CALIFORNIA COASTAL COMMISSION
SOUTH CENTRAL COAST AREA
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Hearing Date: 12/9/99
Commission Action:

STAFF REPORT: REGULAR CALENDAR

APPLICATION NO.: **4-99-112**

APPLICANT: **Malibu Encinal Homeowners Association & Michael and Mary Wilson**

AGENT: **David Thomas**

PROJECT LOCATION: Two vacant lots east of 31626 East Sea Level Drive, City of Malibu; Los Angeles County

PROJECT DESCRIPTION: Construct an approximate 14 foot high by 27 foot wide by 90 feet long rock rip-rap revetment in conjunction with about 300 cubic yards of backfill material necessary to fill an area approximately 23 feet high by 16 feet wide by 90 feet long between the revetment and the seaward edge of East Sea Level Drive.

Total Lot Area:	0.82 acres
Lot 1:	0.14 acres
Lot 9:	0.68 acres
Height Above Fin Grade:	14 feet

LOCAL APPROVALS RECEIVED: City of Malibu Planning Department Approval in Concept, dated 2/26/98; City of Malibu Geology and Geotechnical Engineering Review Sheet, Approved in Building plan check stage, dated 4/20/98.

SUBSTANTIVE FILE DOCUMENTS: Appendix A

SUMMARY OF STAFF RECOMMENDATION:

Staff recommends that the Commission **Deny** this application for a regular Coastal Development Permit. The applicant is requesting approval to construct an approximate 14 foot high by 27 foot wide by 90 ft. long rock rip-rap revetment. In addition about 300 cubic yards of imported backfill material to fill an area approximately averaging 23 feet high by 15 feet wide by 50 feet long between the revetment and the seaward edge of East Sea Level Drive is proposed. The proposed project was constructed on a temporary basis as

a result of Coastal Emergency Permit No. 4-98-034-G issued February 19, 1998; the applicants are requesting that this revetment be approved on a permanent basis. The project is located along the southeast beachfront portion of Sea Level Drive on two vacant lots owned separately by the Malibu Encinal Homeowners Association and Mr. and Mrs. Wilson. Staff has identified an alternative design for the proposed revetment, a vertical concrete seawall. It is feasible to remove the existing temporary revetment and reconstruct a new vertical seawall or other "hard" or "soft" solution shoreline protective device in a more landward location to adequately protect Sea Level Drive; however, the applicant does not propose to remove the revetment and construct an alternative seawall. An alternative seawall in a more landward location at the base of the slope that supports Sea Level Drive would have less environmental impacts.

Located west of Lechuza Point, this beach is characterized as a narrow beach subject to erosion. Point Lechuza, operating as a natural groin, is located about 250 feet downcoast. The subject beach does not include a protective dune system as do sections of Broad Beach located to the east of Lechuza Point. The proposed revetment is located about 40 feet landward of an existing revetment protecting a single family residence (Wilson) located to the west of the subject lots. The proposed revetment is also landward of a large rock formation located to the east on the larger of the two subject lots. The applicant's coastal engineering consultant has concluded that the proposed rock revetment is necessary to protect Sea Level Drive and buried utility lines. The revetment extends seaward a maximum of approximately 60 feet beyond the seaward edge of Sea Level Drive. The project raises issue with the Chapter 3 policies of the Coastal Act requiring that beachfront development minimize erosion which may have adverse effect on the beach. In past permit actions, the Commission has also required that all new development on a beach, including shoreline protection devices, be located as landward as possible in order to reduce adverse impacts to the sand supply and public access resulting from the development. The proposed revetment with the fill slope behind the revetment is not located as far landward as feasible.

STAFF NOTE

This project was initially filed as Application No. 4-98-034, on October 1, 1998. The applicants extended the time for the Commission to review that application to June 28, 1999. In order to allow staff additional time to work with the applicants to address the coastal issues raised by this application, the applicant withdrew that application and resubmitted a new application for the same project. Application No. 4-98-034 was not heard by the Commission. The resubmitted application, Application No. 4-99-112, was filed on June 14, 1999 and is the application now before the Commission. Under the time limits established by the Permit Streamlining Act (Government Code Section 65952) a decision on this application must be made by the Commission by December 11, 1999. As a result the Commission must act on this application at the December 7 - 10, 1999 meeting.

I. STAFF RECOMMENDATION:

Staff recommends that the Commission **DENY** the permit application as submitted by the applicant.

MOTION:

Staff recommends a **NO** vote on the following motion and adoption of the following resolution and findings:

I move that the Commission approve Coastal Development Permit No. 4-99-112 as submitted by the applicant.

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

RESOLUTION

A. DENIAL.

The Commission hereby **denies** a coastal development permit for the proposed development on the grounds that the development will not be in conformity with the provisions of Chapter 3 of the California Coastal Act of 1976 and would prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3 of the Coastal Act; is located between the sea and the first public road nearest the shoreline and is not in conformance with the public access and public recreation policies of Chapter 3 of the Coastal Act, and the development would result in significant adverse effects on the environment within the meaning of the California Environmental Quality Act, and that a feasible alternative exists that would minimize or avoid the significant adverse effects that would otherwise result from the project as proposed.

II. Findings and Declarations:

The Commission hereby finds and declares:

A. Project Description and Background

The project site is located on two vacant lots located east of an existing residence located at 31626 E. Sea Level Drive owned by Mr. and Mrs. Wilson. Sea Level Drive is a private drive that accesses about 38 residences (including residences on Point Lechuza Road) and a few vacant lots south of its intersection with Broad Beach Road (Exhibit 1 and 2). Regarding the subject lots, the western lot is owned by Mr. and Mrs. Wilson, while the eastern and larger lot is owned by the Malibu Encinal Homeowners Association (Exhibit 3). According to the applicants, both of these lots are deed restricted for open space and private recreational purposes; no residential development is allowed.

The applicants are proposing to construct a rock revetment backfilled with 300 cubic yards of imported fill material to protect Sea Level Drive and utilities buried within the road. The revetment is approximately 14 feet high by 27 feet wide by 90 feet long consisting of rock rip-rap in conjunction with about 300 cubic yards of backfill material necessary to fill an area approximately 23 feet high by 16 feet wide by 90 feet long located between the revetment and the seaward edge of East Sea Level Drive (Exhibits 4 and 5). This permit application is the follow-up application to Emergency Coastal Permit No. 4-98-034-G issued for revetment and backfill material on February 19, 1998. According to the applicant's engineering consultant, Reg Browne of Pacific Engineering Group, by February 9, 1998, wave uprush had cut a nineteen (19) foot high vertical cut into the bluff that created an unstable situation for Sea Level Drive and the possibility of road failure. The slope had eroded to a location near the edge of the pavement of Sea Level Drive and erosion continued to threaten the road with successive high tides. According to the applicants, if erosion had continued, road access to about 27 residences and utility connections (gas, electricity, and telephone) would have been severed. The revetment was completed in March 1998. The proposed project is unique in that the revetment is located on a sandy beach to protect a road unlike most proposed revetments which are located seaward of an endangered residence on the seaward portion of a sandy beach. An existing wood stairway was reconstructed to connect Sea Level Drive with the filled area and top of the revetment. There is a vehicular gate blocking access to Sea Level Drive, with an adjacent pedestrian gate. There is no legal public access to the site; it is all private property. A review of the Commission's permit files indicates that no coastal development permit was requested or approved for these gates.

The rock revetment is located on two separate lots. The western lot is about 5,976 sq. ft. in size, owned by Michael and Mary Wilson, while the eastern lot is about 29,810 sq. ft. in size. The total area of the two lots is about 0.82 acres. The western lot, owned by the Wilsons, recently includes new development consisting of a concrete patio, a wood fence and vegetation planters bordered by railroad ties. In addition, the adjoining Wilson residential lot includes a driveway gate. Staff has identified these developments as a result of a site visit on October 21, 1999; these developments did not exist during the prior staff site visit on April 22, 1999. A review of the Commission's permit files indicates that no coastal development permit was requested or approved for these developments.

The western side of Lechuza Beach is undeveloped and consists of property owned by Lechuza Villas West, a private community beach and a number of deed restricted lots that may not be developed. On the eastern part of Lechuza Beach, there are about 13 lots and approximately eight (8) of them are developed with single family residences. The project site consists of two (2) undeveloped lots at the easternmost end of Lechuza Beach. The majority of lots on the landward side of Sea Level Drive are developed with single family residences.

B. Shoreline Protective Devices

As stated previously, the project involves the construction of a rock revetment backfilled with about 300 cubic yards of imported fill material. The revetment is approximately 14

foot high by 27 foot wide by 90 feet long consisting of rock rip-rap in conjunction with backfill material necessary to fill an area 23 feet high by 16 feet wide by 90 feet long located between the revetment and the seaward edge of East Sea Level Drive. The revetment was constructed as a result of Emergency Coastal Permit No. 4-98-034 because the sloped area seaward of Sea Level Drive was eroding and there was the possibility of collapse of Sea Level Drive (Exhibits 3 – 5). According to Reg Browne Pacific Engineering Group, the applicant's consulting engineer, the revetment and backfill material is necessary to protect the existing Sea Level Drive and buried utilities.

The subject rock revetment is located on the landward portion of this beach. On the two vacant lots, the revetment is located between an existing residence on the west and a large natural rock formation to the east. The seaward extent of the revetment ranges from approximately 50 to 60 feet seaward from edge of the pavement of Sea Level Drive. The seaward most extent of the revetment is setback 18 feet further than the residence to the west. To the east, the eastern and seaward most extent of the revetment is joined to a large natural rock outcrop at the landward edge of the rock. The seaward most extent of the revetment is also behind this natural rock outcrop to the east, about 40 - 50 feet landward of the seaward most extent of this rock. Therefore, as a result of recent bluff erosion, the maximum seaward encroachment proposed by the applicant is approximately 50 to 60 feet.

As described in the discussion above, to provide protection of the road and utilities along this section of Lechuza Beach, the applicant proposes to maintain a shoreline protective device that has the potential to impact the natural shoreline processes. Therefore, it is necessary to review the proposed project for its consistency with Sections 30235 and 30253 of the Coastal Act and with past Commission action.

After identifying the applicable Coastal Act sections and the Los Angeles County Land Use Plan (LUP) policies, the discussion of the impacts resulting from the shoreline protective device (bulkhead) will proceed in the following manner. First, the staff report describes the physical characteristics of the Lechuza Beach shoreline. Second, the staff report analyzes the dynamics of the Lechuza Beach shoreline. Third, the staff report analyzes the location of the proposed shoreline protective device in relation to wave action. Finally, the staff report analyzes whether the proposed shoreline protective device will adversely impact shoreline sand supply and shoreline processes.

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.

Coastal Act Section 30235 provides for two tests applicable to this project. The first test is whether or not the shoreline protective device is needed to protect either coastal dependent uses, existing structures, or public beaches in danger of erosion; the second test is whether or not the device is designed to eliminate or mitigate adverse impacts on shoreline sand supply.

Section 30253 of the Coastal Act mandates that new development provide for geologic stability and integrity and minimize risks to life and property in areas of high geologic, flood, and fire hazard.

In addition, to assist in the determination of whether a project is consistent with Sections 30235 and 30253 of the Coastal Act, the Commission has, in past Malibu coastal development permit actions, looked to the certified Malibu/Santa Monica Mountains Land Use Plan (LUP) for guidance. The Malibu LUP has been found to be consistent with the Coastal Act and provides specific standards for development along the Malibu coast. For example, Policies P166 and P167 provide, together with Coastal Act Section 30235, that revetments, seawalls, cliff retaining walls and other shoreline protective devices be permitted only when required to serve coastal-dependent uses, to protect existing structures or new structures which constitute infill development and only when such structures are designed and engineered to eliminate or mitigate significant adverse impacts on the shoreline and sand supply. In addition, Policy 153 provides 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.

The proposed project is unique in that the subject property, which consists of two adjoining lots, does not include residences, although the adjacent western Wilson lot includes residential related development identified above. However, the slope on the landward side of these lots supports Sea Level Drive. The project involves the construction of a rock revetment and backfill material seaward of Sea Level Drive. The project is also unique in that the applicants are not proposing to protect a residence or septic system. The applicants assert that the proposed project is necessary to protect Sea Level Drive and buried utilities within the road.

The project does not fall into two of the three categories in which a shoreline protective device must be permitted by the Commission under Section 30235. The proposed revetment does not protect a public beach nor would it serve a coastal-dependent use. Roadways, buried utilities, and residential related developments are not coastal dependent developments or uses pursuant to Section 30101 of the Coastal Act.

However, the proposed revetment and backfill material does protect an existing structure, Sea Level Drive and buried utilities, in danger from erosion; therefore, a shoreline protective device may be permitted if the additional requirements of Section 30235 are met.

Regarding Section 30253, the proposed development is located within an area of high geologic and flood hazard due to wave erosion, storm waves, and flooding. This section of the Coastal Act mandates that new development provide for geologic stability and integrity and minimize risks to life and property in areas of high geologic, flood and fire hazard. The location of the proposed revetment is located within the ocean wave scour area, as determined by the applicant's engineer. Therefore, in order to determine that the proposed project is in compliance with Section 30235 of the Coastal Act, the following sections will analyze the physical characteristics and dynamics of the subject site shoreline to determine whether the use of a shoreline protective device is required to protect the existing structure and whether the proposed project is designed to eliminate or mitigate impacts of such development. These issues are further discussed below.

1. Proposed Project and Site Shoreline Characteristics

The City of Malibu includes a 27 mile long narrow strip of coast that is backed by the steep Santa Monica Mountains. Unlike most of the California coast, the shoreline in Malibu runs from east to west and forms south-facing beaches. Lechuza Beach is located approximately five miles west of Kanan Dume Road and one and one half miles east of Encinal Canyon Road. The eastern side of Lechuza Beach is partly developed with single family residences and includes vacant parcels. The majority of the beachfront residences are constructed on piles with retaining or bulkhead walls to stabilize the road fill and protect septic systems located beneath the residences. In the vicinity of the project site, Sea Level Drive descends a slope of a maximum of about 23 feet to the bedrock of the beach below during winter storms. However, during the majority of the year, the slope ranges from an estimated 10 - 15 feet to a sandy beach below.

Lechuza Beach is located within the Ventura County to Lechuza Point Littoral Subcell, which geographically extends from approximately the Ventura – Los Angeles County Line to Lechuza Point. This Subcell is part of the larger Santa Monica Littoral Cell. Coastal bluffs and local streams appear to be the major contributing sediment sources in this Subcell.

2. Site Shoreline Characteristics

Lechuza Beach is a one half mile long section of the coast which is undeveloped on its west side and partly developed on the east side with single family homes and is located between Encinal Canyon Creek to the west and Lechuza Point to the east. The project site is located on the easternmost section of Lechuza Beach immediately upcoast from Lechuza Point. Lechuza Beach is characterized by a narrow beach with coastal bluffs without a protective dune field. The natural low rocky point (Lechuza Point) at the eastern end of the narrow beach function somewhat as a groin where some sand accumulates on

beach on the upcoast side of the point. The subject site is located near the eastern end of Lechuza Beach (Exhibit 3).

The eastern section of Lechuza Beach is backed by coastal bluffs ranging in height from 20 to 30 feet. Lechuza Beach is considered a narrow beach where the sandy beach area in normal seasonal conditions ranges from 50 feet in width during the winter to 140 feet in width during the summer. The landward extent of the beach is determined by the base of the bluff. The subject site is unique in this case. The proposed revetment is located on the landward portion of the beach. It is located on a sandy beach between an existing residence surrounded by a rock revetment on the west and a natural bedrock outcropping on the east. The adjacent rock revetment west of the project site, is 'unpermitted'. Staff is currently investigating this rock revetment as a possible violation. Although the beach may scour down to bedrock during winter storms, it can also return during the winter. The sandy beach had returned from its February 1998 position during the staff's January 15, 1999 site visit and was estimated to be about 12 feet below the grade of Sea Level Drive. It's important to note that the 1999 winter storm season may be unusual due to La Nina conditions.

Moreover, the main sources of sediment for bluff backed beaches are the bluffs themselves, as well as the material that has eroded from inland sources and is carried to the beach by small coastal streams. While beaches seaward of coastal bluffs follow similar seasonal and semiannual changes as other sandy beaches, they differ from a wide beach in that a bluff backed beach does not have enough material to maintain a dry sandy beach area during periods of high wave energy. Thus, unlike a wide sandy beach, a narrow, bluff backed beach may be scoured down to bedrock during the winter months. In the case of the easternmost portion of Lechuza Beach along Sea Level Drive, several beachfront residences with either rock revetments or bulkheads have been constructed seaward of the base of the bluff area and have thus altered the natural process of shoreline nourishment which would expose the back of the bluff to frequent wave attack as the beach erodes. The dynamic of bluff erosion and retreat results in landward movement of the beach's location and, in turn, eroded bluff material provides beach nourishment material to establish a new beach area. In the case of Lechuza Beach, the back of the bluff has been fixed in part by Sea Level Drive and in part by shoreline protective devices that have been constructed on the beach to protect residential development. Therefore, this eastern portion of Lechuza Beach is a narrow, bluff-backed beach.

2. Lechuza Beach is an Eroding Beach

Having defined the easternmost section of Lechuza Beach as a narrow, bluff-backed beach, the next step is to determine the overall erosion pattern of the beach. Determination of the overall beach erosion pattern is the key factor in determining the impact of the seawall on the shoreline. In general, beaches fit into one of three categories: 1) eroding; 2) equilibrium; or 3) accreting. The persistent analytical problem in dealing with shore processes in California is distinguishing long-term trends in shoreline change from the normal seasonal variation.

Information regarding long-term trends in shoreline processes will be reviewed. First, a United States Army Corps of Engineers 1994 Reconnaissance Report regarding the Malibu/Los Angeles County coastline concludes that Lechuza Beach experiences a long term shoreline retreat and is generally forecasted as "stable to slow erosion", averaging one (1) foot per year.[1]

As a result of the Commission's research in the Staff Report for Coastal Permit Application Nos. 5-90-839, et. al. for Lechuza Villas West, two experts in coastal processes studied Lechuza Beach. First, Peter Gadd, a highly experienced coastal engineer, had evaluated considerable information that bears on the behavior of Lechuza Beach. This information included wave data records that were compiled at the National Oceanic Atmospheric Administration buoy located off the Malibu coast from 1980 to 1995, mean high tide surveys of the beach, and profiles showing the amount of sand depth at locations perpendicular to the beach. Mr. Gadd is a principal in Coastal Frontiers, Inc. a coastal engineering firm on whose behalf Mr. Gadd has analyzed shoreline processes throughout the entire southern California coastline. Mr. Gadd found that the fluctuations of the Lechuza Beach shoreline are highly irregular and unpredictable. His 1996 Report states:

> A simplified coastal engineering evaluation would expect that a sandy beach will erode during the stormy winter months, and accrete during the calm summer period. ... this seasonal fluctuation is noted at Lechuza Beach during some years, and not during others. For example, summertime beach growth is noted in 1992, 1993 and 1996. No such seaward growth is seen in 1994 and through September of 1995. There is no reasonable expectation that sand loss from the winter time erosion will be completely replaced by summertime accretion.

Mr. Gadd concluded, from his review of this evidence, that the fact that Lechuza Beach does not always fully recover from previous winter storm erosion is strong evidence that this beach is eroding and is not an equilibrium beach. Furthermore, his review of the fluctuations of mean high tide lines spanning a 68 year period from 1928 to October 1996 led him to conclude that there is a distinct erosional trend that confirms the findings of the United States Army Corps of Engineers.

In addition, Dr. Richard Seymour, a world renowned expert in coastal processes, reviewed and analyzed surveys from the early 1930's and surveys from 1990 through 1995 and testified that Lechuza Beach is an eroding beach with an ongoing erosional trend. He further concluded that the irreversible development trends along the coast will only exacerbate the erosion patterns found at Lechuza Beach and that the present erosional trend of this beach will continue into the future. [2] It is noteworthy that the most eroded position of the MHTL ever surveyed at Lechuza Beach occurred on February 10, 1998, corroborating Mr. Gadd and Dr. Seymour's earlier forecasts.

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[1] This is based on estimated average vertical and horizontal scour prepared with the assistance of the numerical computer program model "SBEACH".

[2] Testimony of Dr. Richard Seymour, December 11, 1995.

Further, there is visible evidence that this portion of Lechuza Beach is an eroding beach as a result of a Staff site visit on February 22, 1999. The fact that the subject site, a coastal bluff, has eroded up to about twenty (20) feet landward is actual evidence that Lechuza Beach is an eroding beach. In addition, two bluff areas to the west of the subject site have eroded over the past couple years. At 31360 Sea Level Drive, bluff erosion has occurred to the immediate east of the existing residence. Jose Liberman, the owner of the residence at 31360 Sea Level Drive had requested an Emergency Coastal Permit on February 21, 1999 to repair a walkway, septic system, retaining wall and stairs. The Executive Director has declined to approve the Emergency Coastal Permit suggesting that the applicant apply for a regular Coastal Permit to complete the project. At the residence located to the west of 31360 Sea Level Drive, similar erosion has occurred on the west side of the residence. In early 1999, the owner of that property also verbally requested an emergency Coastal Permit; however, no such permit was issued. Therefore, erosion at the subject site and along the lots located nearby upcoast has occurred as recently as the past year.

Another example indicating that this portion of Lechuza Beach is eroding is the fact that Reg Browne of Pacific Engineering Group in the April 30, 1999 letter indicates that an existing and possibly 'unpermitted' rock revetment is located beneath and surrounding the Wilson residence which adjoins the subject site to the west. This letter states that:

> These rocks were existing prior to the construction of the Wilson Residence and protect the Wilson Residence basement from wave uprush forces. Removing the rocks seaward of the Wilson basement would not jeopardize the M.E.H.O.A. revetment, but would expose the Wilson basement walls to wave uprush and storm scour.

The April 30, 1999 Pacific Engineering Group letter asserts that a shoreline protective device is now required to protect the Wilson residence. During the Coastal Commission's review of the new Wilson residence in 1995, the same applicant's consultant stated that no such device was needed. During the Commission's review of the application for Coastal Permit No. 4-95-224 to demolish the existing Wilson residence and construct a new residence, the applicant did not propose the construction of any shoreline protective device or disclose the existence of the device. The Commission found in the staff report for Coastal Permit No. 4-95-224 that:

> The proposed structure will be constructed on a caisson and gradebeam foundation. The applicants have submitted a Wave Uprush Study, dated May 10, 1995, prepared by Pacific Engineering Group. Based on their investigation of the proposed project site and proposed residence, the consultants conclude that:
>
> > The proposed development consisting of a new two-story single family residence supported on concrete friction piles is considered safe from coastal processes and will not have any adverse impacts on coastal processes provided that the recommendations of the (sic) this study are complied with.

> The applicant indicates that no protective device will be necessary. As such, the proposed project will have no individual or cumulative impacts on public access.

Pacific Engineering Group's statement in the April 30,1999 that removal of the rocks will expose the Wilson basement walls to wave uprush and storm scour is another indication that Lechuza Beach is eroding. The same consultant determined in 1995 that no shoreline protective device was needed.

The report produced by the applicants' consultant regarding the nature of Lechuza Beach is not persuasive. The applicants provided a report that discussed the proposed project relative to wave uprush and shoreline processes. The submitted Wave Uprush Study completed by Reg Browne, Pacific Engineering Group, dated March 19, 1998 addressed the proposed project. The report identified the site conditions and proposed development, wave uprush analysis and results, and recommendations for protecting Sea Level Drive. Mr. Browne provides an opinion that this beach is an oscillating beach with a seasonal foreshore movement that can be as great as 140 feet. Mr. Browne concludes that since this site is adjacent to a slightly eroding section of beach (Lechuza Point), the subject beach is located in a transition zone at best, and is susceptible to episodes of severe scour during winter storms. Based upon more recent information, Mr. Browne believes that this specific section of beach is stable. [3] The applicants' consultant provided no significant analysis or study in support of the conclusion that this beach is stable or oscillating.

Staff requested in a letter dated March 19, 1999 additional information from the applicants regarding the long-term characteristics of the beach. The letter (Exhibit 10) indicated that the above Pacific Engineering Group Study indicated that Lechuza Beach in this area is in equilibrium in contrast to the Commission evidence that Lechuza Beach is, over the long term, an eroding beach. The Staff letter dated March 19, 1999 requested the following:

> Therefore, staff is requesting additional analysis regarding the long-term characteristics of the erosional nature of this beach and the analytical and evidentiary basis for this conclusion. These long term characteristics should be provided through a historical analysis, including an analysis of aerial photographs. Your information should address: What are the differences in erosion rates of the beach and bluff with the revetment and without the revetment? In addition, staff is requesting further analysis with regard to the potential effects the proposed revetment may have on beach processes or sand supply. The analysis should include a discussion of how often waves are expected to act on the revetment and the expected amounts of erosion on an annual basis. The coastal engineering report(s) submitted to date conclude that the proposed revetment will not have any significant effects on the beach based on the conclusion that the beach is in equilibrium and the revetment is sited on the backshore of the beach. However, the conclusion that the revetment will have no effects on the beach is not supported

[3] Staff communication with Mr. Browne on 1/25/99

by any quantitative or substantial qualitative data or evidence that the revetment will not have any significant effect on beach processes or sand supply.

In response to the March 19, 1999 letter, the applicants submitted a letter dated April 30, 1999 from Reg Browne, Pacific Engineering Group that addressed other aspects raised in the Staff's March 19, 1999 letter. However, the April 30, 1999 letter did not address any of the issues noted above. As a result, the applicants submitted no substantive analysis supporting the conclusion that Lechuza Beach is stable or oscillating. Nor did they submit any analysis or evidence supporting the conclusion that the revetment will not have any significant effect on beach processes or sand supply.

Consequently, based on the relevant information about the behavior of Lechuza Beach and the analysis of two highly qualified experts (Gadd and Seymour), the Commission finds that Lechuza Beach where the project site is located is an eroding beach, not an oscillating or stable beach as stated by the applicant.

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

In order to determine the impacts of the proposed revetment on the shoreline, the location of the proposed protective device in relationship to the mean high tide line and expected wave runup must be analyzed. The profile data cited below, shows that the position of the proposed rock revetment does intrude on the areas of wave run-up and beach sediment transport. However, the data also shows that the revetment is not proposed to be located near or seaward of the documented positions of the MHTL.

The data submitted by the applicant alleges that the proposed revetment is not located near or seaward of the documented positions of the Mean High Tide Line (MHTL). The MHTL is an ambulatory line that can vary significantly from summer to winter.

The proposed rock revetment is approximately 90 ft. long, 27 ft. wide, and 14 feet high and is located adjacent to, along the east side, and landward of an existing structure (Wilson residence) protected by an 'unpermitted' rock revetment to the west (Exhibits 3 and 4). The western end of the proposed revetment is connected to the rock revetment protecting this residence. The rock revetment protecting the Wilson residence does not appear to have a coastal development permit and is considered 'unpermitted'. The eastern end of the proposed revetment is connected to the landward corner of a large rock formation. The seaward extent of the revetment will extend approximately 50 - 60 feet seaward from the southern shoulder of Sea Level Road.

Shoreline protective devices such as seawalls and revetments, are physical structures which occupy space on a beach. When a shoreline protective device is placed on a sandy beach area, the underlying beach cannot be used as beach recreation. This generally results in a loss of public access as well as a loss of sand. The area where the structure is placed will be altered from the time the protective device is constructed, and the extent or area occupied by the device will remain the same over time, until the structure is removed or moved from its initial location, or in the case of this revetment, as it

spreads seaward over time. The beach area located beneath a shoreline protective device, referred to as encroachment area, is the area of the structure's footprint. As discussed in the Commission's methodology, this impact may be quantified as follows:

> *The encroachment area (Ae) is equal to the width of the property which is being protected (W) times the seaward encroachment of the device (E). This can be expressed by the following equation:*
>
> $$Ae = W \times E$$

The applicant proposes to construct a shoreline protective device that encroaches further seaward than the former bluff. The proposed rock revetment will be located about twenty-seven (27) feet seaward from the bluff across a ninety (90) foot width. Thus, the direct seaward encroachment impact of the applicant's proposed revetment will be a total of about 2,430 square feet of sandy beach area.

In the application submittal, a map was submitted identifying the subject revetment and the surveyed MHTL position from August – October 1990. This 1990 MHTL is located about 110 feet further seaward of the seaward extent of the proposed revetment, however, this line depicting the MHTL is not documented by the applicants' engineer. An Assessor Parcel Map also identifies two Mean High Tide Lines dated July 23, 1932 and May 1957. These MHTLs are located seaward of the subject site and are about 130 feet and 100 feet seaward, respectively, of what appears to be the seaward extent of the proposed revetment.

Further, the applicant has submitted a letter, dated August 28, 1998, from the State Lands Commission (SLC) which states:

> This is a developed stretch of beach with several residences both to the east and west, although the two lots immediately adjacent to the property on the east are undeveloped. Based on the above, the CSLC presently asserts no claims that the project intrudes onto sovereign lands or that it would lie in an area that is subject to the public easement in navigable waters. This conclusion is without prejudice to any future assertion of state ownership or public rights, should circumstances change, or should additional information come to our attention. *(Exhibit 6).*

A review of the Mean High Tide Line (MHTL) Surveys provided in the Lechuza Villas West project as part of Coastal Permit Application No. 5-90-839 et. al. notes that the Surveys do not extend as far east as the subject two lots (Exhibit 9). The most recent MHTL surveyed on February 10, 1998 by David Grimes, a licensed land surveyor, identifies a more landward MHTL (Exhibit 11). An extrapolation of this more landward MHTL on this Survey extended east to the subject two lots was prepared and reviewed by staff (Exhibit 11).[4] This MHTL is dated February 10, 1998 and if extrapolated to the subject two lots extends approximately 55 - 65 feet seaward of Sea Level Drive. As noted on the plans, the

[4] An extrapolation does not provide the exactitude of a MHTL survey, an extrapolation over a short distance can provide some useful information about the movement of the MHTL.

subject revetment is located approximately between 50 to 60 feet seaward of Sea Level Drive. Subtracting the distance of the seaward most extent of the revetment from the extrapolated MHTL results in a distance approximately five feet. In effect, the seaward base of the revetment may be located within five feet or just landward of this extrapolated MHTL. This extrapolated MHTL does not take into account the effect of the Wilson residence and "unpermitted" rock revetment may have on the MHTL. The Wilson residence and revetment may act as a groin that may scour sand from the two subject lots immediately downcoast in such a manner to locate the MHTL further landward as is common with such shoreline geomorphology. Therefore, a portion of the proposed project, based upon the evidence available to date, may be located on or seaward of the Mean High Tide Line. However, since no specific surveys of the MHTL were submitted by the applicant it is uncertain whether or not the proposed project will occupy public tidelands.

In order to determine the impacts of the proposed revetment on the shoreline, the location of the proposed shoreline protective device in relation to the expected wave runup must be analyzed. With respect to inundation of the beach fronting the sections of new rock revetment during high tide and low beach profile conditions in the winter, the data provided by Reg Browne, Pacific Engineering Group, cited below, indicates that such inundation will occur. What remains unclear is the frequency at which the inundation will occur.

It is important to accurately calculate the potential for wave runup and wave energy affecting the bulkhead and base rock in the future. Dr. Inman, renowned authority on Southern California beaches concludes that:

> The likely detrimental effect of the seawall on the beach can usually be determined in advance by competent analysis.

Dr. Inman further explains the importance of the seawall's design and location as it relates to predicting the degree of erosion that will be caused by the seawall. 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 the 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. [5]

In past permit actions, the Commission has found that one of the most critical factors controlling the impact of revetments on the beach is its position on the beach profile relative to the surf zone. All other things being equal, the further seaward the revetment is located, the more often and more vigorously waves interact with it. The best place for a revetment, if one is necessary, is at the back of the beach where it provides protection

[5] Letter dated 25 February 1991 to Lesley Ewing, Coastal Commission staff from Dr. Douglas Inman.

against the largest storms. By contrast, a revetment built out too close to the Mean High Tide Line may constantly create problems related to frontal and end scour, as well as upcoast sand impoundment. Rock revetments operate on the principle that wave energy is dissipated within the voids of the wall, thereby producing less wave reflected energy than a smooth vertical wall. However, similar to a vertical wall, a rock revetment is a rigid structure fixed in place and will reflect wave energy and produce the same type of erosional impacts cited by Dr. Inman above.

Reg Browne, of Pacific Engineering Group, the applicant's engineering consultant, states in the Wave Uprush Study, dated March 19, 1998, that a Wave Uprush analysis was completed according to criteria established by Los Angeles County Coastal Engineering Department, as updated in 1984. As noted in the Study, two wave designs were used on the design beach profile to determine the location of where these waves would break and the location of the most landward extent of the wave uprush. According to both wave design scenarios, the waves would break seaward of Sea Level Drive and its seaward right of way line, if the property were not protected with a revetment. These wave break locations are about five (5) feet seaward and at the right-of-way line of the Sea Level Drive.

Based on the above discussion and facts concerning the eastern portion of Lechuza Beach, the Commission finds that the revetment at its proposed location, has the potential to encroach into an area of the beach that is currently subject to wave action during severe storm and high tide events. Furthermore, the Commission finds that Lechuza Beach is a narrow eroding beach and that the proposed revetment, at times, will be subject to wave action during storm and/or high tide events. In addition, it is uncertain if the proposed revetment will impact pubic tidelands in relation to the Mean High Tide Line. Therefore, the following discussion is intended to evaluate the impacts of the proposed revetment on the beach based on the above information that identified the specific structure design, the location of the structure, and the shoreline geomorphology.

4. Effects of the Shoreline Protective Device on the Beach

The proposed new 90 foot long revetment will be constructed at the back of a sandy beach. It will be located as far seaward as between about 50 feet and 60 feet seaward of the Sea Level Drive. An engineered revetment such as this one is typically built along straight sand beaches or low coastal bluffs where fill can be placed landward of the revetment to support roadways and sewage disposal systems that are constructed on fill land. Therefore, the revetment structure functions as both a retaining structure and as protection from wave attack and wave runup. In this case the proposed revetment protects a roadway and buried utilities and does not protect a sewage disposal system.

The proposed project involves a shoreline structure that, as a result of wave interaction, has the potential to affect the configuration of the shoreline and the beach profile and may have an adverse impact on the shoreline. Even though the precise impact of a shoreline structure on the beach is a persistent 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. The main difference between a vertical bulkhead and rock revetment is their physical encroachment onto the beach. However, it has been well documented by coastal engineers and coastal geologists that shoreline protective devices or shoreline structures in the form of either a rock revetment or vertical bulkhead will adversely impact the shoreline as a result of beach scour (the beach areas at the end of the seawall), retain potential beach material behind the wall, fix the back beach, and interrupt longshore processes. In order to evaluate these potential impacts relative to the proposed structure and its location on Lechuza Beach, each of the identified effects will be evaluated below.

a. Beach Scour and End Effects

Beach scour and end effects will be addressed in sequence. Scour is the removal of beach material from the base of a cliff, seawall or revetment due to wave action. The scouring of beaches caused by shoreline protective devices is a frequently observed occurrence. When waves impact on a hard surface such as a coastal bluff, rock revetment or vertical bulkhead, some of the energy from the wave will be absorbed, but much of it will be reflected back seaward. This reflected wave energy in combination with the incoming wave energy, will disturb the material at the base of the shoreline protective device and cause erosion to occur in front and down coast of the hard structure. This phenomenon has been recognized for many years and the literature acknowledges that shoreline protective devices have some effect on the supply of sand. The following quotation summarizes a generally accepted opinion within the discipline of coastal engineering that:

> Seawalls usually cause accelerated erosion of the beaches fronting them and an increase in the transport rate of sand along them. [6]

The Commission has observed this phenomenon up and down California's coast, where a seawall has successfully halted the retreat of the shoreline, but only at the cost of usurping the beach. For example, at La Conchita Beach in Ventura County, placement of a rock revetment to protect an existing roadway has caused narrowing of the existing beach. Likewise, at City of Encinitas beaches in San Diego County, construction of vertical seawalls along the base of the bluffs to protect existing residential development above, has resulted in preventing the bluffs' contribution of sand to the beaches, resulting in narrowing. Although this may occur slowly, the Commission concludes that it is the inevitable effect of constructing a seawall on an eroding shoreline. In such areas, even as erosion proceeds, a beach would be present in the absence of a seawall.

As set forth in the above discussion, Lechuza Beach, at the east end, is a narrow eroding beach. The applicant's coastal engineering consultant has indicated that the revetment will be acted upon by waves during storm conditions. The applicant's consultant has identified that wave uprush will extend to the seaward edge of Sea Level Drive right-of-

[6] Saving the American Beach: A Position Paper by Concerned Coastal Geologists (March 1981, Skidaway Institute of Oceanography), pg. 4.

way line if the property were not protected with a revetment. These wave break locations are about five (5) feet seaward and at the right-of-way line of Sea Level Drive. This estimate of wave runup does not take into account worst case severe storm events. If an eroded beach condition occurs with great frequency due to the placement of the revetment, this site would also accrete at a slower rate. During periods of beach erosion, this site would erode more. The Pacific Engineering Report indicates that the subject beach is susceptible to episodes of severe scour during winter storms by stating:

> ... the subject beach in a transition zone at best, and susceptible to episodes of severe scour during winter storms.

Therefore, based on the report prepared by the Army Corp of Engineers, and the analysis of Reg Browne, Pacific Engineering Group, the Commission finds that over time, the revetment will be acted upon more frequently during winter months.

The Commission notes that many studies performed on both oscillating and eroding beaches have concluded that loss of beach occurs on both types of beaches where a shoreline protective device exists. The Pacific Engineering Group Wave Uprush Study, dated March 19, 1998, does not specifically address beach scour created by the proposed revetment. However, the Report does address coastal littoral processes by stating:

> The rock revetment would not be exposed to wave uprush from non-storm wave run-up during high tides, and the revetment would not have any effect on coastal littoral processes during non-storm wave conditions during winter profiles. During severe winter storms such as occurred in 1998, sand is expected to temporarily scour down to bedrock at the elevation shown on sheet BP1 (Exhibit 7). The toe of the revetment would now be exposed and in-line with the landward edge of the large bedrock outcrop directly adjacent and slightly seaward of the revetment shown on the plans. Even when the subject beach is temporarily scoured down to this design profile the revetment would not have a measurable effect on the coastal littoral process.

However, there will be some potential for additional scour at the base of the wall due to "reflected" wave scour when it is exposed during winter storm conditions. The applicants provided no analytical support for their conclusion that there will be no effects of the proposed revetment on beach processes or sand supply as requested by Staff in the March 19, 1999 letter to the applicants. Therefore, the Commission notes that the revetment has the potential to cause adverse effects to the beach sand supply.

The impacts of potential beach scour is important relative to beach use for two reasons. The first reason involves public access. As explained in the subsequent section relating to public access, Lechuza Beach has historically been used by the public. If the beach scours at the base of the revetment, even minimal scouring in front of the approximate 90 foot long wall will translate into a loss of beach sand available (i. e. erosion) at a more accelerated rate than would otherwise occur under a normal winter season if the beach were unaltered. The second impact relates to the potential turbulent ocean condition.

Scour at the face of the revetment will result in greater interaction with the revetment, and thus, make the ocean along Lechuza Beach more turbulent than it would along an unarmored beach area. Therefore, the Commission finds that the proposed revetment has the potential to cause greater erosion under a normal winter season. As a result, there is potential for erosion, and thus, significant adverse impacts on local shoreline sand supply and shoreline processes.

The Commission has ordinarily required that all new development on a beach, including shoreline protection devices, be located as landward as possible in order to reduce adverse impacts from scour and erosion. In the case of this project, the Commission finds that the applicant has not located the proposed revetment as far landward as feasible. The proposed revetment will be setback at the base of the slope located at the back of the beach. About 300 cubic yards of fill is needed to align the revetment across the back of the beach while filling in an area eroded landward which supports Sea Level Drive (Exhibits 4a and 4b). The revetment is located as far seaward as 50 –60 feet from Sea Level Drive. If a rock revetment were determined to be the preferred alternative design, the revetment could be located at the back of the beach and bluff without the proposed 300 cubic yards of material to backfill the eroded area of the bluff. Such a location at the far back of the bluff may require the rock revetment be constructed to a higher elevation to meet the remaining slope material on the bluff face. Further, no evidence was submitted that the proposed footprint of the rock revetment covered the smallest area of the beach at the base of the bluff. Therefore, the Commission finds that the location of the revetment is not located at the far back of the beach as possible to reduce potential adverse impacts from scour and erosion. Alternative designs are discussed below.

End effects involve the changes to the beach profile adjacent to the revetment or seawall at either end. One of the more common end effects comes from the reflection of waves off the revetment in such a way that they add to the wave energy which is impacting the unprotected coastal areas on either end. Coastal engineers have compared the end effects impacts between revetments. In the case of the subject revetment, wave energy is reflected back and to the ends which can cause erosion at the upcoast and downcoast ends of the revetment.

The applicant's consultant, Reg Brown, Pacific Engineering Group, submitted no substantive information regarding the potential end effects of the proposed revetment. The above described impacts on the sandy beach and the encroachment onto the sandy beach require mitigation under the Coastal Act. In the past, the Commission has mitigated the direct impacts of shoreline structures by requiring the redesign of seawalls, the use of vertical walls that occupy less beach area rather than rock rip-rap revetments, the requirement of lateral public access easements, requiring other in-kind access improvements, and other such measures to meet sand supply mitigation requirements. The Commission notes that end effect erosion may be minimized by locating a proposed shoreline protection device as landward as possible in order to reduce the frequency that the revetment is subject to wave action. In the case of this project, the Commission further notes that the proposed revetment is not located as landward as feasible as compared to a vertical seawall. The location of the proposed revetment is not at the back

of the beach at a location that is as far landward as feasible to minimize beach scour. As such, the proposed revetment is not designed to minimize beach scour and erosional end effects. Therefore, the proposed project is not consistent with the applicable Coastal Act sections and with past Commission action.

5. Sea Level Rise

Sea level has been rising slightly for many years. In the Santa Monica Bay area, the historic rate of sea level rise has been 1.8 mm/yr. or about 7 inches per century.[7] Sea level rise is expected to increase by 8 to 12 inches in the 21st century.[8] There is a growing body of evident that there has been a slight increase in global temperature and acceleration in the rate of sea level can be expected to accompany this increase in temperature. Mean water level affects shoreline erosion several ways and an increase in the average sea level will exacerbate all these conditions.

On the California coast the effect of a rise in sea level will be the landward migration of the intersection of the ocean with the shore. On a relatively flat beach, with a slope of 40:1, every inch of sea level rise will result in a 40-inch landward movement of the ocean/beach interface. For fixed structures on the shoreline, such as pilings or seawalls, an increase in sea level will increase the inundation of the structure. More of the structure will be inundated or underwater that are inundated now and the portions of the structure that are now underwater part of the time will be underwater more frequently.

Accompanying this rise in sea level will be increased wave heights and wave energy. Along much of the California coast, the bottom depth controls the nearshore wave heights, with bigger waves occurring in deeper water. Since wave energy increases with the square of the wave height, a small increase in wave height can cause a significant increase in wave energy and wave damage. So, combined with the physical increase in water elevation, a small rise in sea level can expose previously protected back shore development to both inundation and wave attack, and those areas that are already exposed to wave attack will be exposed to more frequent wave attack with higher wave forces. Structures that are adequate for current storm conditions may not provide as much protection in the future.

A second concern with global warming and sea level rise is that the climatic changes could cause changes to the storm patterns and wave climate for the entire coast. As water elevations change, the transformation of waves from deep water will be altered and points of energy convergence and divergence could shift. The new locations of energy convergence would become the new erosion "hot spots" while the divergence points may experience accretion or stability. It is highly likely that portions of the coast will experience more frequent storms and the historic "100-year storm" may occur every 10 to 25 years. For most of California the 1982/83 El Niño event has been considered the "100-year

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[7] Lyles, S.D., L.E. Hickman and H.A. Debaugh (1988) Sea Level Variations for the United States 1855 – 1986. Rockville, MD: National Ocean Service.

[8] Field et. al., Union of Concerned Scientists and the Ecological Society of America (November 1999) Confronting Climate Change in California, www.ucsusa.org.

storm." Certain areas may be exposed to storms comparable to the 1982/83 El Niño storms every few decades. In an attempt to ensure stability under such conditions, the Commission has required that all new shoreline structures be designed to withstand either a 100-year storm event, or a storm event comparable to the 1982/83 El Niño. Also, since it is possible that storm conditions may worsen in the future, the Commission has required that structures be inspected and maintained on a regular basis. The coast can be altered significantly during a major storm and coastal structures need to be inspected on a regular basis to make sure they continue to function as designed. If storm conditions worsen in future years, the structures may require changes or modifications to remain effective. In some rare situations, storm conditions may change so dramatically that existing protective structures may no longer be able to provide any significant protection, even with routine maintenance.

Therefore, if shoreline protective devices are to be found consistent with the Coastal Act, the most landward location must be explored to minimize wave attack with higher wave forces as the level of the sea rises over time. Shoreline protective devices must also be located as far landward as feasible to protect public access along the beach as discussed further below. Limiting the footprint of development on the landscape particularly in vulnerable habitats such as wetlands, areas subject to floods, and beaches, is probably the most important action Californians can take to minimize adverse impacts from sea level rise. [8]

6. Alternative Designs

It has been found that the further landward the shoreline protective device is located, the less beach scour will result. The alternative of re-siting of the existing revetment to a more landward location may reduce the effects on the beach caused by wave runup during winter storms that occurred during high tides. Lessening the wave energy when it reaches the relocated revetment will minimize the beach scour in front of the revetment.

In response to the application materials submitted by the applicant, Staff requested, in a letter dated October 15, 1998, an alternative analysis with additional alternatives beyond those considered in the submitted Wave Uprush Study dated March 19, 1998 by Reg Browne, Pacific Engineering Group. The applicant submitted a letter report titled; Engineering Response to Coastal Commission Staff Letter, dated October 30, 1998. In the Letter Report, the applicant's consulting engineer addressed two alternative designs and the alternative of relocating one of the alternative designs by stating:

> This office identified two structures that could be used to protect the portion of Sea Level Drive from storm scour and also support the road:
>
> **a. Vertical Wall**

[8] Field et. al., Union of Concerned Scientists and the Ecological Society of America (November 1999) Confronting Climate Change in California, www.ucsusa.org.

A vertical wall would be supported by either a footing resting on bedrock, or supported with concrete soldier piles drilled into bedrock. The footing would extend approximately 10 feet seaward of the vertical portion of the wall. A vertical wall built at this location would reflect wave uprush back toward the ocean and toward the large natural rock outcrops located on the beach in front of the wall. Such reflected wave energy would lead to additional sand scour behind the rock outcrops and would also lead to additional sand loss east of the affected location due to the outcrops channeling the reflected uprush. The study indicates that the storm wave uprush would have a velocity of 22.6 feet per second as it hits the wall, and much of this uprush would be reflected back toward the rock outcrop creating additional scour due to the channeling effect mentioned above.

The top of the vertical wall would be at elevation +16.5 Ft. MSL (2.5 feet higher than the rock revetment) and backed by a 2:1 fill slope up to the roadway. A 2:1 slope is the steepest slope allowed for soil as per the site discussion with your Geotechnical Consultant RJR Engineering Group. Public access to the sandy beach could not be made without construction of a staircase that would further encroach on to the beach area.

End effects would not be an issue as a non-scourable bedrock cliff is on the east side of the wall, and existing rock revetment is adjacent to the west. Even without these structures located at the ends, the end effects would be insignificant given the short linear length of vertical wall required.

b. Rock Revetment

Discussions held with you as the representative of the homeowners association indicated a need to construct a protective structure as soon as possible with the idea of obtaining a final slope that was in roughly the same location, allowed for the same beach access, and had approximately the same look as the original slope now scoured by storm wave action. The rock revetment designed by this office for this site fulfilled the above requirements. In addition, a rock revetment absorbs and dissipates much of the wave uprush reducing the effects of channeling between the bedrock cliff and the rock outcrop.

The height of the revetment is at elevation +14.0 Feet MSL, which is 2.5 feet lower than the elevation +16.0 Feet MSL required for a vertical wall at this location. The face of this (or any other) rock revetment is optimized at a slope of 1.5 horizontal to 1.0 vertical for the following reasons:

A. Studies by the Corps of Engineers indicate that there is a reduction in wave uprush elevation at this slope. Slopes that are steeper, say at a 1 to 1 slope, will have a higher uprush associated with that slope. For example, a 1.0 to 1.0 slope on the subject revetment would lead to an uprush elevation 12 percent higher creating a need to have the top of the revetment at elevation +15.6 Feet MSL, which is 1.6 feet higher than the +14.0 ft. MSL needed for a

rock slope of 1.5 to 1.0 as designed. A higher revetment means a wider revetment at the base.

B. A revetment face steeper than 1.5 to 1.0 is not stable. Revetment faces steeper than 1.5 to 1.0 generally lead to the top rocks rolling off the face and further encroaching on the beach and creating a safety hazard.

C. Steeper revetment faces do not allow for the proper support and keying in of the rocks above. This will lead to an unstable structure.

D. Overall a 1.5 to 1.0 revetment face is the proper slope from an engineering perspective, and is the slope that is considered the "standard slope" used for this application for the above reasons.

In regards to the Staff's question on pulling back the revetment, the revetment as designed and built is as landward as it can physically be given the site geometry, elevations, and other characteristics. The steepest slope allowed by the City's codes for the soil fill above the revetment to the roadway is a 2 to 1 slope.

Given the discussions above you can see that the rock revetment is located as landward as possible for this location.

Therefore, the applicant's engineering consultant has analyzed two alternative designs and determined that the proposed rock revetment is the preferred alternative for many reasons. These reasons include absorbing and dissipating wave uprush energy, while reducing the effects of channeling between the bedrock cliff below Sea Level Drive and the rock outcrop. The engineering consultant analyzed an alternative location for the proposed rock revetment. The alternative location is landward of the proposed location to reduce the need for backfilling; the applicant's consultant did not recommend such a location. However, the applicant has not provided the information requested in the staff's letter dated March 19, 1999 regarding the long term characteristics of the erosional nature of this beach. Since there is no site specific information or quantitative or substantial qualitative data or evidence to support the applicant's assertion that the revetment will not have any significant effect on beach processes or sand supply, the applicant's proposed rock revetment can not be found consistent with Coastal Act sections 30235 and 30253.

Alternatives to locate a shoreline protective device as far landward as feasible needs to be further evaluated by the applicant. A location as far landward as feasible for the device would involve a study by the applicants of various designs for a vertical seawall and other alternative designs. Such a vertical seawall will only be acted on by wave action when the beach is scoured usually during the winter season, thereby minimizing scour and erosion of the beach. In addition, a seawall in such a far landward location will also protect public access on the sandy beach. As the level of the sea increases over time, a seawall in the most landward location will be acted upon by waves far less than the proposed rock revetment that is located more seaward. The existing stairway could also be replaced with other alternatives including constructing the stairway into the vertical seawall to minimize its extension onto the beach. Vertical seawall alternatives include "hard" and "soft" solutions. A "hard" solution could be a vertical concrete seawall, a metal sheetpile seawall, a small grouted rock seawall, or a wooden bulkhead. A "soft" solution could be a

vertical wall made of a colored and textured erodible mixture designed to match the natural appearance of surrounding bluffs and erode at a slow rate. Another alternative maybe a geo-grid fabric over a fill slope planted with native vegetation, or other alternative solutions. Therefore, there are other alternative designs and locations that need further study by the applicant.

Therefore, the Commission finds that constructing a rock revetment with backfill at the seaward base of Sea Level Drive is not the environmentally preferred and feasible alternative. The Commission also finds that an alternative vertical seawall of a hard or soft solution design, will minimize the beach scour effects of the shoreline protective device and ensure the project will minimize any significant adverse effects on the local shoreline sand supply or shoreline processes. Therefore, the proposed project is not consistent with Sections 30235, and 30253 of the Coastal Act.

7. Conclusion

In conclusion, the Commission finds that the proposed rock revetment will have adverse effects on the shoreline and the applicant has not provided adequate information regarding the revetment's effects on the beach. Because there are alternative designs, various "hard" and "soft" vertical seawalls, that could be proposed by the applicant to be located further landward, the proposed revetment will not minimize adverse effects on the beach. Coastal Act Section 30235, which is previously cited, states that shoreline protective devices, such as revetments and other construction that would alter natural shoreline processes, shall be permitted when those structures are necessary to serve coastal-dependent uses or to protect existing structures or to protect public beaches in danger from erosion and when they are designed to eliminate or mitigate adverse impacts on local shoreline sand supply. In the case of this project, the applicant's coastal engineering consultant has stated that the proposed revetment is necessary to protect an existing roadway and buried utility lines serving about 27 residences. Further, as previously discussed in detail, the Commission also finds that the subject site is located on a beach that is an eroding beach.

In addition, in past permit actions, the Commission has required that all new development on a beach, including shoreline protection devices, be located as landward as possible in order to reduce adverse impacts to the sand supply and beach scour resulting from the development.[9] The Commission notes that the applicant has not located the proposed revetment as far landward as feasible. Therefore, the Commission finds that the proposed project meets the first test of Section 30235, but does not meet the second test of Section 30235, as the device is not designed to eliminate or mitigate adverse impacts on shoreline sand supply.

Therefore, as proposed, the project will not minimize the adverse impacts resulting from construction of the revetment and is not consistent with the applicable Coastal Act Sections. Therefore, the Commission finds that the proposed project is not consistent with Section 30235 of the Coastal Act. The Commission also finds that the proposed project

[9] Coastal Development Permit 4-97-071 (Schaeffer)

will not minimize risks to life and property in areas of flood hazard and assure stability and structural integrity that will not require the construction of protective devices that would substantially alter natural landforms along bluffs. Thus, the Commission finds that the proposed project is not consistent with Sections 30235 and 30253 of the Coastal Act.

C. Public Access.

One of the basic mandates of the Coastal Act is to maximize public access and recreational opportunities along the coast. The Coastal Act has 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 of the Coastal Act states (in part):

> **(a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where:**
>
> **...**
>
> **(2) adequate access exists nearby...**

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 uses.**

Section 30221 of the Coastal Act states:

> **Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.**

1. Public Access

Coastal Act sections 30210 and 30211 mandate that maximum public access and recreational opportunities be provided and that development not interfere with the public's right to access the coast. Likewise, section 30212 of the Coastal Act requires that public access to the sea be provided, except where adequate access exists nearby. Section

30211 provides that development not interfere with the public's right of access to the sea including the use of dry sand and rocky coastal beaches. Section 30220 of the Coastal Act requires coastal areas suited for coastal recreational activities, which cannot be provided at inland water areas, be protected. Section 30221 of the Coastal Act requires that oceanfront land suitable for recreational use shall be protected for recreational use.

The major access issue in this permit is the occupation of sand area by a structure, in contradiction of Coastal Act policies 30210, 30211, and 30212. Section 30211 requires that development shall not interfere with access.

As proposed, this project would extend seaward onto a sandy beach area and occupy an area approximately 27 feet wide by 90 feet long (occupies about 2,430 sq. ft. of beach) beyond the fill area which averages about 15 feet wide. It is important to note that the project is not located on the landward portion of the beach as far landward as feasible, as noted in the previous section. 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.

As noted above, interference by the proposed revetment has a number of effects on the dynamic shoreline system and the public's beach ownership interests. First, changes in the shoreline profile, particularly changes in the slope of the profile which results from a reduced beach berm 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 in which the public can pass on their own property. The second effect on access is through a progressive loss of sand as shore material is not available to nourish the bar. The lack of an effective bar can allow such high wave energy on the shoreline that materials may be lost far offshore where it is no longer available to nourish the beach. The effect of this on the public is again a loss of area between the mean high water line and the actual water. Third, shoreline protective devices such as revetments cumulatively affect public access by causing accelerated and increased erosion on adjacent public beaches. This effect may not become clear until such devices are constructed individually along a shoreline and they reach a public beach. Fourth, if not sited landward in a location that ensures that the seawall is only acted upon during severe storm events, beach scour during the winter season will be accelerated because there is less beach area to dissipate the wave's energy. Finally, shoreline protective devices 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.

Due to the aforementioned adverse impacts of shoreline protective structures on public access, the proposed shoreline protection device must be judged against the public access and recreation policies of the State Constitution, Sections 30210, 30211, 30212,

30220, and 30221 of the Coastal Act. Along the California coast, the line between land and ocean is complex and constantly moving.

The State Owns Tidelands, Which Are Those Lands below the Mean High Tide Line as it Exists From Time to Time. By virtue of its admission into the Union, California became the owner of all tidelands and all lands lying beneath inland navigable waters. These lands are held in the State's sovereign capacity and are subject to the common law public trust. The public trust doctrine restricts uses of sovereign lands to public trust purposes, such as navigation, fisheries, commerce, public access, water-oriented recreation, open space and environmental protection. The public trust doctrine also severely limits the ability of the State to alienate these sovereign lands into private ownership and use free of the public trust. Consequently, the Commission must avoid decisions that improperly compromise public ownership and use of sovereign tidelands.

Where development is proposed that may impair public use and ownership of tidelands, the Commission must consider where the development will be located in relation to tidelands. The legal boundary between public tidelands and private uplands is known as the ordinary high water mark. (Civil Code, § 830.) 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 a sandy beach whose profile changes as a result of wave action, the location at which the elevation of mean high tide line intersects the shore is subject to change. The result is that the mean high tide line (and therefore the boundary) is an "ambulatory" or moving line that moves seaward through the process known as accretion and landward through the process known as erosion.

Consequently, the position of the mean high tide line fluctuates seasonally as high wave energy (usually but not necessarily) in the winter months causes the mean high tide line to move landward through erosion, and as milder wave conditions (generally associated with the summer) cause the mean high tide line to move seaward through accretion. In addition to ordinary seasonal changes, the location of the mean high tide line is affected by long term changes such as sea level rise and diminution of sand supply. [17]

The Commission Must Consider a Project's Direct and Indirect Impact on Public Tidelands. In order 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 order to avoid approving development that will encroach on public tidelands during any time of the year, the Commission, usually relying on information supplied by the State Lands Commission, will look to whether the project is located landward of the most landward known location of the mean high tide line. In this case, the State Lands Commission presently does not assert a claim that the project intrudes onto sovereign

lands. In addition, a number of MHTL surveys were completed for the Lechuza Villas West project as part of Coastal Permit Application No. 5-90-839 et. al. As noted in the above section, an extrapolation of the most landward line on this Survey extended east to the subject two lots was reviewed by staff (Exhibit 11). This MHTL is dated February 10, 1998 and if extrapolated to the subject two lots may be located as an extension of the MHTL approximately 55 to 65 feet seaward of Sea Level Drive. As noted on the plans, the subject revetment is located approximately between 50 to 60 feet seaward of Sea Level Drive. Subtracting the distance of the seaward most extent of the revetment from the extrapolated MHTL results in a distance approximately five feet. In effect, the seaward base of the revetment may be located within five feet or just landward of this extrapolated MHTL. This extrapolated MHTL does not take into account the effect of the Wilson residence and "unpermitted" rock revetment may have on the MHTL. The Wilson residence and revetment may act as a groin that may scour sand from the two subject lots immediately downcoast in such a manner to locate the MHTL further landward as is common with such shoreline geomorphology. Therefore, a portion of the proposed project, based upon the evidence available to date, may be located on or seaward of the Mean High Tide Line. However, since no specific surveys of the MHTL on the eastern end of Lechuza Beach where the project is located were submitted by the applicant, it is uncertain whether or not the proposed project will occupy public tidelands.

Even structures located above the mean high tide line, however, may have an impact on shoreline processes as wave energy reflected by those structures contributes to erosion and steepening of the shore profile, and ultimately to the extent and availability of tidelands. That is why the Commission also must consider whether a project will have indirect impacts on public ownership and public use of shorelands. However, as discussed above, the potential indirect impacts on tidelands does appear to create significant adverse impacts on the beach as a result of wave attack and wave energy due to the unique beach site and design of the project located on the sandy beach.

The beaches of Malibu are extensively used by visitors of both local and regional origin and most planning studies indicated that attendance of recreational sites will continue to significantly increase over the coming years. The public has a right to use the shoreline under the public trust doctrine, the California Constitution and California common law. The Commission must protect those public rights by assuring that any proposed shoreline development does not interfere with or will only minimally interfere with those rights. Here, although it is uncertain it is probable that the proposed revetment will generate a permanent loss of sandy beach over time as a result. Presently, the area seaward of the MHTL on this shoreline can be used by the public for access and general recreational activities.

Lechuza Beach is a sandy beach of about one half mile in length. The project site is located at the eastern end of Lechuza Beach within about 300 feet of Lechuza Point. A vertical public access at 31300 Broad Beach Road is located about 2,000 feet to the east beyond Lechuza Point. A second vertical public accessway is located about two thirds of a mile to the west at El Matador State Beach, located at 32350 Pacific Coast Highway (Exhibit 8). Residential development on the bluffs above the sandy beach began in the

1930's and over time two bluff-face stairways were built (date unknown) to the sandy beach, one at the west end of Sea Level Drive, the other at the subject site at the east end of Sea Level Drive. According to the Malibu Encinal Homeowners Association (MEHOA), a license was given to the inland homeowners to use these stairways and Sea Level Drive through the tract to the beach. The public historically parked along Broad Beach Road (formerly Pacific Coast Highway) walked along Sea Level Drive to the stairways to access Lechuza Beach. Residents of the area state that due to the extensive public use of the roadways (primarily by cars) and the stairways, the homeowners installed gates in 1978 and signs (without benefit of a Coastal Development Permit) at the entrance to Sea Level Drive at Broad Beach Road. In 1991, the MEHOA opened the pedestrian gates and removed the no trespassing signs from the access roads to once again allow pedestrian access across Sea Level Drive to the beach.

In past permit actions, the Commission has required that all new development on a beach, including shoreline protection devices, be located as landward as possible in order to reduce adverse impacts to the sand supply and public access resulting from the development. The Commission notes that the applicant has not located the proposed revetment as landward as feasible to minimize scour and erosion of the sandy beach. An alternative design, such as a vertical seawall, could be proposed by the applicants to further reduce any impact on the sandy beach and public tidelands. In addition, as the level of sea level rises over time, the inland extent of the MHTL's identified in the area will move further seaward. As a result, the proposed revetment will affect the public's use of the public tidelands.

In addition, in past permit actions, the Commission has also required that all new development on a beach, including shoreline protection devices, provide for public lateral access along the beach in order to reduce any adverse impacts to public access if accepted. However, in this case the applicant has not offered any easements for public access in the subject application.

Therefore, the Commission finds that the proposed project is not consistent with Sections 30210, 30211, 30212, 30220, and 30221 of the Coastal Act.

D. Hazards and Geologic Stability

Coastal Act Section 30253 states (in part):

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 30253 of the Coastal Act mandates that new development provide for geologic stability and integrity and minimize risks to life and property in areas of high geologic, flood, and fire hazard. In addition to section 30253 of the Coastal Act, the certified Malibu/Santa Monica Mountains LUP includes several policies and standards regarding hazards and geologic stability. These policies have been certified as consistent with the Coastal Act and used as guidance by the Commission in numerous past permit actions in evaluating a project's consistency with section 30253 of the Coastal Act. For example, Policy 147 suggests that development be evaluated for impacts on and from geologic hazards.

1. Storm, Wave and Flood Hazard

The Malibu coast has been subject to substantial damage as a result of storm and flood occurrences, geological failures and firestorms. Therefore, it is necessary to review the proposed project and project site against the area's known hazards. The proposed project involves the construction of a revetment seaward of the existing Sea Level Drive to protect the roadway and buried utilities serving about 27 existing residences along Sea Level Drive to the west.

The site is susceptible to flooding and/or wave damage from storm waves and storm surge conditions. Past occurrences have resulted in public costs (through low-interest loans) in the millions of dollars in the Malibu area alone. Along the Malibu coast, significant damage has occurred to coastal areas from high waves, storm surge and high tides. In the winter of 1977-78, storms triggered numerous mudslides and landslides and caused significant damage along the coast. Damage to the Malibu coastline was well documented in the paper presented at the National Research Council, which stated that:

> The southerly and southwesterly facing beaches in the Malibu area were especially hard hit by waves passing through the open windows between offshore islands during the 1978 and 1980 storms. These waves broke against beaches, seawalls, and other structures, causing damages of between $2.8 and $4.75 million to private property alone. The amount of erosion resulting from a storm depends on the overall climatic conditions and varies widely from storm to storm. Protection from this erosion depends largely on the funds available to construct various protective structures that can withstand high-energy waves.[10]

The "El Nino" storms in 1982-83 caused additional damage to the Malibu coast, when high tides of over 7 feet were combined with surf between 6 and 15 feet. These storms caused over $12.8 million in damage to structures in Los Angeles County,. Due to the severity of the 1982-83 storm events, they have often been cited as an illustrative example of an extreme storm event and used as design criteria for shoreline protective structures. Damage to the Malibu coastline was documented in an article in California Geology. This article states that:

[10] "Coastal Winter Storm Damage, Malibu, Los Angeles County, Winter 1977-78", part of the National Research Council proceedings, George Armstrong.

> In general, the storms greatly affected the character of the Malibu coastline. Once quiet, wide, sandy beaches were stripped of their sand and high surf pounded residential developments .... The severe scour, between 8 to 12 feet, was greater than past scour as reported by "old timers" in the area. Sewage disposal systems which rely on the sand cover for effluent filtration were damaged or destroyed creating a health hazard along the coast. Flotsam, including pilings and timbers from damaged piers and homes, battered coastal improvements increasing the destruction. Bulkhead failures occurred when sand backfill was lost due to scour exceeding the depth of the bulkhead sheeting, or scour extending beyond the return walls (side walls of the bulkhead which are extended toward the shore from the front wall of the bulkhead).[11]

Other observations that were noted included the fact that the storm's damage patterns were often inconsistent. Adjacent properties suffered different degrees of damage sometimes unrelated to the method or age of construction. The degree of damage was often related to past damage history and the nature of past emergency repairs. Upcoast (west) of Corral Beach, walls at Zuma Beach and the parking lots were damaged by wave uprush and scour. Debris was deposited onto the margin of Pacific Coast Highway.

Storms in 1987-88 and 1991-92 did not cause the far-reaching devastation of the 1982-83 storms, however, they too were very damaging in localized areas and could have been significantly worse except that the peak storm surge coincided with a low tide rather than a high tide. The 1998 El Nino Storms have damaged a number of residences and public facilities and infrastructure in Malibu and is currently being assessed.

Presently the site does not include residential development. However, the site includes residential related development; an 'unpermitted' concrete patio, a wood fence and vegetation planters bordered by railroad ties on the western lot and a wooden stairway on the eastern lot. Sea Level Drive is located immediately landward of these lots. Experience from historic storm events in Malibu indicates that this protection is essential to the long-term viability of both the septic system and the road.

The applicant's submittal included a Wave Uprush Study for the proposed rock revetment prepared by Reg Browne, Pacific Engineering Group, dated March 19, 1998. The Coastal Engineering Report states that:

> Observation of the eroded road bluff by this office revealed that wave uprush had cut a 19 foot high vertical cut into the bluff creating an unstable situation for the road and possible road failure. The slope had eroded to the edge of the pavement of Sea Level Drive, and erosion continued to threaten the road with successive high tides. It was decided at that time that a rock revetment structure at the toe of the slope would be the most appropriate structure to retain the road and restore the slope to its pre-storm extent.

---

[11] "Assessment of 1982-83 Winter Storms Damage Malibu Coastline", by Frank Denison and Hugh Robertson, in California Geology, September 1985.

The Study recommends that:

> The base of Sea Level Drive requires protection from additional storm scour in the form of a protective structure. If not protected, scour caused by future storm generated waves occurring at high tides could cause failure of Sea Level Drive, preventing access to over a dozen single family residences.
>
> A rock revetment can be used successfully to prevent erosion of the road fill and ultimately failure of Sea Level Drive. The bottom of the revetment would be supported by bedrock occurring at elevation 0.0 feet MSL datum. The top of the revetment would be at + 14.0 feet MSL datum to prevent wave overtopping and wave erosion of the slope it protects.

During the winter season, the revetment will extend into an area exposed to wave uprush, storm waves, flooding, and erosion hazards that in the past have caused significant damage to development along the California coast, including the Malibu coastal zone and the beach area nearby the subject property. The Coastal Act recognizes that development, such as the proposed revetment, as conditioned, may still involve the taking of some risk. Coastal Act policies require the Commission to establish the appropriate degree of risk acceptable for the proposed development and to determine who should assume the 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 his property.

The Commission finds that due to the unforeseen possibility of waves, storm waves, flooding, bluff retreat and erosion that the applicants would be required to assume these risks as a condition of approval.

Lastly, as noted above, the project involves the installation of large rock. Such rock has the potential to fall or roll of the revetment during storm waves or surging wave conditions. Rocks that migrate to the beach seaward of the installed rock revetment become a hazard to the public and can block public access to the beach area. As a condition of approval, the applicants would be required to conduct a regular maintenance program to detect areas of subsidence and upsurge or identify measures for retrieving wayward boulders. Commission experience is that standard practice is to monitor and maintain these structures at least once per year.

Therefore, the Commission finds that the above special conditions would be required to make the proposed development consistent with Section 30253 of the Coastal Act.

E. Local Coastal Program

Section 30604 of the Coastal Act states that:

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

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

F. California Environmental Quality Act (CEQA)

The Coastal Commission's permit process has been designated as the functional equivalent of the California Environmental Quality Act (CEQA). Section 13096(a) of the Commission's Code of Regulations requires Commission approval of Coastal Development Permit applications 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 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 effects which the activity may have on the environment.

The Commission finds that, the proposed project will have significant adverse effects on the environment and that there are feasible alternative which would substantially lessen any significant adverse effects on the environment, within the meaning of the California Environmental Quality Act of 1970. Therefore, the Commission finds that the proposed project is inconsistent with the requirements of CEQA and the policies of the Coastal Act.

APPENDIX A

SUBSTANTIVE FILE DOCUMENTS

Malibu/Santa Monica Mountains District Interpretive Guidelines. Coastal Commission. 1981

Certified Malibu/Santa Monica Mountains Land Use Plan. County of Los Angeles. 12/11/86.

Adopted City of Malibu General Plan. November 1995

City of Malibu. Article IX Interim Zoning Ordinance. 1993.

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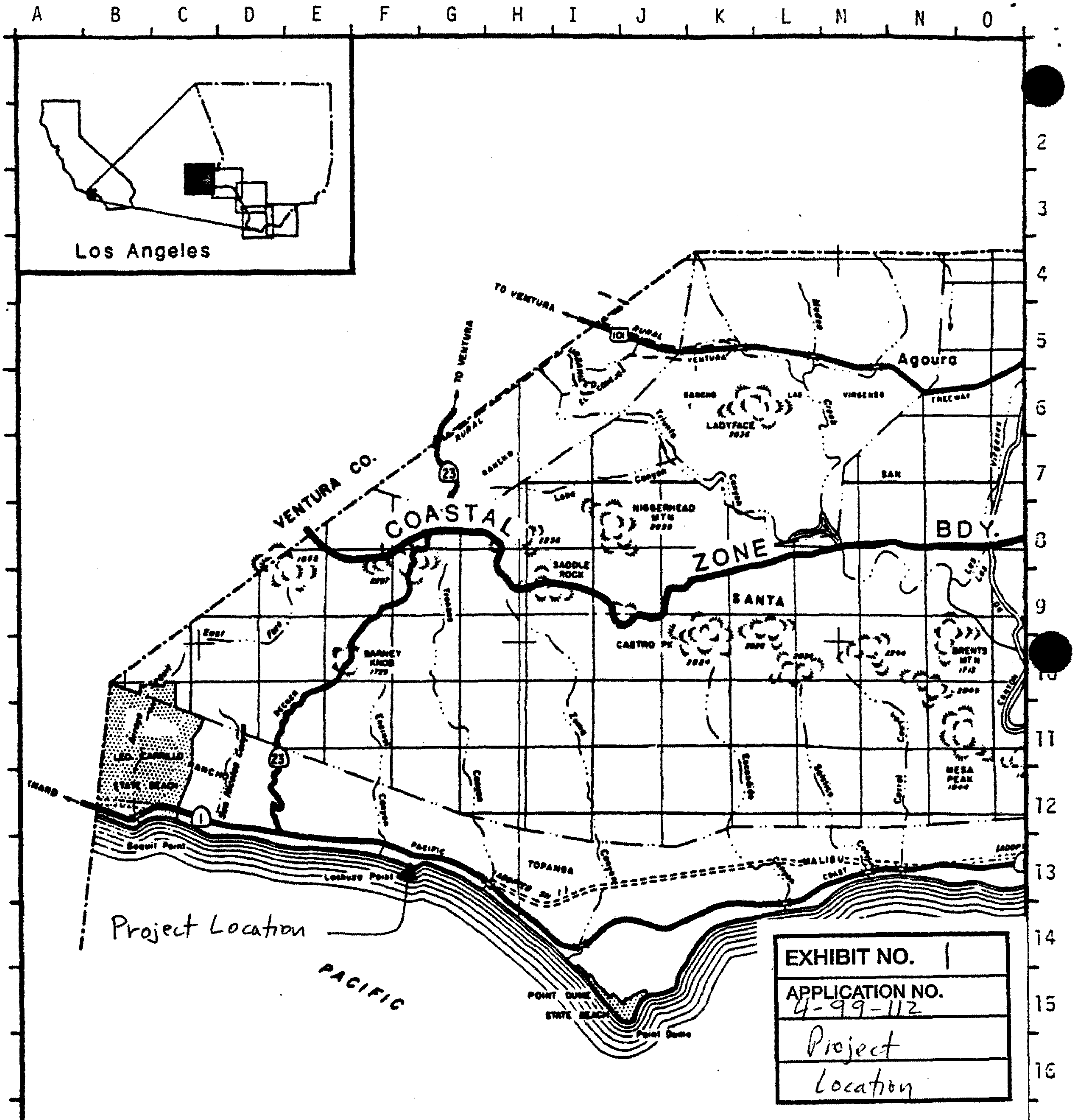
LETTERS and MEMOS

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

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

COASTAL PERMIT APPLICATIONS

Staff Report Lechuza Villas West dated 2/4/97 for Coastal Application No. 5-90-839 et. al Coastal Permit Number 4-94-200, Dussman; Coastal Permit Number 4-97-071, Schaeffe Coastal Permit Number 4-97-171, Sweeney; Coastal Permit Number 4-98-158, O'Conne Coastal Permit Number 4-97-191, Kim; Coastal Permit Number 4-97-160, Danson; Coasta Permit Number 4-98-050, Gallo, Coastal Permit Appeal No. A-3-PSB-98-049, Cliffs Hote Revetment and Dewatering Plan; Coastal Permit No. 6-98-144, Redd, et. al..



California Coastal Commission

LOCATION MAP

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County of Los Angeles

Sheet 1 of 5

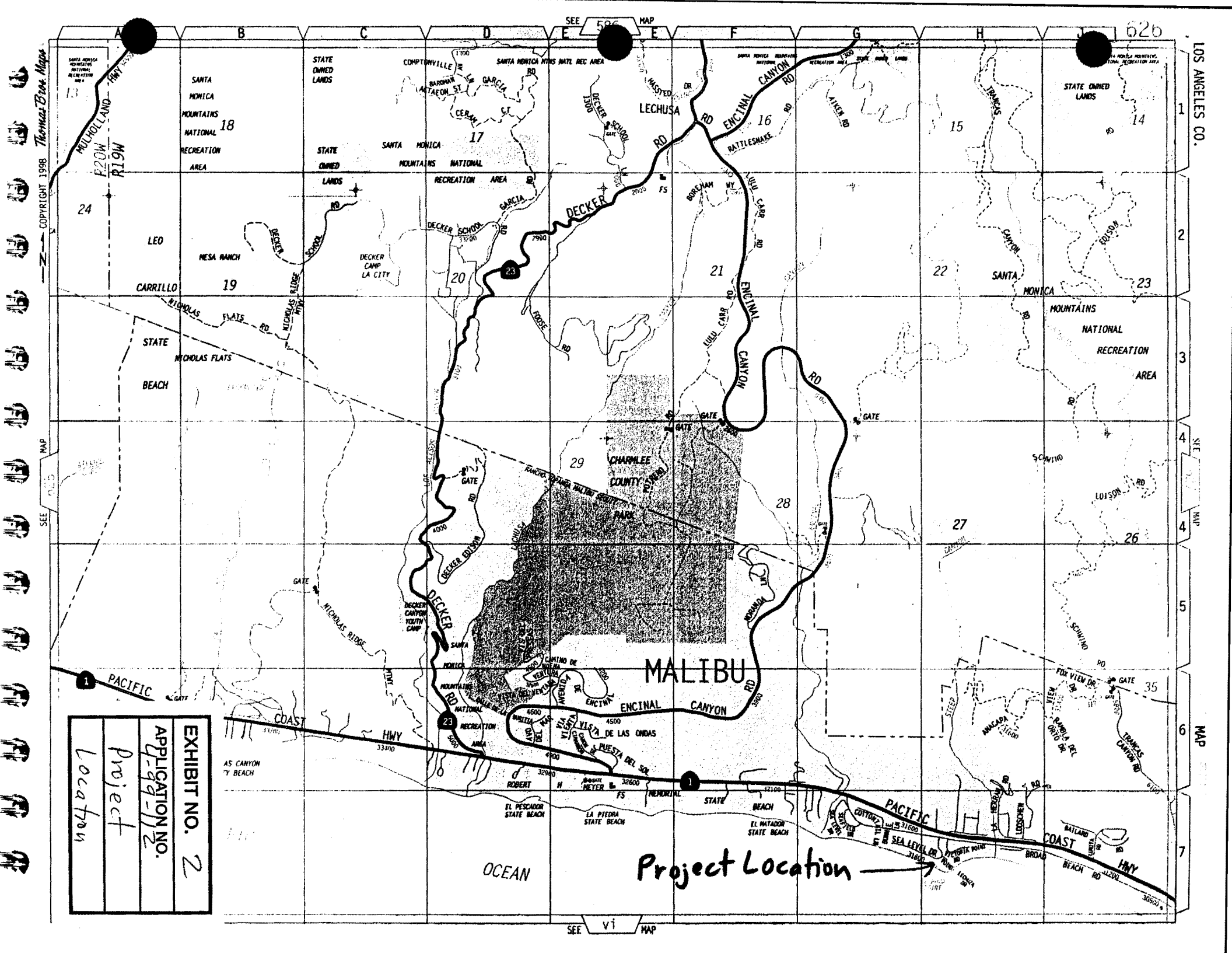


EXHIBIT NO. 2
APPLICATION NO. 4-99-172
Project location
Project Location
MALIBU
OCEAN
LECHUSA
COMPTONVILLE
CARRILLO
LEO
MESA RANCH
STATE BEACH
SANTA MONICA MOUNTAINS NATIONAL RECREATION AREA
CHARMLEE COUNTY PARK
DECKER CANYON YOUTH CAMP
DECKER CAMP LA CITY
DECKER SCHOOL
EL PESCADOR STATE BEACH
LA PIEDRA STATE BEACH
EL MATADOR STATE BEACH
ROBERT H MEYER MEMORIAL STATE BEACH
PACIFIC COAST HWY
MULHOLLAND HWY
DECKER RD
ENCINAL CANYON RD
NICHOLAS FLATS RD
LOS ANGELES CO. MAP
COPYRIGHT 1998 Thomas Bros. Maps

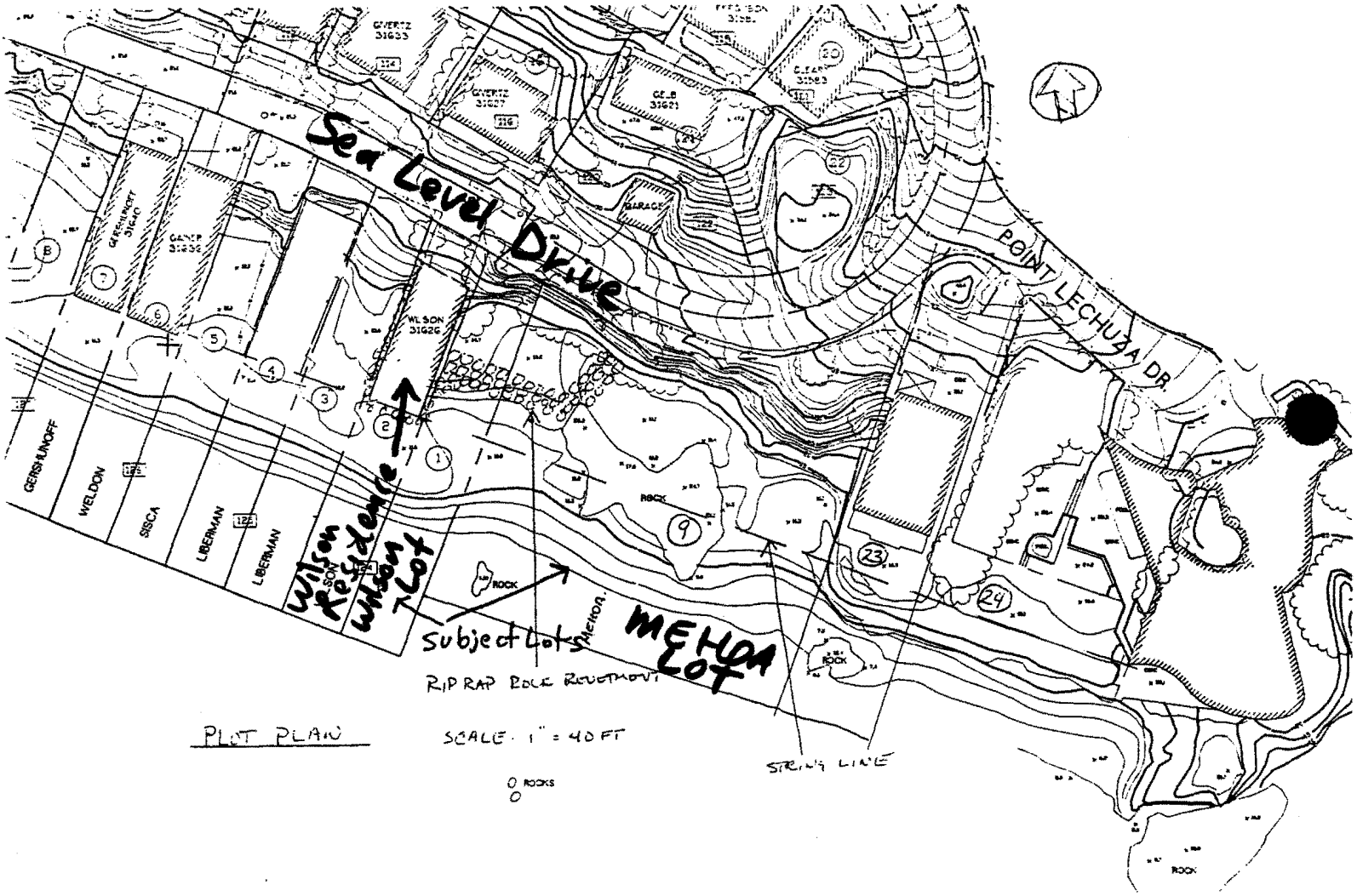


EXHIBIT NO. 3
APPLICATION NO. 4-99-112
Project Site

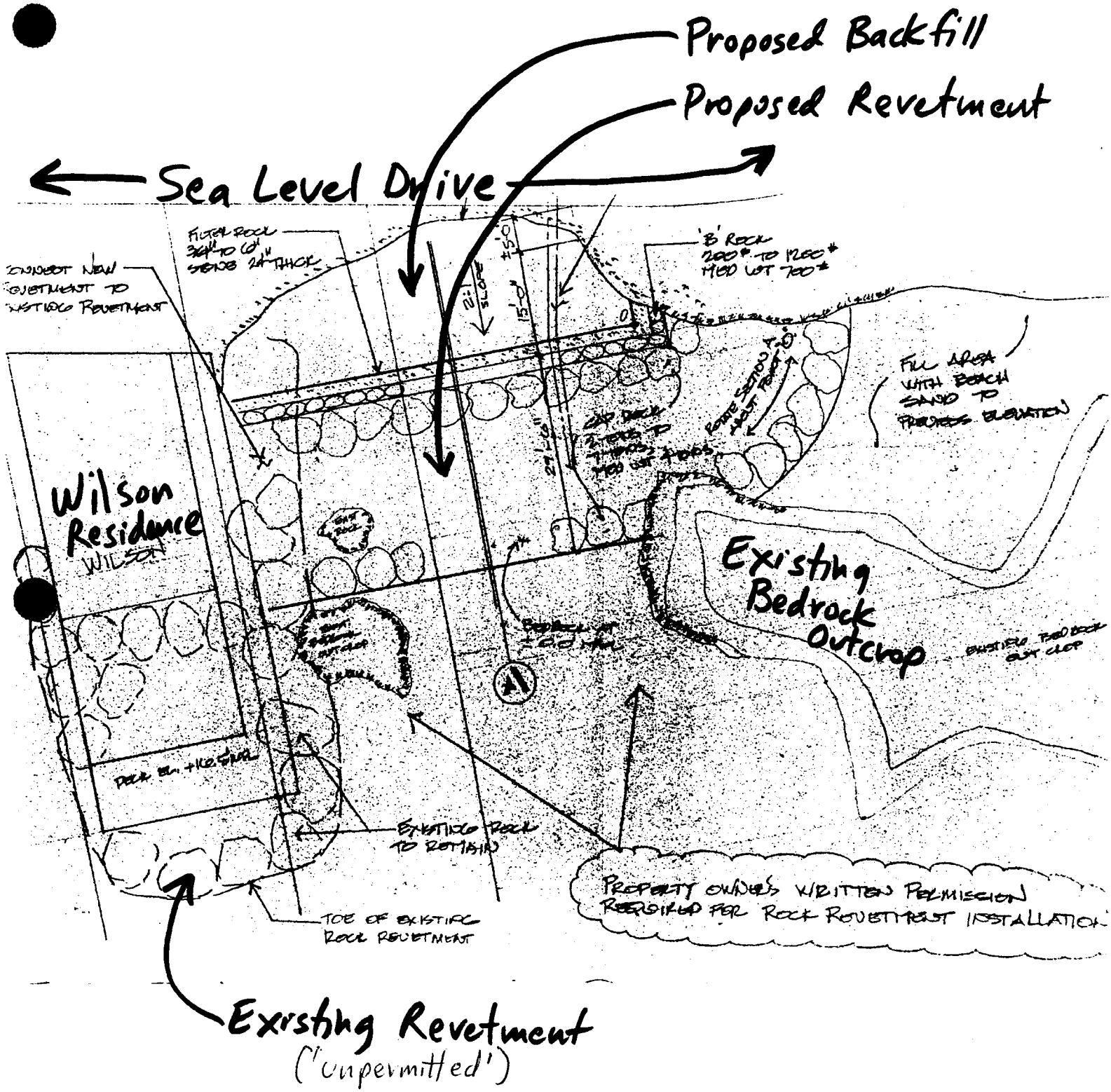


EXHIBIT NO. 4a
APPLICATION NO. 4-99-112
Site Plan
Revetment

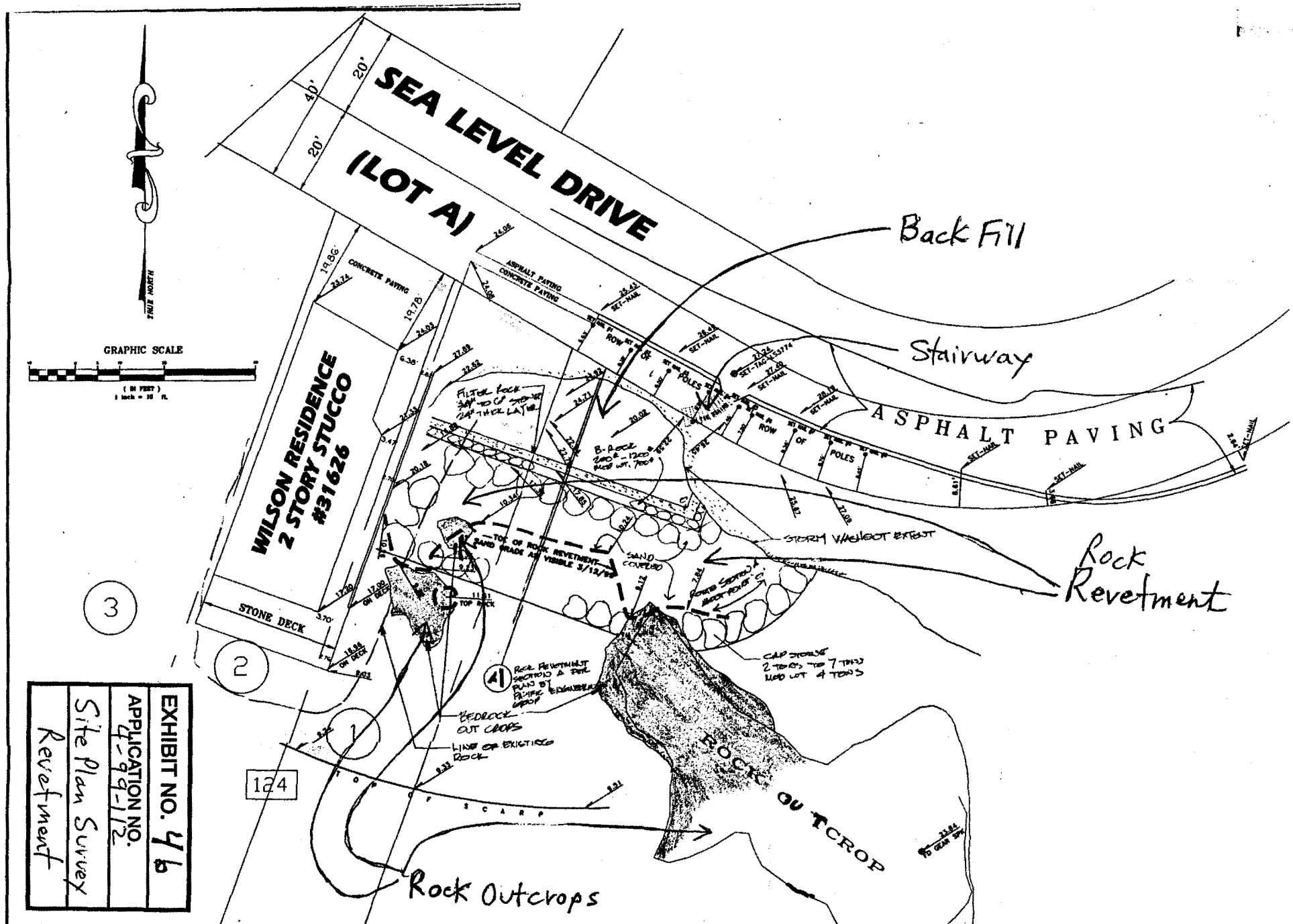


EXHIBIT NO. 4

APPLICATION NO. 4-99-112

Site Plan Survey Revetment

GSM GRIMES SURVEYING & MAPPING, INC.
5248 HUNTINGTON DRIVE SOUTH LOS ANGELES, CALIFORNIA 90032 (323)223-1011

SURVEY FOR: M.E.H.O.A

SCALE:1"=10'

FILE NO: 90123TOM.DWG SURVEYED 3/12/9 LOTTED 3/13/99

LEGAL DESCRIPTION: PORTIONS OF TRACT NO 10630

MALIBU – ORNIA

SURVEYOR DAVID F. GRIMES

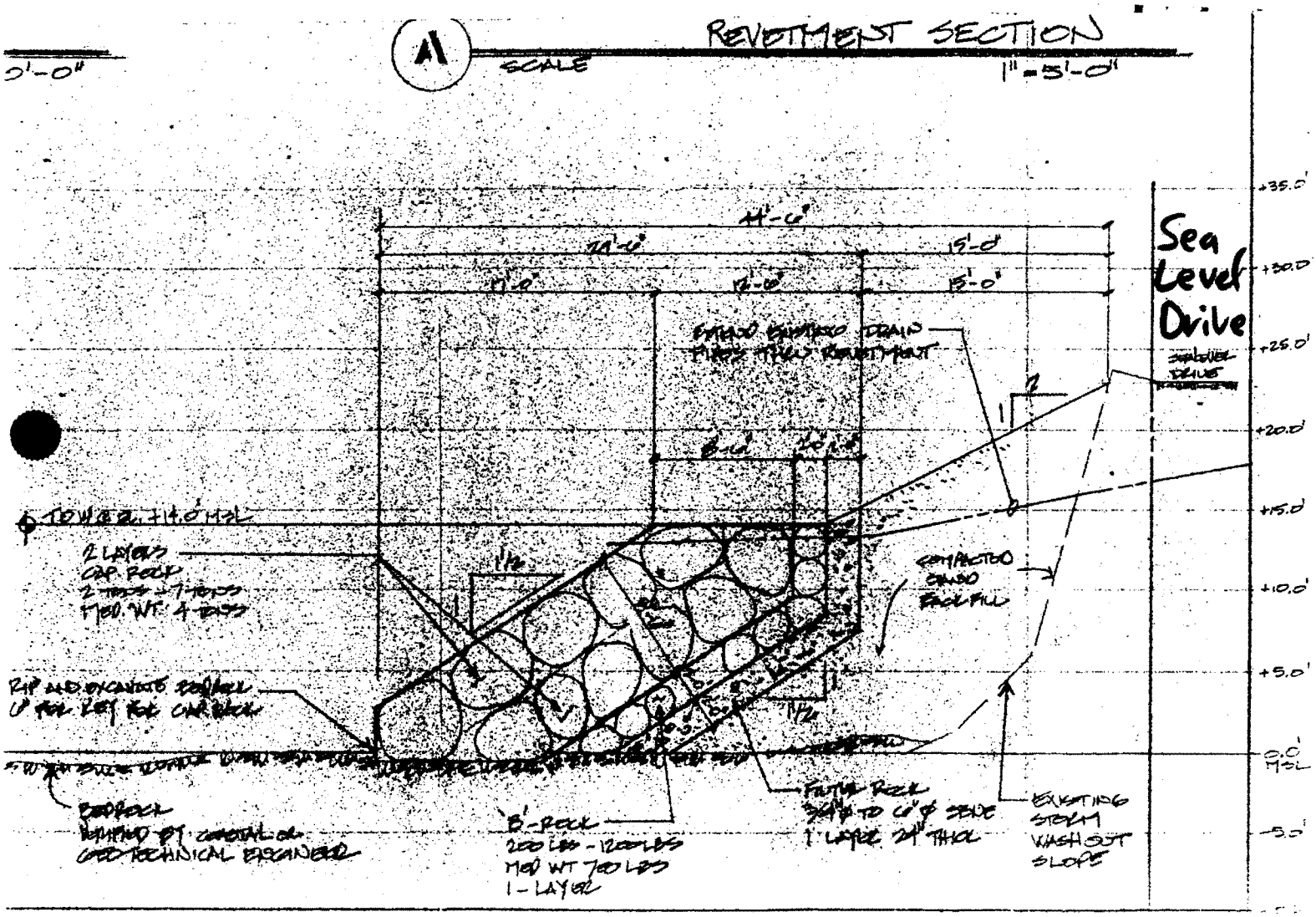


EXHIBIT NO. 5
APPLICATION NO. 4-99-112
Section Plan
Revetment

STATE OF CALIFORNIA PETE WILSON, *Governor*

CALIFORNIA STATE LANDS COMMISSION
100 Howe Avenue, Suite 100 South
Sacramento, CA 96825-8202

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

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

August 28, 1998

File Ref: SD 98-06-22.6

David C. Thomas
General Contractor
31863 W. Sea Level Drive
Malibu CA 90265

Post-it® Fax Note 7671	Date 9/8/98	# of pages ▸ 2
To JOHN LEDBETTER	From DAVID THOMAS	
Co./Dept. 4-98-034	Co.	
Phone #	Phone # 310-457-9137	
Fax # 805-641-1732	Fax # SAME	

Dear Mr. Thomas:

SUBJECT: Coastal Development Project Review for After-the-Fact Construction of a Rock Rip Revetment East of 31626 E. Sea Level Drive, Malibu

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

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

Your clients constructed a rock rip rap revetment and rebuilt the slope on vacant property adjacent to the Wilson residence at 31626 E. Sea Level Drive. This work was done under an emergency permit issued by the California Coastal Commission in order to protect E. Sea Level Drive. The "new" revetment ties into an existing revetment protecting the east side of the Wilson residence and continues approximately 45 lineal feet to the east connecting to an existing bedrock formation. The project also involved importing and compacting approximately 300 cubic yards of dirt to rebuild the slope adjacent to the road edge. From the February 15, 1998 Rock Revetment Plan you submitted, it appears that the existing revetment consists of rocks placed on the east and west side of the Wilson residence, as well as underneath and seaward of the residence. We have no record in our files of ever reviewing plans for this existing revetment, although our files reflect that we reviewed plans for the construction of a new residence in 1995. The new revetment is located well landward of the seaward edge of the Wilson residence and the May 18, 1998 photographs show virtually all of the rock is now covered with sand. The revetment was founded on bedrock at elevation 0 MSL, with its seaward edge some 25'-30' landward of the building string

EXHIBIT NO. 6
APPLICATION NO. 4-99-112
State Lands
Commission letter

This is a developed stretch of beach with several residences both to the east and west, although the two lots immediately adjacent to the property on the east are undeveloped.

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

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

Sincerely,

Robert L. Lynch, Chief
Division of Land Management

cc: Art Bashmakian, City of Malibu

PACIFIC
ENGINEERING GROUP
22440 Clarendon Street #208
Woodland Hills, CA 91367

Project: Malibu Equestrian HOA / Sealevel Drive / Rock Revetment

Job # 98110 HOA
Engineer RKB
Date 3-11-98
Sheet BP1 / 1

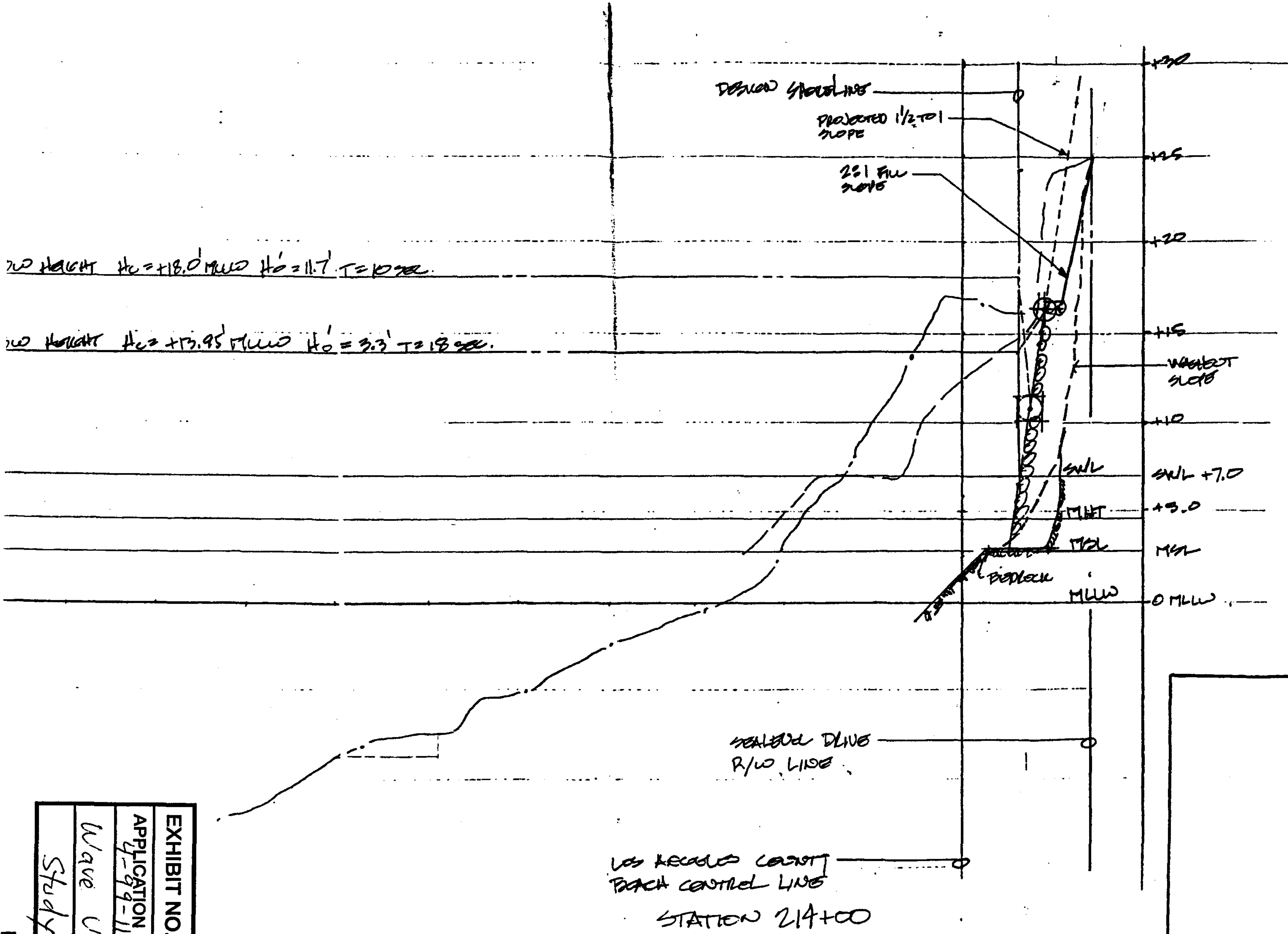


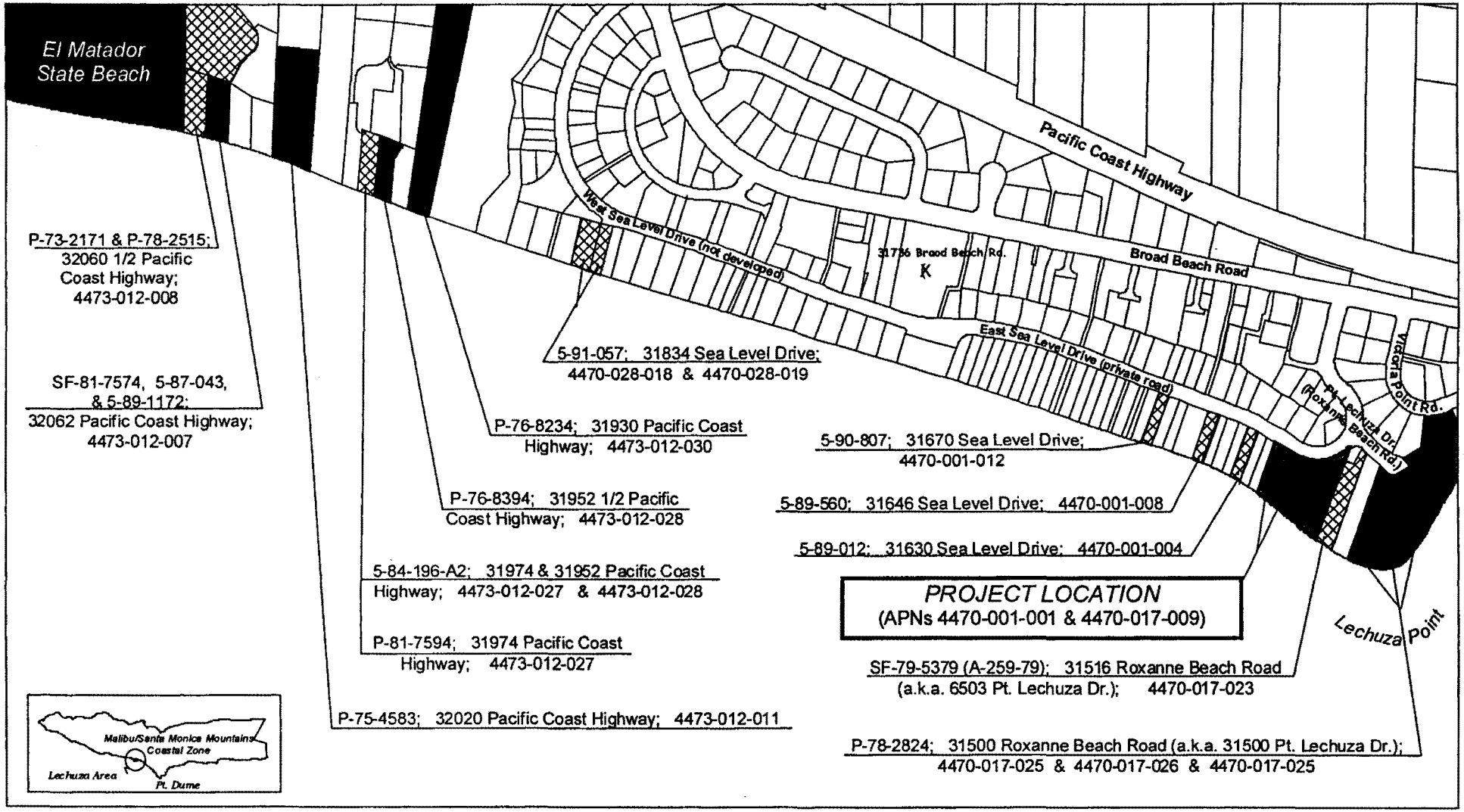
EXHIBIT NO. 7

APPLICATION NO. 4-99-112

Wave Uprush Study

Public Access to and along the Shore
Lechuza Point Area, Los Angeles County

Application No. 4-98-034
(Malibu Encinal Homeowners Association and Wilsons)
Exhibit No. 8



K Potential Vertical Accessways
Existing Vertical Accessways
Potential Lateral Accessways
Existing Lateral Accessways

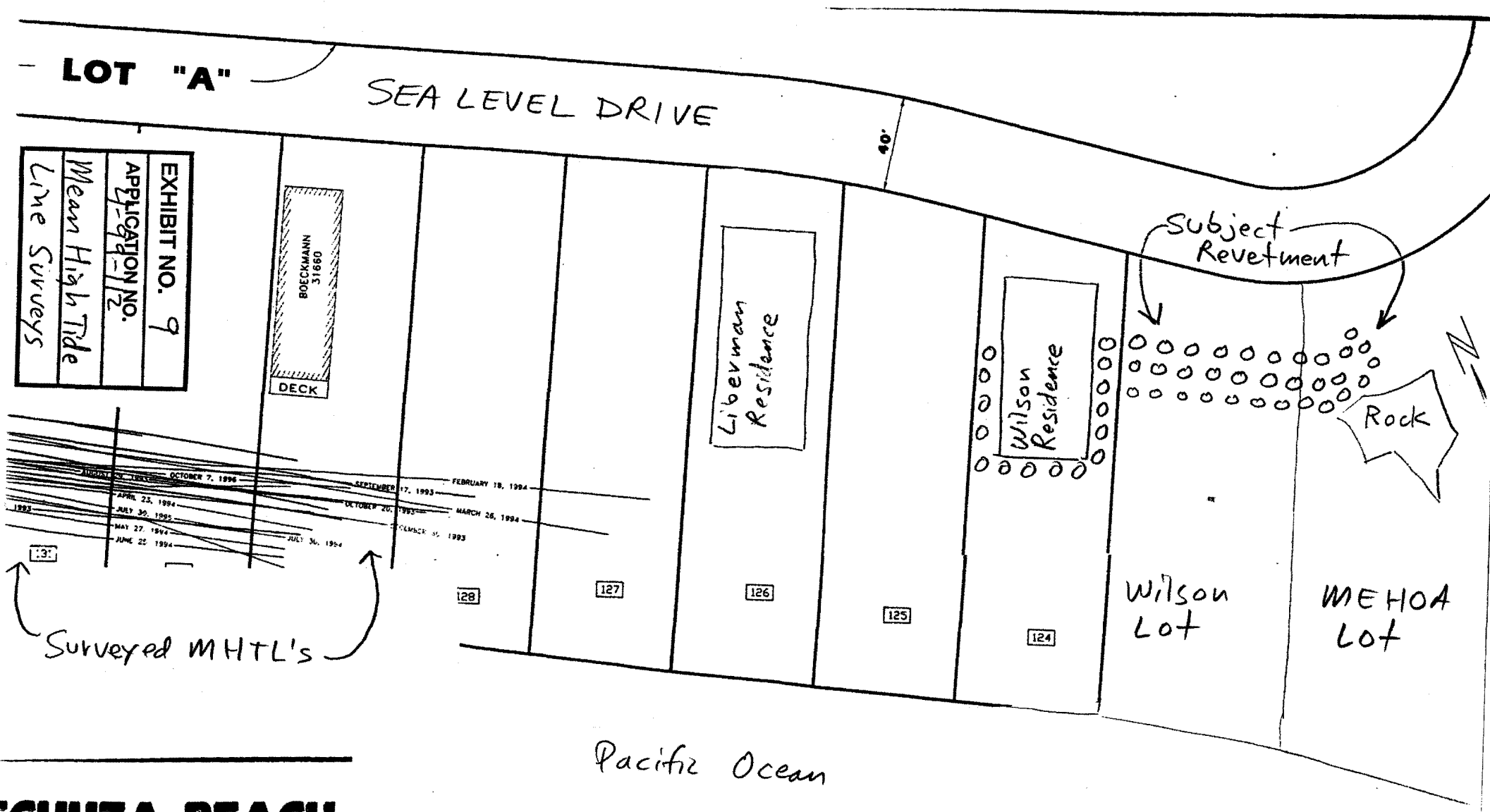
"Existing" accessways are those where public access easements have been offerred, accepted, and are open for public use. "Potential" accessways are those where offers to dedicate a public access easement have been recorded but not yet accepted by a management agency and therefore are not officially open to the public.

Accessway data shown covers period through April, 1996.

200 0 200 400 600 800 1000 Feet

California Coastal Commission
ReCAP & Technical Services Division

Map Note: The information presented on this map is preliminary and subject to revision. All locations are approximate and data have not been field checked. Attempts have been made to ensure completeness of the data, nevertheless, inaccuracies may exist.
Sources: CCC Access Program Database, April, 1996
California Coastal Access Guide, 5th edition.



ECHUZA BEACH

MALIBU, CALIFORNIA

GRAPHIC SCALE

Note: Residences, revetment and rock added to this drawing are not drawn to scale.

GRIMES SURVEYING & MAPPING, INC.
5248 HUNTINGTON DRIVE SOUTH LOS ANGELES, CALIFORNIA 90032 (213)223-1011

SURVEY FOR:

MEAN HIGH TIDE LINE SURVEYS

SCALE:1"=20' PLOTTED: JANUARY 30, 1997 DRAWING: MHTBOK

STATE OF CALIFORNIA – THE RESOURCES AGENCY GRAY DAVIS, Govern

CALIFORNIA COASTAL COMMISSION
SOUTH CENTRAL COAST AREA
89 SOUTH CALIFORNIA ST., SUITE 200
ENTURA, CA 93001
(805) 641 - 0142

EXHIBIT NO. 10
APPLICATION NO. 4-99-112
Letter Requesting Information Pg 1 of 2

March 19, 1999

Dave Thomas, Agent
MEHOA and the Wilsons, Applicants
31863 Sea Level Drive
Malibu, CA 90265

Mike and Mary Wilson
31626 Sea Level Drive
Malibu, CA 90265

RE: Malibu Encinal Homeowners Association (MEHOA) and Michael & Mary Wilson, Coastal Permit Application No. 4-98-034 to Construct a Rip Rap Revetment and Backfill Slope to Protect Sea Level Drive

Dear Mr. Thomas, Mr. and Mrs. Wilson;

Staff appreciated the opportunity to meet with you, Mr. Sternberg, and Mr. Giordano on February 22, 1999. This letter explains the additional information necessary to process this application. As we discussed at the meeting, as a result of our review and analysis of your Permit Application, it appears that the proposed rock revetment may be structurally linked or integrated with a rock revetment located on the adjacent lot to the west (Assessors Parcel Number 4470-001-002) owned by Mr. and Mrs. Wilson.

The coastal engineering reports submitted as part of permit application no. 4-98-034 did not indicate if the proposed subject revetment and the revetment located on the adjacent parcel to the west are structurally linked. Therefore, we are requesting additional analysis from your consulting coastal engineer that addresses whether or not the two revetments are structurally linked. If the two revetments are structurally linked the permit application should be amended to include the adjacent rock revetment as part of the proposed project description. As a point of clarification, our permit record for the residence on this parcel does not indicate any approval of or recognition of an existing rock revetment on this property. Furthermore, the project plans, site plan, and Geotechnical Engineering Report dated June 28, 1995 by RJR Engineering Group submitted for application no. 4-95-224 did not indicate a rock revetment was located on APN 4470-001-002. Therefore, it appears that the rock revetment on the adjacent property is unpermitted. Mr. Wilson has informed us that he believes that the rocks surrounding the residence were discovered during the construction of the new residence and relocated to allow the construction of new concrete caissons.

If the adjacent revetment is added to the proposed project description an analysis of alternative shoreline protective structures which minimize the footprint of the structure on the beach is required. Furthermore, please submit a detailed analysis of the effects of the proposed structure on beach processes and sand supply, as well as, engineered plans for the proposed revetment or an alternative shoreline protective structure. These studies should be prepared in accordance with the Commission's guidelines and include all other application information as noted on the application form. (attached) Alternatively, the permit application may also be withdrawn and resubmitted with both the subject revetment and the revetment surrounding the Wilson residence on the adjacent lot to the west. Please submit to us additional information

and analysis with regard to the "end effects" of the proposed revetment on the adjacent parcel to the west, assuming for the purposes of the analysis that the revetment on this adjacent parcel does not exist.

Furthermore, as we discussed at our February 22 meeting, the coastal engineering report, titled Wave Uprush Study and Rock Revetment, dated March 19, 1998 by Pacific Engineering Group submitted with the application for the proposed revetment, indicates Lechuza Beach in this area is in equilibrium, scouring in the winter and rebuilding in the summer. However, Commission staff has evidence that Lechuza Beach is, over the long term, an eroding beach. Therefore, staff is requesting additional analysis regarding the long-term characteristics of the erosional nature of this beach and the analytical and evidentiary basis for this conclusion. These long term characteristics should be provided through a historical analysis, including an analysis of aerial photographs. Your information should address: What are the differences in erosion rates of the beach and bluff with the revetment and without the revetment? In addition, staff is requesting further analysis with regard to the potential effects the proposed revetment may have on beach processes or sand supply. The analysis should include a discussion of how often waves are expected to act on the revetment and the expected amounts of erosion on an annual basis. The coastal engineering report(s) submitted to date conclude that the proposed revetment will not have any significant effects on the beach based on the conclusion that the beach is in equilibrium and the revetment is sited on the backshore of the beach. However, the conclusion that the revetment will have no effects on the beach is not supported by any quantitative or substantial qualitative data or evidence that the revetment will not have any significant effect on beach processes or sand supply.

Thank you for your cooperation in this matter and should you have any questions please call me at the above number.

Sincerely,

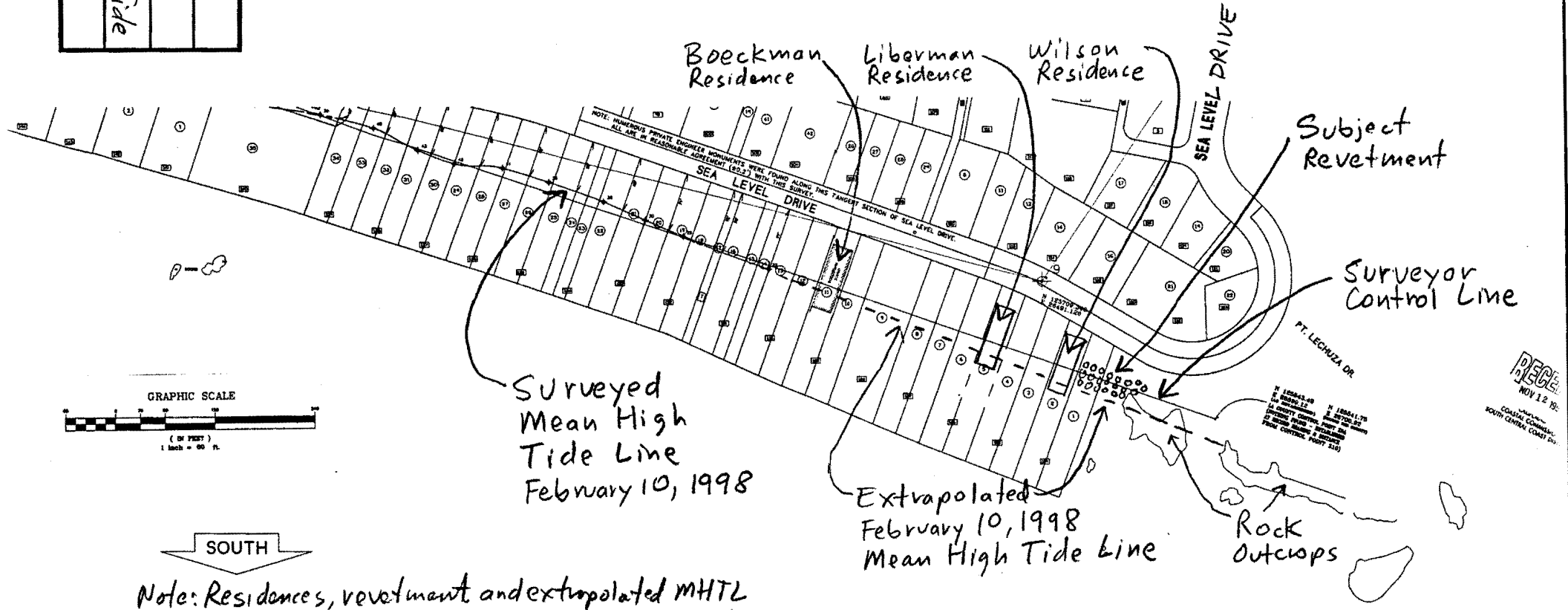
Jack Ainsworth
Permit Supervisor

Attachments
Application Form
Memo on Information Needed for Shoreline Protective Devices

cc: Terry Sternberg
498034malibuencinallettermarch19

EXHIBIT NO. 10
APPLICATION NO. 4-99-112
letter Requesting
Information Pg 2 of 2

EXHIBIT NO. 11
APPLICATION NO. 4-97-112
Mean High Tide Line 2/10/98



Note: Residences, revetment and extrapolated MHTL added to this drawing are not drawn to scale.

TROL DRAWING - TRACT NO. 10630

SURVEYOR'S STATEMENT

GSM GRIMES SURVEYING & MAPPING, INC.
5248 HUNTINGTON DRIVE SOUTH LOS ANGELES, CALIFORNIA 90032 (213)223-1011

SURVEY FOR: SURVEY

FILE NO: WINBOOK;C:\SDSK\PROJ\ETC\BAREGPS-JI

RECE
NOV 12 19
COASTAL COMMISSION
SOUTH CENTRAL COAST DI