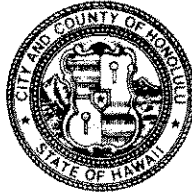


DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 768-8000 • FAX: (808) 768-6041
DEPT. WEB SITE: www.honolulu.gov • CITY WEB SITE: www.honolulu.gov

MUFI HANNEMANN
MAYOR



JUN 23 11:21

DAVID K. TANOUE
DIRECTOR

ROBERT M. SUMITOMO
DEPUTY DIRECTOR

2005/ED-21(AA)

June 5, 2009

The Honorable Katherine Puana Kealoha, Director
Office of Environmental Quality Control
State of Hawaii
State Office Tower, Room 702
235 South Beretania Street
Honolulu, Hawaii 96813

Dear Ms. Kealoha:

Subject: Chapter 343, Hawaii Revised Statutes
Environmental Assessment (EA)/Determination
Finding of No Significant Impact

Landowner/Applicant: Sutton Family Partners
Agent: Analytical Planning Consultants, Inc.
Location: 68-673 and 68-675 Hoomana Place - Mokuleia
Tax Map Key: 6-8-10: 14 and 15
Request: Shoreline Setback Variance
Proposal: To retain a concrete rubble masonry seawall and other structures within the shoreline setback.
Determination: A Finding of No Significant Impact is Issued

Attached and incorporated by reference is the Final EA prepared by the applicant for the project. Based on the significance criteria outlined in Title 11, Chapter 200, Hawaii Administrative Rules, we have determined that preparation of an Environmental Impact Statement is not required.

We have enclosed a completed OEQC Bulletin Publication Form and two copies of the Final EA. If you have any questions, please contact Ann Asaumi of our staff at 768-8020.

Very truly yours,

A handwritten signature in black ink, appearing to read "David K. Tanoue".

David K. Tanoue, Director
Department of Planning and Permitting

DKT:cs
Encls.

g:\posseworkingdirectory\ann\2005ed21oeqcfonsi.doc

FINAL ENVIRONMENTAL ASSESSMENT

SHORELINE SETBACK VARIANCE

TMK: 6-8-10: 014 and 015
68-675 and 68-673 Hoomana Place
Mokuleia, Oahu, Hawaii

ACCEPTING AUTHORITY:

City and County of Honolulu
Department of Planning and Permitting

PREPARED BY:

Analytical Planning Consultants, Inc.

July 2008

OEQC BULLETIN PUBLICATION FORM

Project Name: Shoreline Setback Variance for Improvements at 68-675 & 68-673 Hoomana Place, Mokuleia, Oahu, Hawaii

Type of Document (circle one): Draft EA, **(Final EA)** EIS prep notice, draft EIS, final EIS, NEPA
check if applicable: _____ revised document _____ supplemental document
Legal Authority: Chapter 343 HRS
Agency determination: Anticipated FONSI

Applicable sections:

- | | |
|--|--|
| <input type="checkbox"/> Use of state or county lands or funds | <input type="checkbox"/> Use of land in the Waikiki district |
| <input type="checkbox"/> Use of conservation district lands | <input type="checkbox"/> Amendment to county general plan |
| <input checked="" type="checkbox"/> Use of shoreline area | <input type="checkbox"/> Reclassification of conservation lands |
| <input type="checkbox"/> Use of historic site or district | <input type="checkbox"/> Construction or modification of helicopter facilities |

2. Island: Oahu
Judicial District: Honolulu
Tax Map Key Number: (1) 6-8-10: 015 and 014

3. Applicant or applicant agency:
Mr. Richard Sutton
Address: 737 Bishop Street, Mauka Tower #2400
Honolulu, HI 96813
Contact: Richard Sutton Phone: (808) 521-0502

Note for EAs:
When the applicant is a state or county agency, the applicant agency and approving agency are the same.

4. Approving Agency (EAs) or Accepting Authority (EISs):
City and County of Honolulu, Department of Planning and Permitting
Address: 650 South King Street
Honolulu, Hawaii 96813
Contact: Henry Eng, FAICP, Director Phone: 808-523-4432

5. Consultant: Analytical Planning Consultants, Inc.
Address: 928 Nuuanu Avenue Suite 502
Honolulu, Hawaii 96817
Contact: Don Clegg, President Phone: 808-536-5695

6. Public Comment Deadline: _____

7. Permits required prior to implementation: Shoreline Setback Variance, Minor Shoreline Structure Permit, Building Permits, Zoning Adjustment/Height Waiver

8. Project Summary (name of file): Sutton Shoreline Setback Variance

9. Public Library Copy: _____ (not required for final EAs)

10. This form was prepared by: Lauri Clegg Phone: 808-536-5695

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

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ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

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- 4A. Deleted – See Appendix C
- 4B. Deleted – See Appendix C
5. 1986 Department of Land Utilization Letter
6. 1998 and 1981 Photos – Subject Seawall and property
- 7A. Deleted – See Appendix C
- 7B. Deleted – See Appendix C
- 8A. As-Built Plans Parcel 015
- 8B. As-Built Plans Parcel 014
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10. Photos of Continuous Seawalls along embayment
11. Mokuleia Beach Loss – Historic Aerial Photo
12. Mokuleia Beach – Changes in Vegetation Line
13. Sand Transport Figures

Appendices

- | | | | |
|------------|---|------------|--|
| Appendix A | Building Permits | Appendix B | Property Tax Record Card (select material) |
| Appendix C | Shoreline Surveys and Plans | | |
| Appendix D | 2005 and 2004 Coastal Engineering Assessment by EKNA Services, Inc. | | |

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

1. GENERAL INFORMATION

After-the-fact approval is being sought for construction of a modified vertical seawall structure that was constructed across the shoreline frontage of the subject property around 1969 and other miscellaneous structures located within the shoreline setback area. The structures were built without City approvals, including a Shoreline Setback Variance (ROH 1992 Chapter 23) and a Building Permit (ROH 1990 Chapter 18). Pursuant to the Revised Ordinances of Honolulu Chapter 23, Shoreline Setbacks, a Shoreline Setback Variance will be required and will be submitted pending issuance of a Finding of No Significant Impact (FONSI). The EA has been prepared in compliance with the Environmental Impact Statement (EIS) regulations of Chapter 343, Hawaii Revised Statutes

- A. Project:** Shoreline Setback Variance
- B. Owner/Applicant:** Sutton Family Partners
Mailing address: c/o Richard Sutton
737 Bishop Street, Mauka Tower #2400
Honolulu, HI 96813
- C. Accepting Agency:** City and County of Honolulu
Department of Planning and Permitting
- D. Agent:** Analytical Planning Consultants Inc
Mr. Donald Clegg, President
928 Nuuanu Avenue
Honolulu, HI 96817
Phone: 536-5695 Fax: 599-1553
- E. Property Profile:**
- | | | |
|------------------------------|---|--------------------|
| Location: | 68-675 Hoomana Place and 68-673 Hoomana Place | |
| TMK: | <u>6-8-10: 015</u> | <u>6-8-10: 014</u> |
| Land Area: | Total | 11,109 SF |
| | Erosion | 3,394 SF |
| | Net | 7,715 SF |
| Present Use: | Single Family Residential | |
| State Land Use District: | Urban | |
| Zoning: | R-5 Residential | |
| Sustainable Communities Plan | North Shore/Rural Residential | |
| Special District: | No | |
| Special Management Area: | Yes | |
| Flood Zone: | FIRM Zone AE | |

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuieia, Oahu

F. Agencies Consulted:

- City and County of Honolulu, Department of Planning and Permitting/
Design and Construction
- State Bureau of Conveyances
- State Department of Accounting & General Services (Survey Division)
- State Department of Land and Natural Resources/
State Historic Preservation Division
- State Office of Environmental Quality Control
- Sierra Club

G. Anticipated Determination Finding of No Significant Impact (FONSI)

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

2. LOCATION AND GENERAL DESCRIPTION OF THE SUBJECT PROPERTY

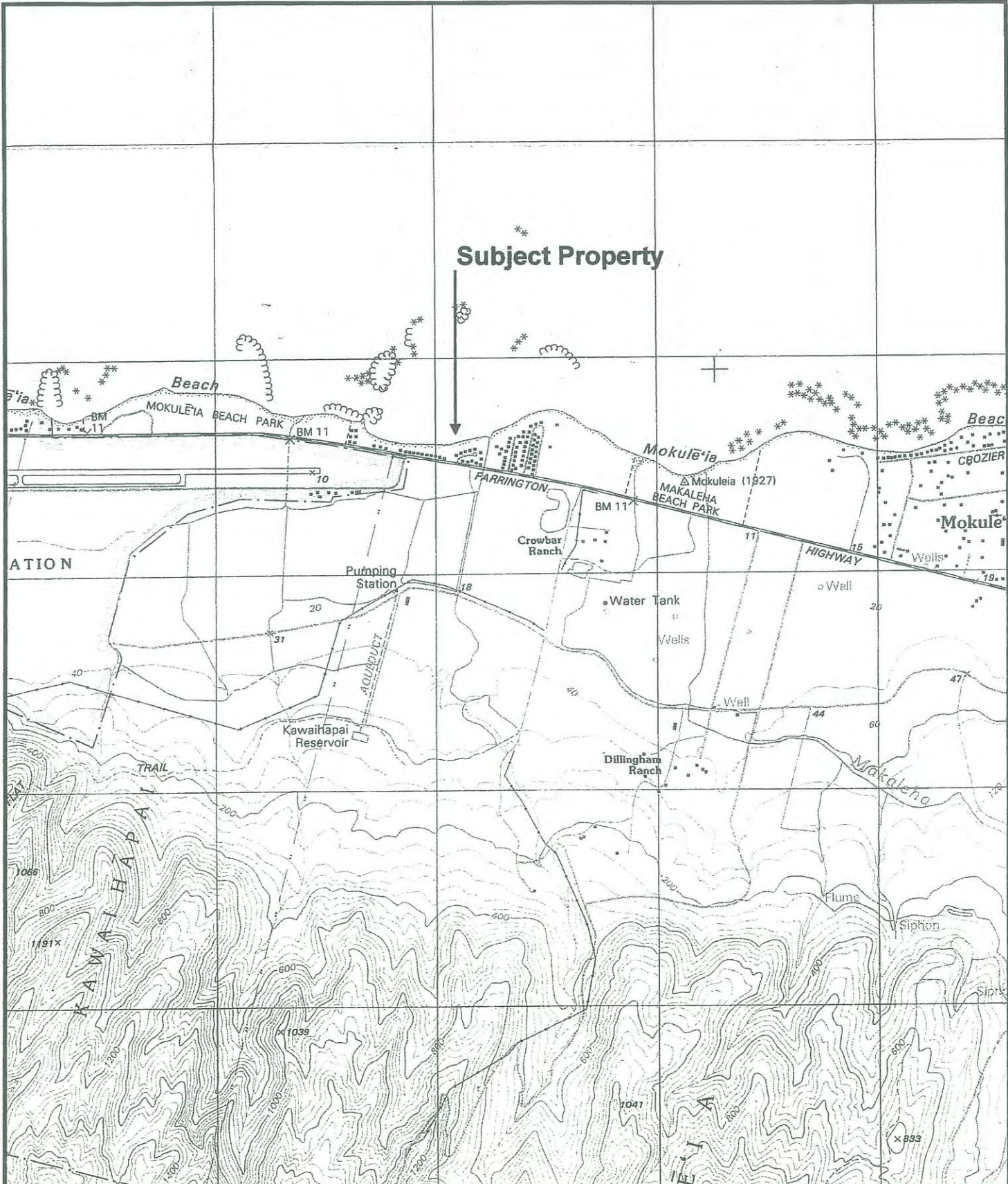
2.1 Site Description and Background

TMK 6-8-10: 015, is an irregularly shaped lot located at 68-675 Hoomana Place. Adjacent to parcel 15 is TMK 6-8-10: 014 at 68-675 Hoomana Place. Both are just off of Farrington Highway, on the northwest coast of Oahu. Both properties are located between single family residences on either side. The makai side of Farrington highway along this stretch of Mokuleia is almost completely developed with single-family houses. A general location map is shown in **Figure 1** and a Tax Key Map identifying both parcels is shown in **Figure 2**.

The subject property is located near the middle of an embayment that stretches between Mokuleia Beach Colony to the east and the Episcopal Church Camp to the west. The project site faces north and is subject to seasonal storm damage associated with large winter surf. Based on historical aerial photos of the Mokuleia coastline taken between 1949-1996, there has been a loss of shoreline due to erosion activity since the lots were first subdivided in 1960. Erosion of the lot area was noted by the City and County of Honolulu Real Property Tax Office as of the mid 1960's. The 1989 report *Oahu Shoreline Study – Data on Beach Changes* prepared by Sea Engineering, Inc. for the City and County of Honolulu's Department of Land Utilization documents a landward recession of the vegetation line since 1949 for the area immediately in the vicinity of the subject property. The landward recession totaled between 10 to 18 feet over the 39 year study period. Since the late 1960's a variety of shoreline structures have been constructed along the ocean frontage of the adjoining properties to the east and west to help stabilize the retreating shoreline.

Parcel 015 was purchased in 1979 and Parcel 014 was purchased in 1989, both by the applicant's parents. The properties are now owned by the "Sutton Family Partners". The recorded lot area for Parcel 15 to which the owners hold title is 11,109 square feet. After subtracting the eroded seaward portion of 3,394 square feet, the net area of the lot is 7,715 square feet. The recorded lot area for Parcel 14 to which the owners hold title is 9,407 square feet. After subtracting the eroded seaward portion of 2,813 square feet, the net area of the lot is 6,594 square feet. The shoreline is defined by a single continuous existing seawall located about between 40 to 45 feet inland of the seaward property boundary of both lots of record. Vegetation consists of yard grass and various residential landscaping materials. The topography of both lots is flat as is evident in **Figures 3A and 3B**. **Figure 3** is a photo key map showing where pictures were taken from.

Subject Property



Source USGS 1998



NORTH



SCALE IN FEET

**Figure 1
LOCATION MAP**

68-675 and 68-673 Hoomana Place, Mokuleia, Oahu, Hawaii

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

TMK: 6-8-10: 015

The existing house and garage were constructed in 1965 per Building Permits No. 11151 dated June 3, 1965 (**Appendix A**). The dimensions of the house and garage as shown on the July 21, 1965 Real Property Tax Record Card match the current footprint (**Appendix A**). The house and attached garage is a permitted existing non-conforming structure that is set back at least 20 feet from the face of the existing seawall as shown in **Figure 4A**.

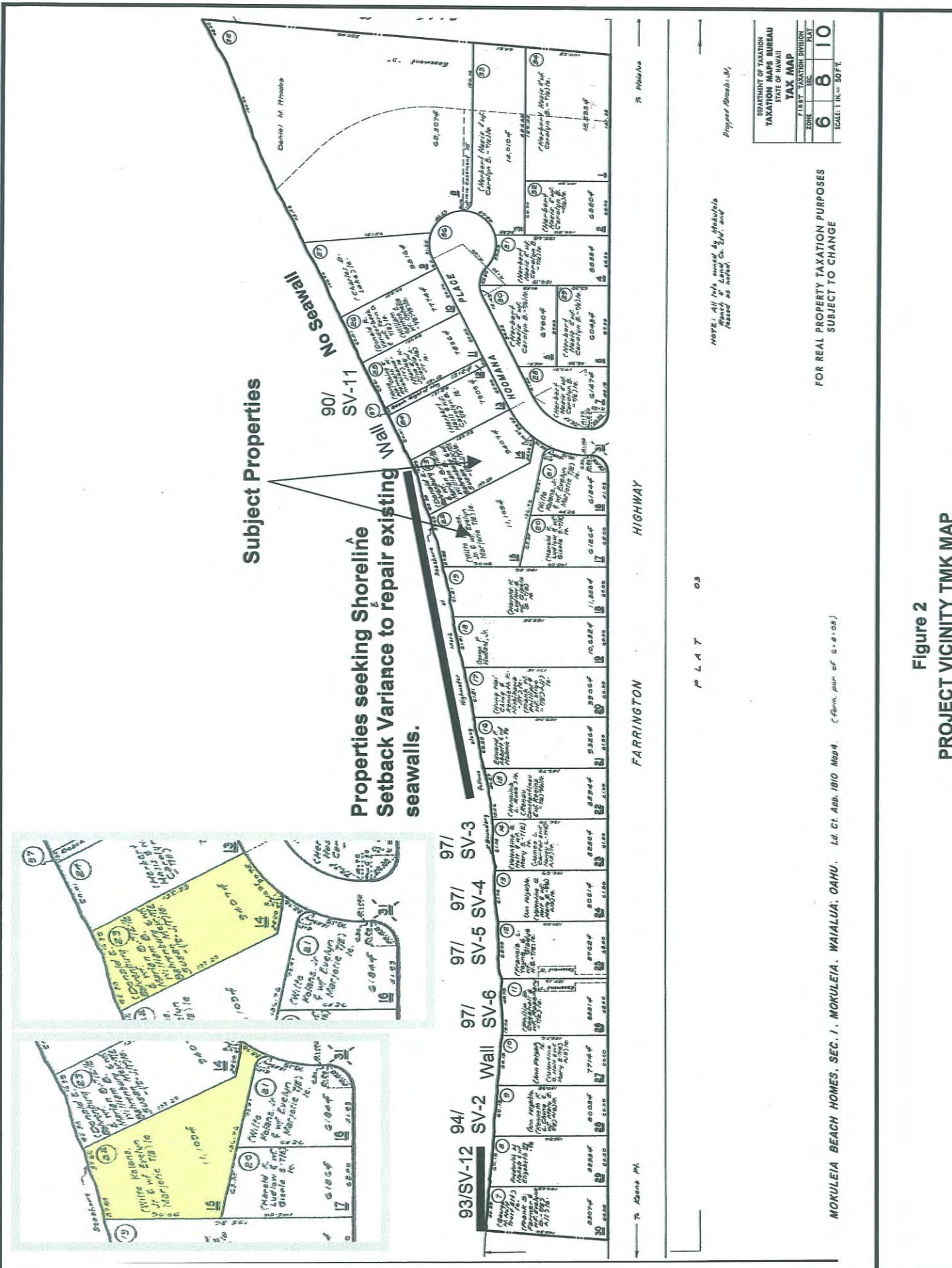
TMK: 6-8-10: 014

The existing house was constructed in 1960 per Building Permit No. 172536 dated September 9, 1960 (**Appendix B**). The TMK Plat Number was different in 1960 than today. In the early 1960's that area was referenced by TMK: 6-8-3: (parcel number) before it was further subdivided to today's Plat Number of 10. The dimensions of the house and garage as shown on the July 14, 1961 Real Property Tax Record Card match the current footprint of the house (**Appendix B**). The house is a permitted existing non-conforming structure that is set back more than 20 feet from the face of the existing seawall as shown in **Figure 4B**.

Portions of the concrete patios attached to the houses of both parcels are placed mauka of the 20-foot shoreline setback but encroach into the 40-foot setback area. There also exists on the property other minor structures, walls and fences located within the 40-foot setback. As there are no building permits nor evidence to collaborate that these structures were constructed legally and placed prior to 1992, the structures do not have nonconforming status and may require a Shoreline Setback Variance or Minor Shoreline Structures permit in order to be retained.

There is historic evidence (shoreline surveys and City communications) that documents seawalls along this embayment since the early 1970's following a significant period of erosion in 1970. The Property Tax Card for Parcel 015 states that in 1970 the property "*suffered wave damage: approximately 1,200 square feet of land washed away, water and debris damage to landscape*", and Parcel 014's Card similarly states, "*suffered wave damage: approximately 450 square feet square feet of sand washed away, water and debris damage to landscape*". In 1979, when the Sutton's bought Parcel 015, both Parcel 015 and Parcel 014 had concrete tile block seawalls. Those seawalls likely dated back to the late 1960's and early 1970's when the string of seawalls were constructed along this embayment in response to the damaging surf documented in the City's 1970 property tax record cards.

In 1998, about 9 years after the Sutton's bought the second property (Parcel 014), the seawalls were damaged from years of pounding storm surf. According to the Sutton family, following a particularly severe period of weather in the winter of 1997/1998, the seawalls across Parcel 015 and 014 were failing and were about to collapse onto the beach. Remnants of the original seawalls are evident in the photos and a portion of one of the concrete tile walls still stands at the far end of Parcel 014 (**Figure 3A and 3B**).



Subject Properties

**Properties seeking Shoreline
Setback Variance to repair existing
seawalls.**

FARRINGTON HIGHWAY

P L A T 03

NOTE: All lots owned by Mokuileia Beach Homes, Inc. are shown as such.

DEPARTMENT OF TAXATION	
TAXATION MAPS BUREAU	
STATE OF HAWAII	
TAX MAP	
ZONE	FIREY TAXATION DIVISION
SEC.	PLAT
6810	

FOR REAL PROPERTY TAXATION PURPOSES
SUBJECT TO CHANGE

MOKULEIA BEACH HOMES, SEC. 1, MOKULEIA, WAIALUA, OAHU. Ld. Ct. 489, 1810 Map 4. (Form, part of 6-8-05)

Figure 2

PROJECT VICINITY TMK MAP

68-675 and 68-673, Hoopa Place, Mokuileia, Oahu, Hawaii

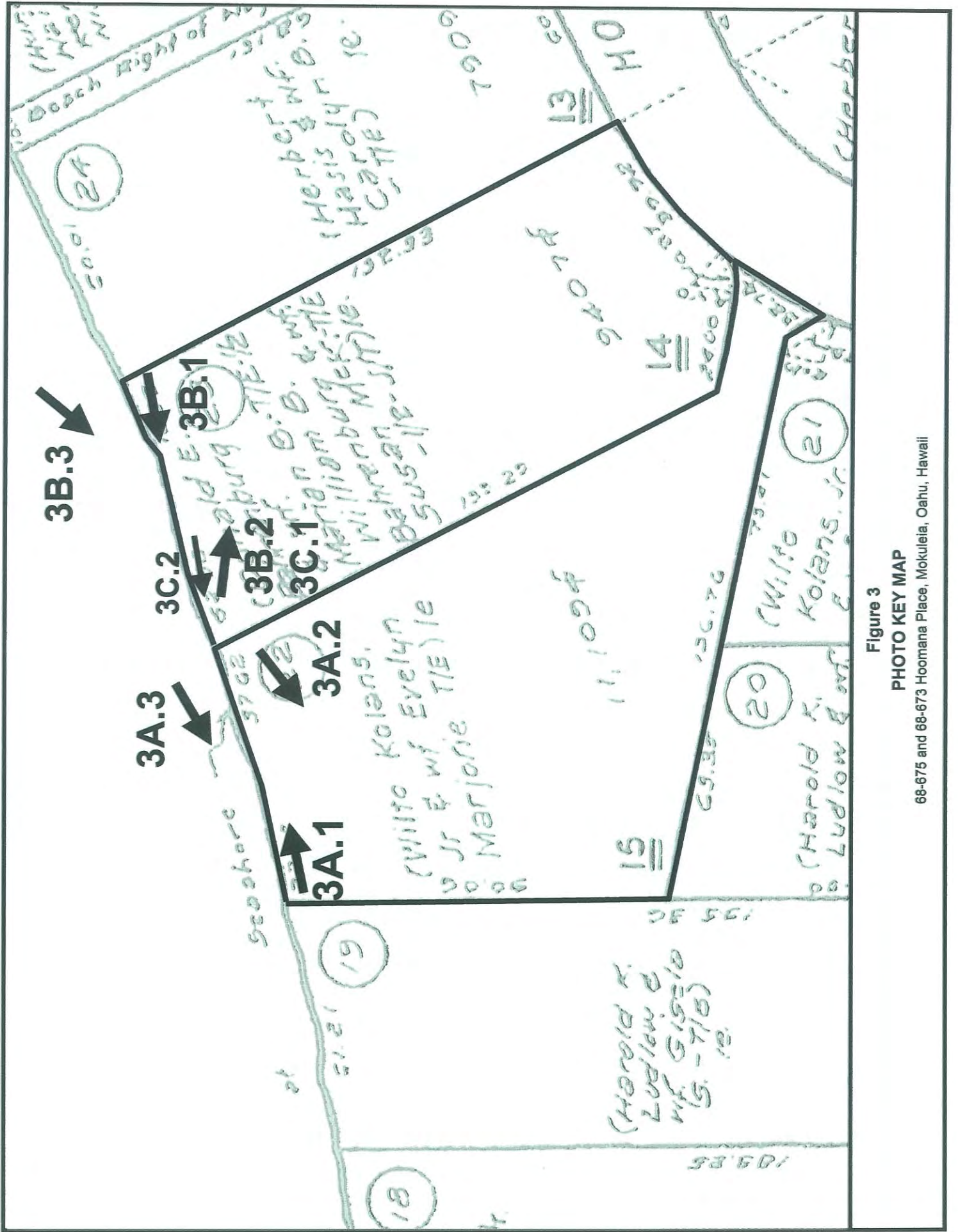


Figure 3
PHOTO KEY MAP

68-675 and 68-673 Hoomana Place, Mokuleia, Oahu, Hawaii



3A.1 TMK: 6-8-10:15
Photo date 01-12-05
By Hida, Okamoto & Assoc.

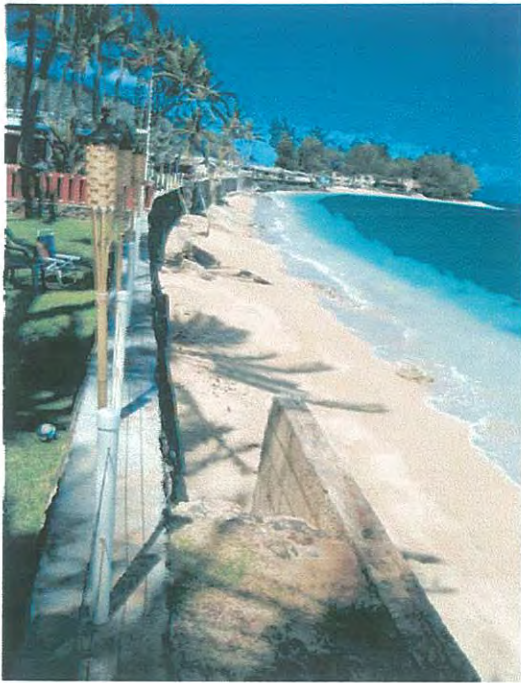


3A.2 Mokuleia
TMK: 6-8-10:15
Photo date Fall 2004
By Land Planning Consultants



3A.3
Mokuleia
TMK: 6-8-10:15
Photo date Fall 2004
By Land Planning Consultants

Figure 3A
SUBJECT SEAWALL TMK: 6-8-10: 015
68-675 Hoomana Place, Mokuleia, Oahu, Hawaii

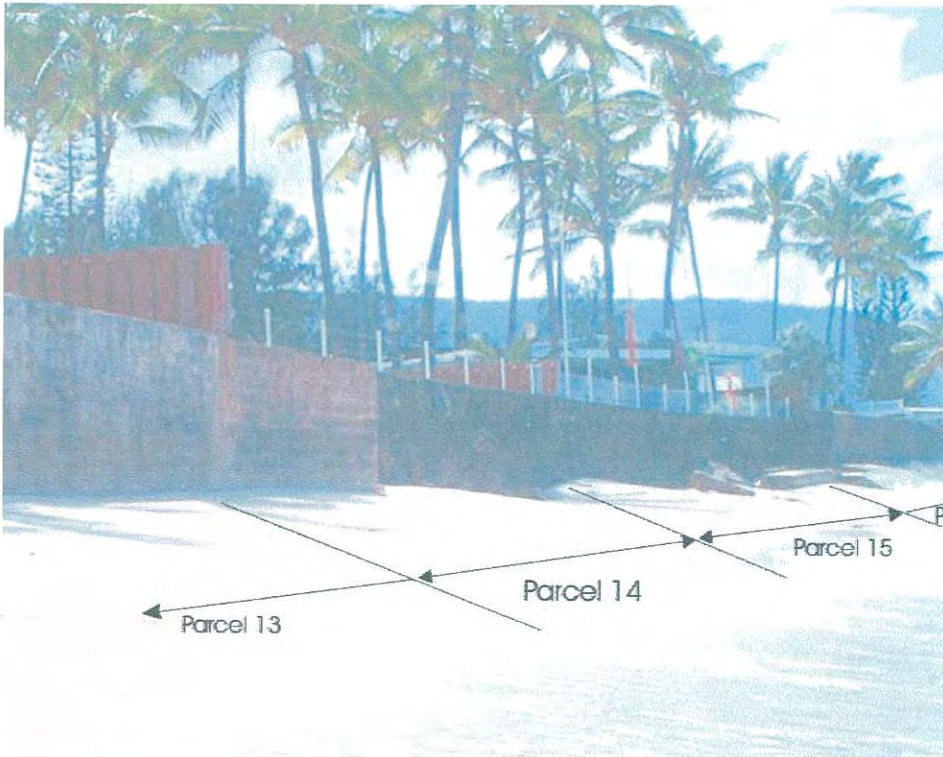


3B.1



Mokuleia
 TMK: 6-8-10:14
 Photo date Fall 2004
 By Land Planning Consultants

3B.2



3B.3

Mokuleia
 TMK: 6-8-10:14
 Photo date 04-02-05
 Time 2:00 pm
 By EKNA Services
 Tide approx. 0.1' MLLW

Figure 3B
SUBJECT SEAWALL TMK: 6-8-10: 014
 68-673 Hoomana Place, Mokuleia, Oahu, Hawaii



Figure 3C
Parcel 14 2008

68-673 Hoomana Place, Mokuleia, Oahu, Hawaii

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

Around 1996-1997, four contiguous properties a few hundred feet west of the Sutton's property experienced undermining behind old seawalls, loss of backfill material, the creation of sinkholes and the near collapse of existing seawalls; TMK: 6-8-10: 23, 24, 26; the seawall on parcel 25 did fully collapse. The four property owners of those parcels requested and were granted approval for a shoreline setback variance in 1997/1998 to construct a new seawall that would cover the seaward face of the four properties. That seawall is still in place today.

In the spring of 1998 (around the time the four property owners were granted a shoreline variance), the Sutton's constructed a new CRM seawall that spans across both Parcel 015 and 014. The 1998 seawall was constructed behind the old concrete tile seawalls and was built without a building permit. The wall is constructed with lava rock which gives it a more natural visual aesthetic than a concrete wall.

Figure 6 contains Sutton family photos taken in 1981 and photos taken in 1998 of the new seawall across both Parcel 015 and 014. In the 1981 photos, there is a tile wall along the side yard property line between 015 and 014. The center photo taken in May 1981 shows the side yard wall is built well beyond the seaward roofline of the house on Parcel 014. The 1998 photo shows that some of that tile wall was taken down in the 1998 and was replaced with a lava rock wall that is integrated with the new seawall when the new seawall was built. Today there is a wooden fence atop the lava rock wall along the side property line between Parcel 015 and 014, while a portion of the original tile wall remains in its mauka location between the two properties.

Additional Background Information: The Findings of Fact for the after-the-fact Shoreline Setback Variance for parcels 27-30 (93/SV-12), located north of the subject parcel, references an aerial photograph of the area dated April 22, 1967 on file at the City which shows no shore protection structures and the vegetation line ranging from 0-20 feet away from the dwellings. Seawalls appear to have been built along this embayment some time after 1967. Records at the Real Property Tax Office reference damage to existing walls and dwellings along the embayment during high surf in 1970. It is speculated that the construction of seawalls along the shoreline took place after this damage. The 1993 report also references Department slides and photographs of the area, taken from 1982 through 1991 which display walls in the sand area along the shoreline for 16 residential lots east of the Episcopal Church Camp, including the subject lot. No building permits are on file for construction of these seawalls; however, after-the-fact Shoreline Setback Variances and building permits have been issued for 9 of the properties since 1990. The Mokuleia Beach Colony (TMK 6-8-09: 001) has an approximately 350-foot long seawall, with an approved shoreline setback variance. The historical photos on file at the DPP also indicate that over the years walls have been destroyed by storm waves and reconstructed at increasing heights. The applicant is seeking after-the-fact approval of a

Jul 31 03 08:04p

Ralph Gray

808-588-7678

p.1

DEPARTMENT OF LAND UTILIZATION

CITY AND COUNTY OF HONOLULU

680 SOUTH KING STREET

HONOLULU, HAWAII 96815 • (808) 923-4422

FRANK F. PASI
MAYOR



JOHN P. WICK
DIRECTOR

86/SI-3 (PR)

May 12, 1986

Mr. Gary N. Pardy
68-683 Farrington Highway
Waiialua, Hawaii 96791

Dear Mr. Pardy:

Shoreline Setback Determination

Thank you for your letter of April 25, 1986 requesting a determination as to whether a 40-foot or a 20-foot shoreline setback applies to your property (Tax Map Key 6-8-10: 19).

The attachments you provided with your letter have established that nearly 3000 square feet (SF) of land was eroded from your property and a seawall built prior to the adoption of the Shoreline Setback Rules of the City and County of Honolulu in 1973.

Upon further review of the information you provided, we have determined that when the 40-foot shoreline setback and all other required setbacks are applied to your lot, the buildable area of the parcel is reduced to less than 50 percent of the lot area.

Therefore, we find that, as stated in Rule 9 of the Shoreline Setback Rules and Regulations of the City and County of Honolulu, a 20-foot shoreline setback applies to your parcel.

In addition, we are waiving the need for an instrument survey under the provisions of Rule 10 of the Shoreline Setback Rules and Regulations. As shown on your plan, the fence extension is 30 feet from the shoreline and therefore clearly outside the shoreline setback. Our field measurements verify the dimensions shown on your plan.

COPY

Figure 5

1986 CITY DEPT OF LAND UTILIZATION LETTER - PARCEL 19 SHORELINE SETBACK DETERMINATION

68-675 and 68-673 Hoomana Place, Mokuleia, Oahu, Hawaii



Sutton photo dated April 13 1998. New seawall built across Parcels 015 and 014. Side yard concrete tile wall was partially demolished along makai edge.

Sutton photo May 1981. Side yard concrete tile wall protrudes well makai of and beyond house roof of Parcel 014



Sutton photo November 1981. Side yard concrete wall is evident between Parcels 015 and 014.

Figure 6

SUBJECT SEAWALL TMK: 6-8-10: 015 and 014

68-675 and 68-673 Hoomana Place, Mokuleia, Oahu, Hawaii

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

Shoreline Setback Variance for the structures located within the shoreline setback as has been done for the other 9 properties along this portion of Mokuleia Beach.

2.2 Proposed Action

The applicant received a Notice of Violation in July 2004 for both Parcel 015 and 014 for a CRM seawall constructed within the shoreline setback area without a variance. The applicant now wishes to seek approval for an after-the-fact Shoreline Setback Variance, and if approved, an after-the-fact building permit for:

1. The 1998 seawall that spans across Parcel 015 and 014;
2. Parcel 15 - The portion of the 1998 seawall that is located along the side property line between Parcel 015 and 014.

The applicant is requesting that these additional non-permitted structures located within the 40-foot shoreline setback be included in the variance or that these structures be approved as "minor structures" under Chapter 23 section 15-1(b)(8):

1. Tile wall located on parcel 15 along the side property line between Parcel 015 and 014;
2. The 100 square foot concrete slab located adjacent to the seawall on parcel 15;
3. Tub located on Parcel 14;
4. Portion of rock wall and wooden fence along the side property line between parcel 014 and 013;

The applicant will apply for a zoning adjustment or a height variance to permit the wall to exceed the maximum permitted height for safety and topological reasons. This will be determined during processing of the Shoreline Setback Variance.

Without the seawall across both properties, erosion would immediately and significantly impact the shoreline frontage thereby threatening the existing residential structures. According to the Coastal Engineering Assessment by EKNA Services, Inc., there would be an immediate loss of at least 50 feet of property if the seawall were removed. Shoreline surveys for the subject property are in **Appendix C**.

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

There is no record of any previous certified shoreline issued for the subject parcel. Prior to obtaining after-the-fact building permits for the structures located within the shoreline setback area, the applicant will be required to obtain a certified shoreline from the State of Hawaii Department of Land and Natural Resources. As per Section 13-222-7(a)(14) Hawaii Administrative Rules, an application for shoreline certification cannot be accepted by the State of Hawaii Department of Land and Natural Resources until the illegal shoreline protection structure has been approved by the appropriate governmental agencies, i.e. by obtaining a Shoreline Setback Variance. This Environmental Assessment is the first step in obtaining this approval. The Department of Accounting and General Services Survey Division in their review of the shoreline survey will determine placement of the certified shoreline; any encroachments will be determined at that time.

2.3 Technical Characteristics

The 1998 seawall is a concrete rubble masonry (CRM) wall with a top elevation of about 10' mean sea level (msl). According to the as-built survey by Hida Okamoto & Associates, Inc., the base of the wall (top-of-beach) elevation is about +4' MSL (+5' mean lower low water (MLLW)). The base of the seawall is subject to wave runup. The continuous seawall spans a width of 86.5 feet across Parcel 015 and 68 feet across Parcel 014 for a total of 154.5 feet.

Figures 8A and 8B are the as-built plans prepared by Hida Okamoto & Associates, Inc. with a site plan, elevation, section and typical wall detail drawings. The seawall is built of concrete rubble masonry and stands 7 feet tall from its base atop a concrete foundation. The top elevation of the seawall is approximately +10.4' MSL. Built into the wall are weep holes set about 16-inches apart. Backfill is estimated at 48 cubic yards for parcel 14 and 46 cubic yards for parcel 15. Life expectancy for the wall is estimated at 30 years.

Granting of the Shoreline Setback Variance will allow the property owner to maintain and repair the seawall as needed, otherwise overtime, portions of the wall could collapse should the footings be undermined by wave action. Any mitigation would involve securing the footings to prevent undermining by wave action

2.4 Economic and Social Characteristics

No new construction is proposed, therefore no economic or social impacts are anticipated.

2.5 Cultural and Historic Characteristics

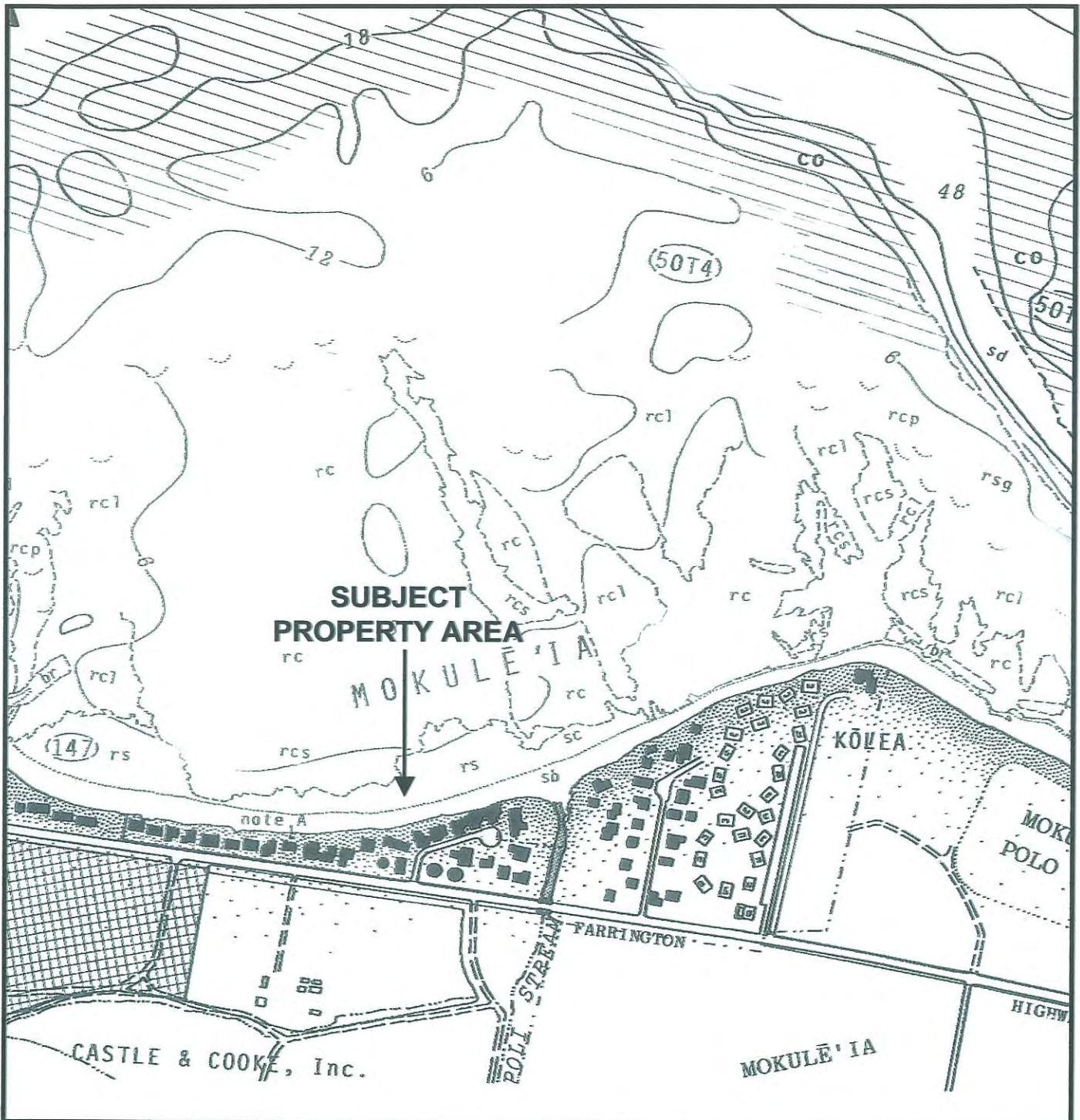
The property has been disturbed since 1960 when the single family residences and related improvements were initially constructed. No new construction is proposed, therefore no disturbance to the properties is proposed. The Mokuleia shoreline is very active with Native Hawaiians and the general public accessing the beach for recreation and traditional gathering. Public access to the shoreline is located about 500 feet east of the subject property via a City-owned public right-of-way TMK: 6-8-10: 012 and minimal lateral access is available depending on the tides.

The State of Hawaii Department of Land and Natural Resources State Historic Preservation Division is unable to offer concurrence on the project because the project site is located in an area where there is a moderate to high potential for historically significant sites, including Native Hawaiian burials and/or habitation sites, to be located beneath the ground surface and the Division was not contacted prior to the original construction. (Chinen 2006). No adverse impacts to historic or archeological resources are known to have occurred from the original construction of the seawall.

2.6 Environmental Characteristics

The subject property is located near the middle of an embayment that stretches between Mokuleia Beach Colony to the east and the Episcopal Church Camp to the west. The project site faces north and is subject to seasonal storm damage associated with large winter surf. In the 1960's and 70's there was sand mining along this stretch of the bay; and, according to official reports, major erosion occurred during 1967 to 1971 from significant storm wave damage, which is the time frame in which the owner/applicant had the seawall constructed. Many of the seawalls along this embayment were built in response to the 1967/1971 period of storm wave damage and chronic erosion and there has been a seawall along the shoreline of this property for over 30 years. The applicant's family had the seawall constructed in 1998 behind the original concrete tile seawalls because the original walls were failing and were in danger of collapsing onto the beach. The subject seawall ties into concrete seawalls on both sides of the subject property. Please see Section 4 and the Coastal Engineering Assessment in **Appendix D** for a more detailed discussion of environmental characteristics.

The subject property does not contain unique or endangered plant or animal species



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

Figure 9
SHORE AND NEARSHORE CHARACTERISTICS
 68-675 and 68-753 Hoomana Place, Mokuleia, Oahu, Hawaii

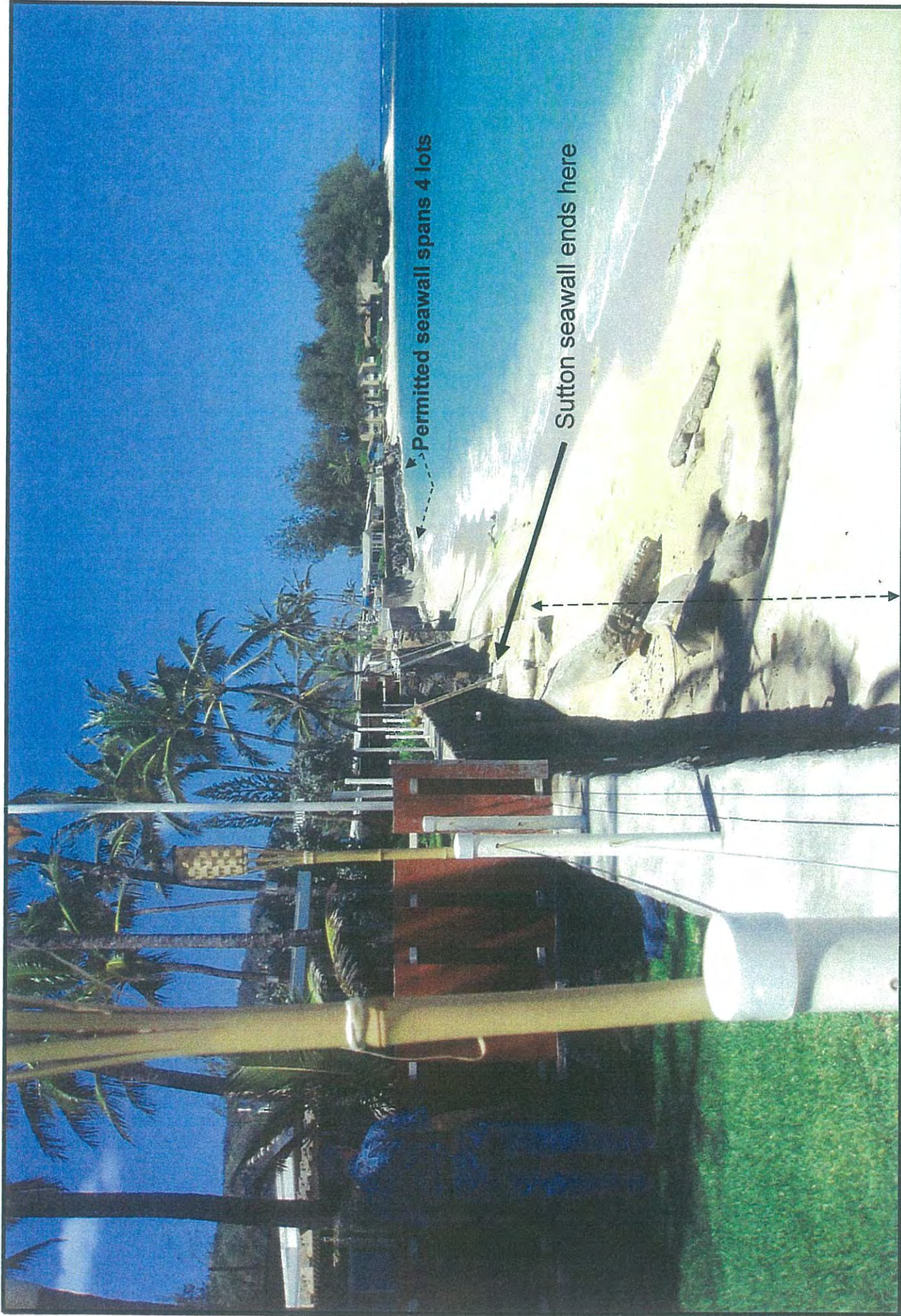


Figure 10

EXISTING CONTINUOUS SEAWALLS ALONG EMBAYMENT

Taken from TMK: 6-8-10: 014, Mokuleia, Oahu, Hawaii



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 11

MOKULEIA BEACH LOSS AS REVEALED BY HISTORIC AERIAL PHOTOGRAPH

68-675 and 68-673 Hoomana Place, Mokuleia, Oahu, Hawaii

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	17	18	19	20	21	22	23
Sep 28, 1949 - Nov 01, 1958	*	-6	4	6	-4	*	1	-15	-4							
Nov 01, 1958 - Aug 22, 1962	*	-1	-5	-4	3	-62	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	-11	-7	2	-3	5	23							
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.

Figure 12
 MOKULEIA BEACH - CHANGES IN VEGETATION LINE
 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu, Hawaii

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

3. ENVIRONMENTAL SETTING

3.1 General Description

The project area is a residential strip fronting the ocean with single-family homes along the shore. Many of these houses were constructed in the early 1960's. The State's Land Use designation is Urban and the City and County of Honolulu's zoning is R-5 Residential. All of the shoreline lots in the vicinity of the subject property have existing seawalls or revetments to provide shoreline erosion protection.

3.2 Soils

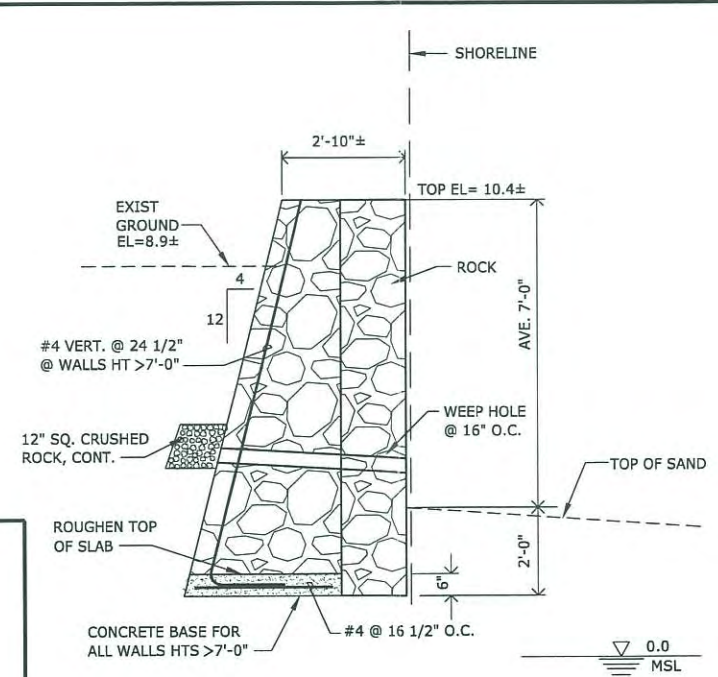
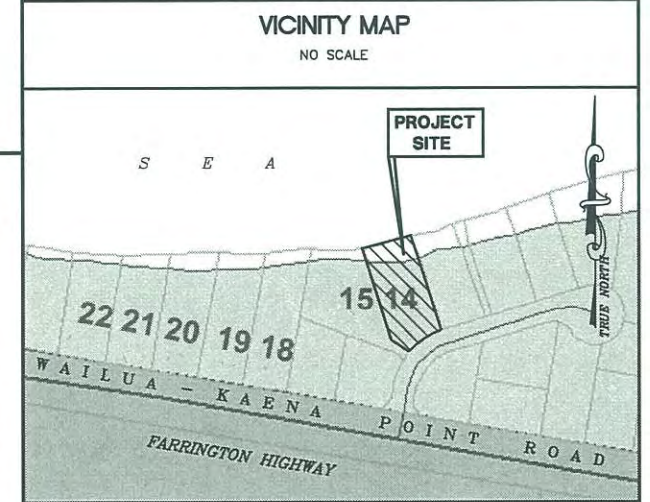
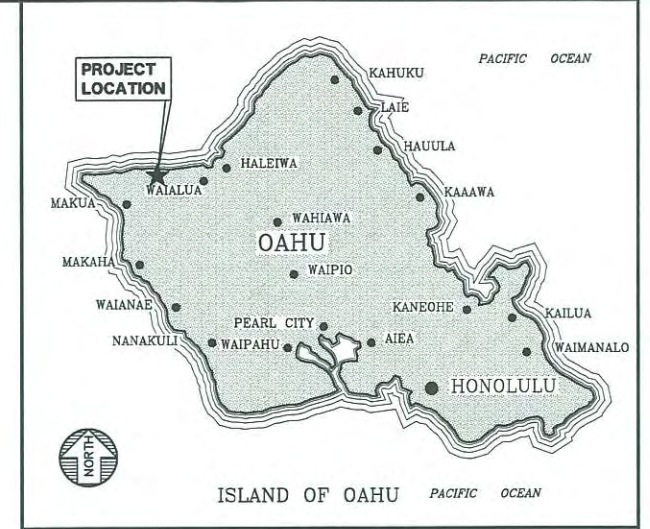
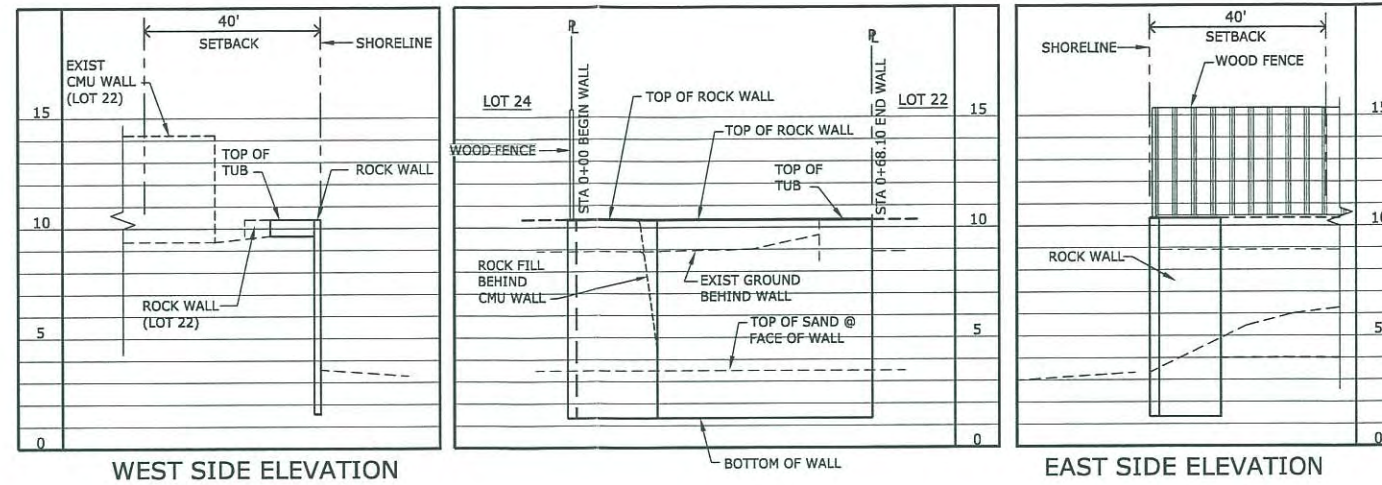
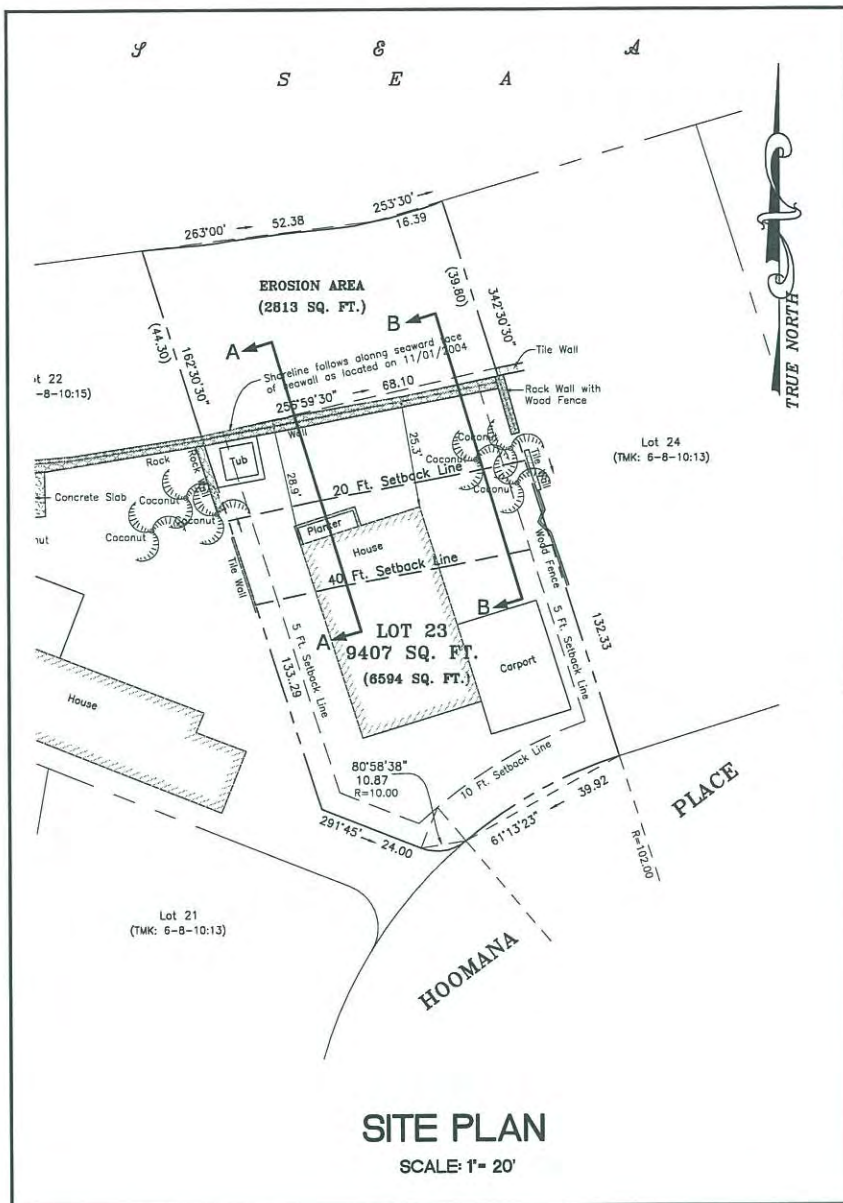
The soils for the subject property are of the Jaucas sand series. Slopes range from 0 to 25 percent and the permeability is moderate to rapid. Runoff is considered to be very slow to medium and the erosion hazard is slight to moderate. (U.S. Department of Agriculture, 1972).

3.3 Flood Characteristics

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. The project site is also located within the tsunami evacuation zone as determined by the Oahu Civil Defense.

3.4 Marine Flora and Fauna

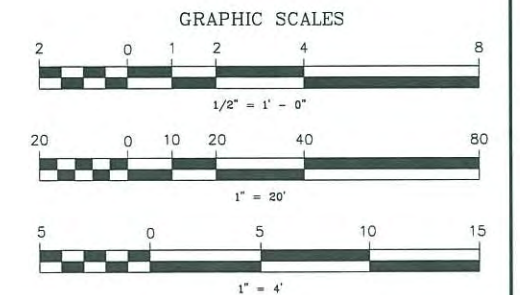
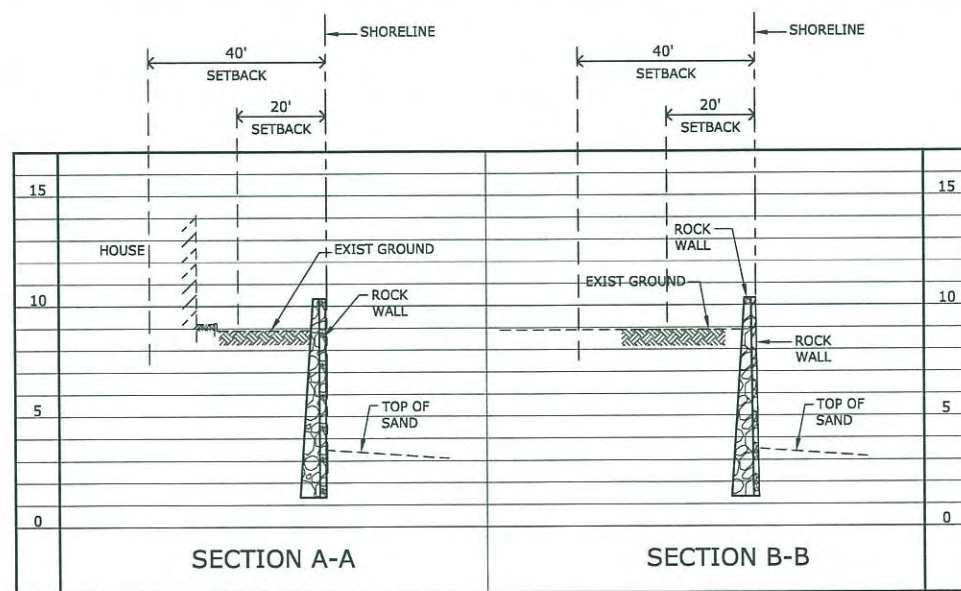
There are no known endangered species either land or aquatic flora or fauna, in the vicinity of the subject property. The following information about the marine flora and fauna in the vicinity of the project area is taken from the *Hawaii Coral Reef Inventory, Island of Oahu* (AECOS, 1979): "Off the 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."



CONSTRUCTION NOTES

- All applicable construction work shall be done in accordance with the Standard Specifications for Public Works Construction, September 1986 and Standard Details for Public Works Construction, September 1984, as amended, of the Department of Public Works, City and County of Honolulu and the Counties of Kauai, Maui, and Hawaii.
- The underground pipes, cables or ductlines known to exist by the engineer from his search of records are indicated on the plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities to existing utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines.
- No Contractor shall perform any construction operation so as to cause falling rocks, soil or debris in any form to fall, slide or flow into existing City drainage systems, or adjoining properties, streets or natural watercourses. Should such violations occur, the Contractor may be cited and the Contractor shall immediately make all remedial actions necessary.
- The Contractor shall be responsible for conformance with the applicable provisions of the water quality and water pollution control standards contained in Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control", as well as Chapter 14 of the Revised Ordinances of Honolulu, as amended. Best Management Practices shall be employed at all times during construction.
- Pursuant to Chapter 6E, HRS, in the event any artifacts or human remains are uncovered during construction operations, the Contractor shall immediately suspend work and notify the Honolulu Police Department, the State Department of Land and Natural Resources-Historic Preservation Division (692-8015). In addition, for non-City projects, the Contractor shall inform the Civil Engineering Branch, Department of Planning and Permitting (523-4881); and for City projects, notify the responsible City agency.
- For Bench Mark, see sheet C-1.
- Assumed Life expectancy for Seawall is 30 years.

NOTE: BACKFILL UTILIZED : 48 Cu. Yd.



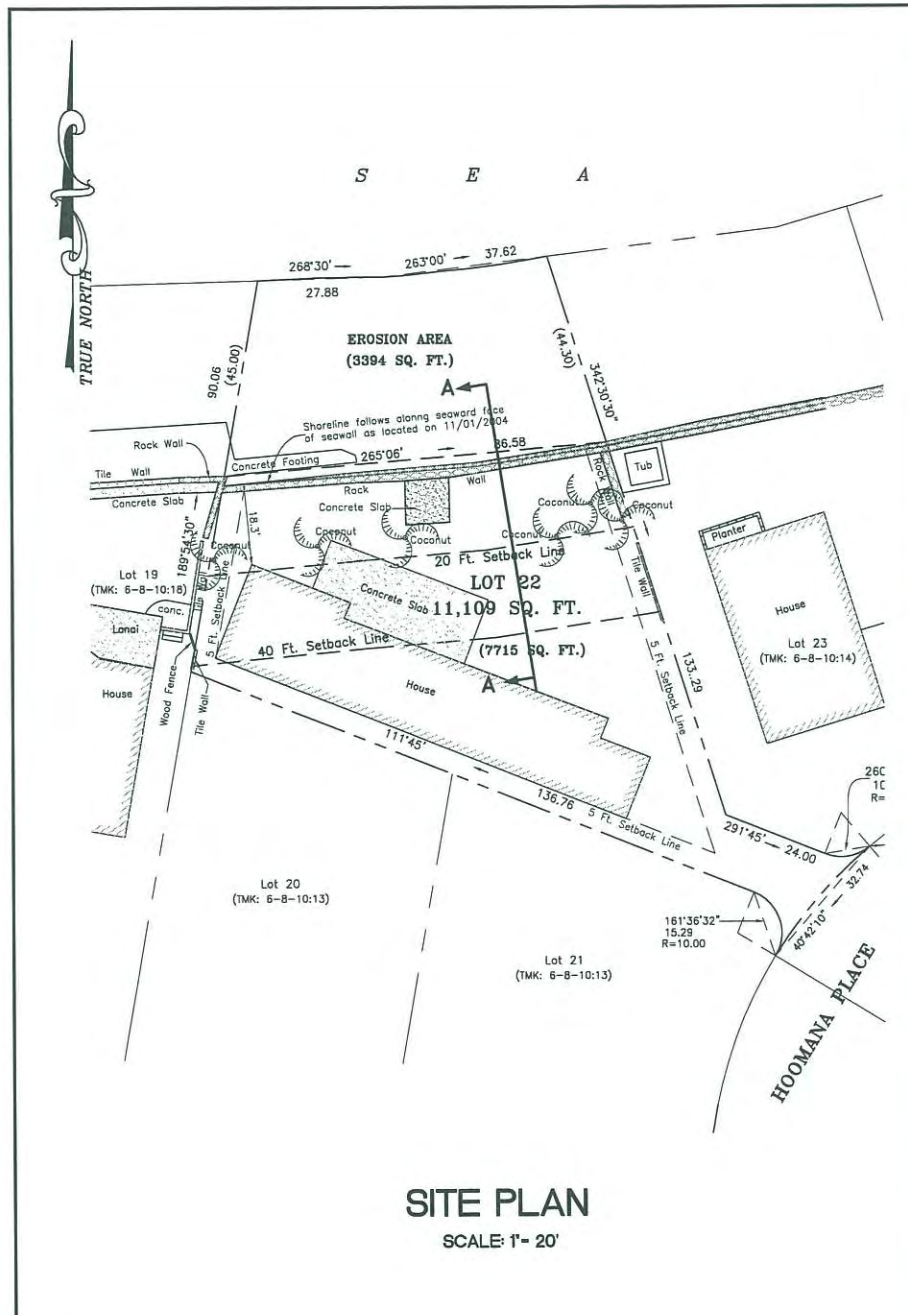
Revision Date Brief Made by Approved
HIDA, OKAMOTO & ASSOCIATES, INC.
CONSULTING ENGINEERS
1440 KAPIOLANI BOULEVARD, SUITE 1120, HONOLULU, HAWAII 96814
TELEPHONE (808) 942-0066

SEA WALL AFTER-THE-FACT
Makuleia, Waihua, Oahu
Tax Map Key: 6-8-10:14

**VICINITY MAP, LOCATION MAP,
SITE PLAN, ELEVATION, SECTION,
AND NOTES**

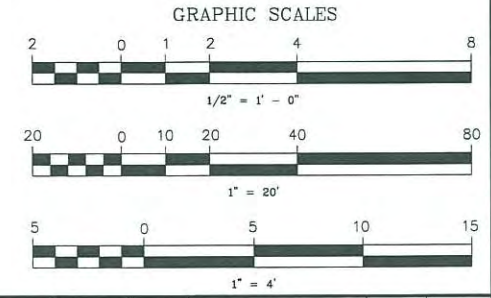
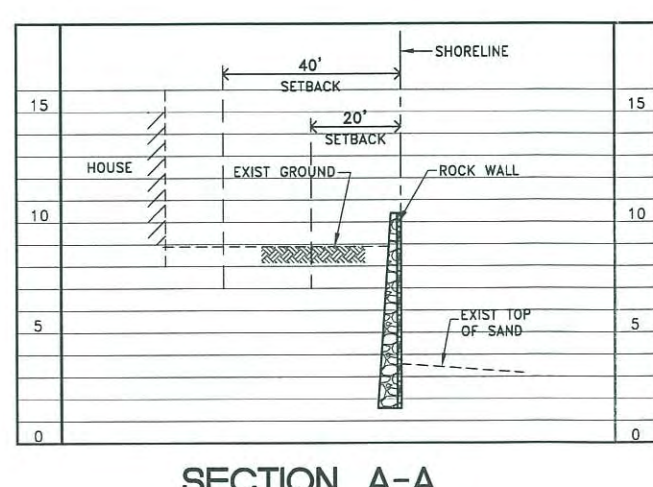
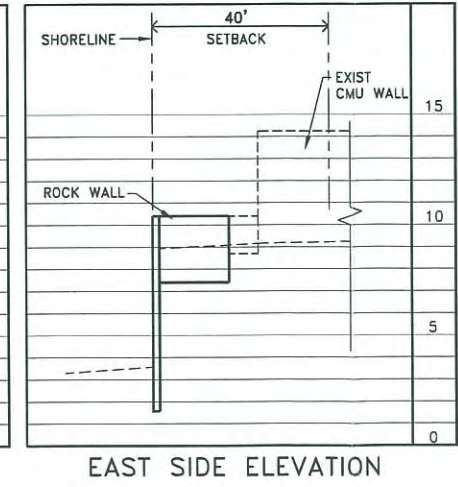
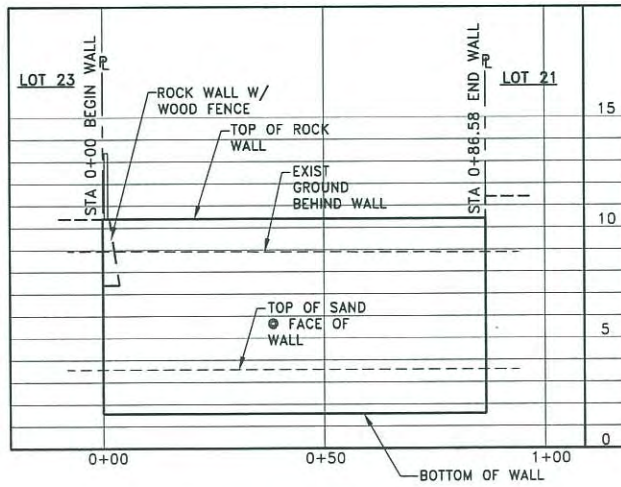
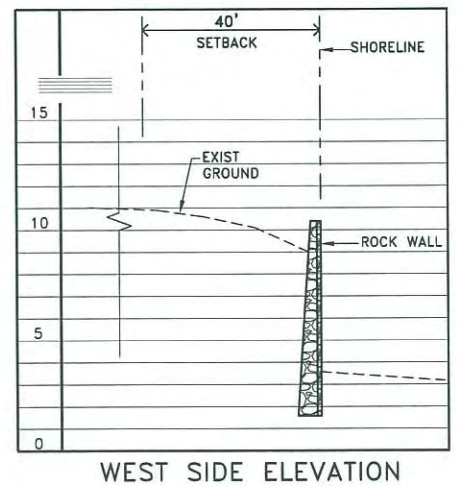
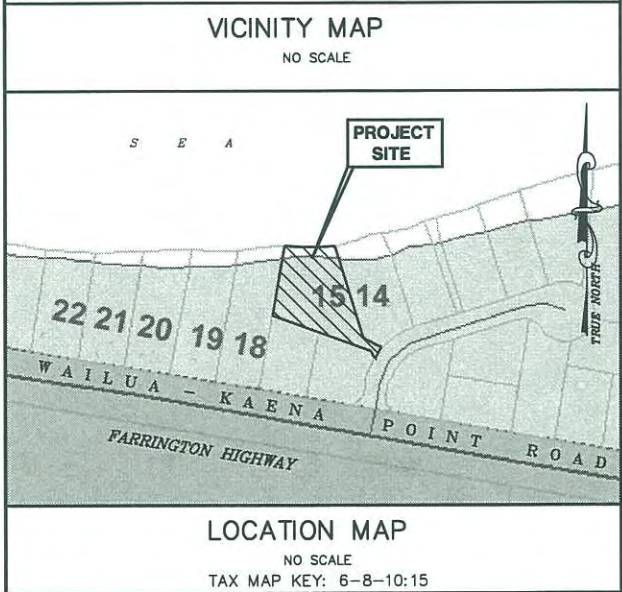
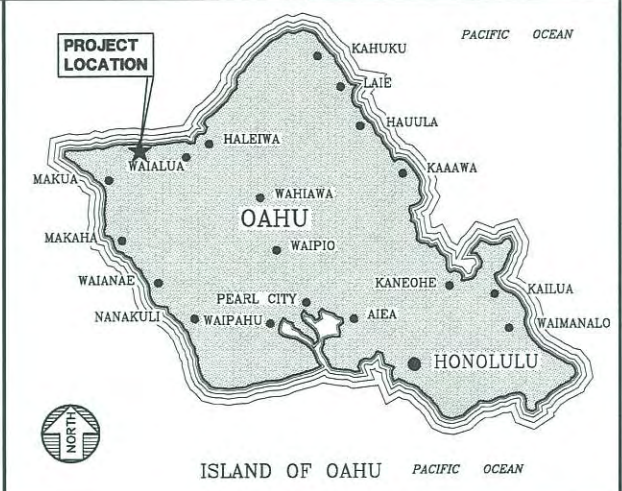
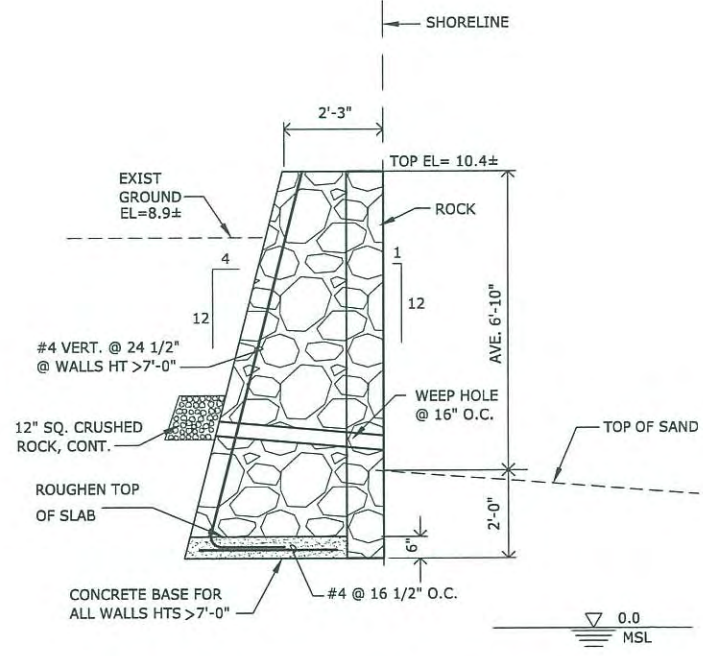
FIGURE 8A

C-1



- CONSTRUCTION NOTES**
- All applicable construction work shall be done in accordance with the Standard Specifications for Public Works Construction, September 1986 and Standard Details for Public Works Construction, September 1984, as amended, of the Department of Public Works, City and County of Honolulu and the Counties of Kauai, Maui, and Hawaii.
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 - Pursuant to Chapter 6E, HRS, in the event any artifacts or human remains are uncovered during construction operations, the Contractor shall immediately suspend work and notify the Honolulu Police Department, the State Department of Land and Natural Resources—Historic Preservation Division (592-8015). In addition, for non-City projects, the Contractor shall inform the Civil Engineering Branch, Department of Planning and Permitting (523-4881); and for City projects, notify the responsible City agency.
 - For Bench Mark, see sheet C-1.
 - Assumed Life expectancy for Seawall is 30 years.

NOTE: BACKFILL UTILIZED : 46 Cu. Yd.



HARVEY K. HIDA
LICENSED PROFESSIONAL ENGINEER
No. 4363-C
HAWAII, U.S.A.
LICENSE EXP. APR. 30, 2010
This work prepared by me or under my supervision and construction of this project will be under my observation.
(Observation of construction as defined in Section 16-115-2 of the Rules of the Board of Professional Engineers, Architects and Surveyors of the State of Hawaii).

Revision	Date	Brief	Made by	Approved

HIDA, OKAMOTO & ASSOCIATES, INC.
CONSULTING ENGINEERS
1440 KAPIOLANI BOULEVARD, SUITE 1120, HONOLULU, HAWAII 96814
TELEPHONE (808) 942-0066

SEA WALL AFTER-THE-FACT
Mokuleia, Waialua, Oahu
Tax Map Key: 6-8-10:15

VICINITY MAP, LOCATION MAP, SITE PLAN, ELEVATION, SECTION, AND NOTES

By: _____
Date: _____

Des: HKH Dr: RH

C-1

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

3.5 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.

3.6 Public Access, Coastal Use and Recreational Resources

A public right-of-way (TMK: 6-8-10: 012) owned by the City and County of Honolulu is located just east of the subject property. Mokuleia Beach Park, about 4,000 feet west of the subject property, also provides public access to Mokuleia Beach.

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. There is no “dry beach” fronting the subject properties and the sandy beach 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.

The City’s Mokuleia Beach Park provides camp sites for those who obtain permits. 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.

At the time that the individual lots were created in 1960, there was no publicly mandated requirement for lateral access along the shoreline and the property boundaries were formed at the highwater mark. Due to the natural process of erosion along this embayment, approximately 25% of the lot area has eroded and a portion of the property is underwater. As such, any previously existing public lateral access, which would have been beyond the property boundary is no longer available. This natural process has limited the amount of sandy beach fronting the property and during high tide there is no beach area. Recreational resources are available depending on seasonal tides.

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

3.7 Archaeological and Cultural Resources

The subject properties are 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 properties have been previously disturbed by the construction of the single family dwelling improvements. The subject properties do not contain any known archaeological or historic sites. No new construction is proposed.

The proposed action will have no effect on traditional cultural practices. 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, the applicant will be responsible for contacting the Department of Land and Natural Resources, State Historic Preservation Division in accordance with applicable regulations.

3.8 Applicable Land Use Considerations

Chapter 205, Hawaii Revised Statutes (HRS) promulgates the State Land Use Law. The State of Hawaii Land Use Commission (LUC) classifies all land into four districts: Urban, conservation, Agriculture, and Rural. The fast portion of the subject parcel is within the State Urban District: and, the approximately 6,000 square feet of the land, which has eroded and is currently submerged, is located within the State Land Use Conservation District pursuant to HAR 15-15-20(6). Section 13-227(a)(141) of the Hawaii Administrative Rules (HAR) requires government approval where the shoreline is located at the base of a manmade structure. Prior to obtaining after-the-fact building permits for the structures located within the shoreline setback area, the applicant is required to obtain a certified shoreline from the State of Hawaii Department of Land and Natural Resources. The Department of Accounting and General Services Survey Division in their review of the Shoreline survey will locate placement of the certified shoreline and any foundation encroachments will be determined by the DLNR Office of Conservation and Coastal Lands in their review of the project. There is no record of any previous certified shorelines issued for the subject parcel.

The Coastal Zone Management (CZM) Program is promulgated by Chapter 205A, HRS. Through the CZM Program, each county is required to establish Special Management Areas (Chapter 25) and Shoreline Setbacks (Chapter 23). The affected property lies within the SMA and as the application for an after-the-fact variance for the existing seawall involves no new

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

construction, no Special Management Area Use Permit is required.

Chapter 23 has as its purpose to protect and preserve the natural shoreline; public pedestrian access laterally along the shoreline; and open space along the shoreline. Reduction of beach area has been an ongoing problem since the residential subdivision was created in 1960. Prior to construction of the seawall, the property lost 25% of its lot area to erosion from wave action along the shore as the natural shoreline changed. Depending on the seasonal tides people can transit the area fronting the wall for recreational purposes and approval of the shoreline setback variance will not diminish any existing lateral access. Scenic vistas and view planes from and along the Mokuleia coastline and from the near-shore waters are enjoyed by residents. All of the residential properties along this area have similar shoreline protection structures in place and the subject seawall maintains a consistent appearance. The seawalls are located on private property and no public open space or scenic views are impacted.

Provisions of the Land Use Ordinance of the City and County of Honolulu regulate the utilization of land in a manner intended to encourage orderly development in accordance with adopted land use policies. The project site is located in Mokuleia, Waialua within a rural residential designated area on the North Shore Sustainable Communities Plan (SCP) Land Use Map. (This designation is not a site-specific designation but is illustrative of land use policies stated in the text of the SCP.) Section 3.1 which discusses open space and the natural environment notes that open space preservation, which includes shoreline areas, is a key element for the North Shore and promotes effective management of these resources and deter land-based activities which contribute to their degradation. Section 3.1.32 contains guidelines pertaining to shoreline areas including:

- Protect nearshore coral reefs from damaging activities such as soil erosion.
- Discourage development or activities which result in beach loss.
- Maintain and expand public beach access to the shoreline and lateral shoreline access along the coast, especially in areas with high recreational or scenic value, including the shoreline along Sunset and Kawailoa where access to popular sandy beaches and surf spots are in demand.

Comment: According to the Coastal Engineering Report done by EKNA Services, the existing seawalls do not alter seasonal erosion/accretion patterns. The entire coastal reach has been experiencing net long-term erosion over the past 50 years. The area is not specifically noted as an area of high recreational or scenic value. In any case, the seawalls, which are on private property are not a barrier to lateral access along the beach.

4. COASTAL SETTING

4.1 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)

4.2 Shoreline Characteristics

EKNA Services, Inc. was contracted to prepare a Coastal Engineering Assessment of the potential impact of the subject seawall on existing coastal processes along this Mokuleia shoreline area. EKNA Services, Inc. also prepared in 2004 a Coastal Engineering Assessment of two existing seawalls (TMK: 6-8-9: 010 and 011) for two properties located along the same embayment about 1,300 feet east of the subject property. The 2004 Assessment Report contains a large amount of information that is relevant to the subject property, i.e. information about coastal processes, alternative shore protection measures, and potential littoral impacts. As recommended by EKNA Services, Inc., the entire 2004 Assessment Report is in **Appendix D** to provide the require costal engineering information in support of the shoreline setback variance for the subject property. In addition to the 2004 Assessment Report, EKNA Services, Inc. prepared on April 5, 2005 a letter report (also in **Appendix D**) to provide additional information specific to the subject parcel.

The following information is taken from the EKNA Services, Inc. 2004 and 2005 Coastal Engineering Assessment (**Appendix D**). The subject properties lie on the Mokuleia coast, characterized as an undulating coastal reach containing numerous embayed coral sand beach systems. The subject properties are along one such embayment located near the east end of Dillingham Airfield. This particular embayment is formed between two prominent reef "headleads", which are shallow reef formations that protrude seaward from shore. The reef headland which bound the eastern end of this embayment fronts the Mokuleia Beach Colony, just west of the Mokuleia Polo Grounds. The subject properties are also west side of the Mokuleia Beach Colony. **Figure 9** shows the general shoreline and nearshore physical characteristics.

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

The shoreline fronting this area is a narrow beach underlain with reef limestone that extends seaward as a variable depth reef platform. This area 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 structures to prevent further storm wave runup damage to their dwellings. The property owner wants to retain the existing seawall that spans both properties and related improvements to prevent future erosion and wave runup damage to the dwellings and property.

During an April 2004 site visit to the east end of the embayment by EKNA Services, Inc., 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 bay-front. 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.

EKNA Services’ site visit to the subject property was conducted on April 2, 2005 during low tide (0.1’MLLW), moderate North Pacific swell conditions (3 to 5 foot surf) and strong tradewinds. The base of the wall was subject to wave runup at the time of the site visit. Breaking wave activity was evident across the entire bay-front.

The subject seawall ties into concrete seawalls on both sides of the subject property. A public right-of-way (ROW) is located just east of the subject properties. Properties further eastward of the ROW to the Poli Stream mouth are protected with structures, and properties westward of the ROW within the embayment are protected by seawall – about 1,000 linear feet or so. There is no “dry beach” fronting the seawalls extending westward within the embayment. **Figure 3A and 3B** depict the condition of the shoreline in the vicinity of the subject properties. Large pieces of structural concrete, likely remnants of the original concrete tile protective structures, lie at the base of the existing seawall.

4.3 Existing Shoreline Structures

All of the residential lots on both sides of the subject property along this embayment have existing seawalls or revetments to provide shoreline erosion protection (**Figure 10**). Many of these shoreline protection structures were likely built in the 1970’s and 1980’s due to chronic erosion.” As further evidence of the longstanding seawalls along this embayment, in 1986 the owner of Parcel 19 received written confirmation from the City’s Department of Land Utilization that the seawall on Parcel 19 (just 2 lots west of the parcel 015) was “built prior to the adoption of the Shoreline Setback Rules of the City and County of Honolulu in 1971” (**Figure 5**).

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

While almost all of the shoreline protection structures that were built over 20 to 30 years ago were built without building permits, many have subsequently obtained after-the-fact Shoreline Setback Variances and building permits from the City and County of Honolulu. The five adjacent seawalls to the west of the subject property are in the process of submitting shoreline setback variance applications to the City.

4.4 Shoreline History

Historical aerial photographs depict the significant loss of shoreline along the Mokuleia coast. The subject property has lost to erosion approximately 2,518 square feet or almost 30 percent of the property's total 8,594 square feet. An area about 40 linear feet deep is now located seaward of the 2004 shoreline survey.

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. Hwang (1981) used historical aerial photograph analysis to assess shoreline changes on Oahu, based on movement of the vegetation line. **Figure 11** shows the location of transects where data were collected as shown in **Figure 12**. The subject property is located between Transect 10 and 11. During the 25-year period between 1949 and 1975 the subject embayment area experienced an erosion loss of between 10 to 8 feet (Transect 10 and 11 respectively). According to Hwang's report, major erosion occurred during 1967 to 1971 due to significant storm wave damage – this time frame is consistent with residents' testimony regarding when all of the seawalls along this embayment were originally built. 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 (DLU) 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. Data were collected only for Transect 10 which showed an additional erosion loss of 8 more feet. The total loss at Transect 10 between 1949 and 1988 totaled 18 feet. As such, 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 following are excerpts taken from the 1989 Oahu Shoreline Study which relate to this embayment.

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The following are excerpts taken from the 1989 *Oahu Shoreline Study* completed for the City's Department of Land Utilization which relate to this embayment.

This is a small embayment, 3,000 feet long, that is completely developed. Polipoli Stream discharges in the center of embayment. The shoreline from the Episcopal Camp to the stream is lined with shore protection structures, except for the four lots just west of the stream. The unprotected houses have only a few feet of vegetation between them and the beach.

The structures are generally vertical seawalls of varying heights and types. At the west end, particularly, the walls protrude varying distances out onto the beach.

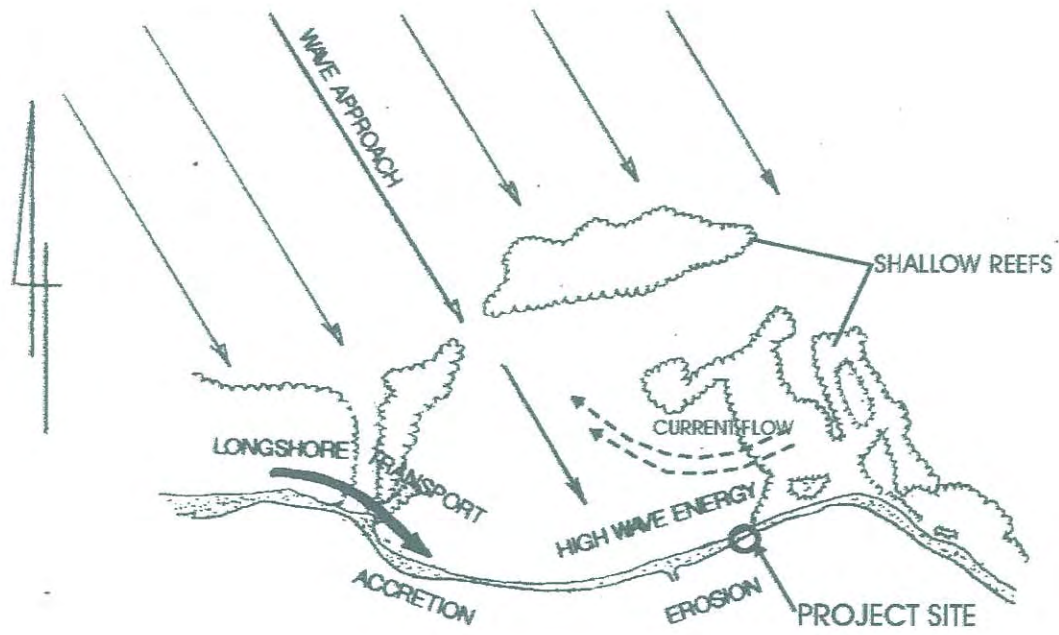
*Given the extent of the existing seawalls and the proximity of the unprotected houses to the waterline, shore protection should be allowed throughout this area. **The shore protection structure of choice will probably be a vertical seawall, since there is little room for sloping revetments.** The DLU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

At present, there is lateral access along this beach, at least during some seasons, but if erosion continues, this will be lost.

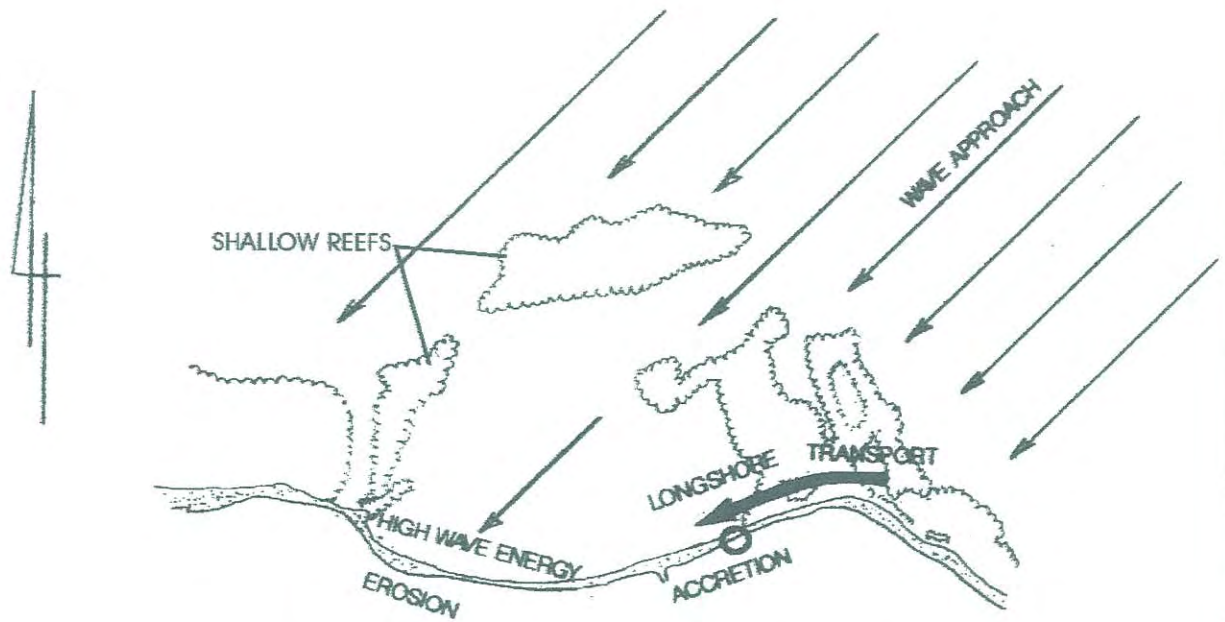
The above description and management recommendations are consistent with the findings of the EKNA engineering assessment for the subject property. Given the established pattern of shoreline protection, an individual lot owner has no choice but to protect his property with a vertical seawall structure similar to the existing seawall structure along the ocean frontage of the subject property.

4.5 Coastal Processes and Sand Transport

The following information is taken from the EKNA Services, Inc. 2004 and 2005 Coastal Engineering Assessment (**Appendix D**). It is apparent that during high tide, wave runup 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 the properties that are not protect by seawalls. The owner of the subject property has also experienced sand deposited into the rear yard and significant amount of wave runup and water have overtopped the wall and ocean water is deposited in the rear yard.



WINTER NORTHWEST SWELL CONDITIONS



SUMMER NORTHEAST TRADEWIND CONDITIONS

Source: EKNA Services, Inc.

Figure 13

SAND TRANSPORT FIGURES

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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.

According to the 2005 EKNA Services assessment, the erosion that is occurring along this span of coastal reach can be described as “passive” erosion (in contrast to “active” erosion which induced or accelerated by shore protection structures). Passive erosion proceeds independent of the type of shore protection constructed.

The subject property is sheltered from deepwater wave energy due to the shallow reefs that surround the embayment. These 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 tradewind-generated 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 longshore currents and transport of beach material alongshore in the direction of breaking waves. However, the shallow reefs surrounding the site considerably alter the deepwater wave characteristics within this embayment, resulting in possibly complex patterns of waves approaching along this shoreline.

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 that accumulates 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. Thus, the water drains towards deeper areas within the embayment and those deeper water depths exist on the west side of the embayment.

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The shallow reef structure offshore of the eastern headland – closer to the Mokuleia Beach Colony – is broader and extends further 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 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 activity 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 13** 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.

4.6 Potential Littoral Impacts

The following information is taken from the EKNA Services 2005 letter reports for the subject properties, which states the existing seawall that spans both Parcel 015 and 014, and the other along this coastal reach, have no effect on the existing littoral processes at this site. The subject seawall is functionally consistent with existing seawalls along this coastal reach. 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.

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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 along this coastline 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 be reversed simply by constructing sloping porous-surfaced shore protection structures. According to the EKNA 2004 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. Passive erosion proceeds 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.

4.7 Coastal Hazards

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

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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.

5. ALTERNATIVES CONSIDERED

The EKNA April 2005 letter reports for the subject properties state that EKNA's prior April 2004 report for two other properties that are also located along Mokuleia Bay should be referenced in its entirety. The 2004 report is contained in **Appendix D**. The 2004 EKNA report discusses in detail various alternatives to after-the-fact approval of an existing seawall at Mokuleia Bay.

The EKNA April 2005 letter reports specifically for the subject properties appear at the front of **Appendix D**. It states that removal of the existing seawall and replacing it with a different type of shore protection measure does not provide any significant benefit. Seawalls exist on both sides of the subject property. Also, removing the seawall without constructing replacement shore protection would result in the immediate loss of least 50 feet of property as the shoreline attempts to achieve a stable slope.

5.1 Sloping Revetment

Replacing the seawall with a sloping revetment structure is not a viable option because of the extremely limited land area – about only 20 feet - between the houses and the existing seawall. There is insufficient space on the properties to construct a sloping revetment. Since the revetment toe would be in line with the existing adjacent seawalls, the top of the revetment slope would be located about 20 feet landward of the adjacent seawalls, and could not be constructed without removing or relocating the dwellings and constructing flank walls to protect the adjacent properties. It would also be significantly visually incompatible with the adjacent vertical seawalls. Additionally, replacing the seawall with a sloping revetment structure will not improve the existing shoreline access and will not halt the ongoing erosion along this coast.

5.2 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.

5.3 Beach Restoration

The State of Hawaii Department of Land and Natural Resources (DLNR) Office of Conservation and Coastal Lands (OCCL) is developing a comprehensive coastal lands policy that strives to mitigate negative impacts to the coastal system from shore protection structures by encouraging alternatives to the construction of seawalls and revetments. In the foreseeable future, the DLNR will implement new, proactive and sustainable shoreline management practices in accordance with the objectives and policies that pertain to Hawaii's beaches, which are a State public resource protected by the State Constitution and Hawaii Revised Statute 205A and 183C. Policies for the protection and preservation of Oahu's natural shoreline and sandy beaches are further promulgated by the Revised Ordinances of Honolulu Chapter 23.

Beach and dune restoration with sand nourishment can slow coastal erosion and restore lost beach areas. The recent Kuhio Beach restoration project involved the replacement of 10,000 cubic yards of reclaimed sand from nearshore deposits. The project, which was executed between November 27, 2006 and January 6, 2007, cost approximately \$475,000 and was funded by the DLNR – Land Development Fund (DLNR, 2007). In March 2000, approximately 10,000 to 12,000 cubic yards of dredged sand from Kaelupulu Stream in Kailua was used in a demonstration project to renourish south Lanikai Beach (Shapiro 2000). A news release pertaining to the project indicated that it “provided about half of the total amount that will be needed to more fully nourish south Lanikai Beach” (DLNR 2000). It is not known when another beach nourishment project would be accomplished for south Lanikai Beach since adequate funds and sources of sand would first need to be secured.

Soft shore protection measures are not feasible from the perspective of a single landowner because they require resources and coordination on a large-scale. Beach restoration must occur along numerous residential properties in order to be effective. In addition to the challenges of finding suitable sand and navigating the permitting process, a successful beach nourishment project may require coordination and cooperation among a group of homeowners who maintain a long-term commitment to undertake sand replenishment on a periodic basis. It is likely that a groin or offshore breakwater structure would also need to be constructed to prevent sand from being quickly redistributed by wave energy. Due to intense storm wave activity on the north shore these solutions do not appear to be practical. Beach replenishment may be the best long-term solution, but these measures are beyond the capacity of the applicant who is simply trying to permit a seawall that has been in existence for more than 30 years in order to protect his property from further damage.

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5.4 No Action

This alternative is not viable because it implies that no action would be taken to resolve the illegal seawall. The applicant would incur continuous civil fees owned to the City and County of Honolulu for the shoreline setback violation. The engineer has estimated that the existing seawall could last as long as 30 years but at the same time it is not possible to predict storm wave action for the north shore of Oahu. Granting of the Shoreline Setback Variance is the means for legalizing the existing seawall under ROH Chapter 23 and would provide a means for the owner to legally repair the wall but it is no guarantee that the structure will be permanent. However, in general, a legal structure is more likely to be repaired in accordance with building code regulations than an illegal structure.

5.5 Removal of the Existing Seawall.

Removal of the existing seawall, which is functioning as a retaining wall, is not a viable alternative because it would result in immediate loss of at least 50 feet of property as the shoreline attempts to achieve a stable slope. With both houses only 20 feet away from the existing wall, both houses would be destroyed if the seawall was removed. In addition, removal of the existing seawall along 61 feet of coastline would not release enough sand to restore a beach in an area where the entire shoreline has been armored and would hasten erosion of the applicant's parcel. Areas behind existing shoreline structures on adjacent properties may eventually erode if the applicant's seawall are removed.

6. PROJECT IMPACTS

Potential impacts are addressed in terms of how proposed action relates to the thirteen criteria below. 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).

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

The subject properties lie along an eroded sandy shoreline. No new construction is proposed. The subject properties do not contain any significant flora or fauna. No known cultural resources are located on the properties. No impacts to natural or cultural resources are anticipated due to the proposed action. The application is for an after-the-fact shoreline setback variance which involves no construction activities and no irrevocable commitment, loss or destruction of resources.

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

There is no impact on public access to the shoreline. A City-owned public right-of-way (TMK: 6-8-10: 012) is located just a couple lots east of the subject properties. There will be no impacts on fishing or ocean use due to the proposed action. The existing seawall configuration and related improvements do not curtail the beneficial use of the environment. The properties are is zoned residential and are committed to private residential use. The existing seawall and others along this coastal reach have no effect on the existing littoral processes at this site. However, when a protective structure is built along an eroding shoreline and erosion continues, the result will be loss of beach fronting the wall and is the probable long-term consequence of the existing seawalls at Mokuleia. Loss of beach could impact shoreline recreational activities including on and off-shore fishing. On the other hand, removal of the seawall would result in immediate loss of at least 50 feet of property as the shoreline attempts to achieve a stable slope (EKNA 2006). The existing seawall protects the property from further 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;

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Chapter 343, HRS requires environmental assessment for any use within a shoreline area as defined in section 205A-41. It is the policy of Chapter 205A to discourage all shoreline hardening that may affect access to, or the configuration of our island beaches. However, the existing seawall is consistent with the longstanding history of government decisions that approved shore protection structure along this stretch of the Mokuleia coastline in order to protect the rights of homeowners. The eight (8) adjacent properties to the west of the applicant's property have all received shoreline setback variance approvals and building permits (1993/1997) for their respective seawalls. These issues have been discussed at length with the DLNR and there is no simple answer or statewide policy that has been implemented.

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 and related improvements or the proposed action to seek after-the-fact approval. No new construction is proposed.

5. Substantially affects public health;

There are no public health concerns relating to the existing seawall and related improvements. No new construction is proposed.

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. No new construction is proposed. The proposed action does not impact public services or facilities.

7. Involves a substantial degradation of environmental quality;

The existing seawall prevents further erosion of the applicant's properties and therefore minimizes the potential for runoff entering the ocean. The subject seawall ties into seawalls on both sides of the subject properties. Historical aerial photographs and studies depict the significant loss of shoreline along the Mokuleia coast since 1949. The subject properties have lost to erosion approximately 30 percent of their total area. The majority of house lots have vertical seawalls or some form of shore protection along this embayment.

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

No new construction is proposed. The adjacent properties are developed as residential properties. All the residential properties along this embayment experienced loss of 25-30 % of property lot area due to wave action and erosion prior to construction of the seawalls between 1967-70. Nine of the properties have undergone environmental review in order to obtain after-the-fact shoreline setback variances to legalize the existing seawalls. There has been no determination of significant cumulative impact by the approving government agency. The process of obtaining the after-the-fact shoreline setback variance for the subject property will not result in any significant cumulative impact and does not involve a commitment for larger actions. As such, a Finding Of No Significant Impact is being requested. There is no commitment for a larger action; the subject property will remain single family residential.

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

The subject properties have been previously disturbed and developed when the single family residences and improvements were constructed. There are no known endangered, threatened, or rare plants or animal species at or near the subject property.

- 10. Detrimentially affects air or water quality or ambient noise levels;**

No new construction is proposed. The existing seawall and related improvements do 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 properties are located in Flood Hazard Zone AE with a base flood elevation of twelve feet, and the tsunami evacuation zone. The seawall protects the properties from further erosion and protects both houses from wave energy, wave run-up and overtopping. The existing seawall is not expected to increase the flood hazard for the surrounding properties or the subject properties. 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. Any tsunami which would breach the wall would most likely cause damage to both the wall and property

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

The 1987 Coastal View Study designates Mokuleia Beach Park as a “significant stationary view”. The project site is located over 4,000 feet east of Mokuleia Beach Park. The Study also designates Farrington Highway as a “coastal roadway with intermittent coastal views”. Views of the shoreline and subject properties’ rear yard are not possible from Farrington Highway. . Scenic vistas and view plans from and along the coastline and from the near-shore waters are enjoyed by residents. All of the residential properties along this area have similar shoreline protection structures in place and the subject seawall maintains a consistent appearance. No scenic views are impacted.

13. Requires substantial energy consumption.

Not applicable.

6.1 Summary of Unavoidable Adverse Environmental Impacts

Construction of the original seawalls in the late 60’s or early 1970’s may have prevented the erosion of coastal land behind the shoreline structures but, combined with other factors such as sea-level rise, may have refocused erosion that can contribute to beach loss. Allowing the applicant’s seawall to remain in place prevents property losses due to erosion and wave damage, however, the structures may be impounding a substrate beach quality sand that would naturally nourish a healthy beach. Efforts to restore the beach in southern Lanikai where, as is the case along this shoreline, the entire shoreline has been armored for many years, the sand supply has decreased, and the State public resource has been severely compromised for several decades would require the removal of many contiguous armaments along the affected coastline.

Removal of the existing seawall along 154 feet of coastline would not release enough sand to restore a beach in an area where the entire shoreline has been armored and would hasten erosion of the applicant’s parcel. Areas behind existing shoreline structures on adjacent properties may eventually erode if the applicant’s seawalls are removed. Maintaining status quo by allowing the applicant’s existing shoreline protection structure to remain in place is not expected to create any new significant adverse impact on littoral processes along the shoreline.

6.2 Finding and Reasons Supporting Anticipated Determination

The significance criteria of Title 11 Chapter 200-12 HAR have been applied and it is proposed that the proposed action to approve the after-the-fact shoreline setback variance for the existing seawall that spans Parcels 015 and 014 and related improvements will not have a significant effect on the immediate or surrounding environment and that an Environmental Impact Statement will not be required. Based upon this Environmental Assessment document and the evaluation of the determination, it is recommended that a Finding of No Significant Impact (FONSI) be issued for the proposed action.

7. MITIGATION MEASURES

As indicated in Section 6.0 Project Impacts, the proposed action would cause no significant short-term or long-term impacts to recreational, biological or scenic resources. The Coastal Engineering Assessment states that the existing seawall has no effect on the existing littoral processes at this site and it does not alter seasonal erosion/accretion patterns. No mitigation measures are proposed.

8. REQUIRED APPROVALS, AGENCY AND PUBLIC CONSULTATION AND REVIEW

8.1 Required Approvals

The project will require the following:

- Shoreline Setback Variance pursuant to Chapter 23, Revised Ordinances of Honolulu
- Shoreline Certification from the State of Hawaii Department of Land and Natural Resources
- After-the-fact Building Permit from the City and County of Honolulu
- Height waiver or height variance for the existing seawall
- Minor Shoreline Structures Permit for those minor structures not included in the Shoreline Setback Variance

8.2 Shoreline Setback Variance

The applicant will need to submit an application for an after-the-fact Shoreline Setback Variance for the following primary structures.

1. The 1998 seawall that spans across Parcel 015 and 014;
2. The portion of the 1998 seawall that is located on parcel 15 along the side property line between Parcel 015 and 014.

The applicant is requesting that these additional non-permitted structures located within the 40-foot shoreline setback be included in the variance or that these structures be approved as “minor structures” under Chapter 23 section 15-1(b)(8):

1. Tile wall that is located on parcel 15 along the side property line between Parcel 015 and 014;
2. The 100 square foot concrete slab located adjacent to the seawall on Parcel 015;
3. Tub located on Parcel 14;
4. Portion of rock wall and wooden fence along the side property line between parcel 014 and 013.

As set forth in the Revised Ordinances of Honolulu (ROH) Section 23-1.8(b)(3), the variance application will contain the three tests of hardship that the landowner will incur if he is not allowed to retain the structures

(1) The applicant will be deprived of reasonable use of the land.

All 16 residential properties along this coastline are protected with similar structures to prevent the effects of shoreline erosion and wave damage that would otherwise occur due to North Pacific swell events. Previous erosion from wave action had already substantially diminished the property area prior to construction of the shoreline protection structure. It is reasonable to assume that property losses will occur if the applicant is required to remove the illegal seawall structures that have been in place since 1969. Granting of the Shoreline Setback Variance is the means for legalizing the existing seawall under ROH Chapter 23 and would provide a means for the owner to legally repair the wall should a severe storm event undermine and collapse an unconsolidated shoreline, thereby creating a public hazard on the beach. Any other action would deprive the applicant of reasonable use of his property.

(2) The applicant’s proposal is due to unique circumstances and does not draw into question the reasonableness of ROH Chapter 23 and the shoreline setback rules.

The beach fronting the property began to be narrowed since the original subdivision in 1960. The original seawall was constructed without building permits prior to the

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implementation of the shoreline setback rules and subsequently repaired in response to wave damage. Chapter 23 allows shoreline protection structures that have received a shoreline setback variance on the basis that the structure does not adversely affect beach processes, public access along the shoreline or shoreline open space. Retreat of the shoreline along this stretch of coast has been in existence prior to the building of the first seawall; and, would most likely continue without the shoreline protection structure. People can transit the area fronting the walls for recreational purposes at low tide and the open space and view planes are not impacted by the existence of the seawall. It is also a policy of Chapter 23 to reduce hazards to property from coastal flooding and retreat of the shoreline; and, as the wall has been in existence for almost 40 years and is connected to a series of seawalls protecting the residential properties along the embayment, it is reasonable to allow the wall to remain and to allow it to be repaired as needed in accordance with government regulations

(3) The proposal is the practical alternative which conforms to the purpose of the shoreline setback regulations

The applicant concurs that while the preferable alternatives would be to redesign the wall to include a sloped revetment and/or engage in a program of beach restoration, the proposal to retain the existing seawall is the only practical solution. To demolish and reconstruct the wall would unduly impact beach processes and beach restoration is beyond the scope of a single landowner. Legalization of the existing shoreline protection structure, so that it can be repaired as necessary, is the best alternative given the history of erosion and wave action for this portion of the north shore of Oahu.

These criteria and any specific engineering solutions will be expanded on in the application for the Shoreline Setback Variance and will include a request and justification to retain other minor structures.

8.3 Preparation of the Final 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/
Design and Construction
 - State Bureau of Conveyances
 - State Department of Accounting & General Services (Survey Division)
 - State Department of Land and Natural Resources/
State Historic Preservation Division
 - State Office of Environmental Quality Control
- Sierra Club

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8.2

The Final EA contains the following comment and response letters on the Draft Environmental Assessment.

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
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MUFI HANAKEMANN
MAYOR

HENRY ENG, FAICP
DIRECTOR

DAVID K. TANOUJE
DEPUTY DIRECTOR

2005/ED-21 (DT)

January 18, 2006

Mr. Donald Clegg
Analytical Planning Consultants, Inc.
928 Nuuanu Avenue, Suite 502
Honolulu, Hawaii 96817

Dear Mr. Clegg:

Re: Draft Environmental Assessment (EA)
68-673 and 68-675 Hoomana Place - Mokuleia
Tax Map Keys 6-8-10: 14 and 15

We have reviewed the Draft EA for the above-referenced project and have the following comments. Please incorporate them into the Final EA:

1. The site plans in the EA (Figure 4A and 4B) show only a partial outline of the dwellings on both lots. All structures should be shown on both sites. The 20-foot, 40-foot, and 55-foot setback lines are shown on the site plans. Only the 40-foot shoreline setback line should be shown. A graphic (bar) scale should be added to both site plans.
2. Please indicate the distance between the dwellings on each lot to the mauka face of the seawall.
3. Section 4.3, Existing Shoreline Structures, mentions that most of the shoreline protection structures that were built over 20 to 30 years ago were constructed without building permits. This section should specify which lots have seawalls without building permits and the approximate year each seawall was constructed.
4. A certified shoreline survey must be submitted with the shoreline setback variance. However, we are aware that the Department of Land and Natural Resources (DLNR) rules for shoreline certifications, revised December 12, 2002, require government approval where the shoreline is located at the base of a manmade structure (e.g., Section 13-22-7(a)(14)), Hawaii Administrative Rules). Please address what, if any issues (i.e., shoreline encroachments, etc.) exist that must be addressed in order to obtain a certified shoreline survey.

Mr. Donald Clegg
January 18, 2006
Page 2

5. Section 5.3, Beach Restoration, states that this is not an economically viable alternative. This is not an acceptable statement because the shoreline variances are not granted on the basis of allowing the applicant to save money or relieve the applicant of a financial burden. Furthermore, this section must disclose if the DLNR Office of Conservation and Coastal Lands was contacted on possible beach restoration options. We are aware that a program for small-scale beach nourishment projects has been developed in conjunction with the State Department of Health and the U.S. Army Corps of Engineers.
6. Section 5.4, No Action, must be expanded to describe the physical conditions that are anticipated if no action were to be taken. The Final EA should provide an estimate of the life expectancy of the existing seawall without further alterations.
7. Criteria 3 of Section 6, Project Impacts, fails to describe the State's policies with regard to beach erosion and shoreline protection. The Final EA should be revised to include a discussion of the shoreline protection policies of the DLNR Office of Conservation and Coastal Lands. It should also disclose whether the office was consulted on this proposed action relative to the State's long-term policy and goals and guidelines for our shoreline.
8. Criteria 12 of Section 6, Project Impacts, does not discuss the scenic vistas and view planes from and along the coastline from the near-shore waters which are enjoyed by residents and visitor alike and is crucial to the ocean recreation and tourist industry.
9. The Final EA should include a section that addresses the criteria under which a shoreline setback Variance (SV) may be granted. This section must specifically address the three (3) tests of hardship, pursuant to Section 23-1.8(b)(3), Revised Ordinances of Honolulu. A thorough discussion should be provided in the context of these specific criteria.
10. Section 8.2, Preparation of the Draft Environmental Assessment, lists five (5) agencies that were consulted during the Draft EA process. The Department of Planning and Permitting (DPP) is the lead or "accepting" agency for the EA. As part of its review to determine whether there is a significant effect, the DPP contacts the various agencies for comments. Were letters requesting comments sent from the agent to these five (5) agencies prior to preparation of the Draft EA? If yes, then the letters and the agency responses should be listed under a separate section of the EA titled, "Preliminary Assessment."

Mr. Donald Clegg
January 18, 2006
Page 3

PHONE (BUS): (808) 536-5995
FAX: (808) 599-1553



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

July 8, 2008

Mr. Henry Eng, FAICP, Director
City & County of Honolulu
Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, HI 96813

ATTN: Dana Teramoto

Subject: Draft Environmental Assessment (DEA) No. 2005/ED-21 (dt)
Shoreline Seaback Variance for Existing Seawall - Sutton
68-673 and 68-675 Hoomana Place - Mokuleia
Tax Map Key 6-8-010-014 & 015

Dear Mr. Eng:

Thank you for your comment letter dated December January 18, 2006 addressed to Mr. Donald Clegg, President, of Analytical Planning Consultants, Inc. We respectfully offer the following responses:

- 1.2. The survey has been revised to show 40' setbacks and distance from each dwelling to mauka face of the wall. The site plans shown in Figure 4A & B in the DEA have been eliminated in the FEA. The revised survey (Appendix C) is to scale.
3. A history of the area and permits issued has been included in sections 2.1 Site Description and Background and 4.3 Existing Shoreline Structures.
4. Prior to obtaining after-the-fact building permits for the structures located within the shoreline setback area, the applicant will be required to obtain a certified shoreline from the State of Hawaii Department of Land and Natural Resources. There is no record of any previous certified shoreline issued for the subject parcels. As discussed in the FEA, there are no known encroachment or other issues associated with the property.
5. Section 5.3 Beach Restoration has been expanded to include information of other beach restoration projects on Oahu and their relevancy to the subject property.
6. Section 5.4 No Action has been expanded to include the following information:
This alternative is not viable because it implies that no action would be taken to resolve the illegal seawalls. The applicant would incur continuous civil fees owned to the City and County of Honolulu for the shoreline setback violation. The engineer has estimated that the existing seawalls could last as long as 30 years but at the same time it is not possible to predict storm wave action for the north shore of Oahu. Granting of the Shoreline Setback Variance is the means for legalizing the existing seawalls under ROH Chapter 23 and would provide a means for the owner to legally repair the walls but it is no guarantee that the structures will be permanent. However, in general, legal structures

11. A section should be added to the Final EA that addresses how the request is consistent with the vision, land use policies, principles, and guidelines of the North Shore Sustainable Communities Plan (Ordinance 00-15), including the Open Space and Natural Environment (Section 3.1) and guidelines pertaining to lateral public access along the shoreline areas (Section 3.1.3.2).

Please contact Dana Teramoto of our staff at 523-4648 if you have any questions regarding this letter.

Very truly yours,

Henry Eng, FAICP, Director
Department of Planning and Permitting

HE:nt


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are more likely to be repaired in accordance with building code regulations than illegal structures.

7. **Criteria 3:** The following information has been added:
Chapter 343, HRS requires environmental assessment for any use within a shoreline area as defined in section 205A-41. It is the policy of Chapter 205A to discourage all shoreline hardening that may affect access to, or the configuration of our island beaches. The construction of vertical seawalls appears to have aggravated shoreline erosion and loss of beach access in the area, and in this sense, the proposal to retain the existing seawall conflicts with these long-term environmental policies or goals or guidelines of the State of Hawaii. However, the existing seawall is consistent with the longstanding history of government decisions that approved shore protection structure along this stretch of the Mokuleia coastline in order to protect the rights of homeowners. The eight (8) adjacent properties to the west of the applicant's property have all received shoreline setback variance approvals and building permits (1993/1997) for their respective seawalls. These issues have been discussed at length with the DLNR and there is no simple answer or statewide policy that has been implemented.
8. **Criteria 12:** The following information has been added:
Scenic vistas and view plans from and along the coastline and from the near-shore waters are enjoyed by residents. All of the residential properties along this area have similar shoreline protection structures in place and the subject seawall maintains a consistent appearance. No views of the coastline are impacted.
9. Section 8.2 of the FEA includes the criteria and justification for a Shoreline Setback Variance.
10. No formal written comments were received during preparation of the draft EA. All comment letters and responses received during review of the draft EA are included in the FEA.
11. Section 3.8 Applicable Land Use Considerations has been added to the FEA which includes a discussion of the North Shore Sustainable Communities Plan.

Thank you again for your consideration and review of the Draft Environmental Assessment. Revisions and additions included in the Final Environmental Assessment are in shaded text. We appreciate the time you have given to determining the scope of the project and are requesting the Department of Planning and Permitting to issue a Finding of No Significant Impact (FONSI). If you have any questions or require additional information, please contact myself or Lauri Clegg at 536-5695.

Sincerely,


Donald Clegg
President

Isaac Moriwake
223 S. King St. 4th Fl.
Honolulu, HI 96813
(808) 599-2436 x13

DEPT. OF PLANNING & PERMITTING
CITY & COUNTY OF HONOLULU

December 23, 2005

Donald Clegg
Analytical Planning Consultants, Inc.
928 Nu'uuanu Ave.
Honolulu, HI 96817

Ann Matsumura
C&C Dep't of Planning & Permitting
650 S. King St., 7th Fl.
Honolulu, HI 96813

OEQC
Leiopapa A. Kamehameha Bldg.
235 S. Beretania St., Suite 702
Honolulu, HI 96813

Re: Sutton After-the-Fact Seawall, Mokuleia (HRS 343 DEA)

Dear Sirs and Madams:

I am the Chair of the O'ahu Group of the Sierra Club and member of the Citizens to Save Our Beaches. Review of the draft environmental assessment (DEA) for this after-the-fact seawall reveals various inadequacies and points of concern. We would appreciate it if the agency and/or applicant's consultant could follow up with further analysis and answers to the questions below in its final EA, or more appropriately, a revised draft EA.

Initially, since this seawall and others in the vicinity were illegally built, much has been learned about the harmful impacts of coastal hardening such as seawalls on the natural, public beach. The agency ought to take a very hard look whether, in this better informed day and age, our government regulators should be allowing seawalls to persist, which everyone knows would all but ensure the loss of the beach. Just because the seawall exists does not mean that this agency should approve it. Other agencies have taken a more enlightened approach; see, e.g., Morgan v. Kauai Planning Department, 104 Haw. 173 (2004), where the Kauai planning department ordered a seawall removed.

More specifically, we are aware of examples of shoreline landowners who had seawalls destroyed during extremely high surf events (e.g., Hurricane Iwa) and were not allowed to rebuild the seawalls, but rather were directed to use other protective measures. We request that the agency and/or the applicant's consultant provide detailed explanation why landowners who follow the law are not allowed to rebuild, while landowners who unilaterally and illegally rebuild are allowed to apply for after-the-fact approvals, apparently without any consequences.

Apart from the substantive questions of the propriety of seawalls in general and in this case, the DEA needs more detailed and thoughtful analysis to meet the law's requirements. At minimum, the following issues should be addressed:

- (1) The DEA emphasizes this lot is one of numerous others along this coastline, some of which are concurrently applying for after-the-fact approval of seawalls. Indeed, it appears that the same consultant is handling these present applications, and that this DEA is a virtual carbon copy of the ones accompanying the other applications. This raises serious concerns of segmentation of actions and impacts. Please specify how many other seawalls are present in the area (number and length) and how many total applications are pending. Please also make clear the potential impacts of this seawall, not only standing alone, but also together with the others concurrently applying for approvals, as well as all the other seawalls along this coastline. This concept is called cumulative impact analysis and is expressly required by law.
- (2) Please specifically address the potential cumulative impacts of the seawalls on this coastline on surrounding beach areas, including the public beach parks on either side of this coastline (Mokuleia and Makaleha). It is widely understood that coastal hardening deflects wave energy and causes erosion elsewhere. Could these seawalls cause long-term erosion of the surrounding beaches?
- (3) If analysis of these cumulative impacts indicate that these seawalls currently under application "may" have a significant impact together with all the other seawalls in the area, then by law these applicants should jointly prepare a full EIS examining these impacts.
- (4) The DEA states that this shoreline has a "history of chronic erosion." Please discuss whether there is a difference in erosion rates between this area developed with seawalls, and the beaches on either side of this area, and whether the shoreline hardening accounts for this difference.
- (5) The DEA claims that the seawalls have not contributed to erosion and asserts that the erosion is "passive" and not affected by coastal hardening (this, despite claims that if the seawall is removed, erosion would "immediately and significantly" impact the shoreline). This concept appears to be novel and is not referenced in various recognized reports. Dennis Hwang's recent Hawaii Coastal Hazard Mitigation Guidebook (2005), for example, maintains that coastal hardening "are directly related to where structures are placed along the shoreline" (p. 7). Please provide authority for this concept of "passive erosion."
- (6) Please provide more thorough analysis of the potential impacts and discussion of the factors for determining "significance" of the impacts. For example:
 - (a) The DEA does not discuss potential loss of lateral access from physical presence of the structure in the wave impact area and from erosion of the beach, but simply mentions public access in perpendicular terms. This omission is all the more conspicuous given that the DEA cites a report stating that "if erosion continues, [lateral access] will be lost." Please discuss potential impacts on lateral access.

(b) The DEA does not discuss the potential of seawalls exacerbating erosion under any of the applicable factors, e.g., "irrevocable an irrevocable commitment to loss or destruction of any natural . . . resource," "secondary impacts." Please address this concern.

(c) Under the factor of "conflicts with the state's long-term policies," the DEA simply cites a "long-standing history" of government approvals. Please discuss the existence and applicability of any policies regarding preservation of public beaches and access and the now-disfavored practice of coastal hardening.

(d) Please discuss these potential impacts from a cumulative point of view, as discussed above.

(7) Please provide more thorough analysis of the alternatives and mitigation, so that the agency can make a reasoned decision on these issues. For example, the new Hwang report recommends beach restoration instead of seawalls, but the DEA summarily concludes this is too expensive, without any details or bases for reasoned comparison. Similarly conclusory analysis is provided regarding other measures such as sand bags. For example, sand bags are described as more reflective than seawalls when fully filled, which begs the question, why not use partially filled sandbags? Finally, it is very hard to believe that in this enlightened day and age, absolutely no mitigative measures are available to alleviate beach loss. Please be more complete in this analysis.

(8) Since the waves rush against the seawalls, it would appear that the shoreline is located further mauka of the seawall, and that the seawall is located on public (state) land. State law is clear that the shoreline is not a fixed boundary, but shifts over time in line with natural conditions. Please respond to this issue. Please also discuss whether the opinions of the relevant DLNR staff, including Office of Coastal Conservation Land, has been actively solicited in the preparation of this DEA.

If you could address the above concerns in any subsequent EA, we would greatly appreciate it. As the saying goes, "an ounce of prevention is worth a pound of cure." This rings particularly true in the context of seawalls, where the very existence of our public beaches is at stake, as well as in the context of the EIS law, where thorough, honest analysis helps to inform sound agency decision-making and prevent controversy regarding the process. Please feel free to contact me if you have any questions.

Very truly yours,



Isaac Moriwake



ANALYTICAL PLANNING CONSULTANTS, INC.

928 NUUANU AVENUE, SUITE 502 • HONOLULU, HI 96817

July 3, 2008

Mr. Isaac Moriwake
223 S. King Street 4th Floor
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment (DEA)
Shoreline Setback Variance for Existing Seawall - Sutton
68-673 and 68-675 Hoomana Place - Mokuieia
Tax Map Key 6-8-010:014 & 015

Dear Mr. Moriwake:

Thank you for your comment letter dated December 23, 2005 addressed to Mr. Henry Eng of the Department of Planning and Permitting. Since the comment letters were received on the DEA, Analytical Planning Consultants has been in consultation with the DPP as to how to proceed with the project. At this time, we respectfully offer the following responses to your letter. Appropriate sections of the final EA have been expanded or revised to reflect this information as required.

1. The EA has disclosed the proposed action in its entirety and does not include a future phase. As such, there is no segmentation of actions and impacts. Regarding other seawalls in the area, historical slides and photographs of the area, taken from 1982 through 1991 display walls in the sand area along the subject shoreline area for 16 residential lots east of the Episcopal Church Camp, including the subject lot. After-the-fact Shoreline Setback Variances and building permits have been issued for 9 of the properties. Parcels 27-28 applied for and received variances in 1990 and parcels 23-26 applied for and received variances in 1997. Additionally, the Mokuieia Beach Colony (TMK 6-8-09: 001) has an approximately 350-foot long seawall, with an approved shoreline setback variance.

In 2004, the owners of parcels 14, 15, & 18-22 were sited for construction of seawalls without a shoreline setback variance and are in the process of applying for the necessary after-the-fact government permits to legalize the walls which have been in place for more than 30 years. The process of obtaining the after-the-fact shoreline setback variance will not result in any cumulative impact and does not involve a commitment for larger actions. Legalizing the existing subject seawall will allow the owner to maintain and repair the wall as needed for safety of the beach and property.

2. Regarding long-term erosion in the area, the Coastal Engineering Assessment done by EKNA Services, states that the existing seawalls do not alter existing seasonal erosion/accretion patterns. The entire coastal reach has been experiencing net long-term erosion over the past 50 years. As 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.

3. Chapter 343, HRS requires that an environmental assessment address cumulative impact. All the residential properties along this embayment experienced loss of 25-30 % of property lot area due to wave action and erosion prior to construction of the seawalls between 1967-70. Nine of the properties have undergone environmental review in order to obtain after-the-fact shoreline setback variances to legalize the existing seawalls. There has been no determination of significant cumulative impact by the approving government agency. The process of obtaining the after-the-fact shoreline setback variance for the subject property will not result in any significant cumulative impact and does not involve a commitment for larger actions. As such, a Finding of No Significant Impact is being requested.
4. There are aerial photos for this section of the coastline dating back to 1949. The presence of the vertical seawalls does not indicate direct evidence of accelerated shoreline retreat due to the seawall structure on this property. The beach has retreated at an average of one foot per year since 1949. This rate of retreat applies to the 20-30 years before the subject seawalls were built. It is clear that the current situation is a constant reflection of energy and scouring of sand from the area fronting the seawall.
- If the trend of shoreline retreat was allowed to continue at this property, the beach would have continued to retreat at a rate of approximately one foot per year and this property would now be eliminated and Farrington Highway would be threatened by shoreline erosion.
5. As explained in the Coastal Engineering Assessment prepared by EKNA Services, even within the scientific community, controversy exists on whether seawalls are adverse and promote erosion. The erosion that is occurring along Mokuieia shoreline is "passive" (in contrast to "active" which is induced or accelerated by shore protection structures). Historically, the entire coastal reach has been experiencing net long-term erosion over the past 50 years. The report concludes that the existing seawall and others along this coastal reach have no effect on the existing littoral processes at this site. Any erosion that may be occurring is due to the scouring of sand from the area fronting the seawall.
6. (a) Reduction of beach area has been an ongoing problem along this section of beach since the residential subdivision was created in 1960. At the time that the individual lots were created in 1960, there was no publicly mandated requirement for lateral access along the shoreline and the property boundaries were formed at the highwater mark. Due to the natural process of erosion along this embayment, approximately 25% of the lot area has eroded and a portion of the property is underwater. As such, any previously existing public lateral access, which would have been beyond the property boundary is no longer available. The beach along the entire section of Mokuieia could be considered very narrow. Depending on the seasonal tides people can transit the area fronting the wall for recreational purposes. Approval of the shoreline setback variance will not diminish existing lateral access.
- (b) The application is for an after-the-fact shoreline setback variance which involves no construction activities and no irrevocable commitment, loss or destruction of resources.
- (c) Section 6.0.1 has been expanded to include the following information:

Chapter 343, HRS requires environmental assessment for any use within a shoreline area as defined in section 205A-41. It is the policy of Chapter 205A to discourage all shoreline hardening that may affect access to, or the configuration of our island beaches. The construction of vertical seawalls appears to have aggravated shoreline erosion and loss of beach access in the area, and in this sense, the proposal to retain the existing seawall conflicts with these long-term environmental policies or goals or guidelines of the State of Hawaii. However, the existing seawall is consistent with the longstanding history of government decisions that approved shore protection structure along this stretch of the Mokuieia coastline in order to protect the rights of homeowners. The eight (8) adjacent properties to the west of the applicant's property have all received shoreline setback variance approvals and building permits (1993/1997) for their respective seawalls. These issues have been discussed at length with the DLNR and there is no simple answer or statewide policy that has been implemented.

7. Section 5 Alternatives has been expanded to include beach restoration and no action.
8. Determination of the certified shoreline is determined by the Department of Land and Natural Resources. Typically the DLNR the shoreline is established at the face of a vertical seawall structure.

Thank you again for your comments on the DEA. If you have any questions or require further clarification, please contact myself or Lauri Clegg at 536-5695.

Sincerely,



Donald Clegg
President



MAR 20 09 57

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

March 15, 2006

Mr. Henry Eng
Department of Planning and Permitting
City & County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Mr. Eng:

**SUBJECT: Chapter 6E-42 Historic Preservation Review (Private)-
Draft Environmental Assessment for Shoreline Setback Variance
68-673 & 68-675 Ho'omana Place, Landowner: Sutton Family Partners
Mokuleia Ahupua'a, Wai'alea District, Island of O'ahu
TMK (1) 6-8-010:014 & 015**

LOG NO: 2006.0688
DOC NO: 0603AJ07
Archaeology

Thank you for the opportunity to comment on the aforementioned project. According to your cover letter and attached Draft Environmental Assessment (DEA), the applicant (Sutton Family Partners) seeks approval for an after-the-fact Shoreline Setback Variance and after-the-fact building permit for a seawall spanning the shoreline edge of both parcels, a seawall located along the side property line between parcels 014 and 015, and a 100-square-foot concrete slab located adjacent to the seawall on parcel 015. A height waiver is also being sought for the seawall spanning both parcels because it exceeds six feet in height.

Given the physiographic location of this parcel, there is a moderate to high potential for historically-significant sites, including Native Hawaiian burials and/or habitation sites, to be located beneath the ground surface. We are unable to find a date of construction for the original seawall in the DEA. However, the current features described above were constructed in 1998. If we had been afforded the opportunity to comment on the permits regarding the construction of these features, we would have required some form of proactive mitigation (e.g., an archaeological inventory survey and/or archaeological monitoring during the construction), depending on the exact nature of the proposed undertaking. For these reasons, we are unable to offer our concurrence for these after-the-fact requests.

Thank for requesting our input on this proposal. Please call Mr. Adam Johnson at 808-692-8015 if you have any questions about this letter.

Aloha,

Melanie Chinn, Administrator
State Historic Preservation Division

AJ:cmn



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

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

May 30, 2008

Ms. Nancy McMahon, Acting Branch Chief
State of Hawaii Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Blvd. Room 555
Kapolei, Hawaii 96707

Subject: Draft Environmental Assessment (DEA)
Shoreline Setback Variance for Existing Seawall - Sutton
68-673 and 68-675 Hoomana Place - Mokuleia
Tax Map Key 6-8-010:014 & 015

Dear Ms. McMahon:

Thank you for your comment letter dated March 15, 2006 addressed to Mr. Henry Eng of the Department of Planning and Permitting. We respectfully offer the following responses:

Your comments will be included in the FEA. For clarification, there is no government documentation of the original construction of the seawalls along the embayment of the Mokuleia Beach Homes subdivision; however, they were believed to have been originally constructed in the 1970's after extensive wave damage to properties in the area. Any later repairs utilized the original foundations. No adverse impacts to historic or archeological resources are known to have occurred from construction or repair of the seawalls. Retention of the existing seawall will involve no subsurface disturbance. Should repairs involving subsurface disturbance be undertaken in the future, the State Historic Preservation Division will be contacted for guidance.

Thank you again for your comments on the DEA. If you have any questions or require further clarification, please contact myself or Lauri Clegg at 536-5695.

Sincerely,

Donald Clegg
President

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
228 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
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GENEVIEVE SALMONSON
DIRECTOR

DEC 27 PM 3 16

STATE OF HAWAII
CITY & COUNTY OF HONOLULU

December 20, 2005

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

Dear Mr. Eng:

Subject: Draft EA for the Sutton Shoreline Setback Variance, Mokuleia

Thank you for the opportunity to comment. Here are our comments.

1. Please consult with adjacent neighbors and notify the neighborhood board.
2. How does this project comply with state and county policies on beach protection?
3. For assistance in completing the assessment please review the "Shoreline Hardening Policy and Environmental Assessment Guidelines" available at <http://www.state.hi.us/health/oepqc/guidance/shoreline.htm>.

Please call Jeyan Thirugnanam at 586-4185 if you have any questions.

Sincerely,

Genevieve Salmonson
Genevieve Salmonson
Director

C: APC
Sutton



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

PHONE (BUS): (808) 586-5695
FAX: (808) 599-1553

May 30, 2008

Ms. Katherine Puana Kealoha, Director
State of Hawaii Office of Environmental Quality Control (OEQC)
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment (DEA)
Shoreline Setback Variance for Existing Seawall - Sutton
68-673 and 68-675 Hoomana Place - Mokuleia
Tax Map Key 6-8-010:014 & 015

Dear Ms. Kealoha:

Thank you for your comment letter dated December 20, 2005 addressed to Mr. Henry Eng of the Department of Planning and Permitting. We respectfully offer the following responses:

1. The adjacent property owners have been notified of the request to retain the existing seawall and a copy of the DEA was forwarded to the North Shore Neighborhood Board.
2. The comment regarding compliance with state and county beach protection policies has been noted and we will continue to take these policies into consideration and apply them to the final EA document.

Thank you again for your comments on the DEA. If you have any questions or require further clarification, please contact myself or Lauri Clegg at 536-5695.

Sincerely,

Donald Clegg
Donald Clegg
President

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
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Web site: www.honolulu.gov



MUF HANNEMANN
MAYOR

WAYNE M. HASHIRO, P.E.
DIRECTOR
EUGENE C. LEE, P.E.
DEPUTY DIRECTOR

December 16, 2005

MEMORANDUM

TO: HENRY ENG, FAICP, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: *Wayne M. Hashiro*
WAYNE M. HASHIRO, P.E., DIRECTOR

SUBJECT: CHAPTER 343, HRS, DRAFT ENVIRONMENTAL ASSESSMENT (EA)
68-673 AND 68-675 HOOMANA PLACE - MOKULEIA
TAX MAP KEYS 6-8-10: 14 AND 15

Thank you for giving us the opportunity to comment on the above Draft EA.

The Department of Design and Construction has no comments to offer at this time.

WMH:lt (127960)

RECEIVED
CITY & COUNTY OF HONOLULU

'05 DEC 16 PM 2:58

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

9. 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 Coastal Zone Atlas – Representing the Hawaii Coral Reef Inventory, Island of Oahu*. Prepared for the Harbors Division, Department of Transportation, Honolulu, Hawaii.
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- Chu, Michael S., and Robert B. Jones for the City and County of Honolulu, Department of Land Utilization, *Coastal View Study*, 1987.
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- EKNA Services, Inc. April 2004. *Coastal Engineering Assessment of Existing Seawalls at Mokuleia, Oahu, Hawaii, TMK: 6-8-9:010 and 011*.
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- Sea Engineering, Inc. 1989. *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.

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

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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.

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

APPENDIX A

PERMIT NUMBER

11151

DEPARTMENT OF BUILDINGS

CITY AND COUNTY OF HONOLULU

APPLICATION FOR BUILDING PERMIT

Fee Received

SEE INSTRUCTIONS BELOW

WRITE IN ALL INFORMATION	EST. VALUE	PERMIT FEE	CLASS OF CONSTRUCTION	NO. OF STORIES	ZONE	SEC.	PLAT	PARCEL	LOT NO.	DISTRICT	
	10000	A. 1/2	IN	1	C	8	10	15	16		
CHECK BOX OR WRITE IN IF NECESSARY	NEW BLDG.	EXIST. BLDG.	OTHER STRUCTURES			ADD.	ALTER.	REPAIR	OTHER WORK		
	<input checked="" type="checkbox"/>								RECONSTR.	DEMOLITION	

APPLICATION IS HEREBY MADE FOR PERMIT TO DO WORK AS FOLLOWS:

CLASSIFICATION OF OCCUPANCIES GROUP: I

SHOW NUMBER OF UNITS	SINGLE FAMILY DWELLING	DUPLEX	APARTMENT	BUSINESS	INDUSTRIAL	PUBLIC	INSTITUTIONAL	STORAGE	MIXED
	<input checked="" type="checkbox"/>								

CLASSIFICATION OF CONSTRUCTION

CHECK PROPER BOX	FIRE PROOF TYPE I	SEMI FIRE PROOF TYPE II	HEAVY TIMBER TYPE III	NON COMBUSTIBLE TYPE IV (1)	UNPROTECTED METAL TYPE IV (N)	ORDINARY MASONRY TYPE V (1)	WOOD FRAME TYPE V (N)
							<input checked="" type="checkbox"/>

PROPOSED ADDRESS: 61675 HOOMANUU ST (NO. (STREET))

LOT AREA: 11,095 SQ. FT. USE DISTRICT: RES

OVERALL DIMENSIONS: 23x100 FLOOR AREA: 1742 SQ. FT. NO. OF STORIES: 1

BASEMENT: None SQ. FT. TYPE OF FOUNDATION: CONC TYPE OF FLOOR: CONC

TYPE OF EXTERNAL WALLS: Hd 7/8" TYPE OF INTERNAL PARTITIONS: Gyp. Bld TYPE OF ROOF: Wood - 5/8"

CONNECTION TO SEWER: CONNECTION TO CESSPOOL: [initials]

NO PART OF THIS BUILDING WILL BE NEARER THAN 4 FT. INCHES TO NEAREST ADJOINING PROPERTY LINE AND NO PART OF THIS BUILDING WILL BE NEARER THAN 4 FT. INCHES FROM 1ST STORY. NOR 4 FT. INCHES FROM STORIES ABOVE THE 1ST FLOOR OF ANY BUILDING ON THE SAME LOT. NO EAVE, OVERHANG, OR OTHER PROJECTION WILL PROJECT MORE THAN 20% OF THE SPACE ADJOINING A PROPERTY LINE. UNDERSIDE OF FLOOR SILLS WILL BE AT LEAST 20 INCHES ABOVE HIGHEST PART OF GROUND. CEMENT FLOOR SLABS OF BUILDINGS SHALL HAVE MARGINAL WALLS 24 INCHES BELOW GRADE WHERE REQUIRED.

APPLICANT'S NAME AND ADDRESS OF: William K. Kalam

BUILDING OWNER: William K. Kalam ADDRESS: 61675 Hoomanuu St

GENERAL CONTRACTOR: [initials] STATE LICENSE NO. ADDRESS:

PLAN MAKER: [initials] ADDRESS:

PLUMBING SUB-CONTRACTOR: [initials]

ELECTRICAL SUB-CONTRACTOR: [initials]

DATE AND SIGN: [Signature] DATE: 6-4-65

SIGNATURE OF OWNER OF BUILDING: [Signature] DATE: 6-3-65

PERMISSION IS HEREBY GIVEN TO DO THE ABOVE WORK ACCORDING TO THE CONDITIONS HEREON AND ACCORDING TO THE APPROVED PLANS AND SPECIFICATIONS PERTAINING THERETO, SUBJECT TO COMPLIANCE WITH ORDINANCES OF THE CITY AND COUNTY OF HONOLULU, STATE

APPLICANTS WILL NOT WRITE IN THIS PART OF FORM

OF HAWAII, CONSTRUCTION TO BE COMPLETED ON OR ABOUT 6-4-65 1965

DATE 6-4-65 APPROVED: [Signature] AGENT, BOARD OF HEALTH

DATE 6-4-65 APPROVED: [Signature] CHIEF ENGINEER, FIRE DEPARTMENT

WARNING! PERMIT PLACARD MUST BE POSTED ON THE SITE OF THE WORK. BE SURE YOU ARE FULLY INFORMED ON BUILDING AND ZONING LAWS BEFORE BEGINNING YOUR WORK. PLANTING HEDGES, TREES OR CONSTRUCTING FENCES BEYOND LIMITS OF YOUR PROPERTY LINE IS FORBIDDEN BY LAW, (PENALTY OF \$100.00 FINE AND/OR 30 DAYS IMPRISONMENT.)

PLANNING DEPARTMENT DATE: 6-3-65

ZONE (USE DISTRICT): Hwy P SUB-DIVISION PENDING: No

SET BACK: None ON MASTER PLAN:

SUB-DIVISION FILED: Yes COMMISSION REPORT: S-F dwg/gpr

SUB-DIVISION APPROVED: [Signature] RECOMMENDATION: [Signature]

OFFICE INDEX COPY SIGNATURE: [Signature]

6-3-65

APPLICATION RECEIVED JUN 4 3 59 PM '65

9. USE TYPE & OCC.

RENT. HOME

1-FAM.

2-FAM.

APART.

MULTI.

14. ROOF DESIGN

GABLE HIP

FLAT GAMB

20. INTER. WALLS

TYPE D/W

MAT. Plas. Br.

21. CEILING

CANEC PLAS

PINE PLY

Exposed Beams

22. BATHROOMS

1 1 1/2

2 2 1/2

3

ZONE 68 SEC. 10 PLAT. 15 PARCEL

SURVEY BY A.Y.

DATE 2/21/65

10. UNITS & ROOMS

LIV. UNITS 1

ROOMS 4

STORIES 1

BASEMENT

15. ROOF STRUCT.

WOOD

STEEL

CONC.

16. ROOFING

COMP.

BLT/UP

SHING.

SHAKES

METAL

TILE

RAIN GUTTERS

17. FLR STRUCT.

WOOD JOISTS

CONC.

STEEL

CONC. SLAB

18. FLOORING

LIV./B/R BTH KIT. OTHER

PINE

HDWD

CEM.

TILE

23. MILLWORK

WINDOWS-D/H DOORS-PANEL

SL. CS. SOLID SLIDG

PICTURE CUSTOM

JALOUSIE CABINETS

TRIM-PINE HARDWD SHELVES

METAL VANITY (NO)

11. FOUND. & STEPS

FD. ST.

CONC.

H.T.

STONE

WD. P.

H.D.G.

12. FRAME

WD-SW SWDB DW

MASONRY

STEEL

REIN. CONC.

13. EXTERIOR WALLS

T & C

B G B

RUSTIC

BRICK

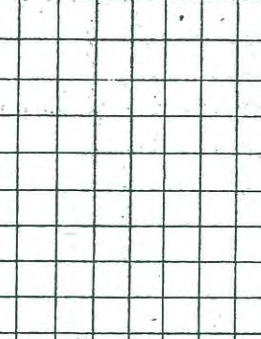
STONE/ROCK

HT

PLAS/STUCCO

24. PLUMBING

ITEM	CH	MED	GD	VAL.
S-UNIT				570
BATH TUB				
W.C.	1			113
BASIN	1			80
SH. STALL	1			178
SINK				
LAUND				
SUN HT.				
SUB TOTAL—PLUMBING				941



25. ADD'L IMPYNT DETAILS

ITEM	RF	WL	FL	AREA	CF	VAL.
(SINK ROOM) FLOORING	4 1/2	4 1/2	CON	225.6	2.58	581.0

26. REMARKS

ES

47

18

6' x 6'

17

5' x 6'

15

27. ADD'L FLOOR DET.

2ND 3RD 4TH

28. CONDITION

BETTER THAN EVER %

AVERAGE (NOR. DEP) %

BELOW AVER %

29. CLASSIFICATION

SHAPE

29. CLASSIFICATION

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

APPENDIX B

PERMIT NUMBER

DEPARTMENT OF BUILDINGS
CITY AND COUNTY OF HONOLULU

APPLICATION AND BUILDING PERMIT

Fee Received

SEE INSTRUCTIONS BELOW

WRITE IN ALL INFORMATION	EST. VALUE \$9,300.00	PERMIT FEE \$30.90	CLASS OF CONSTRUCTION UN	NO. OF STORIES (1)	ZONE 6	SEC. 8	PLAT 3	PARCEL 10	LOT No. 17	DISTRICT MOKULEIA
--------------------------	---------------------------------	------------------------------	------------------------------------	------------------------------	------------------	------------------	------------------	---------------------	----------------------	-----------------------------

CHECK BOX OR WRITE IN IF NECESSARY	NEW BLDG. <input checked="" type="checkbox"/>	EXIST. BLDG.	OTHER STRUCTURES Attached Garage	ADD.	ALTER	REPAIR	OTHER WORK
	FENCE WALL	RETAINING WALL		RECONSTR.	DEMOLITION		

APPLICATION IS HEREBY MADE FOR PERMIT TO DO WORK AS FOLLOWS: **Model B Rev.**

CLASSIFICATION OF OCCUPANCIES GROUP: **I (Dwelling)**

SHOW NUMBER OF UNITS	SINGLE FAMILY DWELLING 1	DUPLEX	APARTMENT	BUSINESS	INDUSTRIAL	PUBLIC	INSTITUTIONAL	STORAGE	MIXED
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CLASSIFICATION OF CONSTRUCTION

CHECK PROPER BOX	FIRE PROOF TYPE I	SEMI FIRE PROOF TYPE II	HEAVY TIMBER TYPE III	NON COMBUSTIBLE TYPE IV (1)	UNPROTECTED METAL TYPE IV (N)	ORDINARY MASONRY TYPE V (1)	WOOD FRAME TYPE V (N)
------------------	-------------------	-------------------------	-----------------------	-----------------------------	-------------------------------	-----------------------------	-----------------------

FILL IN REQUIRED INFORMATION

PROPOSED ADDRESS: **Mokuleia & Kaena Point** (NO.) (STREET)

LOT AREA: **7/107** SQ. FT. USE DISTRICT: **RP**

OVERALL DIMENSIONS: **46'8" x 46'** FLOOR AREA: **1773** SQ. FT. NO. OF STORIES: **1**

BASEMENT: **None** SQ. FT. TYPE OF FOUNDATION: **Concrete** TYPE OF FLOOR: **Concrete**

TYPE OF EXTERNAL WALLS: **Wood** TYPE OF INTERNAL PARTITIONS: **Wood** TYPE OF ROOF: **Built up 5 ply**

CONNECTION TO SEWER: _____ CONNECTION TO CESSPOOL: **X**

NO PART OF THIS BUILDING WILL BE NEARER THAN **7** FT. **0** INCHES TO NEAREST ADJOINING PROPERTY LINE AND NO PART OF THIS BUILDING WILL BE NEARER THAN _____ FT. _____ INCHES FROM 1ST STORY, NOR _____ FT. _____ INCHES FROM STORIES ABOVE THE 1ST FLOOR OF ANY BUILDING ON THE SAME LOT. NO EAVE, OVERHANG, OR OTHER PROJECTION WILL PROJECT MORE THAN 50% OF THE SPACE ADJOINING A PROPERTY LINE. UNDERSIDE OF FLOOR SILLS WILL BE AT LEAST 20 INCHES ABOVE HIGHEST PART OF GROUND LEVEL. FLOOR SLABS OF BUILDINGS SHALL HAVE MARGINAL WALLS 24 INCHES BELOW GRADE WHERE REQUIRED.

NAMES AND ADDRESSES OF:

BUILDING OWNER: **John Hones** ADDRESS: **Liberty Bank Bldg.**

GENERAL CONTRACTOR: **K.K. Nishikawa Inc.** LICENSE NO. **B-374** ADDRESS: **Waimane Home Rd.**

PLAN MAKER: **Mid Pac. Lumber** ADDRESS: **Kalani Street**

PLUMBING SUB-CONTRACTOR: **Kahuku Plumbing**

ELECTRICAL SUB-CONTRACTOR: **Stan's Electric**

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 CONSTRUCTION.

DATE AND SIGNATURE OF APPLICANT: **[Signature]** DATE: **9-12-60**

SIGNATURE OF OWNER OF BUILDING: **[Signature]**

PERMISSION IS HEREBY GIVEN TO DO THE ABOVE WORK ACCORDING TO THE CONDITIONS HEREON AND ACCORDING TO THE APPROVED PLANS AND SPECIFICATIONS PERTAINING THERETO, SUBJECT TO COMPLIANCE WITH ORDINANCES OF THE CITY AND COUNTY OF HONOLULU, STATE

APPLICANTS WILL NOT WRITE IN THIS PART OF FORM

OF HAWAII, CONSTRUCTION TO BE COMPLETED ON OR ABOUT **9-12** 19 **60**

DATE: **9-12** 19 **60** APPROVED: **[Signature]** AGENT, BOARD OF HEALTH

DATE: _____ 19 _____ APPROVED: _____ CHIEF ENGINEER, FIRE DEPARTMENT

DATE: **9-14** 19 **60** APPROVED: **[Signature]** FOR SUPERINTENDENT OF BUILDINGS

WARNING! PERMIT PLACARD MUST BE POSTED ON THE SITE OF THE WORK. BE SURE YOU ARE FULLY INFORMED ON BUILDING AND ZONING LAWS BEFORE BEGINNING YOUR WORK. PLANTING HEDGES, TREES OR CONSTRUCTING FENCES BEYOND LIMITS OF YOUR PROPERTY LINE IS FORBIDDEN BY LAW. (PENALTY OF \$100.00 FINE AND/OR 30 DAYS IMPRISONMENT.)

PLANNING DEPARTMENT DATE: **9/9** 19 **60**

ZONE (USE DISTRICT): **none** SUB-DIVISION PENDING: **no**

SET BACK: _____ ON MASTER PLAN: _____

SUB-DIVISION FILED: **Yes** COMMISSION REPORT: _____

SUB-DIVISION APPROVED: _____ RECOMMENDATION: _____

OFFICE INDEX COPY: _____ SIGNATURE: **[Signature]** **9/13/60**

13. USE TYPE & OCC.
 RENT. HOME HOME
 1-FAM. 2-FAM. APART. MULTI.

14. UNITS & ROOMS
 LIV. UNITS 1
 ROOMS 6
 STORIES 6
 BASEMENT

15. FOUND. & STEPS
 CONC. H.T. STONE WD. P. H.O.G.
 FD. ST.

16. FRAME
 WD-SW SWDB DW
 MASONRY STEEL REIN. CONC.

17. EXTERIOR WALLS
 T & G B & B RUSTIC BRICK STONE/ROCK HT PLAS/STUCCO

18. ROOF DESIGN
 GABLE HIP FLAT GAMB

24. INTER. WALLS
 TYPE CANEC PINE
 MAT. PLAS PLY EXPOSED

25. CEILING
 1 2 3

26. BATHROOMS
 1/2 2 1/2

19. ROOF STRUCTURE
 WOOD STEEL CONC.

20. ROOFING
 COMP. BLT/UP SHING SHAKES METAL TILE RAIN GUTTERS

21. FLR STRUCT.
 WOOD JOISTS CONC. STEEL CONC. SLAB

27. MILLWORK
 WINDOWS-D/H _____ DOORS-PANEL _____
 SL. CS. _____ SOLID _____
 PICTURE _____ SLID'G _____
 JALOUSIE _____ CUSTOM _____
 TRIM-PINE _____ CABINETS _____
 HARDWD _____ SHELVES _____
 METAL _____ VANITY(NO) _____

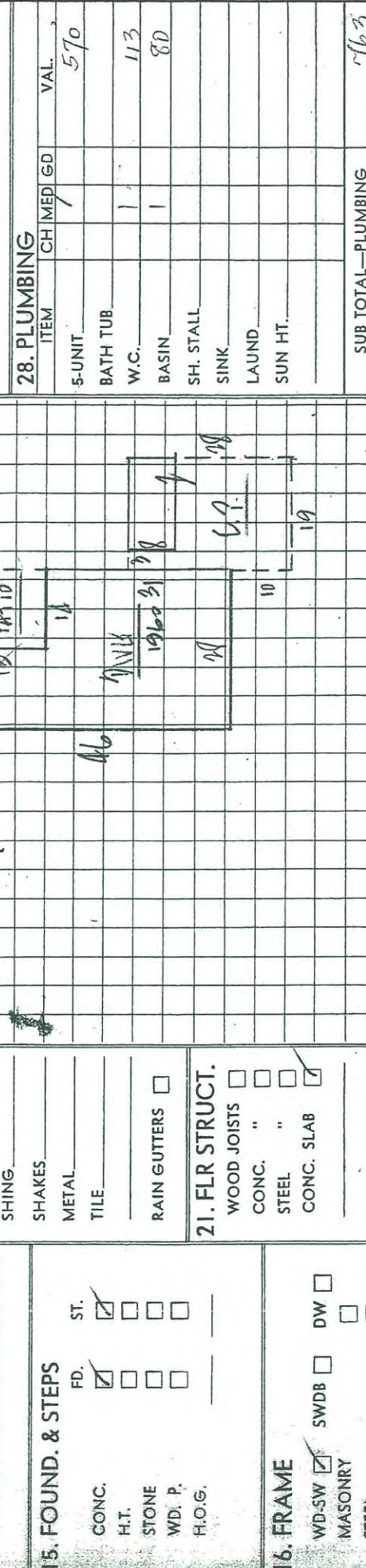
28. PLUMBING
 ITEM _____ CH _____ MED _____ GD _____ VAL. _____
 5-UNIT _____ 570
 BATH TUB _____
 W.C. _____ 113
 BASIN _____ 80
 SH. STALL _____
 SINK _____
 LAUND. _____
 SUN HT. _____

29. ADD'L IMPVT DETAILS
 ITEM _____ RF _____ WL _____ FL _____ AREA _____ CLS _____ VAL. _____
 CARPET 532 1.28 681
 PART 2 1 1.43 300
 B-INS (MED) 189

30. ADD'L FLOOR DET.
 2ND 3RD 4TH

31. CONDITION
 BETTER THAN AVER. _____ %
 AVERAGE (NOR. DEP) %
 BELOW AVER. _____ %

32. CLASSIFICATION
 CLASS 5/CL 10
 BY 1111



22. FLOORING
 LIV. B/R BTH KIT. OTHER
 PINE _____ HDWD _____ CEM _____ TILE/Gamb _____
 23. ELECTRICAL
 FIXT. CH M GD
 OUTL. S/ST ST VG
 B-T/IN OVEN STOVE
 VENT D/WR

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuieia, Oahu

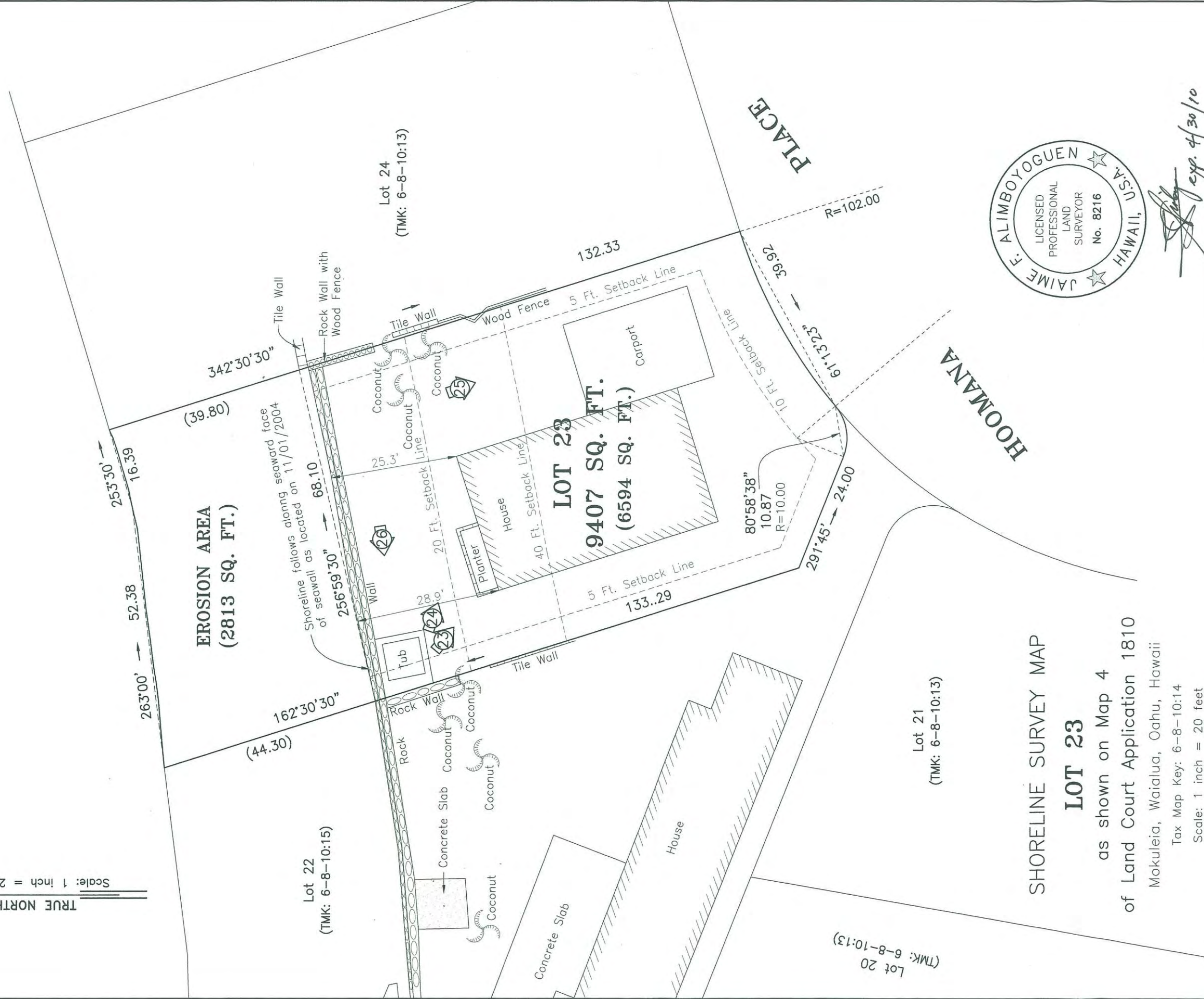
APPENDIX C

TRUE NORTH
Scale: 1 inch = 20 feet

g

ε

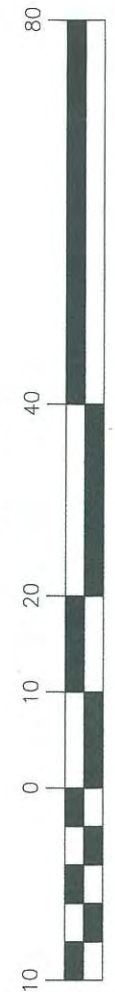
A



Jaime F. Alimboyguen
exp. 4/30/10

This work was prepared by me
or under my direct supervision.

GRAPHIC SCALE



(IN FEET)
1 inch = 20 feet

NOTES:

1. Only improvements shown were located.
2. Denotes number and direction of photographs.

Scale: 1 inch = 20 feet

y

8

A

268'30" → 263'00" → 37.62

27.88

EROSION AREA
(3394 SQ. FT.)

90.06
(45.00)

(44.30)

342'30'30"

265'06'

Shoreline follows along seaward face of seawall as located on 11/01/2004

86.58

189'54'30"

18.3'

20

21

22

Lot 19
(TMK: 6-8-10:18)

LOT 22
Concrete Slab.. 11,109 SQ. FT.
(7715 SQ. FT.)

Lot 20
(TMK: 6-8-10:13)

Lot 21
(TMK: 6-8-10:13)

133.29

111'45'

136.76

5 Ft. Setback Line

5 Ft. Setback Line

291'45'

24.00

260'58'38"
10.87
R=10.00

1/2" Pipe

R=102.00

32.74

161'36'32"
15.29
R=10.00

40'42'10"

PLACE

HOOMANA

SHORELINE SURVEY MAP
LOT 22

as shown on Map 4
of Land Court Application 1810

Mokuleia, Waialua, Oahu, Hawaii

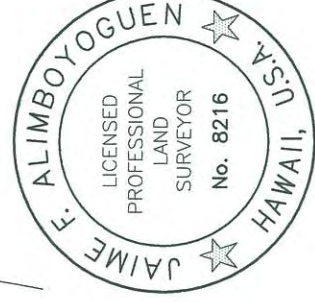
Tax Map Key: 6-8-10:15

Scale: 1 inch = 20 feet

Date: November 1, 2004

Revised June 9, 2008

Owner: Mr. Richard Sutton
Mailing Address: 737 Bishop St. Suite 2400
Honolulu, HI 96813



Jaime E. Alimboyguen
Exp. 4/30/10

This work was prepared by me or under my direct supervision.

GRAPHIC SCALE



(IN FEET)

1 inch = 20 feet

NOTES:

1. Only improvements shown were located.
2. [Symbol] Denotes number and direction of photographs.

ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 015 and 014, 68-675 and 68-673 Hoomana Place, Mokuleia, Oahu

APPENDIX D



EKNA Services, Inc.

Engineers
and
Environmental
Consultants

Engineering
Planning
Surveys
Computer
Modeling

615 Piikoi Street
Suite 300
Honolulu, Hawai
96814-3139

Telephone:
(808) 591-8553
Facsimile:
(808) 593-8551

CN 2474-00F#

August 25, 2005

Mr. Donald Clegg
Analytical Planning Consultants, Inc.
928 Nuuanu Avenue, Suite 502
Honolulu, Hawaii 96817

Subject: SSV for Existing Seawall
68-675 Farrington Highway, Mokuleia, Oahu
TMK: 6-8-10:15

Dear Mr. Clegg:

This letter provides a Coastal Engineering Assessment of the potential impact of the subject seawall on existing coastal processes along this Mokuleia shoreline area. EKNA Services, Inc. prepared a Coastal Engineering Assessment of Existing Seawalls (TMK:6-8-9:010 and 011) in April 2004, for two properties located about 1000 feet east of the subject parcel. This prior report contains a large amount of information that is relevant to the subject property - i.e., information about coastal processes, alternative shore protection measures, and potential littoral impacts. The purpose of this letter is to provide additional information specific to the subject parcel. I recommend that our prior report be included in entirety as an Appendix in the Environmental Assessment for the subject seawall to provide the required coastal engineering information to support the SSV application.

Existing Seawall

The existing seawall is a CRM wall with top elevation of about +10' Mean Sea Level (MSL). According to the as-built survey by Hida, Okamoto & Associates, Inc., the base of the wall (top-of-beach elevation) is about +4' MSL (+5' Mean Lower Low Water (MLLW)). A site visit was conducted on April 2, 2005 during low tide (+0.1' MLLW), moderate North Pacific swell conditions (3-5 foot surf), and strong tradewinds. The base of the seawall was subject to wave runup at the time of the site visit. Breaking wave activity was evident across the entire bayfront.

The subject seawall ties into a CRM seawall on the east side of the property, and a reinforced concrete wall on the west side of the property. A public right-of-way (ROW) is situated two parcels to the east of the subject parcel. Properties eastward of the ROW to the stream mouth are protected with structures, and properties westward of the ROW within the embayment are protected by seawalls (about 1000 feet or so). There is no "dry beach" fronting the seawalls extending westward within the embayment. The attached photos depict the



Mr. Donald Cleg
TMK: 6-8-10:15

condition of the shoreline in the vicinity of the subject property. Large pieces of structural concrete lie at the base of the wall, likely remnants from an older protective structure.

Potential Littoral Impacts

The erosion that is occurring along this coastal reach can be described as “passive” erosion (in contrast to “active” erosion which is induced or accelerated by shore protection structures). The existing seawall and others along this coastal reach have no effect on the existing littoral processes at this site. However, when a protective structure is built along an eroding shoreline and erosion continues to occur, 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. Passive erosion proceeds 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.

Consideration of Alternatives

Removing the seawall (which is functioning as a retaining wall), without constructing replacement shore protection, would result in immediate loss of at least 50 feet of property as the shoreline attempts to achieve a stable slope. The adjacent properties would be impacted as their existing seawalls become flanked.

Removal of the existing seawall and replacing it with a different type of shore protection measure does not provide any significant benefit. Seawalls exist on both sides of the subject property. There is insufficient space on the property to construct a sloping revetment, as the dwelling is situated about 20 feet landward from the top of the seawall. Since the revetment toe would be in line with the existing adjacent seawalls, the top of the revetment slope would be located about 20 feet landward of the adjacent seawalls, and could not be constructed without removing or relocating the dwelling and constructing flank walls to protect the adjacent properties. Replacing the seawall with a sloping revetment structure will not improve the existing shoreline access and will not halt the ongoing erosion along this coast.

I trust that this letter addresses the coastal engineering issues concerning the subject seawall.

Very truly yours,

Elaine E. Tamaye
President

attachment



EKNA Services, Inc.

Engineers
and
Environmental
Consultants

Engineering
Planning
Surveys
Computer
Modeling

615 Piikoi Street
Suite 300
Honolulu, Hawa
96814-3139

Telephone:
(808) 591-8553
Facsimile:
(808) 593-8551

CN 2474-00F#

August 25, 2005

Mr. Donald Clegg
Analytical Planning Consultants, Inc.
928 Nuuanu Avenue, Suite 502
Honolulu, Hawaii 96817

Subject: SSV for Existing Seawall
68-673 Farrington Highway, Mokuleia, Oahu
TMK: 6-8-10:14

Dear Mr. Clegg:

This letter provides a Coastal Engineering Assessment of the potential impact of the subject seawall on existing coastal processes along this Mokuleia shoreline area. EKNA Services, Inc. prepared a Coastal Engineering Assessment of Existing Seawalls (TMK:6-8-9:010 and 011) in April 2004, for two properties located about 1000 feet east of the subject parcel. This prior report contains a large amount of information that is relevant to the subject property - i.e., information about coastal processes, alternative shore protection measures, and potential littoral impacts. The purpose of this letter is to provide additional information specific to the subject parcel. I recommend that our prior report be included in entirety as an Appendix in the Environmental Assessment for the subject seawall to provide the required coastal engineering information to support the SSV application.

Existing Seawall

The existing seawall is a CMU and CRM wall with top elevation of about +10' Mean Sea Level (MSL). According to the as-built survey by Hida, Okamoto & Associates, Inc., the base of the wall (top-of-beach elevation) is about +4' MSL (+5' Mean Lower Low Water (MLLW)). A site visit was conducted on April 2, 2005 during low tide (+0.1' MLLW), moderate North Pacific swell conditions (3-5 foot surf), and strong tradewinds. The base of the seawall was subject to wave runup at the time of the site visit. Breaking wave activity was evident across the entire bayfront.

The subject seawall ties into a CMU seawall that extends from the adjacent parcel on the east side of the property, and a CRM wall on the west side of the property. The parcel on the east side of the subject property abuts a public right-of-way (ROW). Properties eastward of the ROW to the stream mouth are protected with structures, and properties westward of the ROW within the embayment are protected by seawalls (about 1000 feet or so). There is no "dry beach" fronting the seawalls extending westward within the embayment. The attached photos depict the condition of the shoreline in the vicinity of the subject property.



Mr. Donald Clegg
TMK: 6-8-10:14

Potential Littoral Impacts

The erosion that is occurring along this coastal reach can be described as “passive” erosion (in contrast to “active” erosion which is induced or accelerated by shore protection structures). The existing seawall and others along this coastal reach have no effect on the existing littoral processes at this site. However, when a protective structure is built along an eroding shoreline and erosion continues to occur, 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. Passive erosion proceeds 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.

Consideration of Alternatives

Removing the seawall (which is functioning as a retaining wall), without constructing replacement shore protection, would result in immediate loss of at least 50 feet of property as the shoreline attempts to achieve a stable slope. The adjacent properties would be impacted as their existing seawalls become flanked.

Removal of the existing seawall and replacing it with a different type of shore protection measure does not provide any significant benefit. Seawalls exist on both sides of the subject property. There is insufficient space on the property to construct a sloping revetment, as the dwelling is situated about 20 feet landward from the top of the seawall. Since the revetment toe would be in line with the existing adjacent seawalls, the top of the revetment slope would be located about 20 feet landward of the adjacent seawalls, and could not be constructed without removing or relocating the dwelling and constructing flank walls to protect the adjacent properties. Replacing the seawall with a sloping revetment structure will not improve the existing shoreline access and will not halt the ongoing erosion along this coast.

I trust that this letter addresses the coastal engineering issues concerning the subject seawall.

Very truly yours,

Elaine E. Tamaye
President

attachment

**Coastal Engineering Assessment
of Existing Seawalls at Mokuleia
Oahu, Hawaii**

TMK: 6-8-9:010 and 011

Prepared for:

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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 MLLW¹), 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 survey² 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.

¹Honolulu 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.

²Survey 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

Cruz³, 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

³Because 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 SEAbags⁴ 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

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

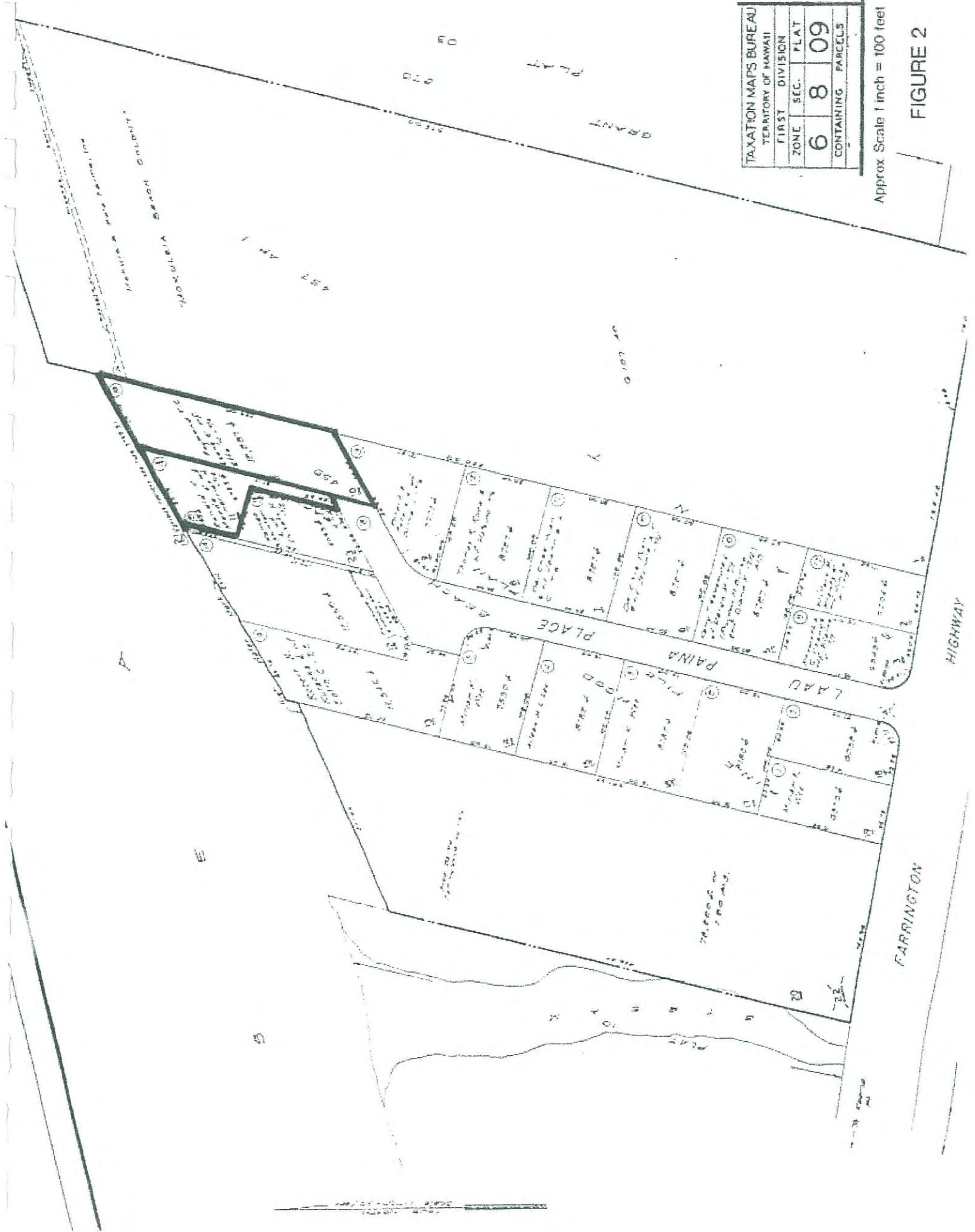
be required. Beach restoration and nourishment, in general, is difficult to design and maintain as a "shore protection" alternative. For the beach to provide adequate protection during storm wave events, it must have adequate beach width, elevation, and length along the entire shoreline reach within 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.

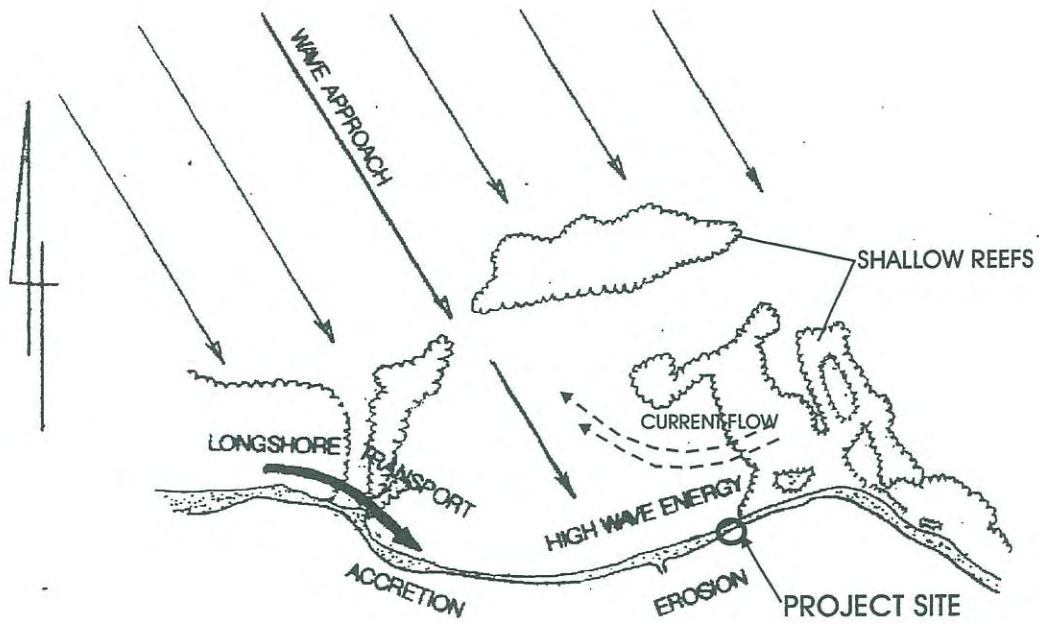
While not an erosion control measure, relocating the existing building improvements on the parcels is considered a temporary measure to prevent or mitigate damage to the dwellings. Erosion is expected to continue along this coastline, leading to continued loss of properties that are not protected. While 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.

TAXATION MAPS BUREAU			
TERITORY OF HAWAII			
FIRST	DIVISION		PLAT
ZONE	SEC.	PLAT	09
6	8	09	
CONTAINING		PARCELS	

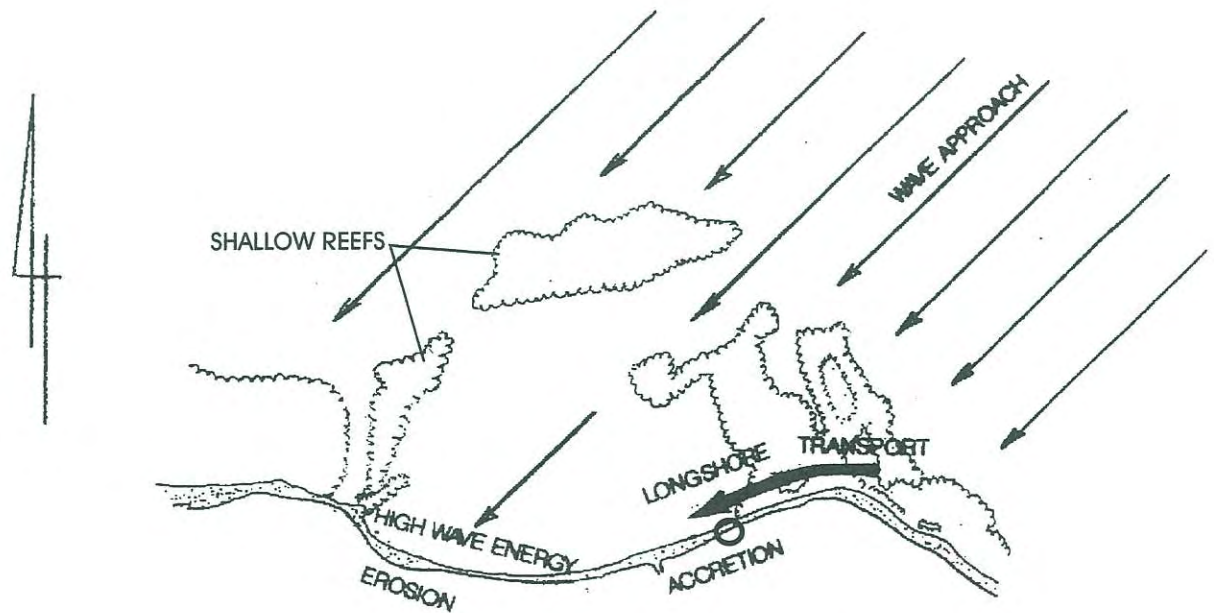
Approx. Scale 1 inch = 100 feet

FIGURE 2





WINTER NORTHWEST SWELL CONDITIONS



SUMMER NORTHEAST TRADEWIND CONDITIONS

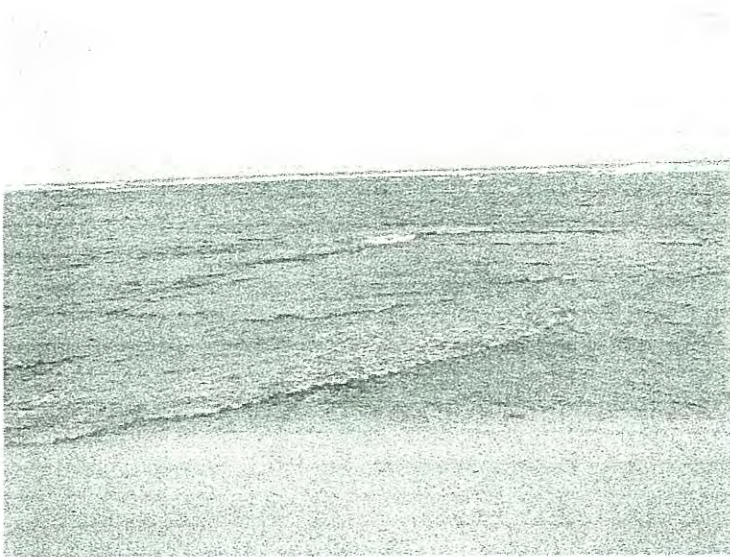
FIGURE 3



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



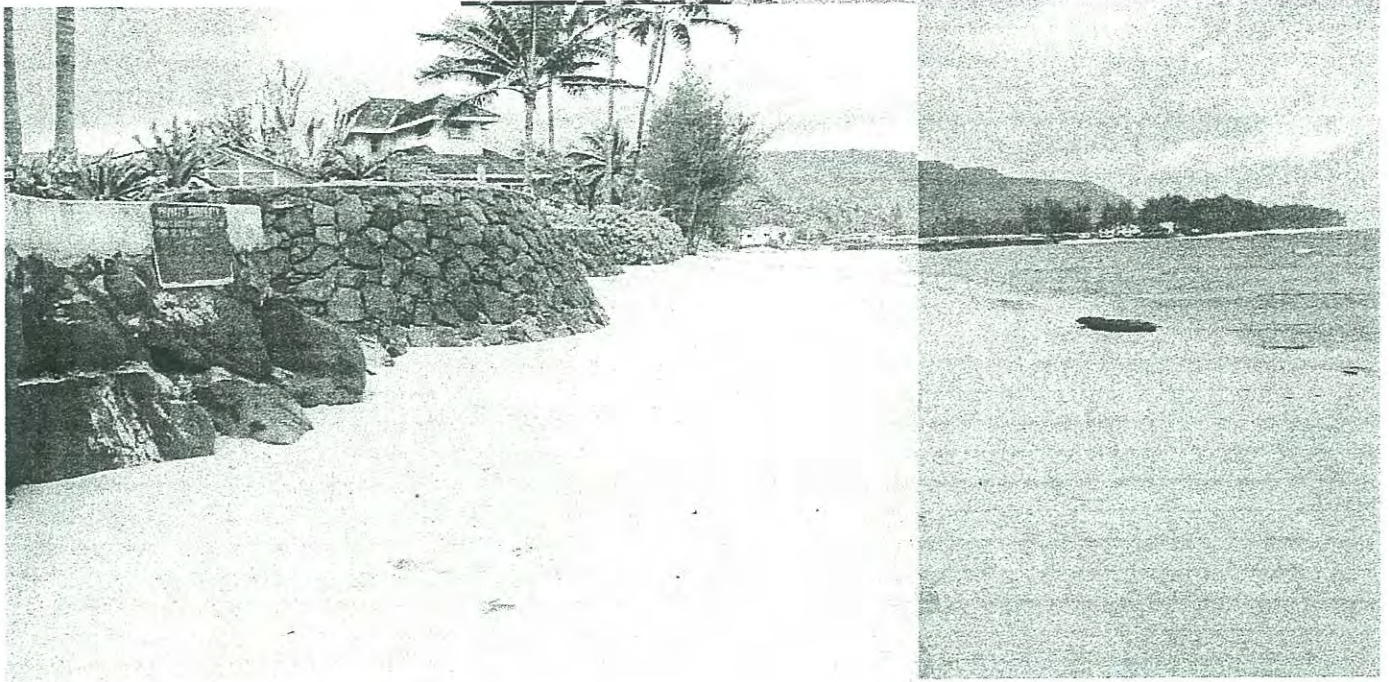
View eastward along the beach fronting the Mokuleia Beach Colony seawall. Note the narrow and steep beach profile.



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.

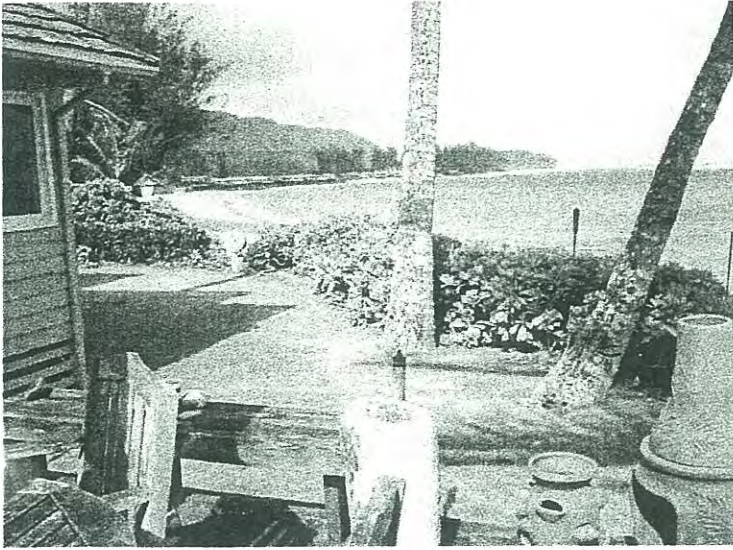
MOKULEIA
PHOTO DATE 4-9-04
TIME 09:15 AM
TIDE APPROX. 0.0 MLLW



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

PHOTO page-2



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.



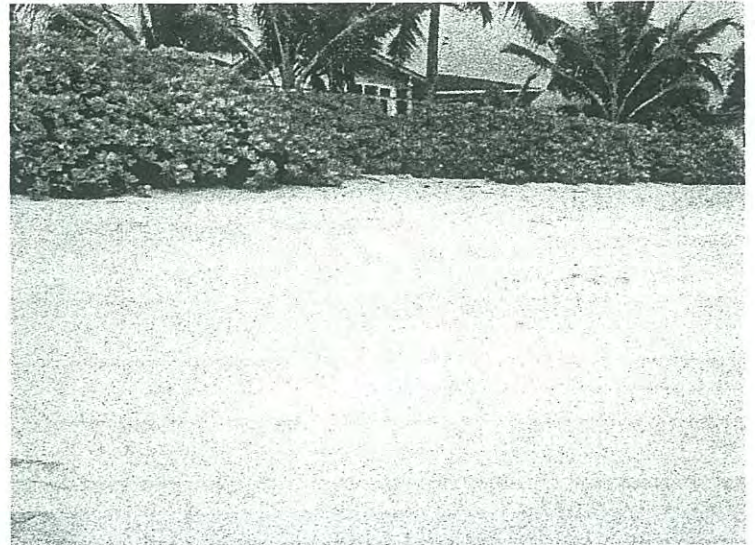
View mauka along private right-of-way. The CRM wall on left is Parcel 11's return wall.

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

PHOTO page-3



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.

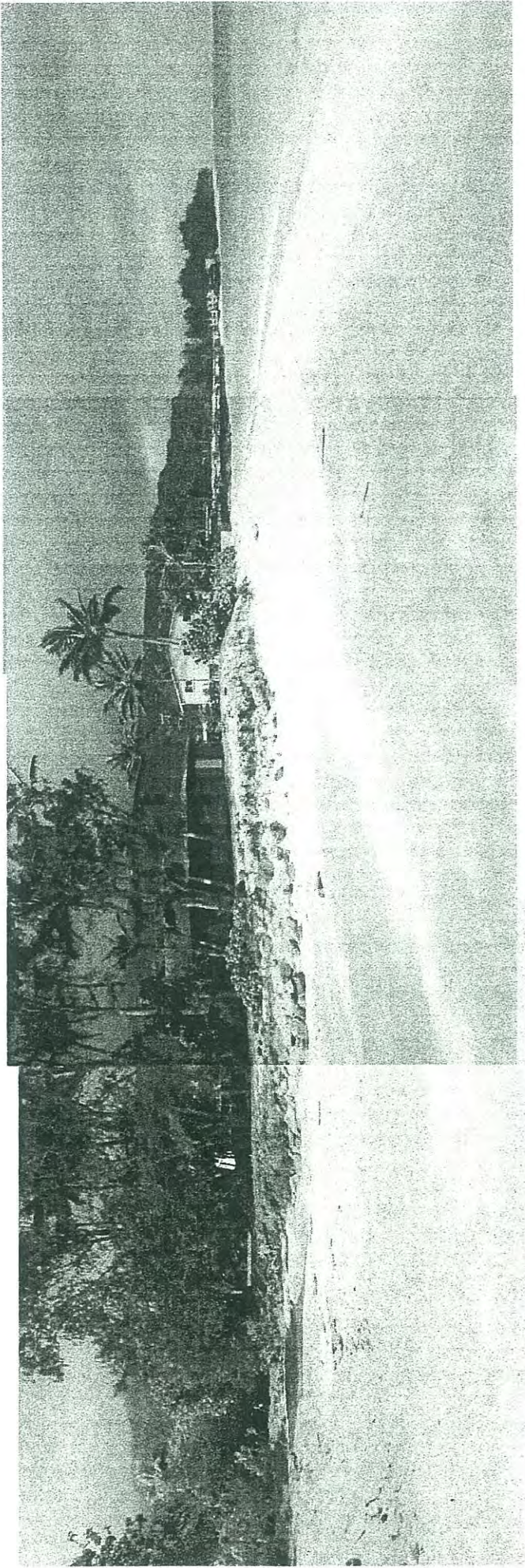


CMU wall fronts Parcel 13 .



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 MILLW