Geilenfeldt shoreline setback variance

DEPARTMENT OF LAND UTILIZATION

CITY AND COUNTY OF HONOLULU

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OFC. OF ENVIRONMENTAL QUALITY CONTROL

JEREMY HARRIS
MAYOR

PATRICK T. ONISHI
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

96/SV-001(ASK)
96-05395

September 12, 1996

The Honorable Gary Gill, Director
Office of Environmental Quality Control
State of Hawaii
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Mr. Gill:

CHAPTER 343, HRS
Environmental Assessment/Determination
Finding of No Significant Impact ✓

Owner/Applicant:		Richard and Sharon Geilenfeldt
Agent	:	Sea Engineering, Inc.
Location	:	84-135 Makau Street, Waianae, Oahu
Tax Map Key	:	8-4-10: 11
Request	:	Shoreline Setback Variance
Proposal	:	Construction of concrete rubble masonry retaining and shore protection structures
Determination	:	A Finding of No Significant Impact is issued

Attached and incorporated by reference is the Final Environmental Assessment (FEA) prepared by the applicant for the project. Based on the significance criteria outlined in Chapter 200, State Administrative Rules, we have determined that preparation of an Environmental Impact Statement is not required.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the FEA. If you have any questions, please contact Ardis Shaw-Kim of our staff at 527-5349.

Very truly yours,

PATRICK T. ONISHI
Director of Land Utilization

PTO:am
Enclosures

g:neg96sv1.ask

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1996-10-88-DA-FEA-Geilenfeldt shoreline setback variance

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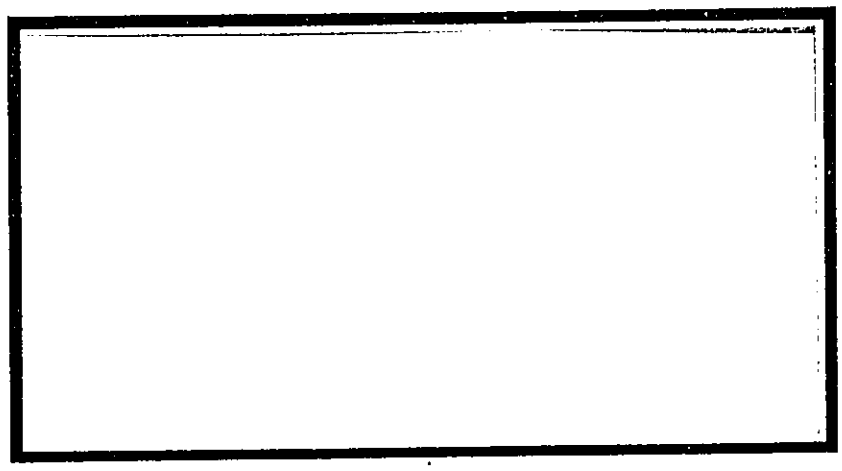


Sea Engineering, Inc.

COASTAL ENGINEERING
AND
ENVIRONMENTAL ASSESSMENT
FOR
SHORELINE SETBACK VARIANCE APPLICATION

Richard and Sharon Geilenfeldt
TMK 8-4-10:11, LOT 313
84-135 Maka'u Street
Wai'anae, Hawai'i 96792

Prepared by:
Sea Engineering, Inc.
Makai Research Pier
Waimānalo, Hawai'i 96795

August 1996

I. GENERAL INFORMATION

A. APPLICANT AND RECORDED FEE OWNER:

Richard and Sharon Geilenfeldt
84-091 Maka'u Street
Wai'anae, Hawai'i 96792

B. AGENT:

Sea Engineering, Inc.
Makai Research Pier
Waimānalo, Hawai'i 96795
Ph: (808) 259-7966
Fax: (808) 259-8143

C. TAX MAP KEY 8-4-10:11, Lot 313

D. TOTAL LOT AREA 12,963 Sq. Ft.

E. AGENCIES CONSULTED IN MAKING ASSESSMENT:

1. City and County of Honolulu, Department of Land Utilization
2. State of Hawai'i, Department of Land and Natural Resources, Division of Land Management
3. U.S. Army Corps of Engineers, Pacific Ocean Division

II. DESCRIPTION OF THE PROPOSED ACTION

A. GENERAL DESCRIPTION

The property under consideration for shore protection (lot #313, TMK 8-4-10:11) is located on the western shore of O'ahu in a residential community between Mākaha Beach and Kea'au Beach Park just north of Kepuhi Point. A general location map is shown in Figure 1. The lot is vacant, and the only structure on the property at present is a small remnant concrete wall or footing on the western property line. The shoreline is divided into house lots as shown in Figure 2. Two adjacent properties to the north, lot #314 and lot #315 are

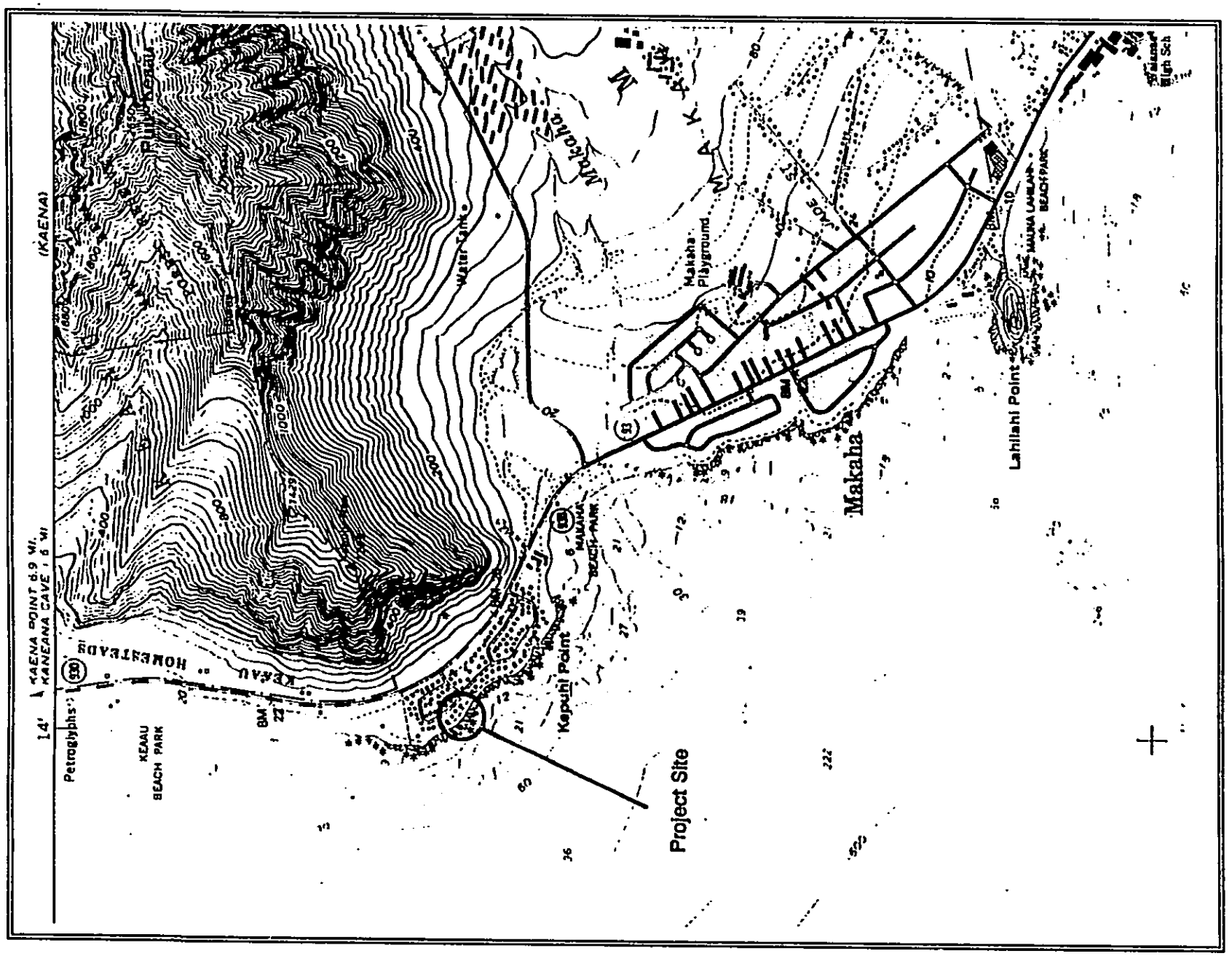


Figure 1. General Project Location

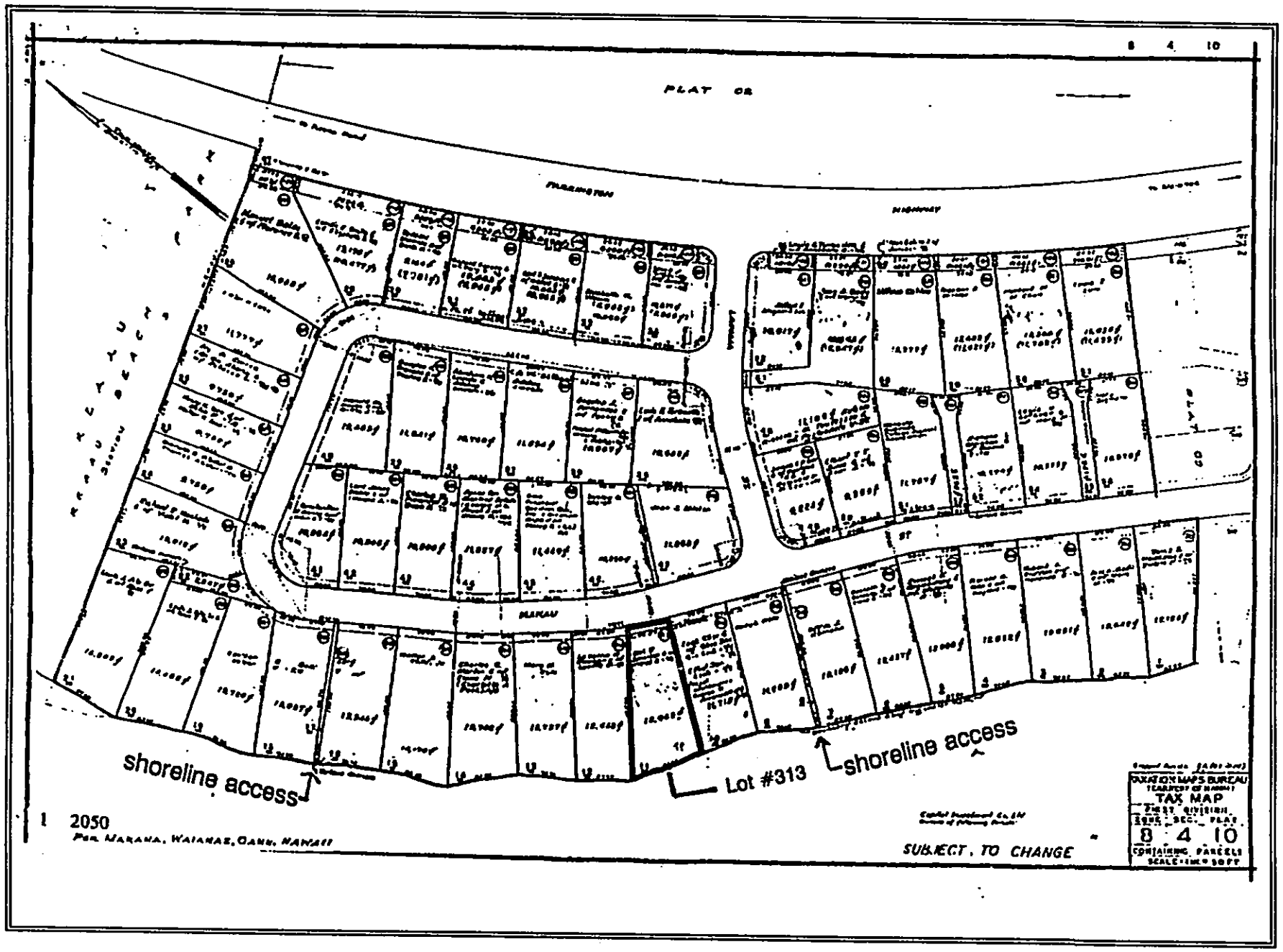


Figure 2. Project Site, Lot #313, TMK8-4-10:11

also vacant, while properties to the south (towards Mākaha) are developed with homes. All developed properties in the immediate vicinity are fronted by protective seawalls, and a masonry fence separates the two vacant lots to the north (lot #314 and lot #315). Shoreline access easements are located two lots to the south and five lots to the north (Figure 2). During Hurricane 'Iniki (1992), overwash from storm surge and high waves deposited large amounts of coral rubble and debris on the section of Maka'u Street that is fronted by these three vacant lots (see photograph, Figure 3). The rest of the shoreline was protected by seawalls and suffered no damage.

The most recent shoreline survey was completed on July 1, 1995 and approved by the Chairman, Board of Land and Natural Resources, on September 27, 1995. A copy of the shoreline certification is shown in Figure 4. As a result of this certification process, approximately 1,700 sq. ft. of the property is now located makai of the certified shoreline, indicating an approximate 13 percent property loss. The shoreline certification was agreed to at the site by persons representing the property owner, the State Department of Land and Natural Resources (DLNR), the State Land Surveyor, and the surveyor contracted by the owner. The vegetation line on the property was a result of the severe storm waves from Hurricanes 'Iniki and 'Iwa. This line was therefore not appropriate to use as a certified shoreline, which is defined as "the upper reaches of the wash of the waves, other than storm or tidal waves ...". In the absence of clearly defined physical indicators of the upper reaches of the wash of the waves along this rocky shoreline, it was determined that a fair and equitable certified shoreline, that was a reasonable estimate of the upper reaches of the wash of the waves, was the line connecting the seawall on the adjacent property (lot #312) with the next seawall, past the three vacant lots on lot #316. The reasonable location of the shoreline is confirmed by visual observations at the area which suggest that only extreme waves wash landward of the certified shoreline, and by standard coastal engineering wave run-up analysis completed in Section III.B.

Figure 3 illustrates the damage to the property caused by waves from Hurricane 'Iniki. In order to protect his property from further damage, to allow construction of the proposed home (Figure 10), and to prevent damage to this home, the applicant proposes to build a rock masonry wall 20 feet inland of the Certified Shoreline. The planned location of the wall was moved 20 feet inland to ease concerns expressed in responses to the Draft Environmental Assessment. The owner also proposes to build a rock masonry fence along the northern property line inland of the seawall. A Shoreline Setback Variance is required to build the proposed rock retaining wall, and also the 20 ft. of the proposed rock fence that will be in the Shoreline Setback Zone.

HURRICANE INIKI: The Honolulu Advertiser

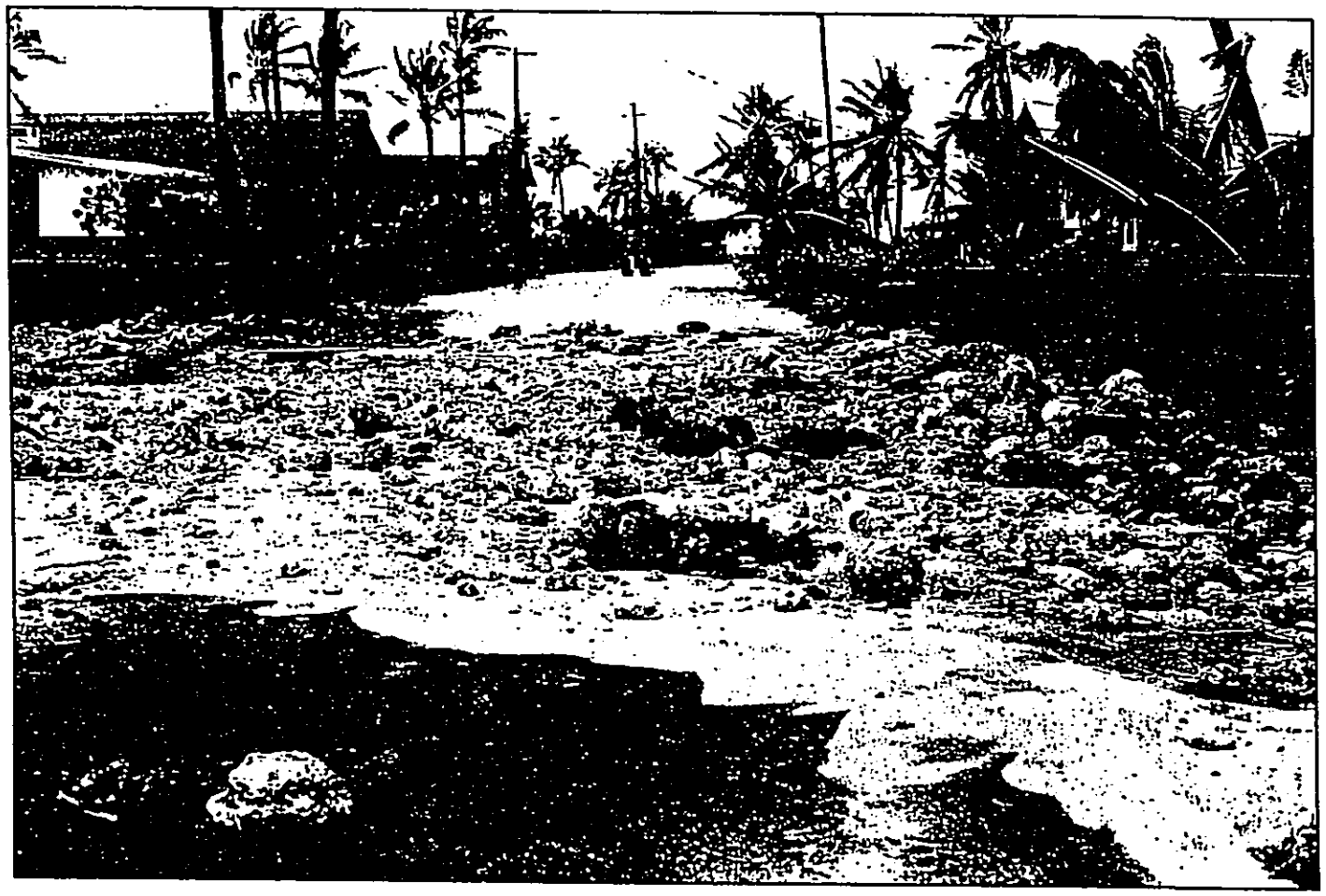


Figure 3. Inundation of Makau St. during Hurricane Iniki, 1992.
Photograph by Carl Viti, The Honolulu Advertiser

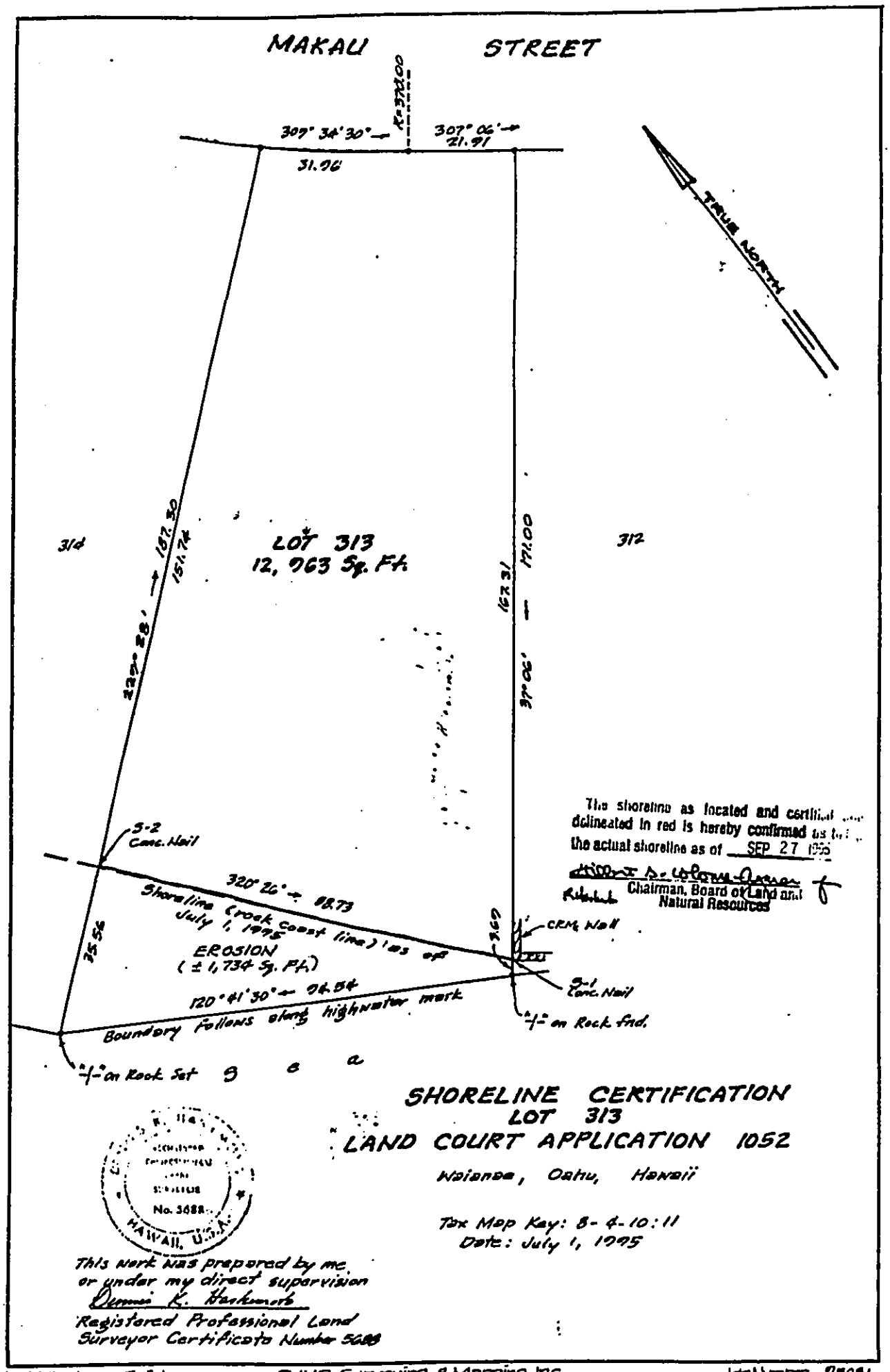


Figure 4. Certified Shoreline Application

B. COASTAL ENGINEERING EVALUATION

1. Existing Coastal Condition and Characteristics

The coastal sector in the project area is an entirely rocky shore consisting of coral terraces formed during ancient high sea level stands. Figure 6 shows a typical profile across the property, and a plan view showing geologic features is shown in Figure 5. General features include the Hurricane 'Iniki erosional escarpment forming the vegetation line, a small perched beach of coral rubble and sand, a reef rock ledge, and an active reef flat with tide pools.

The lot is generally flat from Maka'u Street to the seaward edge of vegetation. A patch or perched beach of mostly coral rubble and some sand lies immediately makai of the vegetation line. This hurricane generated vegetation line is located approximately 40 feet inland of the certified shoreline, and approximately 80 to 90 feet inland of the still mean high water line. The coral rubble beach is perched above the rocky shoreline and represents material tossed up onto the rocky ledge during severe storms. It is located approximately 60 feet inland of the still mean high water line. It is not an active part of the littoral system during typically prevailing wave conditions.

The coral rubble overlies a rock ledge of limestone, formed from ancient reef material, that is 65 to 85 ft. in width and at an elevation of six to eight feet (MLLW). This reef rock ledge has a gentle average slope, but has an irregular surface with common relief of 1 ft. or more (see photos 1-5). The ledge ends at a vertical escarpment, commonly 3 to 4 ft. in height, that drops to the reef flat. The last 5 to 10 ft. of the reef rock ledge is highly eroded and solution pitted to a sharp and jagged relief. The edge or escarpment of the rock ledge is located 35 to 55 feet seaward of the certified shoreline. This rock ledge does not contain tidepools; it occasionally contains pools of standing water from rains or wave splash. These pools are not tidally exchanged, and harbor no visible marine life.

The reef flat fronting the property is in the intertidal zone and is washed by wave action much of the time. On the day of the survey, it was fully awash from 3 to 4 ft., long period surf. Vigorous seaweed growth and numerous tidepools make it a very active part of the coastal ecosystem. The reef flat is located approximately 60 feet seaward of the certified shoreline. The reef varies from 25 to 60 ft. in width in front of the property, and ends at a vertical escarpment that drops 4 to 5 ft. and then slopes to the seafloor. Depths to the seafloor in the immediate vicinity of the edge of the reef flat are estimated to be 6 to 10 ft.

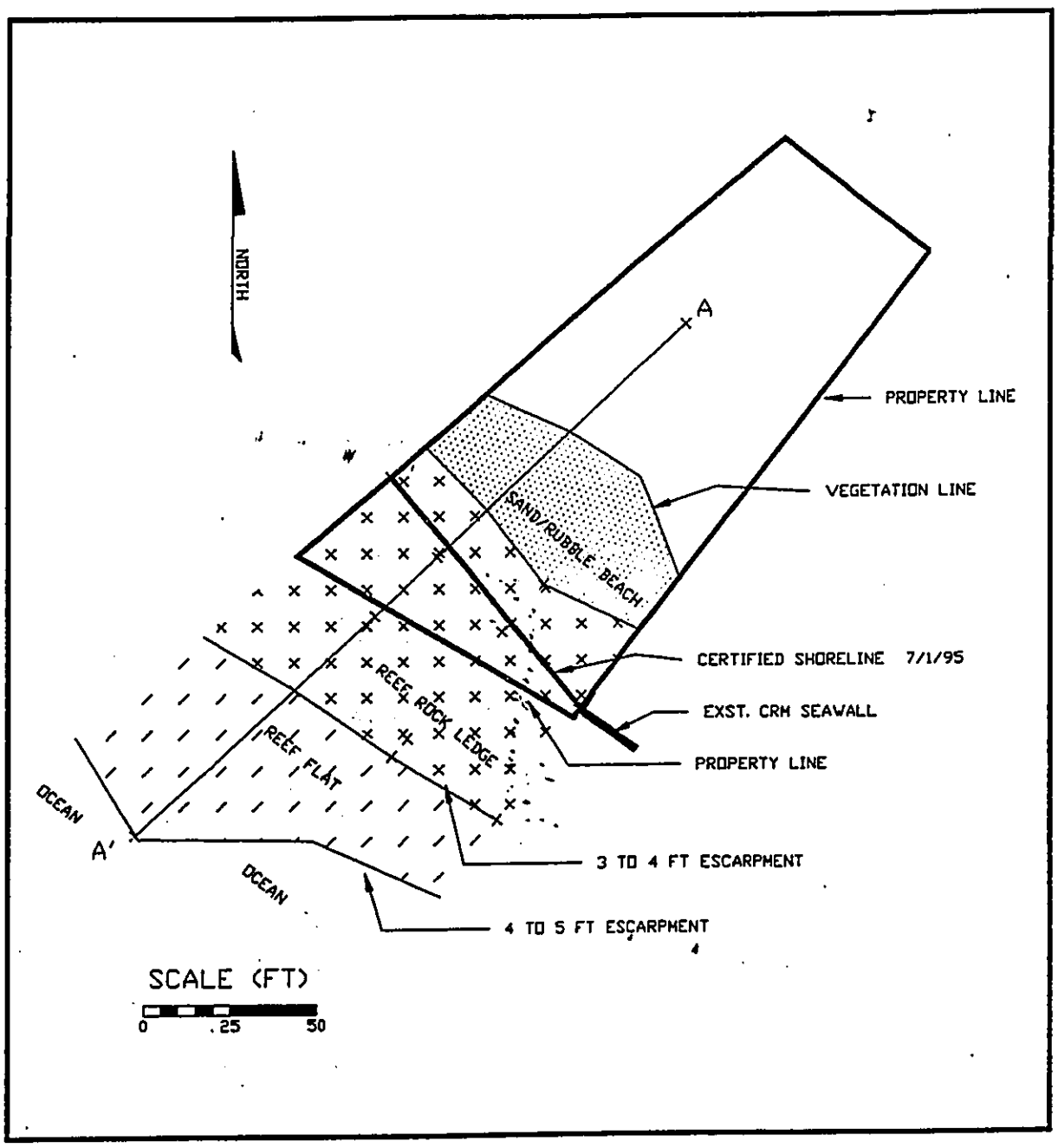


Figure 5. Plan view of project site with geologic features

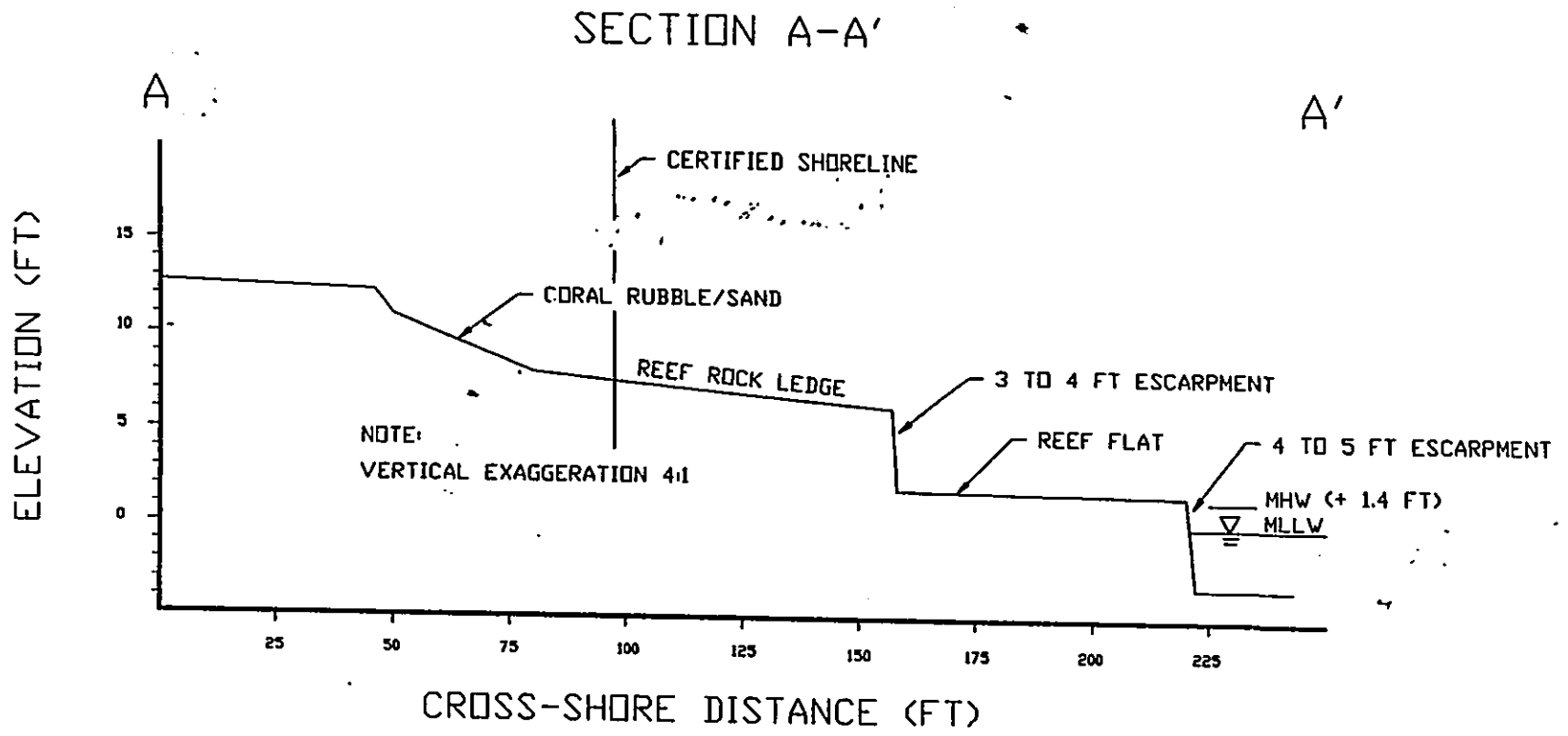


Figure 6. Typical cross-shore profile, section A-A'

Figures 7 and 8 contain photographs of the project site. Photo 1 in Figure 7 was taken from the approximate makai property line, looking mauka. In the foreground is the reef rock ledge with irregular high relief. The property extends mauka past the telephone pole in the top left of the photo, and over to the CRM fence of lot #312 at the top right of the photo. Photo 2 is looking southeast across the irregular reef rock ledge to the CRM retaining wall at the edge of the Certified Shoreline for lot #312. The Certified Shoreline for lot #313 extends from the red mark in the left foreground of the photo to the edge of the CRM retaining wall of lot #312. The photo illustrates that the rock ledge is well elevated above sea level. Photo 3 is a view from that corner to the next seawall to the northwest along the Certified Shoreline. Photo 4 in Figure 8 shows the seaward edge of the reef rock ledge, and the continuous line of seawalls towards Kepuhi Point. The reef rock ledge terminates at a 3 to 4 ft. escarpment to the right in the picture. The limestone near the escarpment is very irregular and sharp from solution pitting. Photo 5 shows a view along the reef rock ledge from lot #315. The CRM fence separating lot #314 and lot #315 is visible to the left. The reef flat is visible to the right. Photo 6 in Figure 8 is a picture of the reef flat, with the 3 to 4 ft. escarpment of the reef rock ledge visible to the right. This photo was taken about 200 yds. to the northwest of the property, but the features are very similar.

2. Justification for Shore Protection

All of the developed properties in the immediate vicinity are fronted by seawalls to protect them during extreme wave and storm conditions. This section of the coastline does not have a sand beach and dune system for protection. During moderately high surf the coast is adequately protected by a combination rock shelf and escarpment shoreline. Waves break and dissipate on the shelves, and the escarpments tend to reflect much of the incident wave energy. However, during extreme hurricane or high wave events the unprotected shoreline is inundated by overwash, and coral rubble and cobbles are thrown up onto the shore. This is dramatically shown in Figure 3, a picture taken by a photographer for the Honolulu Advertiser in the aftermath of Hurricane 'Iniki (1992). The photograph also shows that the seawalls along this coastline not only protect the shoreline properties, they prevent damage to the public roadway. Beach changes normally associated with seawalls are not of concern in this case because of the rocky, terraced shoreline. Littoral transport of any sediment sediment occurs seaward of the intertidal reef flat and escarpment. The owner requires a seawall to protect the property from severe storm damage, to allow construction of his home, and to protect this home from future damage. Based on the impact of two previous severe storm wave events at the project site, Hurricanes 'Iwa (1982) and 'Iniki (1992), it is

Photo 1. Looking east from property line

Photo 2. Looking southeast along Certified Shoreline

Photo 3. Looking northwest along Certified Shoreline

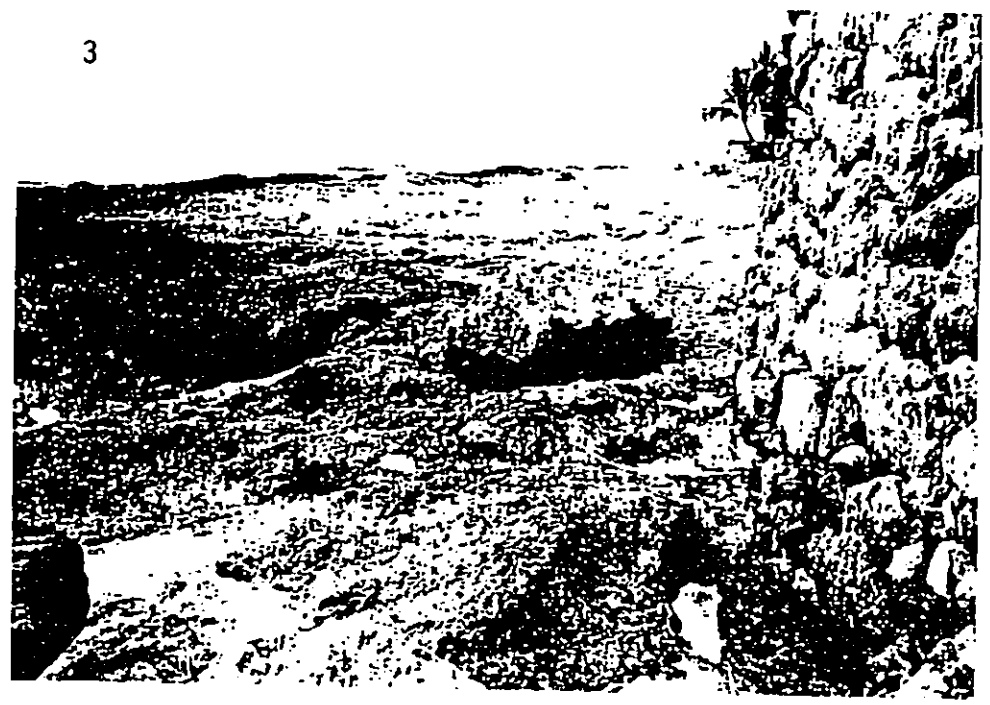


Figure 7. Photographs of project site

Photo 4. Looking southeast, near edge of reef rock

Photo 5. Looking southeast from lot #315

Photo 6. View of reef flat

Figure 8. Photographs of project site

not considered prudent to build a home on the property without first providing shore protection to protect against storm tossed rocks and debris.

3. Structure Description

The proposed structures consist of a CRM retaining wall fronting the property located 20 feet mauka of the Certified Shoreline, and a cemented rubble masonry (CRM) fence from the retaining wall along the northern property line. Figure 9 is a schematic view of the retaining wall and fence along a cross-section. Figure 10 is a plan view of the lot, illustrating the walls and the home planned for the site. The wall will be located 20 feet mauka of the certified shoreline to provide lateral access. It will be six feet high, and should not affect coastal views. The wall structures were designed by Mr. Endre Toth, P.E. The structure plans were originally designed and drafted on 12/7/95 and modified on 2/5/96. Attachment A contains the modified engineering plans for the CRM wall and fence, and structural calculations.

The retaining wall will have a 10 ft. base tapering front and back on a 4 to 12 slope to a crest width of 4 ft., and a maximum crest height of 6 ft. above existing grade. Minimum embedment of the wall footing will be 1.75 ft. (1'9"). Finished grade behind the wall will be just below the wall crest.

The CRM fence will extend along the northern boundary of the property to the retaining wall. The fence base will be a minimum of 2.25 ft., in width and the fence crest will be a maximum of 6.0 ft. above existing grade, with a minimum embedment of 1 ft. The fence will taper with a slope of 1 to 12 front and back, and have a crest width of 1.3 ft.

III. AFFECTED ENVIRONMENT

A. GENERAL DESCRIPTION

The project area is a well-developed residential neighborhood, with primarily single-family homes along the shore. The area is designated by the State as an Urban District, and most

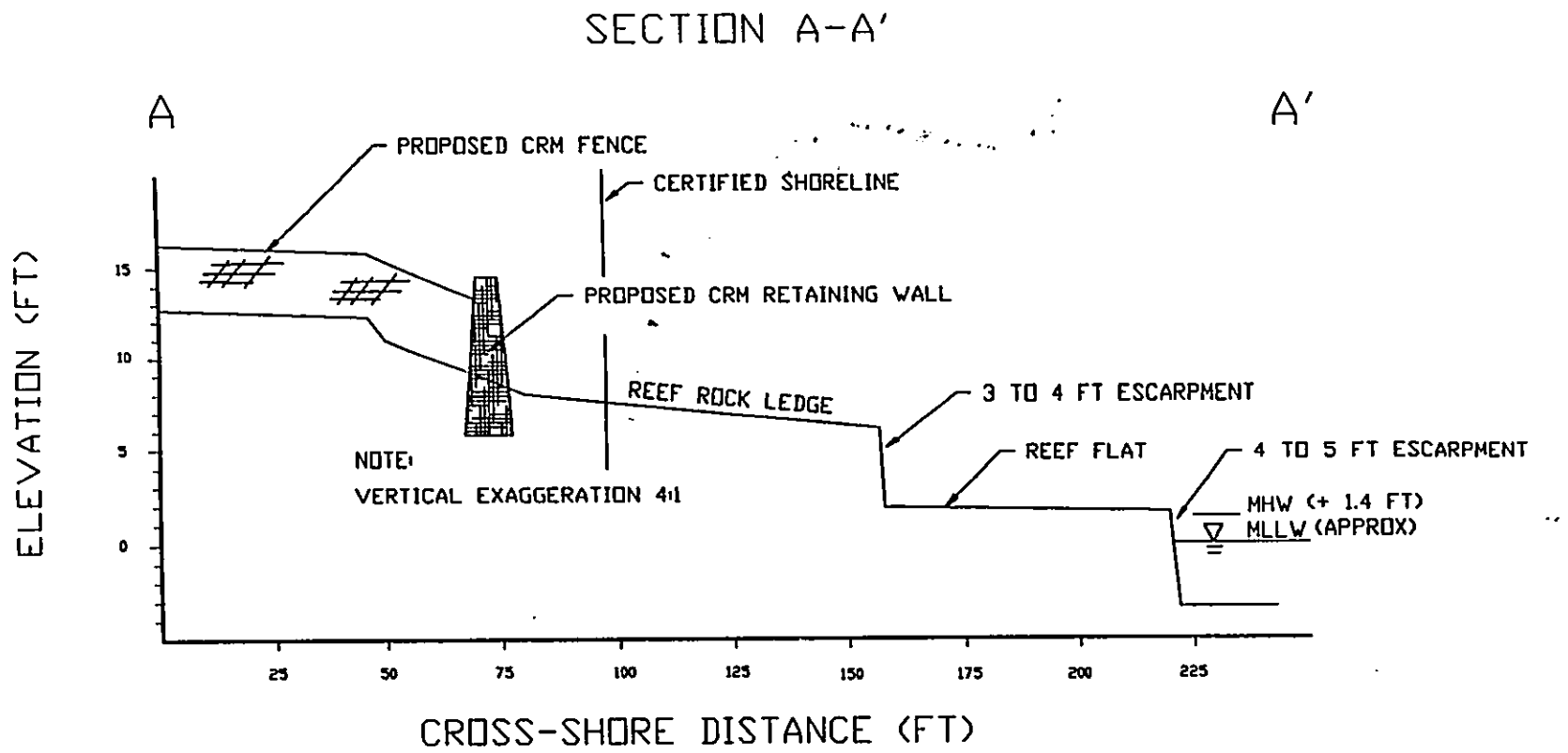


Figure 9. Typical cross-shore profile with proposed structures

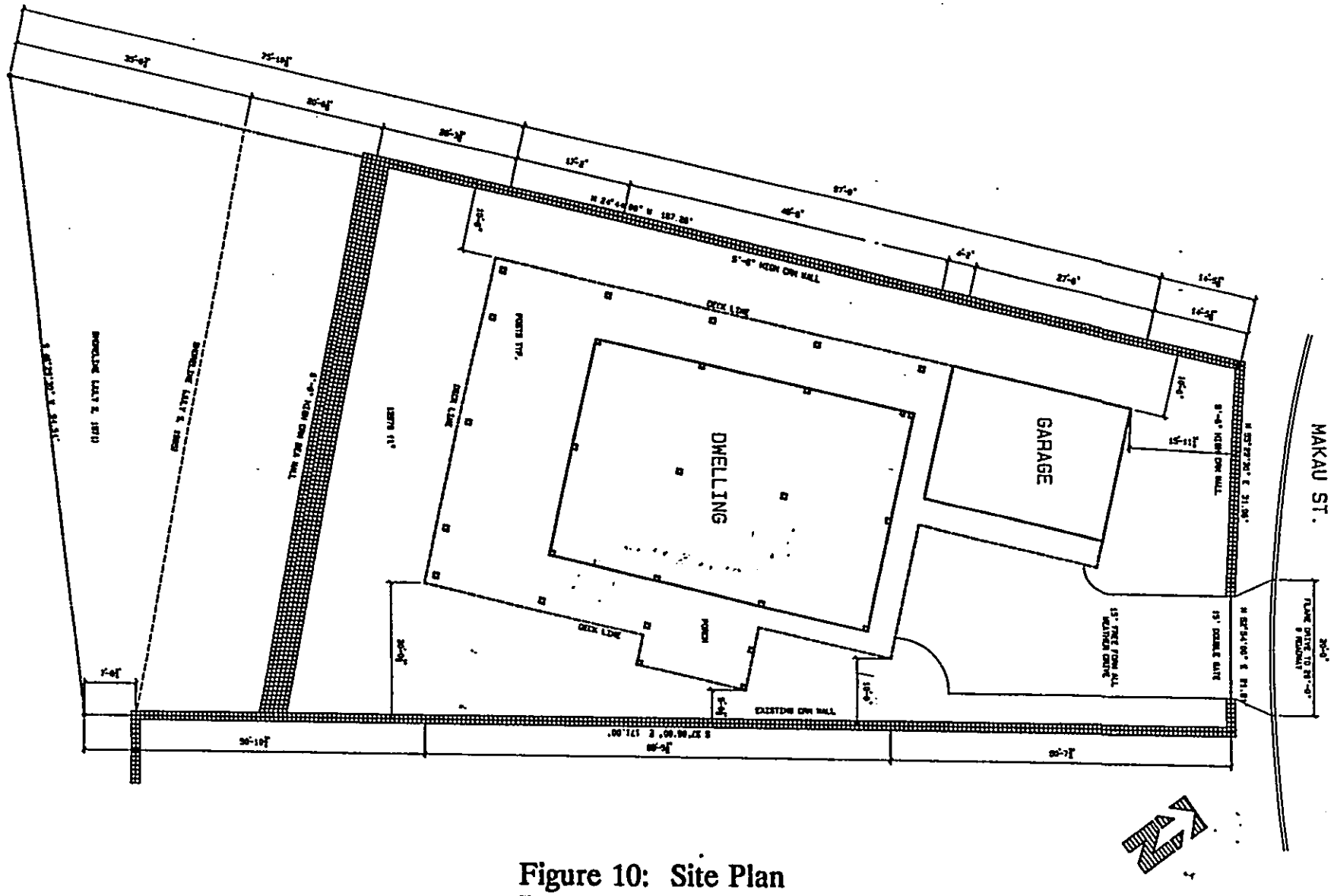


Figure 10: Site Plan

LEGAL DESCRIPTION
TMK 8-4-10: 11. LOT 313
84-135 MAKA'U STREET
WAI'ANAE, HAWAI'I 96792
LOT AREA = 12,970 SQ. FT.

of the land is owned in fee by the residents. The closest public park is Kea'au Beach Park, approximately 1500 ft. to the north. Mākaha Beach Park lies approximately 1 mile to the south. The property to the south has an eight foot vertical seawall, while the two properties to the north are undeveloped.

The coast in the project area is exposed to storm waves, and high surf along the coast is a regular occurrence during the winter season. The area is designated as a VE zone on the Flood Insurance Rate Map (FIRM), coastal flood hazard with wave action, base flood elevation 13 and 12 ft. A Flood Hazard District Certification is provided in Attachment B.

The shoreline in the project area is an irregular rocky coast, with no beaches apparent on public lands. Unlike much of O'ahu's shoreline, there are no fringing reefs in the vicinity. The limestone reef rock shoreline drops steeply to nearshore depths of 6 to 10 feet, and then slopes gently to deeper depths. The consolidated limestone bottom extends seaward as a ledge mostly between 10 and 20 ft. in depth. Approximately 1500 ft. offshore, the bottom drops rapidly at an escarpment from 25 ft. to 60 ft. depths (AECOS, 1981). The bottom is crossed by channels cutting across the limestone bottom, with drops of over 40 ft. sometimes occurring at the channel margins. Larger storm waves break in the deeper water offshore. The coast is afforded protection from smaller waves by the steep escarpments of the rocky shoreline which tend to reflect incident wave energy.

B. WIND AND WAVES

The prevailing winds are the northeast tradewinds which generally blow sideshore with an offshore component, 80 to 90 percent of the time during the summer season from about April to November. During the winter months, there is a general weakening of the tradewind system and the occurrence of southerly and westerly winds due to frontal influences from the north temperate zone and local low pressure systems.

The general Hawaiian wave climate can be described by four primary wave types: the northeast tradewind waves; south swell; Kona storm waves; and North Pacific swell. The study area is very well protected from the northeast tradewind waves by the island of O'ahu itself, but is only partially sheltered from south swell and North pacific swell.

North Pacific swell is produced by severe winter storms in the Aleutian area of the North Pacific and by mid-latitude low pressure areas. North swell may arrive in the Hawaiian Islands throughout the year, but is largest and most frequent during the winter months of

October through March. The waves can approach the Islands from the west northwest clockwise around through the northeast with the average direction being northwest. Through refraction and diffraction, any north swell approaching O'ahu from west of north will produce surf in the area. The waves in a North Pacific swell typically have periods of 10 to 16 seconds and heights of 5 to 15 feet, but can include some of the largest waves to reach the Hawaiian Islands, with heights exceeding 20 feet. Figure 11 shows a cumulative wave height distribution derived by Walker (1974) for Mākaha showing that waves higher than 15 feet can be expected 3 percent of the time or about 11 days out of a typical year.

South swell is generated by southern hemisphere storms and is most prevalent during the months of April through October. These long, low waves approach from the southeast through southwest, with periods of 12 to 20 seconds and deepwater heights of 1 to 6 feet. South swell produces moderate surf at both the north and south ends of Mākaha Beach.

Kona storm waves are generated by intense winds associated with local fronts or low pressure systems and typically have periods ranging from 6 to 10 seconds and heights up to 15 feet. These waves generally approach from the south to west.

In addition to the primary wave types, infrequent tropical storms and hurricanes may generate large waves which affect the study area. Hurricane "Iwa, in November 1982, generated deepwater wave heights in excess of 25 feet which battered the Wai'anae coast of O'ahu. Model hurricane wave inundation limits determined by Sea Engineering, Inc.,(1993), at Kepuhi Point are 536 ft. inland, with a runup height of 12.3 ft. and a still water level of 6.9 ft. MSL. The tsunami of 1946 caused reported runup to an elevation of 15 ft. at adjacent Kea'au Beach, and 17 ft. at Mākaha Point.

A wave run-up analysis using standard coastal engineering methodology was completed for the project site to determine the extent of wave action. For a highest predicted tide of 2.5 feet, where the reef flat will have approximately 1.0 foot of water depth, wave run-up will be approximately five feet above that water level, or roughly reach the certified shoreline. This is consistent with local observations for the site, which indicate that the certified shoreline reasonably approximates the upper reaches of the wash of the waves. The analysis was calculated using Savilles' composite slope method (SPM, 1984) and is for a smooth, impermeable slope. Run-up will tend to be less on the uneven, pitted, limestone rock ledge.

C. FLORA AND FAUNA

The following discussion of flora and fauna off Kepuhi Point is taken from an island wide inventory compiled by AECOS (1981): "Coral cover is moderately high (ranging between 20 and 40%) off Kepuhi Point. *Porites lobata* and *Pocillopora meandrina* are the dominant

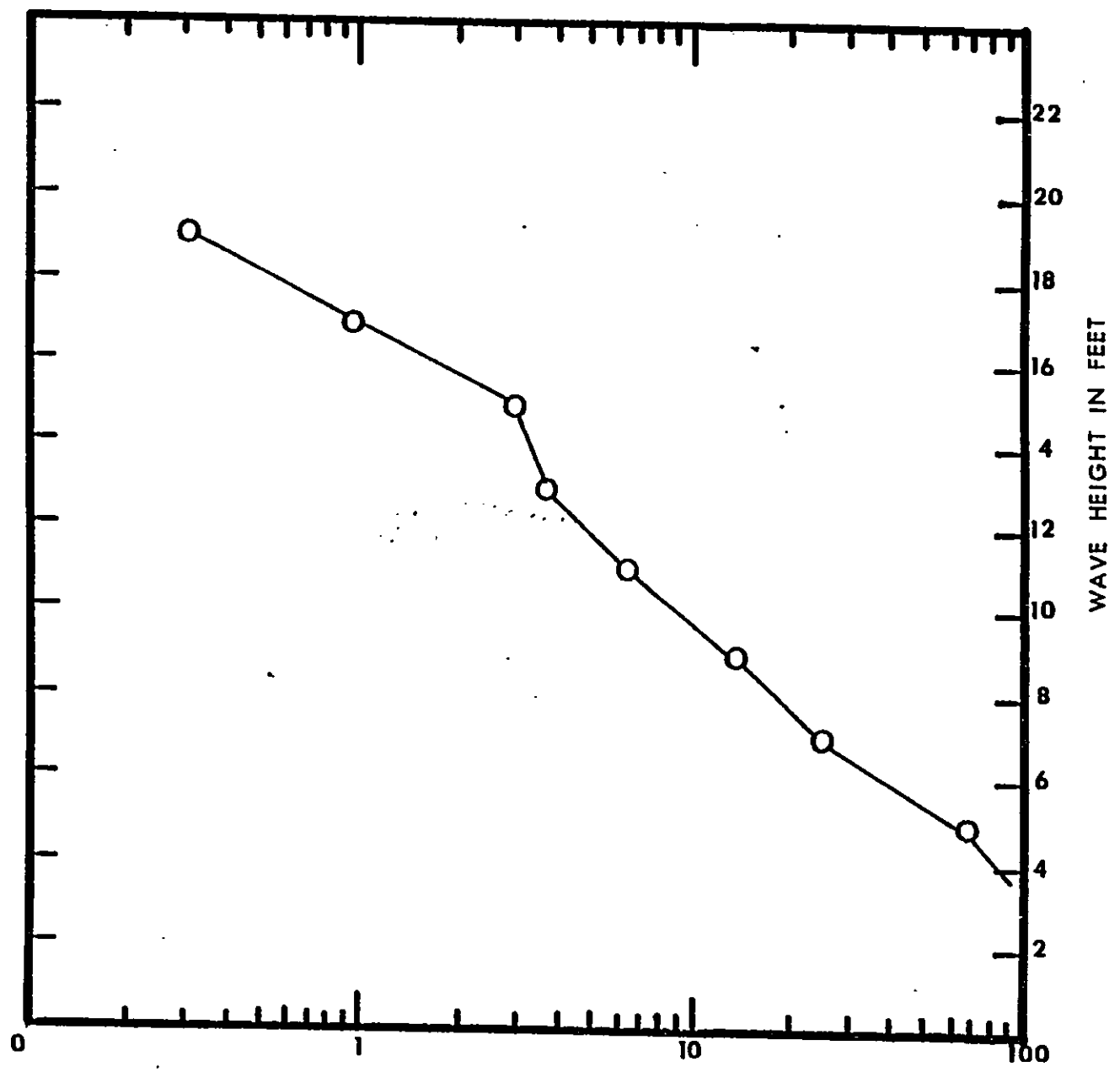


Figure 11: Mākaha: Percent Probability of Wave Height Excedance
(from Walker, 1974)

species present. Algae present tend to be low growing and not abundant. Concentrations of fishes are noted along the margins of channels crossing the limestone bottom. Most abundant are *Naso lituratus, Lutjanus kasmira, Abudefduf abdominales, Acanthurus triostegus, Chaetodon miliaris*, and various damselfishes. *Zanclus cornutus* and *Scarus* sp. are common."

D. USE

The ocean off the property site is used primarily for fishing. Good spearfishing is to be had off the steep escarpment offshore, and the high bottom relief offers good conditions for fish trapping. Ornamental fish collection is the major fishery in these waters (AECOS, 1981). The shoreline is also heavily used for fishing and picnicking. Although there are surf sites in the vicinity at Mākaha and Kea'au beach parks, there are no surf sites along the shore near the property, and ocean access is limited by the steep rocky shoreline.

IV. ALTERNATIVES CONSIDERED

Alternatives to the proposed seawall construction include no action, a rock revetment, soft shoreline protection, and building the seawall outside the setback zone.

No Action: Figure 3 illustrates that no action is not a feasible alternative for this site. The lot is subject to significant damage from severe storm waves. Shore protection is needed to protect the property and home planned for the site.

Rock Revetment: A sloping rock revetment would occupy considerably greater horizontal space. This type of structure is typically recommended for use in sandy shorelines where its shape and permeability reduce wave energy reflection and adverse impacts on littoral processes (sand transport). Because the project site is a rocky shore, and there are no sand beaches or nearshore sand deposits, use of a rock revetment is not necessary nor justified. Furthermore, it is not consistent with the vertical seawalls used to protect all other homes along this shoreline.

Soft Shore Protection: Soft protection, such as beach nourishment and protective dunes, is not feasible because there is no beach or sand along the shoreline. Introduction of sand could cause damage to the tidepools and reefs along the shoreline.

Building Seawall Outside Shoreline Setback: Building the seawall 40 feet inland of the certified shoreline is an alternative for the site. However, the owner has already lost 13 percent of his property due to the shoreline certification process. Building the wall 40 feet

inland of this new certified shoreline would result in an additional loss of 25% of useable property, and would not allow the owner to build the home he has planned for the lot (Figure 10).

The preferred alternative for this site is a vertical seawall, six feet high located 20 feet inland of the certified shoreline (Figures 9 and 10). This structure would be well inland of the upper reaches of the waves, would provide lateral access, would not affect coastal views, and would permit the owner to construct and protect his planned home on the property.

V. POTENTIAL IMPACTS

The seawall will be located 20 feet inland of the certified shoreline, at an existing ground elevation of roughly eight feet (MLLW) and roughly 80 feet inland of the still mean high water line. It is inland of the upper reaches of the wash of the waves, and will therefore be affected by waves and currents only during severe storm events. Because the structure will be fronted by a rocky shoreline, there will be no impacts on littoral processes. The structure will be distant from active tidepools, so there will be no impact on local flora and fauna. At present, shoreline access is available at the adjacent vacant lots, and at public right of ways two lots to the southeast and five lots northwest of the site. The location of the seawall - 20 feet inland of the certified shoreline - will provide lateral access along the shoreline. There will therefore be no impact on public access to the shoreline. The wall will be only six feet high, and should therefore have no impact on shoreline views. As shown in Figure 3, a protective wall will also serve to prevent damage to the public roadway.

VI. RESPONSE TO DRAFT EA REVIEW COMMENTS

Response to the Draft Coastal Engineering and Environmental Assessment was received from the following government agencies and general public:

Federal: Department of the Army, US Army Engineer District, Honolulu

State: Office of Environmental Quality Control
Department of Land and Natural Resources
Environmental Center, University of Hawai'i at Mānoa
Office of State Planning

City: Department of Public Works
Department of Land Utilization

Public: Lawrence Y.C. Leong
Tom Eisen
Douglas Meller
O'ahu Group, Sierra Club, Hawai'i Chapter

Letters from the organizations and individuals listed above are included in Attachment C. Below are responses to the comments contained in these letters. The responses are numbered according to the comment number of the letter, unless otherwise indicated.

A. Department of the Army, US Army Engineer District, Honolulu

Comment: No Army Corps jurisdiction.

B. Office of Environmental Quality Control

Response 1: The project shoreline consists of a rock ledge of limestone formed several thousand years ago during ancient high sea level stands. The elevation of the ledge is 6 to 8 feet. There is no active beach system at the site. The shoreline, therefore, has not been subject to erosion or accretion in recent history. An aerial photographic analysis of this shoreline is not required for a shoreline setback variance, and would reveal little change to the shoreline.

Response 2: see EA, Section B. 1. "Existing Coastal Condition and Characteristics".

Response 3: see EA, Figures 4, 5, 9 and 10. The previous certified shoreline is the property line shown on Figure 4, and is also shown in Figure 10. Figure 10 has been added to show the future house to be built on the site. Public access easements are shown on Figure 2.

Response 4: see EA, Figures 7 and 8.

Response 5: The property to the south contains an eight-foot verticle seawall, while the two properties to the north are undeveloped and do not contain structures. The wall to the south is built on top of the rocky ledge; the elevation of the ledge and the base of the wall is 6 to 8 feet. There is no beach in the area. Because the shoreline

is rocky and elevated (6 to 8 ft MLLW), there has been no erosional impacts of the wall.

Response 6: Figure 10 illustrates the home planned for the lot.
Response 7: A discussion of the wave climate in the area has been added to the environmental assessment, Section III.B. Longshore currents are not relevant in the project area because the shoreline is rocky and elevated. There is no sand beach in the area.

Response 8: The shoreline consists of a limestone ledge at an elevation of 6 to 8 feet. No changes are therefore expected in the shoreline over the next 30 years with or without the proposed wall.

Response 9: See EA Figures 3 and 7.

Response 10: As illustrated in Figure 3, extreme storms such Hurricane 'Iniki can result in significant wave action in the project area. Any structure built in this area would risk significant damage if it were not protected by a hard structure such as a seawall or a revetment. That is why all shoreline homes in the neighborhood are protected by seawalls. Alternatives to shoreline hardening are therefore not feasible at the project site. To ease concerns about the location and height of the proposed seawall, the owner is proposing relocating the wall 20 feet landward of the certified shoreline and reducing the height to 6 feet (Figures 9 and 10).

Response 11: The landowners are planning to build a house on the property. The planned footprint of the house is shown in Figure 10.

Response 12: As Figures 5 and 6 illustrate, the certified shoreline lies on a reef rock ledge with an elevation of 6 to 8 feet. This ledge extends 20 feet landward and 60 feet seaward of the certified shoreline. Although it is occasionally subject to spray and splashing by large waves, the rocky ledge is not washed by typical waves. There are no tide pools on this ledge. Occasionally, there are pools of standing water resulting from rain or wave splash. These puddles, however, are not tidally exchanged and harbor no visible marine life. The tide pools occur on the reef flat, which has an elevation of roughly 2 feet (MLLW) and extends from 60 to 130 feet seaward of the certified shoreline.

The determination and location of the certified shoreline is not the subject of this document. The certified shoreline is a legal boundary approved September 27, 1995, and has already been subject to comment and public review. Determining the certified shoreline for this property is not a straightforward task because the typical indicators used — vegetation line or debris line — are not present on the rocky terrace. The edge of the vegetation line as mapped on the property was caused during the extreme waves of Hurricane 'Iniki, and therefore should not be used to define the certified shoreline. In the absence of clear physical indicators of the "upper reaches of the wash of the waves, other than storm or tidal waves..." a reasonable estimate of this location was agreed to at the site. Visual observations and the wave runup analysis describe in the Environmental Assessment indicate that the approved certified shoreline is a reasonable estimate of the upper reaches of the wash of the waves.

Response 13: The tidepools occur on the reef flat 60 to 130 feet seaward of the certified shoreline and 80 to 150 feet seaward of the proposed wall. The wall will have no impact on the existing tidepools.

Response 14: The landowner is proposing to relocate the wall 20 feet landward of the certified shoreline to ease the expressed concerns. A wall located 20 feet inland of the approved certified shoreline will be well above the upper reaches of the wash of the waves and will allow safe lateral access.

Response 15: The landowner has agreed to reduce the height of his wall to 6 feet.

Response 16: The approving agency is the Department of Land Utilization, City and County of Honolulu.

Response 17: The proposed project is considered to not have a significant impact on the environment and therefore preparation of an environmental impact statement should not be required. The information provided in this Environmental Assessment and application is consistent with the requirements of the City and County of Honolulu, Department of Land Utilization for shoreline setback variance.

C. Department of Land and Natural Resources, State of Hawai'i

No adverse comments. Precautions will be taken to prevent debris and contaminants from entering coastal waters during construction.

D. Department of Land and Natural Resources, State of Hawai'i

Comment: Historic preservation.
Response: All work will cease if historic sites are uncovered during construction activities.

E. Environmental Center, University of Hawai'i at Mānoa

Comment: Project Location.
Response: The project is not located near the intertidal zone. See Responses B.12 - B.14 for a detailed discussion of project location.

Comment: Variance Criteria.

Response: Figures 4 and Figure 10 illustrate the lot and planned improvements. The certified shoreline approved in 1995 resulted in a loss of 13% (1734 sq ft) of the owners land, or 36 linear feet along the north boundary and 4 feet along the south boundary. This initial loss altered the owners original plans for the property. Figure 3 illustrates the effects of an extreme storm on the property. The landowner needs shore protection to protect the property and planned home from storm damage. Figure 10 illustrates the house planned for the property. A seawall will be needed to permit construction of this house and protect it from future storm damage. To ease concerns about placing a seawall on the certified shoreline, the landowner proposes to build the protective seawall 20 feet inland of the certified shoreline.

Comment: Coastal Access.

Response: Access to the shoreline from the street is provide by easements located two lots to the south and five lots to the north. The landowner is providing for lateral access in front of his property by proposing to build the wall 20 feet inland of the certified shoreline and reducing the proposed height from eight feet to six feet.

F. Office of State Planning, Office of the Governor

Comment: Impact of eight foot wall on Makua viewshed

Response: To ease concerns on the impact of the wall on the viewshed and on lateral access, the owner will reduce the height of the wall from eight to six feet, and relocate it 20 feet inland of the certified shoreline.

Comment: Seawall to mitigate against potential hurricane damage.

Response: Along this shoreline, Hurricanes 'Iniki and 'Iwa, which did not directly strike O'ahu, produced large storm waves which damaged shoreline properties which were not adequately protected. Figure 3 shows the impact of 'Iniki storm waves on the subject property and two adjoining lots, all of which were unprotected. Neighboring properties, however, which were protected by seawalls, suffered little damage. Shore protection is therefore needed along this shoreline. While seawalls in the direct path of a strong hurricane may not succeed in preventing all damages, they can provide valuable and needed shoreline protection during much more likely close calls such as Hurricanes 'Iniki and 'Iwa. This is dramatically illustrated in Figure 3.

G. Department of Public Works, City and County of Honolulu

Comment: Best Management Practices

Response: Construction material will consist only of stones and concrete. No clay, silt or sand sized material will be introduced into the water. Construction equipment will operate only from the land during dry weather. No equipment will be in the water and no oil or grease from construction equipment will be introduced into the water.

H. Department of Land Utilization, City and County of Honolulu

Response 1: The estimated project cost is $40,000.

Response 2: Standard earth fill from inshore, mountain areas will be used. It is estimated that the fill volume will be approximately 545 cubic yards. The fill is required to prevent flooding from the street, and to provide support for the seawall.

Response 4: See Response B.12 for a detailed discussion of the certified shoreline.

Response 6: The owner has proposed to reduce the height of the wall from eight feet to six feet.

I. Lawrence Y.C. Leong

Response 1: The certified shoreline process is not the subject of this document. However, for a discussion of the certified shoreline, refer to Response B.12.

Response 2: This is difficult to precisely define. However, visual observations and our modeling analysis indicate that the certified shoreline is approximately the location of the upper reaches of the waves with a one year recurrance interval.

Response 3: Winter surf did not wash as far inland as the vegetation line of the Geilenfeldt's lot. This' vegetation line is the result of waves produced during Hurricane 'Iniki.

Response 4: If the certified shoreline were placed at the vegetation line, the lot's dimensions would be roughly 65 feet x 110 feet, or 7150 square feet (a 45% loss of property).

Response 5: The dimensions in this case would be 62 feet x 70 feet, or 4340 square feet (a 67% loss of useable property). This area would not permit the construction of the dwelling the owner had planned for this lot.

Response 6: The elevated limestone ledge in this area affords significant protection to the shoreline for a wide range of normally occurring wave conditions. However, as Figure 3 illustrates, this ledge does not protect against severe storm waves.

Response 7: It is not possible to predict the vegetation line location for the next 50 years.

Response 8: There are no structures presently on the lot needing protection, however, the applicant does propose to build a single-family residence.

Response 9 & 10: It is estimated that the proposed shore protection would only by overtopped by relatively infrequent severe storm wave events such as Hurricane 'Iniki.

J. Tom Eisen

Comment: Certified shoreline

Response: The original certified shoreline, or property line, shown in Figures 4 and 10, was located at an elevation of 6 feet (MLLW) approximately 35 feet inland of the still high water line. It was not out in the ocean. For a discussion on the location of the approved certified shoreline, see Response B.12.

Comment: Why is eight foot high wall needed?

Response: The landowner is proposing to reduce the height of the wall from eight feet to six feet and locate it 20 feet inland of the certified shoreline. A seawall is needed to protect the property from severe storm waves.

Comment: How the wall will affect views and access?

Response: To minimize impacts on views and provide safe lateral access, the landowner is proposing to reduce the wall height to six feet and build it 20 feet inland of the certified shoreline.

Comment: Whether a shoreline setback is needed for an undeveloped lot.

Response: Figure 10 illustrates the dwelling the landowner is planning to build on the lot. A variance for the seawall is needed to allow construction of this home, and to protect it from severe storm damage.

K. Douglas Meller

Response 1: It is not correct to say that the certified shoreline was negotiated and is not "the upper reaches of the wash of the waves ....". The vegetation line in Figure 5 is the result of severe waves produced during Hurricanes 'Iniki and 'Iwa, and does not represent the upper reaches of the wash of the waves other than storm waves. The certified shoreline is considered a reasonable estimate of the upper reaches of the wash of the waves. For a more detailed discussion of the location of the certified shoreline, see Response B.12.

Response 2: The legality of neighboring shorelines is not the subject of this document.

Response 3: The certified shoreline is not the subject of this document (see Response B.12). However, the approved certified shoreline is considered a reasonable estimate of the upper reaches of the wash of the waves.

L. O'ahu Group, Sierra Club, Hawai'i Chapter

Comment: Public barred from a beach

Response: The beach refers to a small patch of mostly coral rubble and some sand that was tossed up during the severe waves of Hurricanes 'Iwa and 'Iniki. It is located 60 feet inland of the still high water line at an elevation of 8 to 11 feet (MLLW). It is not a recreational beach near the water that provides public enjoyment and benefit. This area is also located 20 feet behind the certified shoreline and is private property.

Comment: Location of tidepools

Response: There are no tidepools mauka of the proposed wall. The tide pools occur on the reef flat, which has an elevation of roughly 2 feet (MLLW) and extends from 60 to 130 feet seaward of the certified shoreline.

Comment: How can a wall be justified under the city's hardship standard when the lot itself is vacant.?

Response: As illustrated in Figure 10, the landowner plans to build a home on the lot. A seawall is required to build this home and protect it from possible storm damage. To ease concerns about the seawall, the landowner is proposing to reduce its height from eight feet to six feet, and relocate it 20 feet inland of the certified shoreline.

VII. REFERENCES

AECOS, Inc., 1981, O'ahu Coral Reef Inventory; prepared for the U.S. Army Corps of Engineers, Pacific Ocean Division, Fort Shafter, Hawai'i, 96858

Sea Engineering, Inc., 1993, Leeward O'ahu Hurricane Vulnerability Study: Determination of Coastal Inundation Limits; prepared for the State of Hawai'i Department of Defense and the U.S. Army Corps of Engineers Pacific Ocean Division, and Federal Emergency Management Agency Region IX.

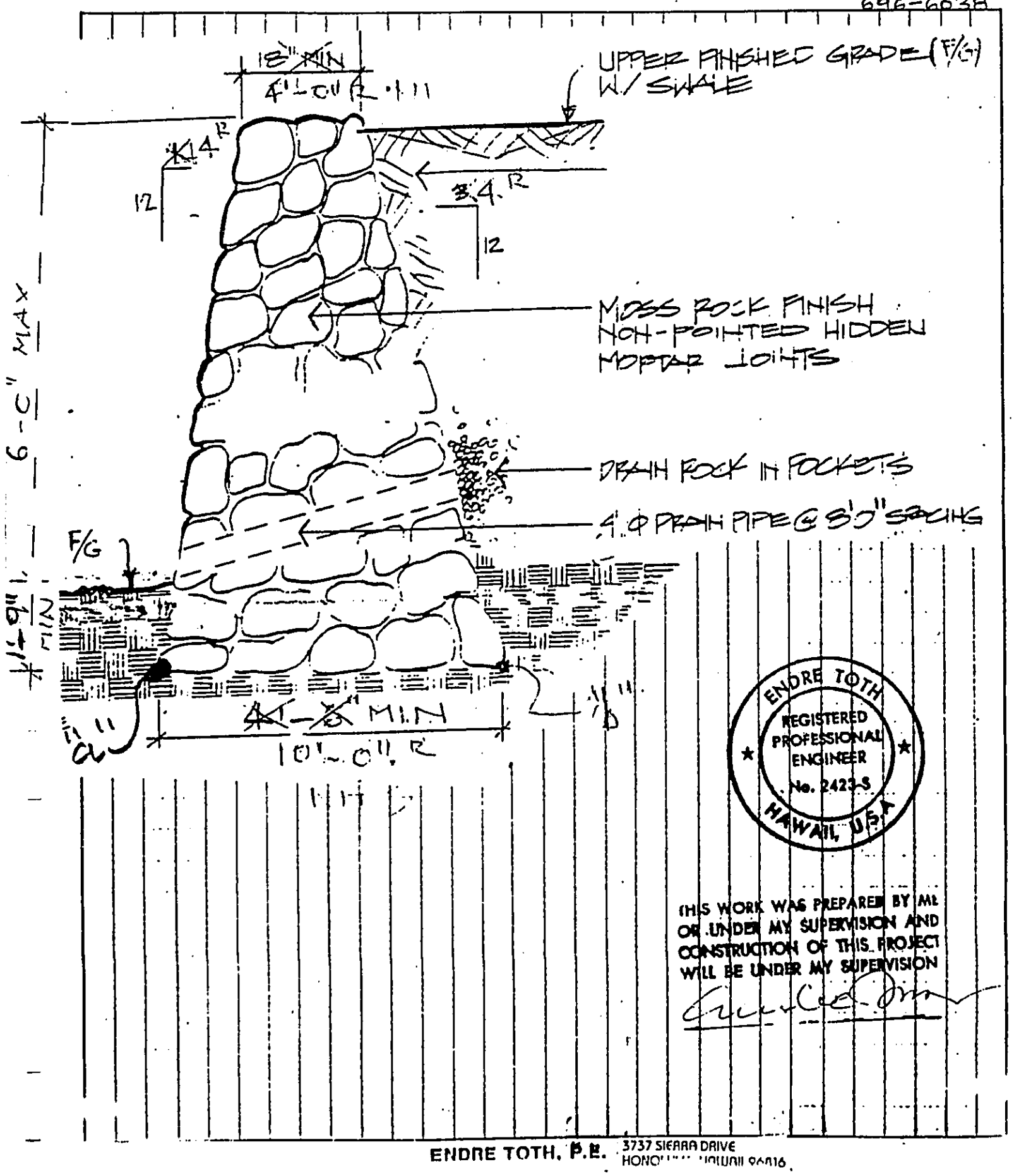
U.S. Army Corps of Engineers, Coastal Engineering Reseach Center. 1984. Shore Protection Manual.

Walker, James R., 1974, Recreational Surf Parameters. Technical Report No. 30, University of Hawai'i, Look Lab, Department of Ocean Engineering. 311p.

ATTACHMENT A: STRUCTURAL ENGINEERS' REPORT

Contents:

PROJECT CRM RET'G. WALL & FENCE for MR GELLENFELDT PAGE 3R
LOCATION MAKAU ST. MAKAHA HI. COMPUTED E. TOTH DATE 12-7-95
ITEM JOB RICHARD GELLENFELDT 696-6038



ENDRE TOTH
REGISTERED PROFESSIONAL ENGINEER
No. 2423-S
HAWAII, U.S.A.

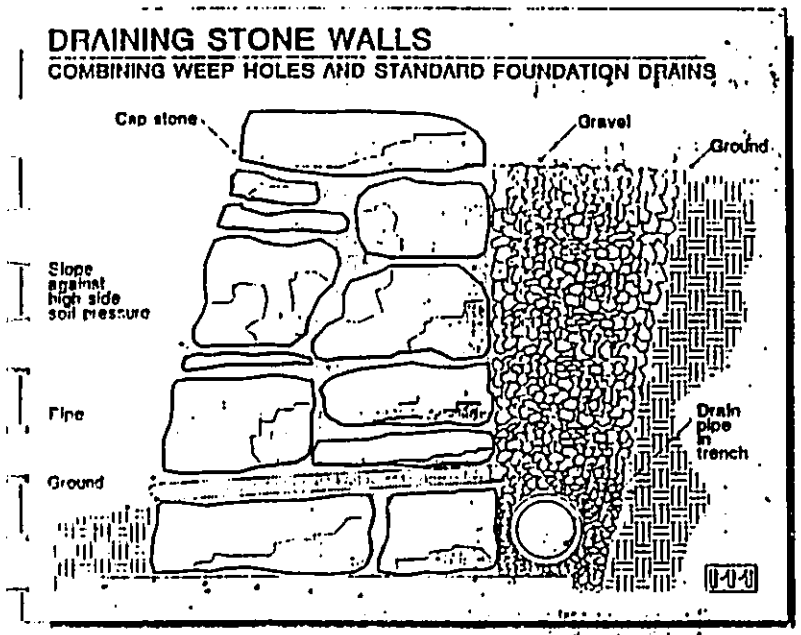
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY SUPERVISION

ENDRE TOTH, P.E. 3737 SIERRA DRIVE HONOLULU, HAWAII 96816

PROJECT CRM RET'G. WALL & FENCE for MR GEILENFELDT PAGE 4
LOCATION MAKAU ST. MAKAHA HI. COMPUTED E. TOTH DATE 12-7-95
ITEM JOB RICHARD GEILE 696-6038

RETAINING WALL NOTES:

1. BACKFILL BEHIND RETAINING WALL SHALL BE GRANULAR, NONEXPANSIVE MATERIAL WITH PARTICLES NOT GREATER THAN 4" AND NOT MORE THAN 20% PASSING THE #200 SIEVE. PLASTICITY INDEX SHALL NOT BE MORE THAN 10.
2. FILL BEHIND RETAINING WALLS SHALL BE COMPACTED IN 6" LOOSE LIFTS TO 90% RELATIVE COMPACTION PER ASTM D1557; COMPACTION SHALL BE DONE BY A HAND OPERATED COMPACTOR. DO NOT OVER COMPACT FILL BEHIND RETAINING WALL.
3. AT ALL RETAINING WALLS PROVIDE 4" DIAMETER WEEPS AT 8'-0" O.C. BED ALL WEEPS WITH A MINIMUM OF 4 CUBIC FEET OF GRAVEL WRAPPED IN GEOTEXTILE FILTER FABRIC. ALTERNATIVELY, PROVIDE PERFORATIONS DOWNWARDS. BED PIPE IN A MINIMUM OF TWO CUBIC FEET OF GRAVEL WRAPPED IN GEOTEXTILE FILTER FABRIC.
4. ALL GRADE DISCREPANCIES AND DISCREPANCIES IN THE HEIGHT OFF THE RETAINING WALLS SHALL BE REPORTED TO THE ENGINEER.
5. STEP RETAINING WALL FOOTINGS AS REQUIRED. DO NOT SLOPE BOTTOM OF FOOTING.



Weep-holes in walls cut water erosion

Q: How can you protect a rock-and-concrete wall from groundwater erosion?

A: Assuming that you have built adequate strength into the wall, the best protection is to keep ground water from pushing against the masonry. Give it somewhere else to go, or a path through the wall, or both.

During construction, add standard retaining-wall weep-holes by mortaring in lengths of drainpipe every few feet between rocks near the bottom of the wall.

On the exposed side of the rocks, the pipes can be flush and unnoticeable. On the dirt side, let the pipes extend into a bed of gravel to encourage drainage. If the soil is loose, or silty, reduce clogging by covering the inlet end of the pipe with screening.

The drawback to this system is that ground water may work on one of the mortar joints instead of heading for the pipe inlets — and you can't install drainpipes at every joint without weakening the wall.

To prevent this, build a porous, gravel-filled trench on the dirt side. A typical trench might be only 6 inches wide at the base, tapering back to a foot or more at grade level. Water in the ground approaching the wall will drop down the trench to a perforated plastic drain pipe that collects and carries the water to a release point.

If you want to hide the gravel, fill the trench to about 6 inches of the ground level, then add a double layer of filter fabric, which lets water drain through but not dirt. Then lay sod to bring you to ground level.

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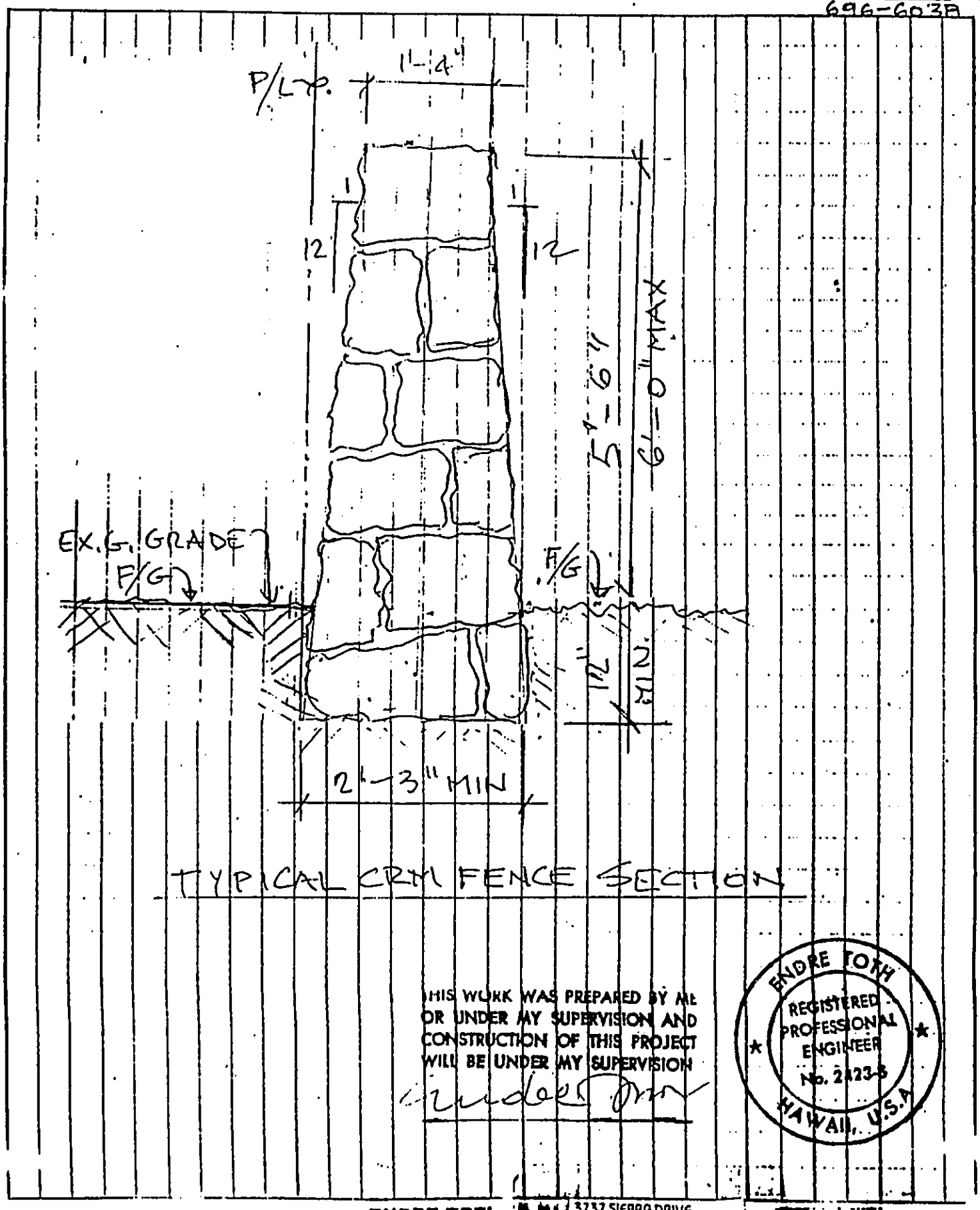
ENDRE TOTH, P.E. 3737 SIERRA DRIVE HONOLULU, HAWAII 96816 (808) 734-7119

PROJECT CRM RET'G. WALL & FENCE for MR GEILENFELDT PAGE 5
LOCATION MAKAU ST. MAKAHA HI. COMPUTED E. TOTH DATE 12-7-95
ITEM TYPICAL CRM FENCE JOB RICHARD GEILENFEL 696-6038



TYPICAL CRM FENCE SECTION

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ENDRE TOTH
REGISTERED PROFESSIONAL ENGINEER
No. 2423-S
HAWAII, U.S.A.

ENDRE TOTH P.E. 3737 SIERRA DRIVE

PROJECT CRM RET'G. WALL & FENCE for MR GEILENFELDT PAGE 6
LOCATION MAKAU ST. MAKAHA HI. COMPUTED E. TOTH DATE 12-7-95
ITEM 8' MAX CRM RET'G WALL JOB RICHARD GEILENFELDT 696-6038

P = 35 PSF

SLIDING FORCE = 35 x 8²/2 = 1120 #

OVERTURNING MOMENT ABT. PT "a"

OTM "a" = 1120 x (8/3+1) = 4107 #'

RESISTANCE

RESISTING MOMENT ABT. PT. "a"

	W.	X	=	Mr
CRM 7/12 x 7/2 x 140	= 285 #	.39'	=	111 #'
CRM 15 x 7 x 140	= 1470	1.33	=	1960
CRM 21/12 x 7/2 x 140	= 858	2.66	=	2283
EARTH 21/2 x 7/2 x 100	= 612	3.26	=	1993
TOTALS	= 3225 #.		=	6347 #'
		- OTM	=	4107
				2240

F.S. = 6347 / 4107 = 1.55 OK

RESULTANT SOIL PRESSURE XCTS AT:

X = 2240 / 3225 = .69' FROM TOE "a"

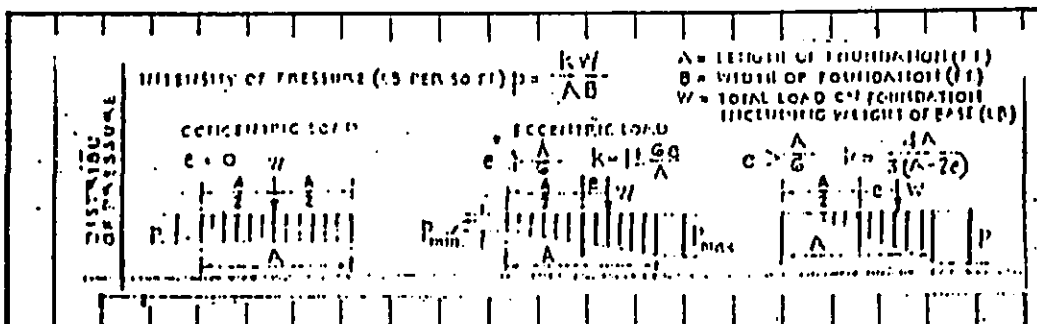
e = 4.5/2 - .69 = 1.56' > 4.5/6 = .75'

ENDRE TOTH, P.E. 3737 SIERRA DRIVE HONOLULU, HAWAII 96816

PROJECT CRM RETG. WALL & FENCE for MR GELLENFELDT PAGE 7

LOCATION MAKAU ST. MAKAHA HI. COMPUTED E. TOTH DATE 12-7-95

ITEM _____ JOB RICHARD GELLENFELDT 696-6038



$K = \frac{4 \times 4.5}{3(4.5 - 2 \times .69)} = 1.92$

$P = \frac{1.92 \times 3725}{4.5} = 1378 \text{ PSF} < 1500 \text{ p.s.f.}$

CHECK SLIDING

SLIDING RESISTANCE

1.) FRICTION

$P = .33 \times 4 = 1290\#$

PASSIVE EARTH

$P = 300 \times \frac{1}{2} = 150\#$

TOTAL $= 1340\#$

$F.S. = \frac{1340}{1120} = 1.2$ OK ∴ TRY 2' EMBEDMENT.

PASSIVE EARTH $300 \times 2^2/2 = 600\#$

TOTAL $= 1890\#$

$F.S = \frac{1890}{1120} = 1.68$ O.K

USE 1'-9" EMBEDMENT

ENDRE TOTH, P.E. 3737 SIERRA DRIVE HONOLULU, HAWAII 96816

PROJECT SEAWALL for M/M GELENFELDT PAGE 8

LOCATION MAKAU ST, MAKAHA HI COMPUTED E. TOTH DATE 2-5-96

ITEM CH'K 8' CRM WALL FOR HURRICANE FLOOD FORCES JOB RICH'D GELENFELDT 696-6038

(i) Buoyant Forces — uplift caused by partial or total ·gence of a structure.

(ii) Surge Forces — caused by the leading edge of a surge of ·npinging on a structure.

(iii) Drag Forces — caused by velocity of flow around an ·ect.

(iv) Impact Forces — caused by debris, such as driftwood, *boats, portions of houses, etc., carried in the flood currents* ·d colliding with a structure.

) Hydrostatic Forces — caused by an imbalance of ·sure due to a differential water depth on opposite sides of a ·ture or structural member.

"1 Buoyant Forces: The buoyant force on a structure or ·l member subject to partial or total submergence will act · through the center of mass of the displaced volume and is ·om the following equation:

$$= \rho g V$$

F = buoyant force acting vertically

ρ = density of water (2.0 lbs-s²/ft⁴ for salt water)

g = gravitational acceleration (32.2 ft/s²)

V = displaced volume of water (ft³)

(8) **Surge Force:** The total force per unit width on a vertical wall subjected to a surge from the leading edge of a tsunami which approaches the structure as a bore or bore-like wave is calculated from the equation below. The resultant force acts at a distance approximately h above the base of the wall. (Note: this equation is applicable for walls with heights equal to or greater than 3h. Walls whose heights are less than 3h require surge forces to be calculated using the appropriate combination of hydrostatic and drag force equations for the given situation.)

$$F_S = 4.5 \rho g h^2$$

where F_S = total force per unit width of wall

ρ = density of water (2.0 lbs-s²/ft⁴ for salt water)

g = gravitational acceleration (32.2 ft/s²)

h = surge height (ft)

BUOYANT FORCE

$F_B = 2 \times 32.2 \times 0 = 0$

N/A

SURGE FORCE

$h = h < 3h$

N/A

ENDRE TOTH, P.E. 3737 SIERRA DRIVE HONOLULU, HAWAII 96816 (808) 734-7119

PROJECT SEAWALL for M/M GELENFELDT PAGE 9
LOCATION MAKAU ST, MAKAHA HI COMPUTED E. TOTH DATE 2-5-96
ITEM JOB RICH'D GEILENFELDT 696-6038

DRAG Force:

$$F_D = \frac{\rho C_D A u^2}{2}$$

F_D = total drag force (lbs) acting in the direction of flow
ρ = density of water (2.0 lbs-s²/ft⁴ for salt water)
C_D = drag coefficient (nondimensional) (1.0 for circular piles, 2.0 for square piles, 1.5 for wall sections)
A = projected area of the body normal to the direction of flow (ft²)
u = velocity of flow relative to body (ft/s) (estimated as equal in magnitude to depth in feet of water at the structure)

The flow is assumed to be uniform, so the resultant force will act at the centroid of the projected area immersed in the flow.

(11) Hydrostatic Force:

$$F_H = \frac{1}{2} \rho g \left[h + \frac{u_p^2}{2g} \right]^2$$

F_H = hydrostatic force (lb/ft) on a wall, per unit width of wall
ρ = density of water (2.0 lb-s²/ft⁴ for salt water)
g = gravitational acceleration (32.2 ft/s²)
h = water depth (ft)
u_p = component of velocity of flood flow perpendicular to the wall (ft/s) (total velocity, u, estimated as equal in magnitude to depth in feet of water at the structure)

D 2 x 6 FORCE

$F_D = \frac{2 \times 1.5 \times 8 \times 8^2}{2} =$

$= 768$ #

ACTS @ 4' ABOVE GRADE

HYDROSTATIC FORCE

$F_H = .5 \times 2 \times 32.2 \left[8 + \frac{8^2 \times 2}{64.4} \right] =$

$= 3212$ #

ACTS @ 8/3 = 2.67' ABOVE GRADE

ENG TOTH, P.E. 3737 SIERRA DRIVE HONOLULU, HAWAII 96816 (808) 734 7119

PROJECT SEAWALL for M/M GELENFELDT PAGE 10
LOCATION MAKAU ST, MAKAHA HI COMPUTED E. TOTH DATE 2-5-16
ITEM JOB RICH'D GEILENFELDT 696-6038

(10) Impact Force:

$$F_I = \frac{m\, dU_b}{dt}$$

F_I = impact force (lb)
m = mass of the water displayed by the body impacting the structure (slugs)
U_b = velocity of the body (ft/s) (estimated as equal in magnitude to depth in feet of water at the structure)
t = time (s)
$\frac{dU_b}{dt}$ = acceleration (deceleration) of the body (ft/s^2)

This single concentrated load acts horizontally at the regulatory flood elevation or at any point below it and is equal to the impact force produced by a 1000 pound weight of debris traveling at the velocity of the flood water and acting on a one (1) square-foot surface of the structural material where impact is postulated to occur. The impact force is to be applied to the structure at a most critical or vulnerable location determined by the designer. It is assumed that the velocity of the body goes from U_b to zero over some small finite time interval (Δt) so the following approximation can be made:

$$F_I = \frac{31\, U_b}{\Delta t}$$

For structural material of wood construction, assume Δt, the time interval over which impact occurs, is 1 second. For structural material of reinforced concrete construction, use Δt of 0.1 second and for structural material of steel construction, use $\Delta t = 0.5$ second.

IMPACT FORCE

$F_I = \frac{31 \times 8}{1} = 248^{\#}$

ACTS @ 7' ABOVE GRADE

OVERTURNING MOMENT FROM FLOOD FORCES

APPT. PT. 'A'

$OTM_a = 768 \times (4+1) +$
$+ 3212 \times (2.67+1) +$
$+ 248 \times (7+1) =$
$= 35468^{\#}$

FOR COMBINATION OF FLOOD FORCES AND SOIL PRESSURE FORCES THE RESULTANT OTM

$OTM_{DESIGN} = 35468 - 4107 = 31362^{\#}$

$31362 > MR = 0347$ ∴ INCREASE SEA WALL DIMENSIONS SHOWN ON P'G 3

TRY TO INCREASE 12" TOP DIMN TO 4'

ENDRE TOTH, P.E. 3737 SIENNA DRIVE HONOLULU, HAWAII 96816

PROJECT SEAWALL for M/I GELENFELDT PAGE 111
LOCATION MAKAU ST. MAKAHA HI COMPUTED E. TOTH DATE 2-5-16
ITEM JOB RICH'D GEILENFELDT 696-6038

CHK STABILITY OF SEAWALL (REV 3)

RESISTING MOMENT ABT PT. "b"

		IN	x	x	=	Mo
CRM $\Delta_{3'}^{q'}$	3 x 9/2 x 140 = 1890 #			8.5'	=	16065 #1
CRM $\square_{4}^{q'}$	4 x 1 x 140 = 5040			5.0	=	25200
CRM $\Delta_{3'}^{a}$	3 x 9/2 x 140 = 1890			2.0	=	3780
EARTH ∇_{3}^{H}	3 x 9/2 x 140 = 1350			1.0	=	1350
totals	= 10170 #				=	46395 #1
				OVM	=	- 33627
						30727

F.S. = 46395 / 33627 = 1.48 O.K.

RESULTANT FOR PRESSURE ACTS AT:

X = 30727 / 10170 = 3.02' FROM TOE @ q

e = 10/2 - 3.02 = 1.98' > 10/6 = 1.67

k = 4 x 10 / 3(10 - 2x1.98) = 2.12 p_{max} = 2.12 x 10170 / 10 = 2245 @ 0.1

p_{all} = 1500 + 1500 x .2 x 2 = 4200 PSF < 2245 @ 0.1

USE CRM WALL AS SHOWN REVISED SEE PG. 13R

ENDRE TOTH, P.E. 3737 SIERRA DRIVE

ATTACHMENT B: FLOOD HAZARD DISTRICT CERTIFICATION

FLOOD HAZARD DISTRICTS CERTIFICATION
(Section 7.10 of the Land Use Ordinance)

Exempted Projects and Improvements (except Accessory Structures) including repairs, maintenance, reconstruction, additions, and alterations pursuant to Sections 7.10-12 and 7.10-13 of the Land Use Ordinance.

EXEMPTED PROJECTS IN FLOODWAY OR COASTAL HIGH HAZARD DISTRICTS

Project Description: CRM Retg. Wall & Fence

Address: 84-135 Makaa St.

City Waianae State Hi Zip 96792

Tax Map Key: 8-4-10-11

Section I - Flood Insurance Rate Map Information

COMMUNITY NO.	PANEL NO	SUFFIX	DATE OF FIRM	FIRM ZONE	REGULATORY FLOOD ELEV (in AO Zone use depth)	COMMUNITY ESTIMATED REG. FLOOD ELEVATION ESTABLISHED FOR ZONE A IF AVAILABLE
150001	65	C	Sept 30 1986	VE	13/12	

Section II - Certification Statement

I certify that based upon development and/or review of design, specifications, and plans for construction, the design and methods of construction are in accordance with accepted standards of practice and:

1. Within the Coastal High Hazard District, the structures and improvements would not affect the regulatory flood nor aggravate existing flood related erosion hazards.

2. Within the Floodway District, the structures and improvements would not result in increase of the regulatory flood levels.

Section III - Certification

This certification is conditioned upon the actual construction of the project being in strict accordance with the plans and specifications as stamped and signed by me.

Certifier's Name ENDRE TOTH
(print or type)

Title STRUCTURAL ENGINEER

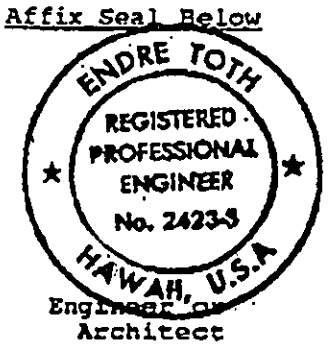
Company Name A&C DESIGN BUILD INC

Street Address 3737 SIERRA DR

City Honolulu State HI Zip 96816

Signature [signature] Date 12-7-95

Affix Seal Below



Engineer or Architect

(0649M.kmy)

12/93

ATTACHMENT C: DRAFT EA REVIEW COMMENTS

96-02784

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

1996 MAY -6 AM 8 15

DEPT. OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

REPLY TO
ATTENTION OF
Operations Branch

3 May 1996

Ms. Ardis Shaw-Kim
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Ms. Shaw-Kim:

This is in regard to your April 9, 1996 request for comments on the Environmental Assessment (EA) prepared in accordance with Chapter 343 HRS for the Geilenfeldt Retaining and Shore Protection Structure and Fill. Based on information in the EA and additional information provided by the applicants' agent, the Corps has determined that all proposed work will occur above the high tide line. Because the high tide line marks the limit of the Corps' jurisdiction, and because no work will occur below that limit, the Corps does not have jurisdiction over the proposed structure and fill.

Thank you for the opportunity to comment. File number NP960000172 has been assigned to this project. Please refer to this number in future correspondence. Feel free to call me at 438-9258, extension 15 if you have any questions.

Sincerely,

Kathleen A. Dadey
Environmental Engineer

Copy Furnished:
Mr. and Mrs. Richard Geilenfeldt
Sea Engineering

96-03348

BENJAMIN J. CAYETANO
GOVERNOR

GARY GILL
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

220 SOUTH KING STREET
FOURTH FLOOR
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

May 22, 1996

Mr. Patrick T. Onishi
Director of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Onishi:

Subject: Draft Environmental Assessment for the Geilenfeldt Seawall

It is the policy of the State of Hawaii under HRS Chapter 205A to discourage all shoreline hardening that may affect access to, or the configuration of, our island shorelines.

Any EA prepared in conjunction with an application to construct a seawall, revetment or similar structure should be accompanied by appropriate justification and detailed studies including, but not limited to, the following:

1. A Historical Shoreline Analysis of coastal erosion and accretion rates. This should include a description of all movements of the neighboring shoreline over at least the past 30 years. This analysis should be based, at least in part, on aerial photographs available through government agencies and private vendors. The analysis should provide a detailed history of erosion and accretion patterns using all available evidence.

2. A description of the nature of the affected shoreline, whether sandy, rocky, mud flats or any other configuration. The history and characteristics of adjoining sand dunes and reefs should be included.

3. Site maps that clearly show the current certified shoreline, previous certified shorelines, the private property line and the location of any future structures. Any nearby public access right-of-way should also be depicted.

4. Beach profiles that extend off shore at appropriate intervals along the shoreline indicating the width and slope of both the submerged and dry portions of the beach.

5. An analysis of any existing nearby walls or revetments and their cumulative impacts on the shoreline.

6. A description of any future structures and improvements (such as homes or swimming pools) on the subject property, and their distance from the property line and shoreline.

7. A wave and storm frequency analysis for the area in question. This should include any relevant coastal processes such as longshore currents and seasonal wave patterns.

8. An analysis that predicts the location of future shorelines with and without the proposed wall at least 30 years into the future or over the expected life of the hardening project.

9. Photos of the site that illustrate past and present conditions and locate any future proposed structures.

10. All alternatives to shoreline hardening should be thoroughly researched and analyzed. These alternatives should include retreat from the shoreline by moving existing structures dune-scaping, inland, and a no action alternative.

In addition, we have the following comments.

11. Generally, seawalls are only allowed on grounds of hardship in order to protect existing structures such as homes. In this case, there does not appear to be any existing structure on the property. Are the landowners proposing any other or future improvements on the property?

11. According to the environmental impact statement rules, if an individual project is a necessary precedent for a larger project, all phases of the project must be disclosed and examined in one environmental assessment. Therefore, if other or future improvements such as homes are proposed on this property, these improvements must also be identified and analyzed in the environmental assessment.

12. During a recent site visit, we observed the wash of the wave reach mauka of the certified shoreline. Tide pools were also observed inland of the certified shoreline. The shoreline certification map indicates that the eastern end of the certified shoreline connects with what we believe to

be an illegal seawall. How was the certified shoreline determined?

13. Please analyze the impact of the proposed seawall on the existing tide pools.

14. If the seawall is allowed to be built along the certified shoreline, the wash of the waves will hit the wall. This creates a dangerous situation for lateral public pedestrian access along the shoreline. Therefore, if the seawall is allowed, we recommend that the seawall be moved further inland to avoid the tide pools and allow for safe lateral public pedestrian access.

15. A height variance is required for the 8 foot high wall. Why is this higher height necessary? How would it impact coastal views?

16. Please list the name of the approving agency in the environmental assessment.

17. Please provide reasons for supporting the determination based on an analysis of the significance criteria in section 11-200-12 of the Hawaii Environmental Impact Statement Rules. Refer to section D of the enclosed sample as a guideline.

The inclusion of this information will help make an Environmental Assessment complete and meet the requirements of Chapter 343, HRS. Only after thorough study and analysis should any permit for shoreline hardening be considered. If you have any questions please call Jeyan Thirugnanam at 586-4185.

Sincerely,

Gary Gill
Director

Enclosure

c: Richard and Sharon Geilenfeldt
Sea Engineering

96-03088

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P.O. BOX 621
HONOLULU, HAWAII 96809

MICHAEL D. WILSON
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY
GILBERT S. COLOMA-AGARAN

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT
WATER RESOURCE MANAGEMENT

Ref.:LM-PEM

Honorable Patrick T. Onishi, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

File No. PM-96-012

Dear Mr. Onishi:

Subject: Review of Environmental Assessment, Chapter 343, HRS Projects within the Shoreline Setback, Geilenfedt Retaining and Shore Protection Structure and Fill, Waianae, Oahu, Tax Map Key: 8-4-10:11

We have reviewed the subject Environmental Assessment prepared for the above project and would like to offer the following comments:

Division of Aquatic Resources

Significant impact adverse to aquatic resource values is not expected from the proposed seawall sinte all activities would occur mauka of the applicant's certified shoreline.

We suggest that precautions be taken to prevent debris, construction materials, petroleum products and other potential contaminants from blowing, flowing or leaching into coastal waters during construction of the shoreline protection.

Land Division - Planning and Technical Services

According to the Draft Environmental Assessment the applicant proposes to build a contiguous rock masonry wall along the Certified Shoreline to tie in to the wall on the adjacent property to the south. The proposed wall would be constructed immediately landward of the Certified Shoreline and entirely within the 50 ft. wide Shoreline Setback Zone.

In addition, the assessment indicates that the entire project would be in the Urban District, and that because the structure will be fronted by a rocky shoreline, there will be no impacts

on littoral processes. As such, there should be no negative impacts expected seaward of the certified shoreline and no land use permitting requirements within the Conservation District.

Land Division, Oahu District Land Office

Land Court Application 1052 cites the makai property boundaries of the littoral lots of its subdivision as the highwater mark of the shoreline. As such, the proposed project lies within private property and outside of the resource subzone of the Conservation District.

Although the Oahu District Office of the Land Division is not in favor of vertical seawalls due to the "hardening of the beaches", we are unable to object to this project as it is located on private property outside of the State managed conservation district.

However, we do request that the applicant obtain all required Federal, State and County permits prior to construction.

Thank you for the opportunity to review the Environmental Assessment. We have no further comments to offer at this time. Should you have any questions, please contact Patti Miyashiro at 587-0430 of our Land Division.

Aloha,

for MICHAEL D. WILSON

c: Oahu Land Board Members

96-03504

BENJAMIN J CAYETANO
GOVERNOR OF HAWAII

1996 JUN -5 PM 1:37

DEPT. OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

MICHAEL D. WILSON
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY
GILBERT S. COLOMA-AGARAN

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P.O. BOX 621
HONOLULU, HAWAII 96809

JUN -4 1996

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT
WATER RESOURCE MANAGEMENT

Ref.: .-PEM

Honor le Patrick T. Onishi, Director
Depar ent of Land Utilization
City nd County of Honolulu
650 South King Street
Hono , Hawaii 96813

File No. PM-96-012

Dear . Onishi:

Subject: Review of Environmental Assessment, Chapter 343, HRS Projects within the Shoreline Setback, Geilenfedt Retaining and Shore Protection Structure and Fill, Waianae, Oahu, Tax Map Key: 8-4-10:11

The following is additional comments regarding the subject Environmental Assessment prepared for the above project:

Historic Preservation

Review of our records shows that there are no known historic sites at the project location. However, in 1992, Hurricane Iniki exposed human burials eroding from the shoreline along Mauau Street, east of this parcel (Site No. 50-80-07-4527). This project proposes construction of a rock masonry wall along the shoreline to tie into an existing wall on the adjacent property. Another rock fence is proposed along the southern property boundary. The lot has been cleared and surrounded by other housing. Because it is unlikely that historic sites will be found and the shoreline has been protected by hurricane overwash, we believe that this project will have "no effect" on historic sites.

It is possible that historic sites, including human burials, will be uncovered during the routine construction activities. Should this be the case all work in the vicinity must stop and the Historic Preservation Division must be contact at -0047.

Hon. Derrick T. Onishi, Director
Page

Thank you for the opportunity to review the Enyironmental Assessment. We have no further comments to offer at this time. Should you have any questions, please contact Patti Miyashiro at 587-0410 of our Land Division.

Aloha,

for MICHAEL D. WILSON

c: Oahu Land Board Members

 96-0331

University of Hawai'i at Mānoa

Environmental Center
A Unit of Water Resources Research Center
Crawford 317 • 2550 Campus Road • Honolulu, Hawai'i 96822
Telephone: (808) 956-7361 • Facsimile: (808) 956-3980

May 23, 1996
EA:00143

Mr. and Mrs. Richard Geilenfeldt
84-091 Makau Street
Waianae, Hawaii 96792

Dear Mr. and Mrs. Geilenfeldt:

Draft Environmental Assessment
Shoreline Protection Structure and Fill
Waianae, Oahu

The applicant proposes to construct a rock retaining wall along the seaward property boundary and a rock masonry fence along the northern property line of an undeveloped lot (#313) located at 84-135 Makau Street in Waianae. The wall, which would have a 10 ft. tapering base with a maximum height of 8 ft., would be located within the 40-ft. shoreline setback. The rock fence would also extend from the property to the Certified Shoreline. While many of the nearby property owners have constructed seawalls to prevent erosion and storm wave damage to their properties, the two undeveloped properties adjacent to lot #313 are also vacant and contain no seawalls. Current coastal conditions include an irregular rocky coast with no apparent beaches, and a shallow reef and limestone platform extending 1500 ft. offshore.

We reviewed this Environmental Assessment (EA) with the assistance of Eric Grossman and Rob Mullane of Geology and Geophysics; Paul Berkowitz and Melissa Dumaran of the Environmental Center.

Project Location

The proposed project seems relatively benign given the nature of the shoreline geomorphology. Our reviewers had a few concerns, however. The precise location of the proposed seawall and fence remains somewhat unclear. As depicted in Figures 5 and 6, the seawall and fence would be constructed at the certified shoreline, which appears to be some distance from both the vegetation line and the average high water mark. However, the position of the wall relative to intertidal communities remains unclear. The applicant should therefore clarify the project's precise distance from the highwater mark to determine where the development would occur. Should the seawall be located at the shoreline (the intertidal zone, a vital part of the coastal ecosystem which supports algae and tidal life) such an action would be considered significant and therefore mandate an Environmental Impact Statement pursuant to Section 11-200-12, Hawaii Administrative Rules.

Variance Criteria

The applicant needs to demonstrate that the project meets the criteria for the granting of a variance according to Article 1, Sec 23-1.8, Revised Ordinances of Honolulu. Presumably, if the owner is suffering hardship solely as a result of shoreline retreat or potential wave damage to future structures, then this needs to be explicitly stated. Potential hardship is usually determined significant if there are existing structures requiring protection.

Coastal Access

Because the lot has experienced coastal property erosion perhaps as a result of surrounding seawalls, a regional plan to protect the other two vacant lots from similar damage would serve to minimize potential negative effects. In addition, the vacant lot does provide a small beach accessway for local marine subsistance gathering and the proposed action may potentially restrict shoreline access. If seawalls are constructed on this and on the two adjacent lots, who will offer coastal access? A regional/neighborhood plan would assist in assuring that: (1) the seawall does not adversely affect the other two properties and (2) an easment be maintained to provide accessway for divers and fishermen.

Conclusions

In short, we believe this project will not have any negative impacts on the environment, so long as it is located outside of the intertidal zone. In addition, a regional plan would ensure that shoreline access is provided and potential impacts to adjacent properties are mitigated.

Thank you for the opportunity to comment.

Sincerely,

John T. Harrison
Environmental Coordinator

cc: OEQC
Department of Land Utilization
Sea Engineering, Inc.
Roger Fujioka
Eric Grossman
Rob Mullane
Paul Berkowitz
Melissa Dumaran

96-02974

OFFICE OF STATE PLANNING

Office of the Governor

MAILING ADDRESS: P.O. BOX 3540, HONOLULU, HAWAII 96811-3540
STREET ADDRESS: 250 SOUTH HOTEL STREET, 4TH FLOOR
TELEPHONE: (808) 587-2846, 587-2800

BENJAMIN J. CAYETANO, Governor

FAX: Director's Office 587-2848
Planning Division 587-2824

Ref. No. Z-0103

May 9, 1996

The Honorable Patrick T. Onishi
Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Onishi:

We have reviewed the Environmental Assessment (EA) for the Shoreline Setback Variance application for the proposed Geilenfeldt retaining and shore protection structure and fill project. We have the following comments to offer.

The EA should address the impact of the eight-foot seawall on the Makua viewshed which extends from Kaena Point to Kepuhi Point, based on the Department of Land Utilization's 1987 coastal view study under the Coastal Zone Management (CZM) program.

In addition, the request to build a seawall to mitigate against potential hurricane damage is unusual. We are not aware of any structures of this type that have succeeded against the forces of hurricanes. Perhaps this argument ought to be clarified.

Thank you for the opportunity to comment. If there are any questions regarding our comments, please call our CZM office at 587-2875.

Sincerely,

Gregory G.Y. Pai, Ph.D.
Director

96-03760

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 523-4341 • FAX: (808) 527-5857

JEREMY HARRIS
MAYOR

KENNETH E. SPRAGUE
DIRECTOR AND CHIEF ENGINEER

DARWIN J. HAMAMOTO
DEPUTY DIRECTOR

ENV 96-088

April 16, 1996

MEMORANDUM:

TO: PATRICK T. ONISHI, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: for KENNETH E. SPRAGUE
DIRECTOR AND CHIEF ENGINEER

SUBJECT: ENVIRONMENTAL ASSESSMENT (EA)
GEILENFELDT RETAINING AND SHORE PROTECTION
STRUCTURE AND FILL, TMK: 8-4-10: 11

We have reviewed the subject EA and have the following comment:

The EA should describe best management practices (BMPs) to be implemented during construction in order to mitigate erosion and sediment from the site discharging to the ocean.

Should you have any questions, please contact Alex Ho, Environmental Engineer, at Local 4150.

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4432

JEREMY HARRIS
MAYOR

PATRICK T. ONISHI
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

96/SV-001(ASK)
96-01291

April 9, 1996

Mr. Scott P. Sullivan, Vice-President
Sea Engineering, Inc.
Makai Research Pier, Suite 8
Waimanalo, Hawaii 96795

Dear Mr. Sullivan:

Project Name : Geilenfeldt Retaining and Shore Protection Structure and Fill
File No. : 96/SV-1
Tax Map Key : 8-4-10: 11

We have reviewed your Draft Environmental Assessment (DEA) and Shoreline Setback Variance (SV) application and have transmitted these documents to the State's Office of Environmental Quality Control for publication in The Environmental Notice. The following is a list of information which must be submitted:

1. An estimate of the project cost.

2. A description of the proposed fill, including the location, volume, and type, as well as an explanation of the hardship that would result if the request for the placement of fill was to be denied.

3. An original certified shoreline survey.

4. Explain further how the location of the shoreline was determined. Section IIA of the Draft Environmental Assessment states that:

> "The shoreline certification was agreed to at the site by persons representing the property owner, the State Department of Land and Natural Resources (DLNR), the State Land Surveyor, and the surveyor contracted by the owner".

We note that the shoreline is located along a rocky coastline instead of the vegetation line as provided for in State law.

5. The site plan and cross-section plans must be drawn to scale. Wall cross-sections should be identified on the site plan.

6. The plans which you have submitted indicate that the wall will exceed the maximum height established in the Land Use Ordinance. As such, a height variance will also be required.

Should you have any questions, please contact Ardis Shaw-Kim of our staff at 527-5349.

Very truly yours,

PATRICK T. ONISHI
Director of Land Utilization

PTO:am

a:sullivan.as7
g:sullivan.ask

96-03029

1996 MAY 15 AM 7:56

DEPT. OF [illegible]
CITY & COUNTY OF HONOLULU

8 May 96

Richard and Sharon Geilenfeldt
84-091 Makau Street
Waianae, Hawaii 96792

Dear Mr. and Mrs. Geilenfeldt,

I have reviewed the Coastal Engineering and Environmental Assessment for Shoreline Setback Variance Application (draft EA) regarding TMK 8-4-10:11, which was published in the April 23, 1996 issue of The Environmental Notice, and have the following comments.

In general, the draft EA is well done, and Sea Engineering, Inc. should be commended for the way they present the information in their description of the proposed action. The various figures should help in the decision-makers' analysis of your application. The document suggests that no sand beach or littoral processes will be adversely affected by the construction of the proposed seawall. As you may know, these adverse effects of shoreline hardening are major coastal planning concerns, and are unique burdens of shoreline parcel owners due to the particular problems associated with being located adjacent to the dynamic littoral zone and in an area with certain public trust responsibilities.

The proposed seawall will be located immediately landward of (and will artifically fix) the certified shoreline, on a solid limestone rock ledge that shows apparent signs of wave inundation. Although a photograph indicates that the entire lot was apparently inundated during the extreme event of Hurricane Iniki, no evidence of an actual erosion problem at the site is provided. Further, no suggestion is made that the reef rock ledge was ever overlain with unconsolidated material that was eroded away to produce the ledge's irregular surface. The "erosion" indicated on the shoreline survey thus appears to be an artifact related to the makai property boundary line having been originally established in an very seaward location (i.e., actually out in the ocean). The fact that the certified shoreline was located "by agreement" seaward of both the vegetation line and the makai extent of the perched beach, seems to indicate that the proposed location may be subject to the prevailing dynamic littoral forces, and thus may not be an appropriate place to build the wall. The EA should consider a more mauka location for the structure, and also should consider alternatives other than a vertical seawall to accomplish the intended objective.

Some other concerns that are not clarified in the draft EA regard 1) why an 8 foot high wall is necessary, given the fact that the document states the coast is adequately protected from the regular moderately high surf by the reef flat and the 3 to 4 foot escarpment, and given that any future structures (such as a house) developed on the property could be designed and elevated to provide protection from extreme conditions, and 2) how the wall (which will apparently require a height variance) may adversely affect coastal views and public access along the shoreline. Another important general planning issue is to ensure that the entire project is thoroughly reviewed during the planning and permitting phase, and is not broken down into such discrete elements so as to prevent a comprehensive analysis of all related impacts from being conducted.

Thus, some discussion should address the nature of the material that will undoubtedly be backfilled behind the wall, and the "future structures" referenced in the draft EA.

In fact, a salient issue is whether a shoreline setback variance can really be justified to protect an undeveloped lot. The purposes of the shoreline setback restrictions, in addition to prohibiting structures from being built too close to the dynamic littoral zone in order to prevent damage from coastal hazards, are to preserve coastal open space and scenic views, and to maintain public access along the shoreline. Approval of a seawall that is not protecting a valuable structure at risk from erosion does not appear to fit within the intent of the shoreline setback regime, and may not be justifiable according to the City and County's rules regarding "hardship."

Further, since the proposal is not to construct a single-family residence, which would be exempt from the City and County's Special Management Area (SMA) requirements, the subject request should address how the relevant SMA requirements are being fulfilled. Issues such as the comprehensive plan for the property and how the proposed wall may impact coastal views and access are also relevant in an SMA analysis. As indicated, professional planning concepts suggest that the entire project should be reviewed in its entirety, to allow thorough consideration of all potential impacts. If the proposed project included a single-family residence along with the wall, instead of just the wall, then the permit requirements could actually be less burdensome, while providing a more comprehensive review.

Thank you for the opportunity to comment on your proposal.

Sincerely,

Tom Eisen

Tom Eisen
3850-B Round Top Dr.
Honolulu, Hawaii .96822

cc: DLU
Sea Engineering, Inc.
OEQC

May 17, 1996

City and County of Honolulu
Department of Land Utilization
650 South King Street, 7th Floor
Honolulu, Hawaii 96813
Contact: Ardis Shaw-Kim

Sea Engineering, Inc.
Makai Research Pier, Suite 8
Waimanalo, Hawaii 96795
Contact: Scott Sullivan

Subject: Draft Environmental Assessment for Geilenfeldt
Retaining and Shore Protection Structure and Fill
Tax Map Key 8-4-10: 11

Gentlemen:

Before the Department of Land Utilization accepts the Geilenfeldts' Environmental Assessment and shoreline variance application, I request to be provided with answers to the following questions.

1. In 1995, if the public had asked to inspect the Geilenfeldts' pending application for shoreline certification, would the public have been shown any document which explained that the Geilenfeldts' surveyor and the State Land Surveyor had agreed (a) to disregard the definition of shoreline provided by State law and (b) to designate an arbitrary line as the "shoreline"?

2. During high tide, will the largest winter surf with a one-year recurrence interval wash inland of the arbitrary line which was certified as the shoreline of the Geilenfeldts' lot?

3. During winter 1995-6, did winter surf wash as far inland as the vegetation line of the Geilenfeldts' lot?

4. If the vegetation line had been certified as the shoreline of the Geilenfeldts' lot in July 1995, excluding property seaward of the vegetation line, what would be the lot's dimensions and what would be the lot's area?

5. If the vegetation line had been certified as the shoreline of the Geilenfeldts' lot in July 1995, would the lot be large enough to allow construction of an ordinary-size single family house outside the 40-foot shoreline setback area?

6. Aren't shoreline lots fronted by a wide raised fossil reef, like the Geilenfeldts' lot, less prone to damage from storm erosion and pebbles tossed by storm waves than other shoreline lots on the Waianae Coast?

7. If no seawall is built, how far inland is it likely that storm waves will cause the vegetation line of the Geilenfeldts' lot to retreat within the next fifty years?

8. Are there existing structures on the Geilenfeldts' lot which need to be protected by a seawall?

9. Hypothetically, if the proposed 8-foot-high seawall were built on the arbitary line which was certified as the shoreline of the Geilenfeldts' lot, how often would such a wall be overtopped by storm waves?

10. Hypothetically, if a wall were built 20 feet inland of the vegetation line of the Geilenfeldts' lot, how high would such a wall have to be to offer the same protection, i.e., have the same probability of being overtopped by storm waves, as the 8-foot-high seawall proposed at the "certified shoreline"?

I believe that the answers to the preceding questions will demonstrate that:

A. the Geilenfeldts want to build a seawall makai of the "shoreline" as the term is defined by State law.

B. a new shoreline survey is needed to determine the location of the shoreline at the Geilenfeldts' lot.

C. the Geilenfeldts would have reasonable use of their property and not suffer "hardship" from the risk of storm damage if they built a wall 20 feet inland of their vegetation line.

Truly yours,

L. Leong

Lawrence Y.C. Leong
4020 Palua Place
Honolulu, Hawaii 96816

cc: OEQC
Richard and Sharon Geilenfeldt

96-02993

1996 MAY 14 AM 11:43

DEPT. OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

Douglas Meller
2749 Rooke Avenue
Honolulu, HI 96817

May 14, 1996

Sea Engineering, Inc.
Makai Research Pier, Suite 8
Waimanalo, Hawaii 96795
Attn: Scott Sullivan

Dear Mr. Sullivan:

Subject: Draft Environmental Assessment for Richard and Sharon Geilenfeldt Shoreline Setback Variance Application, Waianae, TMK: 8-4-10: 11

Under Section 205A-1, Hawaii Revised Statutes,

> "Shoreline" means the upper reaches of the wash of the waves, other than storm and seismic waves, at high tide during the season of the year in which the highest wash of the waves occurs, usually evidenced by the edge of vegetation growth, or the upper limit of debris left by the wash of the waves.

Under Section 205A-42, Hawaii Revised Statutes,

> The board of land and natural resources shall adopt rules pursuant to chapter 91 prescribing procedures for determining a shoreline....

The Board of Land and Natural Resources has adopted Chapter 13-222, Hawaii Administrative Rules, to prescribe procedures for determining a shoreline. Section 13-222-16, Hawaii Administrative Rules, requires that:

> (a) The shoreline and the legal seaward boundary of the property shall be properly located, and marked, by instrument survey by a land surveyor registered in accordance with chapter 464, Hawaii Revised Statutes, as amended.
>
> (b) The registered land surveyor shall utilize the following criteria in locating and marking the shoreline: ...
>
> (9) When the shoreline has been altered by subsidence due to earthquake, storm or tidal waves, the shoreline shall be marked at the existing shoreline....

Section 13-222-18, Hawaii Administrative Rules, provides that

> (a) In cases where the shoreline has been lost due to subsidence due to earthquake, or storm or tidal waves, the owner may apply to the department to certify the shoreline at or near the location which existed immediately prior to the event that result in the property loss.
>
> (b) The applicant, in addition, shall also submit an application to restore the shoreline at or near the location which existed immediately prior to the event that resulted in the property loss. If the shoreline is not restored within one year from the time of the event which caused the property loss, the chairperson shall certify the existing shoreline....

Despite the requirements of State law and State rules, Figure 5 of your Draft Environmental Assessment (EA) shows that the vegetation line on the Geilenfeldt's vacant lot is generally more than 40 feet inland from the July 1, 1995 "certified shoreline".

In your Draft EA, you state,

> The shoreline certification was agreed to at the site by persons representing the property owner, the State Department of Land and Natural Resources (DLNR), the State Land Surveyor, and the surveyor contracted by the owner. Significant retreat of the vegetation line had occured as a result of the extreme event of Hurricane 'Iniki in 1992. It was therefore determined to be fair and equitable to the property owner to place the shoreline on the line connecting the seawall on the adjacent property (lot #312) with the next seawall, past the three vacant lots on lot #316.

Your Draft EA implies that the shoreline of the Geilenfeldt's vacant lot may have been misrepresented. To clarify the issues, I would like you to answer three questions.

(1) Would it be correct to say that the line certified as the shoreline of the Geilenfeldt's vacant lot was negotiated and is not "the upper reaches of the wash of the waves, other than storm and seismic waves, at high tide during the season of the year in which the highest wash of the waves occurs, usually evidenced by the edge of vegetation growth, or the upper limit of debris left by the wash of the waves"?

(2) Would it be correct to say that the negotiated line, which was certified as the Geilenfeldt's shoreline, extended to an illegal seawall at TMK: 8-4-10: 14 (lot #316) which has never received any County permits?

(3) Are you aware of any provision of State law or State rules which authorized a negotiated line, different than the upper reaches of the wash of the waves, to be certified as the shoreline of the Geilenfeldt lot more than two years after shoreline erosion due to storm waves?

Thank you for your kokua.

Sincerely,

Douglas Meller

cc: DLU, OEQC, Geilenfeldt, Frankel

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96-03276

O'AHU GROUP
SIERRA CLUB, HAWAI'I CHAPTER
P. O. Box 2577, Honolulu, Hawaii 96803
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1996 MAY 23 PM 2:30

DEPT. OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

May 22 1996

Ardis Shaw Kim
Department of Land Utilization
650 S King
Honolulu, HI 96813

Dear Ms. Kim,

The O'ahu Group of the Sierra Club has a number of concerns with the draft environmental assessment for the seawall proposed in Waiawa.

The draft environmental assessment declares that a "small coral rubble and sand beach lies immediately makai of the vegetation line." The applicant proposes to build a wall makai of the beach. The public will therefore be barred from a public beach (perhaps not of the finest quality, but nevertheless a sand beach). How would such an action be consistent with HRS Chapter 205A?

It is unclear from the draft environmental assessment whether any tidepools are located mauka of the proposed wall.

Coastal property owners bear tremendous risks. Their property is vulnerable to tsunamis, storm surges, floods and hurricanes. In addition, owners along the shoreline bear the risk that their property may erode. Under common law, a riparian landowner "loses title to lands that are submerged through the process of erosion." R.R. Powell 5A Powell on Real Property § 66.02[2] (1994). The Hawaii Supreme Court has held that "registered ocean front property is subject to the same burdens and accidents as unregistered land, including erosion....[T]he precise location of the high water mark on the ground is subject to change and may always be altered by erosion." County of Hawaii v. Sotomura. 55 Haw. 176, 180 (1973). Because the land seaward of the upper reaches of the wash of the waves -- including the beach -- is a public trust resource (Application of Sanborn, 57 Haw. 585, 562), the state, as trustee, can restrain those activities that damage the resource. Orion Corp. v. State 747 P.2d 1062 (Wash. 1987); U.S. v. State Water Resources Control Board, 227 Cal. Rptr 161 (Cal. App. 1 Dist 1986); State Dept. of Environmental Protection v. Jersey Central P & C Co. 308 A.2d 671 (N.J. Super L. 1973). A private property owner does not have the right to impair public trust resources.

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Ardis aw Kim
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May 2 1996
Page -

general, a variance should be viewed as an extraordinary exce on which should be granted sparingly. The reasons to justi approval must be substantial, serious and compelling. R.R. ell 6 Powell on Real Property § 79c.16[1] (1995).

wonder how such a wall can be justified under the city's hards standard when the lot itself is vacant. Moreover, acco ng to DLU's 1988 shoreline survey, seawalls near TMK 8-4-10:1 ay be illegal. Their presence should not be used as a justi cation for a variance.

is also unclear how the proposal is consistent with any of th objectives and policies spelled out in HRS § 205A.

Sincerely,

Philip D. Bogetto
Oahu Group Chair,
Hawaii Chapter,
Sierra Club

cc. Engineering
ichard and Sharon Geilenfeldt
EQC