DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 523-4414 • FAX: (808) 527-6743
DEPT. WEB SITE: www.honoluludpp.org • CITY WEB SITE: www.honolulu.gov

JEREMY HARRIS
MAYOR

ERIC G. CRISPIN, AIA
DIRECTOR

BARBARA KIM STANTON
DEPUTY DIRECTOR

December 23, 2004

2004/ED-14(ASK)
2004/SV-13

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
State of Hawaii
State Office Tower, Room 702
235 South Beretania Street
Honolulu, Hawaii 96813-2437

RECEIVED
'04 DEC 28 P1:12
OFC. OF ENVIRONMENTAL QUALITY CONTROL

Dear Ms. Salmonson:

Shoreline Setback Variance 2004/SV-13
Final Environmental Assessment (Final EA)

Owner/ Applicant	:	Michael J. Ells
Agent	:	Analytical Planning Consultants
Location	:	68-001 Laau Paina Place, Waialua
Tax Map Key	:	6-8-009: 10
Request	:	Shoreline Setback Variance
Proposal	:	To retain an existing CRM seawall within the 40-foot shoreline setback area.

Attached are four (4) copies of the above-referenced Final EA, a completed publication form and a 3-1/2" Floppy Disk with "Summary" of the subject project. We request publication of a notice of this document in The Environmental Notice.

If we can be of further assistance, please contact Ardis Shaw-Kim of our staff at 527-5349.

Sincerely yours,

for ERIC G. CRISPIN, AIA
Director of Planning
and Permitting

EGC:cs
Encl.
343056

2005-01-08 FONSI
ELLS EXISTING SEAWALL

FINAL ENVIRONMENTAL ASSESSMENT FOR A SHORELINE SETBACK VARIANCE APPLICATION

EXISTING SEAWALL

PROJECT LOCATION:

68-001 Laau Paina Place, Waialua, Hawaii

APPLICANT AND OWNER:

Mr. Michael J. Ells

ACCEPTING AUTHORITY:

City and County of Honolulu
Department of Planning and Permitting

PREPARED BY:

Analytical Planning Consultants, Inc.
928 Nuuanu Avenue, Suite 502
Honolulu, Hawaii 96817
(808) 536-5695

This document has been prepared
pursuant to Chapter 343 HRS

December 2004

FINAL ENVIRONMENTAL ASSESSMENT FOR A SHORELINE SETBACK VARIANCE APPLICATION

EXISTING SEAWALL

68-001 Laau Paina Place, Waialua, Hawaii

ACCEPTING AUTHORITY:

City and County of Honolulu
Department of Planning and Permitting

PREPARED BY:

Analytical Planning Consultants, Inc.

December 2004

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Appendices

1.0 GENERAL INFORMATION

A. Applicant:
Mr. Michael J. Ells
68-001 Laau Paina Place
Waialua, Hawaii

B. Recorded Fee Owner:
Mr. Michael J. Ells
Waialua, Hawaii

C. Agent:
Analytical Planning Consultants
928 Nuuanu Avenue, Suite 502
Honolulu, Hawaii 96817
Donald Clegg, President
Phone: 536-5695 Fax: 599-1553

D. Property Profile:

Location:	Waialua, Oahu, Hawaii
Site Address:	68-001 Laau Paina Place, Waialua, Hawaii
TMK:	(1) 6-8-009: 010
Lot Area:	Lot 16 12,287 square feet
State Land Use:	Urban
Zoning:	R-5 Residential
Height Limit:	25 feet
Special District:	No
Shoreline Management Area:	Yes
Shoreline Setback:	Yes
Existing Land Use:	Owner-occupied single family residential house

E. Agencies Consulted:
- City & County of Honolulu, Department of Planning & Permitting
- State of Hawaii, Department of Land & Natural Resources
- State of Hawaii, Dept of Health's Office of Environmental Quality Control

F. Permits Required:
- Shoreline Setback Variance
- After-the-Fact Building Permit

2.0 LOCATION AND GENERAL DESCRIPTION OF THE PROPOSED PROJECT

2.1 Site Description and Background

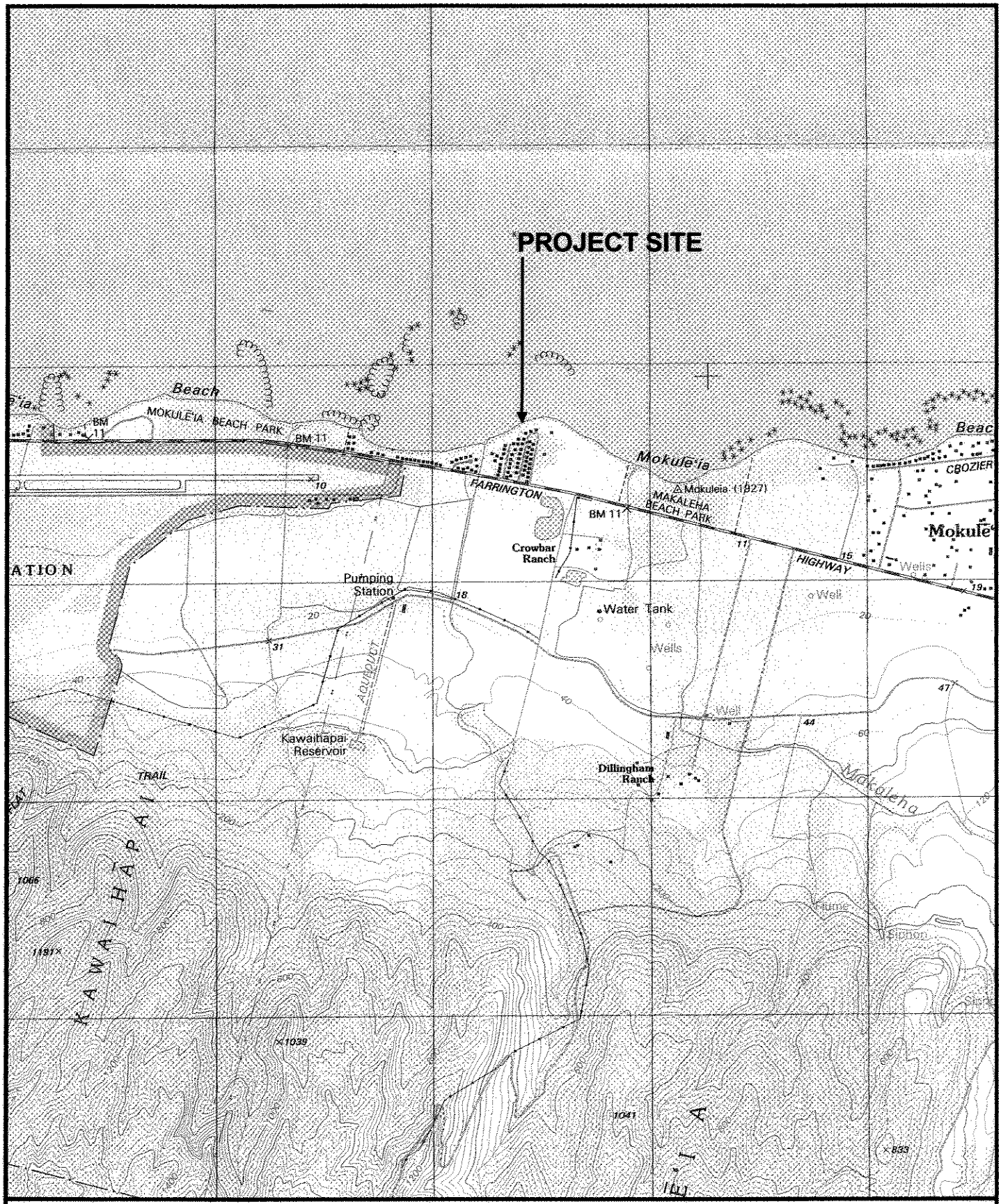
The project site, TMK 6-8-09: 010 at 68-001 Laau Paina Place, Waialua, Hawaii, is located along the Mokuleia shore of Oahu at the end of the cul-de-sac of a small residential subdivision called Pine Wood Beach Tract makai of Farrington Highway. The project property is located adjacent to and west of the Mokuleia Beach Colony property and east of Dillingham Airfield. A general location map for the project site is shown in **Figure 1** and a tax map is shown in **Figure 2.**

The recorded lot area is 12,287 square feet. After subtracting the eroded seaward portion (1,370 square feet), the net area of the lot is 10,917 square feet. The applicant purchased the property in 1980 with the house in its present location. The house was moved onto the property in 1976 via a City approved Relocation Permit No. 1969 (**Appendix A**). The topography of the lot is relatively flat as is evident in the site photos. The project site's State land use designation is Urban and the City and County of Honolulu's zoning classification is R-5 Residential. Vegetation on the site consists of coconut trees, yard grass and various residential landscaping materials.

The shoreline is defined by the existing seawall located between about 27 feet and 39 feet inland of the seaward property boundary of record. According to the applicant, he had the existing masonry (CRM) seawall constructed in 1982-83, sometime after Hurricane Iwa, in response to the damaging effects of the hurricane.

The subject seawall is physically adjacent to and is located in between 2 existing seawalls, each of which has an approved Shoreline Setback Variance. Adjacent and to the east of the project site is the approximately 350-foot long seawall fronting the Mokuleia Beach Colony (TMK 6-8-09: 001). Adjacent and to the west of the project site is a single family residential property (TMK 6-8-9: 011; owner Bruce Clements), which has a seawall that is covered in naupaka. The vicinity of the project area is developed with single family residences along and near the shoreline. Further west of the project property are single family residences fronting the beach and embayment, about 15 properties have contiguous vertical seawalls of which some have government approval.

The subject property is occupied by a single family house which was moved to its present location in 1976 via a City approved Relocation Permit No. 1969 (Appendix A). In the "Remarks" section on that permit there is a notation "shoreline waiver granted", and approving agencies that signed off on the permit include "Department of Land Utilization - August 10, 1976". The existing house is a non-conforming structure. No new construction is proposed.



Source USGS 1998

NORTH

0 1000 2000

SCALE IN FEET

Figure 1
LOCATION MAP

68-001 Laau Paina Place, Waialua, Oahu, Hawaii

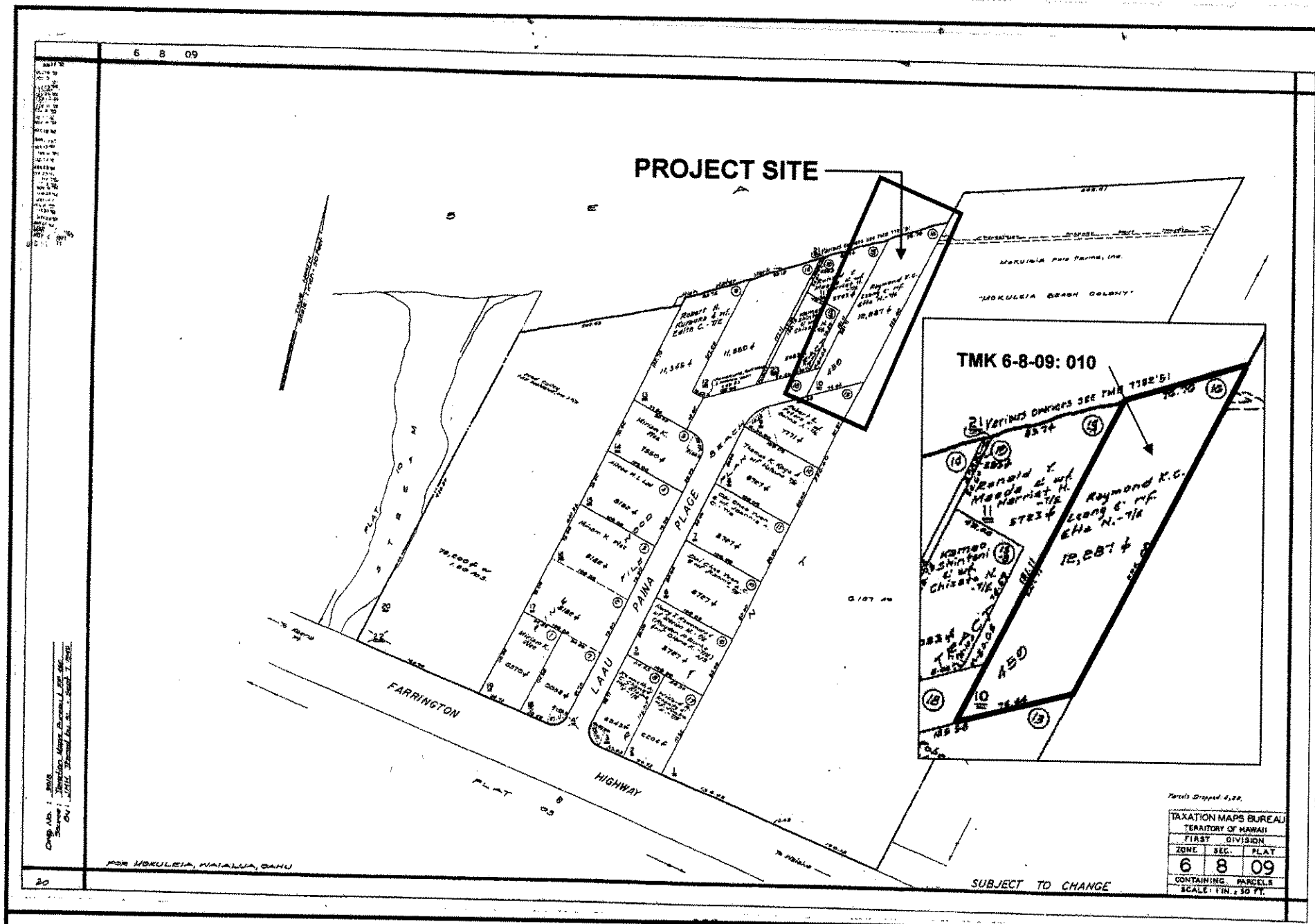


Figure 2

PROJECT AREA TMK MAP – TMK 6-8-09: 010

68-001 Laau Paina Place, Waialua, Oahu, Hawaii

2.2 Proposed Action

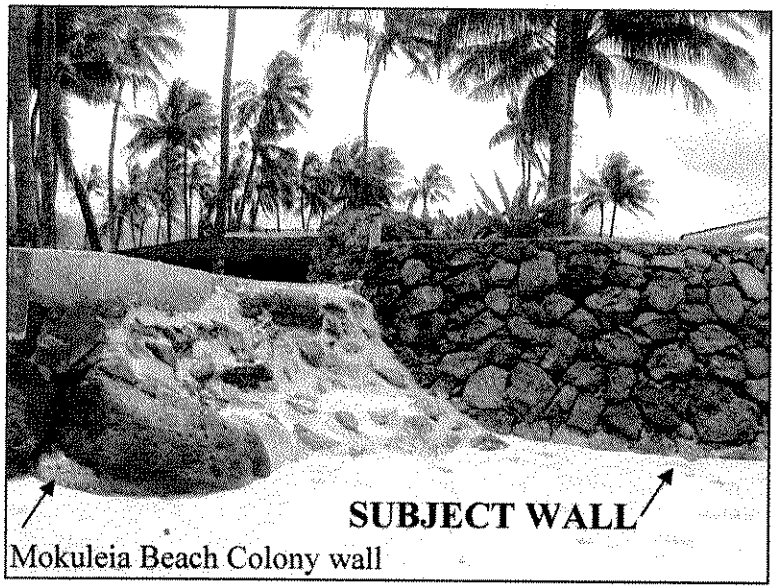
The owner-applicant is seeking approval of a Shoreline Setback Variance for the existing concrete rubble masonry (CRM) seawall that was originally constructed in 1982-1983 because of ongoing long-term erosion along this shorefront and in response to the damaging effects of Hurricane Iwa. Without the seawall, erosion would significantly impact the shoreline frontage of the project property, threatening the existing residential structure. If the Shoreline Setback Variance is granted, then an after-the-fact building permit will be obtained.

The seawall, which is shaped like an "S-curve" and has a slightly sloping face, is located along the property's 76.76 foot wide shoreline frontage. Along the east property boundary, the subject seawall dead-ends with the Mokuleia Beach Colony's seawall, as shown in **Figure 3.** Along the site's west property boundary there are a 5 steps on the applicant's property built adjacent to the applicant's seawall that provide access from the yard down to the beach.

Photos of the existing seawall and shoreline are shown in **Figure 3 and Figure 4**. The photos illustrate how the seaward face of the CRM seawall is shaped like an "S-curve" and gently slopes up and back from the beach.

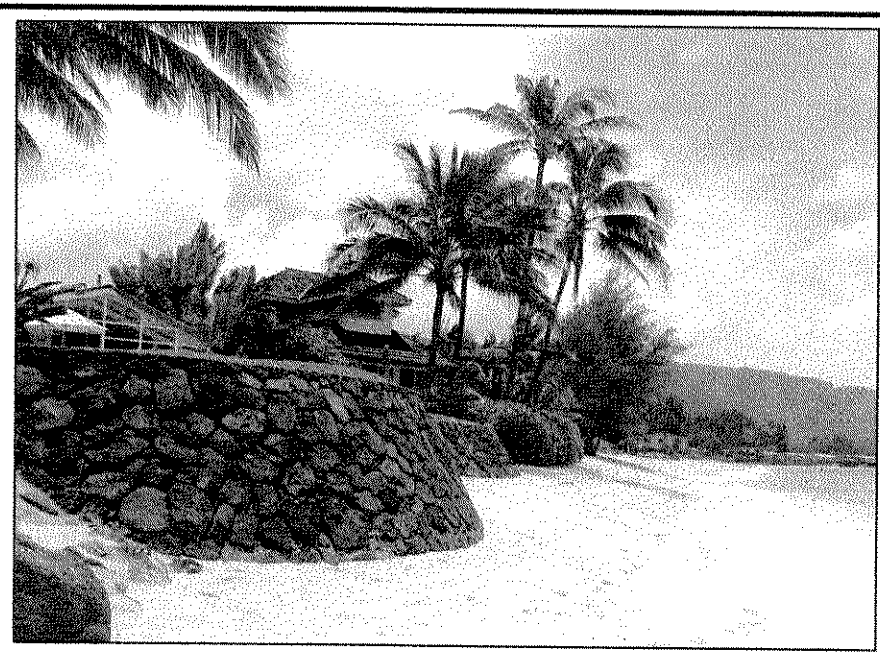
Figure 5 shows the shoreline survey for the project site that was completed on May 7, 2004. The shoreline survey was submitted on June 2, 2004 to the State Department of Land and Natural Resources (DLNR) for certification of the shoreline. Appendix D contains a letter dated August 26, 2004 from DLNR stating that the application for certification of the shoreline was rejected.

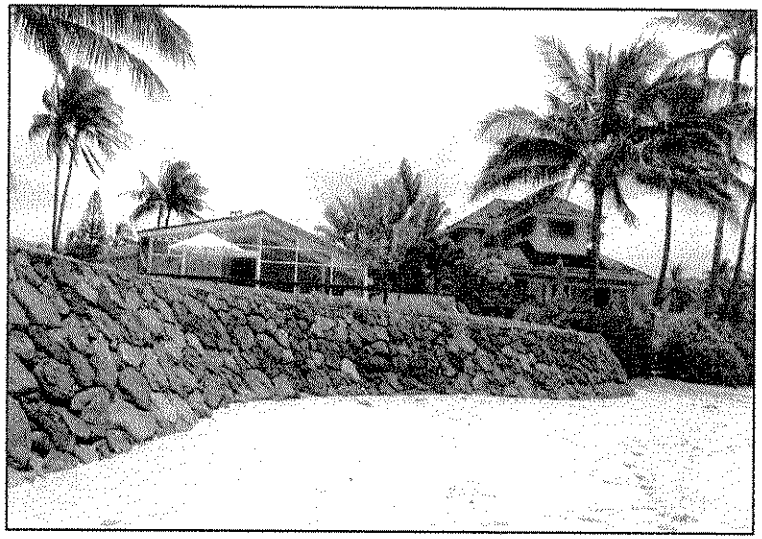
Figure 6 shows a cross section of the existing vertical CRM seawall which consists of large rocks grouted in place. The seawall is approximately 6 feet 1 inch wide at the base tapering to 18 inches wide at the top. The base of the wall is buried about 3 feet below existing grade (sand beach). The property's rear yard, which is landscaped with yard grass, plant materials and coconut trees, is almost level with the top of the seawall. The seaward face of the wall is exposed about 8 feet high above the existing sand beach. Earth fill has been placed behind (landward of) the seawall. Built into the wall are 4-inch tile drains set in crushed rock wrapped in filter fabric. The seawall's design parameters and engineering calculations are provided in **Appendix B**.



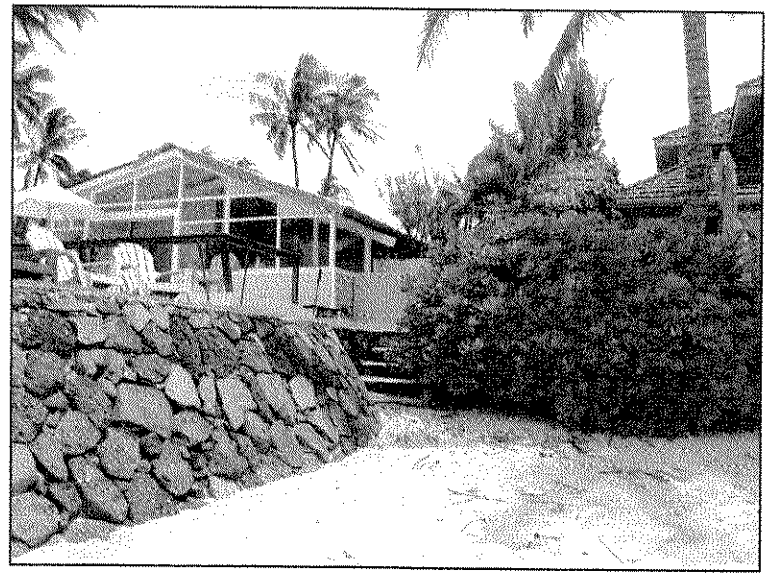
Mokuleia Beach Colony wall

Applicant's wall on the right. Adjacent to Mokuleia Beach Colony wall.





View of subject property from the beach.



Stairs are located on subject property.

Figure 3

VIEWS OF SEAWALL FROM BEACH (April 17, 2004)

68-001 Laau Paina Place, Waialua, Oahu, Hawaii

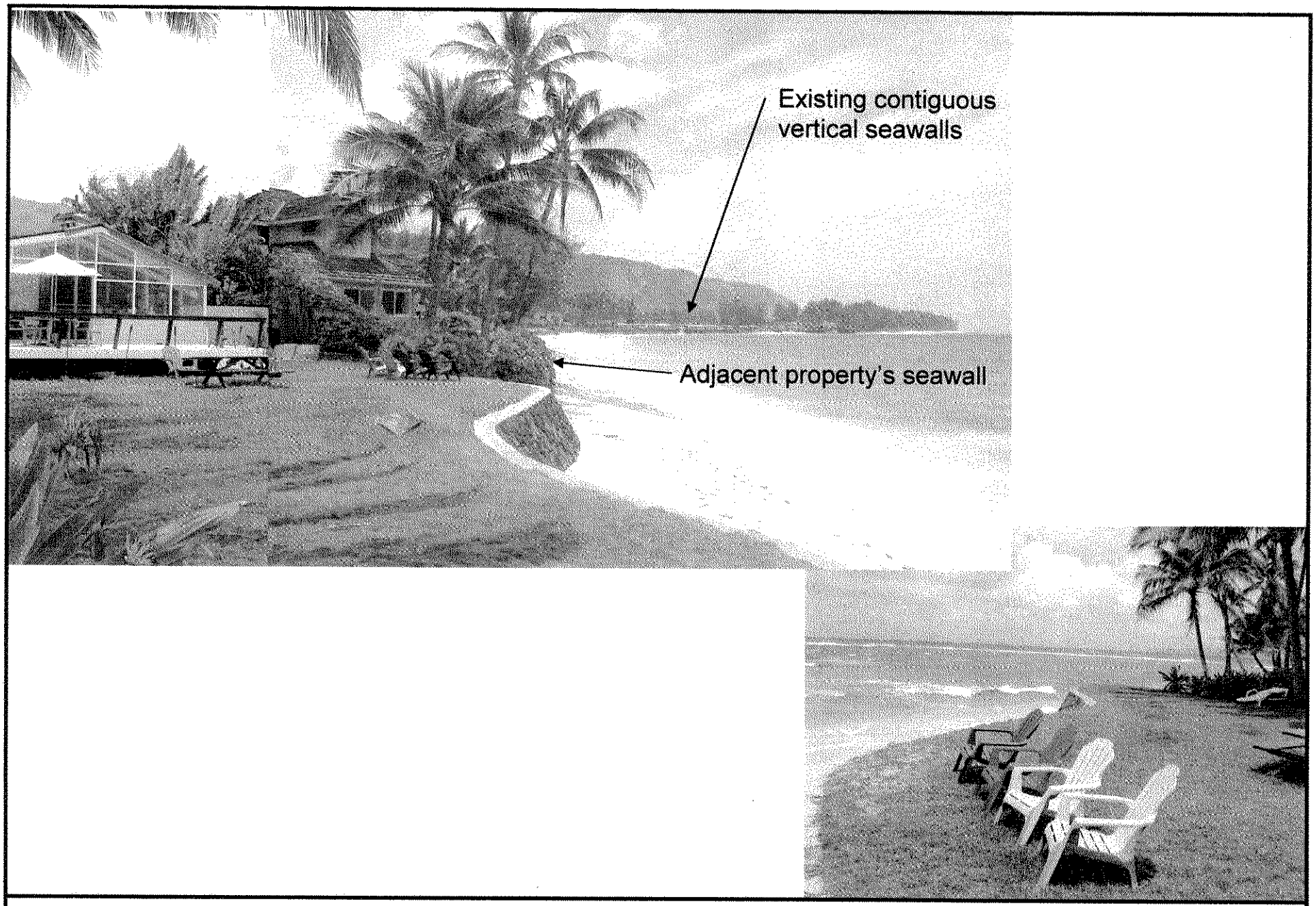
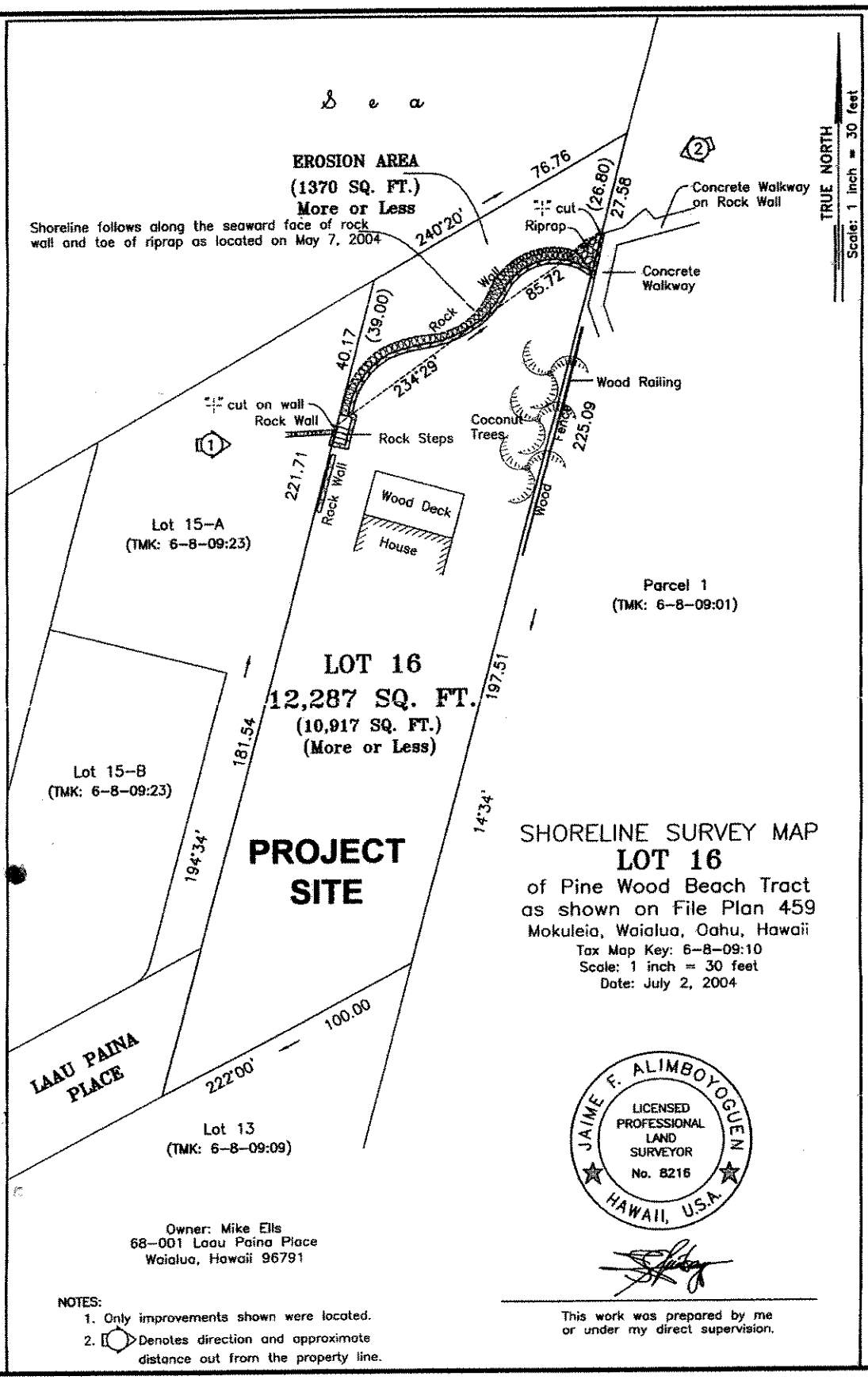


Figure 4

VIEW OF SEAWALL FROM SUBJECT PROPERTY'S YARD (April 17, 2004)

(Not Visible - existing seawall covered in naupaka vegetation is adjacent to subject property)

68-001 Laau Paina Place, Waialua, Oahu, Hawaii

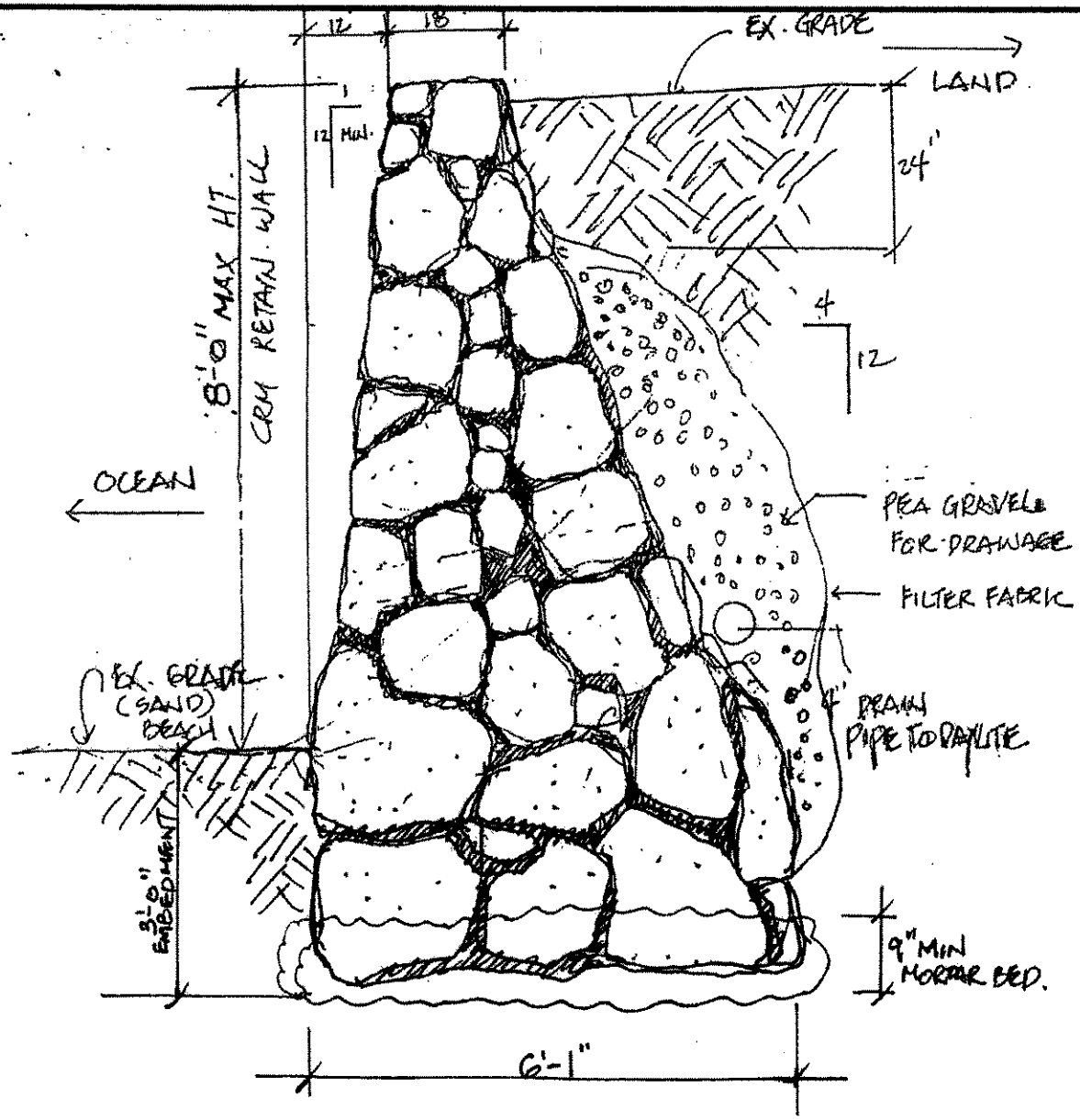


Not to Scale

Figure 5

SHORELINE SURVEY – MAY 7, 2004

68-001 Laau Paina Place, Waialua, Oahu, Hawaii



Roscoe C Snell
EXPIRES 4/30/06

This work was prepared by me or under my supervision and construction of this project will be under my observation

ROSCOE O
LICENS
PROFESS
ENGINE
No. 373
HAWAII,

SCALE: 1/2"=1'-0"

0 6" 1' 2' 4'

- SECTION @
TYPICAL SEAWALL DETAIL
SCALE: 1/2"=1'-0"

Revised as of December 01 2004

Figure 6

CROSS SECTION OF EXISTING SEAWALL

68-001 Laau Paina Place, Waialua, Oahu, Hawaii

3. ENVIRONMENTAL SETTING

3.1 General Description

The Mokuleia coastline stretches between Kaena Point to Kaiaka Bay at Haleiwa town on the northwest coast of Oahu. This area is characterized by low-lying platforms of fossil reef-rock that are elevated 3 to 6 feet above mean sea level (MSL). These platforms have been subjected to broad inter-tidal and sub-tidal wave abrasion which has carved into the Waimanalo-age limestone. The coastline contains isolated sandy beaches between breaks in the rocky bench. These beaches widen towards Mokuleia and connect with small offshore sand fields. The wave energy and bioerosion are high at the shoreline in this area as is evidenced by the modern intertidal cuts into the elevated limestone. (Fletcher, 2002)

The soils of the project area are of the Jaucas sand series. Slopes ranges from 0 to 25 percent and the permeability is moderate to rapid. Runoff is considered to be very slow to medium and the erosion hazard is slight to moderate. (U.S. Department of Agriculture, 1972).

3.2 Shoreline Characteristics and Coastal Processes

According to the April 2004 study, *"Coastal Engineering Assessment of Existing Seawalls at Mokuleia Oahu, Hawaii (TMKs 6-8-9: 010 and 011)"* by EKNA Services, Inc. (**Appendix C**), there is no evidence that the existing seawall on the subject property Parcel 10 is accelerating erosion problems at the site. There is no indication of excessive escarpment or landward retreat of the unprotected shoreline west of the Parcel 10 seawall. The beach profile is uniform along this entire shoreline reach. These factors indicate that the existing seawall has had no adverse effect on the existing beach processes. There is a continuing high risk of erosion and flooding damage due to overtopping wave to unprotected properties.

According to the EKNA Services report, the Mokuleia coast is characterized as an undulating coastal reach containing numerous embayed coral sand beach systems. The project site is situated in one such embayment near the east end of the Dillingham Airfield. This particular embayment is formed between two prominent reef "headlands", which are shallow reef formations that protrude seaward from the shore. The reef headland fronting the Mokuleia Beach Colony, located just to the west of the Mokuleia Polo Grounds, creates the eastern-end boundary of this embayment. The subject parcel is adjacent to the Mokuleia Beach Colony.

The ocean bottom fronting the project site, seaward of Mokuleia Beach, rapidly reaches a depth of 6 feet and then descends gradually seaward to the limestone shoals offshore. Besides the sandy beach fronting the project property, the seaward shoreline characteristics are that of

complex reef ("rc") and consolidated limestone bottom ("rcl"), as depicted in **Figure 7**. Seaward of the limestone shoal there are surge channels up to 10 feet wide with sand bottoms.

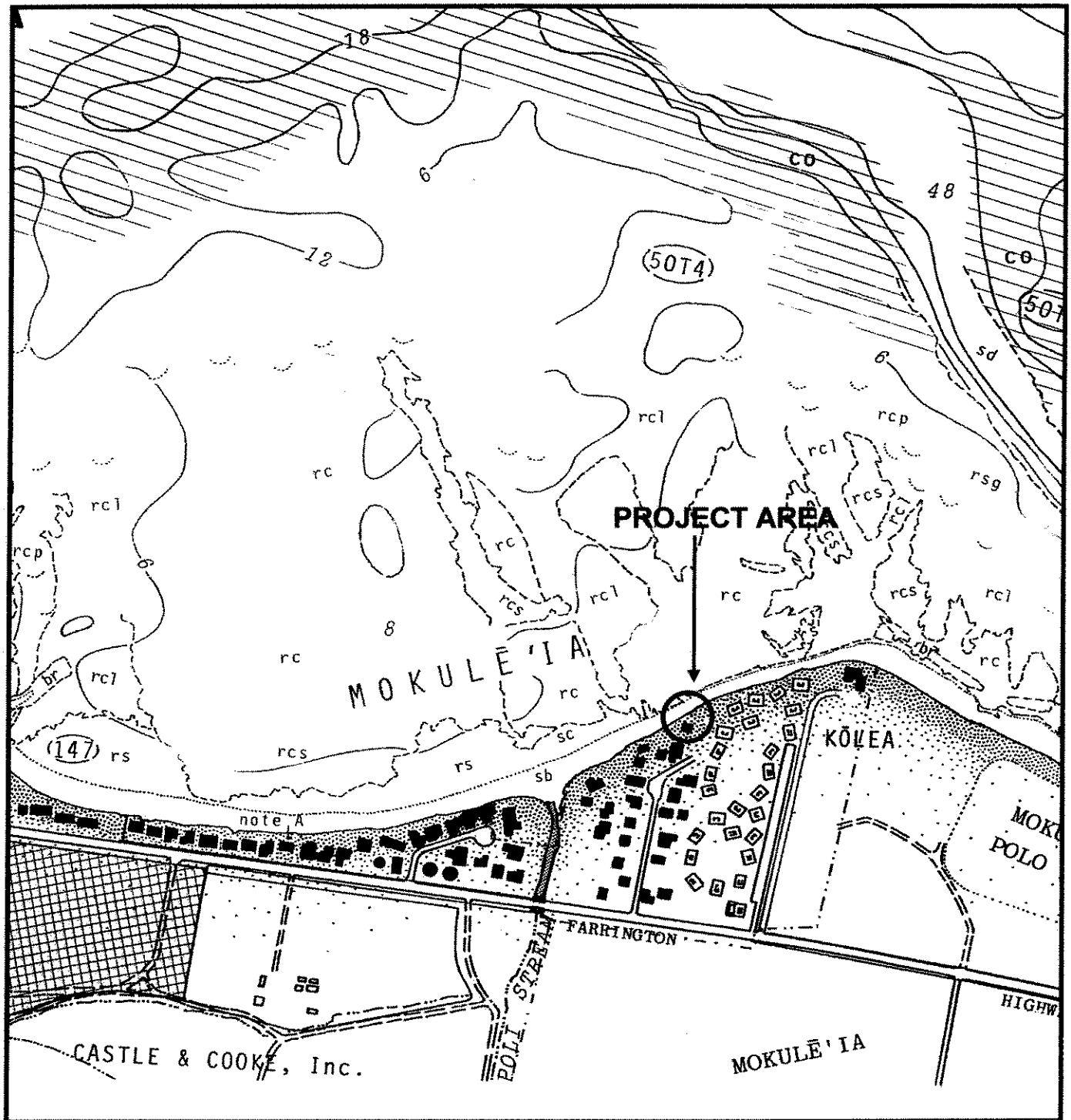
EKNA Services, Inc. conducted on April 9, 2004 a site visit during low tide and a moderate North Pacific swell conditions (3-5 foot surf), and strong tradewinds. The reef headlands were not bared, but were noticeably shallower than the reef fronting the central portion of the embayment. Breaking wave activity was evident across the entire bayfront. While not observable from shore, a review of aerial photos shows calm areas between breaker zones that indicate the deeper "channels" through the reefs fronting the embayment.

Figure 8 shows the approximately 350-foot long seawall front the Mokuleia Beach Colony adjacent to the project site. The narrow and steep beach fronting this property is a "wet" beach, meaning that during high tide, the wave uprush reaches the Mokuleia Beach Colony seawall. **Figure 9** shows the subject property's seawall which ties into the Colony's seawall and the seawall on Parcel 11 to the west. **Figure 10** shows the stream to the west of the project site, and adjacent shoreline reach further west of the stream. The parcel in **Figure 10** on the west side of the stream mouth shows obvious erosion damage, and a nearly continuous line of seawalls protect the remaining shoreline with the embayment.

This coastal reach is exposed to winter North Pacific swell and predominant tradewind generated waves. It is apparent that during high tide, wave uprush reaches the base of the existing seawall. During storms and large winter swell conditions, wave runup and overtopping of the beach likely causes flooding and sand transport into properties that are not protected by seawalls.

The project site is sheltered from deepwater wave energy due to the shallow reefs that surround the embayment. The reefs dissipate nearly all wave energy during typical tradewind generated wave conditions. The wave energy that can reach the shoreline is limited by the water depths over the reefs and the channels through the reef. During large swell activity, waves breaking over the reefs can cause a rise in water level known as wave setup. The increased water levels allow more wave energy to be transmitted over the reef. Thus, wave activity at the shoreline is greatest during large swell or storm wave conditions and during high tides. The conditions that promote wave overtopping problems for unprotected parcels – those without seawalls – occur during large winter swell activity. Typical tradewind waves are not capable of causing appreciable wave setup and very little wave energy reaches this shoreline reach.

Normally along an exposed coastal reach, wave energy is the primary factor that drives nearshore currents in the surf zone. Waves approaching the shore at an angle will induce longhsore currents and transport of beach material alongshore in the direction of breaking. However, the shallow reefs surrounding the site considerably alter the deepwater wave characteristics within this embayment, resulting in possibly complex patterns of wave approach along this shoreline.

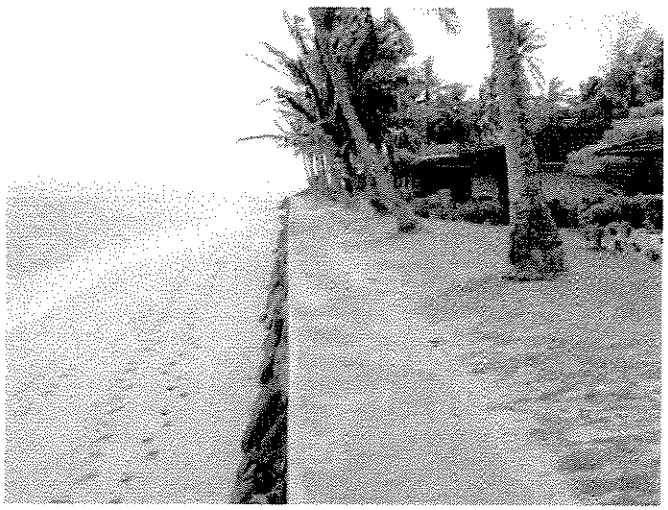


LEGEND	
br	beachrock
rbs	hard bottom with sand pockets
rcl, rcp	consolidated limestone bottom
rc, rcs	complex reef (sand, rubble, hard & soft)
rs	hard bottom with sand pockets
rsg	consolidated grooved limestone with sand
sb	sand beach
sc, sd	sand bottom or patch; also in depths > 30 feet

Source: AECOS, 1981

Figure 7
SHORE AND NEARSHORE CHARACTERISTICS

68-001 Laau Paina Place, Waialua, Oahu, Hawaii



View eastward along the top of the seawall fronting the Mokuleia Beach Colony. Note the narrow beach.

View eastward along the beach fronting the Mokuleia Beach Colony seawall. Note the narrow and steep beach profile.

View offshore Parcel 10. Note the shallow reef and wave angle at the shoreline indicating eastward longshore transport.

Winter North Pacific swell were causing breaking waves across entire embayment.

MOKULEIA
PHOTO DATE 4-9-04
TIME 09:15 AM
TIDE APPROX. 0.0 MLLW

Source: EKNA Services, Inc.

Figure 8
PHOTOS OF ADJACENT & APPROVED MOKULEIA BEACH COLONY SEAWALL

68-001 Laau Paina Place, Waialua, Oahu, Hawaii

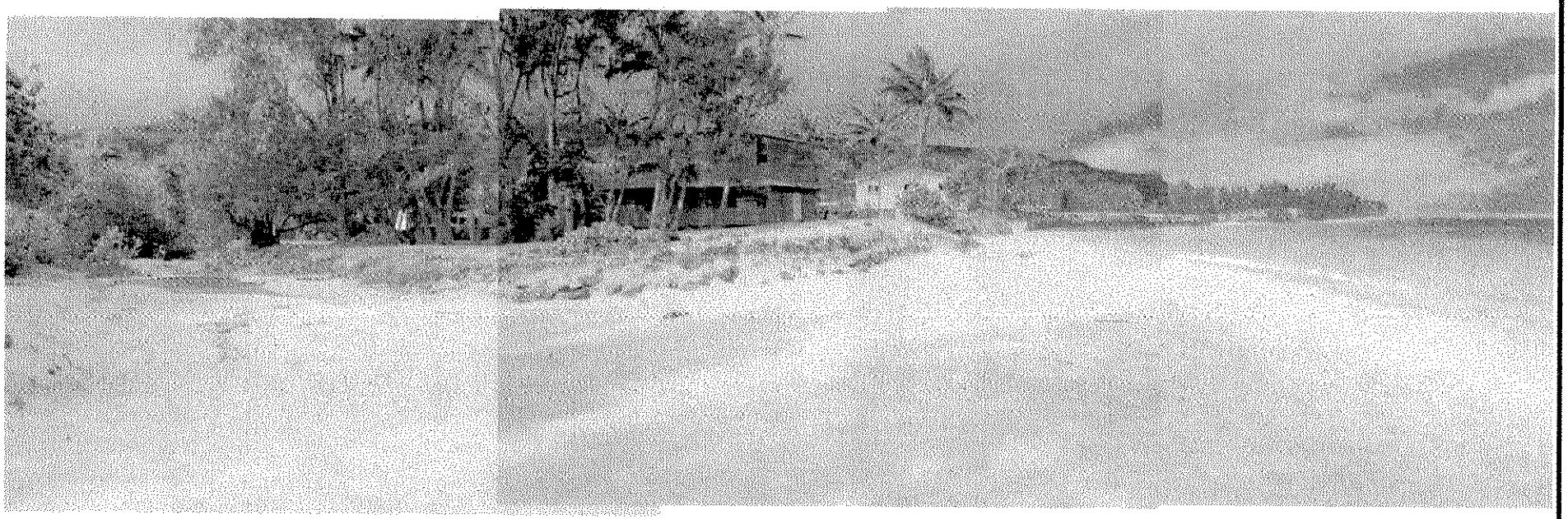
Views westward from west end of Mokuleia Beach Colony seawall. Parcel 10 is in the foreground. Parcel 11 is next to Parcel 10. (Sign is on the west end of the Mokuleia Beach Colony seawall. The sign permits the public to walk on the top of the seawall.)

MOKULEIA
PHOTO DATE 4-9-04
TIME 09:15 AM
TIDE APPROX. 0.0 MLLW

Source: EKNA Services, Inc.

Figure 9
PHOTOS OF PROJECT SITE – PARCEL 10

68-001 Laau Paina Place, Waialua, Oahu, Hawaii



View westward from stream mouth. Note eroded condition of embankment on west side of the stream. Continuous line of seawalls protect entire central shore frontage within the embayment.

MOKULEIA
PHOTO DATE 4-9-04
TIME 09:30 AM
TIDE APPROX. 0.0 MLLW

SOURCE: EKNA Services, Inc.

Figure 10
PHOTO OF STREAM
68-001 Laau Paina Place, Waialua, Oahu, Hawaii

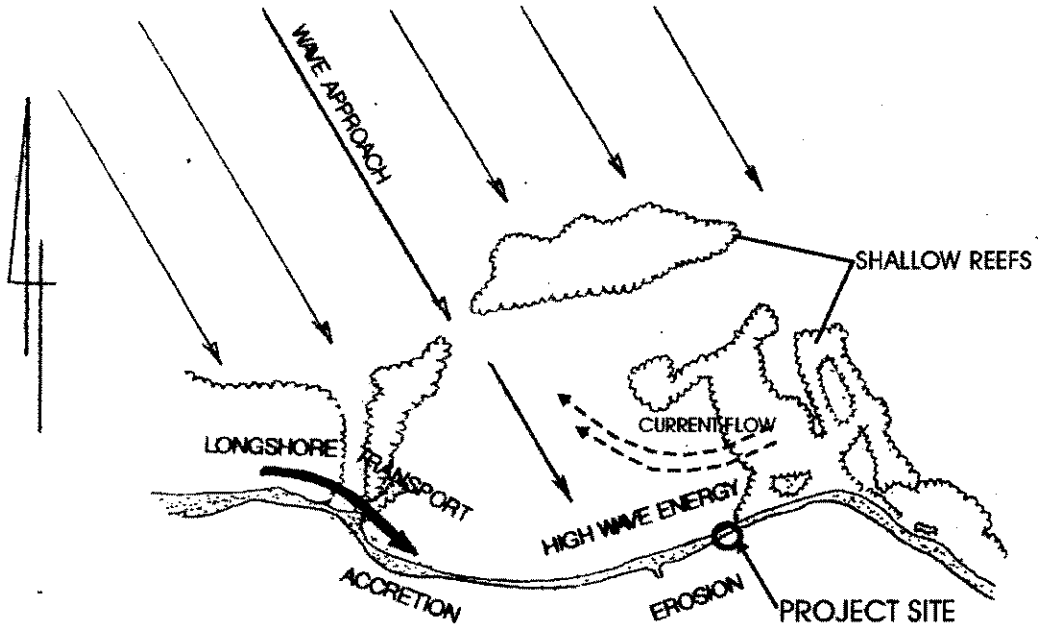
According to a prior report by EKNA Services for the Mokuleia area, residents have noted that shoreline currents within this embayment flow towards the west during high winter swell activity, which may be hydraulically driven due to the bathymetric contours within the embayment rather than wave-driven. Water within this embayment during large swell or storm wave activity seeks to flow towards the deeper water depth areas on the west side of the embayment, or areas of hydraulically least resistance.

The shallow reef structure offshore of the eastern headland – fronting the project site – is broader and extends furthers in the embayment than the shallow reef structure offshore of the western headland. The configuration of the shallow reef structure and the presence of an apparent "channel" through the offshore reef near the western end of the embayment, along with hydraulically-driven circulation, are probably are the basis for the westerly-flowing shoreline current that residents have noted.

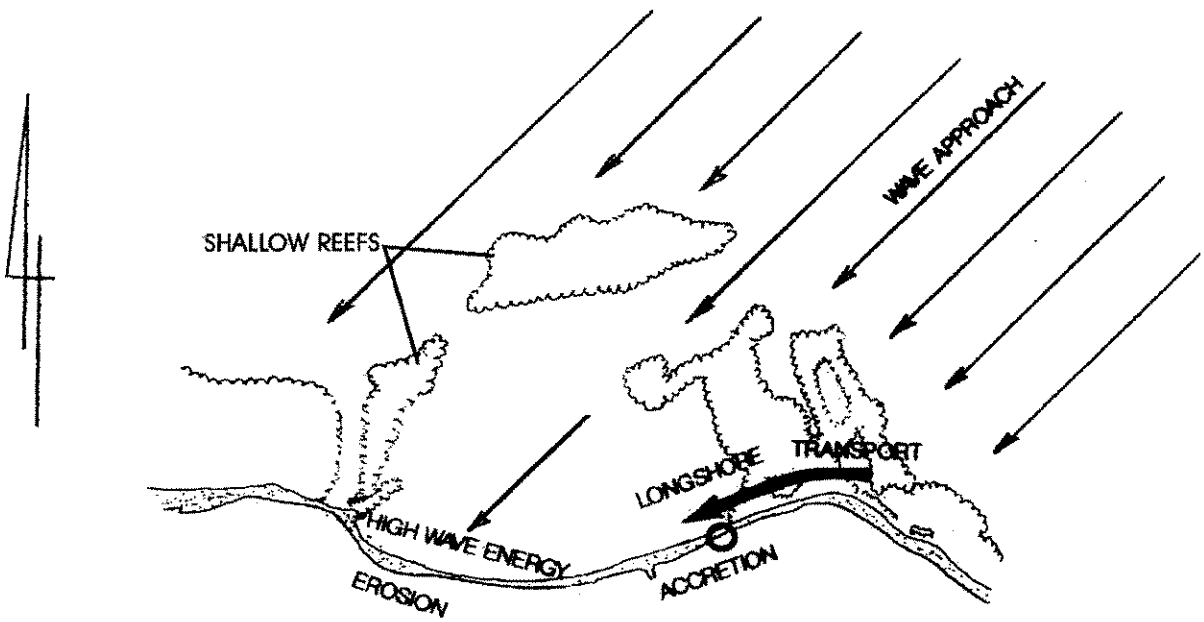
If the shoreline flows are strong, they have the potential to carry wave-suspended shoreline sediments offshore into the deeper reaches of the embayment and seaward of the surrounding reef as the shore-parallel flows are diverted seaward through openings in the shallow reef. These sediments may be deposited in water depths too deep for normal wave activit6y to return it to the beach. This means that the history of long-term erosion of this coastline is evidence that such permanent loss of beach material occurs.

While net long-term erosion is evident, residents also indicated that seasonal fluctuation of beach width occurs. There is a pattern of erosion along the eastern part of the embayment during the winter and restoration of the beach width during the summer. The opposite occurs for the western shoreline where there is a pattern of erosion during the summer and restoration during the winter. **Figure 11** depicts the probable seasonal transport processes. Because water depths in the central part of the embayment are too deep for sediments to move back to shore, the seasonal fluctuation of beach width is presumably due to longshore transport of sediments from the shoreline and shallow nearshore areas around the headlands.

For this coastal area, and for most coastal areas in the state, the general trend is toward continued long-term erosion. There is no evidence that the long-term erosion trend along this coastal reach will reverse in the future.



WINTER NORTHWEST SWELL CONDITIONS



SUMMER NORTHEAST TRADEWIND CONDITIONS

Source: EKNA Services, Inc.

Figure 11
SAND TRANSPORT FIGURES

68-001 Laau Paina Place, Waialua, Oahu, Hawaii

3.3 Potential Littoral Impacts

The following information is taken from the EKNA Services report, which states that the existing seawall has no effect on the existing littoral processes at this site. The seawall is functionally consistent with existing seawalls along this coastal reach. The existing seawall does not alter seasonal erosion/accretion patterns. There is no evidence that the seawall has caused aggravated erosion to the nearby unprotected parcels. This entire coastal reach has been experiencing net long-term erosion over the past 50 years. There is a continuing high risk of erosion and flooding damage due to overtopping waves to unprotected properties.

The seawall does not affect lateral access along the beach. It should be noted that the adjacent Mokuleia Beach Colony provides public access along the top of its approved seawall; a public access sign is posted on that wall.

While the subject seawall does not affect longshore sediment transport processes, there may be some concern that cross-shore transport may be affected because of wave reflection from the near-vertical impermeable face of the seawall. It has been a generally held presumption that the more reflective the structure, the greater the potential for adverse impacts by discouraging sand accumulation in front of the structure.

However, given the fact that beach and shoreline erosion is continuing to occur along this coastline and elsewhere where there are no shore protection structures, it can be concluded that the long-term erosion trends is a natural process that will certainly not be reversed simply by instead constructing sloping porous-surfaced shore protection structures. According to the EKNA Services report, in fact, studies sponsored by the U.S. Army Corps of Engineers have found no significant difference in impact to the beach fronting a sloping rip-rap revetment and an adjacent vertical concrete seawall. EKNA Services, Inc. has conducted field studies on Kauai that showed seasonal beach accretion – increase in beach width – occurred in front of a near-vertical seawall as well as on an adjacent unprotected beach.

The erosion that is occurring along the Mokuleia shoreline can be described as "passive" erosion – it is not "active" erosion, which is induced or accelerated by shore protection structures. Passive erosion designates the process that occurs when a protective structure is built along an already eroding shoreline and erosion continues to occur. Such erosion is independent of the type of shore protection constructed. The unprotected shoreline adjacent to a protective structure will continue to erode and will eventually migrate landward beyond the protection structure. This is the most common result of shoreline hardening in Hawaii, and is the probable long-term consequence of the existing seawalls at Mokuleia.

3.4 Beach Characteristics

As noted in the Coastal Engineering Assessment, resident indicated that seasonal fluctuation of beach width occurs. According to the residents, there is a pattern of natural erosion along the eastern part of the embayment during the winter, with restoration of the beach width during the summer. Conversely for the shoreline reach towards the western part of the embayment, there is a patter of natural erosion during the summer and restoration of the beach width during the winters.

Water depths in the central part of the embayment are too deep for transmitted wave energy to move sediments and sand back to shore. Therefore, the seasonal fluctuation of beach width is presumably due to the longshore transport of sediments and sand from the shoreline and shallow near shore areas around the headlands. The applicant's seawall does not impact the width of the beach. The width of the beach is due to seasonal fluctuations in longshore transport of sediments and sand all along the 3,000 foot long embayment.

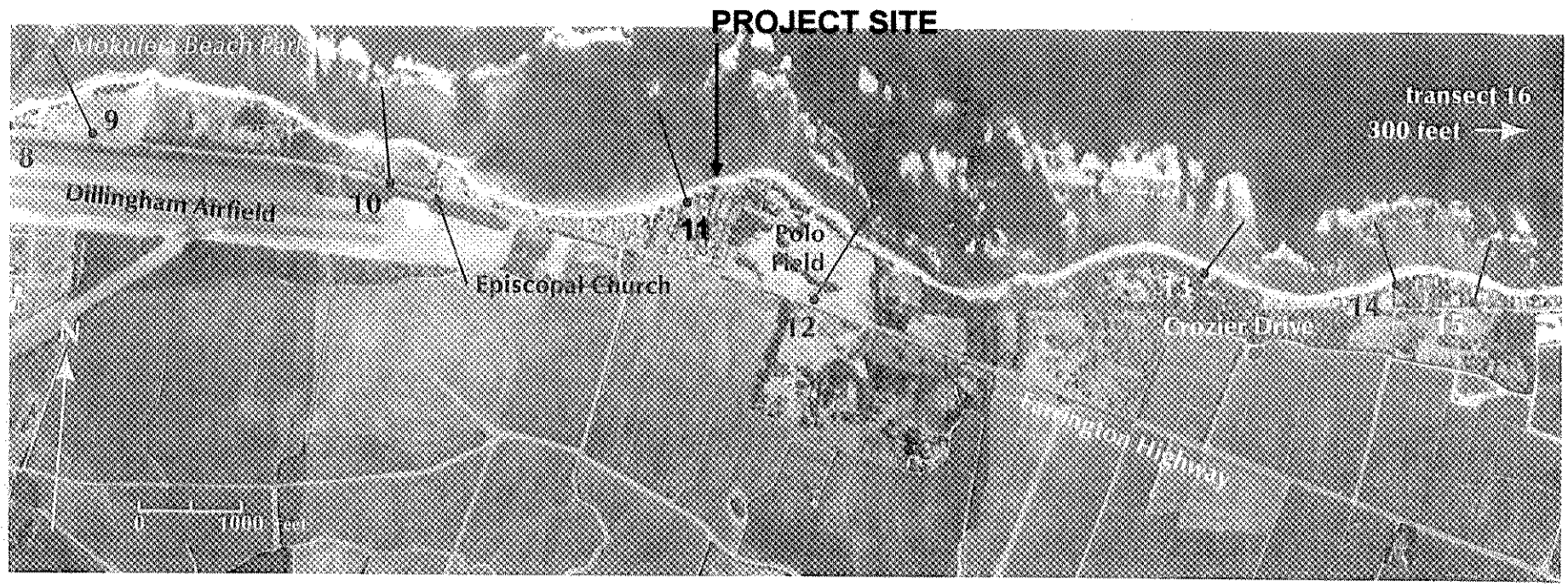
The seawall is tied into the Mokuleia Beach Colony seawall on the east side, and the seawall on the west side property (owned by Bruce Clements). The applicant's seawall forms a link in a chain between the two other existing walls. The applicant's seawall does not protrude outward to form a square or rectangle so as to impact beach width. Rather, the applicant's seawall is angled and curved so that it joins the Beach Colony seawall and the Clements seawall.

The existing seawall does not affect lateral beach access. The beach fronting the Mokuleia Beach Colony wall is narrower than the beach fronting the applicant's wall and the adjacent Clements wall.

3.5 Oceanographic Characteristics

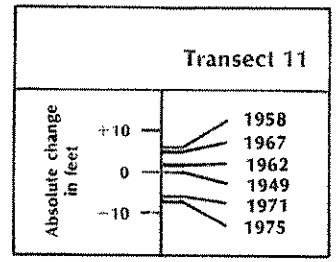
Historical aerial photographs depict the significant loss of shoreline along the Mokuleia coast. The subject property has lost to erosion approximately 1,370 square feet or almost 11 percent of the property's total 12,287 square feet. An area between 30 to 40 linear feet deep is now located seaward of the May 2004 shoreline survey. Typically, properties along this coastline that do not have shoreline structures experience some shoreline erosion and wave damage.

The report *Beach Changes on Oahu as Revealed by Aerial Photographs* (Hwang, 1981), documents the characteristics of the "middle section" of Mokuleia Beach, which includes the subject property. The report states that this section of Mokuleia Beach has experienced small long term changes and that data gathered at Transects 10 through 13 (See **Figure 12,** project site is near Transect 11) experienced a net loss in the vegetation line of -8 to -12 feet. According to



Photomap 2. Mokuleia Beach (Middle Section)

Photographs by Air Survey Hawaii: March 1971



Absolute change is the change in the position of the vegetation line compared to the earliest or base year.

SOURCE: *Beach Changes on Oahu as Revealed by Aerial Photographs*, 1981, Dennis Hwang

Figure 12

MOKULEIA BEACH CHANGES AS REVEALED BY AERIAL PHOTOGRAPH

68-001 Laau Paina Place, Waialua, Oahu, Hawaii

the report, major erosion occurred during 1967 to 1971 due to significant storm wave damage. Many of the homes along this stretch of coastline are less than 20 feet from the edge of the vegetation line or an existing seawall. These homes, like the project site, would be impacted by any erosion that would reduce the natural buffer zone significantly.

In 1989, Sea Engineering Inc. prepared for the City's Department of Land Utilization the *Oahu Shoreline Study – Data on Beach Changes*, which was similar to and an extension of the 1981 Hwang study. The report concluded that landward recession of the vegetation line since 1949 has continued. Additional erosion was further documented during the 1980's of about -7 feet at both Transect 10 and Transect 12, since the original Hwang study in 1981. A summary of the data gathered is shown in **Figure 13**.

A number of vertical seawall structures have developed along the 3,000 foot long embayment between the Episcopal Camp and the Mokuleia Beach Colony. The unprotected houses are the ones that have only a few feet of vegetation between them and the beach. A number of the existing seawalls along Mokuleia Beach have been approved by the City and County of Honolulu, including the Mokuleia Beach Colony seawall, adjacent to the project site.

The 1989 *Shoreline Study* states that for the portion of Mokuleia Beach fronting the project site that, "Given the extent of the existing seawalls and the proximity of the unprotected houses to the waterline, shore protection should be allowed throughout this area. The shore protection structure of choice will probably be a vertical seawall, since there is little room for sloping revetments. The DLU should ensure that the design is adequate and that the alignment matches the surrounding areas."

The general ocean and nearshore environment of the Hawaiian Islands is discussed in the study by Gerritsen; a general summary follows.

3.5.1 Winds

The winds in Hawaii can be classified into four different groups: tradewinds, kona winds, tropical storms and tropical cyclones. The northeast tradewinds are the prevailing winds. Winds affect the direction and magnitude of surface currents in the ocean, as well as the currents in shallow coastal areas. The project area, located on the northwest coast of Oahu is exposed to the tradewinds.

Table 2 - Central Mokuleia Beach. Changes in the Vegetation Line in Feet.

Observation Period	Transect Number								
	8	9	10	11	12	13	14	15	16
Sep 28, 1949 - Nov 01, 1958	*	-6	4	6	-4	*	1	-15	-4
Nov 01, 1958 - Aug 22, 1962	*	-1	-5	-4	3	-6[2]	7	28	20
Aug 22, 1962 - Apr 22, 1967	*	8	7	3	-3	-7	-2	-8	-9
Apr 22, 1967 - Mar 17, 1971	-2	-3	-8	-12	-5	-2	7	-1	*
Mar 17, 1971 - Apr 11, 1975	-1	-2	-8	-1[1]	-7	2	-3	5	2[3]
Apr 11, 1975 - Aug 06, 1979	12	9	-1	*	8	1	-4	-8	1
Aug 06, 1979 - Feb 03, 1988	-22	-26	-7	*	-7	-4	-5	20	-1
Net Change - Vegetation Line	-13	-21	-18	-8	-15	-16	1	21	9
Range - Vegetation Line	22	26	24	14	16	16	13	36	20

** No Data*
[1] To Seawall
[2] Change from 1949 to 1962
[3] Change from 1967 to 1975
Net change is the total change in the position of a beach index line between the earliest and most recent observation year.
Range is the difference between the observed extremes in the position of a beach index line.
Transect locations and historical data from Hwang, Table 2.

SOURCE: *Oahu Shoreline Study – Part 1 Data on Beach Changes*, 1988, Sea Engineering, Inc.

Figure 13
MOKULEIA BEACH CHANGES IN VEGETATION LINE
68-001 Laau Paina Place, Waialua, Oahu, Hawaii

3.5.2 Waves

The wave patterns in the Hawaiian Islands are generally categorized in five major types: tradewind waves, North Pacific swell, kona storm waves, south swell, and cyclonic or hurricane waves. The project site is exposed to North Pacific swell waves which can be hazardous and cause significant erosion.

3.5.3 FEMA Flood Insurance Rate Maps

The Federal Emergency Management Agency (FEMA), Flood Insurance Rate Maps (FIRM), labels the shoreline in the project area as Zone AE with a regulatory flood elevation of +12 feet MSL. The Zone AE designation indicates that the site is not subject to high velocity tsunami flow. Because the height of the seawall is lower than the base flood elevation of 12 feet, the seawall will have little or no effect on the flood characteristics.

3.5.4 Natural Hazards in the Coastal Zone

The *Atlas of Natural Hazards in the Hawaiian Coastal Zone (2002)* rates the "overall hazard assessment" along the Kaena Point coast from "moderate (4) at Kaena point to high (6) along the low-lying sandy beaches of Camp Erdman and Mokuleia Beach, where the coastal slope is lowest and chronic erosion is diminishing Mokuleia's sandy beach". Tsunami and stream flooding are other concerns in this area. They are ranked high along the lower slopes between Camp Erdman and Mokuleia.

The hazards of high wave action throughout this region of the North Shore is rated as high. This northwestern tip of Oahu is also subject to Kona storms, high tradewinds and hurricanes. The storm hazard is ranked moderate for the eastern portion of this coast (including the vicinity of the project area) where it become a bit more sheltered from hurricane and Kona storm energy, as compared to the western portion towards Kaena Point. The *Atlas*, rates the erosion hazard as high along the isolated sandy beaches of Camp Erdman and Mokuleia, whereas erosion hazard becomes more moderate along Kaena Point's hard limestone shoreline where it is rocky.

3.6 Marine Flora and Fauna

There are no known endangered species directly at the existing seawall site, either land or aquatic flora or fauna. The following information about the marine flora and fauna in the vicinity of the project area is taken from the *Hawaii Coral Reef Inventory, Island of Oahu* (AECOS, 1979): "Off the east end of Dillingham Air Field, Montipora flabellata is very abundant, with Porites lobata and Pocillopora meandrina are common. Turbinaria ornata and

Asparagopsis taxiformis are the most abundant algae, with Galaxaura less common. Schools of Heniochus diphreutes, Chromis verator, Decapterus macarellus, and Acanthurus dussumieri are abundant in the vicinity of sand channels crossing the limestone bottom, the margins of which provide vertical relief. Green sea turtles (Chelonia mydas) are present."

3.7 Water Quality

Nearshore waters are classified as "A" by the Department of Health. No major point sources discharge into these waters, but coastal waters are subject to turbidity following periods of heavy rain when sediments are washed from the land. These effects become less more westward of Kaiaka Bay.

3.8 Coastal Use

To the west of the project site and adjacent to Parcel 11 is a privately-owned right-of-way (TMK 6-8-09: 021) that is jointly owned by the property owners on Laau Paina Place and is not open to the public. There is a public right-of-way off of Hoomana Place, just west of the stream.

Mokuleia Beach Park, west of the project site, is the most convenient public access point. The Mokuleia Polo Field was once the site of weekend polo matches. Swimming along Mokuleia Beach is relatively safe during calm seas, but dangerous currents can develop especially during heavy surf. In some areas, swimming is not very good because of the rocky bottom and the usually turbid waters.

The shoreline along Mokuleia Beach is light to moderately used by fisherman typically where there is a broader sandy beach and mostly commonly pole fishing is used to catch ulua, papio, oio, goatfish, and other reef species. Some throw-netting also occurs and some people have been observed walking out on the shallow reef headland, presumably fishing. There is a more limited amount of spear-fishing and trapping. The sandy beach fronting the project site is relatively narrow, especially depending on the tidal and wave conditions. The area is also used by some for recreational diving, but more in the vicinity of Kaiahulu Bay. There is a public right-of-way to the beach off of Hoomana Place to the west of the project site.

3.9 Archaeological and Cultural Resources

The project site is located in the Mokuleia ahupuaa. The Hawaiian land division, known as an ahupuaa, generally runs from the top of the mountains to the edge of the coral reef in the sea. The Kolea fishing shrine, now destroyed, is documented in the *Sites of Oahu* as being located far east of the project site, in the vicinity of the Mokuleia Polo field. (Sterling, Bishop Museum

Press) The subject property has been previously disturbed by the construction of the seawall and single family dwelling. The subject property does not contain any known archaeological or historic sites. No further construction in the vicinity of the existing seawall is anticipated and it is not likely that any historic sites would be found due to prior disturbances.

The proposed action will have no effect on traditional cultural practices. Beach and ocean access are not impacted by the existing seawall. On-shore and off-shore fishing along the embayment occurs now and will continue to take place if the proposed action is approved.

If additional construction or renovation plans should be considered in the future and should significant archaeological features be uncovered, immediate archaeological consultation will be sought with the Department of Land and Natural Resources, State Historic Preservation Division in accordance with applicable regulations.

4. SUMMARY OF IMPACTS AND MITIGATIVE MEASURES

4.1 Potential Short-Term and Long-Term Impacts and Mitigative Measures

In the past, the previous construction of the existing seawall along the frontage of the subject property could have had some minor short-term effects on vegetation, water quality and noise conditions. Some landscaping, mainly yard grass, was removed or impacted by the construction activity, which was replanted after construction. In the past, construction noise may have taken place during allowed daytime periods for construction, but it did not cause excessive noise levels off-site. During construction there is always the potential for runoff or soils to erode to ocean waters. The site was stabilized during the construction period to minimize potential runoff.

According to the "Coastal Engineering Assessment" report by EKNA Services, Inc., the existing seawall has no effect on the existing littoral processes at this site. The seawall is functionally consistent with existing seawalls along this coastal reach. The seawall does not affect lateral access along the beach.

The seawall will have a long-term positive impact in that it provides significant stabilization of the applicant's property; it reduces the potential for erosion, and should minimize potential erosion-related runoff into the ocean. The concrete rubble masonry (CRM) wall has been designed with volcanic rock material to mitigate its appearance and creates a more natural aesthetic, as compared to solid vertical concrete walls found along Mokuleia Beach.

5. ALTERNATIVES CONSIDERED

The Coastal Engineering Assessment (**Appendix C**) discusses various alternatives to after-the-fact approval of the existing seawall. Those alternatives include removal of the existing seawall, replacing the seawall with a sloping revetment structure, replacing the seawall with large geotextile bags filled with sand, and beach restoration and nourishment in place of the seawall.

Sloping Revetment. Replacing the seawall with a sloping revetment structure is also not a viable option because of the limited land area between the house and the existing seawall.

Assuming a revetment toe at elevation 0 feet mean sea level and a top elevation of 10 feet, then a 1 foot vertical to 2 foot height (1V:2H) revetment slope would extend 20 feet horizontally. An additional 5 feet would need to be added for the thickness of the rock slope. Therefore, the revetment would occupy an area at least 25 feet deep across the shoreline frontage of the lot. There would need to be at least 10 feet between the house and the revetment in order to construct the revetment, and provide a buffer for wave overtopping impacts. There is not sufficient land area between the house and the existing seawall for a sloping revetment. The corner of the deck portion of the house is only about 17 feet from the shoreline at its closest point, and even closer to the stairs accessing the beach.

Changing the form of shoreline protection on this property would not provide significant benefit to the shoreline environment. It would also be significantly visually incompatible with the adjacent approved vertical seawalls. The sloping revetment surface would be about 5 times larger at 25 feet deep, as compared to the existing seawall's depth of approximately 5 feet deep. The applicant would lose a significant portion of the lawn area to the hardened surface of the revetment, which would be a significant negative visual impact.

The Coastal Engineering Assessment states that there is no reason to expect that a sloping revetment would halt the ongoing erosion along this coast.

Sand Bags. While large geotextile sand bags have been used as temporary erosion control in several areas, including Lankikai, use of the bags has drawbacks. The bags are prone to damage from storm wave attack and vandalism, require frequent and continual maintenance, and cannot be considered a permanent protection measure. The large sand bags are solid, hard building materials when fully filled, and a sand bag revetment structure is more reflective than a rock revetment. Another potential concern is that bags that are under water become very slippery due to algal growth, and therefore pose a safety problem in terms of people walking across them.

Beach Restoration. Beach restoration and nourishment is commonly cited as a preferred alternative, however, this alternative is costly and is not an economically viable alternative for an individual residential property owner. It has been observed that governmental agencies responsible for recreational beach resources can rarely afford to perform major and ongoing beach nourishment for public beaches.

No Action. If "no action" is taken to grant a Shoreline Setback Variance for the existing seawall, and if the seawall were to fail in the future, the owner would have to apply for permits to replace it with a shore protection structure. Therefore, the "no action" alternative is not a viable option.

Removal of the existing wall. Removal of the existing seawall is not a viable alternative since the house and related improvements existing on the parcel would be susceptible to erosion and wave damage. The house is approximately 17 feet at its closest point to the top of the stairs of the seawall.

6. FINDINGS AND REASONS SUPPORTING THE ANTICIPATED DETERMINATION

Chapter 200 of Title 11, Administrative Rules of the State Department of Health establishes criteria for determining whether an action may have a significant impact on the environment (11-220-12). The Rules establish "significance criteria" for making the determination. The relationship of the proposed project to the thirteen criteria is provided below.

6.1 Significance Criteria

1. Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;

The existing seawall does not affect littoral processes. It does not change the overall pattern of continuing erosion along the Mokuleia coastline. The existing seawall does not impact public access to the shoreline. Public access to the shoreline is available along the makai side of the property. These statements are supported by the EKNA Services, Inc. report in Appendix C. The subject property does not contain any known natural or cultural resources.

2. Curtails the range of beneficial uses of the environment;

The existing seawall configuration does not curtail the beneficial use of the environment. The property is zoned residential and is committed to private residential use. The existing seawall protects the property from erosion and maintains the owner's beneficial use of the property.

3. Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;

The existing seawall does not conflict with long-term environmental policies or goals or guidelines of the State of Hawaii. The existing seawall is consistent with the longstanding history of government decisions made approving shore protection structure along this stretch of the Mokuleia coastline. The 2 adjacent properties on both sides of the applicant's property have received approval of a Shoreline Setback Variance for their respective seawalls; the Mokuleia Beach Colony and Bruce Clements. There are a number of other existing and government-approved seawalls along this embayment.

4. **Substantially affects the economic welfare, social welfare, and cultural practices of the community or State;**

The economic and social welfare, and cultural practices of the community or State are not affected by the existing seawall.

5. **Substantially affects public health;**

There are no public health concerns relating to the existing seawall.

6. **Involves substantial secondary impacts, such as population changes or effects on public facilities;**

There are no anticipated secondary impacts to population or public facilities.

7. **Involves a substantial degradation of environmental quality;**

The existing seawall will not create a substantial degradation of environmental quality. The seawall will prevent further erosion of the applicant's property. It continues a 30+-year history of construction of shore protection structures along the Mokuleia coastline. The report in Appendix C states that the existing seawall has no effect on the existing littoral processes at this site.

8. **Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;**

The existing seawall is located on a developed single-family residential lot in a small subdivision. The subject property is located between existing developed properties. Both adjacent properties have approved existing seawalls. There is no commitment for a larger action as the subject property will remain single family residential.

9. **Substantially affects a rare, threatened, or endangered species, or its habitat;**

The project site has been previously disturbed and developed when a single family residence was moved to the site in 1976. There are no known rare, threatened or endangered species or its habitat at or near the existing seawall.

10. Detrimentally affects air or water quality or ambient noise levels;

The existing seawall does not detrimentally affect air or water quality or ambient noise levels.

11. Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;

The existing seawall is located in Flood Hazard Zone AE with a base flood elevation of twelve feet. The seawall will protect the property from further erosion and will protect the house structure from wave energy and wave run-up. The existing seawall is not expected to increase the flood hazard for the surrounding properties or the subject property. The Zone AE designation indicates that the site is not subject to high velocity tsunami flow. Because the height of the seawall is lower than the base flood elevation of 12 feet, the seawall will have little or no effect on the flood characteristics.

12. Substantially affects scenic vistas and view planes identified in county or state plans or studies; or

The existing seawall has an "S-curve" design and is constructed of lava rock so as to mitigate its visual appearance. It is not a vertical concrete wall. The 1987 Coastal View Study designates Mokuleia Beach Park as a "significant stationary view" and Farrington Highway as a "coastal roadway with intermittent coastal views". The project site is located over 4,000 feet or approximately 1 mile west of Mokuleia Beach Park, and the project site is not located on a designated "coastal roadway".

13. Requires substantial energy consumption.

Not applicable.

6.2 Findings and Reasons Supporting Anticipated Determination

The findings of this Environmental Assessment indicate that the existing seawall will not have a significant environmental impact.

A Finding of No Significant Impact (FONSI) is recommended to be issued for the proposed action.

7. REQUIRED PERMITS, AGENCY AND PUBLIC CONSULTATION AND REVIEW

7.1 Required Permits

The project will require the following permits:

- Shoreline Setback Variance pursuant to Chapter 23, Revised Ordinances of Honolulu
- After-the-fact Building Permit from the City and County of Honolulu

7.2 Preparation of the Draft Environmental Assessment

The following agencies were consulted during the preparation of the Draft Environmental Assessment (DEA):

- City and County of Honolulu, Department of Planning and Permitting
- State Office of Environmental Quality Control
- State of Hawaii, Department of Land and Natural Resources

7.3 Comments Received on the Draft Environmental Assessment

The following agencies provided comments on the Draft Environmental Assessment. Their comment letters and the related response letters are included in this section.

State of Hawaii

- Department of Business, Economic Development and Tourism
  - Land Use Commission
- Department of Land and Natural Resources
  - Historic Preservation Division
- Office of Environmental Quality Control
- Office of Hawaiian Affairs

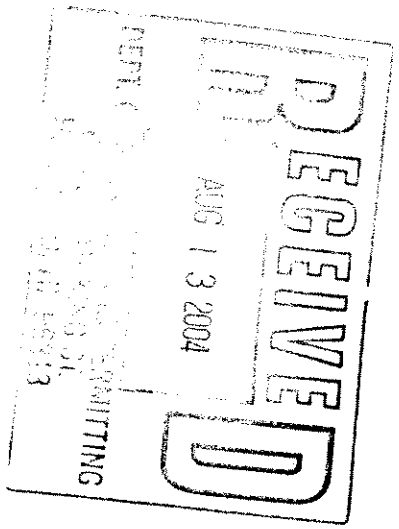
City and County of Honolulu

- Department of Planning and Permitting

LINDA LINGLE
GOVERNOR

ANTHONY J.H. CHING
EXECUTIVE OFFICER

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
P.O. Box 2359
Honolulu, Hawaii 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827



August 11, 2004

Mr. Eric Crispin, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Crispin:

Subject: Draft Environmental Assessment (DEA)
Shoreline Setback Variance Application for Existing Seawall
68-001 Laau Paina Place, Waialua, Oahu, Hawaii
Tax Map Key No: 6-8-09: 10

We have reviewed the DEA forwarded by your letter dated July 22, 2004, and find that the subject parcel, consisting of approximately 12,287 square feet, is designated within the State Land Use Urban and Conservation Districts.

For your information, the Urban/Conservation District boundary on the subject parcel was established on August 23, 1964. The coastal portion of the subject parcel having an elevation below the highwater mark as it existed at that time was designated within the Conservation District. The shoreline survey map (Figure 5) indicates that the subject parcel eroded to where its land area now comprises approximately 10,917 square feet. Although the DEA states that the existing seawall was constructed in 1982-1983, there is no information indicating the location of the shoreline at this time to determine whether the existing seawall is designated within the Urban and/or Conservation Districts.

We suggest that a boundary interpretation with the necessary documentation, including but not limited to the location of the shoreline at the time the seawall was constructed, be submitted to our office for a conclusive determination of the seawall's designation.

Please feel free to contact Bert Saruwatari of my office at 587-3822, should you require clarification or any further assistance.

Sincerely,

Anthony J. H. Ching

ANTHONY J. H. CHING
Executive Officer

c: Office of Environmental Quality Control

apc

PHONE (BUS): (808) 536-5695
FAX: (808) 599-1553

ANALYTICAL PLANNING CONSULTANTS, INC.
928 NUUANU AVENUE, SUITE 502 • HONOLULU, HI 96817

November 30, 2004

Anthony Ching, Executive Officer Administrator
State of Hawaii
Department of Business, Economic Development & Tourism
Land Use Commission
PO Box 2359
Honolulu, HI 96804-2359

Dear Mr. Ching:

Subject: **Draft Environmental Assessment**
Shoreline Setback Variance for Existing Seawall
at 68-001 Laau Paina Place, Waialua, Oahu, Hawaii
TMK: 6-8-009: 010
Response to Comment Letter

Thank you for your letter dated August 11, 2004. The following responds to the comments in your office's letter:

1. The applicant and the applicant's agent are gathering documentation regarding the seawall relative to the Urban and/or Conservation District area boundaries.

Thank you for providing your comments on the Draft Environmental Assessment. Please contact me if you have questions or require further information.

Sincerely,

for

Donald Clegg, President

LINDA LINGLE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

HAWAI'I HISTORIC PRESERVATION DIVISION REVIEW

AUG 18 2004

Log No: 2004.2478
Doc No: 0408EJ09

Applicant/Agency:	Eric G. Crispin, Director Department of Planning and Permitting
Address:	City & County of Honolulu 650 South King Street Honolulu, Hawaii 96813
SUBJECT:	Chapter 6E-42 Historic Preservation Review-Draft Environmental Assessment for a Shoreline Setback Variance Application to Retain an Existing Seawall at 68-001 Laau Paina Place, Waialua, O`ahu
Ahupua`a:	Waialua
District, Island:	Waialua, O`ahu
TMK:	(1)6-8-009:010

1. ____ This project has not gone through the historic preservation review process. Please submit documentation _____

2. _____ This project has already gone through the historic preservation review process.
   _____ a. mitigation has been completed
   _____ b. other

3. _____ We have not been consulted on this undertaking, however we believe there are no historic properties present, because:
   ____ a) intensive cultivation has altered the land
   ✓ b) residential development/urbanization has altered the land
   ✓ c) previous grubbing/grading has altered the land
   ____ d) an acceptable archaeological assessment or inventory survey found no historic properties
   ✓ e) other: This is an after-the-fact approval for an existing seawall to bring the wall into compliance. No new ground disturbance is proposed.

✓ Thus, we believe that "no historic properties will be affected" by this undertaking.

Sincerely,

S. Holly McEldowney

Holly McEldowney, Administrator
State Historic Preservation Division

EJ: sky

apc

PHONE (BUS): (808) 536-5695
FAX: (808) 599-1553

ANALYTICAL PLANNING CONSULTANTS, INC.
928 NUUANU AVENUE, SUITE 502 • HONOLULU, HI 96817

November 30, 2004

Holly McEldowney, Administrator
Historic Preservation Division
State of Hawaii
Department of Land & Natural Resources
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, HI 96707

Dear Ms. McEldowney:

Subject: **Draft Environmental Assessment**
Shoreline Setback Variance for Existing Seawall
at 68-001 Laau Paina Place, Waialua, Oahu, Hawaii
TMK: 6-8-009: 010
Response to Comment Letter

Thank you for your letter dated August 18, 2004. The following responds to your office's comments provided on the Draft Environmental Assessment for the subject property.

1. We acknowledge your comment that although not consulted, your office believes there are no historic properties present, because of prior development, previous grubbing/grading has altered the land, and that this is an after-the-fact approval for an existing seawall to bring the wall into compliance, and that no new ground disturbance is proposed.

2. We acknowledge your comment that your office believes that "no historic properties will be affected" by this request.

Sincerely,

Donald Clegg

Donald Clegg, President

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

HRD04/1491

August 31, 2004

Eric G. Crispin, AIA
Director, Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

RE: Request for Comments on an Application for a Shoreline Setback Variance for After-the-fact approval to retain a concrete rubble masonry seawall within the 40-foot shoreline setback area, Waialua, O'ahu, TMK: 6-8-009:010

Dear Eric G. Crispin,

The Office of Hawaiian Affairs is in receipt of your July 22, 2004, request for comments on the above project, which would allow for an existing seawall at 68-001 Laau Paina Place. OHA offers the following comments.

Seawalls, like any structure built in or too close to beach sand sources, have been shown to occasionally protect the structures behind them, but also to regularly cause erosion of the beaches in front of those structures by interrupting natural coastal processes of the ocean seasonally taking and returning sand, as arguably happened in this case. All of the above limits coastal and cultural access rights to public trust beaches – ceded lands – by shrinking the coast itself. Not only is the coast shrunk by property owners moving their control makai, but by the ocean moving its control mauka. Mokuleia Beach is an active beach that is regularly used for public access and gathering rights.

OHA generally does not support seawalls for all of the above reasons, but is not immune to the concerns of the landowner, who did not place the house in its current location, nor build the

original structure. We simply wish to record our concerns about continuing to allow the hardening of public beaches and thereby allowing reduced access to the shoreline.

Thank you for the opportunity to comment. If you have further questions, please contact Heidi Guth at 594-1962 or e-mail her at heidig@oha.org.

Sincerely,

Clyde W. Nāmu'o
Administrator

PHONE (BUS): (808) 536-5695
FAX: (808) 599-1553

apc

ANALYTICAL PLANNING CONSULTANTS, INC.
928 NUUANU AVENUE, SUITE 502 • HONOLULU, HI 96817

November 30, 2004

Clyde W. Namuo
Administrator
State of Hawaii
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, HI 96813

Dear Mr. Namuo:

Subject: **Draft Environmental Assessment**
Shoreline Setback Variance for Existing Seawall
at 68-001 Laau Paina Place, Waialua, Oahu, Hawaii
TMK: 6-8-009: 010
Response to Comment Letter

Thank you for your letter dated August 31, 2004. The following responds to your office's comments provided on the Draft Environmental Assessment for the subject property.

1. We acknowledge that the Office of Hawaiian Affairs (OHA) does not support seawalls for reasons stated in your letter, but is not immune to the concerns of the landowner.

2. We acknowledge your comment that your office wishes to record its concerns about continuing to allow the hardening of public beaches and thereby allowing reduced access to the shoreline.

3. As stated in the Draft Environmental Assessment, the applicant's seawall does not impact public access or lateral pedestrian access along the shoreline fronting the subject property.

Sincerely,

Donald Clegg

Donald Clegg, President

LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeqc@health.state.hi.us

AUG 8 2004

Mr. Eric Crispin, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawai'i 96813

Dear Mr. Crispin:

Subject: Draft Environmental Assessment for the Ells After-the-fact Seawall, O'ahu

Thank you for the opportunity to review and comment on the subject project. We have the following comments.

1. For assistance in completing the assessment, please review OEQC's shoreline hardening guidelines at http://www.state.hi.us/health/oeqc/guidance/shoreline.htm

2. Please consult with adjacent neighbors and notify the affected neighborhood board.

Sincerely,

Genevieve Salmonson

Genevieve Salmonson
Director

c: APC
Mr. Ells

PHONE (BUS): (808) 536-5695
FAX: (808) 599-1553

apc
ANALYTICAL PLANNING CONSULTANTS, INC.
928 NUUANU AVENUE, SUITE 502 • HONOLULU, HI 96817

November 30, 2004

Genevieve Salmonson
Director
State of Hawaii
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

Dear Ms. Salmonson:

Subject: **Draft Environmental Assessment**
Shoreline Setback Variance for Existing Seawall
at 68-001 Laau Paina Place, Waialua, Oahu, Hawaii
TMK: 6-8-009: 010
Response to Comment Letter

Thank you for your letter dated August 18, 2004. The following responds to the comments provided on the Draft Environmental Assessment for the subject property.

1. The "Shoreline Hardening Policy and Environmental Assessment Guidelines" were consulted during the preparation of the Draft Environmental Assessment. A Coastal Engineering Assessment report for the subject property was prepared by EKNA Services, Inc. in April 2004 and was also included in the Draft Environmental Assessment.

2. The adjacent neighbors and neighborhood board will be contacted and informed about the project during the Shoreline Setback Variance application process.

Sincerely,

Donald Clegg

Donald Clegg, President

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4414 • FAX: (808) 527-6743 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

ERIC G. CRISPIN, AIA
DIRECTOR

BARBARA KIM STANTON
DEPUTY DIRECTOR

2004/ED-14(ASK)
2004/SV-13

September 22, 2004

Mr. Donald A. Clegg
928 Nuuanu Avenue, Suite 502
Honolulu, Hawaii 96817

Dear Mr. Clegg:

CHAPTER 343, HAWAII REVISED STATUTES (HRS)
DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

Project Name	:	Ells Shoreline Setback Variance
File No.	:	2004/ED-14
Location	:	68-001 Laau Paina Place - Waialua
Tax Map Keys	:	6-8-9: 10

We are forwarding copies of all comments we have thus far received related to the Draft Environmental Assessment (EA) for the above-referenced project.

In accordance with the provisions of Chapter 343, Hawaii Revised Statutes (HRS), you must respond in writing to these and any other comments which were received during the 30-day comment period, which began with publication of a notice of availability of the Draft EA in The Environmental Notice on August 8, 2004. The Final EA must include these comments and responses, as well as revised text, where needed.

We have reviewed the above document. Insofar as we anticipate the Final EA will be the basis of the Finding of No Significant Impact as well as the Shoreline Setback Variance, we offer the following comments:

1. The Final EA should include a cross section plan which is drawn to scale. (The base of the plan provided is not to scale and the width, which is labeled "6'-1", only measures 5 1/2 feet.) Photos taken during a staff site visit and the submitted shoreline survey seem to indicate that there are five stairs to the beach. The cross-section of the stairs indicates there are only four stairs. Please verify the number of stairs and revise the stair cross section if needed.

2. Public hearing testimony for the variance on the Mokuleia Beach Colony property, 85/SMA-49, indicated that there was a sloping revetment on Mr. Ells' property. Please provide information regarding this revetment and when it might have been replaced with the vertical seawall.

3. The application should include a current certified shoreline survey.

4. Page 27 of the Draft EA states that a sloping revetment is not viable because of the limited land area between the house and the existing seawall. The deck portion of the house appears to be about 20 feet from the shoreline at the closest point. The Final EA should explain, or otherwise illustrate, how the limited land area renders the revetment option unviable.

5. The application should include a section addressing the "Criteria for granting a variance," contained in Section 23-1.8, Revised Ordinances of Honolulu (ROH). This section should discuss how the three standards of hardship are met.

6. The Final EA should explain how the wall has affected the width of the beach. How has this impacted use of the beach? What mitigation measures could be undertaken to reduce the adverse impacts to lateral access along the beach?

7. The Final EA should state whether or not the wall impacts cultural practices.

8. During an August 31, 2004 site visit, staff observed that a large swath of the lawn adjacent to the wall had been removed. Please explain the work that was being done at that time.

Should you have any questions, please contact Ardis Shaw-Kim of our Land Use Approvals Branch at 527-5349.

Sincerely yours,

Barbara A Moon
for ERIC G. CRISPIN, AIA
Director of Planning and Permitting

EGC:cs
Encl.

G:\landuse\posseworkingdirectory\ardis\ells

PHONE (BUS): (808) 536-5695
FAX: (808) 599-1553

apc
ANALYTICAL PLANNING CONSULTANTS, INC.
928 NUUANU AVENUE, SUITE 502 • HONOLULU, HI 96817

November 30, 2004

Eric Crispin, AIA, Director
Department of Planning & Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, HI 96813

Dear Mr. Crispin:

Subject: **Draft Environmental Assessment**
Shoreline Setback Variance for Existing Seawall
at 68-001 Laau Paina Place, Waialua, Oahu, Hawaii
TMK: 6-8-009: 010
Response to Comment Letter

Thank you for your letter dated September 22, 2004. The following responds to your office's comments provided on the Draft Environmental Assessment for the subject property.

1. The Final EA includes a cross-section plan drawn to scale. Drawings that are not to scale are now clearly labeled "not to scale". Also, drawings now include a bar scale so reduction and enlargement of the drawing are not a factor.

   The cross section of the stairs has been corrected to show the existing conditions that five (5) stairs exist.

2. The applicant/owner bought the property in 1980. The owner had the seawall constructed in 1982-83. There was no sloping revetment prior to the existing seawall - the property has never had a sloping revetment along the shoreline. We believe that, due to the sloping-face design of the existing 22-year old wall, it does look a bit like a rock revetment. It is understandable that in 1985 a lay person called the existing wall a "revetment". However, the existing rocks are set with mortar and there are no voids between rocks, therefore, it is more properly classified as a seawall. The owner is researching personal photos of the property to illustrate the property's shoreline near the time of the seawall's construction. If available, such photos may be included in the Final EA.

3. On August 26, 2004, the Department of Land and Natural Resources rejected the application for a certification for the shoreline for the subject property. A copy of the letter is included in Appendix D of the Final EA.

4. The Final EA addresses the issue of why a sloping revetment is not a viable alternative.

5. The Final EA includes a section addressing the Criteria for Granting a Variance.

6. The Final EA will address the issue of beach impact. The existing seawall does not affect lateral beach access, as was discussed in the "Coastal Engineering Assessment of Existing Seawalls at Mokuleia, Oahu, Hawaii" for the subject property dated April 2004. This report was included as Appendix C of the Draft EA. The seawall is tied into the Mokuleia Beach Colony seawall on the east side, and an existing adjacent seawall on the west side (property owned by Bruce Clements). Both of these adjacent seawalls, which the applicant is located in between, have been granted approval for a Shoreline Setback Variance.

7. The Final EA addresses the issue of cultural impacts. The June 2004 Draft EA **Section 3.8 Archeological and Cultural Resources** stated that, "The proposed action will have no effect on traditional cultural practices."

8. As stated in your office's September 22, 2004 response letter, during your office's site visit a staff member noticed that a "large swath of the lawn adjacent to the wall had been removed". This is referring to the applicant/owner's effort to re-grass the lawn. No excavation, grading or significant amount of soil was removed. The existing grass – emerald zoysia - was removed so that the yard could be re-planted with an entirely different type of grass – el tora zoysia. The owner will re-grass the lawn after the winter high surf season, likely in February or March of 2005.

Thank you for providing your comments on the Draft Environmental Assessment. Please contact me if you have questions or require further information.

Sincerely,

Donald Clegg

Donald Clegg, President

8. REFERENCES

AECOS, Inc. 1979. *Oahu Coral Reef Inventory.* Prepared for the U.S. Army Corps of Engineers, Pacific Ocean Division, Fort Shafter, Hawaii.

AECOS, Inc. 1981. *Oahu Costal Zone Atlas – Representing the Hawaii Coral Reef Inventory, Island of Oahu.* Prepared for the Harbors Division, Department of Transportation, Honolulu, Hawaii.

Bathen, Karl. 1978. *Circulation Atlas for Oahu, Hawaii.* Sponsored by the University of Hawaii Sea Grant College Program.

Chu, Michael S., and Robert B. Jones for the City and County of Honolulu, Department of Land Utilization, *Coastal View Study*, 1987.

City and County of Honolulu, Department of Planning & Permitting, Geographic Information Systems on-line database at http://.gis.hicentral.com 2003.

EKNA Services, Inc. April 2004. *Coastal Engineering Assessment of Existing Seawalls at Mokuleia, Oahu, Hawaii, TMK: 6-8-9:010 and 011.*

Fletcher, Charles. 2002. *Atlas of Natural Hazards in the Hawaiian Coastal Zone.* Prepared in cooperation with the University of Hawaii, State of Hawaii Office of Planning and the National Oceanic and Atmospheric Administration.

Gerritsen, Franciscus. 1978. *Beach and Surf Parameters in Hawaii.* Sponsored by the University of Hawaii Sea Grant College Program.

Hwang, Dennis. 1980. *A Method for Using Aerial Photos in Delineating Historic Patterns of Beach Accretion and Retreat.* Prepared for the State of Hawaii Department of Planning and Economic Development by the Urban and Regional Planning Program and the Hawaii Institute of Geophysics, University of Hawaii.

Hwang, Dennis. 1981. *Beach Changes on Oahu as Revealed by Aerial Photographs.* Prepared for the State of Hawaii Department of Planning and Economic Development by the Urban and Regional Planning Program and the Hawaii Institute of Geophysics, University of Hawaii.

Sea Engineering, Inc. 1988. *Oahu Shoreline Study. Part 1 – Data on Beach Changes and Part 2 – Management Strategies*. Prepared for the Department of Land Utilization, City and County of Honolulu.

Sterling, Elspeth and Catherine Summers. *Sites of Oahu*. Bishop Museum Press, Honolulu, Hawaii.

U.S. Army Corps of Engineers, Pacific Ocean Division. June 1979. *Help Yourself – A Shore Protection Guide for Hawaii.*

U.S. Department of Agriculture, Soil Conservation Service in cooperation with the University of Hawaii Agriculture Experiment Station. Soil Survey of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii. August 1972.

APPENDIX A

CITY AND COUNTY OF HONOLULU

BLDG. I.D. NO. 2287

APPLICATION FOR RELOCATION PERMIT

PERMIT NO. 1969

APPLICANT FILL INSIDE HEAVY LINES ONLY

PRESENT ADDRESS OF BUILDING: 56-212 Kam Highway, Laie
NEW ADDRESS OF BUILDING: 58-003 Laaupaina St,
MOVING CONTRACTOR: L.Kuwasaki — STATE LIC. NO. BC964
ADDRESS: 94-233 Leonui St. — TEL. NO. 6710551
BUILDING CONTRACTOR: L.Kuwasaki — STATE LIC. NO. BC964
ADDRESS: 94-233 Leonui St, — TEL. NO.
ELECTRICAL CONTRACTOR — STATE LIC. NO. BC-1670
ADDRESS: Ace Electric — TEL. NO.
PLUMBING CONTRACTOR — STATE LIC. NO. C-7847
ADDRESS: State Wide Plumbing-Spencer — TEL. NO.
ESTIMATED COST OF MOVING — ESTIMATED VALUE OF REPAIRS & ALTER.
PRESENT USE OF BUILDING: dwelling
USE AFTER RELOCATION: dwelling
DIMENSIONS OF BUILDING (FT.): LENGTH 40 — WIDTH 32 — HEIGHT ON TRUCK 16
PROPOSED ROUTE OF TRAVEL: Kam Highway, Ashley, Waialua Beach Rd. Laaupaina St - to destination

SCOPE OF WORK
- [x] MOVING
- [ ] ALTERATION
- [ ] ADDITIONS, FENCE, ETC. (DESCRIBE IN FULL)
- [x] POSTING
- [x] PLUMBING
- [ ] REPAIRS
- [x] ELECTRICAL

moving portion of dwelling

SIDEWALK, CURB, AND DROP DRIVEWAY — Existing
CONSTRUCT / RECONSTRUCT — LINEAL FEET OF: ☐ CONC. ☐ A.C. SIDEWALK* ☐ LAVA ROCK ☐ CONC. CURBING* ☐ R.C. ☐ A.C. DRIVEWAY*
*PLEASE NOTIFY THIS OFFICE AT LEAST 24 HOURS BEFORE STARTING WORK. PHONE: 546-7098

SEWAGE DISPOSAL ☐ NEW ☐ EXISTING ☐ NOT APPLICABLE
METHOD
1 ☐ PUBLIC SEWER 2 ☐ AEROBIC UNIT 3 ☒ CESSPOOL
☐ PRIVATE SEWAGE TREATMENT PLANT
☐ OTHER (SPECIFY)

I HEREBY ACKNOWLEDGE THAT I HAVE READ THIS APPLICATION AND STATE THAT THE ABOVE IS CORRECT AND AGREE TO COMPLY WITH ALL CITY AND COUNTY ORDINANCES AND STATE LAWS REGULATING BUILDING RELOCATION AND CONSTRUCTION.

SIGNATURES — DATE
MOVING CONTRACTOR: [signature]
BUILDING OWNER: [signature]
LANDOWNER OR LESSEE: [signature]
AGENT, PRINT NAME — AGENT'S TEL. NO.

RELOCATED BLDG.

ZONE	SEC.	PLAT	PARCEL	LOT NO.	LOT AREA
6	8	9	10	16	12,287 SQ. FT.

ACCEPTED VALUE OF WORK $4,025.00 — PERMIT FEE $18.40 — DISTRICT: WAIALUA
TYPE OF CONSTRUCTION: MINIMUM V-N — ACTUAL V-N — NO. OF STORIES: 1 — FIRE ZONE: 3
OCCUPANCY GROUP: dwelling
FLOOR AREA (SQ. FT.): EXISTING — NEW — TOTAL

PRESENT BLDG.	ZONE	SEC.	PLAT	PARCEL	LOT NO.
	5	6	1	2??	253

REMARKS: Police Escort Req'd
2nd - Exmpt. SF DWG.
Dwelling - Water granted

ZONE (USE DISTRICT): R-6 — SET BACK: NONE
GP OR DLUM DESIGNATION: RES — SHORELINE S/B: YES

APPROVAL OF OTHER AGENCIES (ROUTE AS INDICATED)

AGENCY	SIGNATURE	DATE
CITY AND COUNTY		
✓ LAND UTILIZATION DEPT.	[signature]	8/10/7?
✓ DIV. OF ENGINEERING		
LOT GRADING	[signature]	8/1?
HIGHWAY		
DRAINAGE		
DIVISION OF SEWERS		
✓ TRANSP. SERVICES DEPT.	[signature]	8/10
✓ BD OF WATER	PRIVATE SYSTEM	

APPROVED ROUTE OF TRAVEL

☐ MOVING PERMIT NOT REQUIRED ☒ BLDG. MUST BE CUT INTO 2 SECTIONS
☐ MAY BE MOVED INTACT

✓ POLICE DEPT.	[signature]	8-17-7?
✓ DEPT. OF FINANCE	[signature]	8-23-7?

SECURITY DEPOSIT FOR
(A) RESTORATION ☐ NOT REQUIRED ☒ REQUIRED $4,025.00
(B) DAMAGES ENROUTE ☐ NOT REQUIRED ☒ REQUIRED $ Revolving

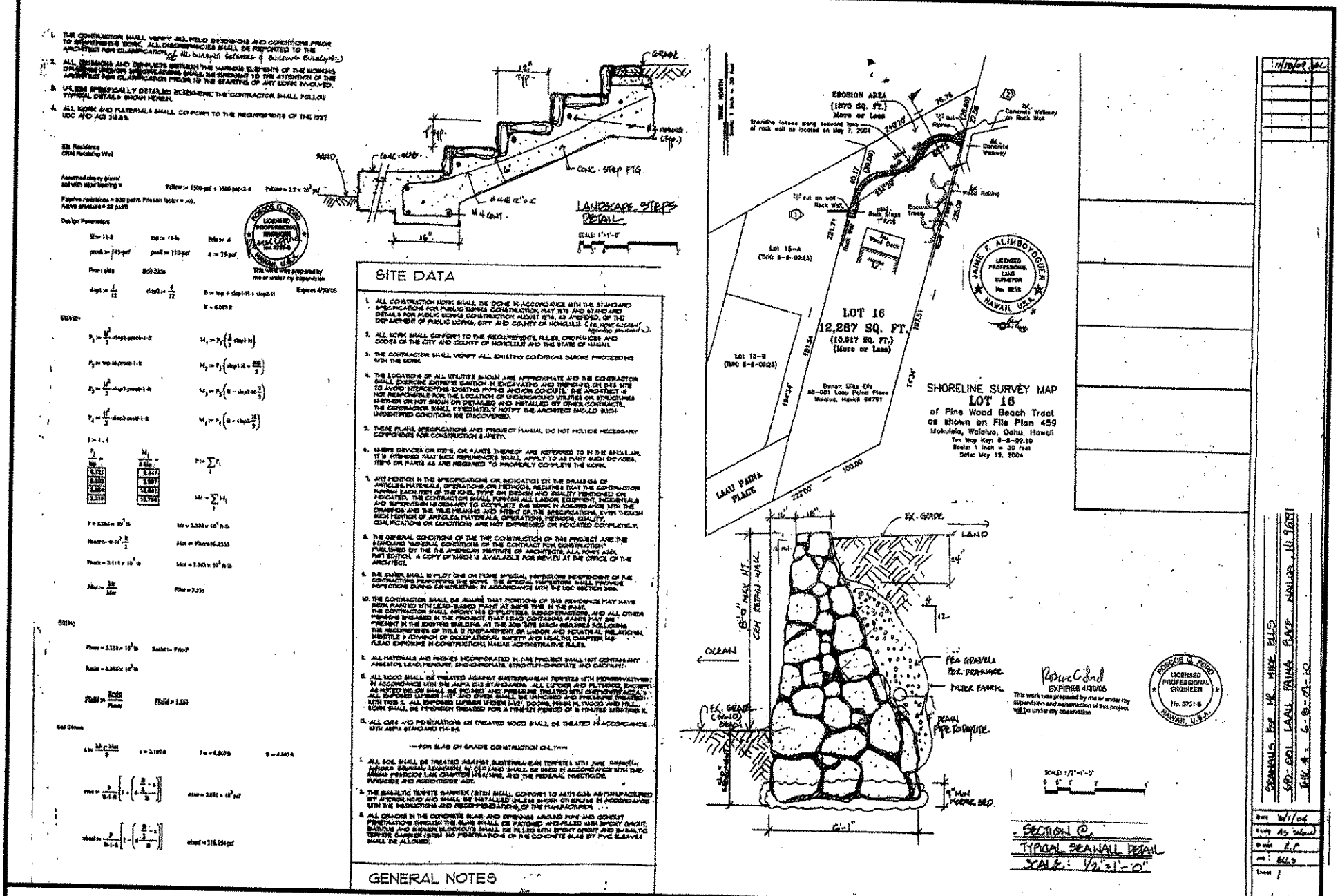
STATE OF HAWAII		
✓ HIGHWAYS DIVISION	[signature]	8/11/?
LAND & NATURAL RESOURCES		
✓ HEALTH DEPT.		

Permission is hereby given to do above work according to conditions hereon and according to approved plans and specifications pertaining thereto, subject to compliance with ordinances and laws of City and County of Honolulu and State of Hawaii.

This building shall not be occupied until a certificate

[signature] 8/23/71

APPENDIX B



***REVISED AS OF DEC 01 2004* - Appendix B**

ELLS MOKULEIA SEAWALL – CALCULATIONS AND SECTIONS (full size copy available upon request)

68-001 Laau Paina Place, Waialua, Oahu, Hawaii

APPENDIX C

Coastal Engineering Assessment of Existing Seawalls at Mokuleia Oahu, Hawaii

TMK: 6-8-9:010 and 011

Prepared for:

Bruce Clements
68-003 Laau Paina Place
Waialua, Hawaii 96791

and

Michael Ells
68-001 Laau Paina Place
Waialua, Hawaii 96791

Prepared by:

EKNA Services, Inc.
615 Piikoi Street, Suite 300
Honolulu, Hawaii 96814
(EKNA Control No. 2439-00R#)

April 2004

Coastal Engineering Assessment
of Existing Seawalls at Mokuleia
TMK: 6-8-9:010 and 011

1. LOCATION AND PROBLEM IDENTIFICATION

The project site is located along two (2) contiguous parcel shorefronts at Mokuleia, at 68-001 and 68-003 Laau Paina Place (TMK: 6-8-09:010 and 011). Figure 1 shows the general site location and Figure 2 provides the Tax Map Key.

Both properties are protected by existing seawalls, that were constructed because of ongoing long-term erosion along this shorefront. The seawalls were constructed without obtaining a building permit and Shoreline Setback Variance. In accordance with Ordinance No. 92-34 and the Shoreline Setback Rules and Regulations of the City and County of Honolulu, this coastal engineering assessment is prepared in support of an application for a Shoreline Setback Variance for the existing seawalls at the two subject parcels.

The shoreline fronting this site is a narrow beach underlain with reef limestone that extends seaward as a variable depth reef platform. The site is exposed to winter North Pacific swell and the predominant tradewind waves. Shallow fringing reefs protect the shoreline from moderate tradewind wave energy. However, during large winter swell conditions and high water levels, erosion of the narrow beach and wave runup and overtopping of the beach cause erosion damage and flooding to unprotected backshore areas and dwellings. Numerous property owners along this coastal reach have constructed shore protection to prevent further storm wave runup damage to their dwellings. The subject property owners desire to retain the seawalls to prevent future erosion and wave runup damage to their dwellings.

2. SHORELINE CHARACTERISTICS AND COASTAL PROCESSES

The project site lies on the Mokuleia coast, characterized as an undulating coastal reach containing numerous embayed coral sand beach systems. The project site is situated in one such embayment near the east end of the Dillingham Airfield. This particular embayment is formed between two prominent reef "headlands", which are shallow reef formations that protrude seaward from shore. The reef headland which bounds the eastern end of this embayment fronts the Mokuleia Beach Colony, just to the west of the Mokuleia Polo Grounds. The two subject parcels are on the west side of the Mokuleia Beach Colony.

A site visit was conducted on April 9, 2004 during a low tide (0.0 MLLW[1]), moderate North Pacific swell conditions (3-5 foot surf), and strong tradewinds. The reef headlands were not bared, but were noticeably shallower than the reef fronting the central portion of the embayment. Breaking wave activity was evident across the entire bayfront. While not observable from shore, a review of aerial photos shows calm areas between breaker zones that indicate the deeper "channels" through the reefs fronting the embayment.

Photo page-1 shows the approximately 350-foot long seawall fronting the Mokuleia Beach Colony on the east side of the project site. The narrow and steep beach fronting this parcel is a "wet" beach, meaning that during high tide, the wave uprush reaches the seawall. Photo page-2 shows the subject Parcel 10 curvilinear seawall that ties into the Mokuleia Beach Colony's seawall. Photo page-3 shows the subject Parcel 11 seawall that is largely obscured from sight by the naupaka vegetation. This seawall ties into Parcel 10's seawall on the east side, and extends landward along the western boundary of the parcel for about 20 feet. Debris fronting the subject Parcel 11 shorefront indicates that wave uprush during high tide frequently reaches the existing wall. A privately-owned right-of-way is adjacent to subject Parcel 11 (the right-of-way is jointly owned by the property owners on Laau Paina Place and is not open to the public).

Photo page-4 shows the parcels westward to the stream. The parcel on the west side of the right-of-way (Parcel 12) is obscured by naupaka vegetation, and the adjacent parcel (Parcel 13) is fronted by a CMU wall. The large parcel on the east side of the stream (Parcel 20) is unprotected. Photo page-5 shows the stream and adjacent shoreline reach to the west. The parcel on the west side of the stream mouth shows obvious erosion damage, and a nearly continuous line of seawalls protect the remaining shoreline within the embayment.

A 1995 shoreline survey[2] indicates that the top-of-wall elevation on Parcel 11 is about +10' MSL and the base of the wall (top of beach) is about +6.0 to +6.5' MSL. The adjacent Parcel 10 top-of-wall elevation is the same, however, the base of the wall is ½ to 1 foot lower (because of the narrower beach front). The top-of-beach elevation fronting the adjacent three parcels to the west is probably on the order of +8' to +9' MSL.

---

[1]Honolulu low tide was at noon at -0.2' MLLW, and high tide was at 8:07 pm at +2' MLLW. Based on corrections for Waialua Bay, low tide was estimated to occur at 10 am at the site. The site visit was conducted 09:00 - 09:30 am.

[2]Survey by DJNS Surveying & Mapping, Inc., performed January 18, 1995 and submitted for shoreline certification.

It is apparent that during high tide, wave uprush reaches the base of the existing seawalls. During storms and large winter swell conditions, wave runup and overtopping of the beach likely causes flooding and sand transport into the properties that are not protected by seawalls. There is no evidence that the existing seawalls are accelerating erosion problems at the site. There is no indication of excessive escarpment or landward retreat of the unprotected shoreline directly adjacent to the Parcel 11 seawall. The beach profile is uniform along this entire shoreline reach. These factors indicate that the existing seawalls have had no adverse effects on existing beach processes.

This coastal reach is exposed to winter North Pacific swell and predominant tradewind-generated waves. The shallow reefs which surround the embayment provide much sheltering of the project site from deepwater wave energy. These reefs dissipate nearly all wave energy during typical tradewind-generated wave conditions. During large winter swell activity, waves initially break on the surrounding reefs where most of their energy is spent. What little energy remains propagates to shore as reformed waves which break on the shoreline. The wave energy that can reach the shoreline is limited by the water depths over the reefs and the channels through the reef. Deeper water depths over the reefs allow greater transmission of wave energy. During large swell activity, waves breaking over the reefs can cause a rise in water level known as wave setup. The increased water levels allow more wave energy to be transmitted over the reef. Thus, wave activity at the shoreline is greatest during large swell or storm wave conditions and during high tides.

The super-elevation in water level during large swell activity will allow waves to attack the shoreline at higher elevations on the beach. This is also aggravated during high tide conditions. Thus, the conditions which promote wave overtopping problems for unprotected parcels occur during large winter swell activity, as confirmed by residents. Typical tradewind waves are not capable of causing appreciable wave setup and very little wave energy reaches this shoreline reach.

Normally along an exposed coastal reach, wave energy is the primary factor which drives nearshore currents in the surf zone. Waves approaching the shore at an angle will induce longshore currents and transport of beach material alongshore in the direction of breaking. The large winter North Pacific swell approaches this coastal reach from the northwesterly direction. Therefore, it may be expected that longshore currents and longshore transport during winter swell activity would be towards the easterly direction at the project site. However, the shallow reefs surrounding the site considerably alter the deepwater wave characteristics within the embayment, resulting in possibly complex patterns of wave approach along the shoreline. According to a prior report by the author, residents have noted that shoreline currents within the embayment flow towards the west during high

winter swell activity. This flow may be primarily hydraulically driven due to the bathymetric contours within the embayment rather than wave-driven. The water which accumulates within the embayment during large swell or storm wave activity seeks to flow towards areas of hydraulically least resistance. Thus, the water drains towards deeper areas within the embayment. Deeper water depths exist on the west side of the embayment.

The shallow reef structure offshore the eastern headland (fronting the project site) is broader and extends further into the embayment than the shallow reef structure offshore the western headland. This reef structure offshore the eastern headland appears to gradually deepen towards the stream mouth, at which point the reef structure becomes less distinct and the reef bottom is mottled with sand cover throughout the western half of the embayment. There is an apparent "channel" through the offshore reef near the western end of the embayment. Thus, it is postulated that during large winter swell activity, setup in water level due to breaking waves on the broad shallow reef areas on the eastern end of the embayment induces flows towards the deeper central and west portion of the embayment. The channel through the surrounding reef at the west end of the embayment then allows the water to escape seaward through the opening in the surf zone. This hydraulically-driven circulation is probably the basis for the westerly-flowing shoreline current that residents have noted.

If the shoreline flows are strong, they have the potential to carry wave-suspended shoreline sediments offshore into the deeper reaches of the embayment and seaward of the surrounding reef as the shore-parallel flows are diverted seaward through openings in the shallow reef. Such sediments may be deposited in water depths too deep for normal wave activity to return it to the beach. The history of long-term erosion of this coastline is evidence that such permanent loss of beach material occurs.

While net long-term erosion is evident, residents also indicated that seasonal fluctuation of beach width occurs. According to the residents, there is a pattern of erosion along the eastern part of the embayment during the winter, with restoration of the beach width during the summer. Conversely, for the shoreline reach towards the western part of the embayment, there is a pattern of erosion during the summer and restoration during the winter. Because water depths in the central part of the embayment are too deep for transmitted wave energy to move sediments back to shore, the seasonal fluctuation of beach width is presumably due to longshore transport of sediments from the shoreline and shallow nearshore areas around the headlands. Figure 3 depicts the probable seasonal transport processes.

During high winter northwest swell activity, a depression in the surrounding reef at the

northwestern end of the embayment can permit substantial wave energy to enter the embayment and attack the eastern shoreline reach, while the shallow reefs fronting the western headland shelter the adjacent westerly shoreline reach within the embayment. The direction of wave breaking on the shallow westerly reef, however, can transport sediments from the shallow reef and shoreline areas around the point and into the embayment.

During strong northeasterly tradewind wave conditions which can occur during the summer months, a depression in the surrounding reef at the northeastern end of the embayment can permit substantial wave energy to enter the embayment and attack the western shoreline reach, while the shallow reefs fronting the eastern headland shelter the adjacent easterly shoreline reach within the embayment. The direction of wave breaking on the shallow easterly reef, however, can transport sediments from the shallow reef and shoreline areas around the point and into the embayment.

For this coastal area, and for most coastal areas in the state, the general trend is toward continued long-term erosion. There is no evidence that the long-term erosion trend along this coastal reach will reverse in the future.

3. POTENTIAL LITTORAL IMPACTS

The existing seawalls have no effect on the existing littoral processes at this site. The seawalls are functionally consistent with existing seawalls along this coastal reach. The existing seawalls do not alter seasonal erosion/accretion patterns. There is no evidence that the seawalls have caused aggravated erosion to the adjacent unprotected parcels. This entire coastal reach has been experiencing net long-term erosion over the past 50 years. There is a continuing high risk of erosion and flooding damage due to overtopping waves to unprotected properties.

The seawalls do not affect lateral access along the beach. While the seawalls do not affect longshore sediment transport processes, there may be some concern that cross-shore transport may be affected because of wave reflection from the near-vertical impermeable face of the seawall. It is been a generally held presumption that the more reflective the structure, the greater the potential for adverse impacts by discouraging sand accumulation in front of the structure. However, given the fact that beach and shoreline erosion is continuing to occur along this coastline and elsewhere where there are no shore protection structures, it can be concluded that the long-term erosion trend is a natural process that will certainly not reverse simply by constructing shore protection structures with a sloping porous surface. In fact, long-term field studies by the University of California at Santa

Cruz[3], sponsored by the U.S. Army Corps of Engineers, found no significant difference in impact to the beach fronting a sloping rip-rap revetment and an adjacent vertical concrete seawall. Field studies conducted by EKNA Services, Inc. (formerly Edward K. Noda and Associates, Inc.) at Aliomanu, Kauai, also demonstrated that seasonal cross-shore transport is unaffected by an existing seawall. Monitoring of beach profiles over a four month period (July-October 1996) showed that seasonal beach accretion (increase in beach width) occurred in front of the near-vertical seawall as well as on the adjacent unprotected beach.

The erosion that is occurring along the Mokuleia shoreline can be described as "passive" erosion (in contrast to "active" erosion which is induced or accelerated by shore protection structures). When a protective structure is built along an eroding shoreline and erosion continues to occur, the unprotected shoreline adjacent to the structure will continue to erode and eventually migrate landward beyond the structure. The result will be loss of beach in front of the shore protection structure as the water deepens and the shoreface profile migrates landward. This process is designated as passive erosion and is the result of fixing the position of the shoreline on an otherwise eroding stretch of coast, and is independent of the type of shore protection constructed. This is the most common result of shoreline hardening in Hawaii, and is the probable long-term consequence of the existing seawalls at Mokuleia.

4. CONSIDERATION OF ALTERNATIVES

Removal of the existing seawalls is not a viable alternative, since the improvements presently existing on the parcels would be susceptible to erosion and wave damage. The

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[3]Because increased development in coastal areas has led to increased "hardening" of shorelines in response to net long-term shoreline erosion, there is an increased concern of coastal planners to the potential impacts of seawalls and/or revetments on beaches and shorelines. Even within the scientific and engineering community, controversy exists on whether seawalls and/or revetments are adverse and promote erosion. Because of the lack of sufficient field data to objectively resolve the controversy, the U.S. Army Corps of Engineers sponsored studies, beginning in the later 1980s, to monitor beach response to seawalls and revetments at several study sites. The following references describe the results of the monitoring:

U.S. Army Engineer Waterways Experiment Station, Coastal Engineering Research Center, Coastal Engineering Technical Note, CETN III-46 (3/92), CETN III-57 (6/95).

Griggs, G.B., J.F. Tait, K. Scott, N. Plant (1991), "The Interaction of Seawalls and Beaches: Four Years of Field Monitoring, Monterey Bay, California", Proceedings Coastal Sediments '91.

Griggs, G.B., J.F. Tait, W. Corona (1994), "The Interaction of Seawalls and Beaches: Seven Years of Monitoring, Monterey Bay, California", Shore and Beach 62:21-28.

houses on both parcels are situated within about 15 feet at their closest point from the top of the seawalls. Replacing the seawalls with a sloping revetment structure is also not a viable option because of the limited land area between the building improvements and the existing seawalls. As well, there is no reason to expect that a revetment would halt the ongoing erosion along this coast.

Large geotextile bags filled with sand have been used as temporary erosion control measures at several coastal erosion hot spots over the past years, most notably the Lanikai area. Large bags such as SEAbags[4] have been used for emergency shore protection in Lanikai for the last 10 years. The bags are prone to damage from storm wave attack and vandalism, require frequent and continual maintenance, and cannot be considered a permanent protection measure. Sand bags are considered "environmentally benign" because the color and texture of the fabric blends in with the beach, and they can be easily removed by simply cutting the bags to release the sand contents. However, they are not "soft" structures in their as-built state. In fact, the large sand bags are solid, hard building materials when fully filled, and a sand bag revetment structure is more reflective than a rock revetment. Although the bag material is permeable (meaning that water will pass through the bag material), once the bags are filled and stacked to form a structure, the overall porosity (ratio of void space to hard surface) of the structure is very low on the time scale of wave impact. Therefore, because there are few voids between the stacked bags, wave energy is more readily reflected rather than dissipated within the structure slope as would be for a rock revetment. Another potential concern is that bags that are below the water line or within the tidal/swash zone become very slippery because of algal growth, and pose a safety problem where people can slip and injure themselves. Even newly installed bags with no algal growth can be slippery because of the smooth surface of the bag material.

Beach restoration and nourishment is commonly cited as a preferred alternative to protecting eroding shorelines and beaches. Unfortunately, this alternative is costly (due to lack of suitably large quantities of natural beach sand to serve as a commercial source of material) and not an economically viable alternative for individual residential property owners. Beach nourishment would be required for a long stretch of shoreline reach extending beyond the subject parcels, since wave energy will quickly redistribute small quantities of beach material unless beach containment structures (such as groins) are built to confine the beach fill fronting individual parcels or short stretches of shoreline. If no structural measures are built to stabilize the beach fill, periodic nourishment would likely

[4]Trade name for large sand bags from Bulk Lift International, designed for beach erosion protection.

be required. Beach restoration and nourishment, in general, is difficult to design and maintain as a "shore protection" alternative. For the beach to provide adequate protection during storm wave events, it must have adequate beach width, elevation, and length along the entire shoreline reach within the defined littoral cell. The large quantities of suitably coarse natural beach sand required for major beach restoration/nourishment projects are not readily available in Hawaii. As a matter of fact, the government agencies that have responsibility for our recreational beach resources can rarely afford to perform major beach nourishment for public beach parks or publicly accessible beach areas.

While not an erosion control measure, relocating the existing building improvements on the parcels is considered a temporary measure to prevent or mitigate damage to the dwellings. Erosion is expected to continue along this coastline, leading to continued loss of properties that are not protected. While it is not possible to predict the "serviceable" life of any beachfront property, it is a reasonable certainty that properties that are not protected from erosion damage will eventually be lost to the sea.

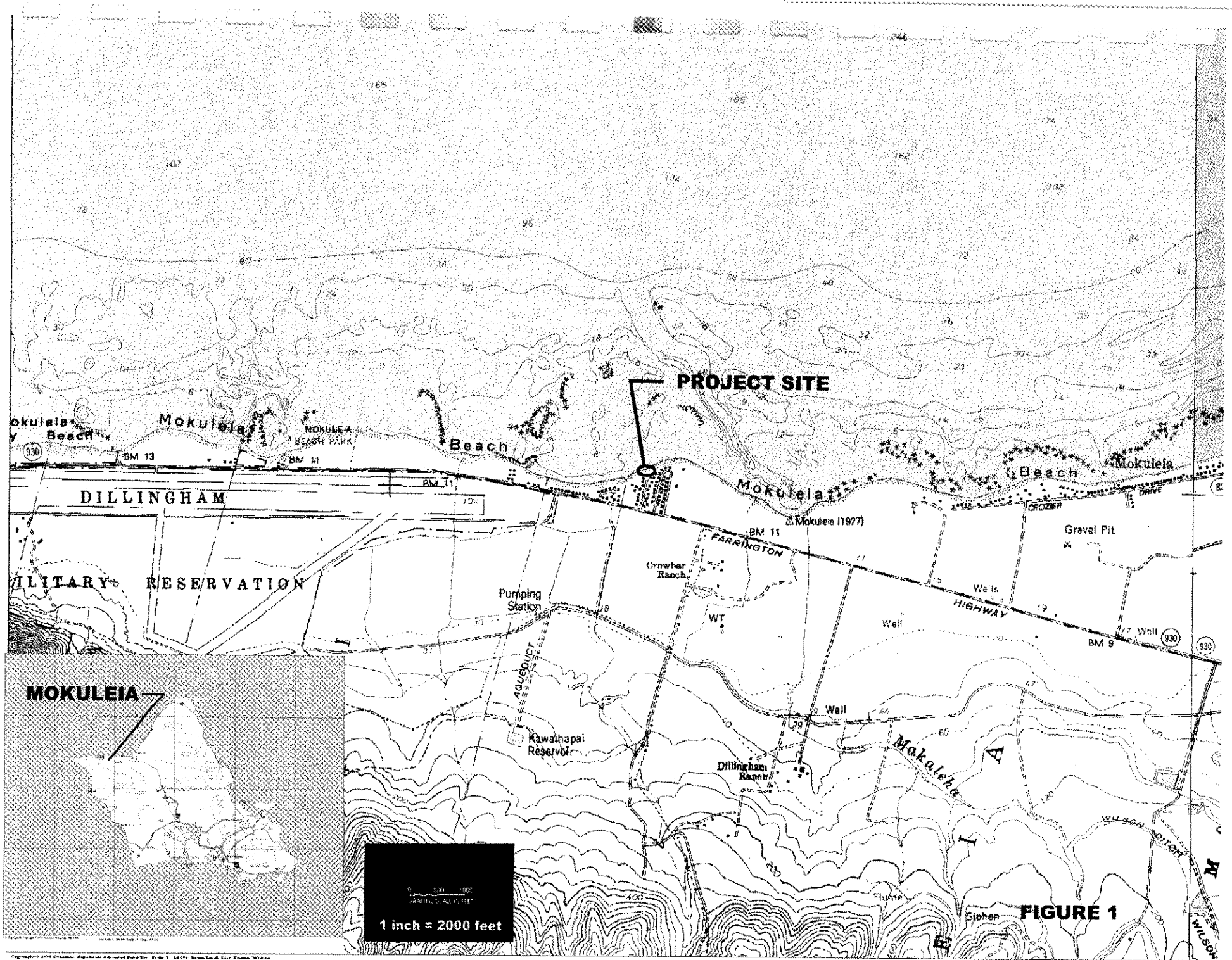
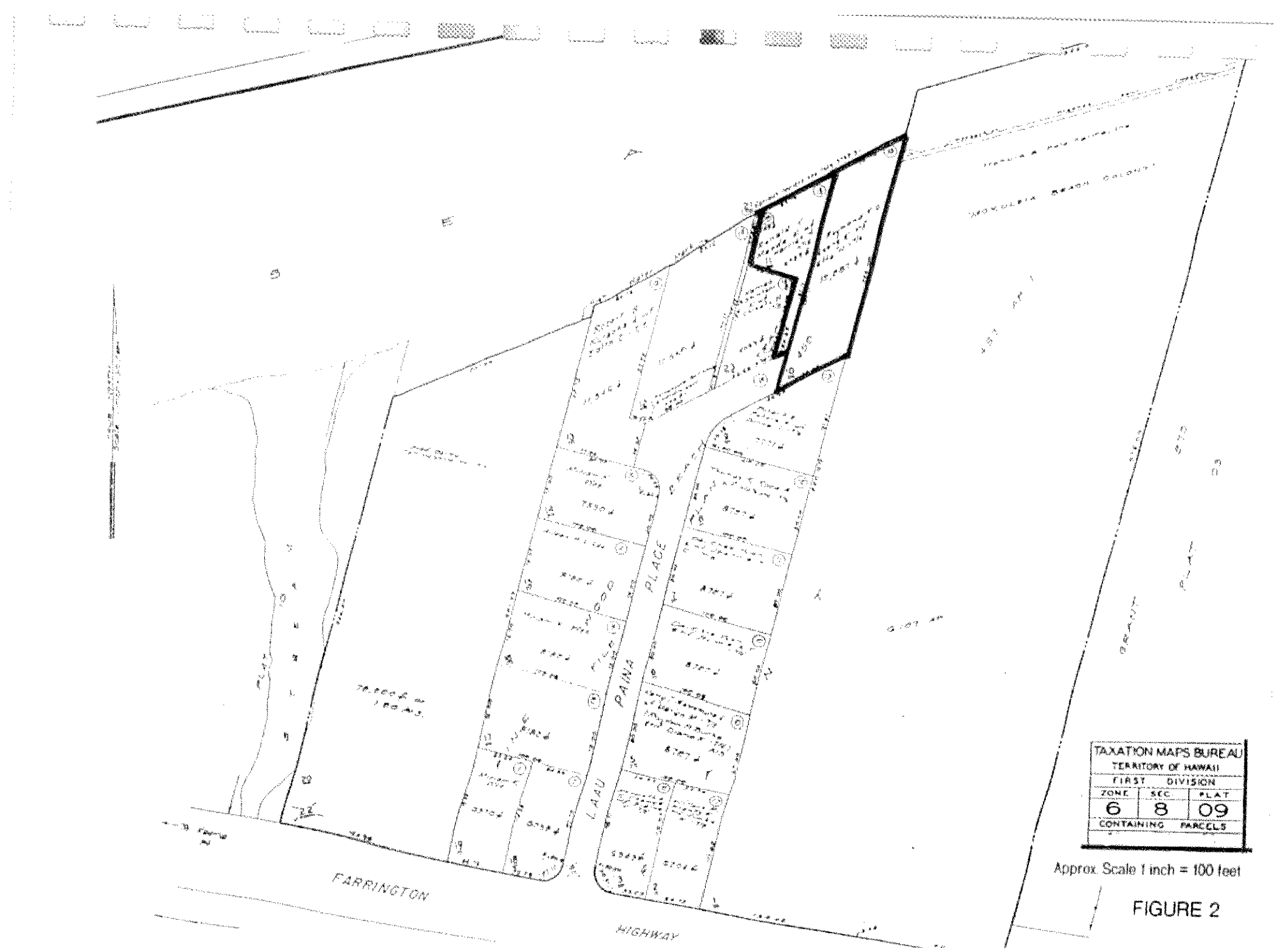
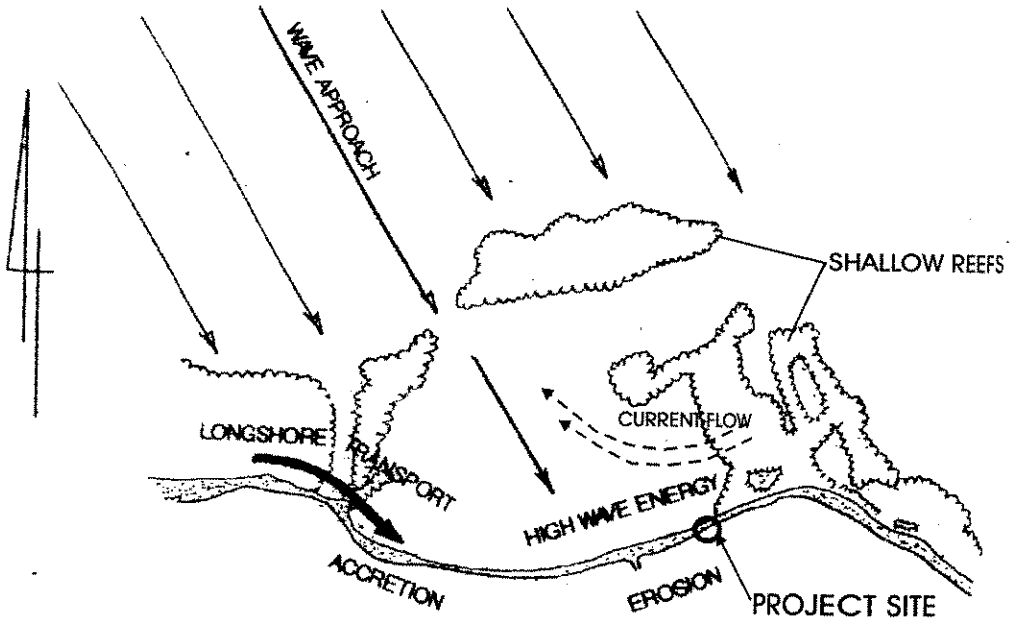

PROJECT SITE
MOKULEIA
1 inch = 2000 feet
Mokuleia Beach
MOKULEA BEACH PARK
DILLINGHAM
MILITARY RESERVATION
FARRINGTON HIGHWAY
Mokuleia (1927)
Gravel Pit
Pumping Station
Crowther Ranch
Kawaihapai Reservoir
Dillingham Ranch
Makaleha
AQUEDUCT
Well
WT
Flume
Siphon
WILSON
BM 13
BM 11
BM 9

FIGURE 1

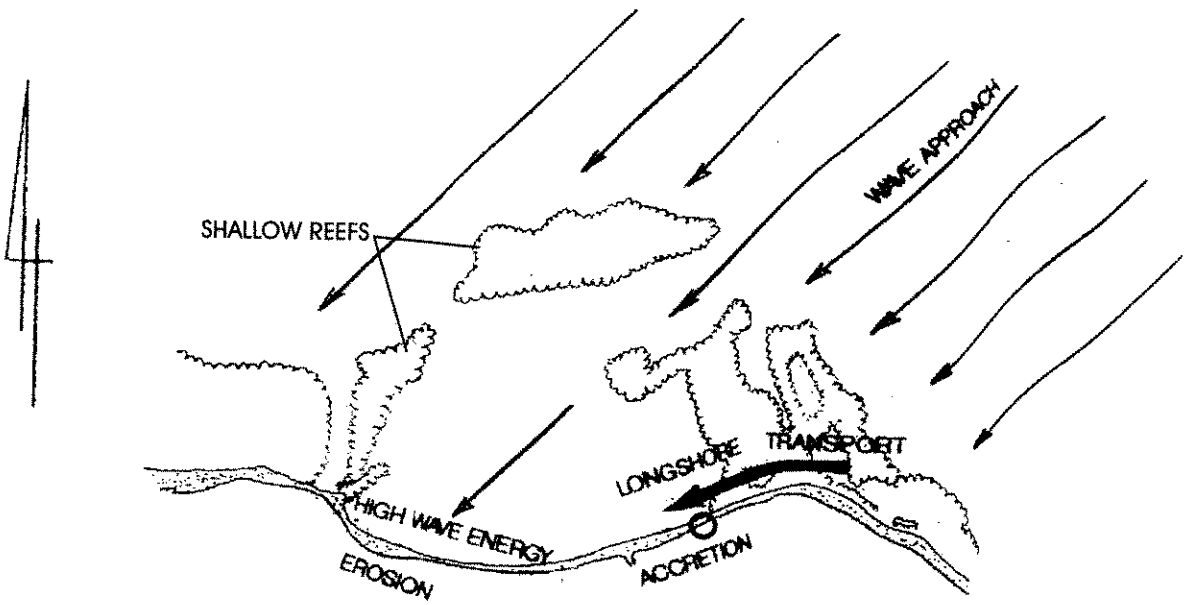


Approx. Scale 1 inch = 100 feet

FIGURE 2



WINTER NORTHWEST SWELL CONDITIONS



SUMMER NORTHEAST TRADEWIND CONDITIONS

FIGURE 3

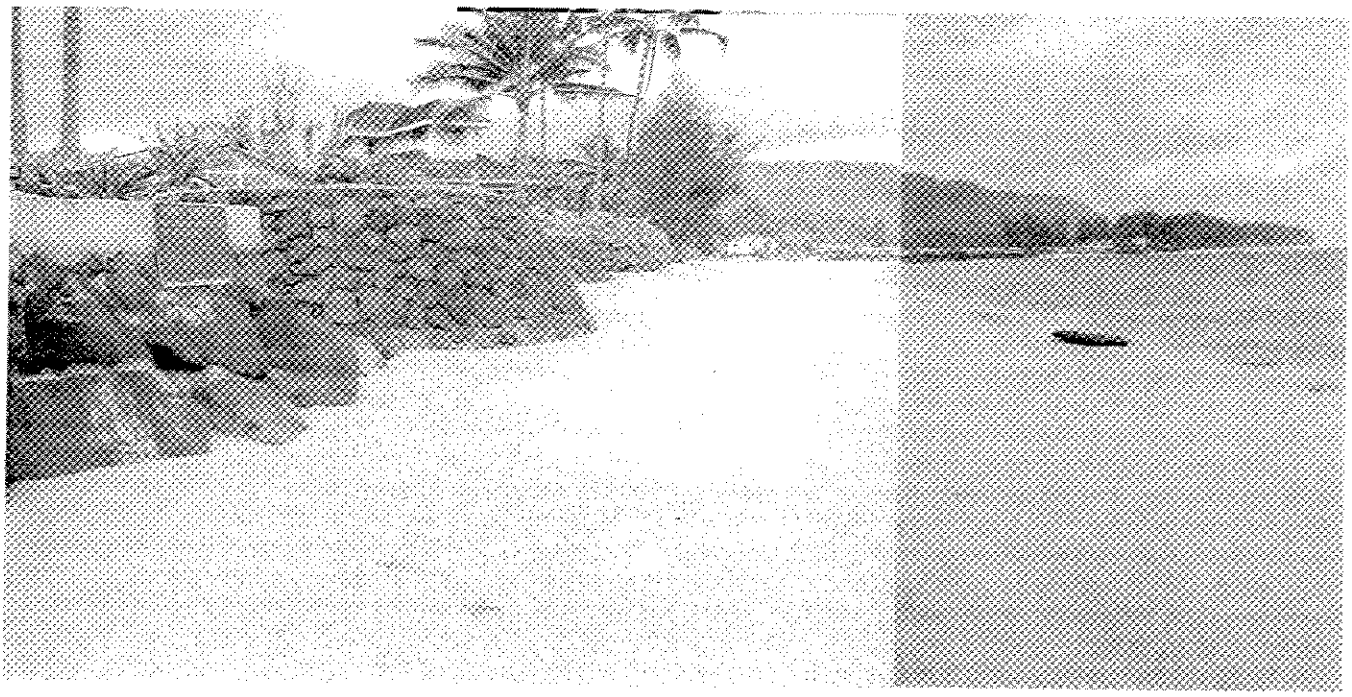
View eastward along the top of the seawall fronting the Mokuleia Beach Colony. Note the narrow beach.

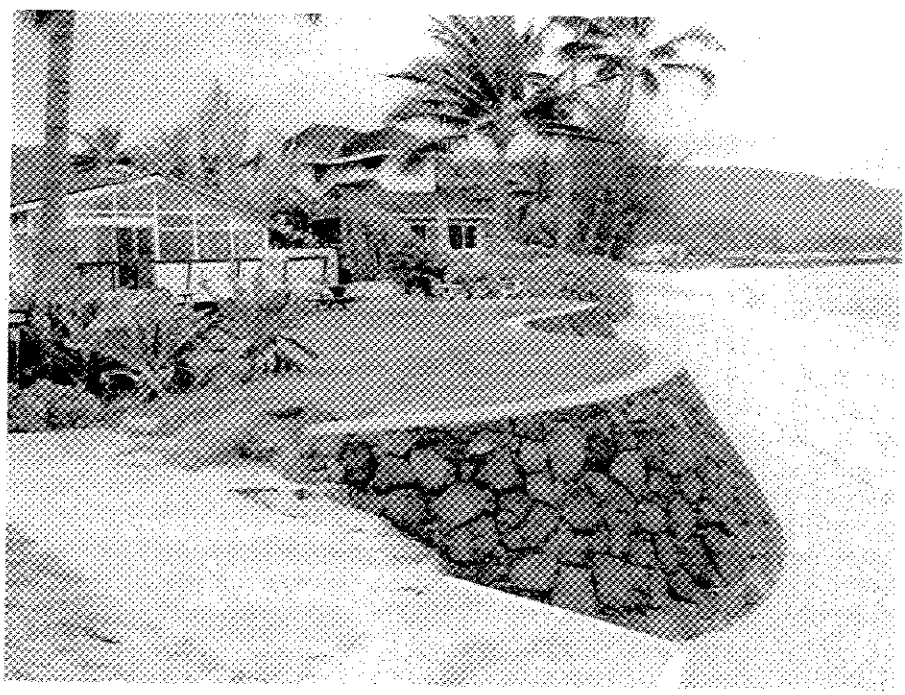
View eastward along the beach fronting the Mokuleia Beach Colony seawall. Note the narrow and steep beach profile.

View offshore Parcel 10. Note the shallow reef and wave angle at the shoreline indicating eastward longshore transport.

Winter North Pacific swell were causing breaking waves across entire embayment.

MOKULEIA
PHOTO DATE 4-9-04
TIME 09:15 AM
TIDE APPROX. 0.0 MLLW





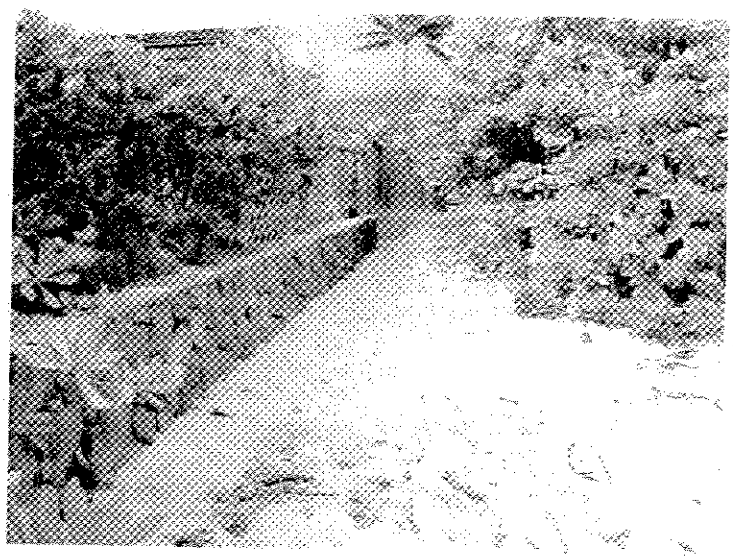
Views westward from west end of Mokuleia Beach Colony seawall. Parcel 10 is in the foreground. Parcel 11 is next to Parcel 10. (Sign is on the west end of the Mokuleia Beach Colony seawall. The sign permits the public to walk on the top of the seawall.)

MOKULEIA
PHOTO DATE 4-9-04
TIME 09:15 AM
TIDE APPROX. 0.0 MLLW

View westward from porch on Parcel 11.

View offshore from porch on Parcel 11. Steps in seawall lead down to the beach.

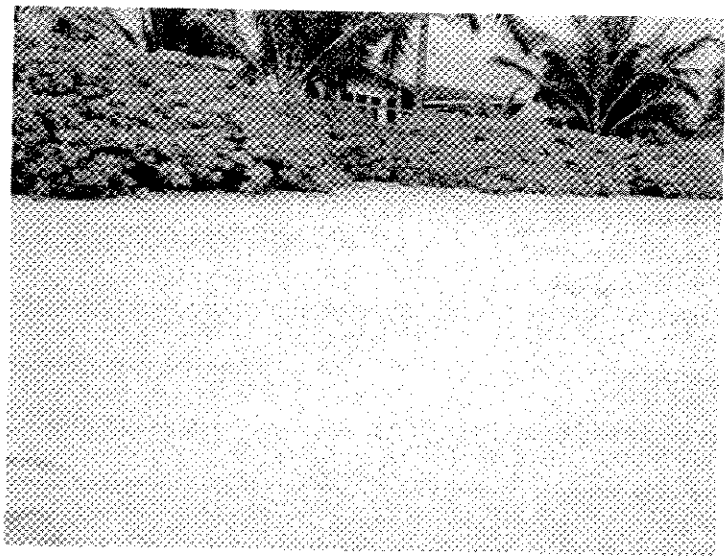
View of Parcel 11 seaward frontage. Seawall is hidden by naupaka vegetation. Curved seawall on left fronts Parcel 10.



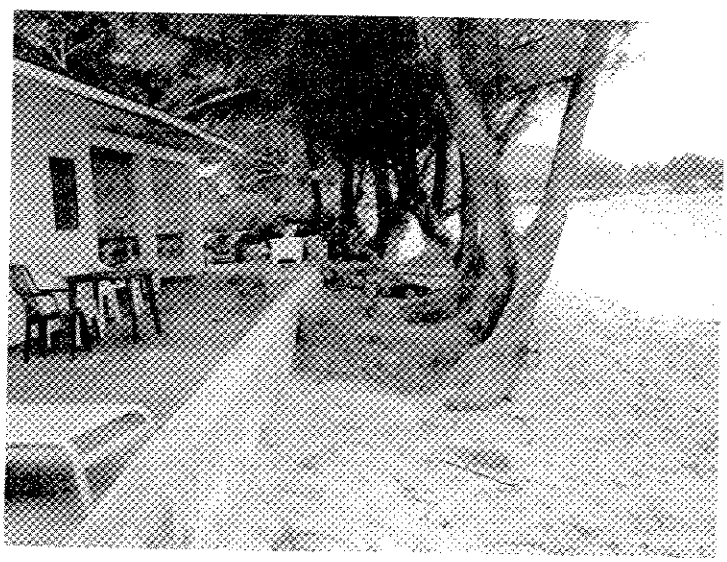
View mauka along private right-of-way. The CRM wall on left is Parcel 11's return wall.

MOKULEIA
PHOTO DATE 4-9-04
TIME 09:00 AM
TIDE APPROX. 0.0 MLLW

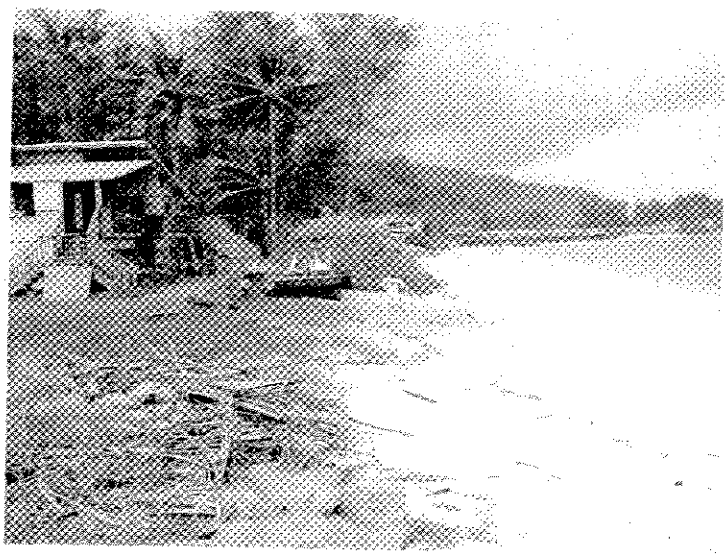
View westward from private right-of-way. Naupaka vegetation fronts Parcel 12.



Naupaka vegetation fronting Parcel 12 on west side of private right-of-way.



CMU wall fronts Parcel 13 .



Shoreline fronting Parcel 20 on east side of stream. Note debris line at edge of vegetation.

MOKULEIA
PHOTO DATE 4-9-04
TIME 09:25 AM
TIDE APPROX. 0.0 MLLW

View westward from stream mouth. Note eroded condition of embankment on west side of the stream. Continuous line of seawalls protect entire central shore frontage within the embayment.

MOKULEIA
PHOTO DATE 4-9-04
TIME 09:30 AM
TIDE APPROX. 0.0 MLLW

APPENDIX D

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 26, 2004
OA-992ALIMBOYOGUENSLAPP-REJ

LD-NAV

Jaime F. Alimboyoguen, LPLS
92-324 Kewai Place
Kapolei, Hawaii 96707

Dear Mr. Alimboyoguen:

Subject: APPLICATION FOR SHORELINE CERTIFICATION REJECTED
Applicant: Jaime F. Alimboyoguen /Mike Ells
Island: Oahu, - District: Mokuleia, Waialua-TMK: 1st/ 6-8-09: 010

Please be informed that your application for certification of the shoreline for the subject property is rejected pursuant to Chapter 13-222-7(i) Hawaii Administrative Rules. By letter dated August 4, 2004 (copy attached), the State Land Surveyor notified our office that your client did not provide a copy of all documents supporting that the rock wall and riprap along the proposed shoreline have been approved by the appropriate governmental agencies or is exempt from such approval as required by Section 13-222-7(b)(14) Hawaii Administrative Rules.

Hawaii Administrative Rules Chapter 13-222-7(b)(14) states: "If the shoreline is being located at the base of a manmade structure, a copy of all documents supporting that the structure has been approved by the appropriate governmental agencies or is exempt from such approval."

You should contact both the City and County of Honolulu, Department of Planning and Permitting located at 650 South King Street, Honolulu, Hawaii 96813 (808-523-4414) and the Office of Conservation and Coastal Lands located at 1151 Punchbowl Street, Room 131, Honolulu, Hawaii 86813 (808-587-0377), to determine whether the rock wall has been approved or is exempt.

Public Notice of this rejection is scheduled to appear in the September 8, 2004 Office of Environmental and Quality Control "The Environmental Notice" to allow for appeal. Please be informed that should you resolve the permit problem, you will need to submit another application for shoreline certification. If you have any questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at (808) 587-0384.

Very truly yours,

DIERDRE S. MAMIYA
Administrator

C: ODLO
C&CoH Dept. of Planning
and Permitting
OCCL

APPENDIX E

APPENDIX E

Justification for a Shoreline Setback Variance under Revised Ordinances of Honolulu Section 23-1.8 (3) "Hardship Standard"

The property owner will suffer hardship if the shoreline setback variance for the proposed seawall is not granted or if the seawall had to be removed. The application for such a variance fulfills the three criteria for hardship as set forth in ROH Sec. 23-1.8 (3) (A).

1. The applicant would be deprived of reasonable use of the land. The existing seawall was constructed in 1982-83 because of ongoing long-term erosion along this shorefront and in response to the damaging wave activity of Hurricane Iwa in 1982.

   If the applicant's existing seawall was not present, the property owner would very likely suffer severe erosion of the property and possible damage to the house due to storm waves, run-up and ongoing coastal erosion. The existing deck portion of the house is located at its closest point about 17 feet away from the shoreline along the existing seawall. The house was moved to its present location via a City approved Relation Building Permit No. 2081472 dated May 2, 1963. The property is zoned residential and erosion of the property would eventually threaten the existing house and other structures on the property, thereby depriving the applicant of reasonable use of the land.

   This need for protection against erosion is evident by the numerous existing seawalls in the vicinity of the project site. Many of those existing seawalls have received government approval, including the 2 properties on either side of the applicant's lot; the Mokuleia Beach Colony to the east and the Bruce Clements property to the west.

2. The applicant's proposal is due to unique circumstances. Documentation shows that the the Mokuleia coastline has been undergoing long-term coastal erosion for over the past 50 years. This variance request is due to the significant long-term erosion occurring at this section of the Mokuleia coast. Numerous other property owners along this embayment have built seawalls to protect their property and houses from erosion, and many of those walls have received government approval. The reason for this request is due to the property's unique location along a documented, long-term eroding shoreline.

3. The proposal is the practicable alternative which conforms best to the purpose of the shoreline setback regulations. The Coastal Engineering Assessment reviewed a number of alternatives to the proposal. Although beach nourishment is commonly cited as a preferred alternative, there are a number of drawbacks: it is extremely costly; sand would need to be brought in to a long stretch of shoreline – not just in front of the subject property; and periodic and on-going re-nourishment would likely be required. This would require a much larger action, permits and expenses than the applicant can reasonably bear. Such an effort is typically carried out on a large scale by government such as the U.S. Army Corps of Engineers. This is not the practical alternative for this single property owner.

   A sloping rock revetment is not a practicable alternative, though theoretically possible. It would create a 25-foot deep and 76-foot wide rock revetment along the shoreline. This would create a significant negative visual impact. Realistically, there is not sufficient land area between the house and the closest point of the shoreline, which is only 17 feet away from the deck portion of the house. Construction would be difficult and could place the applicant's residence at risk due to the amount of excavation and grading that would be required.

   As stated in the Coastal Engineering Assessment report, the existing seawall is functionally consistent with the other existing seawalls along this coastal reach. The applicant's proposal is the practicable alternative.