

CALIFORNIA COASTAL COMMISSION

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**Fr 13b**

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REGULAR CALENDAR
STAFF REPORT AND PRELIMINARY RECOMMENDATION

Application No.: 6-02-95

Applicant: Peter Becker

Agent: Steve Adams

Description: Demolition of existing single-family residence and construction of an approximately 4,092 sq. ft. two-story single-family residence with 45 ft.-deep caisson foundations on an approximately 8,251 sq. ft. blufftop lot.

Lot Area	8,251 sq. ft.
Building Coverage	2,395 sq. ft. (29%)
Pavement Coverage	2,731 sq. ft. (33%)
Landscape Coverage	2,725 sq. ft. (33%)
Unimproved Area	400 sq. ft. (05%)
Zoning	Medium Residential (5 du/ac)
Plan Designation	Medium Residential
Ht abv fin grade	21 feet

Site: 533 Pacific Avenue, Solana Beach, San Diego County. APN #263-041-01

STAFF NOTES:

Summary of Staff's Preliminary Recommendation: Staff recommends the Commission approve the proposed development with conditions. The main issue raised by the proposed development relates to siting of the residence at a safe location with the least adverse impact to visual resources. Based on information provided in the applicant's geotechnical reports, the Commission's technical services staff have determined that in order to site the proposed home in a safe location utilizing a standard foundation, a blufftop setback of at least 88 ft. would be required. As the lot is only about 100 ft. deep, this would not leave enough room to construct a new home. To address this concern, the applicant has proposed to build the home on 10 caissons built to a depth of approximately

45 ft. With the proposed caissons, the home could be sited closer to the bluff edge, but be structurally sound should a bluff failure occur in the future. The concern raised by the proposed caissons is that when they become exposed in the future, their exposure will represent a significant visual impact as viewed from the beach and offshore. Special conditions have been attached to require the new residence be located at least 47 feet from the edge of the existing bluff edge with adequate foundation support to assure structural stability over 75 years so as not to require shoreline protection. In addition, conditions have been attached to require no permanent irrigation devices on the lot, all runoff be directed away from the bluffs, an assumption of risk by the applicant and a waiver of future shoreline protection.

Substantive File Documents: City of Solana Beach General Plan and Zoning Ordinance; Design Review Permit/Structural Development Permit No. 17-01-33; “Geotechnical Investigation Proposed Single-family Residence on Coastal Bluff Property 533 Pacific Avenue, Solana Beach, California” by Southland Geotechnical Consultants dated December 19, 2001; “Responses to Staff Comments, Geotechnical Investigation” by Southland Geotechnical Consultants dated December 19, 2002.

I. PRELIMINARY STAFF RECOMMENDATION:

The staff recommends the Commission adopt the following resolution:

MOTION: *I move that the Commission approve Coastal Development Permit No. 6-02-95 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 ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director for review and written approval, final site, building, landscaping, drainage and foundation plans that have been approved by the City of Solana Beach and that substantially conform with the plans by Adams Design Associates dated 5/09/02 as revised 6/10/03, but shall be revised to include the following:

- a. The residence including foundations and any cantilevered floors shall not be constructed closer than 47 feet from the edge of the bluff that is shown on the above-cited plans dated 6/10/03.
- b. Engineering plans and supporting calculations for a foundation system that will assure structural stability of the residence, over 75 years, for the following conditions:
 1. The foundation shall assure structural stability and allow ongoing shoreline erosion (37.5 feet of erosion is anticipated over the next 75 years, based on historic long-term average, annual erosion rate), bluff retreat and possibly bluff collapse to continue unimpeded by the foundation system.
 2. The foundation shall provide stability for current and foreseeable loads, including seismic loads, for current site conditions and for the most exposed conditions that could result from erosion, slides, and other changes to the geologic conditions of the site.
 3. The plans shall note the most extreme erosion and bluff retreat situation for which the foundation can assure stability.
 4. The foundation shall provide stability against impulse loads that could result from a bluff collapse.
 5. Other information that demonstrates the residence will not require either shore protection or bluff retention for stability over the full life of the structure.

- c. Any existing permanent irrigation system located on the bluff top site shall be removed or capped and no new permanent irrigation system may be installed.
- d. All runoff from the site shall be collected and directed away from the bluff edge towards the street.
- e. All landscaping planted on the site shall consist of native, drought-tolerant plants.

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. No Future Bluff or Shoreline Protective Device. By acceptance of this Permit, the applicant agrees, on behalf of itself and all successors and assigns, that:

No new bluff or shoreline protective device(s) shall ever be constructed to protect the development approved pursuant to Coastal Development Permit No. 6-02-95 including, but not limited to, foundations, residence, decks or driveways in the event that the development is threatened with damage or destruction from waves, erosion, storm conditions, bluff retreat, landslides, or other natural hazards in the future. By acceptance of this Permit, the applicant hereby waives, on behalf of itself and all successors and assigns, any rights to construct such devices that may exist under Public Resources Code Section 30235.

3. 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 bluff collapse and erosion; (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.

4. Future Development. This permit is only for the development described in coastal development permit No. 6-02-95 Pursuant to Title 14 California Code of Regulations Section 13250(b)(6), the exemptions otherwise provided in Public Resources Code Section 30610(a) shall not apply. Accordingly, any future improvements to the proposed single family residence, including but not limited to repair and maintenance identified as requiring a permit in Public Resources Code section 30610(d) and Title 14 California Code of Regulations section 13252(a)-(b), shall require an amendment to

permit No. 6-02-95 from the California Coastal Commission or shall require an additional coastal development permit from the California Coastal Commission or from the applicable certified local government.

5. As-Built Plans. Within 60 days following completion of the project, the permittee shall submit as-built plans approved by the City of Solana Beach to be reviewed and approved in writing by the Executive Director documenting that the residence and foundations were constructed consistent with the Executive Director approved construction plans. In addition, within 60 days of construction of the caisson foundations, the permittee shall submit certification by a licensed civil or geotechnical engineer that the caisson foundations have been constructed in conformance with the approved plans for the project.

6. 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/History. Proposed is the demolition of an existing approximately 1,643 sq. ft. single-family residence and construction of an approximately 4,092 sq. ft. two-story, 21 ft.-high single-family residence with approximately 45 ft.-deep caisson foundations on an approximately 8,251 sq. ft. blufftop lot. The proposed caisson foundations will be located no closer than 40 ft. from the edge of the bluff. Portions of the first floor of the proposed residence will be cantilevered as close as 34 ft. from the bluff edge and the second floor will be cantilevered as close as 24 ft. from the edge of the bluff. The existing home which was built in the 1950’s is located as close as 22 ft. from the bluff edge.

In January 2000, the Commission approved the fill of three seacaves below the subject site as a preventative measure to protect the existing residence (ref. 6-99-91/Becker). The permit was conditioned to require ongoing maintenance and monitoring of the

seacave fill. The applicant's representative indicates that the construction of the three infills was completed in approximately March 2001. A search of Commission records indicates that no other coastal development permits have been requested for the subject site.

The subject site is located five lots north of Tide Beach Park, one of the City's primary beach access points and approximately ½ mile south of Cardiff State Beach. The City of Solana Beach does not yet have a certified Local Coastal Program (LCP) and, therefore, Chapter 3 of the Coastal Act is the standard of review.

2. Geologic Stability/Blufftop Development. The following Coastal Act Policies are applicable to the subject development:

Section 30253

New development shall:

- (1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.
- (2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

Section 30235

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

The proposed development involves the demolition of an approximately 1,643 sq. ft. two story residence located as close as 22 ft. from the edge of the bluff and construction of an approximately 4,092 sq. ft. two story residence located as close as 24 ft. from the edge of the bluff. The existing home was constructed in approximately 1950. The bluff at the subject site is approximately 63 ft. high with three seacaves below that have been filled with colored and textured erodible concrete. The shoreline below the development site is a highly used park and recreation area used by the public for a variety of ocean and beach activities. In addition, "Table Top" reef is located below the subject site which is a highly used tide pool viewing area at low tides.

Because of the natural process of continual bluff retreat, coastal bluffs in this area are considered a hazard area. In January 2000, the Commission approved the fill of three seacaves below the subject site based on documentation that the potential collapse of the three seacaves would lead to an "immediate failure and sloughening of the upper bluff materials" (ref. CDP #6-99-91/Becker). The Commission approved the seacave fill as a preventative measure which would serve to delay the construction of more extensive shoreline protection such as a seawall that may have been required to protect the existing structure if the seacaves had collapsed. Also, if the seacaves had collapsed, it is likely a layer of "clean sands" would have become immediately exposed. However, because the construction of the seacave fill was not completed until March of 2001, a portion of one of the seacave roofs' did collapse exposing a layer of clean sands above.

According to the Commission's staff geologist, the clean sand layer in Solana Beach consists of a layer of 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. Geotechnical reports associated with developments in Solana Beach have stated that 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 presence of this clean sand layer 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 in the portion of the City's shoreline south of Tide Beach Park and south of the subject site (ref. CDP Nos. 6-99-100/Presnell, et. al, 6-99-103/ Coastal Preservation Association, 6-00-66/Pierce, Monroe and 6-02-84/Scism, 6-00-9/Del Mar Beach Club, 6-00-138/Kinzel, Greenberg, 6-02-2/Gregg, Santina and 6-03-33/Surfsong). In addition, the Commission recently approved an emergency permit to fill an "mole hole" sized section of exposed cleans sands that along with an undermined seawall threatened a residential structure located 5 lots north of the subject site (ref. Emergency Permit #6-02-144-G/Steinberg).

According to the Commission's staff geologist, 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 blocks. 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 mechanism of bluff retreat that occurs in conjunction with the exposure of the clean sand layer 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.

The seacaves below the subject site have been filled and a condition of approval for the seacave fill required the applicant to submit monitoring reports each year for three years following the construction of the seacave fill and every three years thereafter. To date only one report, dated September 14, 2001, has been submitted. According to this report:

The upper bluff above the most southerly infill, however, has been destabilized as a result of the Spring 2000 roof collapse and subsequent undermining of the clean sands lens at the base of the sloping upper bluff. It is unfortunate that permitting for the infills is the protracted process it is because the roof collapse would have been prevented had the infills been constructed before the Spring 2000. The stability of the upper bluff has now been compromised such that further erosion and retreat of the upper bluff has now been initiated and will continue, despite the presence of the three functional sea cave infills in the lower sea cliff. Subsequent monitoring surveys will serve to document the rate of expansion of the upper bluff erosion. In compliance with Special Condition #2 of the Notice of Intent, we can offer no suggestions at this time for arresting this erosion that do not include construction of a structure on the face of the bluff.

(“Sea-Cave Baseline Monitoring Report 533 Pacific Avenue Solana Beach, California” by TerraCosta Consulting Group, dated September 14, 2001)

To find a proposed blufftop residence or residential addition consistent with Section 30253, the Commission must find that it will be stable throughout its useful life and that it will not require a seawall or other shoreline protective device throughout its useful life. To make these findings for blufftop residences or residential additions in Solana Beach and Encinitas, the Commission has required that such developments be setback a “safe” distance from the bluff edge. In previous permit actions, the Commission has required that new development observe a minimum setback of 40 feet from the top of the bluff that is supported by site specific geotechnical report documenting that the residence will be sited at a safe location such that over its lifetime it will not require the construction of shoreline protection.

In the case of the subject development, the applicant has submitted geotechnical reports that include site-specific quantitative slope stability analyses and an estimation of the long-term erosion rate for the area. (The analysis took into account the exposed clean sands layer on the bluff.) The slope stability analysis measures the likelihood of landslide at the subject site. According to the applicant’s geotechnical report of December 2002, a minimum factor of safety 1.5 (the industry standard) against a

landslide occurring at the subject site is located at approximately 51 feet landward of the edge of the bluff. (The factor of safety is an indicator of slope stability where a value of 1.5 is the industry-standard value for new development. In theory, failure should occur when the factor of safety drops to 1.0, and no slope should have a factor of safety less than 1.0.) This implies that the safe location for a slab based foundation structure would need to be setback at least 51 ft. from the edge of the bluff. In addition to the landslide potential, the bluff will be subject to long-term erosion and retreat and the geologic setback will need to be based on an accurate estimate of this retreat rate as well.

The applicant's geotechnical reports have cited a variety of long-term erosion rates for the area that range from .22 ft. to .40 ft. per year. However, none of the citations are based on site-specific information. In the absence of site-specific data, regional data from the literature may be substituted. The current state-of-the-art for establishing bluff retreat rates in this area is a FEMA-funded study done as part of a nationwide assessment of coastal erosion hazards. Data presented in Benumof and Griggs (1999), indicate that the long-term bluff retreat in the general area is from 0.15 to 0.49 feet per year. To allow for accelerated average bluff retreat rates in the future, which are a likely result of any acceleration in the rate of sea level rise, it is appropriate to establish the setback for new development on the basis of the larger value (0.49 ft/yr). Given an estimated 75-year design life, about 37 feet of erosion might be expected to occur at the subject site based on this historic long-term erosion rate. Therefore, based on the combination of slope stability analyses and the estimated erosion rate, the Commission would typically require that any new development at the subject site be located approximately 88 ft. landward of the edge of the bluff. In addition, the Commission would also likely require an additional 10 ft. buffer to allow for surficial slumping and to allow for uncertainties in the analysis. In this case, it would translate into a setback of 98 ft. However, at either 88 ft. or 98 ft. from edge of bluff, the project site would not accommodate the construction of a new home since the lot itself is only about 110 ft. deep from west to east and 60 to 65 ft. wide on its east side.

Recognizing the instability of the existing blufftop lot based on the landslide potential and long-term erosion rate, the applicant is proposing to construct the new residence incorporating a caisson foundation system consisting of ten, 45 ft. deep, 36 inch diameter concrete piers that extend below the Torrey Sandstone layer. The caissons are proposed to be placed at least 40 ft. from the edge of the bluff. By placing the home on 45 ft. deep foundations, even if the bluff should slide to the predicted 51 ft. landward location, according to the applicant's geotechnical report, the residence will not be threatened over its economic lifetime (75 years). The Commission's coastal engineer and geologist have confirmed that the structural stability of a blufftop home could be assured if such caisson foundations were in fact placed deep enough so as to not be undermined should the bluff erode or collapse in the future.

Although it appears that the use of deeply embedded caisson underpinnings to assure geologic stability of a residential structure is a practical alternative to the need for shoreline protection, its use along the Solana Beach shoreline may ultimately have adverse visual impacts as the caissons become exposed following landslide or expected

erosion. The Commission must weigh the potential exposure of these 45 ft. in depth, 36-inch diameter caissons for the new development against the likely construction of shoreline protection measures that would likely be necessary at some point in the future should the existing residence remain in its current location. In this specific case, in order to allow the applicant the ability to construct a new home on the site that will not require shoreline protection over its lifetime, it is necessary to find an alternative to the Commission's typical requirements for siting new development along the blufftops in Solana Beach. The use of deeply imbedded caissons as foundation for the residence appears to be such an alternative

However, the appropriate location of the home and caissons needs to be determined. As will be discussed in more detail in the following section of this report, there is a concern that at some point in time, the caissons will become exposed. While their exposure will not necessarily result in a threat to the home (as they will be engineered to stand alone), it does raise a visual concern. In this particular case, in order to minimize the potential for exposure of the caissons, the Commission finds the proposed home and caissons must be set back beyond the area of bluff that is expected to erode over the next 75 years. Based on the long-term erosion rate, the bluff is expected to erode approximately 37 ft. in the next 75 years. Add to this a 10 ft. buffer to allow for surficial slumping and provide for uncertainties in the analysis and a geologic setback of 47 ft. would result. A 47 ft. setback allows sufficient area for the applicant to construct a new home, while at the same time minimizing the potential for exposure of the caissons in the future.

While the applicant has proposed the use of the 45 ft. in depth caisson support for the proposed residence, engineered plans and supporting calculations have not yet been submitted. Therefore, Special Condition #1b requires the applicant to provide supporting engineered plans, documentation and calculations to evidence the caisson foundation system will be support the residence over 75 years despite ongoing bluff sliding and erosion such that shoreline protection will not be required. In addition, since the applicant has assured the Commission that the proposed residence can be constructed without requiring shoreline protection in the future, Special Condition #2 requires the applicant to waive all rights and claims for future protection that may exist under the Coastal Act. Only with this waiver can the project be found to be consistent with Section 30253 of the Act, which prohibits new development from requiring future shoreline protection.

Because erosion and landslides are caused by a variety of factors including over watering on the blufftop and inappropriate drainage, Special Condition #1c and 1d require the applicant to not have permanent irrigation devices on top of the bluff and to direct all runoff away from the bluffs to the street.

In addition, although the applicant asserts that the proposed development can be constructed safely despite ongoing erosion and the potential of landslide, the bluffs along the Solana Beach shoreline are known to be hazardous and unpredictable. Given that the applicant has chosen to construct a residence despite these risks, the applicant must assume the risks. Accordingly, Special Condition #3 requires the applicant to

acknowledge the risks and indemnifying the Commission against claims for damages that may occur as a result of its approval of this permit. In addition, Special Condition #6 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.

Therefore, as conditioned, since the proposed development can be assured structural stability over its lifetime and not require shoreline protection, the proposed development is consistent with Section 30253 and 30235 of the Coastal Act.

Although the proposed system of caisson foundations may support the residence so as to not require shoreline protection over its lifetime, and therefore can be found to be consistent with the geologic stability and shoreline protection policies of the Coastal Act, other Coastal Act policies, such as those addressing visual resources, require the residence to be located further landward than proposed.

3. Visual Resources. Sections 30251, 30240, and 30250 of the Coastal Act require that the scenic and visual qualities of coastal areas be protected, that new development adjacent to park and recreation areas be sited so as to not degrade or impact the areas and that new development not significantly adversely affect coastal resources:

Section 30251.

The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

Section 30240.

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(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.

Section 30250.

(a) New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such

areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources.

The subject development involves the demolition of an existing two-story home that is located as close as 22 feet from the bluff edge and construction of a two-story, approximately 4,092 sq. ft. home that will be located as close as 34 ft. from the bluff edge on the first floor and up to 24 ft. from the second floor. Portions of the proposed residence will be visible from the beach, especially at low tide. In addition, the applicant proposes a foundation system for the residence consisting of ten, 45 ft. deep, 36 in. diameter caissons. Five of closest caissons will be located between 40 ft. and 45 ft. from the edge of the bluff. Based on the applicant's proposed 40 ft. setback, the information found in the the quantative slope stability analysis ("Geotechnical Investigation Proposed Single-family Residence on Coastal Bluff Property 533 Pacific Avenue, Solana Beach, California" by Southland Geotechnical Consultants dated December 19, 2001) and the estimated long-term erosion rate for the site, most, if not all, of the proposed caissons will become exposed over the lifetime of the proposed residence.

The home will be located in a residential neighborhood consisting of single-family homes of similar bulk and scale to the proposed development. A 20 ft.-wide vacant City owned blufftop lot that can be used by the public for views of the ocean is located on the north side of the subject site. Three seacaves at the base of the bluff have been filled with colored and textured erodible concrete. Additional seacaves have been filled two lots south of the subject site with the bluff face above remaining in its natural state. The bluffs for the first 4 lots north of the subject site are generally in their natural state devoid of any shoreline protection.

Since the bluffs surrounding the subject site are generally in their natural state, new development has the potential of adversely affecting the visual appearance of the surrounding area. In this case, the new residence will generally be as visible from the beach as the existing residence. The existing structure is approximately 22 ft. from the bluff edge at its closest point. The new residence is proposed to be site as close as 34 ft. on the first floor and 24 ft. on the second floor from the edge of the bluff. However, the proposed caisson system, which will likely be exposed over the lifetime of the residence, raises serious visual concerns for the Solana Beach shoreline since exposed caissons are not currently features seen along the bluffs in Solana Beach. At this site, in particular, the exposure of the caissons will significantly alter the natural appearance and visual quality of the shoreline. It is also possible that at some point in the life of the proposed residence the cantilevered sections of the first and second floors may extend out seaward of the bluff edge. It is even possible if the bluff should slide to the approximately 51 ft. estimated by the applicant's slope stability analysis along with the ongoing erosion of up to .49 ft. per year, that the caissons and a significant portion of the home may someday lie seaward of the bluff edge. Therefore, the proposed siting of the caissons and residence will likely have significant visual impacts over the life of the structure. The amount of the exposure overtime will depend upon the actual erosion activity and the location of the caissons and the home.

The subject application represents one of the first requests involving deep caisson foundations on the blufftop in Solana Beach. Because the bluffs are receding and reducing the area available for new development to occur, it is likely we will see more requests to construct blufftop homes or improvements to existing homes that involve similar foundation designs. The approval of the subject development involving extensive and deeply placed caissons may set a precedent for future development. Therefore, it is important that the visual impact of the proposed development be minimized to the greatest extent possible. Siting the residence and caissons as far back as possible while still providing adequate space to build will reduce the visual prominence of the new development as seen from the beach and from offshore and will delay the expected exposure of the caisson foundations. In addition, by not constructing cantilevered sections of the home seaward of the westernmost caisson foundations, the visual prominence of the residence is further reduced and public views from the neighboring blufftop lot will be enhanced. In addition, as previously described, by delaying the exposure of the caissons as long as possible, it may be possible to devise or implement other measures, such as sand replenishment or retention projects, that can address the erosion of the bluffs in a more comprehensive manner and lessen the need for shoreline protection.

As previously described, the long-term erosion rate for this section of shoreline is estimated to be .49 ft. per year. Over 75 years this translates to approximately 37 ft. Therefore, based simply on the estimated erosion rate, any new development will need to be setback at least 37 ft. back from the bluff edge. In addition, to allow for surficial slumping and uncertainties in the analysis, it is reasonable to add an additional buffer of 10 ft. to assure that any potential adverse visual impacts are reduced to maximum extent possible for new development that is located adjacent to a beach, park and recreation area. This resulting 47 ft. setback, however, will not assure that the caissons beneath the residence will not be exposed sometime during the life of the structure. In fact, based on the Commission staff's interpretation of the geotechnical information provided by the applicant, it is expected that at some point over the next 75 years, portions of the caisson foundations will be exposed. While a greater blufftop setback could be supported, a setback of 47 ft. represents a compromise by the Commission so as to allow the applicant adequate room to construct a new home while mitigating the potential visual impact of the structure as much as possible should the caissons become exposed in the future. This setback is based on the long-term erosion rate and a buffer which provides a reasonable degree of assurance that exposure of the caissons will not occur for sometime in the future, without further reducing the building area for the applicant.

The visual concern is that exposure of the caisson foundations would be obtrusive and not subordinate to the natural appearance of the bluffs. In addition, piered caisson structures would be out of character with the existing pattern of development along the shoreline. The majority of the residences are founded on concrete slab with some having minimally sized footings that would be unsupportable should erosion undercut them. In this case, a substantial exposure of the ten, 45 ft.-high caissons would result in a visual degradation of the coastal area.

However, as previously described, unless the Commission accepts an alternative to the typical setback requirements for new development on the blufftop (in this case up to 88 ft. landward of the bluff edge), the applicant would not be able to construct a new residence on the property. Therefore, as long as the visual impacts associated with the proposed development can be mitigated to the maximum extent possible but still afford the applicant reasonable use of his property, the Commission can find the proposed development consistent with the Coastal Act. Therefore, Special Condition #1a requires that the residential structure be located no further seaward than 47 ft. from the bluff edge and that the applicant submit revised plans to be approved by the Executive Director documenting the location of the proposed residence. In addition, to assure that the ultimate project is constructed in compliance with the approved plans, Special Condition #5 requires the applicant to submit as-built construction plans for the residence and foundation system within 60 days of completion.

Although, as conditioned, the proposed development is consistent with the resource protection policies of the Coastal Act, this approval should not be seen as an acceptance by the Commission that all new development on the blufftops may be sited closer to the bluffs if caisson foundations are utilized. As previously described, the bluffs along the Solana Beach shoreline are hazardous and subject to erosion and landslide. While an adequate geologic setback can be established in this case through the use of a caisson foundation system, the visual impacts of the project cannot be completely eliminated. Since the subject applicant would not be capable of constructing a home on the site without the use of the deeply embedded caissons, the Commission in this particular case has accepted the use of the caisson foundation as long as it is sited as far landward as possible so as to reduce or delay the visual impacts of the structure should it become exposed. However, in other blufftop development requests in Solana Beach, the Commission must examine whether adequate area on the lot is available to build so as to avoid the use of such caisson foundation systems. Siting new development on the blufftop so as to eliminate all adverse visual impacts and not require shoreline protection over its lifetime is the preferred alternative. In this case, however, such an alternative is not available and, therefore, the visual impacts must be minimized.

Therefore, as conditioned, the proposed residence has been sited and designed to protect views to and along the shoreline, to minimize the alteration of natural bluffs and will be visually compatible with the character of surrounding areas to the maximum extent possible consistent with Sections 30240, 30250, and 30251 of the Coastal Act.

4. Runoff/Water Quality. Section 30231 of the Coastal Act requires that the biological productivity of coastal waters be maintained by, among other means, controlling runoff:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where

feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrapment, controlling runoff,

The proposed development will be located at the top of the bluffs overlooking the Pacific Ocean. As such, drainage and run-off from the development could potentially affect water quality of coastal waters as well as adversely affect the stability of the bluffs. The City's approval requires that all drainage from the development site, including run-off from the newly constructed impervious surfaces, drain towards Pacific Avenue. In order to reduce the potential for adverse impacts to water quality resulting from drainage runoff from the proposed development, Special Condition #1 has been attached. Special Condition #1 requires that the applicant submit to the Executive Director any proposed landscaping plan indicating that only native, non-invasive or drought tolerant plant species be used on-site. This will limit the need for irrigation. In addition, the condition restricts the property owner from installing permanent irrigation devices and requires the removal or capping of any existing permanent irrigations systems in order to reduce the risk associated with unattended running or broken irrigation systems. As conditioned, the drainage plan will serve to reduce any impacts to water quality from the project to insignificant levels. Therefore, the Commission finds the proposed project consistent with Sections 30231 of the Coastal Act.

6. Public Access/Recreation. Section 30212 of the Coastal Act requires, 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:
 - (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources,
 - (2) adequate access exists nearby, or, . . .

The subject site is located between the Pacific Ocean and the first public roadway, which in this case is Pacific Avenue. The project site is located within a developed single-family residential neighborhood on an approximately 63 ft.-high coastal blufftop lot. Vertical access through the site is not necessary nor warranted, given the fragile nature of the bluffs. Adequate public vertical access is provided five lots south of the subject site via a public stairway leading to the City of Solana Beach's Tide Beach Park, as well as approximately ½ mile north at Cardiff State Beach. In addition, since the project will be sited at a safe location such that shoreline protection will not be necessary over its lifetime, the project will not result in the placement of any additional structures on the beach that could impede public access. Therefore, the proposed project, as conditioned, will have no impact on public access, consistent with the public access policies of the Coastal Act.

7. Permit Violation. The proposed development will occur on a site where conditions of approval for an earlier coastal development permit have not been satisfied. On January 12, 2000, the Commission approved a coastal development permit for the

subject property and applicant for the fill of three seacaves with colored and textured erodible concrete (ref. CDP #6-99-91/Becker). Special Condition #2 of the approved permit required the applicant to submit annual monitoring reports for the site and seacave fills by June 1st each year for a period of three years following construction and every three years thereafter. To date only one report dated September 14, 2001 by TerraCosta Consulting has been submitted as required. Therefore, the applicant is in violation of Coastal Development Permit #6-99-91. The Commission's enforcement division will evaluate further actions to address this matter.

Although this violation of Coastal Development Permit No. 6-99-91 has occurred, consideration of the subject application by the Commission has been based solely upon the Chapter 3 policies of the Coastal Act. Approval of the subject permit does not constitute a waiver of any legal action with regard to any violation of the Coastal Act that may have occurred in conjunction with CDP No. 6-99-91.

8. 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, the applicant has proposed the use of deeply embedded caisson as foundation support for the residence to allow it to be constructed closer to the bluff edge. While in this case, the applicant would likely be precluded from constructing a new blufftop home without the deep caisson support, the use of caissons should not send a signal that blufftop development setbacks can be reduced if deep seated caissons are used. While each case is different, any new development on the blufftop must be sited in ways that are most protective of coastal resources. In this case, on balance, the use of caissons setback at least 47 ft. from the bluff edge achieves that goal. Decisions regarding future blufftop developments should be done through a comprehensive planning effort that analyzes the impact of such a decision on the entire City shoreline.

The location of the proposed residence is designated for residential uses in the City of Solana Beach Zoning Ordinance and General Plan, and was also designated for residential uses under the County LCP. As conditioned, the subject development is consistent with these requirements. Based on the above findings, the proposed development is consistent with the Chapter 3 policies of the Coastal Act in that the home and foundation will be sited to assure structural stability, be visual compatibility with the surrounding area to maximum extent possible and not require shoreline protection over its lifetime.

Therefore, the Commission finds that approval of the proposed development, as conditioned 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

9. 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 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 that the activity may have on the environment.

The proposed project has been conditioned in order to be found consistent with the public access, water quality, geologic stability and visual policies of the Coastal Act. Mitigation measures, including siting all development at least 47 ft. from the bluff edge, revised plans to assure structural stability, elimination of drainage toward the bluff and waiver of future shoreline protection 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, as conditioned to mitigate the identified impacts, 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.