of the bluff or back beach (ft.)

W = Width of property to be armored (ft.)

v = Volume of material required, per unit width of beach, to replace or reestablish one foot of beach seaward of the seawall, as described above;

The San Diego Association of Governments (SANDAG) has adopted the Shoreline Preservation Strategy for the San Diego region and is currently working on techniques toward its implementation. The Strategy considers a full range of shoreline management tactics, but emphasizes beach replenishment to preserve and enhance the environmental quality, recreational capacity, and property protection benefits of the region's shoreline. Funding from a variety of sources will be required to implement the beach replenishment and maintenance programs identified in the SANDAG Strategy. In this particular case, SANDAG has agreed to administer a program which would identify projects which may be appropriate for support from the beach sand replenishment fund, through input from the Shoreline Erosion Committee which is made up of representatives from all the coastal jurisdictions in San Diego County. The Shoreline Erosion Committee is currently monitoring several large scale projects, both in and out of the coastal zone, they term "opportunistic sand projects", that will generate large quantities of beach quality material suitable for replenishing the region's beaches. The purpose of the account is to aid in the restoration of the beaches within San Diego County. One means to do this would be to provide funds necessary to get such "opportunistic" sources of sand to the shoreline.

The applicant is being required to pay a fee in-lieu of directly depositing the sand on the beach, because the benefit/cost ratio of such an approach would be too low. Many of the adverse effects of the seawall on sand supply will occur gradually. In addition, the adverse effects impact the entire littoral cell but to different degrees in different locations throughout the cell (based upon wave action, submarine canyons, etc.) Therefore, mitigation of the adverse effects on sand supply is most effective if it is part of a larger project that can take advantage of the economies of scale and result in quantities of sand at appropriate locations in the affected littoral cell in which it is located. The funds will be used only to implement projects which benefit the area where the fee was derived, and provide sand to the region's beaches, not to fund operations, maintenance or planning studies. Such a fund will aid in the long-term goal of increasing the sand supply and thereby reduce the need for additional armoring of the shoreline in the future. The fund also will insure available sandy beach for recreational uses. The methodology, as proposed, ensures that the fee is roughly proportional to the impacts to sand supply attributable to the proposed seawall. The methodology provides a means to quantify the sand and beach area that would be available for public use, were it not for the presence of the seawall.

The above-described impacts on the beach and sand supply have previously been found to result from seawalls in other areas of North County. In March of 1993, the Commission approved CDP #6-93-85/Auerbach, et al for the construction of a seawall fronting six non-continuous properties located in the City of Encinitas north of the subject site. In its finding for approval, the Commission found the proposed shoreline protection would have specific adverse impacts on the beach and sand supply and required mitigation for such impacts as a condition of approval. The Commission made a similar finding for several other seawall developments within San Diego County including an August 1999 approval (ref. CDP No. 6-99-100/Presnell, et. al) for the approximately 352-foot-long seawall project located approximately 10 lots south of the subject development and a March 2001 approval (ref. CDP No. 6-00-138/Kinzel, Greenberg) for an approximately 100 ft.-long seawall located 6 lots south of the subject site. (Also ref. CDP Nos. 6-93-36-G/Clayton, 6-93-131/Richards, et al, 6-93-136/Favero, 6-95-66/Hann, 6-98-39/Denver/Canter and 6-99-41/Bradley).

In addition to the adverse impacts the seawall will have on the beach as detailed above, the Commission finds that the proposed seawall could also have adverse impacts on adjacent unprotected properties caused by wave reflection, which leads to accelerated erosion. Numerous studies have indicated that when continuous protection is not provided, unprotected adjacent properties experience a greater retreat rate than would occur if the protective device were not present. This is due primarily to wave reflection off the protective structure and from increased turbulence at the terminus of the seawall. According to James F. Tait and Gary B. Griggs in Beach Response to the Presence of a Seawall (A Comparison of Field Observations) "[t]he most prominent example of lasting impacts of seawalls on the shore is the creation of end scour via updrift sand impoundment and downdrift wave reflection. Such end scour exposes the back beach, bluff, or dune areas to higher swash energies and wave erosion." As such, as the base of

the bluff continues to erode on the unprotected adjacent properties, failure of the bluff is likely. Thus, future failures could "spill over" onto other adjacent unprotected properties, prompting requests for much more substantial and environmentally damaging seawalls to protect the residences. This then starts a "domino" effect of individual requests for protection.

According to information contained in the Planners Handbook (dated March 1993), which is included as Technical Appendix III of the Shoreline Preservation Strategy adopted by the San Diego Association of Governments (SANDAG) on October 10, 1993, "[a] longer return wall will increase the magnitude of the reflected wave energy. On a coast where the shoreline is retreating, there will be strong incentives to extend the length of the return wall landward as adjacent property is eroded, thereby increasing the return wall, and its effects on neighboring property, with time."

The plans for the subject seawall submitted by the applicant do not address the design of the proposed return walls or the how the ends will be designed to mitigate these known effects. Therefore, Special Condition #1 has been attached which requires the submission of revised final plans that reflect the design of the proposed end return walls. The condition requires that the returns incorporate a feathered design to gradually blend into the adjacent natural bluffs which will help to reduce the turbulence at the end of the wall that can lead to accelerated erosion of adjacent unprotected bluffs. However, although the proposed seawall must be designed to reduce impacts of the wall on adjacent properties, at best, the impacts can be reduced, but not eliminated. Regardless of whether accelerated erosion will occur on the adjacent unprotected properties, the adjacent bluffs will continue to erode due to the same forces that are causing them to erode currently. As this occurs, more surface area of the feathered edges will be exposed to wave attack leading to increased turbulence and accelerated erosion of the adjacent unprotected bluff. These impacts are particularly problematic in the case of the proposed project, as the seawall will be an isolated structure in a stretch of currently unprotected shoreline.

If the proposed wall were damaged in the future (e.g. as a result of wave action, storms, etc.) it could threaten the stability of the site, which could lead to need for more bluff alteration. In addition, damage to the seawall could adversely affect the beach by resulting in debris on the beach and/or creating a hazard to the public using the beach. In addition, excessive wear of the seawall could result in the loss of or damage to the color or texture of the seawall resulting in adverse visual impacts (discussed in more detail in a subsequent section of this report). Therefore, in order to find the proposed seawall consistent with the Coastal Act, the Commission finds that the condition of the seawall in its approved state must be maintained for the life of the seawall. Further, in order to ensure that the permittee and the Commission know when repairs or maintenance are required, the permittee must monitor the condition of the seawall annually, for three years and at three-year intervals after that, unless a major storm event occurs. The monitoring will ensure that the permittee and the Commission are aware of any damage to or weathering of the seawall wall and can determine whether repairs or other actions are necessary to maintain the seawall in its approved state.

Therefore, Special Condition #3 requires the applicant to submit a monitoring report which evaluates the condition and performance of the seawall and below-grade upper retention system and overall site stability, and submit an annual report with recommendations, if any, for necessary maintenance, repair, changes or modifications to the project. In addition, the condition requires the applicant to perform the necessary repairs through the coastal development permit process.

Special Condition #6 requires that feasible alternative measures must be implemented on the applicant's blufftop property in the future, should additional stabilization be required, which would avoid additional alteration of the natural landform of the public beach or coastal bluffs, but would reduce risk to the principle residential structures and provide reasonable use of the property. The condition will ensure that future property owners will be aware that any future proposals for additional shoreline protection, such as upper bluff stabilization, will require an alternative analysis similar to one required for the subject project. If there are feasible alternatives to shoreline protection that would have less impact on visual quality, sand supply, or public access, the Commission (or, where applicable, the City of Solana Beach after the effective certification of its Local Coastal Program) will require implementation of those alternatives. The condition also states that no shore or bluff protection shall be permitted for ancillary improvements located within the blufftop setback area. Through this condition, the property owner is required to acknowledge the risks inherent in the subject property and that there are limits to the structural protective measures that may be permitted on the adjacent public property in order to protect the existing development in its current location.

Special Condition #1 requires the applicant to submit final plans for the project indicating that the seawall conforms to the bluff contours, details the design of the return walls and that demonstrate that any existing irrigation systems on the blufftop have been removed, as these would impact the ability of the seawall and other shoreline protection devices to adequately stabilize the site. Submission of final plans will ensure that overall site conditions which could adversely impact the stability of the bluff have been addressed.

Special Condition #7 notifies the applicants that they are responsible for maintenance of the herein approved shore and bluff protection to include removal of debris deposited on the beach during and after construction of the structures. The condition also indicates that, should it be determined that maintenance of the proposed structures are required in the future, including maintenance of the color and texture, the applicant shall contact the Commission to determine if permits are required.

To assure the proposed shore/bluff protection has been constructed properly, Special Condition #5 has been proposed. This condition requires that, within 60 days of completion of the project, as built-plans and certification by a registered civil engineer be submitted that verifies the proposed seawall has been constructed in accordance with the approved plans.

Special Conditions #8 requires the applicant to submit a copy of any required permits from the Army Corps of Engineers, to ensure that no additional requirements are placed on the applicant that could require an amendment to this permit.

The subject application includes the after-the-fact construction of a seawall which was constructed pursuant to an Emergency Permit (ref. #6-02-130-G/Scism). A condition of approval of the emergency permit required the applicant to obtain a regular coastal development permit within 150 days of issuance of the emergency permit (i.e., by February 17, 2003) or to remove the structure in its entirety (See attached Exhibit #7). To assure that the permitting for the seawall component of this application is resolved in a timely manner, Special Condition #12 has been attached which requires that the applicant satisfy all conditions of this permit which are prerequisite to the issuance of this permit within 90 days of Commission action.

Also, due to the inherent risk of shoreline development, Special Condition #11 requires the applicant to waive liability and indemnify the Commission against damages that might result from the proposed shoreline devices or their construction. The risks of the proposed development include that the proposed shoreline devices will not protect against damage to the residences from bluff failure and erosion. In addition, the structures themselves may cause damage either to the applicants' residence or to neighboring properties by increasing erosion of the bluffs. Such damage may also result from wave action that damages the seawall. Although the Commission has sought to minimize these risks, the risks cannot be eliminated entirely. Given that the applicants have chosen to construct the proposed shoreline devices despite these risks, the applicants must assume the risks. Special Condition #13 requires the applicant to record a deed restriction imposing the conditions of this permit as covenants, conditions and restrictions on the use and enjoyment of the property. Only as conditioned can the proposed project be found consistent with Sections 30235 and 30253 of the Coastal Act.

In summary, the applicant has documented that the existing blufftop primary structure is in danger from erosion and subsequent bluff collapse. In addition, even with the construction of the seawall, the upper bluff will continue to erode and soon will threaten the blufftop home. Thus, the upper bluff retention system is also necessary to assure full protection for the existing blufftop residence. As conditioned, there are no other less damaging alternatives available to reduce the risk from bluff erosion. Thus, the Commission is required to approve the proposed protection for residential structure. Since the proposed seawall will contribute to erosion and geologic instability over time on adjacent unprotected properties and also deplete sand supply, occupy public beach and fix the back of the beach, Special Condition #2 requires the applicant to require pay an in-lieu mitigation fee to offset this impact. Therefore, as conditioned, the Commission finds that the proposed seawall is consistent with Sections 30235 and 30253 of the Coastal Act.

3. Visual Resources/Alteration of Natural Landforms. Section 30240 (b) of the Coastal Act is applicable and states:

(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.

In addition, Section 30251 of the Coastal Act states, in part:

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 . . .

As stated above, the proposed development will occur on the public beach at the base of an approximately 80 ft. high coastal bluff. An approximately 622 ft.-long series of connecting seawalls have been constructed commencing four lots south of the subject site (6-01-158-G/Gregg, Santina, 6-00-138/Kinzel, Greenberg, 6-0036/Corn, Scism, and 6-99-100/Presnell, et.al). However, the bluffs to either side of the subject site remain in their natural state and do not contain seawalls or upper bluff retention systems. As such, the potential for adverse impacts on visual resources associated with the proposed development could be significant.

The applicant is proposing to construct an approximately 50-ft. long, 35-ft. high tied-back concrete seawall and install an approximately 50 ft.-wide below-grade retention device involving nine approximately 35 ft.-high caissons installed into the top of the bluff. To mitigate the visual impacts of the proposed seawall, the applicant proposes to color and texture the seawall. The visual treatment proposed is similar to the visual treatment approved by the Commission for the long expanse of seawalls located to the south of the subject site. Although proposed for the seawall, no visual treatment of the below-grade retention system is proposed at this time. This is a concern because over time as upper bluff erosion continues, the nine, 35 ft.-high below-grade caissons will become partially exposed. Eventually, the applicant has indicated their intent to install a geogrid based backfill behind the seawall which will extend up to the top of the bluff and effectively cover the below-grade retention system. The geogrid backfill will be designed as a visual feature and will not by itself provide overall bluff stability to the site. However, according to the applicant's engineer, because of a current upper bluff sloughage occurring on the neighbor's bluff to the north, the installation of backfill behind the seawall is not currently supportable on this northern side. Until the neighbor to the north applies for and receives authorization to construct shoreline protection at their site, the applicant's engineer indicates that seawall backfill at the subject site would not be practical.

In approving the seawall and upper bluff retention system, the City has required the applicant to post a bond to assure the eventual installation of a soil geogrid backfill behind the seawall in order to prevent the visual exposure of the upper bluff retention

system. However, since it is not known when or if the subject applicant will be able to install the backfill, installation of the upper bluff below-grade retention system may result in adverse visual impacts following its exposure. To address this potential adverse visual impact, Special Condition #3 has been attached which requires the applicant to monitor and maintain the proposed seawall and upper bluff system in its approved state. If during monitoring of the upper bluff system it is determined that portions of the below-grade device has become exposed, the applicant is required to apply for a coastal development permit or amendment to visually treat any exposed sections. It is possible that the geogrid backfill could serve as a possible solution at that time. In addition, although the applicant proposes to color and texture treat the proposed seawall, specific information regarding the treatment has not been submitted. Therefore, Special Condition #1 requires the submittal of detailed plans, color samples, and information on construction methods and technology for the surface treatment of the seawall. In this way, the Commission can be assured that the proposed seawall and below-grade retention system will blend with the natural bluffs in the area to the maximum extent feasible.

As previously mentioned, Special Condition #3 requires the applicant to monitor the protective devices. The condition requires that should the appearance of the seawall change or deteriorate in the future, or the below-grade retention system becomes visible, the applicants must apply for a coastal development permit to maintain the visible appearance of seawall in its approved condition and/or colorize and texture the exposed upper bluff structures.

Therefore, as conditioned, the Commission finds that potential visual impacts associated with the proposed development have been reduced to the maximum extent feasible and the proposed development will include measures to prevent impacts that would significantly degrade the adjacent park and recreation area (beach area). Thus, the project can be found consistent with Sections 30240 and 30251 of the Coastal Act.

4. Public Access/Recreation. Pursuant to Section 30604 (c), the Coastal Act emphasizes the need to protect public recreational opportunities and to provide public access to and along the coast. Section 30210 of the Coastal Act is applicable to the proposed development and states:

> 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.

In addition, Section 30212 of the Act is applicable and states, in part:

> (a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where:

(l) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources,

(2) adequate access exists nearby....

Additionally, Section 30220 of the Coastal Act provides:

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

The project site is located on a public beach utilized by local residents and visitors for a variety of recreational activities. The site is located approximately 500 feet south of the Tide Beach public access stairway and approximately ¼ mile north of Fletcher Cove the main public and vehicle beach access ramp in the City of Solana Beach. The proposed seawall will be constructed on sandy beach area that is currently available to the public. The project will have several adverse impacts on public access.

Although the proposed seawall has been designed to be as narrow as feasible, it will project approximately 2 feet seaward of the toe of the bluff. Although the seaward encroachment of the wall appears at first glance to be minimal, the beach along this area of the coast is narrow and at high tides and winter beach profiles, the public may be forced to walk virtually at the toe of the bluff or the area would be impassable. As such, an encroachment of any amount, including 2 feet for a length of 50 feet onto the sandy beach, reduces the beach area available for public use and is therefore a significant adverse impact. This is particularly true given the existing beach profiles and relatively narrow beach.

In addition to the above-described direct interference with public access by the proposed seawall, there are a number of indirect effects as well. Shoreline processes, and supply and beach erosion rates are affected by shoreline structures as described in Section 2 of this report, and thus alter public access and recreational opportunities.

Development along the shoreline which may burden public access in several respects has been approved by the Commission. However, mitigation for any adverse impacts of the development on access and public resources is always required. The Commission's permit history reflects the experience that development can physically impede public access directly, through construction adjacent to the mean high tide line in areas of narrow beaches, or through the placement or construction of protective devices seawalls, rip-rap, and revetments. Since physical impediments adversely impact public access and create private benefit for the property owners, the Commission has found in such cases (in permit findings of #4-87-161 [Pierce Family Trust and Morgan], #6-87-371 [Van Buskirk], #5-87-576 [Miser and Cooper]) that a public benefit must arise through mitigation conditions in order that the development will be consistent with the access policies of the Coastal Act, as stated in Sections 30210, 30211, and 30212.

The development proposed in this application is the construction of a vertical seawall and upper bluff protection system. Although the proposed seawall adheres closely to the contour of the natural bluff, the seawall will reduce lateral beach access by encroaching onto the beach and will have adverse impacts on the natural shoreline processes.

As stated elsewhere in these findings, Section 30235 of the Act allows for the use of such a device where it is required to protect existing development and where it has been designed to mitigate adverse impacts upon shoreline sand supply. In order to mitigate the known adverse impacts, the Commission has in the past required an offer of dedication of lateral public access in order to balance the burden placed on the public with a public benefit. In this particular case, the beach and bluff are in public ownership and will remain as such. Therefore, a dedication of lateral public access is not an available mitigation option. However, Special Condition #2, discussed in a previous section of the staff report, requires the applicant to provide mitigation for adverse impacts on beach and sand area resulting from placement of the proposed seawall, which will also serve to mitigate the impact of the loss of beach access. The mitigation will be an in-lieu fee which will be utilized for beach replenishment projects within San Diego County.

The development proposed in this application involves the construction of a vertical seawall, as well as a significant upper bluff device. The majority of the beach and bluffs along the Solana Beach shoreline are in public ownership. Although the proposed seawall adheres closely to the contour of the natural bluff, the seawall will reduce lateral beach access by encroaching onto the beach and will have adverse impacts on the natural shoreline processes. Much of the beach is accessible in this area only at lower tides, and thus, the protection of a few feet of beach along the toe of the bluff is still important. This stretch of beach has historically been used by the public for access and recreation purposes. Special Condition #10 acknowledges that the issuance of this permit does not waive the public rights that exist on the property. The seawall may be located on State Lands property, and as such, Special Condition #9 requires the applicant to obtain any necessary permits or permission from the State Lands Commission to perform the work.

As debris dislodged from the seawall and the upper bluff devices either during construction or after completion also has the potential to affect public access, Special Condition #7 has also been proposed. This condition notifies the applicant that they are responsible for maintenance and repair of the seawall and upper bluff devices and that should any work be necessary, they should contact the Commission office to determine permit requirements. In addition, the condition requires the applicants to be responsible for removal of debris deposited on the beach during and after construction of the project.

In addition, the use of the beach or public parking areas for staging of construction materials and equipment can also impact the public's ability to gain access to the beach. While the applicant has not submitted a construction staging and material storage plan for the subject development, it is likely that beach access to the site will occur via Fletcher Cove which is located approximately ¼ mile south of the subject site. In other developments for shoreline protection along this stretch of Solana Beach shoreline, the Commission has authorized the temporary placement of steel-tracked construction

equipment (which cannot traverse asphalt streets) upland of the Fletcher Cove access ramp, in an area which is not currently used for parking. In addition, the Commission has previously authorized the use of parking spaces in an existing City-owned parking lot across the street from Fletcher Cove known as the "Distillery Lot" (for its previous use) for staging and storage of equipment during construction. This free, City-owned parking area is within easy walking distance of Fletcher Cove and is currently available to any beach users or patrons of the several small commercial facilities surrounding the lot. However, it is also the only off-street, open area in the vicinity of Fletcher Cove which can accommodate the type of equipment and vehicles required to construct the proposed project, other than Fletcher Cove itself. In addition, the City of Solana Beach has in the past indicated that the lot is used only minimally, and thus has an excess capacity which can be allocated to staging and storage for the project, with only a minimal impact to beach uses.

Special Condition #4 prohibits the applicants from storing vehicles on the beach overnight, using any public parking spaces within Fletcher Cove overnight for staging and storage of equipment, and prohibits washing or cleaning construction equipment on the beach or in the parking lot. The condition also prohibits construction on the sandy beach during weekends and holidays between Memorial Day to Labor Day of any year.

With Special Conditions assuring maximum public access, addressing sand supply and authorization from the State Lands Commission, impacts to the public will be minimized to the greatest extent feasible. Thus, as conditioned, the Commission finds the project consistent with the public access and recreation policies of the Coastal Act.

5. Local Coastal Planning. Section 30604(a) also requires that a coastal development permit shall be issued only if the Commission finds that the permitted development will not prejudice the ability of the local government to prepare a Local Coastal Program (LCP) in conformity with the provisions of Chapter 3 of the Coastal Act. In this case, such a finding can be made.

The subject site was previously in the County of San Diego jurisdiction, but is now within the boundaries of the City of Solana Beach. The City is preparing and plans to submit a new LCP for the area to the Commission for review. Because of the incorporation of the City, the County of San Diego's LCP was never effectively certified. However, the issues regarding protection of coastal resources in the area have been addressed by the Commission in its review of the San Diego County LUP and Implementing Ordinances.

The City of Solana Beach has prepared a draft LCP. In preparation of its LCP, the City of Solana Beach is faced with many of the same issues as the City of Encinitas, located immediately north of Solana Beach, whose LCP was certified by the Commission in March 1995. The City of Encinitas' LCP includes the intent to prepare a comprehensive plan to address the coastal bluff recession and shoreline erosion problems in the City. The plan will include at a minimum, bluff top setback requirements for new development and redevelopment; alternatives to shore/bluff protection such as beach sand

replenishment, removal of threatened portions of a residence or the entire residence or underpinning existing structures; addressing bluff stability and the need for protective measures over the entire bluff (lower, mid and upper); impacts of shoreline structures on beach and sand area as well as mitigation for such impacts; impacts for groundwater and irrigation on bluff stability and visual impacts of necessary/required protective structures.

The City of Solana Beach LCP should also address these items in the context of a comprehensive approach to management of shoreline resources. As shoreline erosion along the coast rarely affects just one individual property, it is imperative that a regional wide solution to the shoreline erosion problem be addressed and solutions developed to protect the beaches. Combined with the decrease of sandy supply from coastal rivers and creeks and armoring of the coast, beaches will continue to erode without being replenished. This will, in turn, decrease the public's ability to access and recreate on the shoreline.

In the case of the proposed project, site specific geotechnical evidence has been submitted indicating that the existing structure on the project sites is in danger. The Commission feels strongly that approval of the proposed project should not send a signal that there is no need to address a range of alternatives to armoring for existing development. Planning for comprehensive protective measures should include a combination of approaches including limits on future bluff development, ground and surface water controls, beach replenishment, and even continual lower bluff protection constructed in substantial segments, as with the proposed project. Although the erosion potential on the subject site is such that action must be taken promptly, decisions regarding future shoreline protection should be done through a comprehensive planning effort that analyzes the impact of such a decision on the entire City shoreline.

The project site is designated for Open Space Recreation in the City of Solana Beach Zoning Ordinance and General Plan, and was also designated for open space uses under the County LCP. As conditioned, the subject development is consistent with these requirements. Based on the above findings, the proposed seawall development is consistent with the Chapter 3 policies of the Coastal Act in that the need for the seawall has been documented and its adverse impacts on beach sand supply and on adjacent unprotected properties will be mitigated.

Therefore, the Commission finds the proposed development, as conditioned, is consistent with the Chapter 3 policies of the Coastal Act, and will not prejudice the ability of the City of Solana Beach to complete a certifiable local coastal program. However, these issues of shoreline planning will need to be addressed in a comprehensive manner in the future through the City's LCP certification process

6. Consistency with the California Environmental Quality Act (CEQA).
Section 13096 of the Commission's Code of Regulations requires Commission approval of Coastal Development Permits to be supported by a finding showing the permit, as conditioned, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a

proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment.

The proposed project has been conditioned in order to be found consistent with the geologic stability, visual quality, and public access policies of the Coastal Act. Mitigation measures, including conditions addressing payment of an in-lieu fee for impacts to sand supply, construction techniques consistent with the geotechnical report and the color of construction materials, will minimize all adverse environmental impacts. As conditioned, there are no feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impact which the activity may have on the environment. Therefore, the Commission finds that the proposed project is the least environmentally-damaging feasible alternative and is consistent with the requirements of the Coastal Act to conform to CEQA.

STANDARD CONDITIONS:

1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. Expiration. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. Interpretation. Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.

4. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

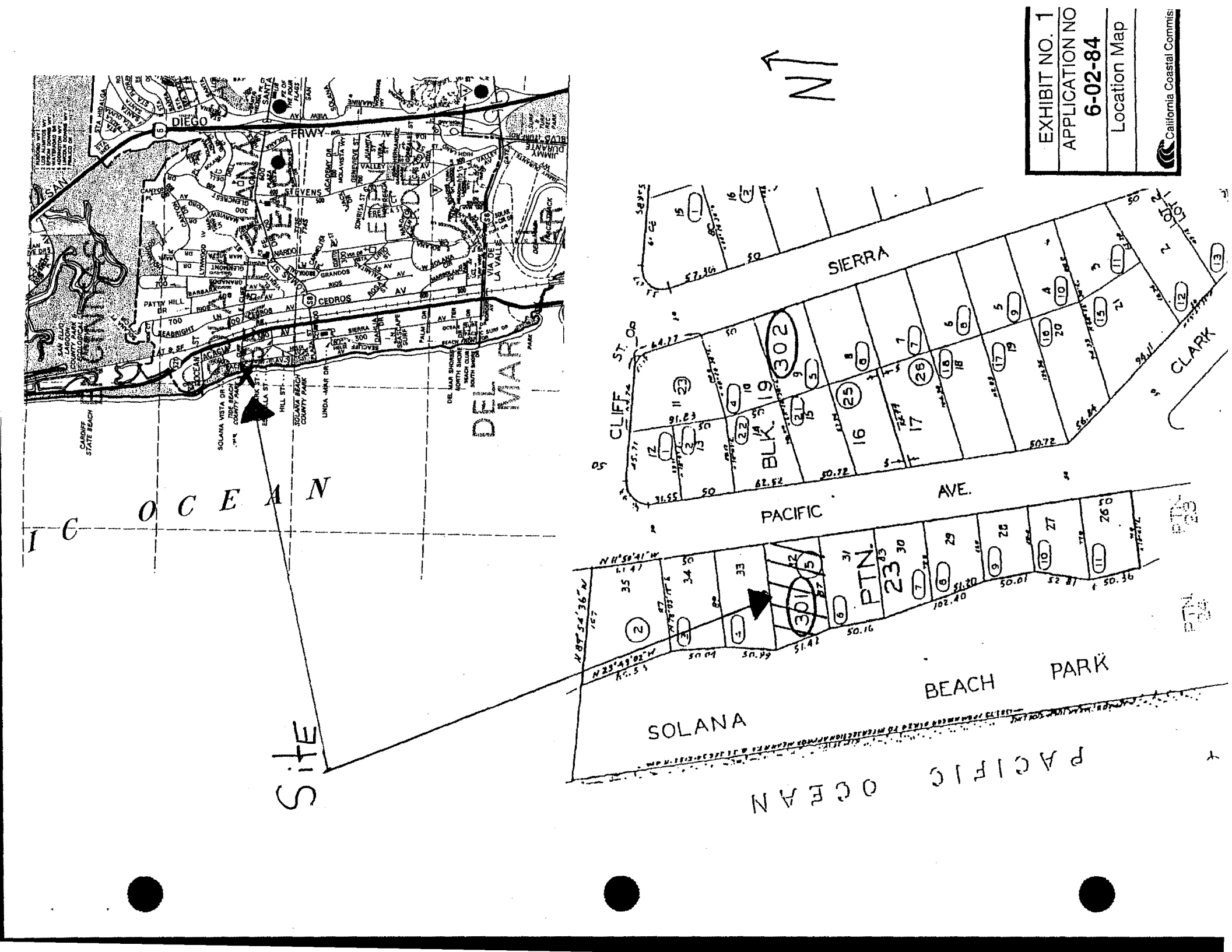
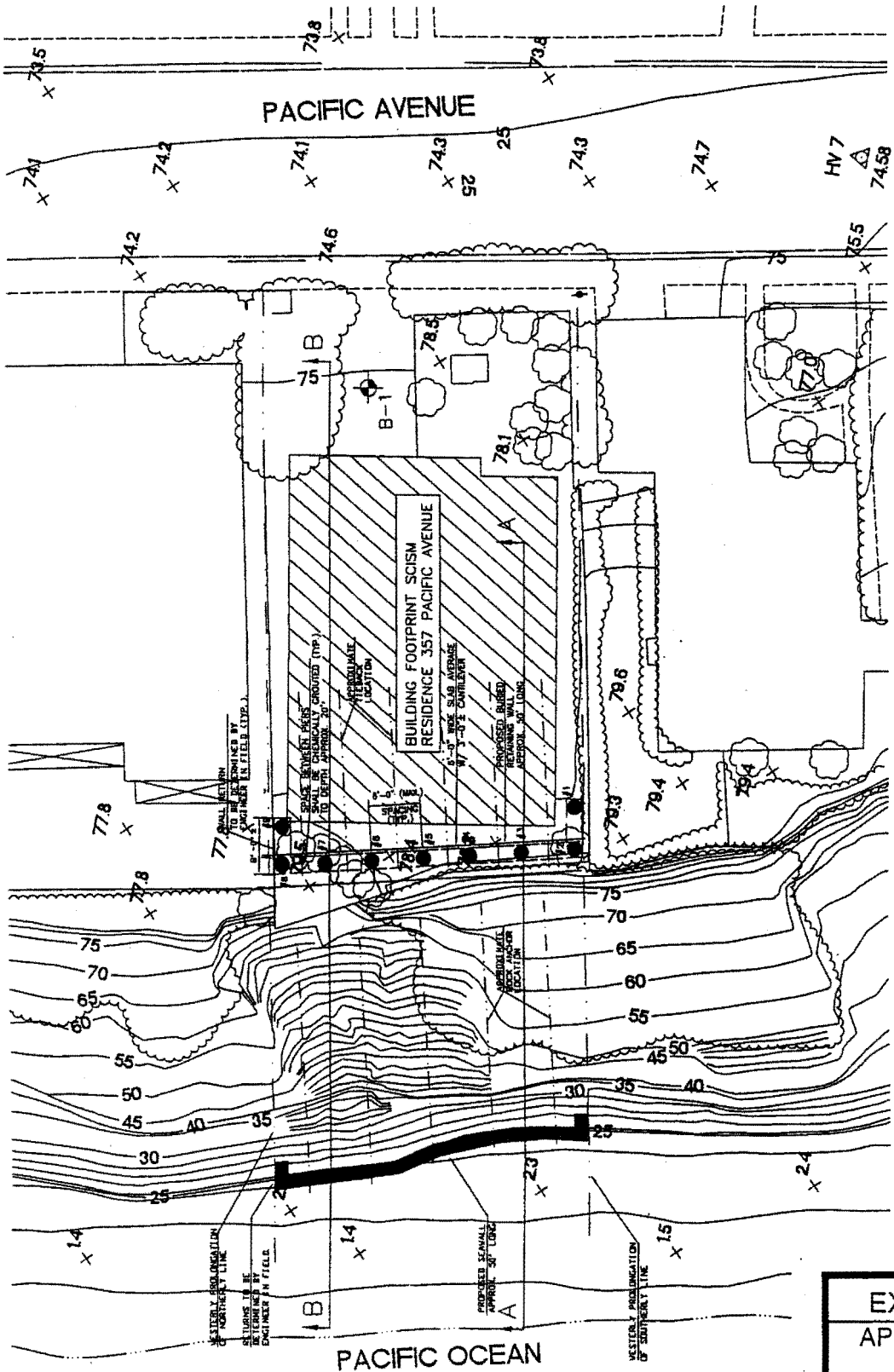


EXHIBIT NO. 1
APPLICATION NO
6-02-84
Location Map
California Coastal Commis
N
SAN DIEGO FRWY
CARDIFF STATE BEACH
SOLANA VISTA DR
SOLANA BEACH COUNTY PARK
HILL ST.
LINDA MAR DR
DEL MAR SHORES NORTH SHORE
DEL MAR
OCEAN
SITE
SIERRA
CLIFF ST.
BLK. 19
302
301
PTN. 23
PACIFIC AVE.
CLARK
SOLANA BEACH PARK
PACIFIC OCEAN

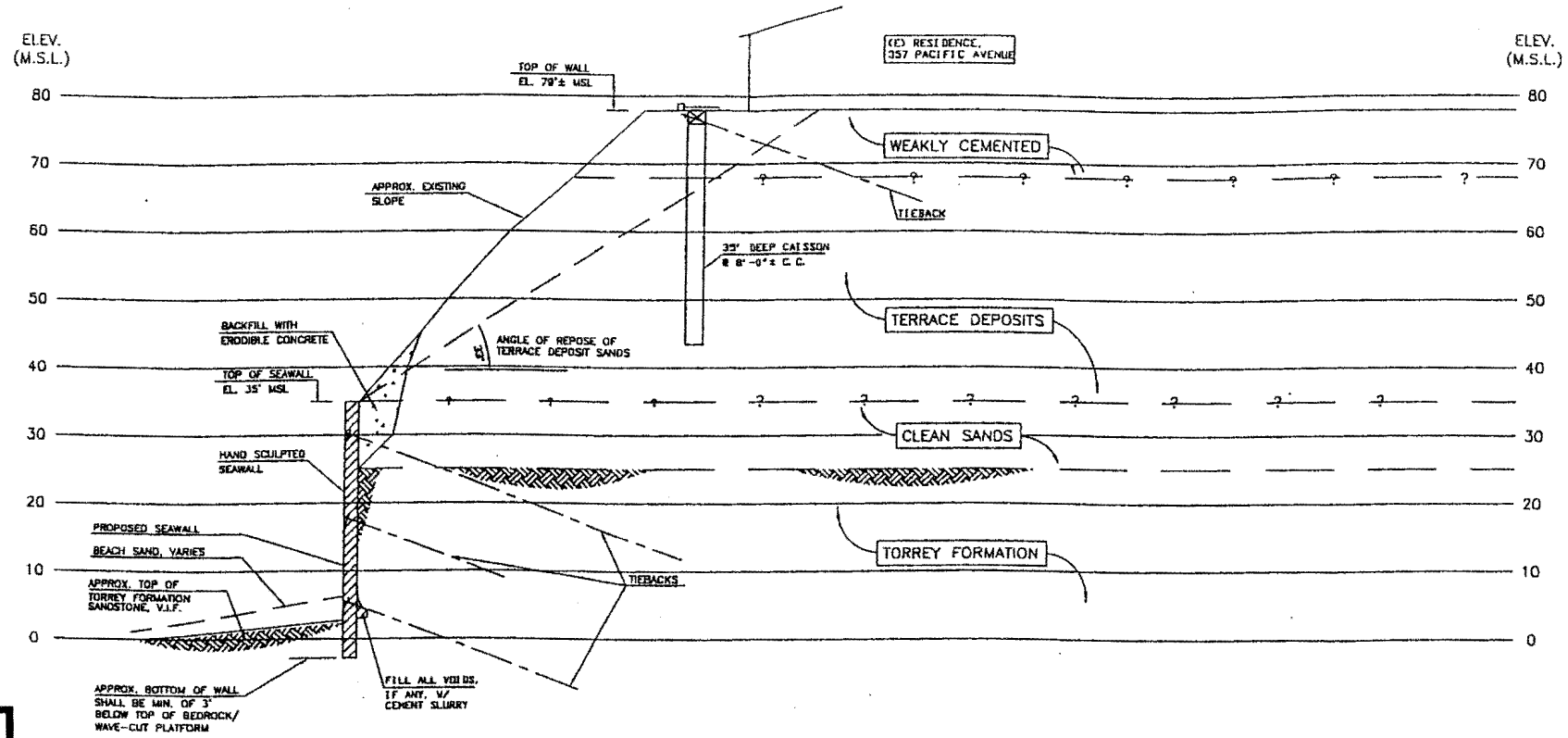
FIC



SITE PLAN

EXHIBIT NO. 2
APPLICATION NO.
6-02-84
Site Plan

California Coastal Commission

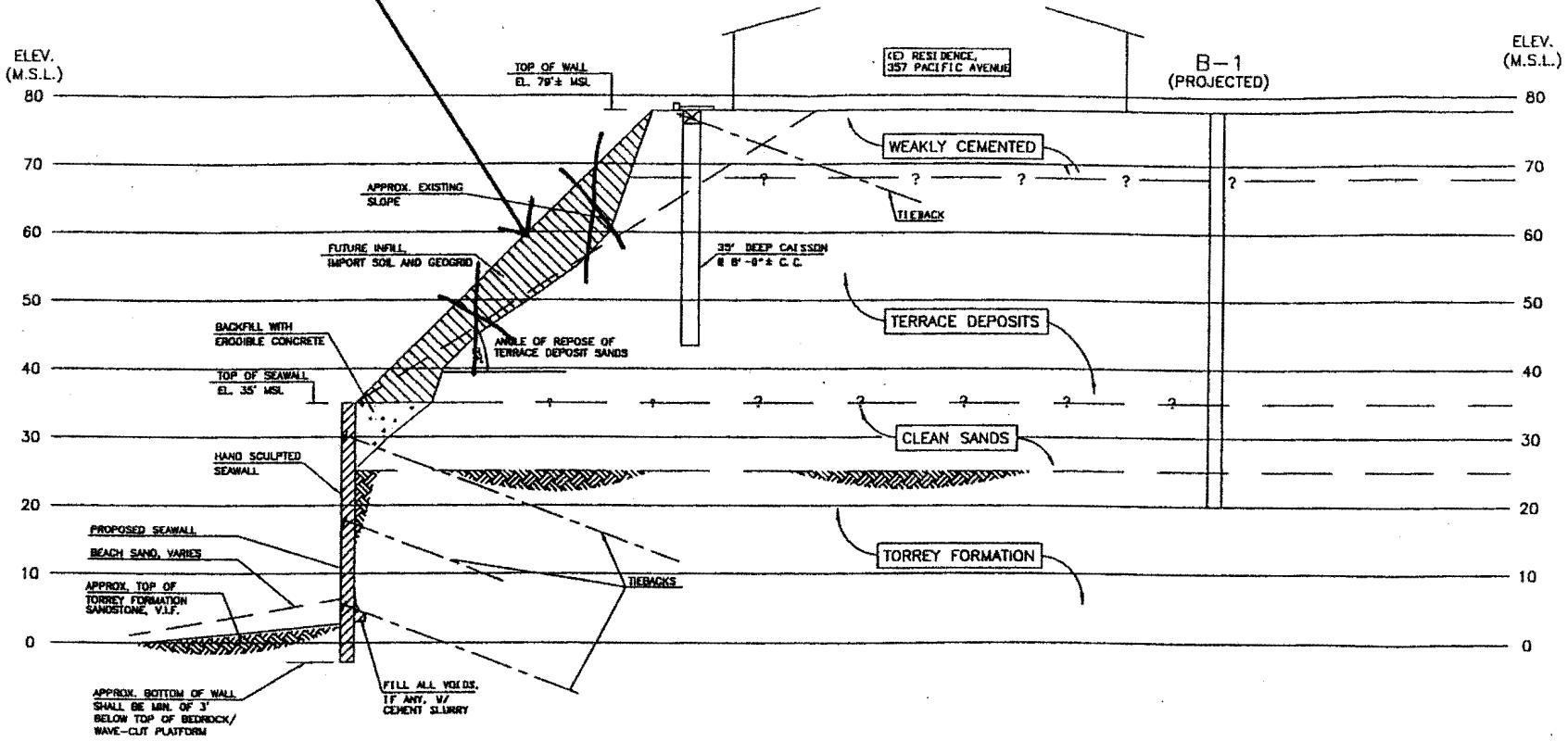


PROFILE SECTION A-A

EXHIBIT NO. 3
APPLICATION NO.
6-02-84
Cross-Sections A-A

California Coastal Commission

Geogrid Backfill
not a part of this Application.



PROFILE SECTION B-B

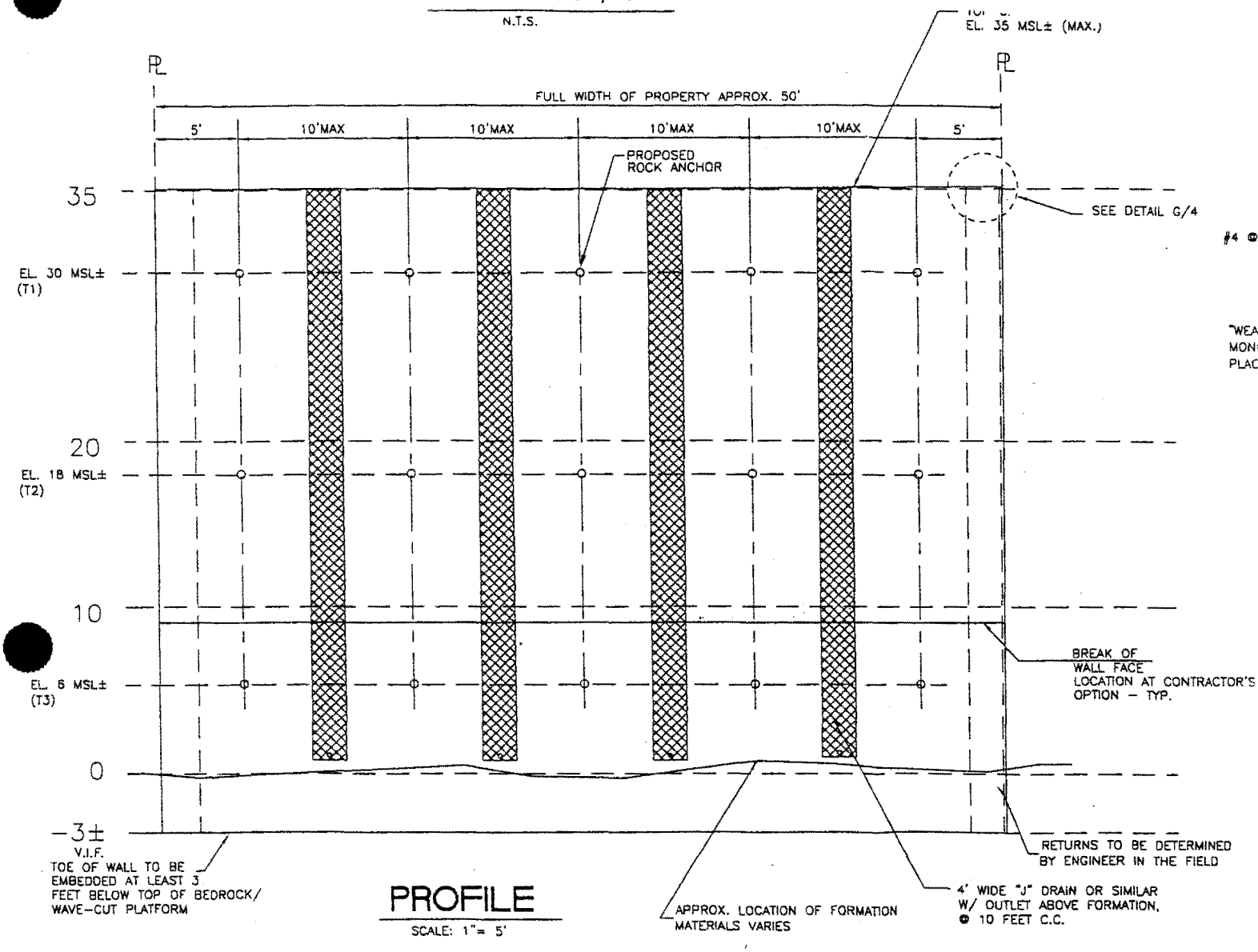
California Coastal Commission

EXHIBIT NO. 4
APPLICATION NO.
6-02-84
Cross-Sections B-B

F

DETAIL D/4

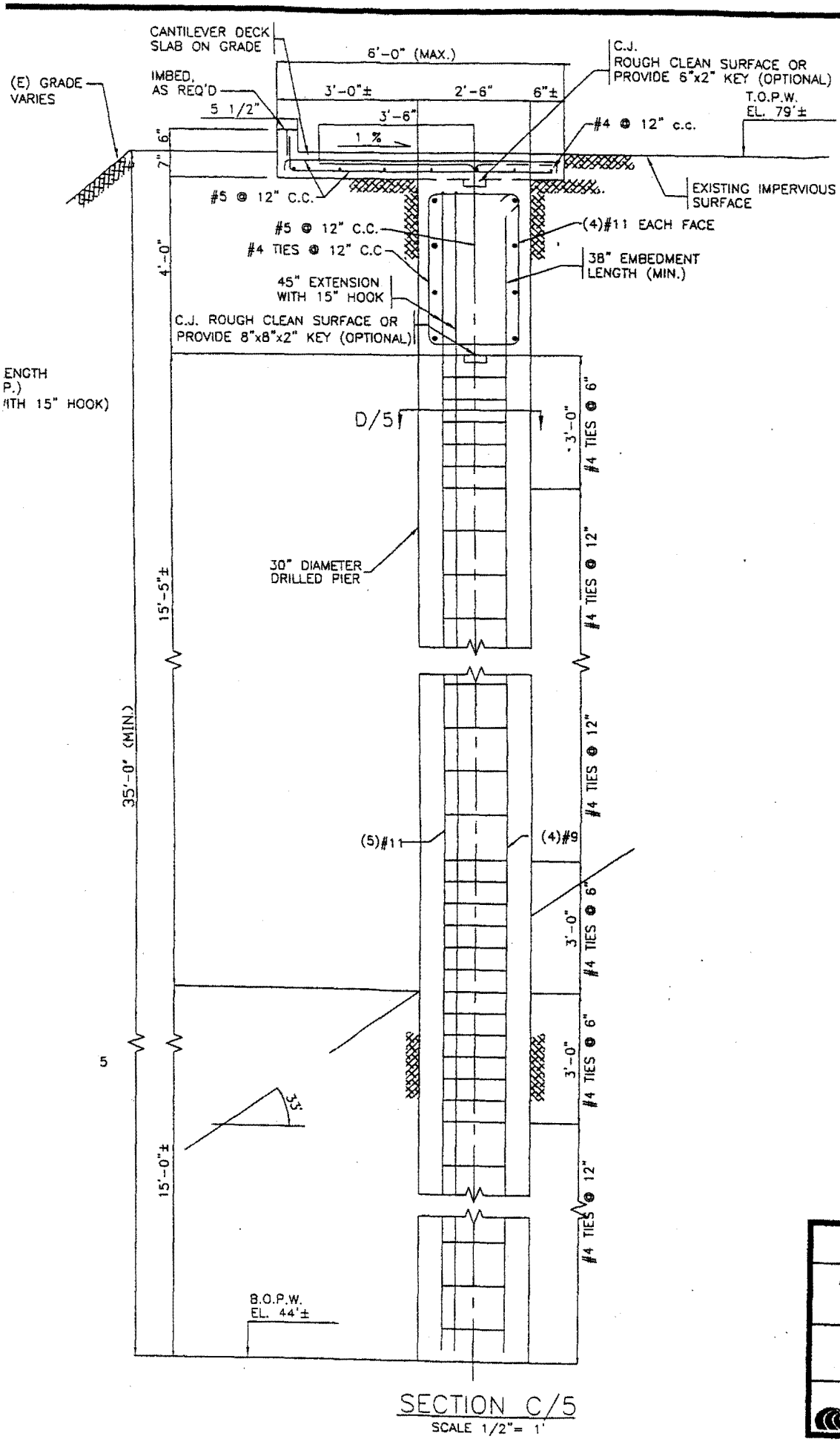
N.T.S.



PROFILE

SCALE: 1"= 5'

EXHIBIT NO. 5
APPLICATION NO. **6-02-84**
Seawall Profile
California Coastal Commission



SECTION C/5

SCALE 1/2"= 1'

N↑

EXHIBIT NO. 6

APPLICATION NO.

6-02-84

Upper Retention System Section

California Coastal Commission

CALIFORNIA COASTAL COMMISSION
SAN DIEGO AREA
7575 METROPOLITAN DRIVE, SUITE 103
SAN DIEGO, CA 92108-4402
[redacted]67-2370

EMERGENCY PERMIT

Applicants: **Nini Scism**
357 Pacific Avenue
Solana Beach, Ca 92075
Agent: **Bob Trettin**

Date: September 20, 2002

Emergency Permit No. **6-02-130-G**

LOCATION OF EMERGENCY WORK: **On the public beach below 357 Pacific Avenue, Solana Beach, San Diego County. APN No. 263-301-05**

WORK PROPOSED: **Construct approximately 35 ft.-high, 2 ft.-wide, and 50 ft.-long tiedback concrete seawall to be colored and sculpted to match to the surrounding natural bluff. The seawall will incorporate three rows of rock anchor tiebacks extending approximately 34 ft. in depth with limited backfill consisting of erodible concrete to cover the upper row of tiebacks (see attached plans by Soil Engineering Construction dated 2/14/02). The installation of backfill behind the seawall and over the face of the bluff beyond that necessary to support the tiebacks is specifically not approved under this emergency permit. In addition, the installation of upper bluff caissons or other protective works is not approved under this emergency permit.**

This letter constitutes approval of the emergency work you or your representative has requested to be done at the location listed above. I understand from your information and our site inspection that an unexpected occurrence in the form of upper and mid-bluff collapse and exposure of a clean sands lens within the mid-bluff requires immediate action to prevent or mitigate loss or damage to life, health, property or essential public services. 14 Cal. Admin. Code Section 13009. The Executive Director of the Coastal Commission hereby finds that:

(a) An emergency exists which requires action more quickly than permitted by the procedures for administrative or ordinary permits and the development can and will be completed within 30 days unless otherwise specified by the terms of this permit;

(b) Public comment on the proposed emergency action has been reviewed if time allows;

(c) As conditioned, the work proposed would be consistent with the requirements of the California Coastal Act of 1976.

The work is hereby approved, subject to the conditions listed on the attached page.

Sincerely,

PETER M. DOUGLAS
Executive Director

By: DEBORAH LEE
Deputy Director

EXHIBIT NO. 7
APPLICATION NO.
6-02-84
Emergency Permit
6-02-130-G
California Coastal Commissic

CONDITIONS OF APPROVAL:

1. The enclosed Emergency Permit Acceptance form must be signed by the PROPERTY OWNER and returned to our office within 15 days.

2. Only that work specifically described in this permit and for the specific properties listed above is authorized. The construction, placement, or removal of any accessory or protective structure, including but not limited to, stairways or other access structures, walls, fences, etc. not described herein, are not authorized by this permit. Any additional work requires separate authorization from the Executive Director. If during construction, site conditions warrant changes to the approved plans, the San Diego District office of the Coastal Commission shall be contacted immediately prior to any changes to the project in the field.

3. The emergency work carried out under this permit is considered to be TEMPORARY work done in an emergency situation. The work authorized by this permit must be completed within 60 days of the date of this permit (i.e., by November 19, 2002). In order to have the emergency work become a permanent development, a regular coastal development permit must be obtained. If the application is not approved, the emergency work shall be removed in its entirety within 150 days of the date of this permit (i.e., by February 17, 2003), unless this requirement is waived in writing by the Executive Director.

4. The subject emergency permit is being issued in response to a documented emergency condition where action needs to be taken faster than the normal coastal development permit process would allow. By approving the proposed emergency measures, the Executive Director of the Coastal Commission is not certifying or suggesting that the structures constructed under this emergency permit will provide necessary protection for the blufftop residential structures. Thus, in exercising this permit, the applicant agrees to hold the California Coastal Commission harmless from any liabilities for damage to public or private properties or personal injury that may result from the project.

5. This permit does not obviate the need to obtain necessary authorizations and/or permits from other agencies (e.g. City of Solana Beach, Dept. of Fish & Game, U.S. Fish & Wildlife Service, U.S. Army Corps of Engineers, California Department of Parks and Recreation, State Lands Commission.)

6. PRIOR TO THE COMMENCEMENT OF THE CONSTRUCTION, the applicant shall submit to the Executive Director, for review and written approval, final plans for the proposed seawall that have been reviewed and approved by the City of Solana Beach. Said plans shall be in substantial conformance with the plans submitted with this application dated 2/14/02 by Soil Engineering Construction, Inc. except they shall be revised as follows:

   a. The proposed gravel filled slope reconstruction behind the seawall and the upper bluff caissons shall be deleted.

   b. Sufficient detail regarding the construction method and technology utilized for texturing and coloring the seawall. Said plans shall confirm, and be of sufficient detail to verify, that the seawall color and texture closely matches the adjacent natural bluffs, including provision of a color board indicating the color of the fill material.

c. The seawall shall conform as closely as possible to the natural contour of the bluff. If during construction, slope conditions or bluff profiles substantially change, work shall be stopped and consultation with the City of Solana Beach and Commission staff shall occur before work resumes.

d. During construction of the approved development, disturbance to sand and intertidal areas shall be minimized to the maximum extent feasible. All excavated beach sand shall be redeposited on the beach. Local sand, cobbles or shoreline rocks shall not be used for backfill or for any other purpose as construction material.

7. Pre-construction site conditions shall be documented through photographs of the bluff at the time of construction and submitted to the San Diego District office prior to commencement of construction. Photographs of current construction conditions shall also be submitted with the required follow-up coastal development permit application.

If you have any questions about the provisions of this emergency permit, please contact Gary Cannon at the Commission's San Diego Coast Area Office at the address and telephone number listed on the first page.

(\\Tigershark1\Groups\San Diego\Emergency\6-02-130-G Scism.doc)

EMERGENCY PERMIT ACCEPTANCE FORM

TO: CALIFORNIA COASTAL COMMISSION
SAN DIEGO COAST AREA
7575 METROPOLITAN DRIVE, SUITE 103
SAN DIEGO, CA 92108-4402
(619) 767-2370

RE: **Emergency Permit No. 6-02-130-G**

Background

The City of Solana Beach is currently in the process of developing its Local Coastal Program which will include policies relating to development located in hazardous locations such as coastal bluffs and include comprehensive measures that address bluff erosion. Planning for comprehensive protective measures should include a combination of approaches including limits on future bluff development, removal of threatened portions of a residence, underpinning existing structures, ground and surface water controls, beach replenishment, and protective measures involving all portions of the bluffs. Decisions regarding future shoreline protection should be done through a comprehensive planning effort that analyzes the impact of approving shoreline protection on the entire City's shoreline.

Acknowledgement

In acceptance of this emergency permit, I acknowledge that any work authorized under an emergency permit is temporary and subject to removal if a regular Coastal Permit is not obtained to permanently authorize the emergency work. I also acknowledge and understand that a regular coastal development permit would be subject to all of the provisions of the Coastal Act and may be conditioned accordingly. These conditions may include, but not be limited to, provisions for long term maintenance and monitoring of the bluff face, a sand mitigation fee, a requirement that a deed restriction be placed on the property assuming liability for damages incurred from bluff failures, and restrictions on future construction of additional shore or bluff protection.

I hereby understand all of the conditions of the emergency permit being issued to me and agree to abide by them.

INSTRUCTIONS: After reading the attached Emergency Permit, please sign this form and return to the San Diego Coast Area Office within 15 working days from the permit's date.

Nini Scism

Name

Address

Date of Signing

Sand Mitigation Worksheet
City of Solana Beach

Variables	Values	Description
W=	50	Width of the property to be armored
E=	2	Encroachment by seawall, measured from toe of bluff or back beach, to the seaward limit of protection
v=	0.9	Volume of material required, per unit width of beach, to replace one foot of beach seaward of the seawall
R=	0.25	Retreat rate which must be based on historic erosion, erosion trends, aerial photos, land surveys
L=	22	Length of time the back beach or bluff will be fixed; or the design life without maintenance
S=	0.74	Fraction of beach quality material in the bluff material, based on analysis of bluff material
Hs=	35	Height of the seawall from the base of the bluff to the top
Hu=	45	Height of the unprotected upper bluff, from the top of the seawall to the crest of the bluff
Rcu=	0.2	Predicted rate of retreat of the crest of the bluff, assuming no seawall installed
Rcs=	0	Predicted rate of retreat of the crest of the bluff, assuming seawall installed
C=	10.85	$ per cubic yard of sand

	Results	
Aw=R*L*W	275	Area beach lost due to long-term erosion
Vw=Aw*v	247.5	Volume of sand to rebuild the area of beach lost due to long-term erosion

Ae=W*E	100	Encroachment area
Ve=Ae*v	90	Volume of encroachment area

Vb=(S*W*L)*((R*Hs)+(.5*Hu)*(R+(Rcu-Rcs)))/27	569.046296	Amount of beach material that would have to be supplied to the beach if natural erosion continued, or the long-term reduction in the supply of bluff material to the beach, over the life of the structure; based on the long-term avg. retreat rate, design life of the structure, % of beach quality material in the bluff, & bluff geometry (cu yds)

Vt=Vb+Vw+Ve	906.546296	Total volume of sand required to replace losses due the structure....

M=Vt*C	**$9,836.03**	SAND MITIGATION FEE

Note: Change "Values" to Calculate New Results

SEC
7/26/2002

357 PACIFIC AVE
SOLANA BEACH

jk