## CALIFORNIA COASTAL COMMISSION

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Filed: 49th Day: 11/17/99 1/5/00

180th Day: Staff:

5/15/00

S. Hudson

Staff Report: Hearing Date: 11/18/996 12/9/99

Commission Action:

# STAFF REPORT: REGULAR CALENDAR

APPLICATION NO.: 4-99-058

APPLICANT: Marshal McDaniel

AGENT: Lynn Heacox

PROJECT LOCATION: 24848 Malibu Road, Malibu; Los Angeles County.

PROJECT DESCRIPTION: Construction of a new 4,164 sq. ft. single family residence, a septic system, a 50 ft. long 17 ft. high concrete bulkhead, 29 ft. long return walls, a 17 ft. high retaining wall, a deck, a pool/jacuzzi, and 380 cu. yds. of grading (100 cu. yds. of cut and 280 cu. yds. of fill). In addition, the project also includes an offer to dedicate a new lateral public access easement over the southern beachfront portion of the site as measured from the deck stringline to the mean high tide.

Lot area:

4,500

sq. ft.

Building coverage:

sq. ft.

Deck coverage:

2.000 600 sq. ft.

Ht. abv. ext. grade:

27 ft.

LOCAL APPROVALS RECEIVED: Approval in Concept City of Malibu Planning Department, Approval in Concept for City of Malibu Engineering and Geotechnical Review, Approval in Concept City of Malibu Environmental Health Department (Septic).

SUBSTANTIVE FILE DOCUMENTS: Wave Uprush Study Report Addendum by David Weiss Structural Engineer & Associates dated 10/30/99; Wave Uprush Study Report Addendum by David Weiss Structural Engineer & Associates dated 10/1/99; Wave Uprush Study Report by David Weiss Structural Engineer & Associates dated 7/17/99; Updated Engineering Geologic and Geotechnical Engineering Report by Robertson Geotechnical Inc. dated 8/19/98.

# SUMMARY OF STAFF RECOMMENDATION

Staff recommends approval of the proposed project with five (5) special conditions regarding construction responsibilities and debris removal, geotechnical recommendations, sign restrictions, offer to dedicate lateral public access, and assumption of risk/shoreline protection device improvement restrictions. The project site is located on Puerco Beach between Malibu Road and the ocean. The project includes the construction of a new single family residence with a shoreline protection device. In addition, the project also includes an offer to dedicate a new lateral public access easement over the southern beachfront portion of the site as measured from the deck stringline to the mean high tide.

continued

#### summary continued

An existing easement for lateral public access along the beach is located on the subject site. The applicant is proposing to dedicate a new larger public lateral access easement which would supersede the previous dedication and provide for public access along the entire beach under all tidal conditions.

Although the proposed development will be located landward of the mean high tide line, the maximum wave uprush limit extends to the Malibu Road right-of-way line. The proposed residence will be constructed on a friction pile foundation and will not require a shoreline protection device to ensure stability. However, since the entire project site is subject to wave uprush, it is not possible to construct any type of septic system that would not be subject to periodic wave action without the construction of some form of shoreline protection. Therefore, although the septic system and leachfield will be located as landward as possible on the subject site, the proposed bulkhead is still necessary to protect the septic system and leach field from wave uprush and erosion.

## STAFF RECOMMENDATION

The staff recommends that the Commission **APPROVE** the permit application with special conditions.

## **MOTION**

Staff recommends a YES vote on the following motion:

I move that the Commission approve with special conditions Coastal Development Permit 4-99-058 per the staff recommendation as set forth below.

A majority of the Commissioners present is required to pass the motion.

# RESOLUTION

# I. Approval with Conditions

The Commission hereby grants, subject to the conditions below, a permit for the proposed development on the grounds that the development, as conditioned, will be in conformity with the provisions of Chapter 3 of the California Coastal Act of 1976, 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 of the Coastal Act, is located between the sea and the first public road nearest the shoreline and is conformance with the public access and public recreation policies of Chapter 3 of the Coastal Act, and will not have any significant adverse impacts

## II. 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. <u>Expiration</u>. 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. <u>Compliance</u>. All development must occur in strict compliance with the proposal as set forth below. Any deviation from the approved plans must be reviewed and approved by the staff and may require Commission approval.
- **4.** <u>Interpretation</u>. Any questions of intent or interpretation of any term or condition will be resolved by the Executive Director or the Commission.
- 5. <u>Inspections</u>. The Commission staff shall be allowed to inspect the site and the development during construction, subject to 24-hour advance notice.
- **6.** <u>Assignment.</u> 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.
- 7. <u>Terms and Conditions Run with the Land</u>. 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.

# III. Special Conditions

# 1. Construction Responsibilities and Debris/Excavated Material Removal

The applicant shall, by accepting this permit, agree: a) that no stockpiling of dirt shall occur on the beach; b) that all grading shall be properly covered and sand bags and/or ditches shall be used to prevent runoff and siltation; and, c) that measures to control erosion must be implemented at the end of each day's work. In addition, no machinery will be allowed in the intertidal zone at any time. The permittee shall remove from the beach and seawall area any and all debris that result from the construction period.

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## 2. Geotechnical Recommendations

All recommendations contained in the Wave Uprush Study Report Addendum by David Weiss Structural Engineer & Associates dated 10/30/99; Wave Uprush Study Report Addendum by David Weiss Structural Engineer & Associates dated 10/1/99; Wave Uprush Study Report by David Weiss Structural Engineer & Associates dated 7/17/99; and the Updated Engineering Geologic and Geotechnical Engineering Report by Robertson Geotechnical Inc. dated 8/19/98 shall be incorporated into all final design and construction including recommendations concerning foundation, drainage, and septic system plans must be reviewed and approved by the consultants prior to commencement of development. Prior to issuance of the coastal development permit, the applicant shall submit evidence to the Executive Director of the consultants' review and approval of all final design and construction plans.

The final plans approved by the consultant shall be in substantial conformance with the plans approved by the Commission relative to construction, grading and drainage. Any substantial changes in the proposed development approved by the Commission which may be required by the consultant shall require an amendment to the permit or a new coastal permit.

## 3. Sign Restriction

No signs shall be posted on the property subject to this permit which (a) explicitly or implicitly indicate that the portion of the beach on the subject site (Assessor's Parcel Number 4458-013-016) located seaward of the residence and deck permitted in this application 4-99-058 is private or (b) contain similar messages that attempt to prohibit public use of this portion of the beach. In no instance shall signs be posted which read "Private Beach" or "Private Property." In order to effectuate the above prohibitions, the permittee/landowner is required to submit to the Executive Director for review and approval prior to posting the content of any proposed signs.

## 4. Offer to Dedicate Lateral Public Access

In order to implement the applicant's proposal of an offer to dedicate an easement for lateral public access and passive recreational use along the shoreline as part of this project, the applicant agrees to complete the following prior to issuance of the permit: the landowner shall execute and record a document, in a form and content acceptable to the Executive Director, irrevocably offering to dedicate to a public agency or private association approved by the Executive Director an easement for lateral public access and passive recreational use along the shoreline. The document shall provide that the offer of dedication shall not be used or construed to allow anyone, prior to acceptance of the offer, to interfere with any rights of public access acquired through use which may exist on the property. Such easement shall be located along the entire width of the property from the ambulatory mean high tide line landward to the deck stringline as illustrated on the site plan prepared by Ronald Wilson dated June 22, 1998.

The document shall be recorded free of prior liens which the Executive Director determines may affect the interest being conveyed, and free of any other encumbrances which may affect said interest. The offer shall run with the land in favor of the People of the State of California, binding all successors and assignees, and shall be irrevocable for a period of 21 years, such period running from the date of recording. The recording document shall include legal descriptions of both the applicant's entire parcel(s) and the easement area. This deed restriction shall not be removed or changed without a Coastal Commission-approved amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

## 5. Assumption of Risk/Shoreline Protection

- A. By acceptance of this permit, the applicant acknowledges and agrees to the following:
  - 1. The applicant acknowledges and agrees that the site may be subject to hazards from liquefaction, storm waves, surges, erosion, landslide, flooding, and wildfire.
  - 2. The applicant acknowledges and agrees 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.
  - The applicant unconditionally waives any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards.
  - 4. The applicant agrees 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.
  - 5. No future repair or maintenance, enhancement, reinforcement, or any other activity affecting the shoreline protective device approved pursuant to Coastal Development Permit 4-99-058, as shown on Exhibit 3, shall be undertaken if such activity extends the seaward footprint of the subject shoreline protective device. By acceptance of this permit, the applicant hereby waives, on behalf of itself and all successors and assigns, any rights to such activity that may exist under Public Resources Code section 30235.
- B. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall execute and record a deed restriction, in a form and content acceptable to the Executive Director incorporating all of the above terms of this condition. The deed restriction shall include a legal description of the applicant's entire parcel. The deed restriction shall include a legal description of the applicant's entire parcel and an exhibit showing the location of the shoreline protective device approved by this permit. The deed restriction shall run with the land, binding all successors and assigns, and shall be recorded free of prior liens that the Executive Director determines may affect the enforceability of the restriction. This deed restriction shall not be removed or changed without a Commission amendment to this coastal development permit.

# IV. Findings and Declarations

The Commission hereby finds and declares:

# A. Project Description and Background

The applicant is proposing to construct a new 4,164 sq. ft. single family residence, a septic system, a 50 ft. long 17 ft. high concrete bulkhead, 29 ft. long return walls, a 17 ft. high retaining wall, a deck, a pool/jacuzzi, and 380 cu. yds. of grading (100 cu. yds. of cut and 280 cu. yds. of fill) In addition, the project also includes an offer to dedicate a new lateral public access easement over the southern beachfront portion of the site as measured from the deck stringline to the mean high tide.

The project site is located on a beachfront parcel of land approximately 4,500 sq. ft. in size on Puerco Beach between Malibu Road and the ocean (Exhibit 1). The area surrounding the project site is characterized as a built-out portion of Malibu consisting of residential development. Slopes on site descend approximately 25 ft. in elevation from Malibu Road to a narrow stretch of beach below. The site was previously developed with a single family residence which was demolished by the Los Angeles County Department of Public Works in 1990 to abate substandard conditions. The site is currently developed with several existing partially exposed concrete piles which were installed to improve the previously existing residence prior to demolition. The construction of the proposed development will be consistent with the visual character of the surrounding area and will not result in any adverse effects to the visual quality of the Malibu Road/Puerco Beach area.

The applicant has submitted evidence of review of the proposed project by the California State Lands Commission (CSLC) dated July 9, 1998, which indicates that the CSLC presently asserts no claims that the project is located on public tidelands although the CSLC reserves the right to any future assertion of state ownership or public rights should circumstances change (Exhibit 5).

The Commission notes that the project site has been subject to past Commission action. Coastal Development Permit 5-88-409 was issued by the Commission in 1988 for an addition to an existing single family residence with a special condition requiring the recordation of an easement for lateral public access as measured from the dripline of the deck to the mean high tide line with the exception that the area 10 ft. seaward of the seaward of the deck would be maintained as a privacy buffer with restricted public access. The applicant is proposing to dedicate a new larger public lateral access easement which would supersede the previous dedication and provide for public access along the entire beach under all tidal conditions as measured seaward from the deck stringline without the 10 ft. wide privacy buffer where public access is currently restricted.

# **B.** Shoreline Protective Devices

The proposed project includes the construction of a 50 ft. long, 17 ft. high, concrete bulkhead with 29 ft. long return walls. The proposed bulkhead will be located 36 ft. seaward of the Malibu Road right-of-way/property line and approximately 54 ft. landward of the mean high tide line depending on tidal conditions. The proposed bulkhead will be located entirely beneath the proposed structure (30 ft. landward of the proposed deck dripline).

Past Commission review of shoreline residential projects in Malibu has shown that such development results in potential individual and cumulative adverse effects to coastal processes, shoreline sand supply, and public access. Shoreline development, if not properly designed to minimize such adverse effects, may result in encroachment on lands subject to the public trust (thus physically excluding the public); interference with the natural shoreline processes necessary to maintain publicly-owned tidelands and other public beach areas; overcrowding or congestion of such tideland or beach areas; and visual or psychological interference with the public's access to and the ability to use public tideland areas. In order to accurately determine what adverse effects to coastal processes will result from the proposed project, it is necessary to analyze the proposed project in relation to characteristics of the project site shoreline, location of the development on the beach, and wave action.

As described in the discussion below, there is evidence that this development along this section of Puerco Beach will require a shoreline protective device and that such development has the potential to adversely impact natural shoreline processes. Therefore, it is necessary to review the proposed project for its consistency with Sections 30235, 30250(a) and 30253 of the Coastal Act and with past Commission action.

Section 30235 of the Coastal Act states:

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.

Section 30253 of the Coastal Act states:

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 30250(a) of the Coastal Act states, in part:

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.

To assist in the determination of whether a project is consistent with Sections 30235, 30253, and 30250(a) of the Coastal Act, the Commission has, in past Malibu coastal development permit actions, looked to the certified Malibu/Santa Monica Mountains Land Use Plan (LUP) for guidance. The Malibu LUP has been found to be consistent with the Coastal Act and provides specific standards for development along the Malibu coast. For example, Policies 166 and 167 provide, in concert with Coastal Act Section 30235, that revetments, seawalls, cliff retaining walls and other shoreline protective devices be permitted only when required to serve coastal-dependent uses, to protect existing structures or new structures which constitute infill development and only when such structures are designed and engineered to eliminate or mitigate the adverse effects on shoreline sand supply. In addition, Policy 153 indicates that development of sites that are exposed to potentially heavy tidal and wave action shall require that development be set back a minimum of 10 ft. landward from the mean high tide line.

## 1. Site Shoreline Characteristics

The proposed project site is located on Puerco Beach in the City of Malibu. Puerco Beach is characterized as a relatively narrow beach which has been developed with numerous single family residences located to the east and west of the subject site. The Malibu/Los Angeles County Coastline Reconnaissance Study by the United States Army Corp of Engineers dated April 1994 indicates that residential development on Puerco Beach is exposed to recurring storm damage because of the absence of a sufficiently wide protective beach and that damage to older, low-lying, and less well constructed structures is expected. Although the applicant's coastal engineering consultant has stated that he believes that, based on personal observation, the subject beach is an oscillating (equilibrium) beach which experiences seasonal erosion and recovery, he has also indicated that the only available engineering study which has been conducted for Puerco Beach concludes that the subject site is actually an eroding beach which retreats landward approximately 0.5 inches/year. In addition, regardless of whether the subject beach is characterized as an oscillating or eroding beach, the Commission notes that the Wave Uprush Study by David Weiss Structural Engineer & Associates dated 7/17/98 indicates that the width of the relatively narrow beach on site changes seasonally and that the subject beach experiences a seasonal foreshore slope movement (oscillation) by as much as 40 ft.

# 2. Location of the Proposed Shoreline Protective Device in Relation to the Mean High Tide Line and Wave Action

The Commission notes that many studies performed on both equilibrium and eroding beaches have concluded that loss of beach occurs on both types of beaches where a shoreline protective device exists. In order to determine the impacts of the proposed bulkhead on the shoreline, the location of the proposed protective device in relationship to the expected wave runup as calculated by the location of the Mean High Tide Line must be analyzed.

## a. Mean High Tide Line

The Wave Uprush Study prepared by David Weiss Structural Engineer & Associates dated 7/17/99 represents that the most landward known measurement of the ambulatory mean high tide line on the project site occurred on February 2, 1984, when the mean high tide line on site was located approximately 90 ft. seaward of the Pacific Coast Highway right-of way line. The seaward most extension of the proposed development (the dripline of the proposed deck) will be located 66 ft. seaward of the highway right-of-way line (approximately 24 ft. landward of the February 2, 1984 mean high tide line). Based on the submitted information, the Commission notes that the proposed development will be located landward of the February 2, 1984, mean high tide line and should not extend onto public tidelands under normal conditions.

# b. Wave Uprush

Although the proposed structure will be located landward of the February 2, 1984, mean high tide line, the Wave Uprush Study prepared by David Weiss Structural Engineer & Associates dated 7/17/99 indicates that the maximum wave uprush at the subject site will occur at the Malibu Road right-of-way line (landward of the proposed residence). The applicant's engineering consultant has indicated that although the proposed residence will be constructed seaward of the maximum wave uprush limit, the residence will be constructed on a friction pile foundation and will not require any form of shoreline protection to ensure structural stability. In addition, the proposed project also includes the installation of a new bottomless sand filter septic system. The Commission notes that the proposed septic system is located as landward as feasible. However, the seaward extent of the septic system and leach field (located approximately 29 ft. from the Malibu Road right-of-way line) will still be located within

the wave uprush limit and will require a shoreline protection device to ensure the stability of the system. The Commission notes that no portion of the subject site will be located landward of the maximum wave uprush limit and that, therefore, it is not possible to construct any type of septic system that would not be subject to periodic wave action without the construction of some form of shoreline protection. Therefore, the Commission notes that the proposed bulkhead is necessary to protect the proposed septic system and leach field from wave uprush and erosion.

Based on the above discussion, the Commission finds that the proposed bulkhead is required to protect the septic system for the proposed residential development. The Commission further finds that the proposed bulkhead (which will be located as landward as feasible) will be subject to wave action during storm and high tide events. Therefore, the following discussion is intended to evaluate the impacts of the proposed bulkhead on the beach based on the above information which identified the specific structural design, the location of the structure, and the shoreline geomorphology.

#### 3. Effects of the Shoreline Protective Device on the Beach

It is important to accurately calculate the potential of wave runup and wave energy to which the shoreline protection device will be subject. Dr. Douglas Inman, renowned authority on Southern California beaches concludes that, "the likely detrimental effect of the seawall on the beach can usually be determined in advance by competent analysis." Dr. Inman further explains the importance of the seawall's design and location as it relates to predicting the degree of erosion that will be caused by the shoreline protection device. He states:

While natural sand beaches respond to wave forces by changing their configuration into a form that dissipates the energy of the waves forming them, seawalls are rigid and fixed, and at best can only be designed for a single wave condition. Thus, seawalls introduce a disequilibrium that usually results in the reflection of wave energy and increased erosion seaward of the wall. The degree of erosion caused by the seawall is mostly a function of its reflectivity, which depends upon its design and location.<sup>1</sup>

In past permit actions, the Commission has found that one of the most critical factors controlling the impact of a shoreline protection device on the beach is its position on the beach profile relative to the surf zone. All other things being equal, the further seaward the wall is, the more often and more vigorously waves interact with it. The best place for a seawall, if one is necessary, is at the back of the beach where it provides protection against the largest of storms. By contrast, a seawall constructed too near to

<sup>1</sup> Letter dated 25 February 1991 to Coastal Commission staff member and engineer Lesley Ewing from Dr. Douglas Inman.

the mean high tide line may constantly create problems related to frontal and end scour, as well as upcoast sand impoundment.

Even though the precise impact of a structure on the beach is a persistent subject of debate within the discipline of coastal engineering, and particularly between coastal engineers and marine geologists, it is generally agreed that a shoreline protective device will affect the configuration of the shoreline and beach profile whether it is a vertical bulkhead or a rock revetment. The main difference between a vertical bulkhead and rock revetment seawall is their physical encroachment onto the beach. However, it has been well documented by coastal engineers and coastal geologists that shoreline protective devices or shoreline structures in the form of either a rock revetment or vertical bulkhead will adversely impact the shoreline as a result of beach scour, end scour (the beach areas at the end of the seawall), the retention of potential beach material behind the wall, the fixing of the back beach and the interruption of alongshore processes. In order to evaluate these potential impacts relative to the proposed structure and its location on Puerco Beach, each of the identified effects will be evaluated below.

## a. Beach Scour

Scour is the removal of beach material from the base of a cliff, seawall or revetment due to wave action. The scouring of beaches caused by seawalls is a frequently-observed occurrence. When waves impact on a hard surface such as a coastal bluff, rock revetment, or vertical bulkhead, some of the energy from the wave will be absorbed, but much of it will be reflected back seaward. This reflected wave energy in combination with the incoming wave energy, will disturb the material at the base of the seawall and cause erosion to occur in front and down coast of the hard structure. This phenomenon has been recognized for many years and the literature acknowledges that seawalls do affect the supply of beach sand.

The Wave Uprush Study by David Weiss Structural Engineer & Associates dated 7/17/99 indicates that the proposed bulkhead will be located seaward of the maximum wave uprush limit and will, therefore, periodically be subject to wave action. In past permit actions, the Commission has found that shoreline protective devices which are subject to wave action tend to exacerbate or increase beach erosion. The following quotation summarizes a generally accepted opinion within the discipline of coastal engineering that, "Seawalls usually cause accelerated erosion of the beaches fronting them and an increase in the transport rate of sand along them." Ninety-four experts in

<sup>2</sup> Saving the American Beach: A Position Paper by Concerned Coastal Geologists (March 1981, Skidaway Institute of Oceanography), pg. 4.

the field of coastal geology, who view beach processes from the perspective of geologic time, signed the following succinct statement of the adverse effects of shoreline protective devices:

These structures are fixed in space and represent considerable effort and expense to construct and maintain. They are designed for as long a life as possible and hence are not easily moved or replaced. They become permanent fixtures in our coastal scenery but their performance is poor in protecting community and municipalities from beach retreat and destruction. Even more damaging is the fact that these shoreline defense structures frequently enhance erosion by reducing beach width, steepening offshore gradients, and increasing wave heights. As a result, they seriously degrade the environment and eventually help to destroy the areas they were designed to protect.<sup>3</sup>

The above 1981 statement signed by 94 respected coastal geologists indicates that sandy beach areas available for public use can be harmed through the introduction of seawalls. Thus, in evaluating an individual project, the Commission assumes that the principles reflected in that statement are applicable. To do otherwise would be inconsistent with the Commission's responsibilities under the Coastal Act to protect the public's interest in shoreline resources and to protect the public's access along the ocean and to the water.

The impact of seawalls as they are related to sand removal on the sandy beaches is further documented by the State Department of Boating and Waterways:

While seawalls may protect the upland, they do not hold or protect the beach which is the greatest asset of shorefront property. In some cases, the seawall may be detrimental to the beach in that the downward forces of water, created by the waves striking the wall rapidly remove sand from the beach.<sup>4</sup>

Finally this observation was underscored more recently in 1987 by Robert G. Dean in "Coastal Sediment Processes: Toward Engineering Solutions":

Armoring can cause localized additional storm scour, both in front of and at the ends of the armoring...Under normal wave and tide conditions, armoring can contribute to the downdrift deficit of sediment through decreasing the supply on an eroding coast and interruption of supply if the armoring projects into the active littoral zone.<sup>5</sup>

<sup>3</sup> Saving the American Beach: A Position Paper by Concerned Coastal Geologists (March 1981, Skidaway Institute of Oceanography), pg. 4.

<sup>4</sup> State Department of Boating and Waterways (formerly called Navigation and Ocean Development), Shore Protection in California (1976), page 30.

<sup>5</sup> Coastal Sediments '87.

Dr. Craig Everts found that on narrow beaches where the shoreline is not armored, the most important element of sustaining the beach width over a long period of time is the retreat of the back beach and the beach itself. He concludes that:

Seawalls inhibit erosion that naturally occurs and sustains the beach. The two most important aspects of beach behavior are changes in width and changes in the position of the beach. On narrow, natural beaches, the retreat of the back beach, and hence the beach itself, is the most important element in sustaining the width of the beach over a long time period. Narrow beaches, typical of most of the California coast, do not provide enough sacrificial sand during storms to provide protection against scour caused by breaking waves at the back beach line. This is the reason the back boundary of our beaches retreats during storms.<sup>6</sup>

Dr. Everts further concludes that armoring in the form of a shoreline protection device interrupts the natural process of beach retreat during a storm event and that, "a beach with a fixed landward boundary is not maintained on a recessional coast because the beach can no longer retreat."

The Commission has observed this phenomenon up and down California's coast where a shoreline protection device has successfully halted the retreat of the shoreline, but only at the cost of usurping the beach. For example, at La Conchita Beach in Ventura County, placement of a rock revetment to protect an existing roadway has caused narrowing of the existing beach. Likewise, at City of Encinitas beaches in San Diego County, construction of vertical seawalls along the base of the bluffs to protect existing residential development above, has resulted in preventing the bluffs' contribution of sand to the beaches, resulting in narrowing.

As set forth in earlier discussion, Puerco Beach is a narrow eroding or oscillating beach. The applicant's coastal engineering consultant has indicated that the proposed bulkhead will be acted upon by waves during storm conditions. The applicant's consultant has also indicated that seasonal foreshore slope movement can be as much as 40 ft. In addition, if a seasonal eroded beach condition occurs with greater frequency due to the placement of a bulkhead on the subject site, then the subject beach would also accrete at a slower rate. The Commission notes that many studies performed on both oscillating and eroding beaches have concluded that loss of beach occurs on both types of beaches where a shoreline protective device exists. Therefore, the Commission notes that the proposed bulkhead, over time, will result in potential adverse effects to the beach sand supply resulting in increased seasonal erosion of the beach and longer recovery periods.

<sup>6</sup> Letter Report dated March 14, 1994 to Coastal Commission staff member and engineer Lesley Ewing from Dr. Craig Everts, Moffatt and Nichol Engineers.

The impacts of potential beach scour is important relative to beach use for two reasons. The first reason involves public access. The subject property is located approximately 900 feet to the west of an existing vertical public accessway and approximately 1,500 ft. to the east of a second vertical public accessway. If the beach scours at the base of the bulkhead, even minimal scouring in front of the 50 ft. long bulkhead will translate into a loss of beach sand available (i. e. erosion) at an accelerated rate than would otherwise occur under a normal winter season if the beach were unaltered. second impact relates to the potential turbulent ocean condition. Scour at the face of a seawall will result in greater interaction with the wall and thus, make the ocean along Puerco Beach more turbulent than it would along an unarmored beach area. Thus, the Commission has ordinarily required that shoreline protection devices, be located as landward as possible in order to reduce adverse effects from scour and erosion. In the case of this project, the Commission notes that the proposed bulkhead will be located as landward as feasible in order to provide protection for the proposed septic system, which has also been located as landward as feasible, in order to minimize adverse effects from scour and erosion.

As discussed above, the Commission notes that the new bulkhead and septic system will be located as landward as possible. However, the Commission further notes that any future improvements to the proposed seawall that might result in the seaward extension of the shoreline protection device would result in increased adverse effects to shoreline sand supply and public access. Therefore, to ensure that the proposed project does not result in new future adverse effects to public access, Special Condition Five (5) requires the applicant to record a deed restriction that would prohibit any future repair or maintenance, enhancement, reinforcement, or any other activity affecting the shoreline protective device approved pursuant to this permit if such activity extends the seaward footprint of the subject shoreline protective device.

In addition, in past permit actions, the Commission has required that all new development on a beach, including the construction of new single family residences or shoreline protection devices, provide for lateral public access along the beach in order to mitigate adverse effects to public access from increased beach erosion. In this case, the Commission notes that an easement for lateral public access has been previously recorded for the project site. Coastal Development Permit 5-88-409 was issued by the Commission in 1988 for an addition to an existing single family residence with a special condition requiring the recordation of an easement for lateral public access as measured from the dripline of the deck to the mean high tide line with the exception that the area 10 ft. seaward of the seaward of the deck would be maintained as a privacy buffer with restricted public access.

The applicant is proposing to dedicate a new larger public lateral access easement which would supersede the previous dedication and provide for public access along the

entire beach under all tidal conditions as measured seaward from the deck stringline without the 10 ft. wide privacy buffer where public access is currently restricted. The Commission notes that the new lateral access easement which the applicant has offered to dedicate as part of this project will more accurately describe the ambulatory nature of the easement's width in relation to the mean high tide line and will be more consistent with other lateral access easements which have been recorded on properties along Puerco Beach and the Malibu area.

In order to conclude with absolute certainty what adverse effects would result from the proposed project in relation to shoreline processes and the adequacy of the existing lateral access easement, a historical shoreline analysis based on site-specific studies would be necessary. Although this level of analysis has not been submitted by the applicant, the Commission notes that because the applicant has proposed as part of the project an offer to dedicate a new lateral access easement along the entire southern portion of the lot, as measured from the dripline of the proposed deck, it has not been necessary for Commission staff to engage in an extensive analysis as to the adequacy of the original easement or whether the imposition of a new offer to dedicate would be required here absent the applicant's proposal. As such, Special Condition Four (4) has been required in order to ensure that the applicant's offer to dedicate a new lateral public access easement is transmitted prior to the issuance of the coastal development permit.

## b. End Effects

End scour effects involve the changes to the beach profile adjacent to the shoreline protection device at either end. One of the more common end effects comes from the reflection of waves off of the shoreline protection device in such a way that they add to the wave energy which is impacting the unprotected coastal areas on either end. In addition, the Commission notes that the literature on coastal engineering repeatedly warns that unprotected properties adjacent to any shoreline protective device may experience increased erosion. Field observations have verified this concern. Although it is difficult to quantify the exact loss of material due to end effects, in a paper written by Gerald G. Kuhn of the Scripps Institution of Oceanography, it is concluded that erosion on properties adjacent to a rock seawall is intensified when wave runup is high.<sup>7</sup>

An extensive literature search on the interaction of seawalls and beaches was performed by Nicholas Kraus in which he found that seawalls will have effects on narrow beaches or beaches eroded by storm activity. His research indicated that the

<sup>7</sup> Paper by Gerald G. Kuhn of the Scripps Institution of Oceanography entitled "Coastal Erosion along

Oceanside Littoral Cell, San Diego County, California" (1981).

form of the erosional response to storms that occurs on beaches without seawalls that are adjacent to beaches with seawalls is manifested as more localized toe scour and end effects of flanking and impoundment at the seawall. Dr. Kraus' key conclusions were that seawalls could be accountable for retention of sediment, increased local erosion and increased end erosion. Kraus states:

At the present time, three mechanisms can be firmly identified by which seawalls may contribute to erosion at the coast. The most obvious is retention of sediment behind the wall which would otherwise be released to the littoral system. The second mechanism, which could increase local erosion on downdrift beaches, is for the updrift side of the wall to act as a groin and impound sand. This effect appears to be primarily theoretical rather than actualized in the field, as a wall would probably fail if isolated in the surf zone. The third mechanism is flanking i.e. increased local erosion at the ends of walls.

In addition, preliminary results of researchers investigating the length of shoreline affected by heightened erosion adjacent to seawalls concluded that:

Results to date indicate that erosion at the ends of seawalls increases as the structure length increases. It was observed in both the experimental results and the field data of Walton and Sensabaugh (1978) that the depth of excess erosion is approximately 10% of the seawall length. The laboratory data also revealed that the along-coast length of excess erosion at each end of the structure is approximately 70% of the structure length.

A more comprehensive study was performed over several years by Gary Griggs which concluded that beach profiles at the end of a seawall are further landward than natural profiles. This effect appears to extend for a distance of about 6/10 the length of the seawall and represents both a spatial and temporal loss of beach width directly attributable to seawall construction. These end effects would be expected only when the bulkhead was exposed to wave attack and, under equilibrium or accreting beach conditions, this scour will likely disappear eventually during post-storm recovery. The Commission notes that end effect erosion may be minimized by locating a proposed shoreline protection device as landward as possible in order to reduce the frequency that the seawall is subject to wave action. In the case of this project, the Commission

<sup>8 &</sup>quot;Effects of Seawalls on the Beach", published in the Journal of Coastal Research, Special Issue #4, 1988.

<sup>9 &</sup>quot;Laboratory and Field Investigations of the Impact of Shoreline Stabilization Structures on Adjacent Properties" by W.G. McDougal, M.A. Sturtevant, and P.D. Komar in Coastal Sediments '87.

<sup>10 &</sup>quot;The Interaction of Seawalls and Beaches: Seven Years of Field Monitoring, Monterey Bay, California" by G. Griggs, J. Tait, and W. Corona, in Shore and Beach, Vol. 62, No. 3, July 1994.

notes that the proposed bulkhead will be located as landward as feasible in order to minimize adverse effects to shoreline sand supply from end effects.

#### c. Retention of Potential Beach Material

A shoreline protective device's retention of potential beach material inherently impacts shoreline processes. One of the main functions of a bulkhead or revetment is upland stabilization — to keep the upland sediments from being carried to the beach by wave action and bluff retreat. In the case of Puerco Beach, which is located in the Santa Monica Cell, the back of the beach is fixed at Pacific Coast Highway. One of the main sources of sediment for beaches are the bluffs themselves, as well as the material that has eroded from inland sources and is carried to the beach by coastal streams. The National Academy of Sciences found that retention of material behind a shoreline protective device may be linked to increased loss of material in front of the wall. The net effect is documented in "Responding to Changes in Sea Level, Engineering Implications" which provides:

A common result of sea wall and bulkhead placement along the open coastline is the loss of the beach fronting the structure. This phenomenon, however, is not well understood. It appears that during a storm the volume of sand eroded at the base of a sea wall is nearly equivalent to the volume of upland erosion prevented by the sea wall. Thus, the offshore profile has a certain "demand" for sand and this is "satisfied" by erosion of the upland on a natural beach or as close as possible to the natural area of erosion on an armored shoreline...<sup>11</sup>

As explained, the bulkhead will protect Malibu Road from continued loss of sediment. However, the result of this protection, particularly on a narrow beach, is a loss of sediment on the sandy beach area that fronts the seawall. Furthermore, as explained previously, this loss of sediment from the active beach leads to a lower beach profile, seaward of the protective device, where the seawall will have greater exposure to wave attack.

In past permit actions, the Commission has required that all new development on a beach, including the construction of new single family residences or shoreline protection devices, provide for lateral public access along the beach in order to mitigate adverse effects to public access from increased beach erosion. In this case, the Commission notes that an easement for lateral public access has been previously recorded for the project site. Coastal Development Permit 5-88-409 was issued by the Commission in 1988 for an addition to an existing single family residence with a special condition

<sup>11</sup> National Academy of Sciences, Responding to Changes in Sea Level: Engineering Implications, National Academy Press, Washington D.C., 1987, page 74.

requiring the recordation of an easement for lateral public access as measured from the dripline of the deck to the mean high tide line with the exception that the area 10 ft. seaward of the seaward of the deck would be maintained as a privacy buffer with restricted public access.

The applicant is proposing to dedicate a new larger public lateral access easement which would supersede the previous dedication and provide for public access along the entire beach under all tidal conditions as measured seaward from the deck stringline without the 10 ft. wide privacy buffer where public access is currently restricted. The Commission notes that the new lateral access easement which the applicant has offered to dedicate as part of this project will more accurately describe the ambulatory nature of the easement's width in relation to the mean high tide line and will be more consistent with other lateral access easements which have been recorded on properties along Puerco Beach and the Malibu area.

In order to conclude with absolute certainty what adverse effects would result from the proposed project in relation to shoreline processes and the adequacy of the existing lateral access easement, a historical shoreline analysis based on site-specific studies would be necessary. Although this level of analysis has not been submitted by the applicant, the Commission notes that because the applicant has proposed as part of the project an offer to dedicate a new lateral access easement along the entire southern portion of the lot, as measured from the dripline of the proposed deck, it has not been necessary for Commission staff to engage in an extensive analysis as to the adequacy of the original easement or whether the imposition of a new offer to dedicate would be required here absent the applicant's proposal. As such, Special Condition Four (4) has been required in order to ensure that the applicant's offer to dedicate a new lateral public access easement is transmitted prior to the issuance of the coastal development permit.

# 4. Past Commission Actions on Residential Shoreline Development

Many portions of the Malibu coastline are intensely developed with single family residences. The eastern portion of the Malibu coastline, including Las Tunas, Big Rock, La Costa and Carbon beaches, form an almost solid wall of residential development along a five mile stretch of the shoreline. This residential development extends over the sandy and rocky beach in many areas and most of the residences have shoreline protective devices such as rock revetments and concrete or timber seawalls. This residential development and their associated protective devices prevent access to the coast, obscure the views to the beach and water from Pacific Coast Highway, interrupt shoreline processes and impact the fragile biological resources in these areas.

Given Malibu's close proximity to the Los Angeles metropolitan area it is understandable why the Malibu coastline has experienced such intensive development

of its coastline over the past 50 years. The vast majority of this development took place prior to the passage of Proposition 20 which established the Coastal Commission and the 1976 Coastal Act. As previously stated, Section 30235 of the Coastal Act allows for the construction of protective devices only if the device serves to protect coastal dependent uses, or to protect existing structures or public beaches in danger from erosion. The construction of protective devices to protect new residential development is generally not allowed under this Coastal Act section. The majority of the residential development described above required some type of shoreline protective device in order to be developed. Therefore, it is safe to assume under this policy and the other resource protection policies of the Coastal Act that this type of development along Malibu's coastline would either not have been approved or would be developed in a much different configuration or design than it is today.

## a. Infill Development

The Commission has previously permitted a number of new residential developments with protective devices on the Malibu coast, but only when that development was considered "infill" development. The developed portions of the Malibu coastline include a number of vacant parcels between existing structures. Typically, there are no more than one to two vacant lots between existing structures.

The term "infill development," as applied by the Commission in past permit decisions, refers to a situation where the construction of a single-family residence (and/or in limited situations a duplex) on a vacant lot or the demolition of an existing single-family residence (SFR) and construction of a new single-family residence is proposed in an existing geographically definable residential community which is largely developed or built out with similar structures. When applied to beachfront development, this situation typically is applied to an existing linear community of beach-fronting residences where the majority of lots are developed with SFRs and relatively few vacant lots exist. In other words, within the linear stretch of developed beachfront lots, there is an occasional undeveloped lot or two which can be expected to be developed in a similar fashion. By nature of this description, an "infill development" situation can occur only in instances where roads and other services are already existing and available within the developed community or stretch of beach. Typically, the term "infill development" would not be applied to a large or long stretch of undeveloped beach (i.e. several lots or a large lot which is not similar in size and character to developed lots in the community or areas which do not contain existing roads and infrastructure).

Another characteristic of largely developed beachfront communities is that many, but not all, existing SFRs have some form of shoreline protective device. In Malibu, all beachfront homes utilize a septic system which, when determined to be subject to wave uprush by a coastal engineer, are required to have a shoreline protective device to protect the system. This requirement of assessing wave uprush applies to all new development, extensive remodels, and/or reconstruction, as well as any changes to an existing septic system or when a new septic system is required or proposed.

In "infill development" situations only, as described above, the Commission has found in past permit actions in Malibu pursuant to Section 30235 of the Coastal Act, that seawalls, revetments, or other types of shoreline protective devices can be permitted to protect existing structures or new structures which constitute infill development and when designed and engineered to eliminate or mitigate adverse impacts on the shoreline (certified Malibu LUP Polices 166 and 167). The Commission has also found, in past permit actions in Malibu, that in beach areas largely committed to residential development having shoreline protective devices, the construction of shoreline protective devices should tie into adjacent seawalls where appropriate or possible (Malibu LUP Policy 251).

The Commission recognized that the infilling of residential development between existing structures would not result in significant adverse effects to coastal resources within these existing developed shoreline areas. Faced with the prospect of denying beach front residential development with protective devices due to inconsistency with section 30235 of the Coastal Act, the Commission has approved "infill" development through permit actions on beach front development in Malibu. The Commission found that infilling these gaps would not significantly further impact shoreline processes or adversely impact other coastal resources given the prevailing development pattern along these sections of the Malibu coast.

The Commission notes that the area surrounding the subject site is characterized as a substantially developed beach. In the case of the proposed development, one single family residence with a bulkhead and septic system can clearly be considered as infill development within an existing developed area.

### b. Seaward Encroachment

In 1981 the Commission adopted the "District Interpretive Guidelines" for Malibu/Santa Monica Mountains area of the coastal zone. These guidelines established specific standards and criteria for shoreline development along the Malibu Coast. The guidelines included the "stringline" policy for the siting of infill development:

In a developed area where new construction is generally infilling and is otherwise consistent with Coastal Act policies, no part of a proposed new structure, including decks and bulkheads, should be built further onto a beach than a line drawn between the nearest adjacent corner of the adjacent structures. Enclosed living space in the new unit should not extend farther seaward than a second line drawn between the most seaward portions of the nearest corner of the enclosed living space of the adjacent structure.

In 1986 the Commission certified the Los Angeles County Malibu/Santa Monica Mountains Land Use Plan which also contains specific policies addressing infill shoreline development:

Policy 153 ...In a developed area where new construction is generally considered infilling and is otherwise consistent with LCP policies the proposed new structure may extend to the stringline of the existing structures on each side.

Policy 166 ...Revetments and seawalls shall be permitted when required to serve coastal dependent uses or to protect existing structures or new structures which constitute infill development.

The intent of the stringline policies was to limit infill development to only existing developed shoreline areas and limit the encroachment of new structures out onto the beach. In past permit actions in Malibu the Commission has typically limited infill development to the construction of one to two structures on one to two vacant parcels between existing structures.

In the case of the proposed project, the Commission notes that all proposed development will be located landward of the appropriate stringlines as drawn from the corners of the adjacent structures and decks. Therefore, the Commission finds that the proposed development, relative to seaward encroachment, is consistent with the relevant sections of the Coastal Act.

#### 5. Conclusion

In past permit actions, the Commission has approved the construction of shoreline protection devices in conjunction with new development only when: (1) such development is consistent with the Commission's treatment of "infill development," and (2) the shoreline protection device is required to protect a septic system (no feasible alternatives exist), and (3) the shoreline protection device is located as landward as possible in order to minimize any adverse effects to shoreline sand supply and public access.

The Commission notes that the proposed project constitutes infill development as previously defined in the preceding sections. In addition, the applicant's engineering consultant has indicated that although the proposed residence will be constructed on a friction pile foundation and will not require any form of shoreline protection to ensure structural stability, a shoreline protection device will be required to protect the proposed septic system. The Commission notes that the proposed bottomless sand filter septic system has been designed to minimize both the size and seaward extent of the system. However, the seaward extent of the septic system and leach field (located approximately 29 ft. from the Malibu Road right-of-way line) will still be located within the wave uprush limit and will require a shoreline protection device to ensure the stability of the system. Further, the Commission notes that since no portion of the subject site will be located landward of the maximum wave uprush limit, it is, therefore, not possible to construct any type of septic system that would not be subject to periodic wave action without the construction of some form of shoreline protection. Therefore,

the Commission notes that the proposed bulkhead is necessary to protect the proposed septic system and leach field from wave uprush and erosion.

As discussed above, the Commission notes that the new bulkhead and septic system will be located as landward as possible. However, the Commission further notes that any future improvements to the proposed seawall that might result in the seaward extension of the shoreline protection device would result in increased adverse effects to shoreline sand supply and public access. Therefore, to ensure that the proposed project does not result in new future adverse effects to public access, Special Condition Five (5) requires the applicant to record a deed restriction that would prohibit any future repair or maintenance, enhancement, reinforcement, or any other activity affecting the shoreline protective device approved pursuant to this permit if such activity extends the seaward footprint of the subject shoreline protective device.

In past permit actions, the Commission has required that all new development on a beach, including the construction of new single family residences or shoreline protection devices, provide for lateral public access along the beach in order to mitigate adverse effects to public access from increased beach erosion. In this case, the Commission notes that an easement for lateral public access has been previously recorded for the project site. Coastal Development Permit 5-88-409 was issued by the Commission in 1988 for an addition to an existing single family residence with a special condition requiring the recordation of an easement for lateral public access as measured from the dripline of the deck to the mean high tide line with the exception that the area 10 ft. seaward of the seaward of the deck would be maintained as a privacy buffer with restricted public access.

The applicant is proposing to dedicate a new larger public lateral access easement which would supersede the previous dedication and provide for public access along the entire beach under all tidal conditions as measured seaward from the deck stringline without the 10 ft. wide privacy buffer where public access is currently restricted. The Commission notes that the new lateral access easement which the applicant has offered to dedicate as part of this project will more accurately describe the ambulatory nature of the easement's width in relation to the mean high tide line and will be more consistent with other lateral access easements which have been recorded on properties along Puerco Beach and the Malibu area.

In order to conclude with absolute certainty what adverse effects would result from the proposed project in relation to shoreline processes and the adequacy of the existing lateral access easement, a historical shoreline analysis based on site-specific studies would be necessary. Although this level of analysis has not been submitted by the applicant, the Commission notes that because the applicant has proposed as part of the project an offer to dedicate a new lateral access easement along the entire southern portion of the lot, as measured from the dripline of the proposed deck, it has not been necessary for Commission staff to engage in an extensive analysis as to the

adequacy of the original easement or whether the imposition of a new offer to dedicate would be required here absent the applicant's proposal. As such, Special Condition Four (4) has been required in order to ensure that the applicant's offer to dedicate a new lateral public access easement is transmitted prior to the issuance of the coastal development permit.

Therefore, the Commission finds that the proposed project, as conditioned, is consistent with Sections 30235, 30250, and 30253 of the Coastal Act.

# C. Hazards and Geologic Stability

Section 30253 of the Coastal Act states in pertinent part that new development shall:

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

The proposed development would be located in the Santa Monica Mountains, an area that is generally considered to be subject to an unusually high amount of natural hazards. Geologic hazards common to the Santa Monica Mountains include landslides, erosion, and flooding. In addition, fire is an inherent threat to the indigenous chaparral community of the coastal mountains. Even beachfront properties have been subject to wildfires. Finally, beachfront sites are subject to flooding and erosion from storm waves.

The proposed project includes the construction of a new single family residence on a friction pile foundation. The project site was previously developed with a single family residence which was demolished by the Los Angeles County Department of Public Works in 1990 to abate substandard conditions. The site is currently developed with several existing partially exposed concrete piles which were installed to improve the previously existing residence prior to demolition. The applicant is proposing to utilize the previously abandoned piles on site as part of the foundation for the new residence. The applicant's coastal engineering consultant has indicated that the existing concrete piles are adequate to support the proposed residence. The Wave Uprush Study Report Addendum by David Weiss Structural Engineer & Associates dated 10/1/99 states:

The existing piles should be more than adequate to use for this project. This office was the Engineer of Record for the original house design. The existing piles were designed for a much heavier structure. Because the tops of the existing piles have been exposed on and off for the last seven or eight years, there will have to be some minor reworking done to the exposed ends, but the piles themselves should be adequate for incorporation into this project.

In addition, the applicant has submitted a Wave Uprush Study Report Addendum by David Weiss Structural Engineer & Associates dated 10/30/99; Wave Uprush Study Report Addendum by David Weiss Structural Engineer & Associates dated 10/1/99; Wave Uprush Study Report by David Weiss Structural Engineer & Associates dated 7/17/99; and an Updated Engineering Geologic and Geotechnical Engineering Report by Robertson Geotechnical Inc. dated 8/19/98 which indicate that the proposed development will serve to ensure geologic and structural stability on the subject site. The Updated Engineering Geologic and Geotechnical Engineering Report by Robertson Geotechnical Inc. dated 8/19/98 concludes that:

Based upon our previous exploration, observations during initial construction, and experience with similar projects, construction of the proposed beachfront house is considered feasible from an engineering geologic and geotechnical engineering standpoint provided our advice and recommendations are made a part of the plans and implemented during construction.

The Wave Uprush Study Report Addendum by David Weiss Structural Engineer & Associates dated 10/30/99; Wave Uprush Study Report Addendum by David Weiss Structural Engineer & Associates dated 10/1/99; Wave Uprush Study Report by David Weiss Structural Engineer & Associates dated 7/17/99; and an Updated Engineering Geologic and Geotechnical Engineering Report by Robertson Geotechnical Inc. dated 8/19/98 include a number of geotechnical and engineering recommendations to ensure the stability and geotechnical safety of the site. To ensure that the recommendations of the geotechnical and coastal engineering consultants have been incorporated into all proposed development, Special Condition Two (2) requires the applicant to submit project plans certified by both the consulting geotechnical and geologic engineer and the coastal engineering consultant as conforming to all recommendations to ensure structural and site stability. The final plans approved by the consultants shall be in substantial conformance with the plans approved by the Commission. Any substantial changes to the proposed development approved by the Commission which may be recommended by the consultants shall require an amendment to the permit or a new coastal permit.

As discussed above, the Commission notes that the applicant's engineering consultants have indicated that the proposed development will serve to ensure relative geologic and structural stability on the subject site. However, the Commission also notes that the Updated Engineering Geologic and Geotechnical Engineering Report by Robertson Geotechnical Inc. dated 8/19/98 also states:

All properties are subject to some element of risk and the risks can not be eliminated...Beachfront properties are exposed to hazards associated with wave attack, sand scour and battering. The damage from these hazards can be reduced by the property owner maintaining yards, slopes, bulkheads, walls, slough protection devices and drainage facilities and by correcting any deficiencies found during occupancy of the property. It is not possible to eliminate hazards.

As indicated by the applicant's geotechnical engineering consultant in the above statement, the proposed development is located on a beachfront lot in the City of Malibu and will be subject to some inherent potential hazards. The Commission notes that the Malibu coast has historically been subject to substantial damage as the result of storm and flood occurrences--most recently, and perhaps most dramatically, during the 1998 severe El Nino winter storm season. The subject site is clearly susceptible to flooding and/or wave damage from storm waves, storm surges and high tides. Past occurrences have caused property damage resulting in public costs through emergency responses and low-interest, publicly-subsidized reconstruction loans in the millions of dollars in Malibu area alone from last year's storms.

In the winter of 1977-1978, storm-triggered mudslides and landslides caused extensive damage along the Malibu coast. According to the National Research Council, damage to Malibu beaches, seawalls, and other structures during that season caused damages of as much as almost \$5 million to private property alone.

The El Nino storms recorded in 1982-1983 caused high tides of over 7 feet, which were combined with storm waves of up to 15 feet. These storms caused over \$12.8 million to structures in Los Angeles County, many located in Malibu. The severity of the 1982-1983 El Nino storm events are often used to illustrate the extreme storm event potential of the California, and in particular, Malibu coast. The 1998 El Nino storms also resulted in widespread damage to residences, public facilities and infrastructure along the Malibu Coast.

Thus, ample evidence exists that all beachfront development in the Malibu area is subject to an unusually high degree of risk due to storm waves and surges, high surf conditions, erosion, and flooding. The proposed development will continue to be subject to the high degree of risk posed by the hazards of oceanfront development in the future. The Coastal Act recognizes that development, even as designed and constructed to incorporate all recommendations of the consulting coastal engineer, may still involve the taking of some risk. When development in areas of identified hazards is proposed, the Commission considers the hazard associated with the project site and the potential cost to the public, as well as the individual's right to use the subject property.

The Commission finds that due to the possibility of liquefaction, storm waves, surges, erosion, landslide, flooding, and wildfire, the applicant shall assume these risks as conditions of approval. Because this risk of harm cannot be completely eliminated, the Commission requires the applicant to waive any claim of liability against the Commission for damage to life or property which may occur as a result of the permitted development. The applicant's assumption of risk, as required by Special Condition Five (5), when executed and recorded on the property deed, will show that the applicant is aware of and appreciates the nature of the hazards which exist on the site, and that may adversely affect the stability or safety of the proposed development.

In addition, the Commission notes that the proposed development includes approximately 380 cu. yds. of grading. The Commission further notes that construction activity on a sandy beach, such as the proposed project, will result in the potential generation of debris and or presence of equipment and materials that could be subject to tidal action. The presence of construction equipment, building materials, and excavated materials on the subject site could pose hazards to beachgoers or swimmers if construction site materials were discharged into the marine environment or left inappropriately/unsafely exposed on the project site. In addition, such discharge to the marine environment would result in adverse effects to offshore habitat from increased turbidity caused by erosion and siltation of coastal waters. Further, any excavated materials that are placed in stockpiles are subject to increased erosion. Commission also notes that additional landform alteration would result if the excavated material were to be retained on site. To ensure that landform alteration and adverse effects to the marine environment are minimized, Special Condition One (1), requires the applicant to ensure that stockpiling of dirt or materials shall not occur on the beach, that no machinery will be allowed in the intertidal zone at any time, all debris resulting from the construction period is promptly removed from the sandy beach area, all grading shall be properly covered, and that sand bags and/or ditches shall be used to prevent runoff and siltation.

Therefore, the Commission finds, for the reasons set forth above, that the proposed development, as conditioned, is consistent with Section 30253 of the Coastal Act.

# D. Public Access

The Coastal Act mandates the provision of maximum public access and recreational opportunities along the coast. The Coastal Act contains several policies which address the issues of public access and recreation along the coast.

Coastal Act Section 30210 states that:

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.

#### Coastal Act Section 30211 states:

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

Coastal Act Section 30212(a) provides that in new shoreline development projects, access to the shoreline and along the coast shall be provided except in specified circumstances, where:

- (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources.
- (2) adequate access exists nearby, or,
- (3) agriculture would be adversely affected. Dedicated access shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.

Section 30220 of the Coastal Act states that:

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

Coastal Act sections 30210 and 30211 mandate that maximum public access and recreational opportunities be provided and that development not interfere with the public's right to access the coast. Likewise, section 30212 of the Coastal Act requires that adequate public access to the sea be provided to allow use of dry sand and rocky coastal beaches.

All projects requiring a coastal development permit must be reviewed for compliance with the public access and recreation provisions of Chapter 3 of the Coastal Act. Based on the access, recreation and development sections of the Coastal Act, the Commission has required public access to and along the shoreline in new development projects and has required design changes in other projects to reduce interference with access to and along the shoreline.

The major access issue in this permit application is the occupation of sandy beach area by a structure and potential effects on shoreline sand supply and public access in contradiction of Coastal Act policies 30211 and 30221. The proposed project is located on Puerco Beach, approximately 1,500 ft. east (downcoast) of a vertical public coastal accessway and only 900 ft. to the west (upcoast) of a second vertical public accessway. Further, there are several lateral public access easements located on several lots near the project site.

The State owns tidelands, which are those lands located seaward the mean high tide line as it exists from time to time. By virtue of its admission into the Union, California became the owner of all tidelands and all lands lying beneath inland navigable waters. These lands are held in the State's sovereign capacity and are subject to the common law public trust. The public trust doctrine restricts uses of sovereign lands to public trust purposes, such as navigation, fisheries, commerce, public access, water oriented recreation, open space, and environmental protection. The public trust doctrine also severely limits the ability of the State to alienate these sovereign lands into private

ownership and use free of the public trust. Consequently, the Commission must avoid decisions that improperly compromise public ownership and use of sovereign tidelands.

Where development is proposed that may impair public use and ownership of tidelands, the Commission must consider where the development will be located in relation to tidelands. The legal boundary between public tidelands and private uplands is relation to the ordinary high water mark. In California, where the shoreline has not been affected by fill or artificial accretion, the ordinary high water mark of tidelands is determined by locating the existing "mean high tide line." The mean high tide line is the intersection of the elevation of mean high tide with the shore profile. Where the shore is composed of sandy beach whose profile changes as a result of wave action, the location at which the elevation of mean high tide line intersects the shore is subject to change. The result is that the mean high tide line (and therefore the boundary) is an "ambulatory" or moving line that moves seaward through the process known as accretion and landward through the process known as erosion.

Consequently, the position of the mean high tide line fluctuates seasonally as high wave energy (usually but not necessarily) in the winter months causes the mean high tide line to move landward through erosion, and as milder wave conditions (generally associated with the summer) cause the mean high tide line to move seaward through accretion. In addition to ordinary seasonal changes, the location of the mean high tide line is affected by long term changes such as sea level rise and diminution of sand supply.

The Commission must consider a project's direct and indirect effect on public tidelands. To protect public tidelands when beachfront development is proposed, the Commission must consider (1) whether the development or some portion of it will encroach on public tidelands (i.e., will the development be located below the mean high tide line as it may exist at some point throughout the year) and (2) if not located on tidelands, whether the development will indirectly affect tidelands by causing physical impacts to tidelands. In the case of the proposed project, the State Lands Commission presently does not assert a claim that the project intrudes onto sovereign lands (Exhibit 6).

Even structures located above the mean high tide line, however, may have an adverse effect on shoreline processes as wave energy reflected by those structures contributes to erosion and steepening of the shore profile, and ultimately to the extent and availability of tidelands. That is why the Commission also must consider whether a project will have indirect effects on public ownership and public use of shorelands.

In addition, the proposed project includes the construction of a 50 ft. long, 17 ft. high concrete bulkhead. The Commission notes that interference by a shoreline protective device has a number of adverse effects on the dynamic shoreline system and the public's beach ownership interests. First, changes in the shoreline profile, particularly changes in the slope of the profile, which results from reduced beach width, alter the usable area under public ownership. A beach that rests either temporarily or

permanently at a steeper angle than under natural conditions will have less horizontal distance between the mean low water and mean high water lines. This reduces the actual area of public property available for public use. The second effect on access is through a progressive loss of sand as shore material is not available to nourish the bar. The lack of an effective bar can allow such high wave energy on the shoreline that materials may be lost far offshore where it is no longer available to nourish the beach. The effect of this on the public is again a loss of area between the mean high water line and the actual water. Third, shoreline protective devices such as revetments and bulkheads cumulatively affect public access by causing accelerated and increased erosion on adjacent public beaches. This effect may not become clear until such devices are constructed individually along a shoreline and they eventually affect the profile of a public beach. Fourth, if not sited landward in a location that insures that the revetment is only acted upon during severe storm events, beach scour during the winter season will be accelerated because there is less beach area to dissipate the wave' energy. Finally, revetments and bulkheads interfere directly with public access by their occupation of beach area that will not only be unavailable during high tide and severe storm events but also potentially throughout the winter season.

In past permit actions, the Commission has required that new shoreline protection devices, be located as landward as possible in order to reduce adverse effects to sand supply and public access resulting from the development. In the case of this project, the Commission notes that the new bulkhead and septic system will be located as landward as possible. However, the Commission further notes that any future improvements to the proposed seawall that might result in the seaward extension of the shoreline protection device would result in increased adverse effects to shoreline sand supply and public access. Therefore, to ensure that the proposed project does not result in new future adverse effects to public access, Special Condition Five (5) requires the applicant to record a deed restriction that would prohibit any future repair or maintenance, enhancement, reinforcement, or any other activity affecting the shoreline protective device approved pursuant to this permit if such activity extends the seaward footprint of the subject shoreline protective device.

In addition, the Commission must also consider whether a project affects any public right to use shorelands that exist independently of the public's ownership of tidelands. In addition to a new development's effects on tidelands and on public rights protected by the common law public trust doctrine, the Commission must consider whether the project will affect a public right to use beachfront property, independent of who owns the underlying land on which the public use takes place. Generally, there are three additional types of public uses identified as: (1) the public's recreational rights in navigable waters guaranteed to the public under the California Constitution and state common law, (2) any rights that the public might have acquired under the doctrine of implied dedication based on continuous public use over a five-year period; and (3) any additional rights that the public might have acquired through public purchase or offers to dedicate.

These use rights are implicated as the public walks the wet or dry sandy beach below the mean high tide plane. This area of use, in turn moves across the face of the beach as the beach changes in depth on a daily basis. The free movement of sand on the beach is an integral part of this process, and it is here that the effects of structures are of concern.

The beaches of Malibu are extensively used by visitors of both local and regional origin and most planning studies indicate that attendance of recreational sites will continue to increase significantly over the coming years. The public has a right to use the shoreline under the public trust doctrine, the California Constitution and California common law. The Commission must protect those public rights by assuring that any proposed shoreline development does not interfere with or will only minimally interfere with those rights. In the case of the proposed project, the potential for the permanent loss of sandy beach as a result of the change in the beach profile or steepening from potential scour effects, as well as the presence of a residential structure out over the sandy beach does exist.

In past permit actions, the Commission has required that all new development on a beach, including the construction of new single family residences or shoreline protection devices, provide for lateral public access along the beach in order to mitigate adverse effects to public access from increased beach erosion. In this case, the Commission notes that an easement for lateral public access has been previously recorded for the project site. Coastal Development Permit 5-88-409 was issued by the Commission in 1988 for an addition to an existing single family residence with a special condition requiring the recordation of an easement for lateral public access as measured from the dripline of the deck to the mean high tide line with the exception that the area 10 ft. seaward of the seaward of the deck would be maintained as a privacy buffer with restricted public access.

The applicant is proposing to dedicate a new larger public lateral access easement which would supersede the previous dedication and provide for public access along the entire beach under all tidal conditions as measured seaward from the deck stringline without the 10 ft. wide privacy buffer where public access is currently restricted. The Commission notes that the new lateral access easement which the applicant has offered to dedicate as part of this project will more accurately describe the ambulatory nature of the easement's width in relation to the mean high tide line and will be more consistent with other lateral access easements which have been recorded on properties along Puerco Beach and the Malibu area.

In order to conclude with absolute certainty what adverse effects would result from the proposed project in relation to shoreline processes and the adequacy of the existing lateral access easement, a historical shoreline analysis based on site-specific studies would be necessary. Although this level of analysis has not been submitted by the

applicant, the Commission notes that because the applicant has proposed as part of the project an offer to dedicate a new lateral access easement along the entire southern portion of the lot, as measured from the dripline of the proposed deck, it has not been necessary for Commission staff to engage in an extensive analysis as to the adequacy of the original easement or whether the imposition of a new offer to dedicate would be required here absent the applicant's proposal. As such, Special Condition Four (4) has been required in order to ensure that the applicant's offer to dedicate a new lateral public access easement is transmitted prior to the issuance of the coastal development permit.

In addition, the Commission notes that chronic unauthorized postings of signs illegally attempting to limit, or erroneously noticing restrictions on, public access have occurred on beachfront private properties in the Malibu area. These signs have an adverse effect on the ability of the public to access public trust lands. The Commission has determined, therefore, that to ensure that applicants clearly understand that such postings are not permitted without a separate coastal development permit, it is necessary to impose Special Condition Three (3) to ensure that similar signs are not posted on or near the proposed project site. The Commission finds that if implemented, Special Condition Three (3) will protect the public's right of access to the sandy beach below the MHTL.

For all of these reasons, therefore, the Commission finds that as conditioned, the proposed project is consistent with Sections 30210, 30211, 30212, and 30220 of the Coastal Act.

# E. Septic System

The Commission recognizes that the potential build-out of lots in Malibu, and the resultant installation of septic systems, may contribute to adverse health effects and geologic hazards in the local area.

Section 30231 of the Coastal Act states that:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, minimizing alteration of natural streams.

The applicant proposes to install a new septic system which located no further than 29 ft. seaward of the Malibu Road right-of-way line. In order to reduce the size of the required leachfield for the proposed septic system and to allow the system to be located

as far landward as possible, the applicant is proposing to install a bottomless sand filter septic system which is designed to produce treated effluent with reduced levels of organics, biochemical oxygen demand (BOD) and total suspended solids (TSS) while occupying only 50 percent of the area required for a conventional septic system and leachfield. As proposed, the septic system will be located as landward as possible.

The applicant has submitted approval from the City of Malibu Environmental Health Department stating that the proposed septic system is in conformance with the minimum requirements of the City of Malibu Uniform Plumbing Code. The City of Malibu's minimum health code standards for septic systems have been found protective of coastal resources and take into consideration the percolation capacity of soils along the coastline, the depth to groundwater, etc. Therefore, the Commission finds that the proposed project is consistent with Section 30231 of the Coastal Act.

# F. Local Coastal Program

Section 30604 of the Coastal Act states that:

a) Prior to certification of the local coastal program, a coastal development permit shall be issued if the issuing agency, or the commission on appeal, finds that the proposed development is in conformity with the provisions of Chapter 3 (commencing with Section 30200) of this division and that the permitted development will not prejudice the ability of the local government to prepare a local program that is in conformity with the provisions of Chapter 3 (commencing with Section 30200).

Section 30604(a) of the Coastal Act provides that the Commission shall issue a Coastal Permit only if the project will not prejudice the ability of the local government having jurisdiction to prepare a Local Coastal Program which conforms with Chapter 3 policies of the Coastal Act. The preceding sections provide findings that the proposed project will be in conformity with the provisions of Chapter 3 if certain conditions are incorporated into the project and accepted by the applicant. As conditioned, the proposed development will not create adverse impacts and is found to be consistent with the applicable policies contained in Chapter 3. Therefore, the Commission finds that approval of the proposed development, as conditioned, will not prejudice the City's ability to prepare a Local Coastal Program for Malibu which is also consistent with the policies of Chapter 3 of the Coastal Act as required by Section 30604(a).

# G. CEQA

Section 13096(a) of the Commission's administrative regulations requires Commission approval of Coastal Development Permit application to be supported by a finding showing the application, as conditioned by any conditions of approval, 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 Commission finds that, the proposed project, as conditioned will not have significant adverse effects on the environment, within the meaning of the California Environmental Quality Act of 1970. Therefore, the proposed project, as conditioned, has been adequately mitigated and is determined to be consistent with CEQA and the policies of the Coastal Act.

SMH-VNT

File smh/permits/regular/4-99-056 moderiel report

# **APPENDIX**

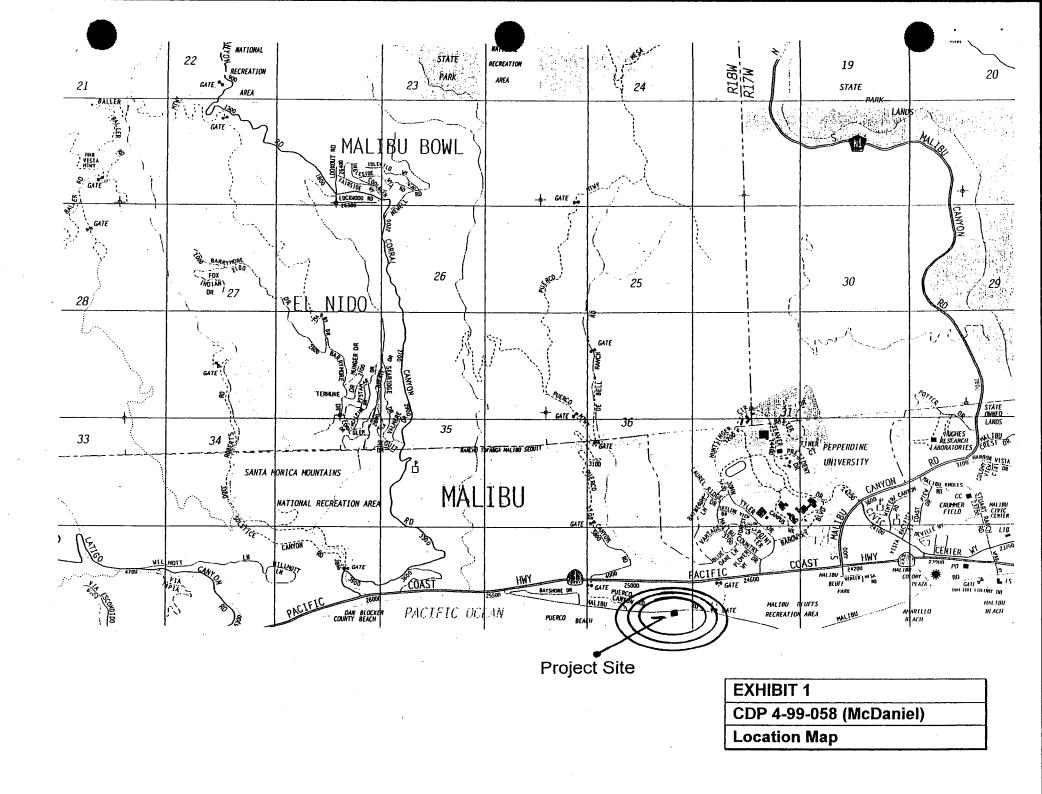
## STUDIES AND PUBLICATIONS

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- Chrisiansen, Herman. "Economic Profiling of Beach Fills" in <u>Coastal Sediments</u> '77. 1977.
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- Maloney & Ausness. "The Use and Legal Significance of the Mean High Water Line Coastal Boundary Mapping". 53 No. Carolina L. Rev. 185 (1974).
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- State of California. State Department of Boating and Waterways (formerly Navigation and Ocean Development). Shore Protection in California. 1976.
- Tait, J.F and G.B. Griggs. "Beach Response to the Presence of a Seawall: A Comparison of Field Observations". Shore and Beach. Vol. 58, No. 2, pp 11 -28, 1990.

## **LETTERS and MEMOS**

Letter to Lesley Ewing from Douglas Inman, Ph.D., February 25, 1991.

Letter to Lesley Ewing from Dr. Craig Everts of Moffatt and Nichol Engineers, March 14, 1994.



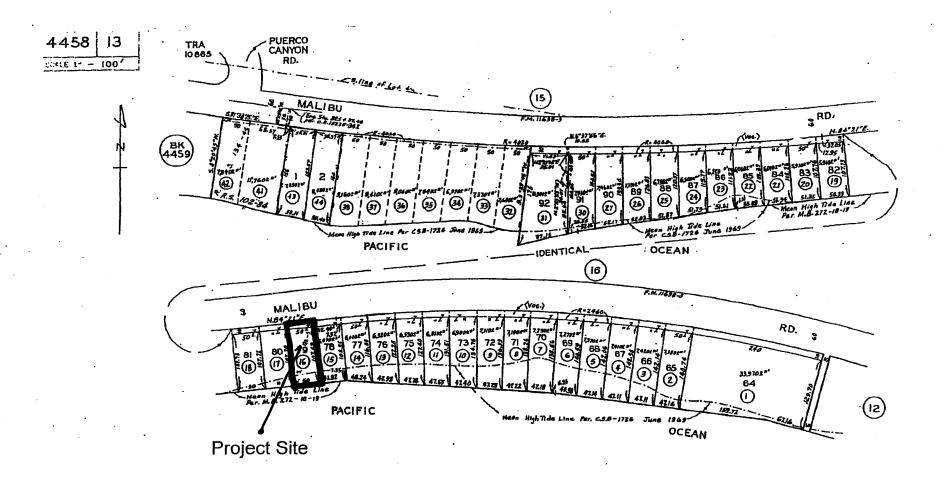
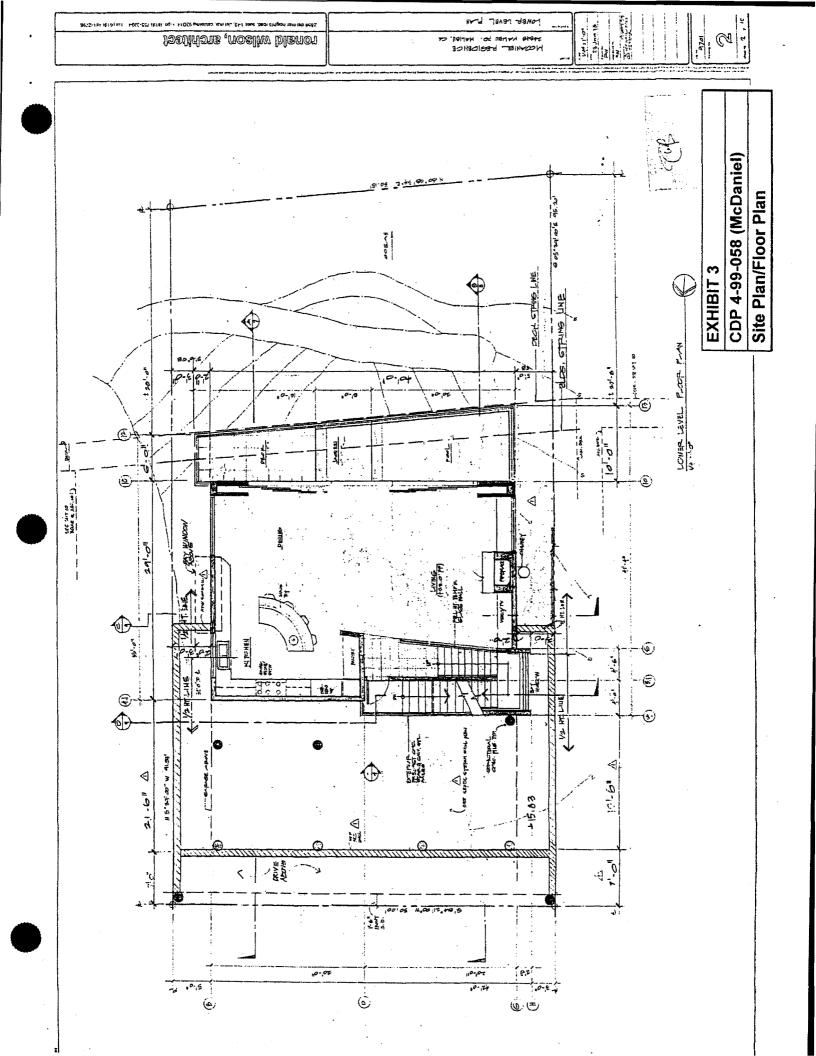
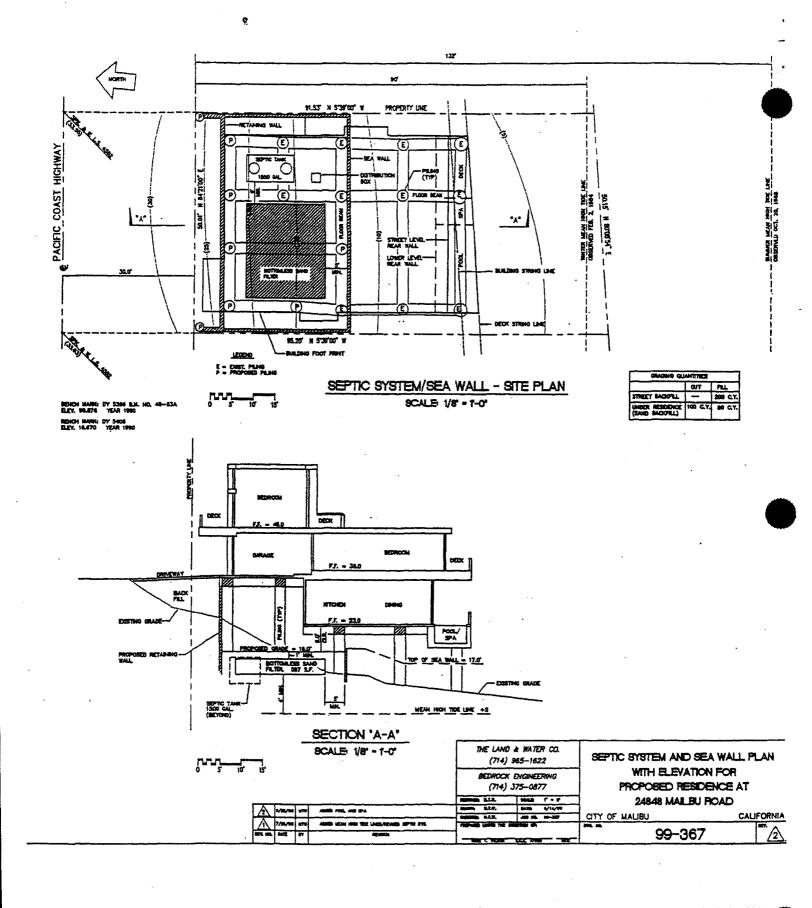


EXHIBIT 2
CDP 4-99-058 (McDaniel)
Parcel Map





**EXHIBIT 4** 

**CDP 4-99-058 (McDaniel)** 

Foundation Plan/Cross Section

CALIFORNIA STATE LANDS COMMISSION 100 Howe Avenue, Suite 100 South Sacramento, CA 95825-8202



ROBERT C. HIGHT, Executive Officer (916) 574-1800 FAX (916) 574-1810 California Relay Service From TDD Phone 1-800-735-2922 from Voice Phone 1-800-735-2929

> Contact Phone: (916) 574-1892 Contact FAX: (916) 574-1925 E-Mail Address: smithj@slc.ca.gov

July 9, 1998

File Ref: SD 98-06-22.8

Lynn Heacox Land and Water Company 18822 Beach Blvd., Suite 209 Huntington Beach, CA 92646

AUG 1 2 1999

Dear Mr. Heacox:

CALIFORNIA
COASTAL COMMISSION
SOUTH CENTRAL COAST DISTRICT

SUBJECT: Coastal Development Project Review for Construction of Single

Family Residence on Existing Foundation at 24848 Malibu Road,

Malibu

This is in response to your request on behalf of your client, Marshall McDaniel, for a determination by the California State Lands Commission (CSLC) whether it asserts a sovereign title interest in the property that the subject project will occupy and whether it asserts that the project will intrude into an area that is subject to the public easement in navigable waters.

The facts pertaining to your client's project, as we understand them, are these:

Your client proposes to construct a multi-level single family residence with decks, on an existing foundation at 24848 Malibu Road in Malibu. You verbally indicated to CSLC staff that the foundation was approved by the City of Malibu and the California Coastal Commission in 1992 and that as a result of various circumstances, the residence proposed at that time was never constructed. The plans you have submitted, dated October 22, 1997, most recently revised April 17, 1998, also show a concrete seawall proposed to be sited underneath and approximately eight feet landward of the lower level deck. The lower level deck will also contain a swimming pool and jacuzzi. It appears that the proposed residence/decks will be in conformance with the string lines established by the residences/decks on either side. This is a well-developed stretch of beach with numerous residences both up and down coast.

Our files reflect that CSLC staff previously reviewed plans for a rock seawall at this location in 1981, and for additions and alterations to the then existing residence in 1988. We have no record of being advised of any subsequent activity at this location.

**EXHIBIT 5** 

CDP 4-99-058 (McDaniel)

**State Lands Determination Letter** 

It should also be noted that your client, by document dated July 12, 1989 and recorded August 23, 1989 as Document No. 89-1356131, Official Records of Los Angeles County, consented to an Irrevocable Offer to Dedicate an easement for lateral public access and passive recreational use along the shoreline, seaward of his property. By its action on August 27, 1996, Minute Item 72, the CSLC formally accepted this easement. The proposed development does not appear to interfere with the easement.

We do not at this time have sufficient information to determine whether this project will intrude upon state sovereign lands or interfere with other public rights. Development of information sufficient to make such a determination would be expensive and time-consuming. We do not think such an expenditure of time, effort and money is warranted in this situation, given the limited resources of this agency and the circumstances set forth above. This conclusion is based on the size and location of the property, the character and history of the adjacent development, and the minimal potential benefit to the public, even if such an inquiry were to reveal the basis for the assertion of public claims and those claims were to be pursued to an ultimate resolution in the state's favor through litigation or otherwise.

Accordingly, the CSLC presently asserts no claims that the project intrudes onto sovereign lands or that it would lie in an area that is subject to the public easement in navigable waters. This conclusion is without prejudice to any future assertion of state ownership or public rights, should circumstances change, or should additional information come to our attention.

If you have any questions, please contact Jane E. Smith, Public Land Management Specialist, at (916) 574-1892.

Sincerely,

Robert L. Lynch, Chief

Division of Land Management

cc: Art Bashmakian, City of Malibu