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STATE OF CALIFORNIA -- THE RESOURCES AGENCY GRAY DAVIS, *Governor*

CALIFORNIA COASTAL COMMISSION
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Commission Action:	

STAFF REPORT: REGULAR CALENDAR

APPLICATION NO.: 4-00-123

APPLICANT: Broad Beach, LLC

AGENTS: Tina Goldsmith, Bill Crawford, and John Kilbane

PROJECT LOCATION: 24616 Malibu Road, Malibu, Los Angeles County.

PROJECT DESCRIPTION: Construction of a 3,494 sq. ft., 28 ft. high, two story single family residence with attached two car garage, decks, alternative septic system, protective bulkhead with return walls, 87 cu. yds. of fill grading, and an offer to dedicate a lateral public access easement over the southern beachfront portion of the lot, as measured from the dripline of the proposed decks to the mean high tide line.

Lot Area:	7,050 sq. ft.
Building Coverage:	1,689 sq. ft.
Paved Area:	1,072 sq. ft.
Height Above Existing Grade:	28 ft.

LOCAL APPROVALS RECEIVED: City of Malibu, Planning Department, Approval in Concept, May 24, 2000; City of Malibu, Geology and Geotechnical Engineering Review, Approval in Concept, April 10, 2000; City of Malibu, Coastal Engineering Review, Approval in Concept, April 17, 2000; City of Malibu, Environmental Health Department, Approval in Concept, March 31, 2000; City of Malibu, Biological Review, Approval in Concept, April 19, 2000; and County of Los Angeles, Fire Department, Approval in Concept, June 28, 2000.

SUBSTANTIVE FILE DOCUMENTS: "Bulkhead location at 24616 Malibu Road," Ensitu Engineering Inc., July 13, 2000; "Proposed Timber Bulkhead Location Coastal Commission Staff Responses," Pacific Engineering Group, July 14, 2000; "Response to California Coastal Commission Staff Comments," GeoSystems, July 7, 2000; "Response to City of Malibu Geology and Geotechnical Engineering Review Sheet," GeoSystems, March 24, 2000; "Wave Uprush Study," Pacific Engineering Group, January 26, 2000; "Soils and Engineering-Geologic Investigation for Proposed Single-Family Residence," GeoSystems, January 14, 2000; "Coastal Development Project

Review for Construction of a New Residence," California State Lands Commission, May 10, 2000; and the certified Malibu Santa Monica Mountains Land Use Plan.

SUMMARY OF STAFF RECOMMENDATION: Staff recommends **approval** of the proposed project with seven special conditions regarding construction responsibilities and debris/excavated material removal, geologic and engineering recommendations, sign restriction, offer to dedicate lateral access, assumption of risk, shoreline protection, and drainage and polluted runoff. The proposed project includes the construction of a 3,494 square foot, 28 foot high, two story single family residence with attached two car garage, decks, alternative septic system, protective bulkhead with return walls, and 87 cubic yards of fill grading. In addition, the project also includes an offer to dedicate a lateral public access easement over the southern beachfront portion of the lot, as measured from the dripline of the proposed deck to the mean high tide line.

The project site is a vacant, 7,050 square foot beachfront lot located at 24616 Malibu Road in the Puerco Beach area of the City of Malibu in Los Angeles County. Although the proposed development will be located landward of the mean high tide line, the maximum wave uprush limit extends two feet seaward of the Malibu Road right-of-way line. The proposed residence will be supported with a cast-in-place friction pile and grade beam foundation system bearing into competent bedrock. 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 far landward as possible on the subject site, the proposed bulkhead and return walls are still necessary to protect the septic system and leachfield from wave uprush and erosion.

If the septic system approved under this permit were replaced or abandoned, however, then the bulkhead approved under this permit might no longer be necessary and the adverse impacts of the shoreline protective device on public access could be eliminated through its removal or by locating the shoreline protective device further landward. Thus, **Special Condition Six (6)** requires the applicant to record a deed restriction which provides that a new coastal development permit for the shoreline protective device authorized this permit shall be required if the proposed septic system is replaced or abandoned for any reason (including the installation of a new sewer system along Malibu Road) and that if a new coastal development permit for the shoreline protective device is not obtained in the event of replacement or abandonment of the septic system, then the shoreline protective device authorized by this permit shall be removed. Additionally, 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. As a result, **Special Condition Five (5)** prohibits 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.

Furthermore, to ensure structural and site stability, **Special Condition Two (2)** requires the applicant to submit project plans certified by all consulting geotechnical and coastal engineering consultants as conforming to all recommendations. Although the proposed development will be designed to ensure stability, the project site is located on a beachfront lot and will be subject to inherent potential hazards such as storm damage, flooding, and liquefaction and is located in an area where there is a risk of landslide. Therefore, **Special Condition Five (5)** requires the applicant to acknowledge the potential hazards on the project site and waive any claim of liability against the Commission.

In addition, the occupation of a sandy beach area by a structure, such as the proposed development, results in potential adverse effects to shoreline sand supply and public access. The applicant is proposing to dedicate a lateral public access easement over the southern beachfront portion of the lot, as measured from the dripline of the proposed decks to the ambulatory mean high tide line. To mitigate adverse effects to public access, **Special Condition Four (4)** is required to ensure implementation of the applicant's lateral public access easement proposal. In addition, the Commission notes that chronic unauthorized postings of signs that illegally attempt to limit public access have occurred on private beachfront properties in the Malibu and Puerco Beach area. Therefore, **Special Condition Three (3)** is required to prohibit such signs.

I. STAFF RECOMMENDATION

MOTION: ***I move that the Commission approve Coastal Development Permit No. 4-00-123 pursuant to the staff recommendation.***

STAFF RECOMMENDATION OF APPROVAL:

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

RESOLUTION TO APPROVE THE PERMIT:

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to

substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. Standard Conditions

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

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

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

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

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

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.

2. Plans Conforming to Geologists' and Engineers' Recommendations

All recommendations contained in the reports prepared by GeoSystems, dated January 14, 2000; March 24, 2000; and July 7, 2000 and Pacific Engineering Group, dated

January 26, 2000 and July 14, 2000 shall be incorporated into all final design and construction including recommendations concerning foundation, drainage, and septic system plans and 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 consultants 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 consultants 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 4458-012-020) located seaward of the residence and deck permitted in this application 4-00-123 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 dripline of the proposed deck, as illustrated on the site plan prepared by Archwest Developments, Inc., received in the Commission office on July 10, 2000 (Exhibit 7).

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 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.

3. 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 4-00-123, as shown on Exhibit 7, 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 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.

6. Limited Term for Shoreline Protective Structure: Deed Restriction

PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant as landowner shall execute and record a deed restriction, in a form and content acceptable to the Executive Director, which shall provide that:

A. The applicant acknowledges that the purpose of the shoreline protective device authorized by this permit is solely to protect the septic system on site and that no shoreline protective device is required to protect the residence authorized by this permit. If the proposed septic system is replaced or abandoned for any reason (including the installation of a new sewer system along Malibu Road) then a new coastal development permit for the shoreline protective device authorized by Coastal Development Permit 4-00-123 shall be required. If a new coastal development permit for the shoreline protective device is not obtained in the event of replacement or abandonment of the septic system, then the shoreline protective device authorized by this permit shall be removed.

B. The document 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 Coastal Commission-approved amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

7. Drainage and Polluted Runoff Control Plan

Prior to the issuance of the coastal development permit, the applicant shall submit for the review and approval of the Executive Director, a drainage and polluted runoff control plan designed by a licensed engineer to minimize the volume, velocity, and pollutant load of stormwater leaving the developed site. The plan shall be reviewed and approved by the consulting engineering geologist to ensure the plan is in conformance with the geologist's recommendations. The plan shall be subject to the following requirements, and shall at a minimum, include the following components:

(a) Structural and/or non-structural Best Management Practices (BMPs) designed to capture, infiltrate or treat runoff from all roofs, parking areas, driveways, and other impervious surfaces shall be identified and incorporated into final plans.

(b) Selected BMPs shall when implemented ensure that post-development peak runoff rate and average volume from the site will be maintained at levels similar to pre-development conditions. The drainage system shall also be designed to convey and discharge runoff from the building site in a non-erosive manner.

(c) The plan shall include provisions for BMP maintenance. All structural and non-structural BMPs shall be maintained in a functional condition throughout the life of the approved development. Such maintenance shall include the following: (1) all traps/separators and/or filters shall be inspected, cleaned, and repaired prior to the onset of the storm season, no later than September 30th each year and (2) should any of the project's surface or subsurface drainage/filtration structures or other BMPs fail or result in increased erosion, the applicant/landowner or successor-in-interest shall be responsible for any necessary repairs to the drainage/filtration system and restoration of the eroded area. Should repairs or restoration become necessary, prior to the commencement of such repair or restoration work, the applicant shall submit a repair and restoration plan to the Executive Director to determine if an amendment or new coastal development permit is required to authorize such work.

IV. Findings and Declarations

The Commission hereby finds and declares:

A. Project Description and Background

The applicant is proposing to construct a 3,494 square foot, 28 foot high, two story single family residence with attached two car garage, decks, alternative septic system, protective bulkhead with return walls, and 87 cubic yards of fill grading. In addition, the project also includes an offer to dedicate a lateral public access easement over the southern beachfront portion of the lot, as measured from the dripline of the proposed deck to the mean high tide line.

The project site is located on a vacant parcel of land, approximately 7,050 square feet in size, on Puerco Beach between Malibu Road and the Pacific Ocean. The area surrounding the project site is characterized as a built-out portion of Malibu consisting of residential development. The site is a rectangular beachfront parcel with a slope gradient of approximately 1.7:1 (horizontal:vertical) and descends from Malibu Road to a narrow stretch of beach below. 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 or Puerco Beach areas.

The applicant has submitted evidence of review of the proposed project by the California State Lands Commission (CSLC), dated May 10, 2000, 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.

B. Shoreline Protective Devices

The proposed project includes the construction of a 48.5 foot long, 18.5 foot high, timber bulkhead with two 22 foot long return walls ranging from 16.5 to 12.5 feet in height. The proposed bulkhead will be located 43 feet seaward of the Malibu Road right-of-way/property line and approximately 88 feet landward of the mean high tide line, depending on tidal conditions. The proposed bulkhead will be located entirely beneath the proposed structure (24 feet 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 the proposed 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 certified 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 Section 30235 of the Coastal Act, 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 feet 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, Los Angeles County. Puerco Beach is characterized as a relatively narrow beach which has been developed with numerous single family residences 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 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 has retreated landward approximately six inches per 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," prepared by Pacific Engineering Group, dated January 26, 2000, indicates that the width of the relatively narrow and sediment limited beach on site changes seasonally and that the subject beach experiences a seasonal foreshore slope movement (oscillation) by as much as 80 feet.

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 Pacific Engineering Group, dated January 26, 2000, represents that the most landward known measurement of the ambulatory mean high tide line on the project site is approximately 131 feet seaward of the Malibu Road right-of-way line, recorded in March 1967 and June 1969. The seaward most extension of the proposed development (the dripline of the proposed deck) will be located approximately 67 feet seaward of the Malibu Road right-of-way line (approximately 64 feet landward of the March 1967 and June 1969 mean high tide lines). Based on the submitted information, the Commission notes that the proposed development will be located landward of the March 1967 and June 1969 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 March 1967 and June 1969 mean high tide line, the "Wave Uprush Study," prepared by Pacific Engineering Group, dated January 26, 2000, indicates that the maximum wave uprush at the subject site will occur two feet seaward of the Malibu Road right-of-way line (landward of the proposed residence). The applicant's coastal engineering consultant has indicated that although the proposed residence will be constructed seaward of the maximum wave uprush limit, the residence will be supported by a concrete friction pile and grade beam foundation system bearing into competent bedrock and will not require any form of shoreline protection to ensure structural stability. In addition, the proposed project includes the installation of a new bottomless sand filter septic system. The Commission notes that the proposed septic system is located as far landward as feasible. However, the seaward extent of the septic system and leachfield (located approximately 37 feet seaward of the Malibu Road right-of-way line) will still be 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 leachfield 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 timber bulkhead and return walls, which will be located as far 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 timber bulkhead and return walls on the beach, based on the above information which identified the specific structural design, location of the structure, and 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 which the shoreline protection device will be subjected to. Dr. Douglas Inman, renowned authority on Southern California beaches finds 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 a 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.***[1]

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. Generally, the further seaward that a shoreline protective device is located, the more frequently and more vigorously waves will interact with it. If a shoreline protective device is in fact necessary, the best location for it is at the back of the beach, where it may provide protection from the most severe storms. In contrast, a shoreline protective device constructed too close to the mean high tide line may constantly create problems related to frontal and end scour erosion, as well as upcoast sand impoundment.

Although the precise impacts of a structure located on the beach are a continual subject of debate within the discipline of coastal engineering, 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 seawall. The main difference between a vertical bulkhead and rock revetment seawall is their relative physical encroachment onto the beach. It has been well documented by coastal engineers and coastal geologists that

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1 Letter from Dr. Douglas Inman to California Coastal Commission staff member and senior engineer, Lesley Ewing, February 25, 1991.

shoreline protective devices and 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), retention of potential beach material behind the wall, fixing of the back beach, and interruption of alongshore processes. In the case of a vertical bulkhead, return walls are typically constructed in concert with the seawall, and, thus, wave energy is also directed to the return walls causing end erosion effects. 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 as a result of seawalls is a frequently observed occurrence. When waves impact 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. In the case of a vertical bulkhead, return walls are typically constructed in concert with the seawall, and, thus, wave energy is also directed to the return walls causing end erosion effects. This reflected wave energy in conjunction with 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 on the subject acknowledges that seawalls affect the supply of beach sand.

The "Wave Uprush Study," prepared by Pacific Engineering Group, dated January 26, 2000, 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: "Seawalls usually cause accelerated erosion of the beaches fronting them and an increase in the transport rate of sand along them."[2] In addition, experts in the field of coastal geology, who view beach processes from the perspective of geologic time, signed the following succinct statement regarding 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***

2 "Saving the American Beach: A Position Paper by Concerned Coastal Geologists," Skidaway Institute of Oceanography, March 1981, page 4.

> ***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.***[3]

The above statement, which was made in 1981 and 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 relate to sand removal on the sandy beaches is further documented by the State of California, Department of Boating and Waterways, which stated:

> ***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.***[4]

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.***[5]

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 of the beach itself. He concludes:

> ***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.***[6]

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3 "Saving the American Beach: A Position Paper by Concerned Coastal Geologists," Skidaway Institute of Oceanography, March 1981, page 4.

4 "Shore Protection in California," State Department of Boating and Waterways (formerly Navigation and Ocean Development), 1976, page 30.

5 "Coastal Sediment Processes: Toward Engineering Solutions," Robert G. Dean, 1987.

Dr. Everts further asserts 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 the California coast, where a shoreline protection devices have successfully halted the retreat of the shoreline, 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 beaches in the City of Encinitas in San Diego County, construction of vertical seawalls along the base of the bluffs to protect existing residential development at the top of the bluffs, has resulted in preventing the bluffs' contribution of sand to the beaches, resulting in a narrowing of those beaches.

As set forth previously, the subject site is located on Puerco Beach, which is a narrow and 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 80 feet. In addition, if a seasonal eroded beach condition occurs with greater frequency due to the placement of a bulkhead and return walls 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 a loss of beach occurs on both types of beaches where a shoreline protective device exists. Therefore, the Commission notes that the proposed bulkhead and return walls, 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.

In addition, the impacts of potential beach scour are important relative to beach use for two primary reasons. The first reason involves public access. The subject property is located approximately 600 feet west (upcoast) from a vertical public coastal accessway and approximately 150 feet east (downcoast) from another vertical public coastal accessway. If the beach scours at the base of the bulkhead, even minimal scouring in front of the 48.5 foot long bulkhead and two 22 foot long return walls will translate into a loss of beach sand available through erosion than would otherwise occur under a normal winter season if the beach were unaltered. The second impact relates to the potential turbulent ocean condition that may be created. 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 be normally be along an unarmored beach area. Thus, the Commission has ordinarily required that shoreline protection devices be located as far landward as possible, in order to reduce adverse effects from scour and

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6 Letter Report from Dr. Craig Everts, Moffatt and Nichol Engineers, to California Coastal Commission staff member and senior engineer, Lesley Ewing, March 14, 1994.

erosion. In the case of this project, the Commission notes that the proposed timber bulkhead will be located as far landward as feasible in order to provide protection for the proposed septic system, which has also been located as far landward as feasible, in order to minimize adverse effects from scour and erosion.

In their report dated July 14, 2000, Pacific Engineering Group states:

> ***The proposed bulkhead is to be located no more than 43 feet seaward of the Malibu Road right-of-way line. This location is based on the requirement that there should be a minimum of 5 feet between the leachfield and the bulkhead sheathing per City of Malibu Health Department requirements. The referenced letter by Ensitu Engineering states that the septic system has been designed at the most landward position on the property. Given this fact and the 5-foot clearance requirement, it is the professional opinion of this office that the proposed bulkhead will be located at its most landward position.***
>
> ***The proposed bulkhead will be used only to protect the sewage disposal system. The residence structure and foundation will be designed so it does not require the bulkhead for protection from wave uprush and beach scour.***

As discussed above, the Commission notes that the new bulkhead and septic system will be located as far landward as possible. However, the Commission further notes that the purpose of the shoreline protective device authorized by this permit is solely to protect the septic system on site and that no shoreline protective device is required to protect the residence authorized by this permit. If the septic system approved under this permit were replaced or abandoned, however, then the bulkhead and return walls approved under this permit to protect the septic system might no longer be necessary and the adverse impacts of the shoreline protective device on public access could be eliminated through its removal or by locating the shoreline protective device further landward. Additionally, 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 shoreline sand supply and public access and that future impacts are reduced or eliminated, **Special Condition Six (6)** requires the applicant to record a deed restriction which provides that a new coastal development permit for the shoreline protective device authorized this permit shall be required if the proposed septic system is replaced or abandoned for any reason (including the installation of a new sewer system along Malibu Road) and that if a new coastal development permit for the shoreline protective device is not obtained in the event of replacement or abandonment of the septic system, then the shoreline protective device authorized by this permit shall be removed. **Special Condition Five (5)** also prohibits 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 the applicant is proposing to dedicate a lateral public access easement which would provide for public access along the entire beach under all tidal conditions, as measured seaward from the deck dripline. The Commission notes that the lateral public access easement, which the applicant has offered to dedicate as part of this project, will be consistent with other lateral public access easements which have been recorded on properties along Puerco Beach and in 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 proposed lateral public 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 lateral public 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 whether the imposition of an 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 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 Institute of Oceanography, it is concluded that erosion on properties adjacent to a rock seawall is intensified when wave runup is high.[7]

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 form of the erosional response to storms that occurs on beaches without seawalls which are adjacent to beaches with seawalls is manifested as more localized toe scour,

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7 "Coastal Erosion along Oceanside Littoral Cell, San Diego County, California," Gerald G. Kuhn, Scripps Institute of Oceanography, 1981.

with end effects of flanking and impoundment at the seawall.[8] 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.[9]***

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.[10] This effect appears to extend for a distance of about six-tenths of 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. Under equilibrium or accreting beach conditions, this scour will likely eventually disappear during post-storm recovery. The Commission notes that end effect erosion may be minimized by locating a proposed shoreline protection device as far 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 notes that the proposed timber bulkhead will be located as far 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

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8 "Effects of Seawalls on the Beach," Nicholas Kraus, Ph.D., Journal of Coastal Research, Special Issue #4, 1988.

9 "Laboratory and Field Investigations of the Impact of Shoreline Stabilization Structures on Adjacent Properties," W. G. McDougal, M. A. Sturtevant, and P. D. Komar, Coastal Sediments, 1987.

10 "The Interaction of Seawalls and Beaches: Seven Years of Field Monitoring, Monterey Bay, California," G. Griggs, J. Tait, and W. Corona, Shore and Beach, Vol. 62, No. 3, July 1994.

stabilization, protecting upland sediments from being carried to the beach by wave action, and prevention of bluff retreat. In the case of Puerco Beach, which is located in the Santa Monica Cell, the back of the beach is fixed at Malibu Road. 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 that device. 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...***[11]

As explained, the proposed timber bulkhead and return walls will protect the alternative septic system from continued loss of sediment and wave uprush. 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. The applicant is proposing to dedicate a lateral public access easement which would provide for public access along the entire beach under all tidal conditions as measured seaward from the deck dripline to the mean high tide line. The Commission notes that the lateral public access easement which the applicant has offered to dedicate as part of this project will be consistent with other lateral public access easements which have been recorded on properties along Puerco Beach and in the Malibu area.

As stated previously, 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 proposed lateral public 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 lateral public access easement along the entire southern portion of the lot, as measured from the

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

dripline of the proposed deck, it has not been necessary for Commission staff to engage in an extensive analysis as to whether the imposition of an 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 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 Coastal Act of 1976. As stated previously, 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 for new residential development is generally not allowed under this section of the Coastal Act. The majority of the residential development described above required some type of shoreline protective device in order to be developed, however. 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 in limited

situations a duplex) on a vacant lot or the demolition of an existing single family residence and construction of a new single family residence is proposed in an existing geographically definable residential community which is already largely developed or built out with similar structures. When applied to beachfront development, this situation typically is applied to an existing linear community of beachfront residences where the majority of lots are developed with single family residences 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 single family residences 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 the wave uprush applies to all new development, extensive remodels, reconstruction, as well as any changes to an existing septic system or proposals for a new septic system.

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 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 (certified 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 beachfront residential development with protective devices due to an inconsistency with Section 30235 of the Coastal Act, the Commission has approved infill development through permit actions on beachfront lots in Malibu. The Commission has found that infilling these gaps would not cause significant further impacts on shoreline processes or adverse impacts on 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 timber bulkhead, return walls, 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 the Malibu Santa Monica Mountains area of the coastal zone. These guidelines established specific standards and criteria for shoreline development along the Malibu Coast. These 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 (certified LUP) 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 far 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 cast-in-place pile and grade beam foundation system bearing into competent bedrock and will not require a shoreline protection device to ensure 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 leachfield, located approximately 37 feet seaward of 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 timber bulkhead and return walls are necessary to protect the proposed septic system and leachfield from wave uprush and erosion.

As discussed above, the Commission notes that the new bulkhead and septic system will be located as far landward as possible. However, the Commission further notes that the purpose of the shoreline protective device authorized by this permit is solely to protect the septic system on the subject site and that no shoreline protective device is required to protect the residence authorized by this permit. If the septic system approved under this permit were replaced or abandoned, then the bulkhead and return walls approved under this permit to protect the septic system might no longer be necessary and the adverse impacts of the shoreline protective device on public access could be eliminated through its removal or by locating it further landward. Additionally, 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 on shoreline sand supply and public access and that future impacts are reduced or eliminated, **Special Condition Six (6)** requires the applicant to record a deed restriction which provides that a new coastal development permit for the shoreline protective device authorized this permit shall be required if the proposed septic system is replaced or abandoned for any reason (including the installation of a new sewer system along Malibu Road) and that if a new coastal development permit for the shoreline protective device is not obtained in the event of replacement or abandonment

of the septic system, then the shoreline protective device authorized by this permit shall be removed. Likewise, **Special Condition Five (5)** prohibits 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. As stated previously, in this case, the applicant is proposing to dedicate a lateral public access easement, which would provide for public access along the entire beach under all tidal conditions as measured seaward from the deck dripline. The Commission notes that the lateral public access easement which the applicant has offered to dedicate as part of this project will be consistent with other lateral public access easements which have been recorded on properties along Puerco Beach and in 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 public 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 lateral public access easement along the entire southern portion of the lot, as measured from the dripline of the proposed deck to the mean high tide line, it has not been necessary for Commission staff to engage in an extensive analysis as to whether the imposition of an 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 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

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.

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 applicant has submitted a geotechnical report, entitled "Soils and Engineering-Geologic Investigation for Proposed Single-Family Residence," prepared by GeoSystems, dated January 14, 2000, which evaluates the geologic stability of the proposed development. The report incorporates numerous recommendations regarding construction, foundations, and drainage, and states:

> ***It is the finding of this firm that the proposed structures will be safe and that the site will not be affected by any hazard from landslide, settlement or slippage and the completed work will not adversely affect adjacent property in compliance with the county code, provided our recommendations are followed.***

However, in their report entitled "Soils and Engineering-Geologic Investigation for Proposed Single-Family Residence," dated January 14, 2000, GeoSystems references a geologic and geotechnical investigation conducted jointly by Slossen and Associates and Douglas E. Moran, Inc., in which several large landslides were mapped in the area of the project site. In the above referenced report, GeoSystems states:

> ***Based on their geologic mapping it appears that a possible slide plane can be projected under Malibu Road and toe out on the beach under or south of the subject site. However, no evidence of a slide plane was encountered in the borings at and near the site, including a 100-foot deep boring located along the east property line.***

GeoSystems further states in their report dated January 14, 2000:

> ***Several landslides have been mapped on the slope north of Malibu Road, and it appears possible that the larger slide may extend under Malibu Road and onto the site. However, no distinct slide plane was encountered in boring B-1 . . . to a depth of 100-feet. It appears that the colluvium encountered in the upper 32-feet of boring GS-2 may be composed of debris shed off the front of the slide prior to construction of Malibu Road. Based on the findings of our 100-foot deep FMI boring (B-1), it is our conclusion that the site is not underlain by a slide plane.***

In addition, in the "Response to City of Malibu Geology and Geotechnical Engineering Review Sheet," dated March 24, 2000, GeoSystems states:

> ***The older landslide (Qols) layer shown on Section A-A' is located on the slope to the north of Malibu Road. This slope has an overall gradient which is flatter than 3:1, and the toe of slope is on the north side of Malibu Road, some 50 feet north of the proposed structure. The main portion of the large older landslide mapped on the slope trends towards the southeast, into the canyon to the east of the subject site. The other smaller***

slope failures mapped to the north of Malibu Road are shallow surficial failures which, due to the width of Malibu road, do not impact the stability of the building site.

Furthermore, in their report entitled "Response to California Coastal Commission Staff Comments," dated July 7, 2000, GeoSystems goes on to state:

Based on the findings of our investigation and our stability analysis, the site is considered to be stable with respect to landsliding. In this case soldier piles are not considered to be necessary at the site. However, the recommended friction pile foundations should be designed to support lateral loads due to downhill creep of artificial fill, colluvium and beach sands, and/or lateral spreading due to potential liquefaction in the event of an earthquake.

In addition, in their report dated January 14, 2000, GeoSystems makes specific recommendations regarding the foundation design of the proposed residence on the subject site. GeoSystems states:

Due to the high liquefaction potential for the earth materials overlying the bedrock at the site, we recommend that the proposed residence be supported on cast-in place friction piles bearing into competent bedrock. Depth to bedrock in the area of the proposed residence is anticipated to be approximately 15- to 32-feet below existing grade.

Friction piles should be used to support the proposed residence. Piles should be a minimum of 24-inches in diameter and a minimum of 15-feet into bedrock. Piles may be assumed fixed at 2-feet into bedrock. The piles may be designed per the attached pile capacity diagram. All piles should be connected with grade beams and designed within a tolerable amount of deflection, determined by the structural engineer.

The existing earth materials overlying the bedrock at the site in the area of the proposed residence is not considered to be suitable for interior floor slab support. For structures supported on friction piles we recommend that all interior floor and garage slabs be designed as a structural unit which transfers all loads to the foundation system.

The previously referenced geotechnical and engineering reports prepared by GeoSystems, dated July 7, 2000; March 24, 2000; and January 14, 2000 and Pacific Engineering Group, dated July 14, 2000 and January 26, 2000, 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 the consulting geologic and engineering consultants 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 geotechnical engineering consultant has 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 "Wave Uprush Study," prepared by Pacific Engineering Group, dated January 26, 2000, also states:

> ***The owner should realize that there will always be certain risks associated with living on the beach and assume such risks. Further the Engineer makes no warranty or guarantee that the structures outlined in this report will survive natural forces from any and all storm conditions. . . . Because of unpredictability of the ocean environment, the above design standards are meant to minimize storm wave damage and not eliminate it. Tsunami or hurricane generated waves were not analyzed in this report because of their extreme low probability of these events producing damage to the subject site and project. However, the possibility of these events producing damage to the subject property does exist, and hence no warranties are provided should these events occur.***

Thus, as stated above by the applicant's coastal engineering consultant, 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. 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 winter of 1977 to 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 five million dollars to private property alone. In addition, the El Nino storms recorded between 1982 and 1983 caused high tides of over seven feet, which combined with storm waves of up to 15 feet. The storms occurring between 1982 and 1983 caused over 12.8 million dollars in damage to structures in Los Angeles County, many of which were located in Malibu. The severity of the 1982 to 1983 El Nino storm events are often used to illustrate the extreme storm event potential of the California and Malibu coast, in particular. The severe El Nino winter storms in 1998 also resulted in widespread damage to residences, public facilities, and infrastructure along the Malibu Coast, causing millions of dollars in damage in the Malibu area alone.

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 which may adversely affect the stability or safety of the proposed development.

In addition, the Commission notes that the proposed development includes approximately 87 cubic yards of fill 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 or 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. The 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.

Section 30210 of the Coastal Act states:

> ***In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.***

Section 30211 of the Coastal Act 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.***

Section 30212(a) of the Coastal Act 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:

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

Sections 30210 and 30211 of the Coastal Act 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 and 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 the policies set forth under Sections 30211 and 30221 of the Coastal Act. The proposed project is located on Puerco Beach, approximately 600 feet west (upcoast) from a vertical public coastal accessway and approximately 150 feet east (downcoast) from another vertical public coastal accessway. Furthermore, there are several lateral public access easements located on several lots near the project site.

The State of California 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 the use 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 relative 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 where the 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 moving line that goes 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 California State Lands Commission presently does not assert a claim that the project intrudes onto sovereign lands.

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. For these reasons, the Commission must also consider whether a project will have indirect effects on public ownership and public use of shorelands.

As stated previously, the proposed project includes the construction of a 48.5 foot long, 18.5 foot high, timber bulkhead with two 22 foot long return walls ranging in height from 16.5 to 12.5 feet. The proposed bulkhead will be located 43 feet seaward of the Malibu Road right-of-way/property line and approximately 88 feet landward of the mean high tide line, depending on tidal conditions.

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 result 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 no longer 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 that this has on the public is 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, eventually affecting the profile of a public beach. Fourth, if not sited as far landward as possible, 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 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 new shoreline protection devices to be located as far landward as possible in order to reduce adverse effects on sand supply and public access from the development. In the case of this project, the Commission notes that the new bulkhead and septic system will be located as far 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.

Likewise, the Commission further notes that the purpose of the shoreline protective device authorized by this permit is solely to protect the septic system on the subject site and that no shoreline protective device is required to protect the residence authorized by this permit. If the septic system approved under this permit were replaced or abandoned, then the bulkhead and return walls approved under this permit to protect the septic system might no longer be necessary and the adverse impacts of the shoreline protective device on public access could be eliminated through its removal or by locating it further landward. As a result, **Special Condition Six (6)** requires the applicant to record a deed restriction which provides that a new coastal development permit for the shoreline protective device authorized this permit shall be required if the proposed septic system is replaced or abandoned for any reason (including the installation of a new sewer system along Malibu Road) and that if a new coastal development permit for the shoreline protective device is not obtained in the event of replacement or abandonment of the septic system, then the shoreline protective device authorized by this permit shall be removed.

Furthermore, 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 which are 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 the ownership underlying the land on which the public use takes place. Generally, there are three additional types of public uses, which are 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 when the public walk on 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, which is why the effects of structures constructed on the beach are of particular 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 in the future. The public has a right to use the shoreline under the public trust doctrine, the California Constitution, and State 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, steepening from potential scour effects, and presence of a residential structure out over the sandy beach do 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. The applicant is proposing to dedicate a lateral public access easement which would provide for public access along the entire beach under all tidal conditions as measured seaward from the deck dripline to the mean high tide line. The Commission notes that the lateral public access easement which the applicant has offered to dedicate as part of this project will be consistent with other lateral public access easements which have been recorded on properties along Puerco Beach and in 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 public 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 lateral public 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 an 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 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 the 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 mean high tide line.

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. Water Quality

The Commission recognizes that new development in Malibu and the Santa Monica Mountains has the potential to adversely impact coastal water quality through the removal of native vegetation, increase of impervious surfaces, increase of runoff, erosion, and sedimentation, introduction of pollutants such as petroleum, cleaning products, pesticides, and other pollutant sources, as well as effluent from septic systems.

Section 30231 of the Coastal Act states:

> ***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.***

As described above, the proposed project includes the construction of a single family residence, septic system, and protective bulkhead with return walls. The proposed development will result in increased impervious surface on the subject site. Further, use of the site for residential purposes will introduce potential sources of pollutants such as petroleum, household cleaners and pesticides, as well as other accumulated pollutants from rooftops and other impervious surfaces.

In their report dated January 14, 2000, GeoSystems makes recommendations concerning drainage for the proposed development. GeoSystems states:

> ***All pad and roof drainage should be collected and transferred to a[n] approved location in non-erosive drainage devices. Drainage should not be allowed to descend any slope in a concentrated manor, pond on the pad or against any foundation or retaining wall.***
>
> ***All surface drainage from the street and front yard area should be directed away from the proposed structures.***

The construction of impervious surfaces, such as the proposed residential development, allows for less infiltration of rainwater into the soil, thereby increasing the rate and volume of runoff, causing increased erosion and sedimentation. Additionally, the infiltration of precipitation into the soil allows for the natural filtration of pollutants. When infiltration is prevented by impervious surfaces in beachfront areas, pollutants in runoff are quickly conveyed to the ocean. Thus, new development can cause

cumulative impacts to the coastal water quality by increasing and concentrating runoff and pollutants.

Such cumulative impacts can be minimized through the implementation of drainage and polluted runoff control measures. In addition to ensuring that runoff is conveyed from the site in a non-erosive manner, such measures should also include opportunities for runoff to infiltrate into the ground. In order to ensure that adverse effects to coastal water quality do not result from the proposed project, the Commission finds it necessary to require the applicant to incorporate filter elements that intercept and infiltrate or treat the runoff from the site. This plan is required pursuant to **Special Condition Seven (7)**. Such a plan will allow for the infiltration and filtering of runoff from the developed areas of the site, most importantly capturing the initial, "first flush" flows that occur as a result of the first storms of the season. This flow carries with it the highest concentration of pollutants that have been deposited on impervious surfaces during the dry season. Additionally, the applicant must monitor and maintain the drainage and polluted runoff control system to ensure that it continues to function as intended throughout the life of the development.

Finally, the applicant proposes to construct a of a new 2,500 gallon septic system, which will be located no further than 37 feet 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. This system is also designed to produce treated effluent with reduced levels of organics, biochemical oxygen demand, and total suspended solids, while occupying only 50 percent of the area which would otherwise be required for a conventional septic system and leachfield. As proposed, the septic system will be located as landward as possible. In addition, the applicant's geologic consultant has also evaluated the proposed septic system. In their report dated January 14, 2000, GeoSystems states:

> ***Effluent from the sewage disposal system is expected to percolate downward within the earth materials overlying the bedrock at the site. Sustained, long term use of the private sewage disposal system is not expected to adversely affect the site or adjacent site stability, or result in the mounding or daylighting of sewage effluent provided our recommendations are followed.***

The applicant has also 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 aspects such as the percolation capacity of soils along the coastline and the depth to groundwater.

The Commission has found in past permit actions that conformance with the provisions of the plumbing, health, and safety codes is protective of resources and serves to

minimize any potential for wastewater discharge that could adversely impact coastal waters. Therefore, the Commission finds that the proposed project, as conditioned to incorporate and maintain a drainage and polluted runoff control plan, is consistent with Section 30231 of the Coastal Act.

F. Local Coastal Program

Section 30604 of the Coastal Act states:

> ***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 development 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 of Malibu'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).

F. CEQA

Section 13096(a) of the Commission's administrative regulations requires Commission approval of a 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 that 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.

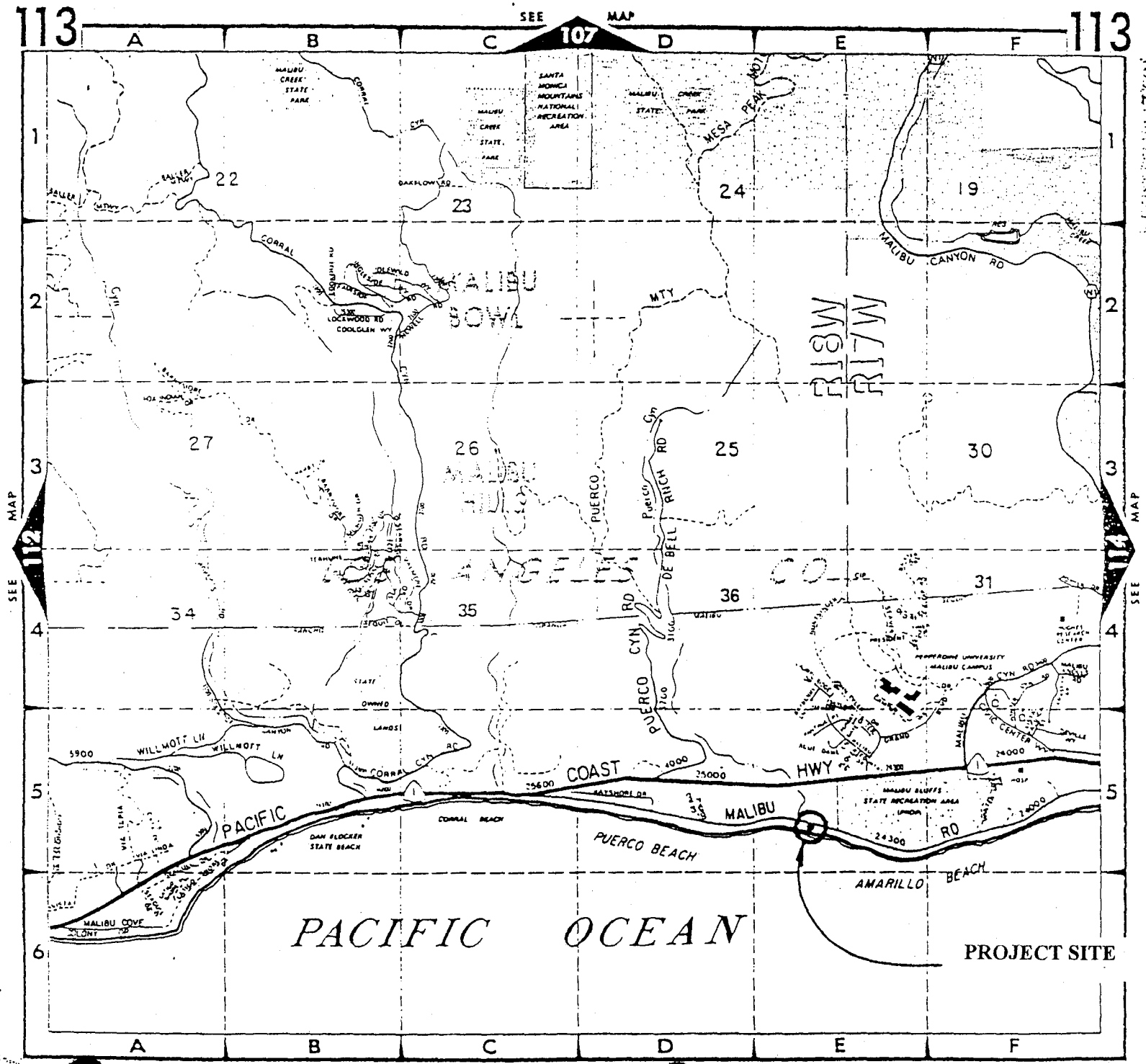
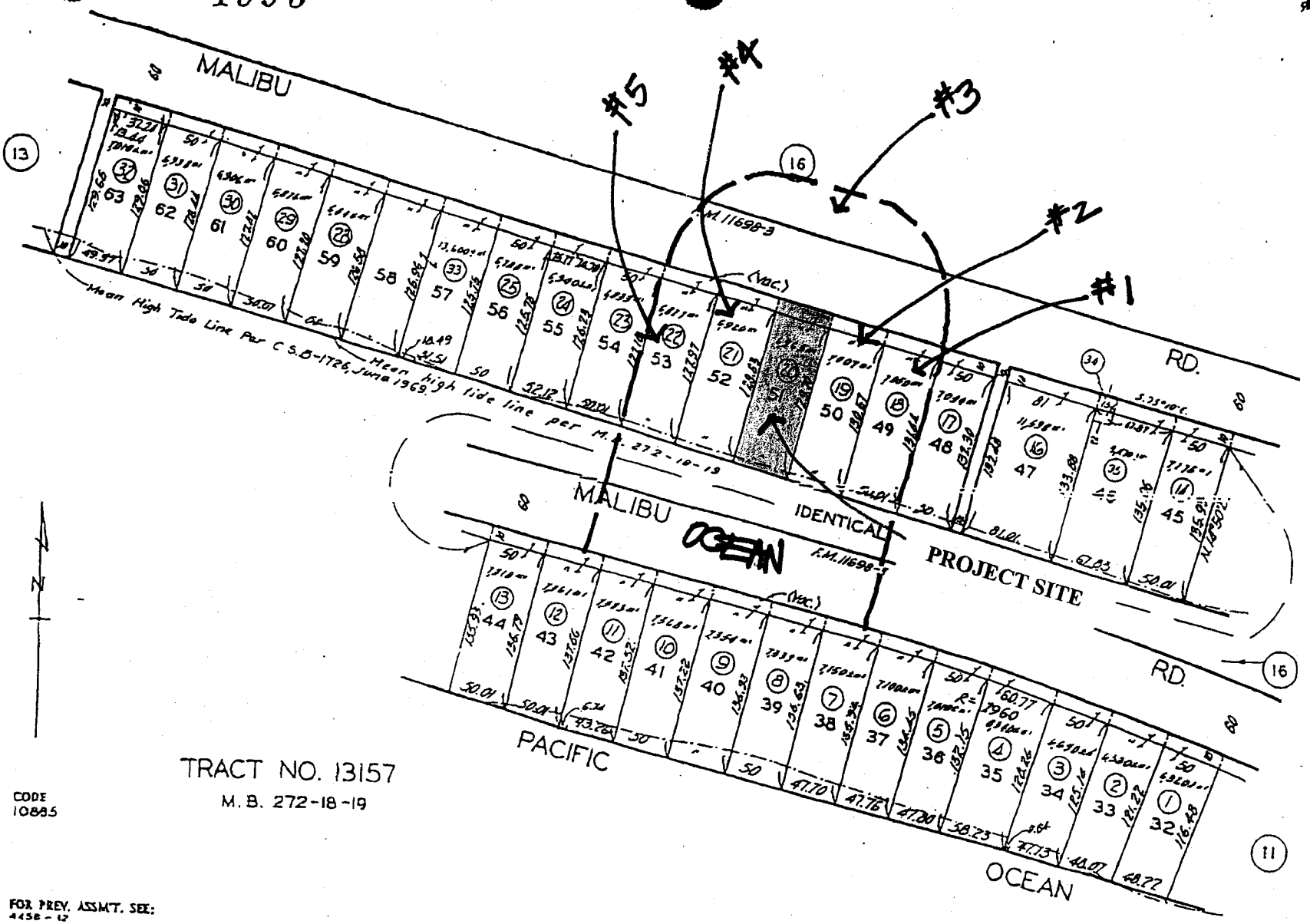


EXHIBIT 1
CDP 4-00-123 (Broad Beach, LLC)
Location Map

4458 | 12

SCALE 1" =

1993



TRACT NO. 13157

M.B. 272-18-19

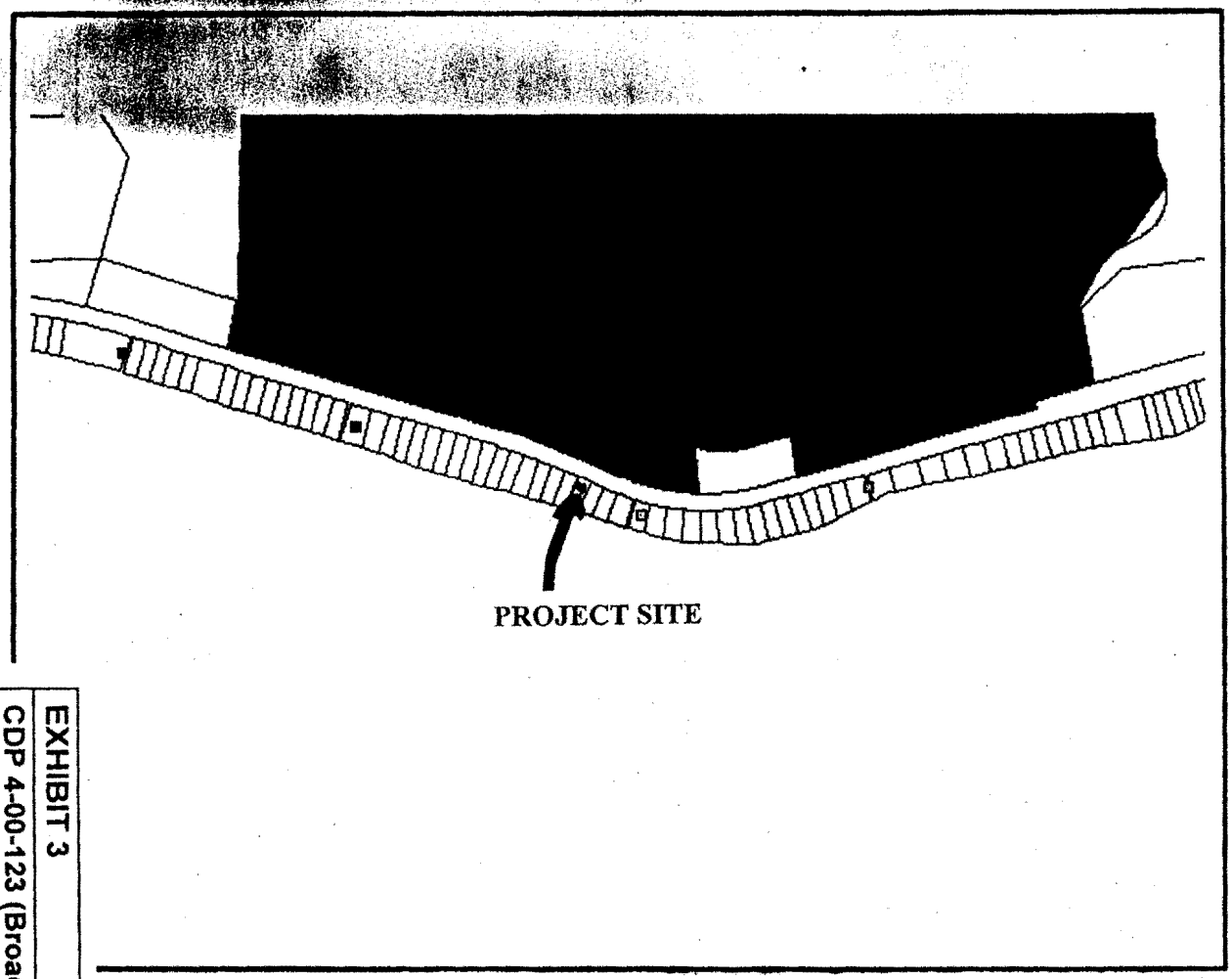
CODE
10885

FOR PREV. ASSMT. SEE:
4458 - 12

ASSESSOR'S MAP

EXHIBIT 2
CDP 4-00-123 (Broad Beach, LLC)
Assessor Parcel Map

ESRI ArcExplorer 1.1

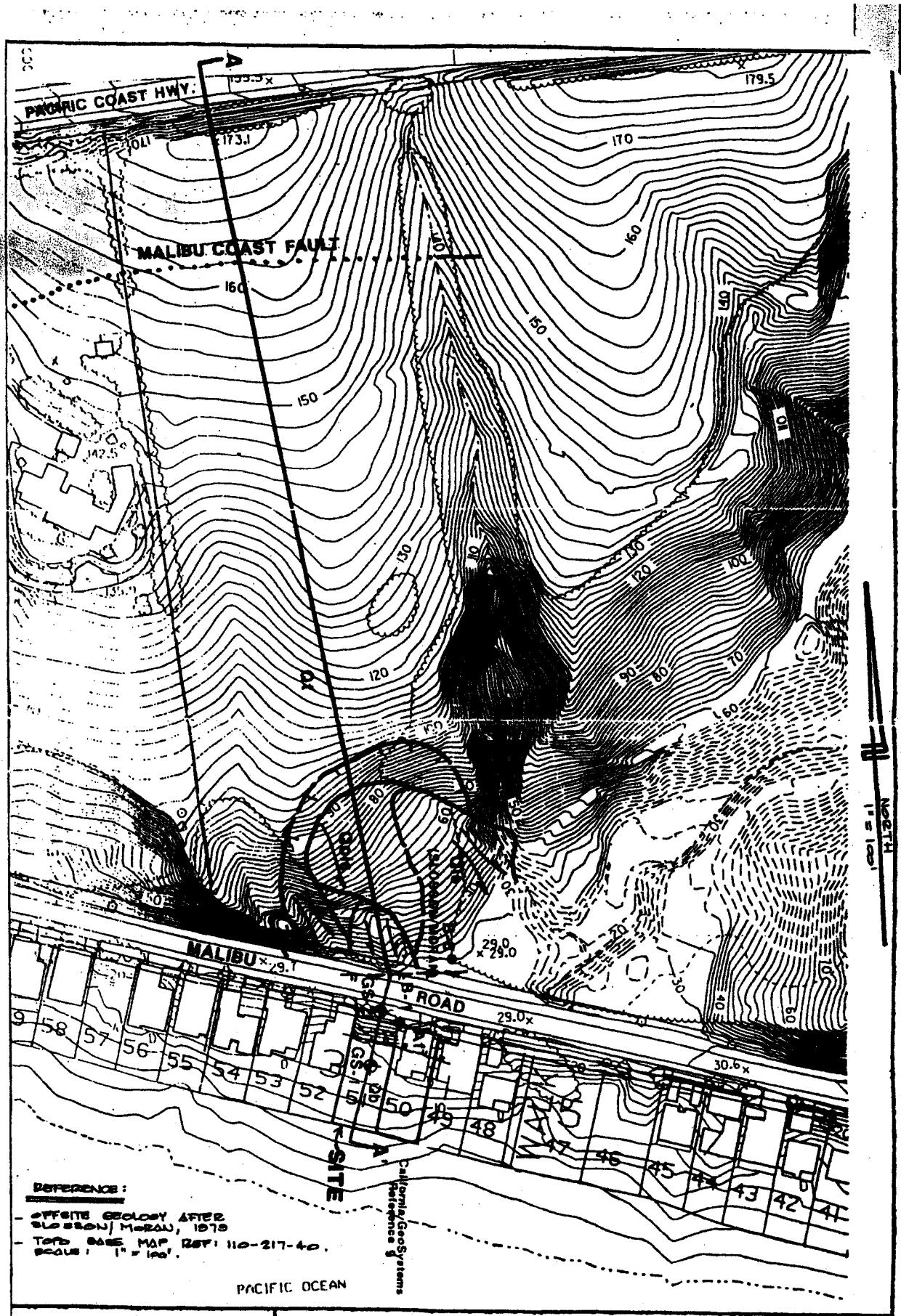


stateotherparks (PUBL_PRIV)
State/Other Parkland
vertaccessexisting (ADDRESS)
20000 Pacific Coast Highway
20350 PCH (Moonshadows)
22670 PCH (Nantucket Light/Zonker Harri
24318 PCH
24434 Malibu Rd.
24602 Malibu Rd.
24714 Malibu Rd.
25118 Malibu Rd. (Ross)
26470 PCH (Young & Golling)
27150 Malibu Rd. (Escondido Creek)
27400 PCH (Stern/BFS/Holiday House)
27420 & 27428 PCH (Shane/Seacliff)
31200 Broad Beach Rd.
31344 Broad Beach Rd.
41300 PCH (Hutchings)
41400 PCH (Wilson)
6800 Westward Beach (Saphire/Zuma Wa
LA Co. Vacant Land
laprcls

Miles
0 0.02 0.04

N

EXHIBIT 3
CDP 4-00-123 (Broad Beach, LLC)
Map of Area's Vertical Accessways



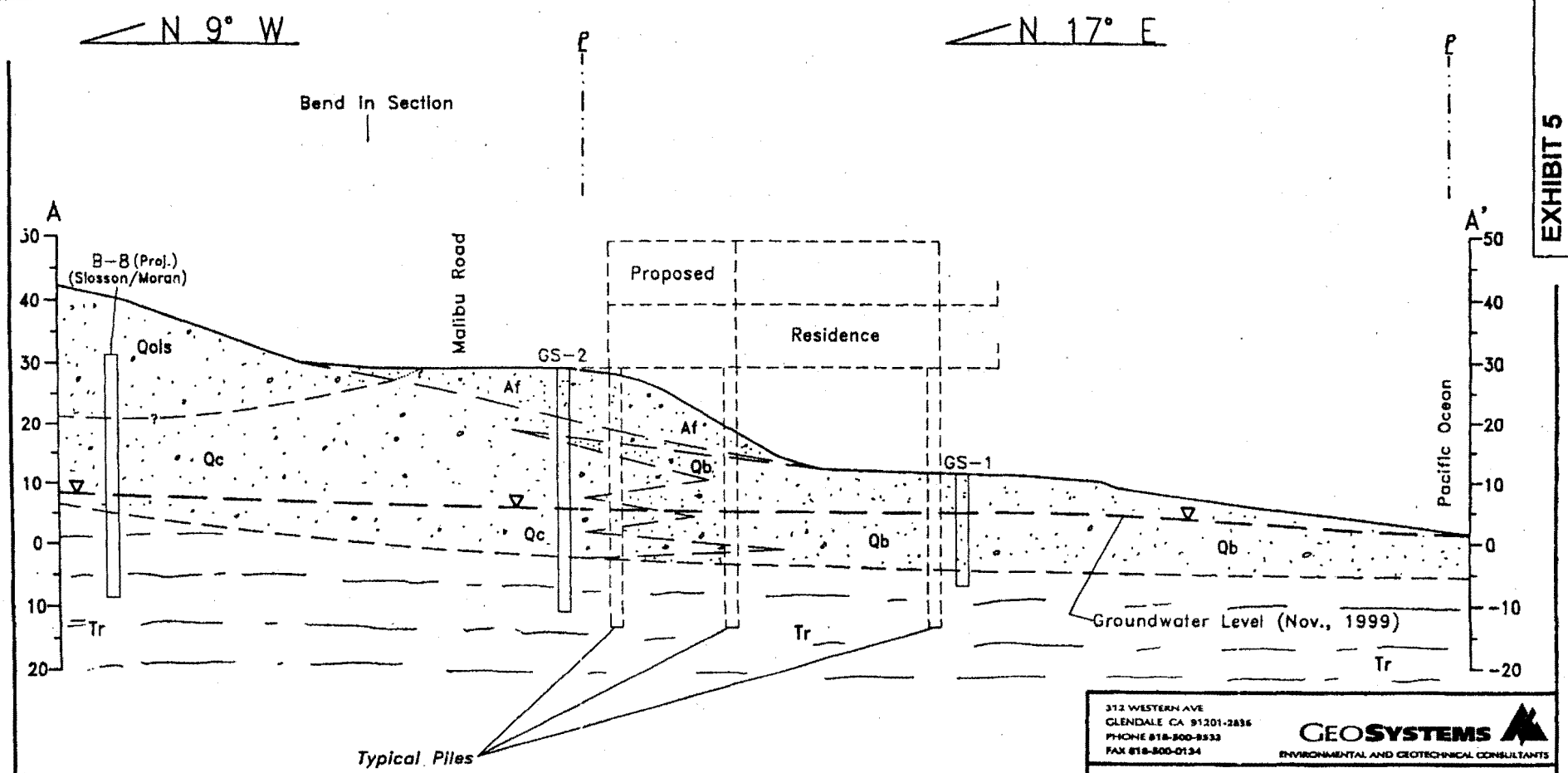
GEOSYSTEMS
ENVIRONMENTAL AND GEOTECHNICAL CONSULTANTS
312 WESTERN AVE GLENDALE CA 91201-2316
PHONE 818-500-9533 FAX 818-500-9134

REGIONAL GEOLOGIC

Lot 51, Tract 13157
E/O 24620 Malibu Road
Malibu, California

EXHIBIT 4
CDP 4-00-123 (Broad Beach, LLC)
Landslide Map

EXHIBIT 5
CDP 4-00-123 (Broad Beach, LLC)
Cross Section of Landslide Map



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FAX 818-500-0134
GEOSYSTEMS
ENVIRONMENTAL AND GEOTECHNICAL CONSULTANTS

ENLARGEMENT OF GEOLOGIC CROSS SECTION A-A'

Lot 51, Tract 13157
E/O 24620 Malibu Road
Malibu, California

SCALE: 1"=16'

GS 99-1001	DATE: Jan., 2000	PLATE CS-2

EXHIBIT 6
CDP 4-00-123 (Broad Beach, LLC)
Topography and Stringline Map

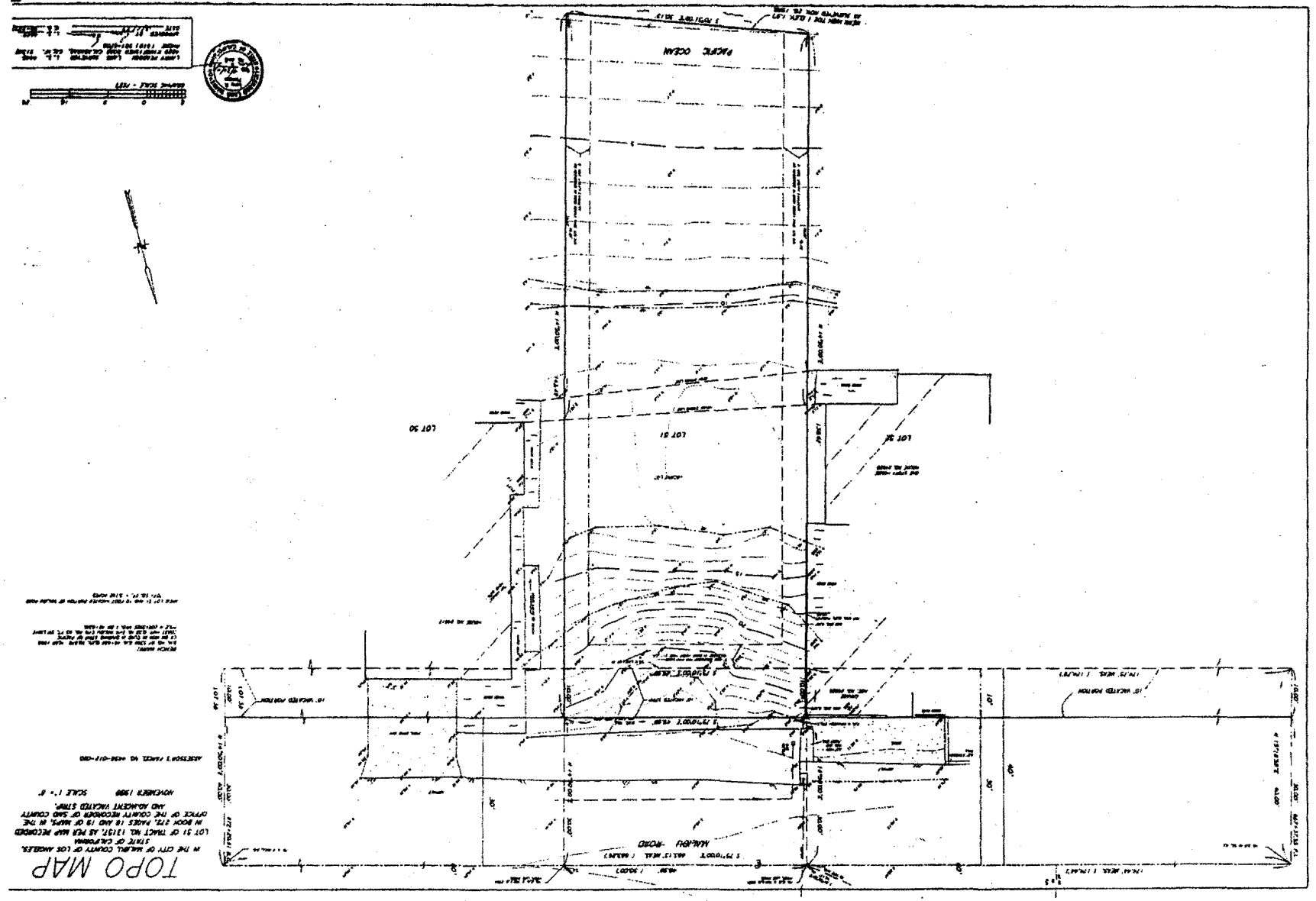
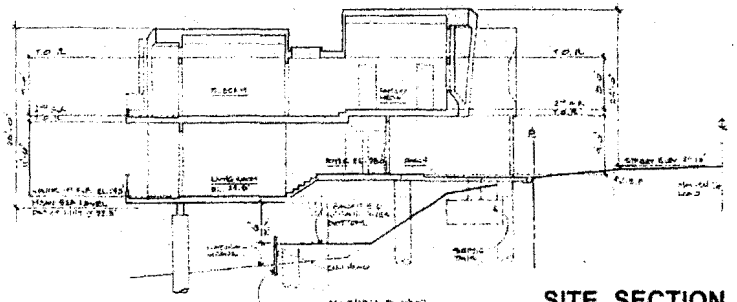
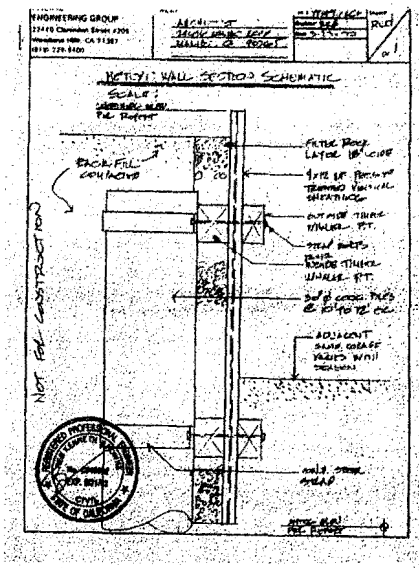
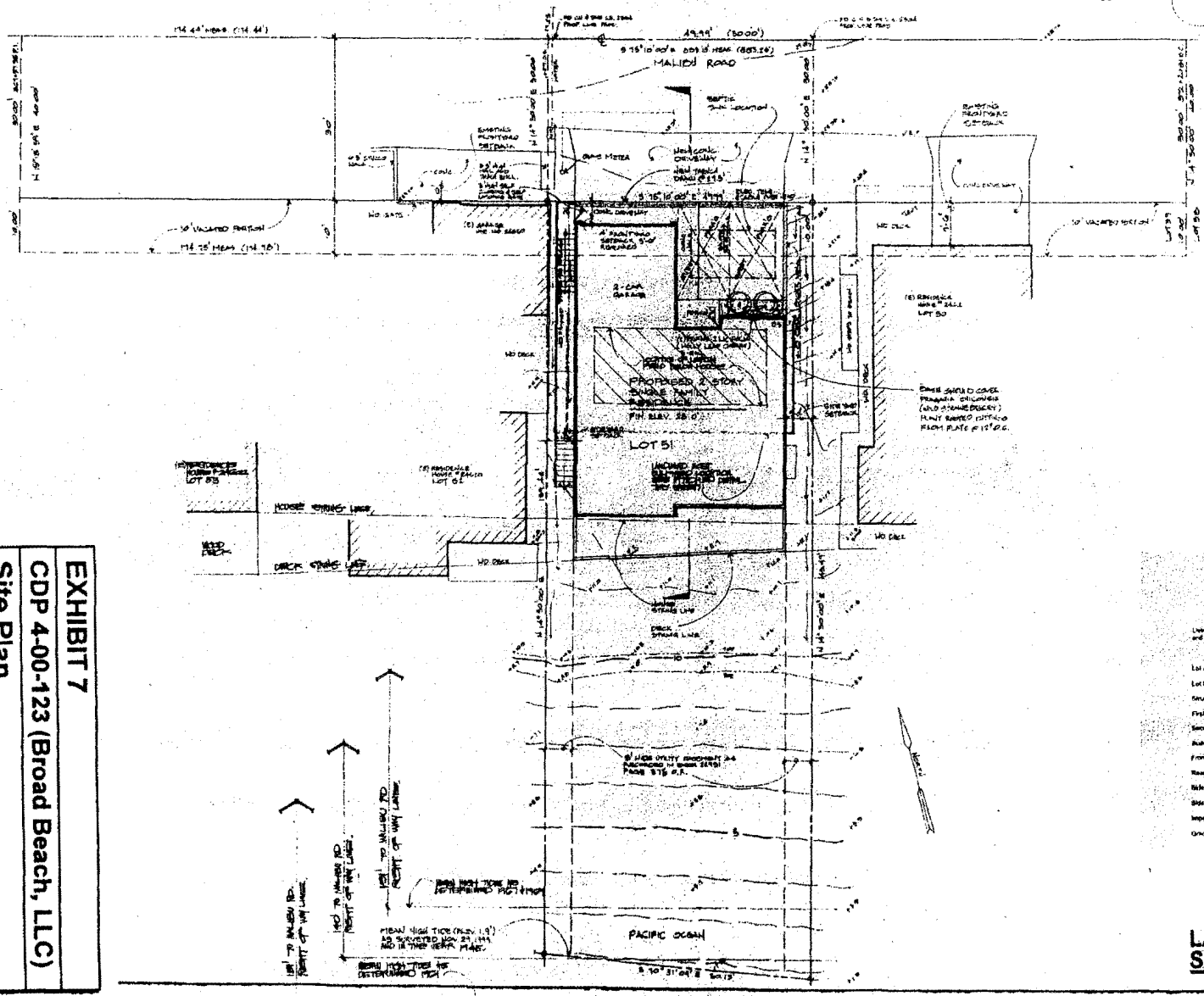


EXHIBIT 7
CDP 4-00-123 (Broad Beach, LLC)
Site Plan



SITE SECTION





PROPOSED PROJECT
DETAILED DESCRIPTION
LOT 51, 24518 MALIBU ROAD

Listed below is a comparison of the City of Malibu's allowable development standards and that of our proposed project.

	Proposed Project	Permitted by City of Malibu LCD
Lot Area	10 AC/1,059 sq. ft.	
Lot Dimensions	60X153X59X139	
Structure Size (Total Sq. Ft.)	3,484	
First Floor Square Footage	1,889	
Second Floor Square Footage	1,595	
Building Height	25'	28'
Front Set Back	45'	10'
Rear Set Back	74.5	Survey Setbacks
Side Set Back	8.8'	8.8'
Side Set Back	5.8'	8.8'
Impermeable Lot Coverage	7,812 sq. ft.	
Grading (Total Fill)	87 c.y.	1,000 c.y.

LANDSCAPE/ SITE / GRADING / DRAINAGE PLAN

SCALE: 1/8"=1'-0"

REVISIONS

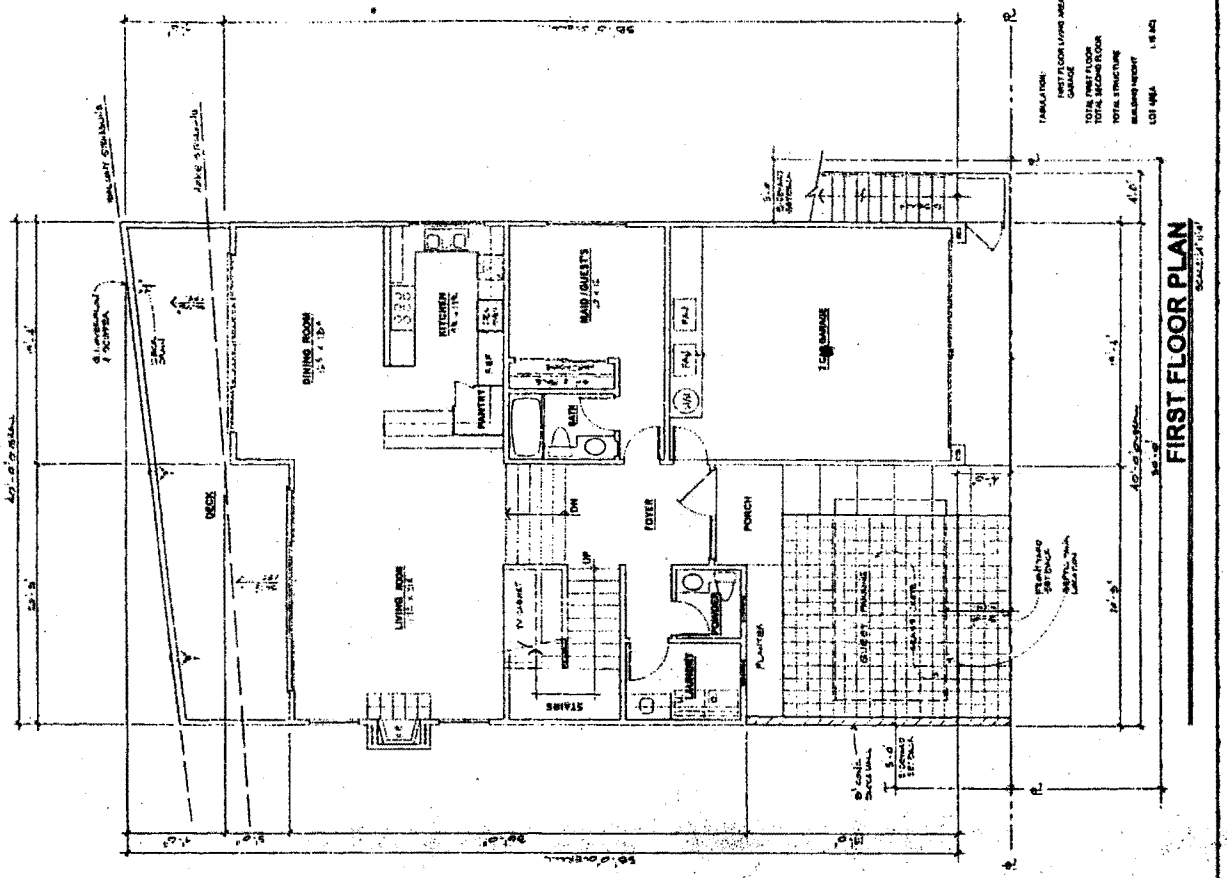
ARCHITECT: ARCHWEST DEVELOPMENTS, INC.
2716 OCEAN PARK BLVD., SUITE 1040, SANTA MONICA, CA 90405
TEL (310) 396-2117 FAX (310) 396-2117

PROJECT OWNER: BROAD BEACH, LLC
27126 AGOURA ROAD, SUITE 210
CALABASAS, CALIFORNIA 91301

PROJECT: MALIBU ROAD, LOT 51
24518 MALIBU ROAD, MALIBU, CA 90265

SITE/GRADING/DRAINAGE PLAN

Date
Scale 1/8"=1'-0"
Drawn RG
Job #
Sheet 1 of 1 sheets



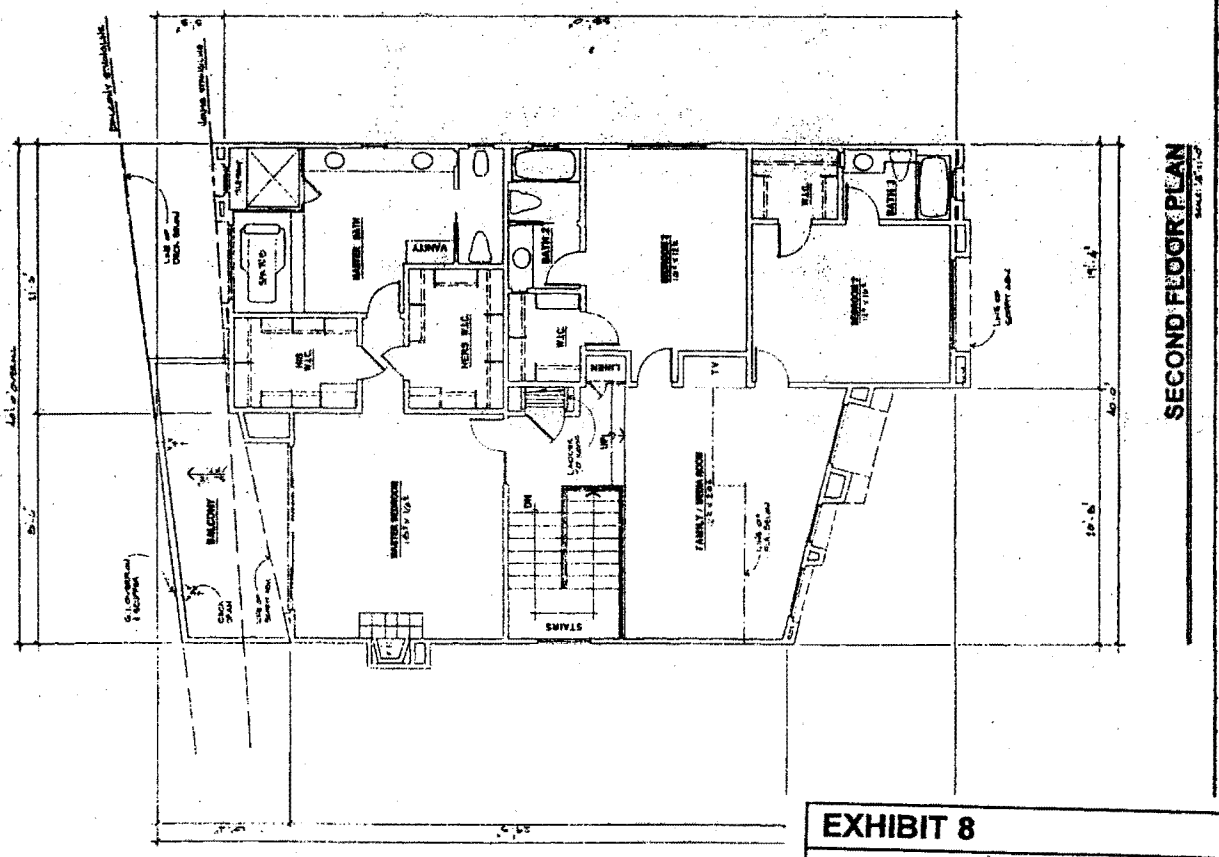
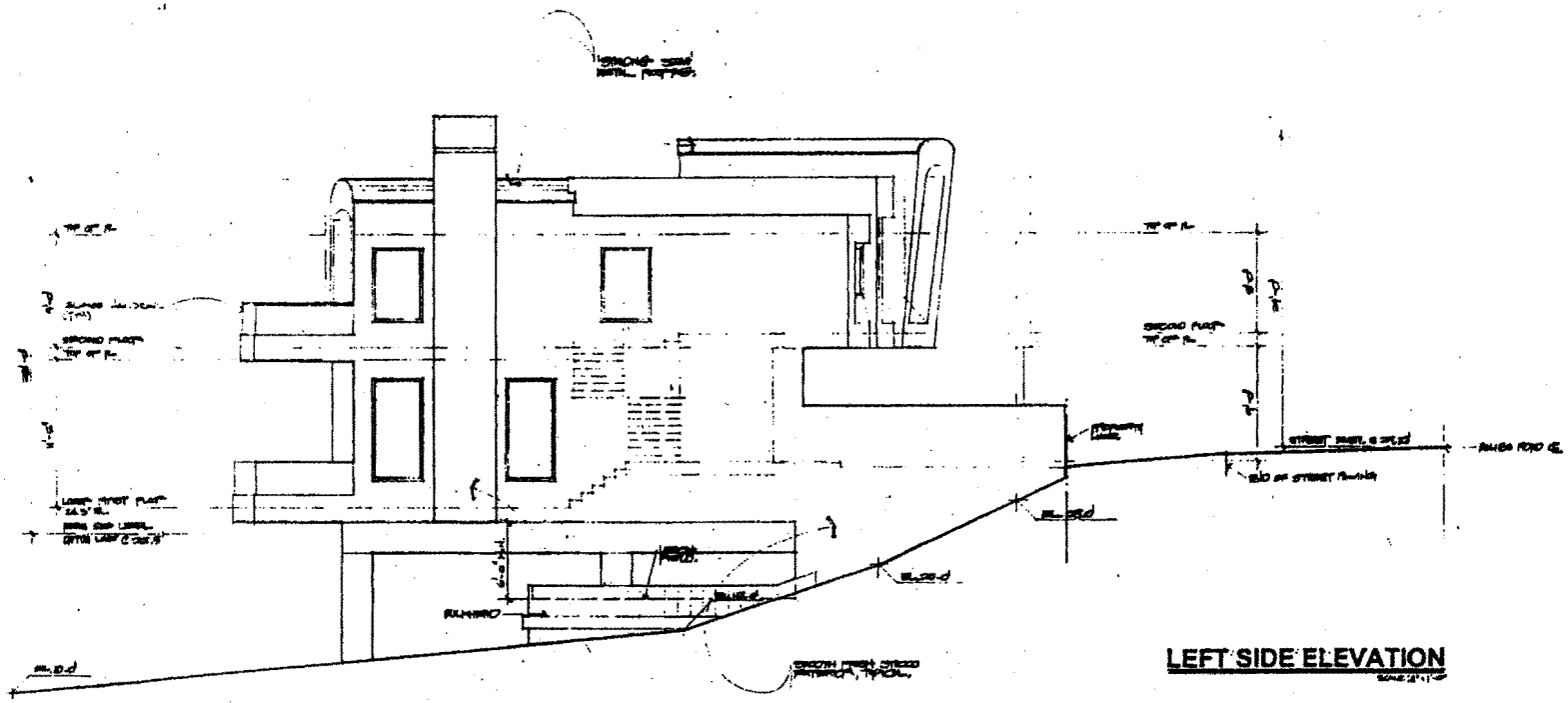


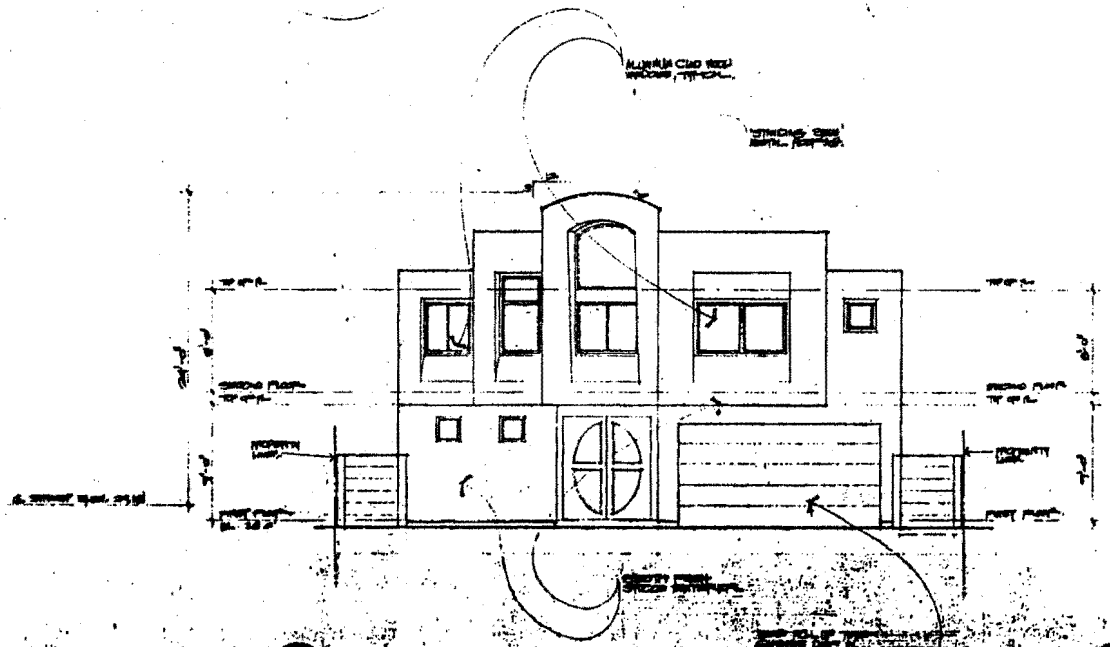
EXHIBIT 8
CDP 4-00-123 (Broad Beach, LLC)
First and Second Floor Plans

ROOF PLAN

EXHIBIT 9
CDP 4-00-123 (Broad Beach, LLC)
Roof Plan



LEFT SIDE ELEVATION



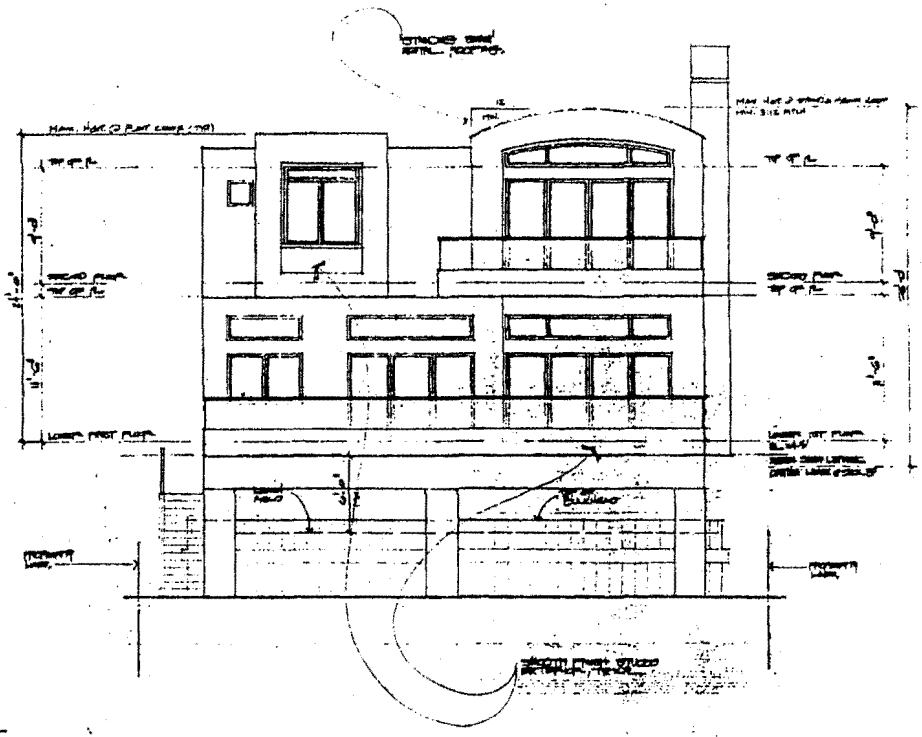
FRONT ELEVATION

EXHIBIT 10
CDP 4-00-123 (Broad Beach, LLC)
Left and Front Elevations

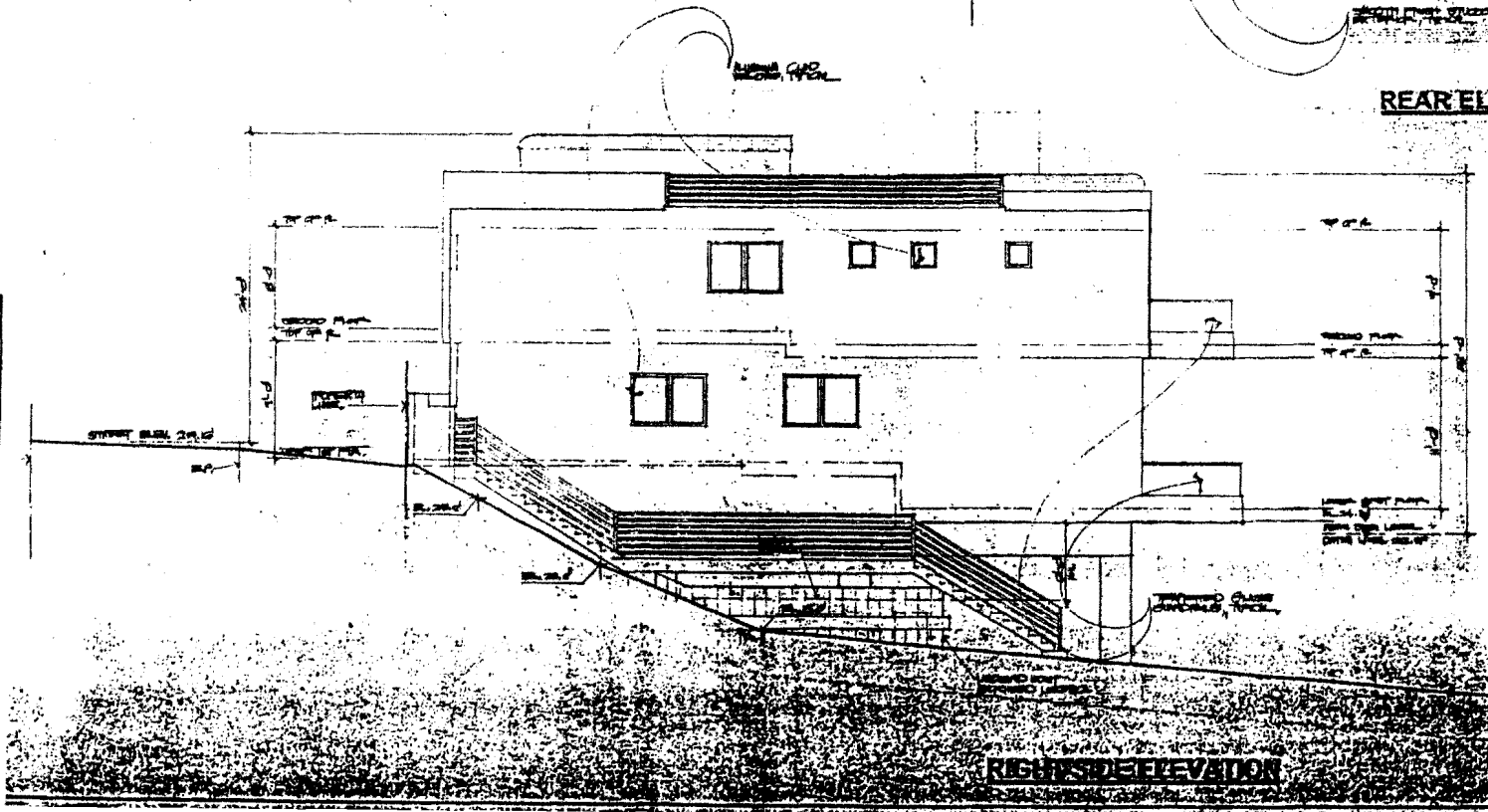
ARCHITECT:
ARCHWEST DEVELOPMENTS, INC.

PROJECT OWNER:
BROAD BEACH LLC

PROJECT:
MALIBU ROAD, LOT 51



REAR ELEVATION



RIGHT SIDE ELEVATION

EXHIBIT 11
CDP 4-00-123 (Broad Beach, LLC)
Rear and Right Elevations

ARCHITECT:
ARCHWEST DEVELOPMENTS, INC.

PROJECT OWNER:
BROAD BEACH, L.L.C.

PROJECT:
MALIBU ROAD, LOT 51

ARCHITECT:
ARCHWEST DEVELOPMENTS, INC.
2716 OCEAN PARK BLVD., SUITE 104A, SANTA MONICA, CA 90405
TELEPHONE: (310) 396-1118 FAX: (310) 392-3197

PROJECT OWNER:
BROAD BEACH LLC
2716 OCEAN PARK BLVD., #104S
SANTA MONICA, CA 90405

PROJECT:
MALIBU ROAD, LOT S1
24618 MALIBU ROAD, MALIBU, CA 90265

SECTIONS

6

SECTION A

EXHIBIT 12
CDP 4-00-123 (Broad Beach, LLC)
Cross Section of Plans

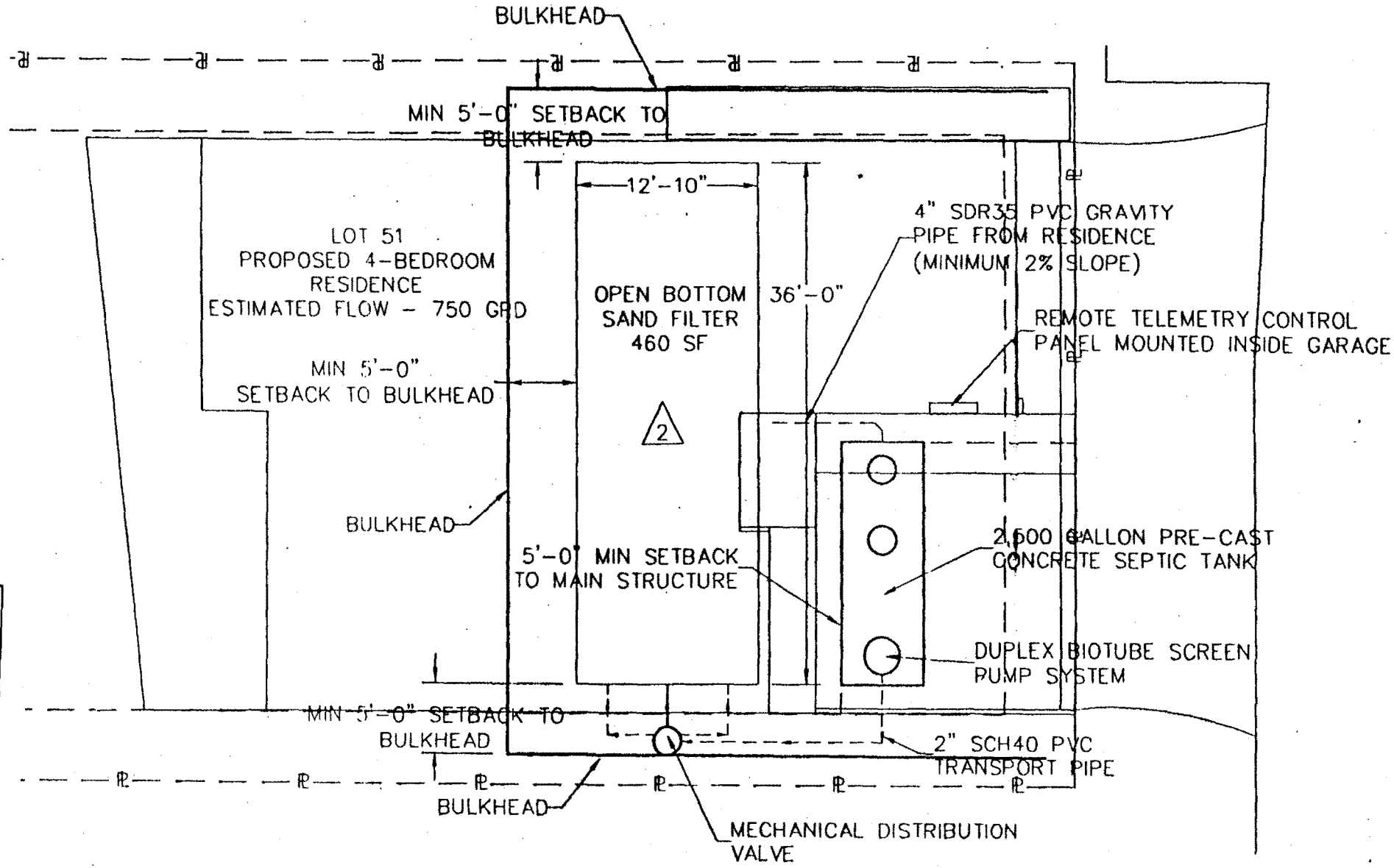


EXHIBIT 13
CDP 4-00-123 (Broad Beach, LLC)
Sewage Disposal System Plan