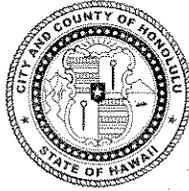


FEB 23 2010

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 768-8000 • FAX: (808) 768-6041
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MUFI HANNEMANN
MAYOR



DAVID K. TANOUÉ
DIRECTOR

ROBERT M. SUMITOMO
DEPUTY DIRECTOR

2008/ED-10(WA)

February 8, 2010

The Honorable Katherine Puana Kealoha, Director
Office of Environmental Quality Control
State of Hawaii
State Office Tower, Suite 702
235 South Beretania Street
Honolulu, Hawaii 96813-2437

Dear Ms. Kealoha:

Subject: Chapter 343, Hawaii Revised Statutes
Final Environmental Assessment (EA)

Applicant: Michael K. Dailey
Landowner: Michael K. Dailey, et al.
Agent: Wil Chee - Planning & Environmental
Location: 68-411 Farrington Highway - Mokuleia
Tax Map Key: 6-8-3: 18 and 37
Request: Shoreline Setback Variance
Proposal: Construct a maximum six-foot high, two-tiered seawall
Determination: Finding of No Significant Impact (FONSI)

Attached and incorporated by reference is the Final EA prepared by the applicant for the above 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 and have issued a FONSI.

We have enclosed one hard copy of the Final EA, a copy on compact disk, and a completed OEQC Publication Form and related project summary on diskette. If you have any questions, please contact William Ammons of our staff at 768-8025.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Elizabeth A. ...".

for

David K. Tanoué, Director
Department of Planning and Permitting

DKT:nt

Enclosures

Final

Environmental Assessment for a
Shoreline Setback Variance Application
for a Seawall

Mokuleia Beach
North Shore, Oahu, Hawaii
TMK: (1) 6-8-03:018 & 37

Prepared For:
Michael Dailey c/o Michael Carroll
Bays, Deaver, Lung, Rose, Homa
P.O. Box 1760
Honolulu, Hawai'i 96813

Prepared By:
Wil Chee - Planning & Environmental
1018 Palm Drive
Honolulu, Hawaii 96814

February 2010

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Acronyms

AAQS	Ambient Air Quality Standards
CDUA	Conservation District Use Application
CO	carbon monoxide
CZMA	Coastal Zone Management Area
DLNR	Department of Land and Natural Resources, State of Hawaii
DOH	Department of Health, State of Hawaii
EA	Environmental Assessment
HRS	Hawaii Revised Statutes
HAR	Hawaii Administrative Rules
LUO	Land Use Ordinance
MLLW	mean low low water
msl	mean sea level
OCCL	DLNR Office of Conservation and Coastal Lands
ROH	Revised Ordinances of Honolulu
SMA	Special Management Area
TMK	tax map key

1.0 Introduction

This Environmental Assessment (EA) will be included with an application for a Shoreline Setback Variance for Tax Map Key (TMK) (1) 6-8-003:018 & 037, pursuant to the Revised Ordinances of Honolulu Chapter 23, Shoreline Setbacks. The EA is prepared pursuant to the requirements of Hawaii Revised Statutes, Chapter 343. This EA primarily concerns Parcel 018, upon which the seawall that is the object of the application for a Shoreline Setback Variance is located.

1.1 Background

The Daileys have lived in the home on the property (TMK (1) 6-8-003:018) since 1965. They raised their children in this home, and Mrs. Dailey, who is 87 years old continues to live there. Shortly after the home was built, a rock revetment was emplaced along the shoreline to protect the home from erosion. According to the Department of Land and Natural Resources - Office of Conservation and Coastal Land (OCCL), investigation using aerial photographs revealed that the revetment appears to have been built sometime after 1967. The revetment functioned for over 30 years without incident.

During the winter of 2004–2005, erosion took its toll, and a portion of the wall next to Mokuleia Beach Colony began to fail. Several boulders came loose, and coconut trees began to fall as the ground beneath them was undercut by wave action. After several of the rocks ended up on the beach, staff of the OCCL initiated Enforcement File No. OA-05-38, on January 14, 2005. The Notice and Order noted that the rock structure “was beginning to fail due to wave scour and it presents a significant safety hazard to the public.” OCCL also noted that they did not have any records indicating when the rock structure was built or whether a permit existed for the revetment.

On March 17, 2005, Michael C. Carroll, agent for the applicant, met with OCCL staff to discuss the Notice and Order on behalf of the Daileys. OCCL requested that the Daileys (1) have the parcel surveyed, (2) find any information on the date that the rock revetment was built, and (3) find documentation that a permit was issued for the structure. The Daileys complied but were unable to locate any information indicating when the rock structure was built. This was difficult because Fred Dailey, who constructed the wall, was now deceased. The Daileys were unable to locate any documentation on the wall.

R.M. Towill was contracted to survey the property and map the current location of the shoreline. On May 17, 2005, R.M. Towill conducted a survey of the property to identify the location of the shoreline with respect to the rock structure. Based upon the survey it appears that when the revetment was built, it was entirely behind the shoreline.

On June 17, 2005, the Daileys submitted the survey map and photographs prepared by R.M. Towill to OCCL. On June 27, 2005, OCCL responded to this correspondence and observed that it appeared that a small section of the rock structure is located *makai* of the shoreline. OCCL stated that the “stability of the

structure was an immediate concern” and encouraged the Daileys to “take action to reduce or eliminate this hazard while there was still room to work on the beach and before the onset of winter surf.” In response to this request, the Daileys submitted a Conservation District Use Application (CDUA) for an emergency permit. The application noted that the rock revetment was damaged during the winter of 2004–2005 and requested that the revetment be restored to the “same condition as existed prior to the damage.” DLNR rejected the application for an emergency permit to repair the structure. DLNR staff requested that the Daileys remove the rocks that had fallen on the beach and re-orient the rocks on the revetment. The Daileys complied and the enforcement file was closed with no incident.

At that time, the applicant believed that simply restoring the revetment to its pre-existing state would be sufficient, and there was no reason to believe that a permit to construct a seawall would be required. This decision was based upon the fact that the original revetment had worked satisfactorily for close to 40 years.

During the winter of 2006–2007 the revetment began to fail again. Trees became unstable, needing support, and rocks on the structure became dislodged. Additionally several cracks developed in the foundation of the residence. With no other alternative available as the large winter swell approached and threatened to destroy the wall, the Daileys repaired and stabilized the rock revetment to its current condition to protect the home.

In response to the emergency repairs performed by the Daileys, DLNR initiated another enforcement file. The matter came before the DLNR Board in April 2007. The Daileys requested a continuance in order to retain an engineer to evaluate the condition of the shoreline structure and to develop practical recommendations that would meet all parties’ concerns.

On May 22, 2007, Elaine E. Tamaye, P.E, a coastal engineer, conducted a site visit of the Dailey property to evaluate the condition of the wall and to propose a practical solution. The report concludes that the existing seawall has “no effect on the existing littoral processes” at the site and that the seawall is “functionally consistent with adjacent existing seawalls” along the shoreline. Additionally the report states:

It is obvious that removing the seawall at this time, without replacing it with another shore protection structure will result in catastrophic damage to the existing dwelling on the property. The dwelling is situated about 20 feet from the edge of the seawall, and is a slab-on-grade structure, with brick/CMU exterior walls. The foundation of the dwelling has already experienced differential settling, as evidenced by cracks in the exterior walls that have been patched with sealant [Figure 1]. Removal of the existing seawall with no retaining structure to support the foundation of the dwelling will lead to substantial structural damage to the dwelling as the shoreline embankment collapses and is eroded by winter storm waves. Since it will take at least a year or longer to obtain permits for the shore protection structure (or replacement structure) the existing seawall must be left in place to maintain habitability of the dwelling. If the existing

seawall and boulders are completely removed, continuing erosion will also likely impact the Colony property by causing flanking of their seawall.

Ms. Tamaye concludes her report by recommending that the Daileys replace the shoreline structure with a permitted, engineered seawall.

Faced with the destruction and loss of their home during the winter of 2006–2007, the Daileys acted reasonably and did what anyone would do to protect their home. The existing repaired wall is a substantial improvement to the damaged condition of the old revetment. The rocks are stable and will provide adequate support during the permitting process. The existing wall is intended to remain, pending the approval and permitting for an engineered seawall.

The enforcement file has been stayed pending the Daileys completing the process to obtain a Shoreline Setback Variance and construction of a permitted seawall on the property. It is evident that the only option for the Daileys is to proceed with the permitting process required to ensure that the home is protected.

To obtain permits to build an engineered seawall, a Shoreline Setback Variance is required. A letter was sent to the Department of Planning & Permitting requesting them to **waive** the shoreline certification requirement (Appendix A). This is requested so that the process for obtaining a Shoreline Setback Variance can proceed.

1.2 Scope and Authority

This EA is prepared pursuant to Chapter 343, Hawaii Revised Statutes (HRS), associated Chapter 205, Coastal Zone Management, and Hawaii Administrative Rules (HAR) and Revised Ordinances of Honolulu (ROH) Chapter 23, Article 1, Shoreline Setbacks. The document follows the guidelines for an EA, according to Administrative Rules of the Department of Health, Chapter 200, Title 11, Environmental Impact Statement Rules, Sections 10,11, and 12.

Project Information

THE APPLICANT:	Michael Dailey c/o Michael Carroll Bays, Deaver, Lung, Rose, Homa P.O. Box 1760 Honolulu, Hawaii 96813 Ph 523-9000 Fax: 533-4184
APPLICANT'S REPRESENTATIVE:	Michael Carroll Bays, Deaver, Lung, Rose, Homa P.O. Box 1760 Honolulu, Hawaii 96813 Ph 523-9000 Fax: 533-4184
EA PREPARATION:	Wil Chee - Planning & Environmental 1018 Palm Drive Honolulu, Hawaii 96814 Ph (808) 596-4688 Fax: (808) 597-1851
TMK AND OWNER:	(1) 6-8-003:018 & 037 Elizabeth M Dailey et al. Trust 68-411 Farrington Highway Waialua, Hawaii 96791
LAND AREA (Parcel 018):	56,932 square feet (1.307 acres)
ZONING:	AG-2 General Agricultural District
AGENCIES CONSULTED:	Department of Planning and Permitting City & County of Honolulu Department of Land and Natural Resources Office of Conservation and Coastal Lands U.S. Department of Fish and Wildlife Service
REQUIRED PERMITS AND APPROVALS:	Shoreline Setback Variance Minor Shoreline Structures Permit Department of the Army Permit
ACCEPTING AUTHORITY	Department of Planning and Permitting City & County of Honolulu

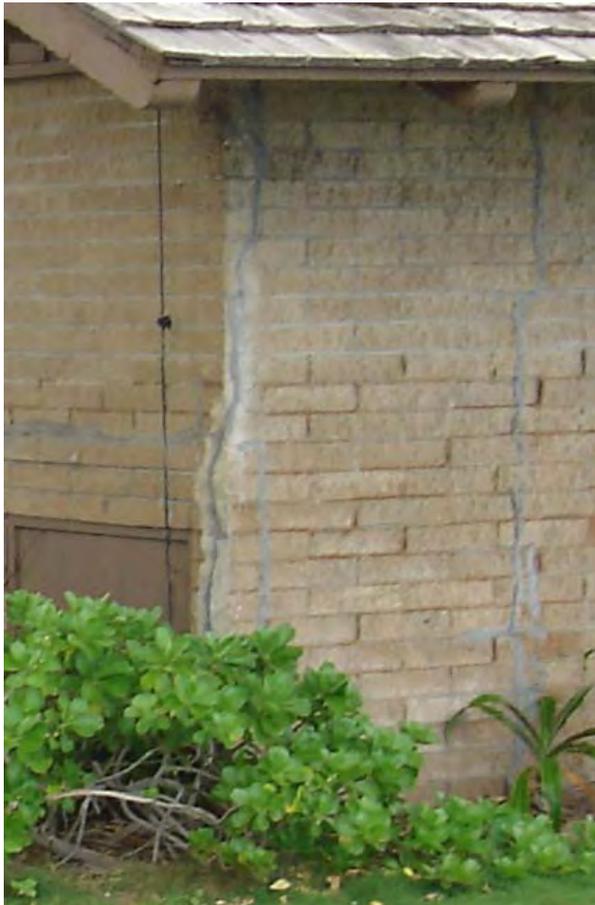


Figure 1. Cracks and Structural Damage

Differential settling of the foundation caused the cracks to form and extend up into the exterior walls.



A. End of Dailey wall. Note that the house above is on TMK:6-8-003:018, and the sandbag extension on the left is on TMK: 6-8-003:037.

B. Dailey rock revetment at end of Mokuleia Beach Colony seawall.



C. Seawall fronting Mokuleia Beach Colony.

Figure 2. Wall Photos

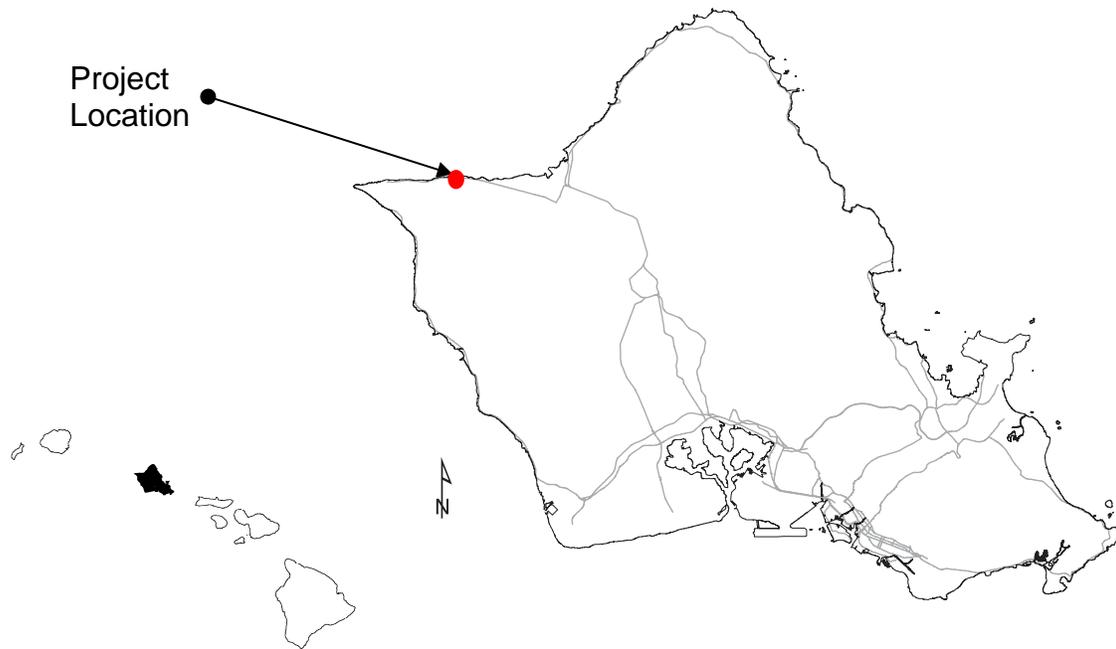


Figure 3. Location Map

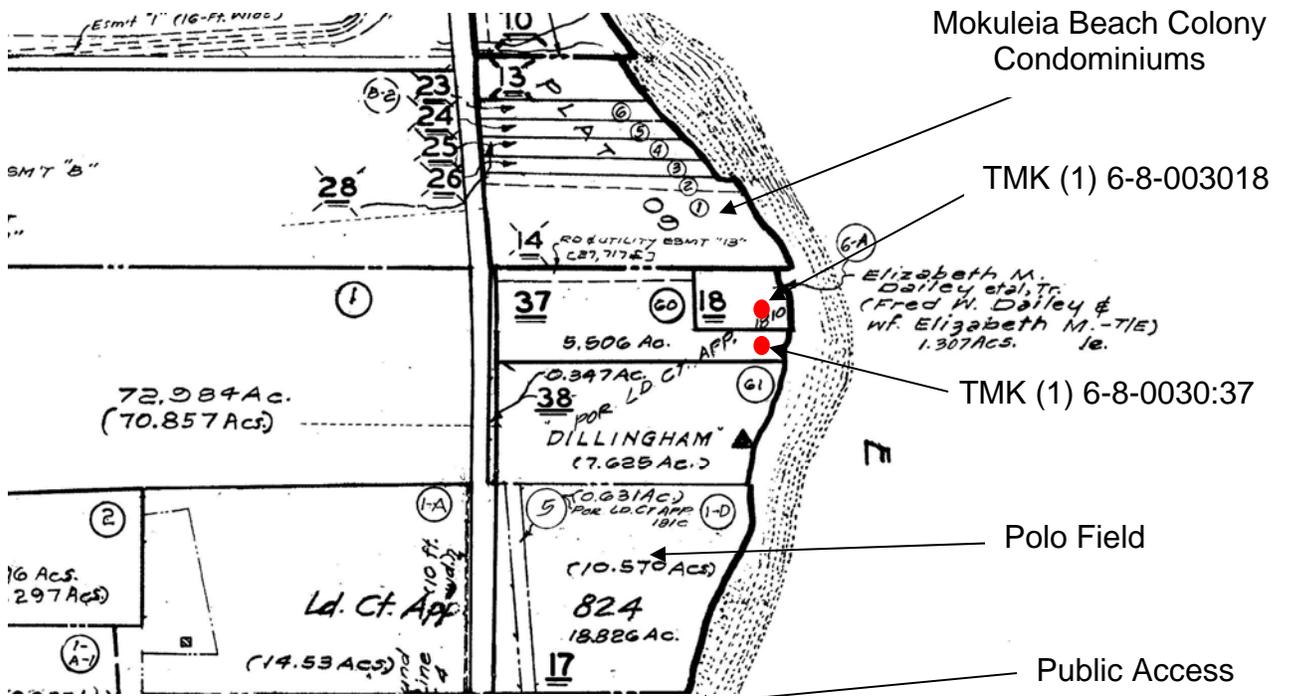
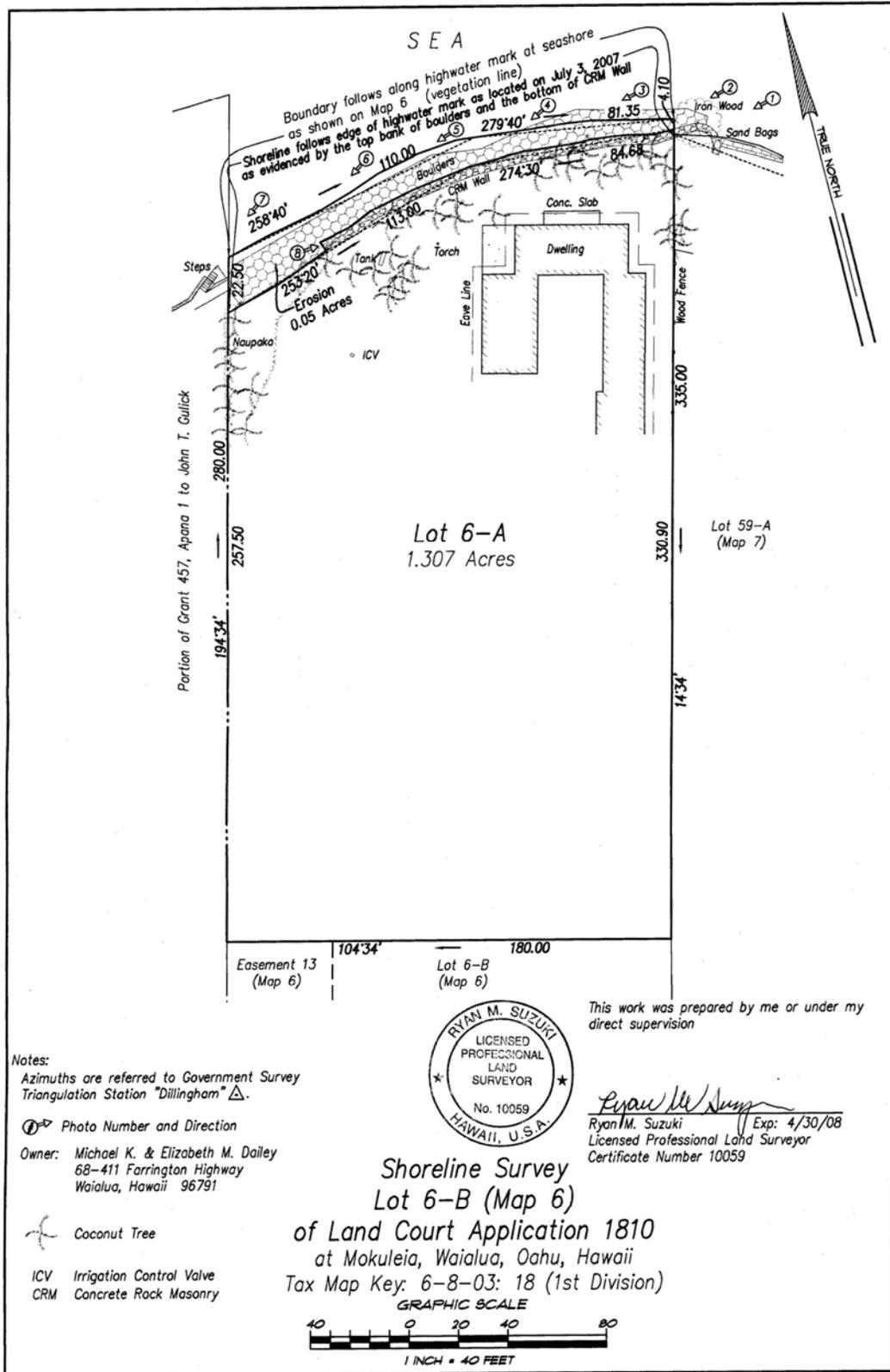


Figure 4. TMK: (1) 6-8-003:018, 037



10" x 15" = 1 Sq. Ft.
Job #1-20-0-S
FB #7675

R. M. TOWILL CORPORATION
SINCE 1928

420 Waiakamilo Road Suite 411
Honolulu, Hawaii 96817
Tel: (808) 842-1133

Figure 5. Survey of TMK: (1) 6-8-003: 018

2.0 Description of the Proposed Action

2.1 Project Location

The Dailey property is located between the shoreline and Farrington Highway, in the mid-section of Mokuleia Beach, in the North Shore District, on the island of Oahu (Figures 3 & 4). The property is adjacent to the polo field and east of the Mokuleia Beach Colony (Figures 4 and 6). On the far side of the polo field is Makaleha Beach Park, which provides public access to the beach.

2.2 Existing Site Conditions

TMK (1) 6-8-003:018 is an irregular rectangle. The boundary fronting the shoreline is not a straight line, and it meets with the side boundaries at a different angle on either side (Figures 4 and 5).

This parcel contains one single family residence with an attached garage that was built in 1964. The house was placed in the northeast corner, around 40 feet from the shoreline (Figure 5). It has been the family home since 1965, and Mrs. Dailey still lives there. Shortly after the home was built, rock was emplaced along the shoreline to protect the home from shoreline erosion. The rock revetment functioned well until the winter of 2004–2005, when boulders were loosened and the rocks were removed by storm surf. The failure took place on the corner by the cement wall fronting the Mokuleia Beach Colony property.

After storm waves during the winter of 2006–2007 again moved the rocks around, **the entire structure failed**. Subsequently, the boulders were re-used to build the existing seawall, and a few boulders are still in-situ along the seaward base of the wall (Figure 2), between the seawall and the end of the Mokuleia Beach Colony seawall. The top elevation of the wall is estimated to be about 10 to 12 feet above mean low-low-water (MLLW). Sand at the base of the seawall is estimated to vary between 3 and 5 feet above MLLW.

2.3 Project Features

The purpose of this Environmental Assessment (EA) is to obtain a Shoreline Setback Variance and the necessary permits to replace the wall that was repaired during the winter of 2006–2007 with a permitted engineered seawall. In order to obtain government approval, the seawall must be designed by a licensed structural engineer. Although portions of the existing repaired wall appear to be stable, the Daileys would like to replace it with a permitted engineered structure that will protect their home.

2.3.1 Technical Characteristics

The proposed structure is being designed by a structural engineer with Tanimura & Associates, Honolulu. The wall will have two levels. The lower level, **as recommended by DLNR**, will consist of a walkway to provide lateral public access at high tide. The top of the wall will be located at 1-foot, 8–inches above the existing grade.

In accordance with Land Use Ordinance Section 21-4.40, no portion will exceed six (6) feet in height, as measured from the “existing or finish grade, whichever is lower,” as illustrated on the engineers’ plans. The wall will have a total length of 260 feet with 192 feet on TMK 6-8-03-8, and 68 feet on TMK 6-8-03:37:18

Boulders and rocks from the existing structure may be re-used in constructing the new wall. Removal of the wall and excavation along the shoreline will require removing some soil and sand. The actual amount of material to be removed is dependent upon the depth of the pre-existing wall and the excavation depth required to ensure structural stability of the proposed new seawall. Most of the material to be removed is rock that makes up the non-engineered wall. Until excavation begins, the volume of rock, sand and soil to be excavated cannot be precisely calculated. Removed material can be stockpiled on TMK (1) 6-8-003:018 and 037.

At this stage of the project, it is very difficult to determine how many cubic yards of soil will be excavated and replaced. The amount of sand and soil excavated may not be equal to the amounts required for backfilling on either side of the wall. If additional material is required the most appropriate material, if available, will be used to backfill trenches on the beach side of the new wall, and sandy soil will be used on the other side of the wall.

Dewatering equipment and sheetpiles will be installed as needed. All work will conform to the “Standard Specifications for Public Works Construction” of the City and County of Honolulu. The contractor will phase the work or otherwise provide for protection of the property against erosion during the construction period. Existing *mauka–makai* beach access will not be affected during construction, but lateral access may be temporarily obstructed.

2.3.2 Economic Characteristics

Should a Shoreline Setback Variance be granted and the seawall is built, it will maintain the value of TMK (1) 6-8-003:018 & 037. Construction will provide short-term jobs during the proposed action. Overall, no jobs will be lost or gained and the property values will not change. The proposed action will not add to or reduce the amount of housing in Mokuleia.

2.3.3 Social Characteristics

Mokuleia predominately consists of large lots with single family residences and surrounding open space. With the exception of Mokuleia Beach Colony Condominiums, the atmosphere in the area is rural.

3.0 Affected Environment

The site is located on a gently sloping, wave-cut platform that extends from the shoreline to the base of the Waianae Mountain Range. Much of the wave-cut platform along the shoreline has been subdivided for agricultural, residential, and recreational uses. Inland, there are large agricultural tracts, Dillingham Air Field, and open space.

3.1 Geology and Soils

The northern coast of O'ahu from Kaena Point to Mokuleia is defined by broad wave cut platforms etched into the coastline. The platforms in this area have been determined to be Waimanalo-age limestone. This area contains a fossil reef-rock platform which extends from Mokuleia to nearly Kaena Point and is elevated 6 feet above sea level (Fletcher et al., 2002). Isolated, sandy pocket beaches are found at breaks in the rocky bench and widen toward Mokuleia, where they connect with small, offshore sand fields. Ongoing erosion has cut deeply into the elevated limestone, indicating that erosion is high along this shoreline.

Soils covering the wave-cut platforms in this section of the coastline are the Jaucas Sand Series (USDA Soil Conservation Service 1972). This series consists of well drained calcareous soils that occur as narrow strips on coastal plains, adjacent to the ocean. They developed as wind- and water-deposited sand consisting of shell and coral fragments mixed with lithic fragments and organic debris. They are found in areas that are level to 15 percent slopes. In a representative profile, the soil is pale to deep brown, sandy and more than 60 inches deep. In many locations, the surface layer is dark brown, as a result of the accumulation of organic matter and alluvium. The soil is neutral to moderately alkaline throughout the profile.

Permeability is rapid and runoff is very slow to non-existent. The hazard of erosion due to precipitation is slight. Wind erosion can be a severe hazard when vegetation has been removed. Workability is difficult because the soil is loose and lacks the stability needed for use of equipment. On an actively eroding coastline, the Jaucas Sand Series is rapidly washed away by waves. Jaucas soils have a low shrink-swell potential and low corrosivity properties for both uncoated steel and concrete.

Geotechnical engineers from Hirata and Associates prepared preliminary recommendations for the design of a seawall on the site (Appendix C). They completed two test borings, to depths of 23 and 25 feet, behind the existing seawall. Cores revealed that below the thin layer of brown clayey silt, the soil consists of brown to tan medium grained sandy soil. The material was unconsolidated and poorly graded to depths of 11–12 feet. Beneath that, there is a thin layer of coral rubble stone that is 12 inches thick. Below the rubble stone is a layer of coralline gravel with pockets of clay, to a depth of 20–23 feet, where there is a second coral rubble stone layer. The second rubble stone layer is more dense than the first and extends to the maximum drilling depths.

The engineers' preliminary recommendations suggest that the foundation of the retaining structure should be below the scour depth, to reduce any potential of being undermined by erosion. They also recommend that a minimum of 12 inches of crushed rock be placed at the bottom of the excavations and that the gravel should be enveloped in a geotextile filter fabric and thoroughly tamped, to form an unyielding surface.



Project location is at the point between the polo field and Mokuleia Beach Colony Condominiums.

Figure 6. Aerial Photo of the Project Area

3.2 Beach and Offshore

The northern coast of Oahu from Kaena Point to Mokuleia is defined by broad wave-cut platforms etched into the coastline. The platforms in this area have been determined to be Waimanalo-age limestone. This area contains a fossil reef-rock platform which extends from Mokuleia to nearly Kaena Point and is elevated six feet above sea level (Fletcher et al. 2002). The authors of the *Atlas of Natural Hazards in the Hawaiian Coastal Zone* (Fletcher et al. 2002) give a high hazard rating to most of the Mokuleia Beach area, where the coastal slope is low and continued erosion is rapidly removing the sand from the beaches.

This North Shore coastal area is suffering from long-term erosion. The area is exposed to the winter North Pacific swell and the predominant trade wind waves. Shallow fringing reef flats protect the shoreline from moderate trade wind wave energy. However, during the winter, large North Pacific swell conditions and high water levels contribute to wave run-up and overtopping of the beach, causing erosion damage and flooding to unprotected backshore areas and dwellings.

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 trend of long-term erosion along this coastal reach will reverse (EKNA 2004)

3.2.1 Affected Shoreline

Mokuleia Beach is located at the west end of the North Shore. It stretches from Kaena Point to Kaiaka Bay at Haleiwa, on the northwest coast of Oahu. Mokuleia Beach is characterized as an undulating coastline with numerous embayed coral sand beach systems (EKNA 2004). Many of the homes in this area are now located less than 20 feet from the edge of the vegetation line. Any beach loss in this section is of great concern to the residents because erosion of 10 feet or less significantly reduces the natural buffer zone.

The project site is located on the southwest side of a reef headland, adjacent to the Mokuleia Beach Colony and just west of the Mokuleia Polo Grounds (Figure 6). The Dailey property is located in the mid-section of the Mokuleia Beach shoreline. This portion of the shoreline is exposed to winter North Pacific swell and trade-wind-generated waves. The shallow reefs that are offshore provide some protection from the deep-water wave energy. When the shoreline experiences trade wind conditions, these reefs dissipate much of the wave energy. Later in the season, during large winter swell activity, the waves initially break on the surrounding reefs, where most of their energy is spent. The energy that remains propagates to shore as reformed waves, which break on the shoreline (EKNA 2004). Wave energy that reaches the shoreline is limited by the water depths over the reef and the channels through the reef. Deeper water depths over the reefs and channels allow for the transmission of more wave energy over the reef.

Increased water levels during storms allow more wave energy to travel over the reef. During these periods of large swell activity, waves breaking over the reefs

cause a rise in water level called wave setup. A rise of water level that occurs during storms is called storm surge. Storm surge is formed by low pressure areas in storms that allow the ocean surface to bulge upwards and by wind blowing water into the nearshore area, adding to the high water level (Garrison 1999). Lunar tides also cause a rise in the water level along the shore. The greatest wave impact on the shoreline is when all three conditions (wave set up, storm surge, and high tides) occur simultaneously (Komar 1976). Coastal properties are profoundly impacted by flooding, erosion, and structural damage when subjected to these conditions.

Another phenomenon that causes extreme sea-level events is a mesoscale eddy (Firing & Merrifield 2004). Eddies are wind-and-temperature-created gyres that move seawater in a circular pattern and in the center of which the water tends to bulge upwards, creating an area of elevated sea level. **Once they form, such eddies can move with currents and winds to approach and surround the islands.** These events are a concern because they cause high sea level events on short-time scales, and they can last for a few days or weeks. To date, there are no clear seasonal patterns to their occurrence in Hawaii. These events are of great concern when they are combined with high tides, storm surge, or both. This creates an elevated sea level that can have a substantial impact on the shorelines of Hawaii. Reports of beach erosion, damage to shoreline structures, shoreline flooding, and salt-water contamination of aquifers have been associated with recent extreme sea level events.

The middle section of Mokuleia Beach has experienced long-term changes caused by erosion. Transits delineated by Hwang (1981) indicate a net loss of 8 to 11 feet during the years from 1967 to 1971 (Table 1). Many of the homes from the Episcopal Church to the polo field and along Crozier Drive are now less than 20 feet from the edge of the vegetative line or seawall. Since the homes were constructed, erosion has been ongoing, and now these structures are much closer to the shoreline than they were when they were built. For many of these structures, a storm that produces only 10 feet of erosion would reduce the natural barrier significantly, and property damage in these residential areas can be extensive and devastating to home owners.

3.2.2 Beach Characteristics

According to residents in the area, there is a natural pattern of erosion along the shoreline during the winter, with restoration of some beach width during the summer. In front of the Dailey property, there are limestone shoals located just offshore and a deep channel farther offshore. It is unlikely that sediment is moved offshore and back inland as the seasonal wave regime changes. Therefore, the seasonal fluctuation of beach width is possibly due to the longshore transport of sediments from the shallow nearshore areas around the headlands. Currently, the applicant's seawall does not impact the width of the beach. Changes in width of the beach appear to be due to seasonal fluctuations of sediments and sand along the shoreline.

3.2.3 Foreshore

The foreshore region fronting the project site slopes steeply from the beach, then descends gradually to the limestone reef offshore. Water over the limestone reef is shallow as evidenced by breaking waves. The water abruptly deepens over a channel that runs offshore at an oblique angle that is nearly parallel to the shoreline (Figure 6). The channel is roughly 10 feet wide and has a sandy bottom. On the other side of the channel, the limestone reef extends farther offshore.

3.2.4 Offshore Profile

The shallow reef structure extends farther out past the channel, gradually becoming deeper until it meets the deep water farther offshore. Deep-water waves pass over this section of reef until they reach the shallower reefs on the inland side of the channel. The reefs dissipate nearly all of the energy from the typical trade-wind-generated waves.

3.2.5 Littoral Transport

There are two wave-induced current systems in the nearshore area that dominate water movement in addition to the to-and-fro motions produced directly by the waves. These are 1) a cell circulation system of rip currents and associated longshore currents and 2) longshore currents produced by an oblique wave approach to the shoreline.

In cell circulation, water flows offshore in strong, narrow rip currents. To replace the water flowing seaward in the rip currents, there is a shoreward movement of water in the breaker zone that feeds the longshore currents and the rip currents. When the waves approach the shoreline at an angle, the longshore current is established and flows parallel to the shoreline. The velocity of both the longshore current and rip current decreases to zero outside of the breaker zone (Komar 1976).

Sediment is transported in the littoral currents. The longshore current transports sand along the beach in the nearshore zone, and the rip currents move the material offshore to deeper water. The velocity of these currents and the amount of sand they carry are directly related to the size of the incoming waves.

The large North Pacific swell approaches the coastline from the northwest. Swell from the northwest would normally produce east-flowing longshore currents. However, the shallow reefs offshore result in complex patterns of wave approach along the shoreline. As the waves hit the reef, they are dissipated and refracted. These refracted waves have been observed to approach the shoreline from two different directions simultaneously. Water circulation, rather than being completely wave-driven, may also be affected by bathymetric contours in the area. (EKNA 2004).

3.3 Hydrology

Hydrology involves the movement of water over and under the land surface. Water is central to many planning endeavors concerned with natural and altered environments. Many projects have the potential to impact hydrology by increasing runoff, using more water, and altering the quality of surface water and groundwater (Leopold & Dunn 1978).

3.3.1 Groundwater

Groundwater in the Mokuleia area would be found in sedimentary deposits, including coralline limestone, dunes, shelf deposits, lagoonal deposits, and alluvium. Groundwater in the coastal areas will tend to be brackish (fresh water mixed with salt water) because it is so close to the ocean. Therefore, there are no significant potable water sources in the vicinity.

3.3.2 Surface Water

The soils on site and in the surrounding area are highly permeable, and surface water rapidly percolates into the soils (U.S. Department of Agriculture Soil Conservation Service 1972). The only surface water likely to be found on the subject property would be puddles that briefly form during periods of heavy precipitation.

3.3.3 Flood and Tsunami Potential

Flooding in the area generally results from stream overflow and high surface runoff, primarily the result of infrequent torrential rains. The Flood Insurance Rate Map for the City and County of Honolulu (FEMA 2004) indicates that the project area is Zone AE Base Flood elevation determined to be 12 feet. Fletcher et al. (2002), in the *Atlas of Natural Hazards in the Hawaiian Coastal Zone* rank the flood risk as moderate. In 1932, between 26 and 30 inches of rain fell in a 24-hour period, resulting in extensive flooding in the vicinities of Haleiwa and Waialua.

From 1878 to 1994, tsunamis have been recorded in the area. These events generated flood heights ranging from 2 to 17 feet along the Mokuleia Beach coastline. To the east, from Camp Erdman to Kaena Point, tsunami-generated flood heights reached up to 30 feet in 1946 and 1952.

3.4 Climate

Hawaii has two recognized seasons. *Kau* (May to September) is the warm season, when the sun is almost directly overhead and winds are generally from the northeast. *Ho`oilo* (October to April) is the season that brings cooler temperatures, lower sun, variable winds, and extensive rains. Hawaii's climate is a direct result of its geographic location at 19 to 22 degrees north latitude. This puts the islands at the margin of the tropics and in the belt of the trade winds and down-welling upper air. In this region, both tropical and mid-latitude storms affect the climate (Juvik and Juvik 1998).

Topography modifies the northeasterly trade winds, so that the area of the subject property receives winds from the east. Precipitation is also modified by the topography, and the Mokuleia area has an average of 27 inches of precipitation per year along the coast.

Temperatures are typical of those throughout the state and range from 70 to 88 degrees Fahrenheit in the summer and 60 to 83 degrees Fahrenheit in the winter.

3.5 Air Quality

Air quality is determined by ambient air concentrations of specific pollutants and compared to state and federal Ambient Air Quality Standards (AAQS). Due to the prevailing trade winds, Hawaii has concentrations that are far less than the national average. However, when the trade winds are weak, the gas and aerosol levels in the atmosphere approach the upper limits outlined in the air quality standards. In industrial areas and where there is heavy vehicular traffic, carbon monoxide (CO) levels can exceed AAQS standards. Generally, air quality in the Mokuleia area is slightly better than the state average in low industrial areas or in agricultural areas with little vehicular traffic.

In the coastal area between Haleiwa-Waialua and Kaena Point, air quality is expected to be good because the area is relatively undeveloped and there are few stationary and mobile sources of pollutants.

3.6 Noise

Along the coast from Haleiwa-Waialua to Kaena Point, a major source of ambient noise is traffic on Farrington Highway. The noise is predominately from large trucks, buses, and modified vehicles equipped with loud mufflers and large audio speakers.

The other source of noise is Dillingham Airfield. Use of the airfield is restricted to small, recreational aircraft. Dillingham Airfield is participating in the EPA Noise Compatibility Program. The program requires that noise exposure maps be developed in consultation with interested and affected parties, including local communities, government agencies, airport users and FAA personnel. In 2000, the Dillingham airfield noise exposure maps were determined by the FAA to be in compliance with applicable requirements.

3.7 Flora and Fauna

Prior to the development of the Mokuleia Beach area, it was used for grazing and other agricultural uses. Later, in the 1960s, the area was developed, and the potential residential sites were graded and vegetation was removed. Since the initial development, residential landscaping and maintenance has been ongoing. The subject property, TMK: (1) 6-8-003:018 & 037, has been used for residential purposes since 1964, and it is unlikely that there are any rare or endangered species there.

3.8 Historic, Archaeological and Cultural Resources

Mokuleia is one of the Hawaiian land divisions known as an *ahupuaa*. These land divisions run from the top of the mountains to the edge of the coral reef, in the sea. The name Mokuleia comes from the word *moku*, which means *island* and *leia* meaning *encircled*. The Land of Mokuleia has been likened to a “patterned mat” because of the appearance it is given by the various fields cultivated on its flat lands (Sterling and Summers 2001).

Mokuleia has very few archaeological sites, the largest being a village at the base of the Waianae Range. Another is located on Dillingham Ranch, near the plantation reservoir. It is covered with dense growth, and it is doubtful that it was ever a site of importance (Sterling & Summers 2001). Only one site has been recorded along the coast near the eastern boundary of the polo grounds. Sterling and Summers (2001) describe it as a fishing shrine that had fallen into disuse and was barely recognizable.

The area was used for agriculture, and in the 1960s was developed. Neither the agricultural activities nor grading for development revealed any inadvertent finds of human bones or other artifacts in the immediate area. No sites have been recorded or identified on TMK: (1) 6-8-003:018 and 037, and after decades of use it is unlikely that any will be found there. The Mokuleia Polo Field was once the site of weekend polo matches.

The shoreline along the broader stretches of Mokuleia Beach is occasionally used by fishermen. Most are pole fishing, but some throw-netting also occurs. Occasionally, walkers have been observed on the shallow reef headlands, and some recreational diving also occurs. No specific cultural practitioners or cultural practices have been observed in the area.

3.9 Land Use

The land is Zoned AG-2 General Agricultural District, according to the Land Use Ordinance of the City and County of Honolulu. The purpose of the A-2 General Agriculture District is to conserve and protect agricultural activities on smaller parcels of land. The state land use designation is Agricultural District.

Coastal Zone Management Area (CZMA). The Coastal Zone Management Area designation was modeled after the Federal Coastal Act of 1972. HRS Chapter 205 A, sets the guidelines for shoreline management. Provisions for obtaining a Shoreline Setback Variance are provided in §205A-46 Variances. The chapters applicable in this case are ROH Chapter 23, Article 1. ROH Section 23-1.4 Shoreline Setbacks, which defines a shoreline setback line. Section 23-1.8 outlines the criteria for granting a variance, and Section 23-1.9 provides the conditions on variances.

North Shore Sustainable Communities Plan. The *North Shore Sustainable Communities Plan* (Department of Planning and Permitting 2000) is consistent with the provisions in the City and County of Honolulu General Plan; the North Shore is to maintain its rural character. This vision focuses on retaining the unique qualities that have defined the region’s attractiveness to residents and

visitors alike: scenic open spaces, coastal resources, and the community's cultural and plantation heritage.

Section E 3.5 Residential communities has the following goals

- Provide sufficient capacity within the rural community boundary to accommodate existing and future housing needs.

Section 3.5.3.1 Rural

- Density is 1 unit per acre with lots ranging in size from 1 to 3 acres.
- The site should incorporate rural standards for roadways, generous setbacks and low lot coverage.

Both TMK: (1) 6-8-003:018 and 037 are larger than the 1-unit-per-acre minimum, and horses are kept on TMK: (1) 6-8-003:037.

3.10 Circulation and Traffic

The site is located on Farrington Highway, which is the main route to Kaena Point in one direction and, in the other, to Waialua. Farrington Highway is the only route in and out from the Mokuleia Beach–Kaena Point area. Traffic is rarely very heavy on this portion of Farrington Highway, and weekend recreational traffic may be the heaviest.

3.11 Public Services and Facilities

Solid Waste

Solid waste generated at the residence on TMK: (1) 6-8-003:037 is either recycled or picked up by the regular refuse pick-up in the neighborhood.

Drainage System

Soils in the vicinity have a very high percolation rate. This results in very little runoff and eliminates the need for a drainage system surrounding the site.

Electrical and Communications

The residence is connected to electrical and phone lines already in place along Farrington Highway. There will be no change in usage.

3.12 Visual Resources

Presently the shoreline is armored from the polo field, down the coast, past the Mokuleia Beach Colony, to protect the properties from erosion. These walls may also provide visual privacy from the beach. Some of the walls are more attractive than others, and there are no inland views from the shoreline because the beach is much lower than the existing grade.

On October 27, 2007, on a reconnaissance drive from the polo field past Dillingham Airfield to Mokuleia Beach Park and Camp Mokuleia, landscape plants appeared to obscure most of the views from Farrington Highway. Most of the makai viewshed consisted of ornamental shrubbery, trees, houses, walls, driveways, and parked cars. There were no open areas allowing views from the highway to the ocean.

There were no ocean views from Farrington Highway until Makaleha Beach Park and the polo field. After the polo field, there are no views of the ocean from the Highway until Camp Mokuleia and Mokuleia Beach Park. The most striking views along this stretch of road are of the Waianae Mountain Range, which becomes more dynamic as the coastal plain narrows and the road moves closer to the mountains.

3.13 Socio-Economic Resources

Most of the Mokuleia Beach area is used for single family homes. The exception is Mokuleia Beach Colony, which consists of 26 single-story duplex units and one-bedroom cottages, for a total of 52 units. Mokuleia Beach Colony units are advertised on the internet as vacation rentals, with rents up to \$2,500 a month, and they sell for \$600,000 to \$700,000 per unit. The Beach Colony provides employment opportunities for groundskeepers and maintenance personnel, and it provides income for the rental unit owners.

The *North Shore Sustainable Communities Plan* (Department of Planning and Permitting 2000) states that except for pockets of apartments in Mokuleia, almost all the housing in the North Shore occupies rural residential areas. Some of these areas exhibit the physical characteristics of a rural context, including:

- Smaller lot coverage and larger setbacks than encountered in more urbanized areas
- Low-rise structures, generally not exceeding two stories
- Relatively narrow roadways
- Use of grassed swales rather than curbs and gutters
- Rurally-oriented landscaping

This plan recognizes three categories of residential development: Rural, Residential, and Low-Density Apartment. The plan also recognizes the need for additional housing on the North Shore and to retain existing housing.

4.0 Environmental Consequences

This section addresses how the area's environmental resources, described in the previous section, may be affected by the proposed action. Impacts are determined to be "significant" or "not significant." "Significant" impacts can be positive or adverse. The criteria used to determine whether an impact is significant or not significant are based upon federal and state regulations, government policy, and industry standards.

4.1 Geology and Soils

It is anticipated that the construction of an engineered seawall and the granting of a Shoreline Setback Variance will have no significant impact on the geology and topography of the area.

A Shoreline Setback Variance will not impact soils; however, during construction of the engineered seawall, some of the yard of TMKs 6-8-003:018 and 037 will have to be dug up and replaced. It is anticipated that with the application of Best Management Practices, there will be no significant impact on the soils.

4.2 Beach and Offshore

The proposed action is to obtain a Shoreline Setback Variance and permitting to replace an existing wall with an engineered, permitted wall. This is in accordance with the guidelines for a Shoreline Setback Variance outlined by the Department of Planning and Permitting, City and County of Honolulu.

A coastal engineering assessment (Appendix B) was prepared by EKNA Services, Inc. The EKNA assessment and other pertinent literature are referenced throughout this section.

Long-term erosion is occurring on coastlines around the world, and shorelines globally are impacted by erosion caused by rising sea levels. The rise in sea level is caused by global warming, which is melting glaciers and polar ice sheets, adding water to the ocean basin. This warming also warms ocean water, which causes it to expand, also raising sea levels, and the additional heat contributes to the alteration of ocean chemistry. Some of the changes in ocean chemistry are profoundly affecting Hawaii's sediment supply. Hawaii's sand is primarily composed of carbonate grains produced by marine organisms. Biological production is down and Hawaii's beaches are losing their major source of sand.

Seawalls are not the cause of narrowing beaches. The need for seawalls is a symptom of the fact that the global climate and ocean chemistry are rapidly changing and marine organisms cannot adapt fast enough to keep up with the changes in their environment. Since biological productivity is down, little new sand is being produced, and Hawaii's beaches are shrinking.

The area in question undergoes a seasonal erosion and restoration pattern. This includes much of the Mokuleia shoreline that is already protected by seawalls. The eastern shoreline erodes during the winter and is restored in the summer, while the western end erodes in the summer and is restored in the winter (EKNA 2004). It is unclear how this pattern will change if sea level continues to rise, and less sand is produced.

There may be some concern that cross-shore transport may be affected because of wave reflection from near-vertical, impermeable faces of a seawall. It has been a generally held presumption that the more reflective the structure, the greater the potential for adverse impacts, as sand accumulation in front of the structure is reduced. 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 trend of erosion is a natural process that will not be reversed simply by constructing shore protection structures with sloping, porous surfaces. In fact, long-term field studies by the University of California at Santa Cruz, sponsored by the U.S. Army Corps of Engineers (EKNA 2004), found no significant difference in impact to the beach

whether it was fronting a sloping rip-rap revetment or an adjacent vertical concrete seawall.

Field studies by EKNA Services, 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 indicated that beach accretion occurred in front of the near-vertical seawall, as well on the adjacent unprotected beach.

Whether a seawall affects existing littoral processes has been debated in academic circles for many years. Some of the literature indicates that littoral processes are not affected by a seawall (EKNA 2000; U.S. Army Engineers Waterways Experiment Station 1995; Griggs et al. 1991; Griggs et al. 1994). Only after long-term evaluations in diverse coastal environments can this debate finally be settled.

4.2.1 Affected Shoreline

The existing seawall has no effect on the shoreline, and the construction of an engineered seawall will not alter the shoreline. Erosion and beach retreat will occur with or without an engineered seawall (EKNA 2007). If the wall is not built, the Dailey property, residence, and the Mokuleia Beach Colony property will be lost, as the shoreline continues to migrate inland, in response to the rising sea level.

4.2.2 Beach Profile

There is no evidence that the existing seawalls are accelerating erosion problems at and near the site. There is no indication of excessive erosion or landward retreat of the unprotected shoreline fronting the polo field. The beach profile is uniform along this entire section of the shoreline. (EKNA 2004).

The existing seawalls along this stretch of shoreline do not alter the seasonal erosion-accretion patterns (EKNA 2007). Therefore, if the existing wall is replaced with an engineered seawall, there will be no significant changes in the beach profile or the seasonal patterns.

4.2.3 Foreshore

The existing seawalls have no impact on the foreshore region, and the emplacement of an engineered seawall will result in no impact to the foreshore.

4.2.4 Offshore

The existing seawalls do not have any effect on the offshore region. Therefore, the replacement of the existing seawall with an engineered seawall will result in no impact on offshore regions.

4.2.5 Littoral Transport

The existing seawall has no effect on the littoral process at this site. The seawall is functionally consistent with adjacent existing seawalls along this section of the

Mokuleia Coastline. Therefore, replacing the existing seawall with an engineered seawall will result in no significant impact on littoral transport.

4.3 Hydrology

Project actions can have a significant adverse impact if changes in any of the following resource characteristics occur: infiltration, drainage patterns, surface runoff volume or velocity, groundwater quality, water quality, water demand, or stream water quality.

4.3.1 Groundwater

There are no developed sources of potable groundwater on the property because the groundwater is brackish (fresh water mixed with salt water). The Shoreline Setback Variance and the construction of an engineered seawall will have no significant impact on groundwater.

4.3.2 Surface Water

Since the soils at the proposed project site are very porous and there is no ponding or flow of surface water on the subject property, it is anticipated that construction of an engineered seawall will have no significant impact on surface water. Prior to construction, a detailed description of Best Management Practices and techniques for the construction phase must be developed. This will be used by the contractor hired to build the structure.

4.3.3 Flood and Tsunami Potential

The Flood Insurance Rate Map (FEMA 2004; Panel 15003C0085F, City and County of Oahu, Hawaii, revised June 2) indicates that the parcel is designated as Zone AE (EL 12) Coastal flood zone with velocity hazard (wave action): base flood Elevation 12 feet above msl.

Fletcher et al. (2002), in the *Atlas of Natural Hazards in the Hawaiian Coastal Zone*, rank the potential for flooding as moderate. In 1932, between 26 and 30 inches of rain fell in a 24-hour period, resulting in extensive flooding in the vicinities of Haleiwa and Waialua. Flooding in this area generally results from stream overflow and high surface runoff, primarily relating to infrequent but torrential rains.

According to Fletcher et al. (2002), historic records since 1878 indicate that the area has experienced tsunami waves with maximum heights of 17 feet above mean sea level (msl) in 1952 and again in 1957. Additionally the Oahu Civil Defense Agency indicates that the subject property is within the tsunami evacuation zone.

It is anticipated that the construction of an engineered seawall will not change the flood potential. If a tsunami or storm surge should approach this part of Oahu's shoreline, flooding can be anticipated.

4.4 Climate

The scope of the project and the area affected are so small that it is extremely unlikely that the proposed action could have any impact on the climate.

4.5 Air Quality

Emissions from equipment used during the construction of the engineered seawall may temporarily affect the air quality in the immediate vicinity of the proposed project site. Once construction is completed, there will be no permanent impact or change in regional air quality.

4.6 Noise

During construction of the engineered seawall, there will be an increase in sound levels. Once the construction is completed, ambient noise levels will revert to current conditions, with most of the noise coming from traffic on Farrington Highway and from Dillingham Airport.

4.7 Flora and Fauna

The U.S. Fish and Wildlife Service was consulted on the possibility of encountering rare and endangered species on the parcel. According to the Hawaii Biodiversity and Mapping Program, the only known listed species to occur near the proposed project area are the hawksbill sea turtle (*Eretmochelys imbricata*), the green sea turtle (*Chelonia mydas*), and the Hawaiian Monk seal (*Monachus schauinslandi*). U.S. Fish and Wildlife Service concurred that the sites were developed in the mid 1960s and stated that “no critical habitat occurs within the proposed project area.” Therefore, as proposed, this project will not significantly impact flora and fauna in the area.

4.8 Historic, Archaeological, and Cultural Resources

The parcels were used for agriculture before being developed and landscaped in the mid 1960s, and over the decades of use, no human remains or artifacts have been found. Therefore it is very unlikely that any historic, archaeological, or cultural resources exist on the property or that any will be impacted by the proposed action.

The State Office of Hawaiian Affairs has been consulted regarding potential impacts of the proposed action. Should significant archaeological features be uncovered, construction will be halted immediately, and archaeological consultation will be sought with the Department of Land and Natural Resources Historic Preservation Division, in accordance with applicable regulations.

4.9 Land Use

The proposed action will result in no significant changes to land use. The parcel will continue to be used for a single family residence. A Shoreline Setback Variance that allows for the replacement of the existing seawall will help to protect the residence and ensure the continued residential use of the parcel.

As proposed, the replacement of a seawall on the Dailey property with an engineered permitted seawall will protect and maintain an existing single family residence. It will also protect the Mokuleia Beach Colony property from erosion flanking around the portion of the failed wall on the Dailey property. If the wall on the Dailey property were to be removed, the Dailey residence would be lost, and the adjoining Mokuleia Beach Colony property would be jeopardized as wave action eroded the Colony parcel away, behind their seawall.

ROH Chapter 23, Article 1 Shoreline Setbacks, outlines the rules for setting a setback line and the criteria for obtaining a variance. In the case of the current proposed project, the landowner is eligible to apply for and obtain a variance as outlined in Section 23-1.8 (b) (3) Hardship Standard. Section 23-1.9 sets the conditions on variances, and the applicant will comply with those conditions.

HRS Chapter 205 A, on Coastal Management, provides guidelines for granting a variance in §205A-46 Variances. Again, the applicant meets the criteria for obtaining a variance. The variance would allow the applicant to obtain permitting to build an engineered wall.

4.10 Circulation and Traffic

There will be a slight increase in traffic to the subject property during the construction of the engineered seawall. Once construction is complete, there will be no significant increase in the traffic or changes in circulation related to the engineered seawall.

4.11 Public Services and Facilities

Water and Wastewater

There will be no change in water use and there will be no impacts to the water supply in the area associated with the engineered seawall. The amount of wastewater generated is not likely to increase since the site will continue to be used for a single family residence. Therefore, there will be no impacts to wastewater systems.

Solid Waste

The site will continue to be used as a single family residence and there will be no change in the amount of waste generated.

Drainage System

Currently, due to the porosity of the soils, there is no runoff. Since the use of the parcel will not change, there should be no increased runoff.

Electrical and Communications

The parcel will continue to be used as a single family residence, and there will be no additional use of electricity or need for additional communications systems.

4.12 Visual Resources

The replacement of the seawall will result in no significant impacts to the visual resources of the area. Removing the fallen rocks and the sandbags and

constructing a permanent, engineered seawall will improve the viewshed from the shoreline.

4.13 Socio-Economic Resources

The *North Shore Sustainable Communities Plan* (Department of Planning and Permitting 2000) addresses housing and small communities by recommending that the existing older housing stock should be rehabilitated and brought up to code and that new housing is needed for Mokuleia residents.

As proposed, the Shoreline Setback Variance and the construction of an engineered seawall will preserve a single family residence in Mokuleia Beach and will not decrease the amount of housing in the North Shore region.

The sustainable communities plan section on shoreline areas recommends maintaining the existing *mauka-makai* and lateral access ways. As proposed, the project will not change the existing mauka-makai access, and it will improve lateral access along the shoreline during high surf and high tides, in compliance with ROH Section 23-1.9 (a) Conditions on Variances.

There will be a few jobs created during construction of the seawall; this will be a short-term, temporary effect. Overall, there will be no significant change in the socio-economic environment.

5.0 Evaluation of Alternatives

Provisions of Title 11, Chapter 200, Hawaii Administrative Rules, Department of Health, outline specific requirements for an EA. One of the objectives delineated in Title 11, Chapter 200, is to evaluate alternatives to the proposed project, including the "no action" alternative.

5.1 No Action

This is not a viable alternative for many reasons. First, if the Shoreline Setback Variance is not obtained and the engineered seawall is not constructed, the property owner will not be able to clear the alleged violation of the Conservation District Rules relating to the alleged unauthorized repair and reconstruction of a boulder revetment within the Conservation District. Second, the current shoreline protective structure is already beginning to fail on the end, near **the Mokuleia Beach Colony seawall**. When it does fail, the unconsolidated soils will be removed rapidly by wave action, leading to flanking of the remaining portions of the wall and erosion behind the Mokuleia Beach Colony wall. This would create a public hazard on the beach and cause financial and emotional distress to the owners, as well. Third, erosion will continue until structures on the properties are undercut and collapse onto the beach, thus exacerbating the public hazards.

5.2 Removal of the Existing Seawall

This is not a viable alternative. Removing the existing wall and not replacing it with another shore protection structure will result in catastrophic damage to the existing dwelling on the property. The dwelling is situated 20–30 feet from the

edge of the seawall and is a slab-on-grade structure with brick concrete masonry exterior walls. The foundation has already experienced differential settling, as evidenced by cracks in the exterior walls that have been patched with sealant.

It may take a year or longer to obtain permits for the shore protection structure and to replace the structure; the existing seawall must be left in place to maintain the habitability of the dwelling. Removal of the existing seawall with no retaining structure to support the foundation of the dwelling will lead to substantial structural damage to the dwelling as the shoreline embankment is eroded by winter storm waves and collapses. Continuing erosion will also impact the Colony property, leading to erosion behind their seawall. As erosion continues, the Mokuleia Beach Colony seawall will fail and collapse onto the beach, creating a public hazard.

5.3 Soft Shore Protection

Soft shore protection, such as beach nourishment, is often cited as a preferred alternative to hard structures, in spite of the fact that it poses numerous drawbacks.

Soft shore protection measures such as beach nourishment or constructing protective sand dunes are not feasible for a single homeowner. This is the most costly alternative, due to the large quantities of sand required. Beach nourishment would be required for a long stretch of shoreline, extending far beyond the subject parcel, because wave energy would quickly redistribute the sand. Groins would be required to obstruct the longshore currents and to keep the sand in place, and a study would be required to determine the spacing and number of groins to be emplaced.

In Hawaii, government agencies responsible for recreational beach resources can rarely afford to use beach nourishment and groins for public beach parks or publicly accessible beaches. Also, beach nourishment requires the involvement of all property owners within the littoral cell and huge quantities of suitable beach sand. It may be possible to dredge sand from offshore regions and pump it onto the beaches as a slurry, much like the state did at Kuhio Beach. However the cost would be impossible for one homeowner to bear and it would be difficult for all of the homeowners in Mokuleia to cooperatively pool their resources for beach nourishment.

5.4 Rock Revetment

There is not enough space on the property to construct a properly designed revetment. Assuming a crest elevation of 12 feet and toe elevation of 3 feet below sea level (-3 feet), the horizontal footprint of the revetment slope would be 30 feet for a 1V:2H slope (EKNA 2007, U.S. Army Corps of Engineers, 1995, 1997, 2005). The rock layer thickness would add another 8 feet or so, resulting in a total horizontal footprint of about 40 feet. A revetment structure will eventually cover (displace) the existing beach and extend into the water. Such a structure would be less likely to allow sand to pass around the headland than would a continuation of the seawall from the Colony property across the subject property.

It is likely that the beach in front of the Mokuleia Beach Colony property and beyond would entirely disappear.

The most significant reason for excluding the revetment alternative is that it will not join with the seawall on the Mokuleia Beach Colony property. A revetment that is placed with the toe at the certified shoreline and sloped inland would have a much lower profile than the seawall. This will allow waves to wash up the revetment and over the edge, onto the Mokuleia Beach Colony property behind their seawall. The saltwater would first kill the vegetation; then wave action would begin to remove the soil on the Colony property. This will result in erosion behind the seawall on the Mokuleia Beach Colony property. If erosion behind the Mokuleia Beach Colony seawall is allowed to go on unchecked, that seawall will eventually begin to fail.

5.5 Preferred Alternative

The preferred alternative is to construct a two-tiered seawall adjacent to the seawall on the Mokuleia Beach colony wall. The lower level would consist of a walkway that will provide lateral public access at high tide. The upper level of the wall will be located at 1 foot, 8 inches above the existing grade. In accordance with LUO Section 21-4.40 no portion will exceed six (6) feet in height as measured from the “existing or finish grade, whichever is lower,” as illustrated on the engineered plans (Appendix D).

Boulders and rocks from the existing structure may be re-used in constructing the new wall. Removal of the wall and excavation along the shoreline will require removing some soil and sand. The actual amount of material to be removed depends upon the depth of the pre existing wall and the depth required ensuring the structural stability of the new wall.

Most of the material to be removed is rock that makes up the non-engineered wall. Until excavation begins, the volume of rock, sand, and soil to be excavated can not be precisely calculated. Removed material will be stockpiled on TMK (1) 6-8-003:018 or 037.

The amount of sand and soil excavated may not be equal to the amounts required for backfilling on either side of the wall. If additional material is required, **appropriate material, if available**, will be used to backfill trenches on the beach side of the new wall, and sandy soil will be used on the other side of the wall.

Dewatering equipment and sheetpile will be installed as needed. All work will conform to the “Standard Specifications for Public Works Construction” of the City and county of Honolulu. The contractor will phase the work or otherwise provide for protection of the property against erosion during the construction period. Existing mauka-makai beach access should not be affected during construction; however, lateral access may be temporarily obstructed.

6.0 Findings and Determinations

Obtaining a Shoreline Setback Variance and the construction of an engineered seawall will have no significant environmental impacts. This determination is

based upon criteria outlined in Chapter 343, HRS, as amended, and Title 11, Chapter 200, HAR 1996.

(1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resources.

The project does not involve a loss or destruction of any natural or cultural resources. There are no rare or endanger species and there are no cultural sites on the parcel.

(2) Curtail the range of beneficial uses of the environment.

The project does not restrict the range of beneficial uses of the environment. There will be no change in mauka-makai public access, and public access to the shoreline and lateral access will be enhanced.

(3) Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 343, HRS; and any revisions thereof and amendments thereto, court decisions, or executive orders

As proposed, the project is in compliance with the state's long-term goals and guidelines as expressed in Chapter 343, HRS.

(4) Substantially affects the economic or social welfare of the community or state

As proposed, the project does not significantly impact the economic or social welfare of the community or state. The seawall will have some positive economic impact to the applicant and the Mokuleia Beach Colony by preventing further erosion and loss of land and loss of housing to the community.

(5) Substantially affects public health

As proposed, the project does not impact public health.

(6) Involves substantial secondary impacts, such as population changes or effects on public facilities

As proposed, the project does not have secondary effects such as changes in demographics and infrastructure. No new infrastructure will be required, and the demand on the existing infrastructure will not change.

(7) Involves a substantial degradation of environmental quality

The project, as planned, does not result in the significant degradation of environmental quality. It will not degrade water quality or impact marine or terrestrial flora and fauna. It will permit landscaping mauka of the wall, improving the visual and aesthetic nature from the shore, and it will remove existing rubble on the beach. The proposed wall will be consistent with all of the protected properties along that portion of the shoreline.

(8) Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment for larger actions

As proposed, there are no cumulative adverse effects on the environment or the need for larger actions on the site.

(9) Substantially affects a rare, threatened or endangered species or its habitat

As proposed, the project does not impact any rare, threatened, or endangered species or its habitat. There are no rare or endangered species or habitat for such species on the parcel or in the area.

(10) Detrimentially affects air or water quality or ambient noise levels

As proposed, the project does not have any adverse impacts on air and water quality. There may, however, be a temporary rise in noise levels. Therefore, construction activities will be restricted to 7:30 am to 5:00 pm Monday through Friday. No material will be placed in the nearshore water. No debris, petroleum products, or other construction related substances or materials will be allowed to flow, fall, leach or otherwise enter the coastal waters. All construction material will be free of contaminants and pollutants. Best Management Practices will be followed during construction, to minimize environmental pollution and damage.

(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, freshwater, or coastal waters

Seawalls have no effect on the existing littoral processes in this area. The proposed and existing seawalls are functionally consistent with adjacent, existing seawalls along this coastal reach. The existing seawalls do not alter seasonal erosion-accretion patterns (EKNA 2007). (Please refer to Section 3.2 and Section 4.2 for a complete discussion of the effects of seawalls)

Flood Insurance Rate Map (FEMA 2004; Panel 15003C0085F City and County of Oahu, Hawaii, revised June 2) indicates that the parcel is designated as Zone AE (EL 12). Fletcher et al. (2002), in the *Atlas of Natural Hazards in the Hawaiian Coastal Zone*, rank the flooding as moderate. In 1932, between 26 and 30 inches of rain fell in a 24-hour period, resulting in extensive flooding in the vicinities of Haleiwa and Waialua. Flooding in this area generally results from stream overflow and high surface runoff, primarily relating to infrequent but torrential rains.

According to the *Atlas of Natural Hazards in the Hawaiian Coastal Zone* (Fletcher et al. 2002) historic records since 1878 indicate that the area has experienced tsunami waves with maximum heights of 17 feet above msl in 1952 and again in 1957.

If a tsunami or storm surge should approach this part of Oahu's shoreline, flooding can be anticipated. The proposed seawall will provide erosion and wave protection for a single family residence.

(12) Substantially affects scenic vistas and view planes identified in county or state plans or studies

Presently, the shoreline is armored from the polo field past the Mokuleia Beach Colony and on down the coast. These seawalls protect the properties from

erosion and provide visual privacy from the beach. Some of the walls are more attractive than others, and there are no inland views from the shoreline.

There are very few ocean views from Farrington Highway until Makaleha Beach Park and the polo field. After the polo field, there are no views from the Highway to the ocean until Camp Mokuleia and Mokuleia Beach Park. The most striking views along this stretch of road are of the Waianae Mountain Range, which becomes more dynamic as the coastal plain narrows and the road moves closer to the mountains.

The replacement of a seawall will result in no changes to the viewshed and no significant impacts to the visual resources of the area. Removing the fallen rocks and the sandbags and constructing a permanent, engineered seawall will improve the viewshed from the shoreline.

(13) Requires substantial energy consumption.

As planned, the proposed action does not require long-term additional consumption of energy.

7.0 Shoreline Setback Variance Justification

The property owner will suffer hardship if the Shoreline Setback Variance for the proposed seawall is not granted and if the seawall has to be removed. This application for such a variance fulfills the three criteria for hardship as set forth in ROH Sect. 23-1.8 (3) (A).

(A) A structure or activity may be granted a variance upon grounds of Hardship if:

- (i) The applicant would be deprived of reasonable use of the land if required to comply with the shoreline setback ordinance and the shoreline setback rules*

Shortly after the home was built on the subject property, in 1965, a rock revetment was constructed along the shoreline to protect the home from erosion. The revetment functioned properly for nearly 40 years without incident. During the winter of 2004–2005, as a result of erosion and the construction of the adjoining seaway at the Mokuleia Beach Colony, the existing revetment began to fail. Several boulders supporting the revetment became loose, and coconut trees fell.

Again, in the winter of 2006–2007, the revetment began to fail. Trees fell into the ocean and onto the beach, and most of the revetment became unstable and was near collapse. Additionally, several pronounced cracks developed in walls and foundation for Mrs. Dailey's home, threatening its structural integrity and stability. With no other alternative and as a large winter swell was approaching that threatened to completely destroy the wall and Mrs. Dailey's home, the Daileys did the only reasonable thing. The Daileys repaired and stabilized the rock revetment to its current condition, to protect Mrs. Dailey's home.

On May 22, 2007, Elaine Tamaye, coastal engineer, conducted a site visit to evaluate the condition of the wall and to propose a practical solution. The resulting report stated that:

It is obvious that removing the seawall at this time, without replacing it with another shore protection structure will result in catastrophic damage to the existing dwelling on the property. The dwelling is situated about 20 feet from the edge of the seawall, and is a slab-on-grade structure, with brick/CMU exterior walls. The foundation of the dwelling has already experienced differential settling, as is evidenced by cracks in the exterior walls that have been patched with sealant. Removal of the existing seawall with no retaining structure to support the foundation of the dwelling will lead to substantial structural damage to the dwelling as the shoreline embankment collapses and is eroded by winter storm waves. It will take at least a year or longer to obtain permits for the shore protection structure (or replacement structure), the existing seawall must be left in place to maintain the habitability of the dwelling. If the existing seawall and boulders are completely removed, continuing erosion will also impact the Colony property by causing flanking of their seawall.

- (ii) *The applicant's proposal is due to unique circumstances and does not draw into question the reasonableness of this chapter and the shoreline setback rules*

Numerous studies indicate that the Mokuleia coastline has been undergoing coastal erosion for many years. This variance request is based up on the fact that significant long-term erosion is occurring at this section of Mokuleia Beach. Most of the property owners along this section of the coastline have erected seawalls to protect their property and houses from erosion. Many of those seawalls have received government permits and approvals. The reason for this request is the property's unique location along a well-documented eroding shoreline.

- (iii) *The proposal is the practicable alternative that conforms best to the purpose of the shoreline setback regulations*

The shoreline protective structure is already beginning to fail. When it does fail, the exposed unconsolidated soils will be removed rapidly by wave action and will flank the remaining portions of the wall and the Mokuleia Beach Colony wall, causing monetary loss and emotional distress to the owners, as well as creating a public hazard on the beach. Erosion will continue until structures on the properties are undercut and collapse onto the beach, exacerbating the public hazards.

This environmental assessment reviewed the following alternatives.

No Action: This is not a viable alternative for many reasons. First, if the Shoreline Setback Variance is not obtained, and the engineered seawall is not constructed, the property owner will not be able to clear the alleged violation of the Conservation District Rules relating to the alleged

unauthorized repair and reconstruction of a boulder revetment within the Conservation District. Second, the current shoreline protective structure is already beginning to fail. When it does fail, the unconsolidated soils behind it will be rapidly removed by wave action, flanking the remaining portions of the wall and eroding behind the Mokuleia Beach Colony wall, causing financial and emotional distress to the owners, as well as creating a public hazard on the beach. Third, erosion will continue until structures on the properties are undercut and collapse on the beach, exacerbating the public hazards.

Beach nourishment or Soft Shore Protection: Beach nourishment or soft shore protection is often cited as a preferred alternative, yet it poses numerous drawbacks:

Soft shore protection measures such as beach nourishment or constructing protective sand dunes are not feasible for a single homeowner. This is the most costly alternative, due to the large quantities of sand required. Beach nourishment would be required for a long stretch of shoreline extending far beyond the subject parcel because wave energy quickly redistributes the sand. Groins would be required, to obstruct the longshore currents and to keep the sand in place, and a study would be required to determine the spacing and number of groins to be emplaced.

In Hawaii, government agencies responsible for recreational beach resources can rarely afford to use beach nourishment and groins for public beach parks or publicly accessible beaches. Also, beach nourishment requires the involvement of all property owners within the littoral cell and huge quantities of suitable beach sand. It may be possible to dredge sand from offshore regions and pump it as a slurry onto the beaches, much like the state did at Kuhio Beach. However, the cost would be impossible for one homeowner to bear, and it would be difficult for all of the homeowners in Mokuleia to cooperatively pool their resources for beach nourishment.

Sloping Revetment: There is not enough space on the property to construct a properly designed revetment. Assuming a crest elevation of 12 feet and toe elevation of 3 feet below sea level (-3 feet), the horizontal footprint of the revetment slope would be 30 feet for a 1V:2H slope. The rock layer thickness would add another 8 feet or so, resulting in a total horizontal foot print of about 40 feet (EKNA 2007).

A revetment structure would eventually cover (displace) the existing beach and extend into the water. Such a structure would be less likely to allow sand to pass around the headland than would a continuation of the seawall. It is likely the beach in front of the Mokuleia Beach Colony property and beyond would entirely disappear. The continuation of the seawall from the Colony property across the subject property will not obstruct the movement of sand around the point.

The most significant reason for excluding the revetment alternative is that it will not join with the seawall on the Mokuleia Beach Colony property. A

revetment that is placed with the toe at the shoreline and sloped inland would have a much lower profile than the seawall. This will allow waves to wash up the revetment and over the edge onto the Mokuleia Beach Colony property. The saltwater would first kill the vegetation; then wave action would begin to remove the soil on the Colony property. This will result in erosion behind the seawall on the Mokuleia Beach Colony property. If erosion behind the Mokuleia Beach Colony seawall is allowed to go on unchecked, that seawall will eventually begin to fail.

Proposed Seawall: The preferred alternative is to construct a two-tiered seawall adjacent to the seawall on the Mokuleia Beach Colony property. The lower level will consist of a walkway that will provide lateral public access at high tide. The upper level of the wall will be located at 1 foot, 8 inches above the existing grade. In accordance with LUO Section 21-4.40, no portion will exceed six (6) feet in height, as measured from the “existing or finish grade, whichever is lower,” as illustrated on the engineered plans (Appendix C).

Boulders and rocks from the existing structure may be re-used in constructing the new wall. Removal of the wall and excavation along the shoreline will require removing some soil and sand. The actual amount of material to be removed depends upon the depth of the pre-existing wall and the depth required to ensure structural stability.

Most of the material to be removed is rock that makes up the non-engineered wall. Until excavation begins, the volume of rock, sand, and soil to be excavated cannot be precisely calculated. Removed material will be stockpiled on TMK (1) 6-8-003:018 or 037.

The amount of sand and soil excavated may not be equal to the amounts required for backfilling on either side of the wall. If additional material is required, appropriate material, if available, will be used to backfill trenches on the beach side of the new wall, and sandy soil will be used on the other side.

Dewatering equipment and sheetpile will be installed as needed. All work will conform to the “Standard Specifications for Public Works Construction” of the City and county of Honolulu. The contractor will phase the work or otherwise provide for protection of the property against erosion during the construction period. Existing mauka-makai beach access should not be affected during construction; however, lateral access may be temporarily obstructed.

(B) Before granting a hardship variance, the director must determine that the applicant's proposal is a reasonable use of the land. Because of the dynamic nature of the shoreline environment, inappropriate development may easily pose a risk to individuals or to the public health and safety. For this reason, the determination of the reasonableness of the use of land should properly consider factors such as shoreline conditions, erosion, surf and flood conditions and the geography of the lot.

Shoreline and Offshore Conditions: The existing seawall has no effect on the beach profile at this time. The existing seawalls along this stretch of shoreline do not alter the seasonal erosion-accretion patterns (EKNA 2007). Therefore, if the existing wall is replaced with an engineered seawall, there will be no significant changes in the beach profile or the seasonal patterns.

Currently, the existing seawalls have no impact on the foreshore region, and the emplacement of an engineered seawall will result in no impact to the foreshore.

The existing seawalls do not have any affect on the offshore region. Therefore, the replacement of the existing seawall with an engineered seawall will result in no impact on the offshore regions.

The existing seawall has no effect on the existing littoral process at this site. The seawall is functionally consistent with adjacent existing seawalls along this section of the Mokuleia Coastline. Therefore, replacing the existing seawall with an engineered seawall will result in no significant impact on littoral transport.

Erosion: Along the north coast, from Kaena point to Mokuleia, broad intertidal and subtidal wave-abrasion platforms are carved into Waimanalo-age limestone, reflecting the long history of large wave activity along this shoreline. A low-lying platform of fossil reef rock is elevated 3 to 6 feet above msl and extends from Mokuleia to within 0.5 miles of Kaena point. The authors of the *Atlas of Natural Hazards in the Hawaiian Coastal Zone* (Fletcher et al. 2002) gave a high hazard rating to most of the Mokuleia Beach area, where the coastal slope is low and continued erosion is rapidly removing the sand from the beaches.

This North Shore coast, particularly the Mokuleia Beach area, is suffering from long-term erosion. The area is exposed to winter North Pacific swell and the predominant trade wind waves. Shallow fringing reef flats protect the shoreline from moderate trade wind wave energy. During the winter, large North Pacific swell conditions and high water levels contribute to wave run-up and overtopping of the beach, causing erosion damage and flooding to unprotected backshore areas and dwellings

Table 1. Mokuleia Beach (Middle Section) Erosion Rates

Observation Period	Transect Number		
	10	11	12
Sept. 28, 1949–Nov. 1, 1958	+4	+6	-4
Nov. 1, 1958–Aug. 22, 1962	-5	-4	+3
Aug 22, 1962–Apr. 22, 1967	+7	+3	-3
Apr. 22, 1967–Mar 17, 1971	-8	-12	-5
Mar. 17, 1971–Apr. 11, 1975	-8	-1	-7
Apr. 11, 1975–Aug. 06, 1979	-1	*	+8
Net Erosion	-11	-8	-8

* No Data
After Hwang 1981

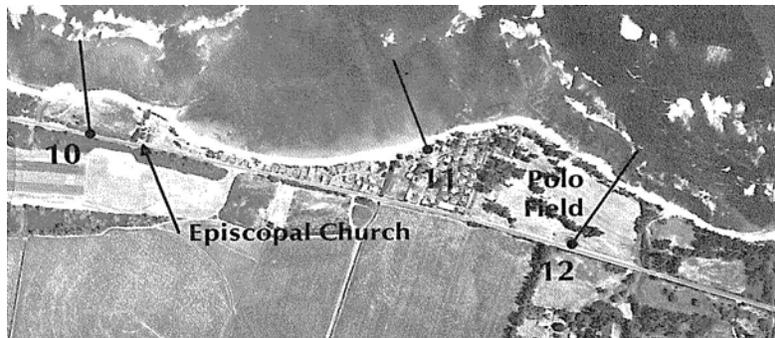


Figure 7. Transect Locations
Transects used to measure erosion rates from Aerial Photos. From Hwang 1981.

Surf and Flood Conditions: The Flood Insurance Rate Map (FEMA 2004; Panel 15003C0085F, City and County of Oahu, Hawaii, revised June 2) indicates that the parcel is designated as Zone AE (EL 12).

Fletcher et al. (2002), in the *Atlas of Natural Hazards in the Hawaiian Coastal Zone*, ranks the risk of flooding as moderate. In 1932, between 26 and 30 inches of rain fell in a 24-hour period, resulting in extensive flooding in the vicinities of Haleiwa and Waialua. Flooding is generally due to stream overflow and high surface runoff and is primarily a result of infrequent but torrential rains.

According to Fletcher et al. (2002), historic records since 1878 indicate that the area has experienced tsunami waves with maximum heights of 17 feet above msl in 1952 and again in 1957.

It is anticipated that the construction of an engineered seawall will not change the flood potential. If a tsunami or storm surge should approach this part of Oahu’s shoreline, flooding can be anticipated.

Geography of the Lot: The parcel is an irregularly shaped rectangle. The boundary fronting the shoreline is not a straight line, and it meets with the side boundaries at a different angle on either side. (Figures 4 and 5)

The site contains one existing single family residence with an attached garage that was built in 1964. The house was placed in the northeast corner, around 40 feet from the shoreline (Figure 5). It has been the family home since 1965, and Mrs. Dailey still lives in the home

The site is located on a gently sloping, wave-cut platform that extends from the shoreline to the base of the Waianae Mountain Range. Much of the wave-cut platform along the shoreline has been subdivided for agricultural, residential, and recreational uses. Inland, there are large agricultural tracts, Dillingham Air Field, and open space.

Along the north coast, from Kaena Point to Mokuleia, broad wave-cut platforms cut into the Waimanalo-age limestone, reflecting the long history of strong wave activity along this portion of the shoreline. A low-lying platform of fossil reef-rock is elevated to 6 feet above sea level and extends from Mokuleia to within 0.5 miles of Kaena Point. Isolated sandy pocket beaches are found at breaks in the rocky bench and widen toward Mokuleia, where they connect with small offshore sand fields. Ongoing erosion has drastically cut into the elevated limestone, indicating that erosion is high along this shoreline.

Soils covering the wave-cut platforms in this section of the coastline are the Jaucas Sand Series (USDA Soil Conservation Service, 1972). This series consists of well drained calcareous soils that occur as narrow strips on coastal plains adjacent to the ocean. They developed as wind- and water-deposited sand composed of shell and coral fragments that are mixed with lithic fragments and organic debris. They are found in areas that are level to 15 percent slopes. In a representative profile, the soil is pale to deep brown, sandy, and more than 60 inches deep. In many locations the surface layer is dark brown due to the accumulation of organic matter and alluvium. The soil is neutral to moderately alkaline throughout the profile.

Permeability is rapid and runoff is very slow to non-existent. The hazard of erosion due to precipitation is slight. Wind erosion can be a severe hazard when vegetation has been removed. Workability is difficult because the soil is loose and lacks the stability needed to use equipment. On an actively eroding coastline, the Jaucas Sand Series is rapidly washed away by waves. Jaucas soils have a low shrink-swell potential and low corrosivity properties for both uncoated steel and concrete.

(C) If the activity or structure may artificially fix the shoreline, a variance may be granted only if hardship is likely to be caused by shoreline erosion; provided that conditions are imposed prohibiting any such structure seaward of the existing shoreline unless it is clearly in the public interest.

The proposed activity would fix the shoreline with a seawall, to protect the parcel from erosion. A Shoreline Setback Variance is required because of the configuration of the parcel, which has very little depth between the shoreline and the roadway. Without a Shoreline Setback Variance, a permitted engineered seawall could not fit within the area between the house and the setback line.

If an engineered seawall is not permitted, shoreline erosion will cause hardship because the dwelling will eventually be subject to undermining and collapse. This may also create a public hazard because of the dwelling's proximity to the shoreline.

(D) Hardship shall not be determined as a result of a zone change, plan review use approval, subdivision approval, cluster housing approval, planned development housing approval, conditional use permit, or any other discretionary land use permit granted after June 16, 1989.

The subject property is not affected by any government approved change or any discretionary land use permit.

The following passage from the Hawaii *Coastal Erosion Management Plan* (COEMAP) aptly sums up the situation. "Along residential shorelines, as in many neighborhoods around the nation, the focus is on day-to-day activities of families and hard-working individuals from all walks of life. Coastal lands are all the more valuable in light of the limited buildable land area and restricted resources of our island home. Not only residences, but roadways, sewage lines and treatment plants, harbors, airports, commercial facilities and all manner of public infrastructure may be found along our shores. To simply let our coastal investments and human efforts wash into the sea would not be a rational management decision" (DLNR Coastal Lands Program 2006).

8.0 Construction Mitigation Measures

The following Best Management Practices will be adhered to during construction.

1. The contractor shall perform work in a manner which minimizes environmental pollution and damage as a result of construction operations. Environmental resources outside the limits of construction shall be protected during the construction period.
2. The Contractor shall confine all construction activity to areas defined by the construction plan. No construction material shall be placed or stockpiled outside of the immediate area of construction.
3. All construction materials shall be free of contaminants and pollutants.
4. No debris, petroleum products, or other construction-related substances or materials will be allowed to flow, fall, leach or otherwise enter the coastal waters.
5. All excavated material will be placed on the parcel, behind the excavation and contained within soil or sandbag berms to prevent runoff back into coastal waters.
6. All of the material excavated for the construction of the engineered seawall will be used to backfill around the new seawall. It is not anticipated that there will be an excess of beach quality sand to provide for Small-Scale Beach Nourishment and a permit for beach nourishment will not be required.

Should any bones or Native Hawaiian cultural or traditional deposits be found during construction, work will stop and the State Historic Preservation Division will be notified.

Public access along the shoreline during construction will be maintained so far as practicable and kept within the limitations necessary to ensure safety.

9.0 Public Agency Involvement, Review and Consultation

Environmental Assessment

City and County of Honolulu Department of Planning and Permitting

State of Hawai`i Department of Land and Natural Resources

Office of Conservation & Coastal Lands

State of Hawai`i, Department of Land and Natural Resources,
 Land Division

State of Hawai`i, Office of Environmental Quality Control

Office of Hawaiian Affairs.

U. S. Army Engineer District, Honolulu

The comment letters and responses are in Appendix A

The project may require the following permits and approvals:

Shoreline Setback Variance pursuant to Chapter 23,
 Revised Ordinances of Honolulu.

Building Permit, City and County of Honolulu.

Shoreline Certification, Department of Land and Natural Resources,
 Land Division, State of Hawai`i.

The following individuals were contacted for background information during the preparation of this environmental assessment.

Michael Dailey	Property Owner
Dolan Eversol	DLNR Office of Coastal and Conservation Lands
Elaine Tamaye	EKNA Services, Inc.

10.0 List of Preparers

Preparers	Responsibilities	Affiliation
Wilbert C.F. Chee	Principal Planner	Wil Chee – Planning & Environmental
Judy J. Mariant	Project Manager, Planner, Geologist	Wil Chee – Planning & Environmental
Richard S. McGerrow	Senior Planner	Wil Chee – Planning & Environmental

11.0 References

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12.0 Appendices

- Appendix: A Correspondence
- Appendix: B: Coastal Engineering
- Appendix: C Soils Engineering
- Appendix: D Parcel Information
- Appendix: E Shoreline Certification Surveys

Appendix A Correspondence
Pre Consultation Comments
EA Comments & Responses

Pre Consultation Comments

**Project Information for
Shoreline Setback Variance Application**

for a Seawall

TMK: (1) 6-8-003:018, 37

Mokuleia Beach, Waialua, O`ahu, Hawai`i

General project information:

THE APPLICANT:

Michael Dailey
c/o Michael Carroll
Bays, Deaver, Lung, Rose & Homa
P.O. Box 1760
Honolulu, Hawaii 96813
Ph 523-9000 Fax: 533-4184

APPLICANTS
REPRESENTATIVE

Michael Carroll
Bays, Deaver, Lung, Rose & Homa
P.O. Box 1760
Honolulu, Hawaii 96813
Ph 523-9000 Fax: 533-4184

EA PREPARATION

Wil Chee - Planning & Environmental
1018 Palm Drive
Honolulu, Hawai`i 96814
Ph.: (808) 596-4688 Fax: (808) 597-1851

TMK AND OWNER:

(1) 6-8-003:018, 037
Elizabeth M Dailey et.al. Trust
68-411 Farrington Highway
Waialua, Hawaii 96791

LAND AREA:

56,932 square feet or 1.307 acres

ZONING

AG-2 General Agricultural District

AGENCIES CONSULTED:

Department of Planning and Permitting
City & County of Honolulu
650 South King Street
Honolulu, Hawai`i 96813

Department of Land and Natural Resources
Office of Conservation and Coastal Lands
1151 Punchbowl Street., Room 131
Honolulu, Hawai`i 96813

REQUIRED PERMITS AND
APPROVALS:

Shoreline Setback Variance
Building Permit

Project Information for Shoreline Setback Variance Application for a Seawall

TMK: (1) 6-8-003:018, 37

Mokuleia Beach, Waialua, O`ahu, Hawai`i

Grading Permit

Department of the Army Permit

Shoreline Certification from Department
Land and Natural Resources (DLNR), Land
Division, State of Hawai`i.

ACCEPTING AUTHORITY

Department of Planning and Permitting
City & County of Honolulu
650 South King Street
Honolulu, Hawai`i 96813

Project Location:

The project site is located off Farrington Highway on the shores of Mokuleia on the island of O`ahu. It is midway between Waialua and Kaena Point fronting Mokuleia Beach and it is between the Mokuleia Polo Field and the Mokuleia Beach Colony Condominium.

(Figures 1, 2, & 3)

Project
Location

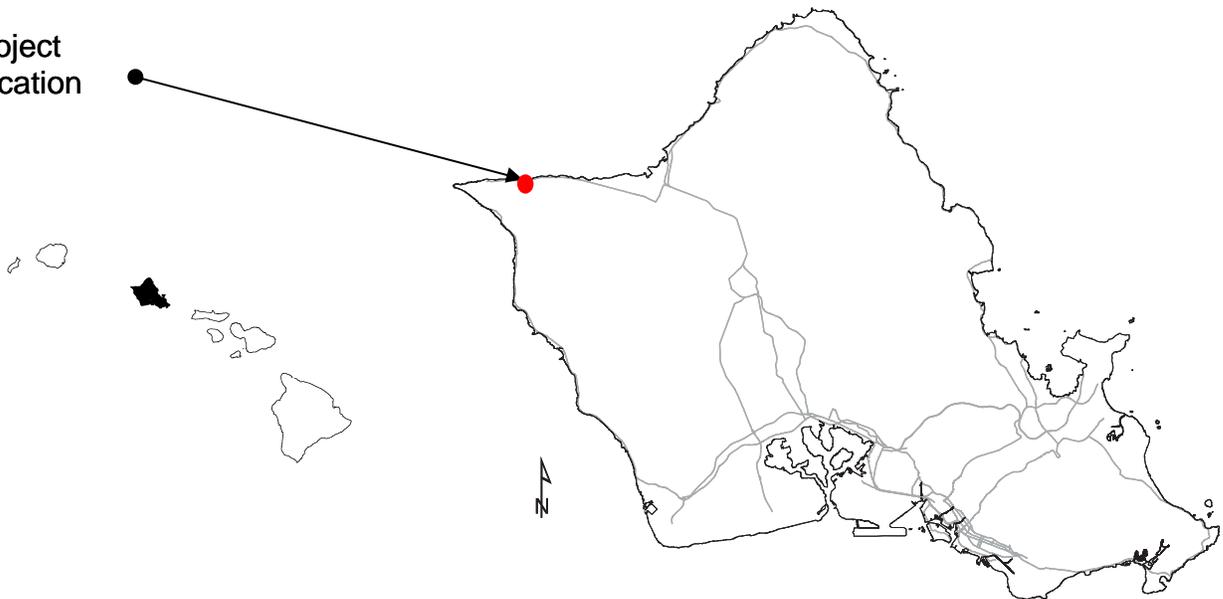


Figure 1 Project Location

Project Information for Shoreline Setback Variance Application for a Seawall

TMK: (1) 6-8-003:018, 37

Mokuleia Beach, Waiialua, O`ahu, Hawai`i

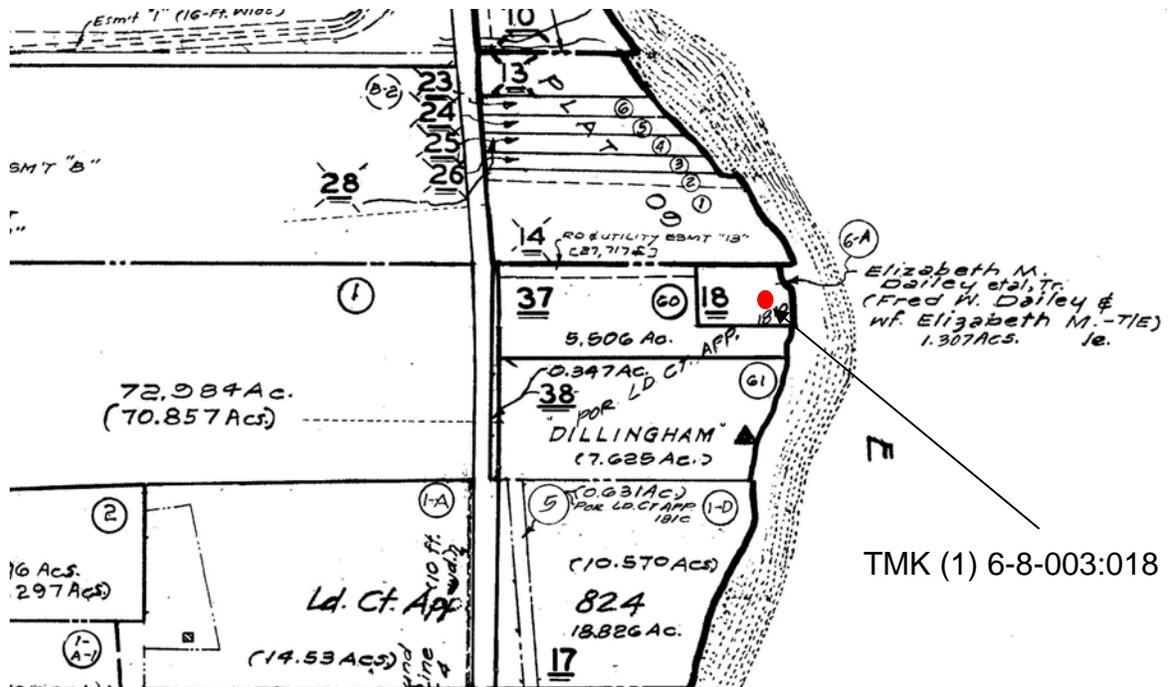


Figure 2. TMK Map

Proposed Action:

The proposed project is to replace an existing emergency rock structure with an engineered seawall and to obtain the permits necessary to legalize the seawall. Based on the information available, it is unclear whether the rock structure was authorized or un-authorized when it was built. It is believed that the rock structure was originally constructed in the late 1960's. In order to obtain government approval, the proposed seawall will be designed by a licensed engineer. Although portions of the existing repaired structure appear to be stable, the project engineer was unable to determine if the base of the wall was placed deep enough to prevent scouring and undermining from storm wave activity. It is also not known if the rock structure was designed for retaining the 6 plus feet of shoreline embankment.

The proposed seawall that is intended to replace the rock structure is being designed by a licensed engineer. The new engineered structure will extend to the adjacent parcel TMK: 6-8-003: 037 which is also owned by the Dailey family. The seawall will be extended across parcel 037 to prevent "flanking" erosion behind Mrs. Dailey's house in parcel 018. If parcel 037 is not protected, continued wave action may cause erosion to creep behind parcel 018's seawall and cause the house to collapse. The depth and design of the seawall will be based upon the findings of the soils study by Hirata & Associates, Inc. Boulders from the existing rock structure may be re-used in the construction of the new seawall. During construction activities the rocks and all materials will be placed on TMK: 6-8-003: 018 or 037. All construction activities will be planned to take place during the summer to avoid the North Pacific winter swell and will comply with the City's Department of Environmental Services "Storm Water Best Management Practices for Construction Sites."

Project Information for Shoreline Setback Variance Application for a Seawall

TMK: (1) 6-8-003:018, 37

Mokuleia Beach, Waialua, O`ahu, Hawai`i



● Project Location

Figure 3 Aerial Photo of the Vicinity

Project Information for Shoreline Setback Variance Application

for a Seawall

TMK: (1) 6-8-003:018, 37

Mokuleia Beach, Waialua, O`ahu, Hawai`i

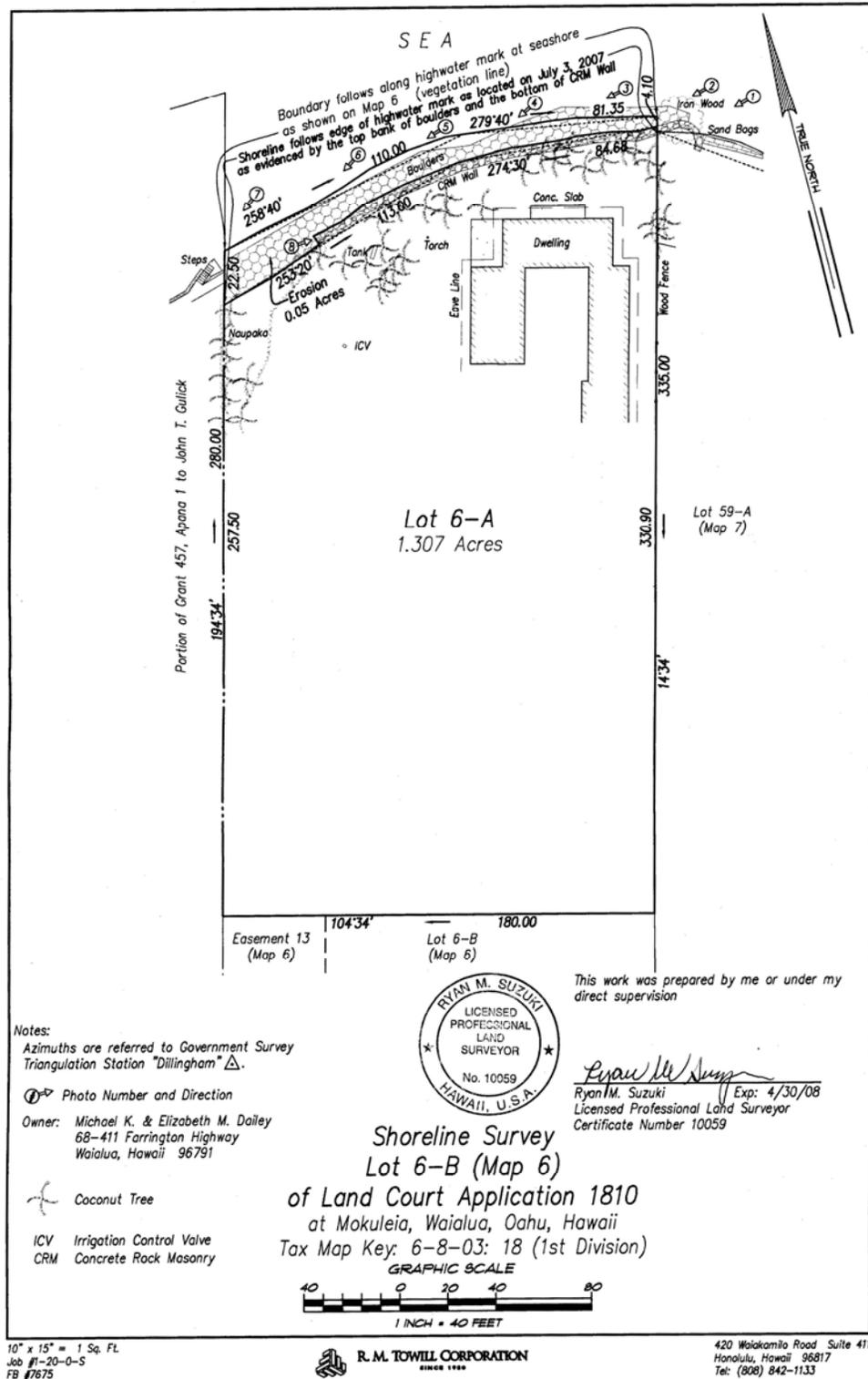


Figure 4 Shoreline Survey, 2005

Project Information for Shoreline Setback Variance Application for a Seawall

TMK: (1) 6-8-003:018, 37

Mokuleia Beach, Waialua, O`ahu, Hawai`i

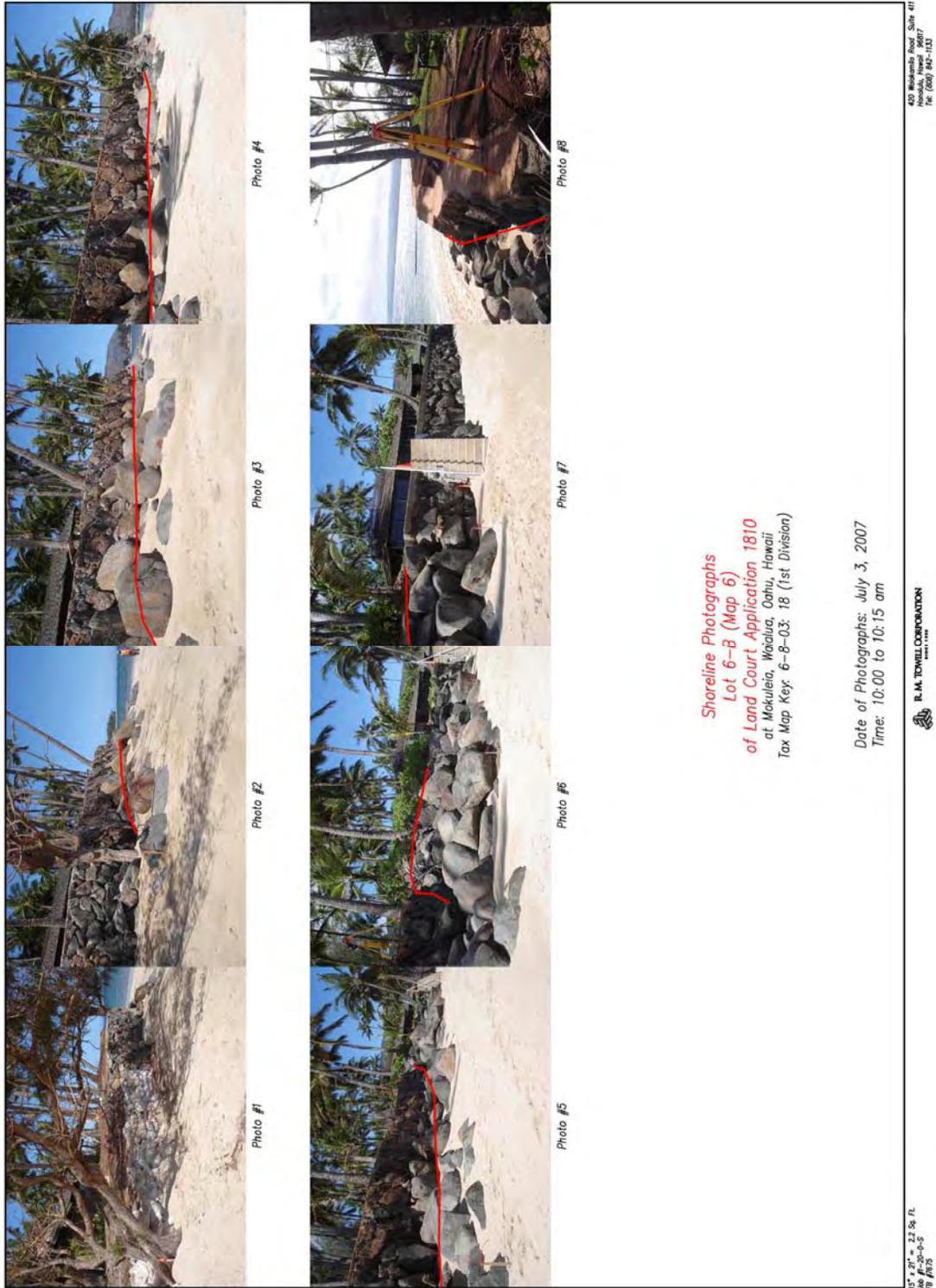


Figure 5

Shoreline Photographs, 2007

Project Information for Shoreline Setback Variance Application for a Seawall

TMK: (1) 6-8-003:018, 37

Mokuleia Beach, Waialua, O`ahu, Hawai`i

Land Area:

Parcel 018 is approximately 56,932 square feet (1.307 acres) which exceeds the City Land Use Ordinance (LUO) guidelines that require 10,000 square feet for a single family residence.

Surrounding Land Use and Land Use Designations:

The property is within the Agricultural State Land Use District and AG-2 General Agricultural District according to the City and County LUO. To the west the parcels are used as residential lots and all of the lots fronting the ocean have shoreline protection structures. On the east there is the Mokuleia Polo Field which is undeveloped. To the south on the other side of Farrington Highway are large sparsely developed tracts of land. TMK: 6-8-003 has one detached dwelling that was built in 1966.

This stretch of Mokuleia Beach has an overall hazard rating of 6 on a scale of 1 to 7. This high rating is because the coastal slope is low and wave action is high which leads to the chronic erosion that is diminishing Mokuleia Beach (Fletcher, Grossman, Richmond & Gibbs., 2002).

The parcel is located between transect 11 and transect 12 used by Hwang in 1971 to identify beach changes on O`ahu using aerial photographs. Hwang determined that over a 21 year period this stretch of shoreline indicated a pattern of erosion and accretion with a net erosion rate of .29 feet per year. When using these figures it is important to note that erosion and accretion tend to be episodic. During some winters this area of the coast may experience as much as 12 feet of erosion during one winter. This amount of erosion can result in catastrophic loss of property and structures during a single storm.

History of the Proposed Project:

The Daileys have lived in the house on the property since 1965 and have raised their children there. The home was built by Fred Dailey who has since passed away. Mrs. Dailey, who is 87 years old, continues to live in the home. Shortly after the house was built in 1965 a rock revetment was emplaced along the shoreline to protect the home from erosion. The revetment functioned for over thirty years without incident.

During the winter of 2004/2005 erosion took its toll and a portion of the revetment began to fail. Several boulders came loose and coconut trees began to collapse. On January 14, 2005, DLNR staff initiated Enforcement File No. OA-05-38 after several of the rocks from the revetment ended up on the beach. The Notice and Order stated that the revetment "was beginning to fail due to wave scour and presents a significant safety hazard to the public". OCCL also noted that they did not have any records indicating when the revetment was built or whether a permit existed for the revetment.

On March 17, 2005, Michael C. Carroll met with OCCL staff to discuss the Notice and Order on behalf of the Daileys. OCCL requested that the Daileys have the parcel surveyed and find any information on the date that the rock revetment was build and whether a permit was issued for the revetment. The Dailey's complied with having the property surveyed and were unable to locate any information indicating exactly when the rock revetment was built. This is because Fred Dailey who constructed the wall is now deceased. The Daileys were unable to locate any documentation on the revetment.

Project Information for Shoreline Setback Variance Application for a Seawall

TMK: (1) 6-8-003:018, 37

Mokuleia Beach, Waialua, O`ahu, Hawai`i

R.M. Towill was contracted to survey the property to attempt to determine the current location of the shoreline. On May 17, 2005 R.M. Towill conducted a survey of the property to identify the location of the shoreline on the property with respect to the rock revetment. The survey indicated that due to erosion during the past winter a small portion of the rock revetment on the East side of the parcel was now located Makai of the shoreline. (Figure 4). It appears that when the revetment was built it was entirely behind the shoreline.

On June 17, 2005, the Daileys submitted the survey map prepared by R.M. Towill to OCCL. On June 27, 2005, OCCL responded to this correspondence, and observed that it “appears that a small section of the rock structure is located makai of the shoreline”. OCCL did not dispute the accuracy of the shoreline on the property. OCCL stated that the “stability” of the revetment was an “immediate concern” and encouraged the Daileys to “take action to reduce or eliminate this hazard while there was still room to work on the beach and before the onset of winter surf”.

In response to this request the Daileys submitted an application Conservation District Use (CDUA) Emergency permit. The application noted that the rock revetment was damaged during the winter of 2004/2005, and requested that the revetment be restored to the “same condition as existed prior to the damage”. DLNR rejected the application for an emergency permit to repair the structure. DLNR staff requested that the Daileys remove the rocks that had fallen on the beach and reorient the rocks on the revetment. The Daileys complied and the enforcement file was closed with no incident.

During the winter of 2006/2007 the revetment began to fail again. Trees fell into the ocean and rocks on the structure became unstable. Additionally, several cracks developed in the foundation of the residence. With no alternative available and because a large winter swell was approaching and threatening to destroy the revetment and jeopardize the Daileys’ home, the Daileys repaired and stabilized the rock revetment to its current condition to protect the home.

In response to the emergency repairs performed by the Daileys, DLNR imitated another enforcement file. The matter came before the Board on April 2007. The Daileys requested a continuance in order to retain an engineer to evaluate the condition of the shoreline structure and to develop practical recommendations that would meet all parties’ concerns.

On May 22, 2007, Elaine E. Tamaye, a coastal engineer, conducted a site visit of the Dailey property to evaluate the condition of the wall and to propose a practical solution. The report concludes that the existing seawall has “no effect on the existing littoral processes” at the site, and that the seawall is “functionally consistent with adjacent existing seawalls” along the shoreline. The report also states:

It is obvious that removing the seawall at this time, without replacing it with another shore protection structure will result in **catastrophic damage** to the existing dwelling on the property. The dwelling is situated about 20-feet from the edge of the seawall, and is a slab-on-grade structure, with brick/CMU exterior walls. The foundation of the dwelling has already experienced differential settling, as evidenced by cracks in the exterior walls that have been patched with sealant. Removal of the existing seawall with no retaining structure to support the foundation of the dwelling will lead to substantial structural damage to the dwelling as the shoreline embankment collapses and is eroded by winter storm waves. As it will take at least a year or longer to obtain permits for the shore protection structure (or replacement of the structure) the existing seawall must be left in

Project Information for Shoreline Setback Variance Application for a Seawall

TMK: (1) 6-8-003:018, 37

Mokuleia Beach, Waialua, O`ahu, Hawai`i

place to maintain habitability of the dwelling. If the existing seawall and boulders are completely removed, continuing erosion will also likely impact the Colony property by causing flanking of their seawall.

Ms. Tamaye concludes her report by recommending that the Daileys replace the shoreline structure with a permitted engineered seawall that will withstand the north Pacific winter swell.

Faced with the destruction and loss of their home, the Daileys acted responsibly in attempting to protect their home. The existing rock structure is a substantial improvement to the damaged condition. The rocks are stable and provide adequate support pending the permitting process. It is intended that the existing repaired rock structure will remain pending the approval and permitting for an engineered seawall as there are no reasonable alternatives.

Existing Site Description:

The property is located approximately 3.5-miles past the stop sign before Waialua High School on Farrington Highway. The house is located on the property just after the polo fields and is at the end of the driveway close to the beach. The existing grade of the subject property is about 6 feet above mean sea Level. The fronting beach at the base of the rock structure is estimated to be at 0.00 or mean sea level.

The parcel is an irregularly shaped rectangle. The boundary fronting the shoreline is not a straight line. The junctions of shoreline boundary and the side boundaries produce corners that are not 90° angles. One corner is less than a 90° angle and on the other side more the junction is greater than 90° (Figures 3 and 4).

The site currently has one existing single family residence with an attached garage that was built in 1964. The house is in the northeast corner around 20-feet from the shoreline (Figure 3). It has been the family home since 1965 and Mrs. Dailey still lives in the home. Shortly after the home was built, a rock revetment along the shoreline was placed to protect the home from shoreline erosion. The rock revetment functioned well until the winter of 2004-2005 when boulders were loosened and the rocks were removed by storm surf. The rocks were re-used and placed back on the revetment

After the winter of 2006-2007 it was evident that storms moved more of rocks on the revetment, the boulders were re-used to build the existing emergency rock structure and a few boulders were placed along the top of the wall. Boulders remain along the section between the seawall and the end of the Mokuleia beach Colony seawall to protect from further erosion. The top elevation of the emergency rock structure is estimated to be about 10 to 12 feet above Mean low low water (MLLW). Sand at the base of the seawall is estimated to vary between 3 to 5 feet above MLLW.

Public Agency Involvement, review and Consultation:

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

- City & County of Honolulu, Department of Planning and Permitting
- U.S. Army Engineer District, Honolulu
- State Office of Environmental Quality Control

Project Information for Shoreline Setback Variance Application for a Seawall

TMK: (1) 6-8-003:018, 37

Mokuleia Beach, Waialua, O`ahu, Hawai`i

- State of Hawai`i, Department of Land and Natural Resources, Historic Preservation Division.

Permits required for this project are:

- Shoreline Setback Variance pursuant to Chapter 23, Revised Ordinances of Honolulu.
- Building Permit from the City and County of Honolulu
- Department of the Army Permit
- Shoreline Certification from Department of Land and Natural Resources, Land Division, State of Hawai`i. (Note: The applicant previously applied for shoreline certification which was denied "for failure to submit documents supporting structure(s) was approved by government agencies." If the shoreline setback variance is approved, which would document that the structure was approved by the government, the applicant will then reapply for shoreline certification.)

References:

Carroll, Michael C. 2007. Letter to Chairperson and Members of the Board of Land and Natural Resources.

EKNA Services, Inc. 2007. Shoreline Protection Assessment TMK: 6-08-003: 018.

Fletcher, Grossman, Richmond & Gibbs. 2002. Atlas of Natural Hazards in the Hawaiian Coastal Zone.

Hwang, Dennis. 1981. Beach Changes on O`ahu as Revealed by Aerial Photographs, Prepared for the State Department of Planning and Economic Development by the Urban and Regional Planning Program and the Hawai`i Institute of Geophysics, University of Hawai`i.



WIL CHEE - PLANNING & ENVIRONMENTAL

February 5, 2008

Sam Lemmo, Administrator
Office of Conservation and Coastal Lands
Department of Land and Natural Resources
1151 Punchbowl, Room 131
Honolulu, Hawaii 96813

Subject: Shoreline Setback Variance Application & Environmental Assessment (EA) for a Seawall
Mokuleia Beach, Waialua, O`ahu, Hawai`i

Dear Mr. Lau

Wil Chee - Planning & Environmental, is preparing an Environmental Assessment (EA) that will be submitted in conjunction with an application for a Shoreline Setback Variance for a seawall in Mokuleia. The project is located midway between the Mokuleia Polo Field and the Mokuleia Beach Colony Condominium.

The project will remove an existing emergency structure and replace it with a permitted engineered seawall.

In compliance with §11-200-9 Hawaii Administrative Rules Department of Health, Title 11 Chapter 200, *Environmental Impact Statement Rules*, this letter is intended to initiate early consultation with agencies and groups having jurisdiction or expertise related to the project. We have enclosed a project information sheet with maps and a description of the proposed project. We would appreciate receiving any comments or concerns which might influence the subject EA.

If you have any questions or need more information on this project please call Judy Mariant at (808) 596-4688. Thank you for your time and interest.

Sincerely

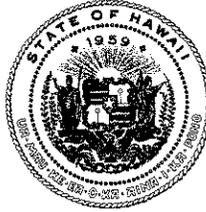


Judy Mariant

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LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

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

File No.: OA-08-171

Judy Mariant
Wil Chee – Planning & Environmental
1018 Palm Drive
Honolulu, Hawaii 96814

FEB - 8 2008

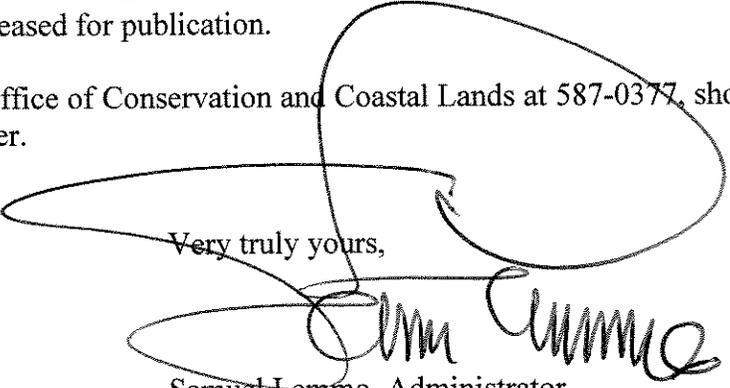
Dear Ms. Mariant:

Subject: Early Consultation on Proposed Shoreline Setback Variance and Environmental Assessment (EA) for a Seawall at Mokuleia, Oahu

Thank you for your recent letter regarding the proposed shore protection at Mokuleia, Oahu. The Department is currently involved in a Contested Case Hearing with Mr. Daily regarding an unpermitted shoreline structure. We will reserve our comments on this matter when the draft environmental assessment is released for publication.

Please feel free to contact the Office of Conservation and Coastal Lands at 587-0377, should you have any questions on this matter.

Very truly yours,


Samuel Lemmo, Administrator

C: City and County of Honolulu
Department of Planning and Permitting



WIL CHEE - PLANNING & ENVIRONMENTAL

February 5, 2008

Laurence K. Lau, Acting Director
Office Environmental Quality Control
235 Beretania St, suite 702
Honolulu, Hawaii 96813

Subject: Shoreline Setback Variance Application & Environmental Assessment (EA) for a Seawall
Mokuleia Beach, Waialua, O`ahu, Hawai`i

Dear Mr. Lau

Wil Chee - Planning & Environmental, is preparing an Environmental Assessment (EA) that will be submitted in conjunction with an application for a Shoreline Setback Variance for a seawall in Mokuleia. The project is located midway between the Mokuleia Polo Field and the Mokuleia Beach Colony Condominium.

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In compliance with §11-200-9 Hawaii Administrative Rules Department of Health, Title 11 Chapter 200, *Environmental Impact Statement Rules*, this letter is intended to initiate early consultation with agencies and groups having jurisdiction or expertise related to the project. We have enclosed a project information sheet with maps and a description of the proposed project. We would appreciate receiving any comments or concerns which might influence the subject EA.

If you have any questions or need more information on this project please call Judy Mariant at (808) 596-4688. Thank you for your time and interest.

Sincerely

Judy Mariant

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WIL CHEE - PLANNING & ENVIRONMENTAL

February 5, 2008

Clyde Nāmu`o, Administrator
Office of Hawaiian Affairs
711 Kapiolani Blvd. Suite 500
Honolulu, Hawaii 96813

Subject: Shoreline Setback Variance Application & Environmental Assessment (EA) for a Seawall
Mokuleia Beach, Waialua, O`ahu, Hawai`i

Dear Mr. Nāmu`o,

Wil Chee - Planning & Environmental, is preparing an Environmental Assessment (EA) that will be submitted in conjunction with an application for a Shoreline Setback Variance for a seawall in Mokuleia. The project is located midway between the Mokuleia Polo Field and the Mokuleia Beach Colony Condominium.

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Sincerely



Judy Mariant

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

HRD08/3523

February 27, 2008

Judy Mariant
Wil Chee Planning and Environmental
1018 Palm Drive
Honolulu, Hawai'i 96814

**RE: Environmental Assessment (EA), Shoreline Setback
Variance, Mokulē'ia Beach, Waialua, O'ahu TMKs: 6-8-003: 18
and 37.**

Dear Ms. Mariant,

The Office of Hawaiian Affairs (OHA) is in receipt of the above referenced request for comments concerning a shoreline setback variance and upcoming EA regarding a seawall on Mokulē'ia Beach. We have the following comments:

It is OHA's duty to "assess the policies and practices of other agencies impacting on native Hawaiians and Hawaiians, and conduct advocacy efforts for native Hawaiians and Hawaiians." Hawaii Revised Statutes (HRS) § 10-3(4). The proper analysis of environmental and cultural effects of projects helps us to ensure that our beneficiaries are not unduly harmed.

OHA is concerned that this project involves a loss and destruction of natural and constitutionally protected cultural resources. OHA finds that this project most likely curtails the beneficial use of the environment in an important and ever-shrinking public trust area. OHA also notes that this project conflicts with the State's, the county's, and the nation's long-term environmental policies, goals, and guidelines. (See, Coastal Zone Management Act of 1972(CZMA), as echoed in HRS, Chapter 205A-26(2)).

Congress declared a national policy to, among other things, "preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation's coastal zone for this and succeeding generations." 15 U.S.C. § 1452(1). Hawai'i mirrored this in HRS, Chapter 205A-2(b)(4), (9), (10), "protect[ing] beaches for public use and recreation," and "promot[ing] the protection, use, and development of marine and coastal resources to assure their sustainability." Further, Revised Ordinances of Honolulu Chapter 23 states that:

It is a primary policy of the city to protect and preserve the natural shoreline, especially sandy beaches; to protect and preserve public pedestrian access laterally along the shoreline and to the sea; and to protect and preserve open space along the shoreline.

It will be difficult for the applicant to make this project conform to these stated goals, policies and purposes.

OHA generally does not support seawalls because they often lead to increased shoreline erosion makai of the seawall, which can cause environmental damage and block access to the shoreline. Because Hawai'i's beaches are public trust lands that are held by the State for the benefit of the public, any loss of our shoreline is a detriment to Hawai'i citizens as a whole. Native Hawaiians are also particularly harmed because the loss of access can hinder or prevent the practice of traditional and customary rights such as gathering.

OHA expects this EA to confirm that Hawai'i as a whole is losing shoreline, and will continue to do so. As such, the pull between private property rights and public trust resources will be most taut in the shoreline area. OHA, keeping in mind our beneficiaries' interests, and with the backing of the state, supports beach access and natural movement of dynamic shorelines. Of course, we are sympathetic to shoreline owners who now find themselves too close to an encroaching sea.

OHA would like to confirm when this seawall was built, if at all possible as that may have an affect on the stance that we would take towards review of the upcoming EA. We do appreciate that the applicant has been working

Judy Mariant
Wil Chee Planning and Environmental
February 27, 2008
Page 3

closely with and complying with the Department of Land and Natural Resources on this matter.

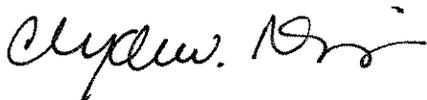
However, we also recognize that the applicant has enjoyed the benefits from living in this shoreline area since the mid-1960's and now has allowed their potentially non-conforming structure to collapse so that trees fall into the ocean and it "presents a significant safety hazard to the public." (Page seven of materials sent to OHA with the invitation to comment) This neglect of the seawall is also the reason attributed to the applicant's own structural issues with their house. (Page eight of materials sent to OHA with the invitation to comment)

Further, the lands which this project touches and concerns are ceded lands, as are all submerged lands. As such, OHA always requests of applicants that the lands be treated with the respect due to them, as they are part of the 1.8 million acres of land that belong to the Hawaiian monarchy and were transferred to the state when Hawai'i became a U.S. state.

OHA also wishes to point out that sandy areas are proven to be especially prone to have burials within them and that simply because a property has been developed does not mean that cultural deposits are not present, as heavily urbanized Honolulu amply demonstrates. Since shoreline areas are often the resting place for iwi kūpuna, OHA asks that, in accordance with Section 6E-46.6, HRS and HAR, chapter 13-300, if the project moves forward, and if any significant cultural deposits or human skeletal remains are encountered, work shall stop in the immediate vicinity and the State Historic Preservation Division (SHPD/DLNR) shall be contacted.

OHA looks forward to following this project and asks to be made aware of any future developments. If you have any further questions or concerns, please contact Grant Arnold at (808) 594-0263 or granta@oha.org.

Sincerely,



Clyde W. Nāmu'ō
Administrator



WIL CHEE - PLANNING & ENVIRONMENTAL

February 5, 2008

George Young, Chief
Regulatory Department
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440

Subject: Shoreline Setback Variance Application & Environmental Assessment (EA) for a Seawall
Mokuleia Beach, Waialua, O`ahu, Hawai`i

Dear Mr. Young

Wil Chee - Planning & Environmental, is preparing an Environmental Assessment (EA) that will be submitted in conjunction with an application for a Shoreline Setback Variance for a seawall in Mokuleia. The project is located midway between the Mokuleia Polo Field and the Mokuleia Beach Colony Condominium.

The project will remove an existing emergency structure and replace it with a permitted engineered seawall.

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If you have any questions or need more information on this project please call Judy Mariant at (808) 596-4688. Thank you for your time and interest.

Sincerely


Judy Mariant

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WIL CHEE -- PLANNING & ENVIRONMENTAL

February 5, 2008

Jamie Peirson, Branch Chief
Department of Planning and Permitting
City & County of Honolulu
650 S. King Street, 7th floor
Honolulu, Hawaii 96813

Subject: Shoreline Setback Variance Application & Environmental Assessment (EA) for a Seawall
Mokuleia Beach, Waialua, O`ahu, Hawai`i

Dear Mr. Peirson

Wil Chee - Planning & Environmental, is preparing an Environmental Assessment (EA) that will be submitted in conjunction with an application for a Shoreline Setback Variance for a seawall in Mokuleia. The project is located midway between the Mokuleia Polo Field and the Mokuleia Beach Colony Condominium.

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Sincerely,



Judy Mariant

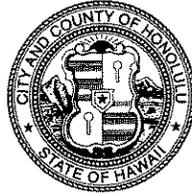
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DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 768-8000 • FAX: (808) 527-6743
INTERNET: www.honolulu.gov • DEPT. WEB SITE: www.honoluludpp.org

MUFI HANNEMANN
MAYOR



HENRY ENG, FAICP
DIRECTOR

DAVID K. TANOUE
DEPUTY DIRECTOR

2008/ELOG-316 (WA)

April 15, 2008

Ms. Judy Mariant
WIL CHEE – Planning & Environmental
1018 Palm Drive
Honolulu, Hawaii 96814

Dear Ms. Mariant:

Subject: Environmental Assessment (EA) for
Shoreline Setback Variance Application for a Seawall
Mokuleia Beach - Waialua
68-609 and 68-611 Farrington Highway
Tax Map Key 6-8-3: 18 and 37

This responds to your letter dated February 5, 2008 notifying the Department of Planning and Permitting (DPP) that you are in the process of preparing an Environmental Assessment (EA) for a Shoreline Variance application for a seawall, to replace a rock structure which may or may not be authorized.

We have the following comments:

- 1) In addition to the agencies consulted listed under the project information you should also contact the Office of Hawaiian Affairs (OHA) and the State Historic Preservation District (SHPD).
- 2) The DPP will be the lead agency for the review and approval of the EA.
- 3) Please include a discussion of alternatives considered, including analysis/evaluation of rock revetments, in addition to the proposed engineered seawall.

Please contact William Ammons of our staff at 768-8025 if you have any questions.

Very truly yours,

A handwritten signature in black ink, appearing to read "Henry Eng".

for Henry Eng, FAICP, Director
Department of Planning and Permitting

HE:nt

EA Comments & Responses

LINDA LINGLE
GOVERNOR OF HAWAII



LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED



'08 SEP 23 P3:49

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

DEPT OF PLANNING
AND PERMITTING
CITY & COUNTY OF HONOLULU

September 19, 2008

Department of Planning & Permitting
City & County of Honolulu
650 South King Street 7th Floor
Honolulu, Hawaii 96813

Attention: Mr. William Ammons

Gentlemen:

Subject: Elizabeth M. Dailey et.al. Trust

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from the Office of Conservation & Coastal Lands, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,


for Morris M. Atta
Administrator

6A-09-35

NE HAVE PENDING 9/15/08

THIS CCH 6A-07-6

TM

LINDA LINGLE
GOVERNOR OF HAWAII



Laura H. Thielen
Chairperson
Board of Land and Natural Resources
Commission on Water Resource Management

RECEIVED
OFFICE OF CONSERVATION
AND COASTAL LANDS

2008 AUG 18 P 3:15



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES AND
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

RECEIVED
NATURAL RESOURCES
STATE OF HAWAII

August 18, 2008

MEMORANDUM

- TO: **DLNR Agencies:**
- Div. of Aquatic Resources
 - Div. of Boating & Ocean Recreation
 - Engineering Division
 - Div. of Forestry & Wildlife
 - Div. of State Parks
 - Commission on Water Resource Management
 - Office of Conservation & Coastal Lands
 - Land Division - Oahu District

RECEIVED
LAND DIVISION
2008 SEP 16 A 8:46
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

FROM: *for* Morris M. Atta *Maulene*
SUBJECT: Draft environmental assessment for unauthorized rock structure in shoreline setback

LOCATION: Waialua, Oahu TMK: (1) 6-8-3:18 and 37

APPLICANT: Wil Chee Planning & Environmental on behalf of Elizabeth M. Dailey etal. Trust

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by September 15, 2008.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.*

Signed: *[Signature]*
Date: 9/15/08

*OCLL comments shall be sent directly to the City, DPP w/CC to DDLD *[Signature]*



WIL CHEE - PLANNING & ENVIRONMENTAL

November 3, 2008

Morris M. Atta, Administrator
Department of Land and Natural Resources - Land Division
State of Hawaii
Post Office Box 621
Honolulu, Hawaii 96809

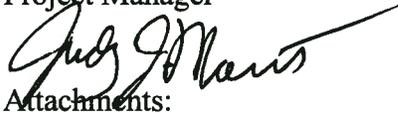
Dear Mr. Atta

Subject: Draft Environmental Assessment (DEA) for a Shoreline Setback Variance
Application for a Seawall at 68-609 and 68-611 Farrington Highway (Mokuleia
Beach), Waialua, O`ahu, TMK: 6-8-3: 18 & 37

Thank you for your letter of September 26, 2008, concerning the subject DEA. Since the only comments from your department were from the Office of Conservation and Coastal Land (OCCL) we have responded to their letter of September 19, 2008. Our response letter to OCCL is attached. If you have any questions or need more information please call me at (808) 596-4688.

Sincerely

Judy Mariant
Project Manager



Attachments:

cc Michael Carroll, Attorney at Law

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Land Use Planners and Environmental Consultants

LU9D

LINDA LINGLE
GOVERNOR OF HAWAII



RECEIVED



'08 SEP -8

STATE OF HAWAII
DEPT. OF PLANNING AND PERMITTING
DEPARTMENT OF LAND AND NATURAL RESOURCES
CITY & COUNTY OF HONOLULU
STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

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

August 29, 2008

Henry Eng, FAICP, Director
Department of Planning and Permitting
City & County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawai'i 96813

LOG NO: 2008.3595
DOC NO: 0808ED47
Archaeology

Dear Mr. Eng:

**SUBJECT: Chapter 6E-42 Historic Preservation Review –
Draft Environmental Assessment (EA) for a Shoreline Setback Variance
Application for a Seawall
Mokule'ia Ahupua'a, Waiialua District, Island of O'ahu
TMK: (1) 6-8-003:018 and 037**

Thank you for the opportunity to comment on the aforementioned draft EA, which we received on August 13, 2008. The applicant, Elizabeth M. Dailey et. Al. Trust, is proposing to replace an existing wall with a permitted engineered wall at the subject project area located at 64-411 Farrington Highway.

According to the United States Soil Conservation Service (Foote *et al.* 1972), soils in the project area consist of Jaucas sands, which are known to contain historically-significant deposits, including subsurface cultural layers and human remains/burials. Numerous burials have been identified in the Mokule'ia ahupua'a and along the greater Waiialua coast. For example, two cranial fragments (SIHP No. -5467) were exposed by erosion on the coast along Crozier Drive (Kapeliela, 1996). Additionally, human remains of at least 7 individuals (SIHP NO. -5599) were uncovered by construction activity at 63-639 Crozier Drive (Pietrusewsky, 1998). Additionally, various archaeological sites have been identified in the Mokule'ia ahupua'a.

For these reasons, we recommend the following conditions be attached to the subject permit, should it be approved.

- 1) A qualified archaeological monitor shall be present during all ground-altering activities conducted in the project area in order to document any historic properties which may be encountered during the proposed undertaking and to provide mitigation measures as necessary. An acceptable archaeological monitoring plan will need to be submitted to the State Historic Preservation Division for review, prior to the commencement of any ground-altering activities. An archaeological monitoring plan must contain the following nine specifications: (1) The kinds of remains that are anticipated and where in the construction area the remains are likely to be found; (2) How the remains and deposits will be documented; (3) How the expected types of remains will be treated; (4) The archaeologist conducting the monitoring has the authority to halt the construction in the immediate area of the find in order to carry out the plan; (5) A coordination meeting between the archaeologist and construction crew is scheduled, so that the construction

team is aware of the plan; (6) What laboratory work will be done on remains that are collected; (7) A schedule of report preparation; (8) Details concerning the archiving of any collections that are made; and (9) An acceptable report documenting the findings of the monitoring activities shall be submitted to the State Historic Preservation Division for review following the completion of the proposed undertaking.

- 2) The State Historic Preservation Division (O'ahu office) shall be notified via facsimile upon the on-set and completion of the proposed undertaking.

Should initial excavation reveal that all of the new digging is in previously disturbed stratum; the monitoring program may be suspended through consultation with SHPD.

Please contact Teresa Davan at (808) 692-8015 if you have any questions or concerns regarding this letter.

Aloha,

A handwritten signature in cursive script that reads "Nancy A. McMahon".

Nancy McMahon, Archaeology and Historic Preservation Manager
State Historic Preservation Division

ED



November 3, 2008

Nancy McMahan, Archaeology and Historic Preservation Manager
Department of Land and Natural Resources
State Historic Preservation Division (SHPD)
State of Hawaii
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Attention: Teresa Davan

Dear Ms. McMahan

**Subject: Draft Environmental Assessment (DEA) for a Shoreline Setback Variance
Application for a Seawall at 68-609 and 68-611 Farrington Highway (Mokuleia
Beach), Waialua, O`ahu, TMK: 6-8-3: 18 & 37**

Thank you for your letter of September 29, 2008, concerning the subject DEA. Each of your comments is reproduced below in italics and is numbered. Our responses follow each comment.

- 1. According to the United States Soil Conservation Service (Foote et al. 1972), soils in the project area consist of Jaucas sands, which are known to contain historically-significant deposits, including subsurface cultural layers and human remains/burials.*

Please point us to the reference to cultural layers and human remains/burials in the description of Jaucus sands in the United States Department of Agricultural Soil Conservation Service (Foote et al. 1972). We are unable to find a reference to subsurface cultural layers and human remains/burials in that document.

- 2. Numerous burials have been identified in the Mokule`ia ahupua`a and along the greater Waialua coast. For example, two cranial fragments (SIHP No. -5467) were exposed by erosion on the coast along Crozier Drive (Kapeliela, 1996). Additionally, human remains of at least 7 individuals (SIHP No. -5599) were uncovered by construction activity at 63-639 Crozier Drive (Pietrusewsky, 1998). Additionally, various archaeological sites have been identified in the Mokule`ia ahupua`a.*

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Sterling and Summers(1979, revised 1983, 1988, 1997, 2001) indicate that there are a few sites in Mokule`ia, two are inland in a valley one of which is a village site near the mountain side, another is a heiau that no longer exists, and a fishing shrine on the beach. Sterling and Summers indicate that the rocks were removed. Since then the beach has retreated (eroded) inland.

This site is close to 3 miles away from Waialua which had a large Hawaiian population due to the abundance of fresh potable water. Archaeological and burial sites become fewer and far between as the distance from Waialua increases. The property is also approximately 1/2 mile away from the site of the missing fishing shrine and farther yet from Crozier Road. Also please recall that the subject parcels were developed in 1965 and at that time and later when the revetment was emplaced and both times when the revetment was repaired there were no inadvertent finds of human remains or artifacts. The subject property does not contain any known archaeological or historic sites.

3. *For these reasons, we recommend the following conditions be attached to the subject permit, should it be approved.*

1) *A qualified archaeological monitor shall be present during all ground-altering activities conducted in the project area in order to document any historic properties which may be encountered during the proposed undertaking and to provide mitigation measures as necessary. An acceptable archaeological monitoring plan will need to be submitted to the State Historic Preservation Division for review; prior to the commencement of any ground-altering activities...An acceptable report documenting the findings of the monitoring activities shall be submitted to the State Historic Preservation Division for review following the completion of the proposed undertaking.*

2) *The State Historic Preservation Division (O`ahu office) shall be notified via facsimile upon the on-set and completion of the proposed undertaking.*

The subject parcels were used for agricultural purposes prior to development and the distance is great between the proposed construction area and the potential archaeological areas of concern referenced in your letter of August 29, 2008 (i.e., possible burials and human remains found along Crozier Drive). You recommend that, as a condition of the permit, a qualified archaeological monitor be present during all ground-altering activities in the project area, that an archaeological monitoring plan be submitted to SHPD, and that an acceptable report documenting the findings of the monitoring activities be submitted to SHPD. We believe your recommendations are unwarranted given the past history and disturbed nature of the site from previous development.

As stated in the DEA, to mitigate against potential impacts to archaeological or cultural resources, construction Best Management Practices would be followed to minimize the amount of ground disturbance necessary. If any historic, archaeological, cultural resources or burials are uncovered, construction will be halted and an archaeological consultation will be sought with the Department of Land and

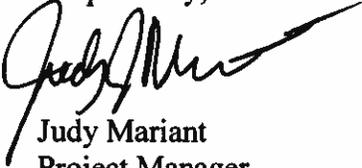
State Historic Preservation Division

Page 3

Natural Resources Historic Preservation Division in accordance with all applicable regulations including those related to inadvertent finds of historic resources as enumerated in Hawai'i Administrative Rules 13-280-3.

Thank you for reviewing the subject DEA. If you have any further questions or need more information please contact me at (808) 596-4688.

Respectfully,

A handwritten signature in black ink, appearing to read "Judy Mariant", with a long, sweeping flourish extending to the right.

Judy Mariant
Project Manager

cc Michael Carroll, Attorney at Law



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

September 22, 2008

REPLY TO
ATTENTION OF:

Regulatory Branch

File Number POH-2005-225

Mr. Henry Eng
City and County of Honolulu.
650 South King Street, 7th Floor
Honolulu, HI 96813

RECEIVED
08 SEP 24 AM 1:31
DEPT OF PLANNING
AND PERMITTING
CITY & COUNTY OF HONOLULU

Dear Mr. Eng:

This is in response to your request for comments regarding a **Shoreline Setback Variance for Elizabeth M. Dailey et. al. Trust**. The applicant proposes to replace an unauthorized rock structure that encroaches into the shoreline setback with an engineered concrete rubble masonry (CRM) seawall. The project site is located on Mokuleia Beach; tax map key (TMK) 6-8-03:018 and 37; Latitude 21.582° N., Longitude 158.174° W.; on the North Shore, Oahu, Hawaii. It has been assigned number POH-2005-225, which should be referred to in all future correspondence with this office.

We have reviewed the information you submitted with respect to the Corps' authority to issue Department of the Army (DA) permits pursuant to Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 USC 403) and Section 404 of the Clean Water Act (33 USC 1344). Based on our review it appears the proposed project would involve work in navigable waters of the U.S.; therefore, **a DA permit would be required.**

Section 10 of the Rivers and Harbors Act of 1899 requires that a DA permit be obtained for structures or work in or affecting navigable waters of the U.S. (33 U.S.C. 403). Section 10 waters are those waters subject to the ebb and flow of the tide shoreward to the mean high water mark, and/or other waters identified by the Alaska District. Section 404 of the Clean Water Act requires that a DA permit be obtained for the placement or discharge of dredged and/or fill material into waters of the U.S., including jurisdictional wetlands (33 U.S.C. 1344).

Please Ms. Serena Sweet of my staff at (808) 438-2039, by fax at (808) 438-4060, or by e-mail at serena.e.sweet@usace.army.mil, or by mail at the letterhead address, ATTN: CEPOH-EC-R, if you have questions. For additional information about our Regulatory Program, visit our web site at <http://www.poh.usace.army.mil/regulatory.asp>.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch



November 3, 2008

George P. Young, P.E.
ATTN: CEPOH-EC-R
Chief, Regulatory Branch
Department of the Army
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440

Attention: Serina Sweet

Dear Mr. Young:

Subject: File Number POH-2005-225
Draft Environmental Assessment (DEA) for a Shoreline Setback Variance
Application for a Seawall at 68-609 and 68-611 Farrington Highway (Mokuleia
Beach), Waialua, O'ahu, TMK: 6-8-3: 18 & 37

Thank you for your letter of September 22, 2008, to the Department of Planning and Permitting (DPP) regarding the subject DEA. You state that you have reviewed the information submitted with respect to the Corps' authority to issue Department of the Army (DA) permits pursuant to Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 USC 403) and Section 404 of the Clean Water Act (33 USC 1344). You further state that, based on your review, it appears that the proposed project would involve work in navigable waters of the U.S.; therefore, a DA permit would be required.

Given this determination, we will submit an application for a DA permit as soon as design drawings for the proposed seawall are completed.

Thank you for reviewing the DEA. If you have any questions or need more information please call me at (808) 596-4688.

Sincerely

Judy Mariant
Project Manager

cc Michael Carroll, Attorney at Law

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Land Use Planners and Environmental Consultants

LINDA LINGLE
GOVERNOR OF HAWAII



CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
EPO-08-130

September 18, 2008

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

Dear Mr. Eng:

SUBJECT: Draft Environmental Assessment and Shoreline Setback Variance Application for Seawall Construction at 68-411 Farrington Highway, Waialua, Oahu, Hawaii
TMK: (1) 6-8-003: 018 and 037

Thank you for allowing us to review and comment on the subject document. We have no additional comments at this time. We strongly recommend that you review all of the Standard Comments on our website: <http://www.hawaii.gov/health/environmental/env-planning/index.html>. Any comments specifically applicable to this project should be adhered to.

If there are any questions about these comments please contact Jiacai Liu with the Environmental Planning Office at 586-4346.

Sincerely,

KELVIN H. SUNADA, MANAGER
Environmental Planning Office

c: EPO

RECEIVED
'08 SEP 24 P 2:05
DEPT OF PLANNING
AND PERMITTING
CITY & COUNTY OF HONOLULU



WIL CHEE - PLANNING & ENVIRONMENTAL

November 3, 2008

Kelvin H. Sunada, Manager
Environmental Planning Office
Department of Health (DOH)
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Attn: Jiakai Liu,

Dear Mr. Sunada:

Subject: DOH Reference: EPO-08-130 and EPO-08-131
Draft Environmental Assessment (DEA) for a Shoreline Setback Variance
Application for a Seawall at 68-609 and 68-611 Farrington Highway (Mokuleia
Beach), Waialua, O'ahu, TMK: 6-8-3: 18 & 37

Thank you for your letter of September 18, 2008, to the Department of Planning and Permitting (DPP) regarding the subject DEA. You stated that you have no additional comments and you strongly recommended that we review all of the Standard Comments on your website: <http://www.hawaii.gov/health/environmental/env-planning/index.html>. Any comments on your website specifically applicable to the subject project will be adhered to and included in the Final Environmental Assessment (FEA).

Thank you for reviewing the DEA. If you have any questions or need more information please call me at (808) 596-4688.

Sincerely,

Judy Mariant
Project Manager

cc Michael Carroll, Attorney at Law

Providing Services Since 1976

Land Use Planners and Environmental Consultants

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LAND
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
RUSSELL Y. TSUJI
FIRST DEPUTY
KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

REF:OCCL:TM

Correspondence: OA 09-35

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

SEP 19 2008

Dear Mr. Eng:

SUBJECT: Draft Environmental Assessment for a Shoreline Setback Variance to Replace an Unauthorized Rock Structure Located at 68-411 Farrington Highway, Waiialua, Oahu, TMK: (1) 6-8-003:018 & 037

The Office of Conservation and Coastal Lands (OCCL) notes the subject unauthorized revetment is a Conservation District land use violation (OA 07-31) that is now currently in a Contested Case (OA 07-06). It is our understanding that the applicant shall be seeking a County permit to construct a seawall within the shoreline setback area and shall remove the existing unauthorized revetment from the Conservation District. The OCCL has reviewed the subject draft EA and offers the following comments:

1.1 Background

Based upon aerial photos of the area, the unauthorized structure was built sometime between 1967-1987.

We do not agree with the statements made regarding the May 17, 2005 survey of the property and our June 27, 2005 response. The May 17, 2005 survey indicates a more likely position of the shoreline than the July 3, 2007 survey (Appendix E). The May 17, 2005 survey indicates the entire rock structure to be seaward of the proposed shoreline. Therefore stating, *'The survey indicated that due to erosion during the past winter a small portion of the rock structure on the east side of the parcel was now located makai of the shoreline. It appears that when the revetment was built it was entirely behind the shoreline,'* is incorrect. Perhaps the discrepancy lies in the interpretation of the survey map.

Furthermore there is no evidence that the revetment was built 'entirely' behind the shoreline as neither survey was certified. We suggest deleting the statement; *OCCL did not dispute the accuracy of the shoreline on the property,* as our June 27, 2005 letter states that a portion of the structure appears to be encroaching upon State land and did not discuss the location of the unauthorized wall. Accuracy of the shoreline is determined by getting the shoreline certified.

The shoreline was never certified. We suggest the applicant include this noted May 17, 2005 survey and edit this section (**Exhibit A**).

Regarding the Emergency Conservation District Use Application (CDUA) to restore the unauthorized revetment, the OCCL was unable to accept the application as the CDUA called for restoration of an illegal structure. The OCCL requested that fallen rocks from the revetment be removed from the beach as the rocks were rolling in the surf and became hazardous to the general public attempting lateral access fronting the revetment. Furthermore, our records indicate that the City & County of Honolulu opened an enforcement case regarding the revetment in 1992, therefore the OCCL closed this case as the offending rocks were removed from the shoreline and it appeared that the revetment was originally constructed landward of the shoreline while under the City's jurisdiction.

The case was reopened in 2007 by OCCL as repair and stabilization to the unauthorized rock revetment was being conducted without any authorization or permits. By this time, the highest reach of the waves was clearly impacting the revetment putting the repair of the revetment under the State's jurisdiction.

We strongly disagree with coastal engineer, Elaine Tamaye's statement that the existing seawall has "no effect on the existing littoral processes," and further note that additional statements regarding catastrophic damage and the potential affects of removal of the revetment contradict this statement made of 'no effect.' However we do agree that if the shoreline structure is replaced, it must be a permitted engineered wall.

Although the OCCL has no objections to waiving the shoreline certification requirement, our Office would like to be consulted to insure that the wall is properly placed beyond the shoreline as the entire proposed wall needs to be landward of the shoreline.

2.2 Existing Site Conditions

The OCCL notes, the entire structure failed, not just the west corner nearest the Mokuleia Bach Colony.

2.3.1 Technical Characteristics

There is a misstatement here: to provide lateral public access on the wall is in accordance with Hawaii Revised Statutes (HRS) 205A. The DLNR cannot 'require' the proposed two-tier wall, as the structure shall fall entirely in the setback area under the City's jurisdiction. The DLNR may only make recommendations in the setback area.

Utilization of crushed coral rock to backfill trenches on the beach side of the proposed wall shall not be allowed seaward of the shoreline. Dewatering equipment and sheetpile installations on an as-needed basis must be described along with the type and location.

2.3.2 Economic Characteristics

The applicant should not assume that a Shoreline Setback Variance will be granted. This paragraph should start off with 'If', or 'Should a'.

3.2.2 Beach Characteristics

The EA states: *Currently the applicant's seawall does not impact the width of the beach.* On what basis is this claim made as it has been previously stated that long-term erosion as well as removal of the wall shall result in damage to the residence? The Geology and Soils section indicates a potential sand source to the beach is being denied due to the armored shoreline. How is the wall not impacting the beach width? Please review and revise this statement.

4.2 Beach and Offshore

Although the proposed wall shall be a replacement structure, cumulative effects need to be considered and a replacement structure does not negate the need for evaluation of impacts. In this case, the existing revetment is unpermitted and the environmental affects have never been evaluated. Please discuss the environmental consequences to the beach and offshore.

4.2.1 Affected Shoreline

Again we strongly disagree with the statement, *"The existing seawall has no effect on the shoreline and the construction of an engineered seawall will not alter the shoreline."* No structure will equate to no beach loss.

4.2.2 Beach Profile

Please provide evidence that the existing seawall has no effect on the beach profile or revise this section.

4.2.3 Foreshore

Please provide evidence that the existing seawalls and proposed engineered wall have no impact on the foreshore region.

4.2.4 Littoral Transport

Please edit the following passages: *"...along this section..."* should be edited to 'to the west' as there are no seawalls to the east; *"...no significant impact..."* should be 'no significant change,' as seawalls do, in fact, impact the shoreline position.

4.8 Historic, Archaeological and Cultural Resources

Correspondence with the Historic Preservation Division should take place prior to making statements regarding cultural resources. Sandy areas are known to contain burials and fishing shrines have been previously identified in the makai area of Kawaihapai ahupuaa.

4.9 Land Use

The applicant should review Chapter 205A, HRS. A discussion as to how the proposal supports the following State policies should be included in this section: §205A-2(c) Policies, (1) Recreational resources; (B) Provide adequate, accessible, and diverse recreational

opportunities in the coastal zone management area by: (ii) Requiring replacement of coastal resources having significant recreational value including, but not limited to, surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable; and

§205A-46 Variances. (a) A variance may be granted for a structure or activity otherwise prohibited in this part if the authority finds in writing, based on the record presented, that the proposed structure or activity is necessary for or ancillary to: (9) Private facilities or improvements that may artificially fix the shoreline; provided that the authority also finds that shoreline erosion is likely to cause hardship to the applicant if the facilities or improvements are not allowed within the shoreline area, and the authority imposes conditions to prohibit any structure seaward of the existing shoreline unless it is clearly in the public interest.

5.1 No Action

It should be noted that to remove the revetment is another way to clear up the Conservation District violation. The statement, "*...the current shoreline protective structure is already beginning to fail,*" is contradictory to statements made throughout the EA that the existing unauthorized revetment is stable.

Regarding the neighboring Mokuleia Beach Colony (MBC) seawall, tieback of the MBC seawall may prevent failure of this permitted wall.

5.5 Preferred Alternative

The OCCL has no objections to the preferred alternative to construct a two-tiered seawall with a lower level to provide a walkway for lateral public access. The engineered plans are in Appendix D not Appendix C.

Discussion of removing, relocating, reducing or passive use of the existing residence should be considered here. The existing dwelling is over 40 years old and is showing signs of foundation damage. The homeowner may wish to consider a cost/benefit analysis of relocating or demolishing and rebuilding the residence elsewhere on the property.

6.0 Findings and Determinations

Regarding (2) *Curtail the range of beneficial uses of the environment*, we do not agree that, *the project does not restrict the range of beneficial uses of the environment*, as the proposal shall deny shoreline migration landward and sediment to the coastal littoral system.

Regarding (8) *Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment for larger actions*, discussion of the end scour problem for the eastern portion of the proposal needs to be included in the document to support the noted statement of no cumulative adverse effects.

Regarding (11) *Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as a floodplain, tsunami zone, beach, erosion-prone area, geologically*

hazardous land, estuary, freshwater, or coastal waters, delete the statement, 'The seawalls have no effect on the existing littoral processes in this area,' as this is a false statement. The USGS notes, "Efforts to reduce erosion along the Mokuleia shoreline by implementing seawalls have essentially failed and instead have led to substantial beach loss."¹

7.0 Shoreline Setback Variance Justification

Please see our comments regarding Section 4.2-4.2.4.

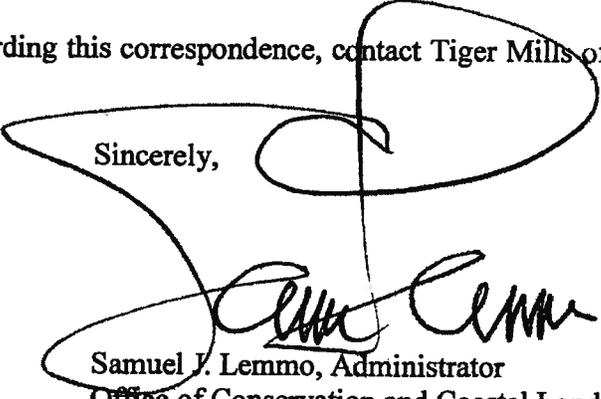
Appendix D Engineered Plans

The dimensions need to be included in the plans. **Exhibit A** of this correspondence appears to be a closer approximation of the shoreline boundary.

Thank you for the opportunity to review the subject draft Environmental Assessment. We further note residences along this coastline should be put on notice as the USGS Atlas of Natural Hazards in the Hawaiian Coastal Zone identifies this area as having a moderately high overall hazard assessment of 6 on a scale of a 1 (low) to 7 (high) due to chronic erosion and large north swells (**EXHIBIT B**). Erosion, high waves and tsunamis are ranked high here. These hazards along with moderately high stream flooding and seasonal high surf should be expected and mitigated. Should a natural hazard event occur, no seawall would be able to protect life and personal property.

Should you have any questions regarding this correspondence, contact Tiger Mills of our Office at (808) 587-0382.

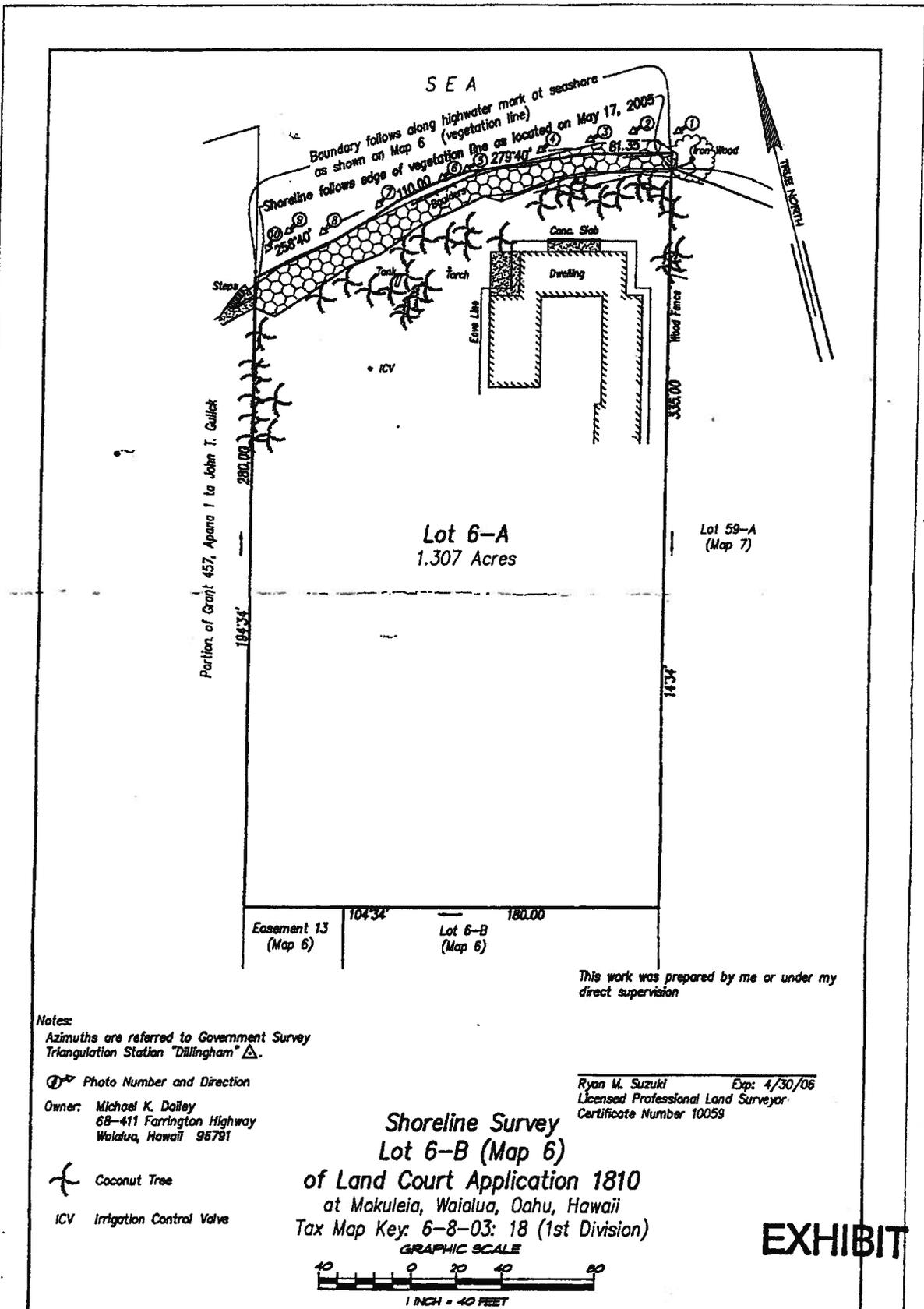
Sincerely,



Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

C: ODLO/HPD
OHA
OEQC
DOH

¹ U.S. Department of the Interior, USGS. 2002. Atlas of Natural Hazards in the Hawaiian Coastal Zone.



Lot 6-A
1.307 Acres

Lot 59-A
(Map 7)

Easement 13
(Map 6)

Lot 6-B
(Map 6)

This work was prepared by me or under my direct supervision

Notes:
Azimuths are referred to Government Survey
Triangulation Station "Dillingham" Δ.

Photo Number and Direction
Owner: Michael K. Dailey
68-411 Farrington Highway
Waialua, Hawaii 96791

Coconut Tree
ICV Irrigation Control Valve

Ryan M. Suzuki Exp: 4/30/06
Licensed Professional Land Surveyor
Certificate Number 10059

Shoreline Survey
Lot 6-B (Map 6)
of Land Court Application 1810
at Makuleia, Waialua, Oahu, Hawaii
Tax Map Key: 6-8-03: 18 (1st Division)

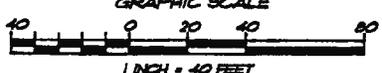


EXHIBIT A

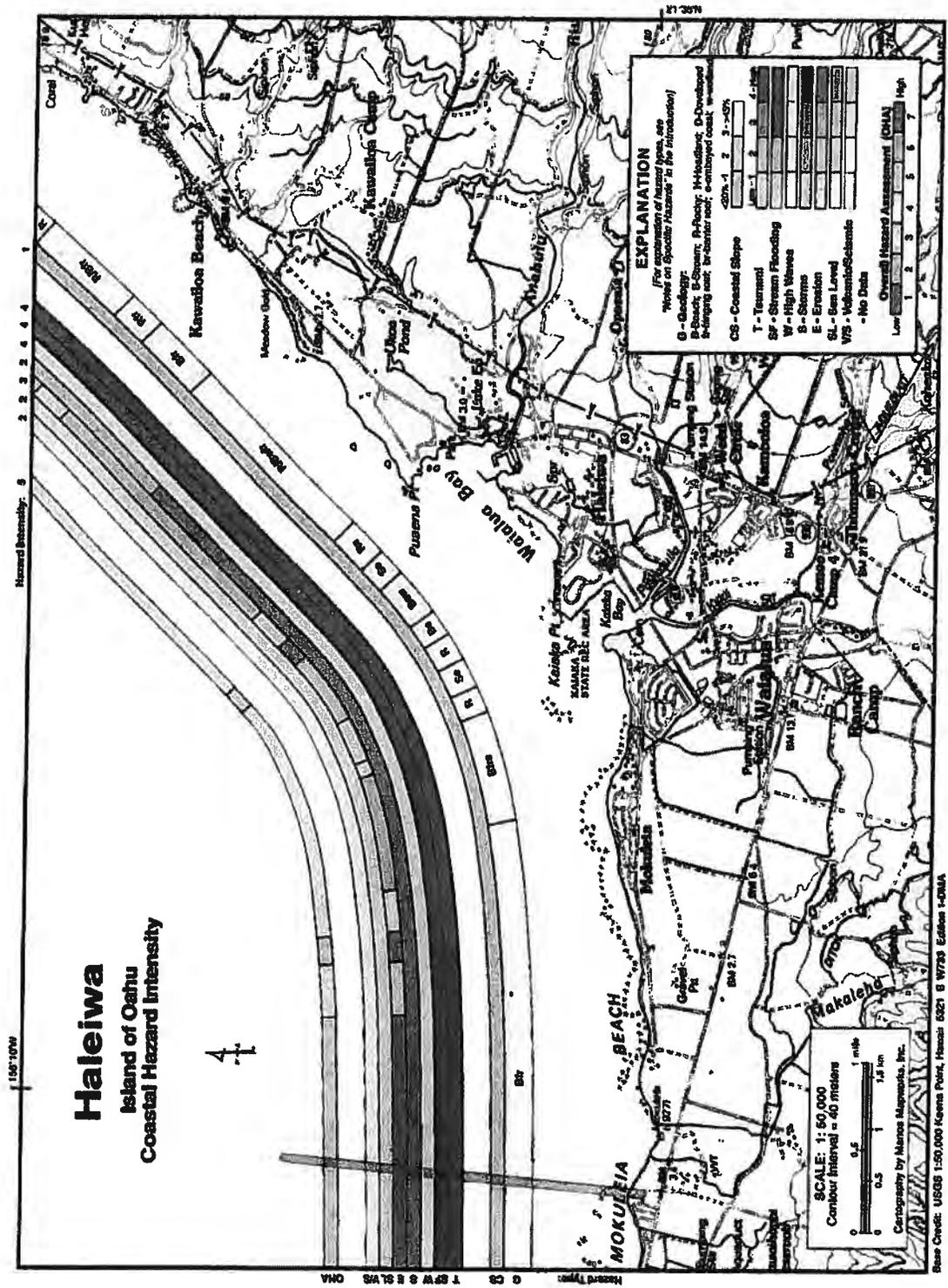


EXHIBIT B



November 3, 2008

Sam Lemmo, Administrator
Office of Conservation and Coastal Lands
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Attn: Tiger Mills

Dear Mr. Lemmo,

Subject: Draft Environmental Assessment (DEA) for a Shoreline Setback Variance
Application for a Seawall at 68-609 and 68-611 Farrington Highway (Mokuleia Beach), Waialua, O`ahu, TMK: 6-8-3: 18 & 37

Thank you for your comments on the Draft Environmental Assessment. The comments are listed according to the section of the draft EA. Each comment is in italics and is numbered. The responses are in the paragraph below each comment.

Section 1.1 Background

- 1. We do not agree with the statements made regarding the May 17, 2005 survey of the property and our June 27, 2005 response. The May 17, 2005 survey indicates a more likely position of the shoreline than the July 3, 2007 survey. The May 17, 2005 survey indicates the entire rock structure to be seaward of the proposed shoreline. Therefore stating "the survey indicated that due to erosion during the past winter a small portion of the rock structure on the east side of the parcel was not located makai of the shoreline. It appears that when the revetment was built it was entirely behind the shoreline," is incorrect. Perhaps the discrepancy lies in the interpretation of the survey map.*

The May 17, 2005 survey and the July 3, 2007 locate the shoreline in the same location. For the preparation of the Draft EA the July 3, 2007 survey map was used and included on page 8. That survey is the most recent survey of the subject property.

The statement: "*the survey indicated that due to erosion during the past winter a small portion of the rock structure on the east side of the parcel was not located makai of the shoreline. It appears that when the revetment was built it was entirely behind the shoreline*" will be deleted in the Final EA.

- 2. Furthermore there is no evidence that the revetment was built 'entirely' behind the shoreline as neither survey was certified.*

This statement will be deleted in the Final EA as noted above.

Providing Services Since 1976

Land Use Planners and Environmental Consultants

- 3. We suggest deleting the statement: OCCL did not dispute the accuracy of the shoreline on the property, as our June 27, 2005 Letter states that a portion of the structure appears to be encroaching upon State Land and did not discuss the location of the unauthorized wall.*

The statement: "OCCL did not dispute the accuracy of the shoreline on the property" will be deleted in the Final EA.

- 4. Accuracy of the shoreline is determined by getting the shoreline certified. The shoreline was never certified. We suggest the applicant include this noted May 17, 2005 survey and edit this section.*

The May 17, 2005 survey will be included as an exhibit to the Final EA. .

- 5. Regarding the Emergency Conservation District Use Application (CDUA) to restore the unauthorized revetment, the OCCL was unable to accept the application as the CDUA called for restoration of an illegal structure. The OCCL requested that the fallen rocks from the revetment be removed from the beach as the rocks were rolling in the surf and became hazardous to the general public attempting lateral access fronting the revetment. Furthermore, our records indicate that the City and County of Honolulu opened an enforcement case regarding the revetment in 1992, therefore the OCCL closed this case as the offending rocks were removed from the shoreline and it appeared that the revetment was originally constructed landward of the shoreline while under the City's jurisdiction.*

The statement: "DLNR rejected the application for an emergency permit to repair the structure. DLNR staff requested that the Daileys remove the rocks that had fallen on the beach and re-orient the rocks on the revetment. The Daileys complied and the enforcement file was closed with no incident" will be revised to read as follows in the Final EA:

"OCCL was unable to accept the application and has stated with respect thereto that: 'the application called for restoration of an illegal structure. The OCCL requested that the fallen rocks from the revetment be removed from the beach as the rocks were rolling in the surf and became hazardous to the general public attempting lateral access fronting the revetment. Furthermore, our records indicate that the City and County of Honolulu opened an enforcement case regarding the revetment in 1992, therefore the OCCL closed this case as the offending rocks were removed from the shoreline and it appeared that the revetment was originally constructed landward of the shoreline while under the City's jurisdiction.'"

- 6. We strongly disagree with coastal engineer, Elaine Tamaye's statement that the existing seawall has "no effect on the existing littoral processes," and further note that additional statements regarding catastrophic damage and the potential affects of removal contradict this statement of 'no effect.'*

The area in question undergoes a seasonal erosion and restoration pattern. This includes much of the Mokuleia shoreline that is already protected by seawalls. The

eastern shoreline erodes during the winter and is restored in the summer, while the western end erodes in the summer and is restored in the winter (EKNA, 2004). It is unclear how this pattern will change if sea level continues to rise.

There may be some concern that cross-shore transport may be affected because of wave reflection from near-vertical impermeable faces of a seawall. It has been a generally held presumption that the more reflective the structure, the greater potential for adverse impacts by discouraging sand accumulation in front of the structure. However, given the fact that beach and shoreline erosion is continuing to occur along this coastline and elsewhere where there are no shore protection structures, it can be concluded that the long-term erosion trend is a natural process that will certainly not reverse simply by constructing shore protection structures with a sloping porous surface. In fact, long-term field studies by the University of California at Santa Cruz 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 (EKNA, 2004).

Field studies by EKNA Services Inc. at Aliomanu, Kauai demonstrated that seasonal cross-shore transport is unaffected by an existing seawall. Monitoring of beach profiles over a four month period indicated that beach accretion occurred in front of the near-vertical seawall as well as on the adjacent unprotected beach.

The debate as to whether or not a seawall effects the existing littoral processes has been argued in academic circles for many years. Some of the literature does indicate that the littoral processes are not affected by a seawall. Only after long term evaluations in diverse coastal environments can this debate finally be settled. Please refer to the documents listed below.

EKNA. April 2004. Coastal Engineering Assessment of Existing Seawalls at Mokuleia Oahu, Hawaii. EKNA Control No. 2439-005#

U, S. Army Engineer Waterways Experiment Station, Coastal Engineering Research Center. Coastal Engineering Technical Note, CETN 111-46, (3/92), CTEN III-57 (6/95).

Griggs, Tait, Plant. 1991. The Interaction of Seawalls and beaches: Four Years of Field Monitoring, Monterey Bay California. Proceedings Coastal Sediments.

Griggs, Tait, Corona. 1994. The Interaction of Seawalls and Beaches: Seven Years of Monitoring, Monterey Bay California. Shore and Beach 62:21-28

7. *However we do agree that if the shoreline structure is replaced, it must be a permitted engineered wall.*

We concur.

8. *Although the OCCL has no objections to waiving the shoreline certification requirement, our Office would like to be consulted to insure that the wall is properly placed beyond the shoreline as the entire proposed wall needs to be landward of the shoreline.*

The intent is and will continue to be the emplacement of a permitted engineered seawall mauka of the certified shoreline.

Section 2.2 Existing Site conditions

1. *The OCCL notes, the entire structure failed, not just the west corner nearest the Mokuleia Beach Colony.*

Currently the only site that is failing is the corner adjacent to the Mokuleia Beach Colony. We do not dispute the fact that the entire structure failed and we will add that to the description of the events that lead up to the current conditions.

Section 2.3.1 Technical Characteristics

1. *There is a misstatement here: to provide lateral public access on the wall is in accordance with Hawaii Revised Statutes (HRS) 205A. The DLNR cannot 'require' the proposed two-tier wall, as the structure shall fall entirely in the setback area under the City's jurisdiction. The DLNR may only make recommendations in the setback area.*

The intent of that statement was not to imply that DLNR required that design, it was to indicate that the client will provide lateral public access as recommended by DLNR. That statement will be rewritten to state that the intent is to provide public lateral access as recommended by DLNR.

2. *Utilization of crushed coral rock to backfill trenches on the beach side of the proposed wall shall not be allowed seaward of the shoreline.*

We will change that section to designate that appropriate material if available will be used to backfill on the beach side.

3. *Dewatering equipment and sheet pile installation on as-need basis must be described along with the type and location.*

A detailed description of best management practices and techniques for the construction phase will be completed by the contractor hired to build the structure. The detailed description of the construction phase is beyond the scope of this EA.

Section 2.3.2 Economic Characteristics

1. *The applicant should not assume that a Shoreline Setback Variance will be granted. This paragraph should start off with 'If', or 'Should a'*

We will take this comment into consideration.

Section 3.2.2 Beach Characteristics

1. *The EA states: Currently the applicant's seawall does not impact the width of the beach. On what basis is this claim made as it has been previously stated that long-term erosion as well as removal of the wall shall result in damage to the residence?*

Long-term erosion is occurring on coastlines around the world and shorelines globally are impacted by erosion caused by rising sea level. Sea level rise is caused by global warming that melts the glaciers which adds more water to the

ocean basin and raise sea level. Warming also warms the ocean and the additional heat contributes to the alteration of ocean chemistry. These changes in ocean chemistry profoundly affect Hawaii's sediment supply. Hawaii's sand is primarily composed carbonate grains produced by marine organisms. Biological production is down and now Hawaii's beaches have lost their major source of sand. Now Hawaii's sand must come from terrestrial sources or from dredging sand deposits offshore. Seawalls are not the cause of narrowing beaches. The need for seawalls is a symptom of the fact the global climate and ocean chemistry is rapidly changing and the evolution of marine organism that produce Hawaii's sand can not keep up with the changes in the marine environment.

Please see the photographs below to see examples of damage that can and does occur on unprotected eroding shorelines.



2. *The Geology and Soils section indicates a potential sand source to the beach is being denied due to the armored shoreline. How is the wall not impacting the beach width? Please review and revise this statement.*

The geology and soils section does not address how the beach is being denied a source of sand due to the armored shoreline, nor does it discuss how the wall impacts beach width.

Section 4.2 Beach and Onshore

1. *Although the proposed wall shall be a replacement structure, cumulative effects need to be considered and a replacement structure does not negate the need for*

evaluation of impacts. In this case, the existing revetment is unpermitted and the environmental affects have never been evaluated. Please discuss the environmental impacts to the beach and offshore. .

We understand your concern about how the existing revetment has never been evaluated. However HRS 343 which set up the environmental review process was adopted in 1974 and the original revetment was emplaced prior to 1974. Also the purpose of an Environmental Assessment is to evaluate a proposed action and the environmental effects of that action. The existing condition is used as a Baseline Condition to attempt to predict how it may or may not affect future environmental conditions.

Section 4.2.1 Affected Shoreline

1. *Again we strongly disagree with the statement, "The existing seawall has no effect on the shoreline and the construction of an engineered seawall will not alter the shoreline". No structure will equate to no beach loss.*

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 unprotect shoreline fronting the polo fields. The beach profile is uniform along this entire section of the shoreline. (EKNA, 2004).

The area in question undergoes a seasonal erosion and restoration pattern. This includes much of the Mokuleia shoreline that is already protected by seawalls. The eastern shoreline erodes during the winter and is restored in the summer, while the western end erodes in the summer and is restored in the winter (EKNA, 2004). It is unclear how this pattern will change if sea level continues to rise.

Seawalls do not affect the longshore of wave reflection from the near-vertical sediment processes; there may be some concern that cross-shore transport may be affected because of wave refraction 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, since 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.

Field studies conducted by EKNA services, 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 a near-vertical seawall as well as on the adjacent unprotected beach. (EKNA 2004,)

The debate as to whether or not a seawall affects the existing littoral processes has been argued in academic circles for many years. Some of the literature does indicate that the littoral processes are not affected by a seawall. Only after long

term evaluations in diverse coastal environments can this debate finally be settled. Please refer to the four documents listed below which conclude that shoreline protection structures do not cause beach erosion.

EKNA. April 2004. Coastal Engineering Assessment of Existing Seawalls at Mokuleia Oahu, Hawaii. EKNA Control No. 2439-005#

U.S. Army Engineer Waterways Experiment Station, Coastal Engineering Research Center. Coastal Engineering Technical Note, CETN 111-46, (3/92), CTEN III-57 (6/95).

Griggs, Tait, Plant. 1991. The Interaction of Seawalls and beaches: Four Years of Field Monitoring, Monterey Bay, California. Proceedings Coastal Sediments.

Griggs, Tait, Corona. 1994. The Interaction of Seawalls and Beaches: Seven Years of Monitoring, Monterey Bay, California. Shore and Beach 62:21-28

Section 4.2.2 Beach Profile

1. *Please provide evidence that the existing seawall has no effect on the beach profile or revise this section.*

Please refer to our response above in 4.2.1

Section 4.2.3 Foreshore

1. *Please provide evidence that the existing seawalls and proposed engineered wall have no impact on the foreshore region*

Please refer to our response above in 4.2.1

Section 4.2.4 Littoral Transport

1. *Please edit the following passages: "...along this section..." should be edited to 'to the west' as there are no seawalls to the east;*

Section 4.2.4 addresses the offshore region and section 4.2.5 addresses Littoral transport. We can mention that presently there are continuous walls on the west side of the property in the appropriate section.

2. *..."... no significant impact..." should be 'no significant change,' as seawalls do, in fact, impact the shoreline position.*

Please refer to our comment above in 4.4.1.

Section 4.8 Historic, Archaeological and Cultural Resources

1. *Correspondence with the Historic Preservation division should take place prior to making statements regarding cultural resources. Sandy areas are known to contain burials and fishing shrines have been previously identified in the makai area of Kawaihapai ahupuaa.*

No comments were received from the State Historic Preservation Division (SHPD) on the DEA. Also please recall that the site was developed in 1965 and much of the site was altered for construction of the house, placing a revetment and later repairing the revetment. No historic, archaeological or cultural resources were found during any of those activities.

Section 4.9 Land Use

- 1. The applicant should review Chapter 205A HRS. A discussion as to how the proposal supports the following State policies should be included in this section: §205A-2 (c) Policies, (1) Recreational resources; (B) provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by: (ii) Requiring replacement of coastal resources having significant recreational value including but not limited to, surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable; and §205AA-46 Variances. 9A) a variance may be granted for a structure or activity otherwise prohibited in this part if the authority finds in writing, based on the record presented, that the proposed structure or activity is necessary or ancillary to: (9) Private facilities or improvements that may artificially fix the shoreline; provided that the authority also finds that shoreline erosion is likely to cause hardship to the applicant if the facilities or improvements are not allowed within the shoreline area, and the authority imposes conditions to prohibit any structure seaward of the existing shoreline unless it is clearly in the public interest.*

Section 4.9 does address HRS Chapter 205A and the Criteria for granting a variance. Discussion of justification for the variance is in Section 7.0 starting on page 29 of the DEA. The City also has provisions for granting a variance for work within the shoreline setback area including shoreline hardening in ROH Chapter 23.

The EA does not address replacing coastal features such as ponds, sandy beaches, surfing sites and other such items. This is because there are no ponds along this part of the shoreline and surfing will not be affected.

Replacing sandy beaches (beach nourishment) is extremely expensive. The State can barely afford to replace sandy beaches and has only done so on one small portion of Waikiki Beach (Kuhio Beach). Another consideration is that the success and longevity of beach nourishment projects is debatable.

Section 5.1 No Action

- 1. It should be noted that to remove the revetment is another way to clear up the conservation District Violation. The statement, " the current shoreline protective structure is already beginning to fail," is contradictory to statements made throughout the EA that the existing unauthorized revetment is stable. .*

The portion of the revetment next to the Mokuleia Beach Colony is the weakest point and those rocks are unstable. Other portions of the revetment are stable in

the short-term, but should be replaced by a permitted seawall to provide long-term stability. Also a portion on TMK: 6-8-003:37 is not protected by a wall or a revetment. This portion is only protected by sandbags and these could easily fail. Please see Figure 2, photo A and photo B in the DEA.

Section 5.5 Preferred Alternative

1. *The OCCL has no objections to the preferred alternative to construct a two-tiered seawall with a lower level to provide a walkway for lateral public access. The engineered plans are in appendix D not Appendix C.*

We will correct the Appendix reference.

2. *Discussion of removing, relocating, reducing or passive use of the existing residence should be considered here. The existing dwelling is over 40 years old and is showing signs of foundation damage. The homeowner may wish to consider a cost/benefit analysis of relocating or demolishing and rebuilding the residence else where on the property.*

The resident is an 80+ year old widow who raised her children in the family home located on the parcel in question. It would be cruel and inhumane to require that she give up her home and relocate during her twilight years.

The house is built of bricks with a cement slab on grade foundation. It cannot be moved and the option of demolishing and rebuilding is not viable in this case.

Section 6.0 Findings and Determinations

1. *Regarding (2) **Curtail the range of beneficial uses of the environment**, we do not agree that the project does not restrict the range of beneficial uses of the environment, and the proposal shall deny shoreline migration landward and sediment to the coastal littoral system.*

There is a vast range of interpretations of what constitutes a beneficial use of the environment. There are no clear solutions or an interpretation that fits all situations. There are times when the one interpretation of the most beneficial use of the environment appears abhorrent to another.

2. *Regarding (8) **Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment for larger actions**, discussion of the end scour problem for the eastern portion of the proposal needs to be included in the document to support the noted statement of no cumulative adverse effects.*

We will discuss the potential for scour at the eastern portion of the proposed structure with both the project structural engineer and coastal engineer. The problem will be addressed in the Final EA.

3. *Regarding (11) **Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as a floodplain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters**, Delete the statement, 'the seawalls have no effect on the existing littoral processes in this area' as this is a false statement. The USGS notes, 'Efforts to*

reduce erosion along the Mokuleia shoreline by implementing seawalls have essentially failed and instead have lead to substantial beach loss”.

- 4. We disagree with the DEA’s statement that the existing wall has no effect upon the shoreline and the construction of the engineered wall will not alter the shoreline. Seawalls and other hardened structures have that the effect of souring away beaches over time.*

Please refer to our response above in 4.2.1. This argument is beyond the scope of this project.

Section 7.0 Shoreline Setback Variance Justification

- 1. Please see our comments regarding section 4.2-4.2.4.*

Please see our responses above regarding section 4.2-4.2.4

Appendix D Engineered Plans

- 1. The dimensions need to be included in the plans. Exhibit A of this correspondence appears to be a closer approximation of the shoreline boundary.*

The next iteration of the plans will indicate the overall wall height both above and below grade heights.

We hope to clear up any discrepancies with respect to the shoreline boundary when we meet with a representative from DLNR on site for the purpose of delineating and/or certifying the shoreline.

Again, we thank you for reviewing the Draft Environmental Assessment. If you have any questions or need more information please call me at (808) 596-4688.

Sincerely



Judy Mariant
Project Manager

cc Michael Carroll, Attorney at Law

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

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

HENRY ENG, FAICP
DIRECTOR

DAVID K. TANOUÉ
DEPUTY DIRECTOR

2008/ED-10 (WA)

September 22, 2008

Ms. Judy Mariant
WIL CHEE – Planning & Environmental
1018 Palm Drive
Honolulu, Hawaii 96814

Dear Ms. Mariant:

Subject: Draft Environmental Assessment
Shoreline Setback Variance Application for a Seawall
68-609 and 68-611 Farrington Highway (Mokuleia Beach) - Waialua
Tax Map Key 6-8-3: 18 and 37

We have reviewed the Draft Environmental Assessment (EA) for the above referenced project and provide the following comments:

Section 1.1 Background

There is no evidence to document that, when the revetment was built, it was entirely behind the shoreline as stated. Specify the amount of the small portion of the rock structure that you indicated is now located makai of the shoreline and show it in the drawings. Also, provide evidence that the rock revetment was damaged during the winter of 2004-2005 only.

Section 1.2 Scope and Authority

There is a typo under Project Information, Applicant's Representative.

Section 2.3.1 Technical Characteristics

Please submit a phasing plan with a timeline.

Section 3.2 Beach and Offshore

An SCP guideline pertaining to shoreline areas states that where structures are permitted on lands abutting the shoreline, adequate setbacks should be provided. Greater shoreline setbacks for new structures should be established in erosion hazard areas, using criteria from the various shoreline studies (Section 3.1.3.2). To support this guideline, the variance should consider an additional minimum setback be established as a condition of approval in the event

the existing structure is destroyed by any means to an extent of more than 50 percent of its replacement cost at the time of destruction.

Section 3.2.1 Affected Shoreline

Although we will not require Shoreline Certification prior to the acceptance of the Shoreline Setback Variance (SV) application for processing, please submit the certified copy from the DLNR when it has been obtained.

Section 3.3 Hydrology

State the impact this project has on hydrology.

Section 3.3.3 Flood and Tsunami

According to the FIRM, the property is located in Zone AE (EL 12). Please revise all applicable sections of the EA accordingly.

Confirm that the subject properties are within the tsunami evacuation zone (Oahu Civil Defense Agency) in Section 3.3.3 (Flood and Tsunami Potential) and Section 6 (Findings and Determinations), Item No. 11.

On chronically eroding shorelines, hardening of the shoreline results in beach erosion which leads to narrowing of the beach, and eventually to beach loss. The Draft EA state that erosion and beach retreat will occur with or without an engineered seawall (page 21). It is unclear if the long-term effect from the proposed structure would be beach loss. This should be clarified in the Final EA.

Section 3.7 Flora and Fauna

Submit documentation that there are no rare or endangered species on the site.

Section 3.9 Land Use

Sustainable Communities Plan (SCP) - the site is within a Park area on SCP Land Use Map and is outside the Rural Community Boundary. Improvements should contribute to the North Shore's rural character.

Section 3.12 Visual Resources

The Draft EA inaccurately states (page 19) that after the polo field there are no views from the Highway to the ocean until Camp Mokuleia and Mokuleia Beach Park. The SCP Open Space Map identifies intermittent panoramic views of the ocean from Farrington Highway between the Dillingham Airfield and the Mokuleia Polo Farm.

Section 4.1 Geology and Soils

State how many cubic yards of soil will be excavated and replaced.

Section 4.2.1 Affected Shoreline

It is difficult to believe that the existing seawall has no effect on the shoreline. Provide the basis for your conclusion. How does the proposal support guidelines relating to shoreline access along the coast (see SCP Section 3.1.3.2).

The Final EA should describe any existing lateral and mauka-makai public access conditions, and how they will be affected by the proposal. Mitigative measures, if necessary, should also be included.

The proposed walkway on the makai-side of the proposed wall structure should be omitted. A lateral walkway could be considered along the top of the proposed wall, level with the mauka-side grade, continuing the existing walkway condition of the Mokuleia Beach Colony seawall. This would enhance public access by continuing the existing lateral access along the shoreline.

Describe recreational activities that presently occur along the shoreline and waters fronting the subject properties. The long-term impact of beach loss in front of the proposed seawall will affect opportunities for on-shore recreation, such as on-shore fishing, and should be addressed in the Final EA.

Section 4.2.2 Beach Profile

The Draft EA states the existing seawall has no effect on the beach profile. Provide the basis for your conclusion.

Section 4.3.1 Groundwater

Further explain the lack of groundwater on the site.

Section 4.7 Flora and Fauna

Please submit documentation that there is no significant impact on the flora and fauna in the area.

Section 4.8 Historic, Archaeological and Cultural Resources

Please submit documentation from the State Office of Hawaiian Affairs that the agency has been consulted regarding impacts of the seawall.

Section 5.1 No Action

These are not alleged violations; there are actual violations. These violations are stated in Section 1.1.

Section 5.2 Removal of the Existing Seawall

Elaborate on the scientific statistical evidence of the catastrophic damage to support the claim of loss of the structure.

Appendix D Engineered Plans

Please revise drawings to show overall wall height, above and below grade heights.

General Comments

Please eliminate any redundancy in the EA. The Final EA should indicate in the narrative that the proposed structure extends into TMK 6-8-003: 037 (as shown in the Wall Layout Plan). The Final EA should also explain the following:

1. Why a shoreline certification survey is not included for Parcel 37.
2. Why the sandbags on Parcel 37 remain even with the proposed structure (see Wall Layout Plan).

Comment Letters

Finally, we are forwarding a copy of the two (2) comment letters received to date for the proposed project. In accordance with the procedural provisions of EIS regulations, all comment letters received during the 30-day comment period, which began with the initial publication of availability of the DEA in The Environmental Notice on August 23, 2008, require a response addressed directly to the commenter. The final EA must include all comment letters and responses to the letters, as well as appropriately revised text.

Please contact William Ammons of our staff at 768-8025 if you have any questions.

Very truly yours,



for Henry Eng, FAICP, Director
Department of Planning and Permitting

HE:nt
Encls.

cc: OEQC

G:\wammons\Environmental Draft\2008 ED-10\2008 ED-10 DEA Planning Comments.doc



November 3, 2008

Henry Eng, FAICP, Director
Department of Planning and Permitting
City and county of Honolulu
650 South King Street 7th Floor
Honolulu, Hawaii 96813

Attention: William Ammons

Dear Mr. Eng:

Subject: Draft Environmental Assessment (DEA) for a Shoreline Setback Variance
Application for a Seawall at 68-609 and 68-611 Farrington Highway (Mokuleia
Beach), Waialua, O`ahu, TMK: 6-8-3: 18 & 37

Thank you for your letter of September 22, 2008, regarding the subject DEA. Your comments are listed by section of the DEA. Each of your comments in italics is numbered. Our response follows each comment.

Section 1.1 Background

1. *There is no evidence to document that when the revetment was built, it was entirely behind the shoreline as stated.*

Our statement, "It appears that when the revetment was built it was entirely behind the shoreline," comes from page 2 of a letter from the law firm Bays, Deaver, Lung, Rose, Holma to the Chairperson and Members of the Board of Land and Natural Resources dated May 24, 2007. The subject of the letter was OCCL File No. : OA-07-31 Alleged Unauthorized Repair/Reconstruction of Shoreline Structure, Mokuleia, Oahu (TMK: (1) 6-8-003: 018. The statement is based on a survey conducted on May 17, 2005.

2. *Specify the amount of the small portion of rock structure that you indicated is now located makai of the shoreline and show it in the drawings.*

The small portion of rock structure that is located makai of the shoreline is shown on the shoreline survey dated July 3, 2007, located in Appendix E of the DEA. The amount will be difficult to determine precisely as some of the rock that was moved by storm surf is now buried beneath the surface. The precise amount cannot be estimated until all of the material is removed prior to the construction of an engineered seawall.

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3. *Also provide evidence that the rock revetment was damaged during the winter of 2004-2005 only.*

After several rocks came loose and ended up on the beach DLNR Office of Conservation and Coastal Lands staff initiated Enforcement File No. OA-05-38 on January 14, 2005. The Notice and Order noted that the rock structure “was beginning to fail due to wave scour and it presents a significant safety hazard to the public”.

Section 1.2 Scope and Authority

1. *There is a typo under Project Information, Applicant’s Representative.*

The typo will be corrected in the final EA.

Section 2.3.1 Technical Characteristics

1. *Please submit a phasing plan with a timeline.*

The client would like to proceed with the emplacement of an engineered seawall next summer. However the preparation of a phasing plan with a timeline will be difficult to determine since various agencies are involved. We can only provide a theoretical timeline based upon the amount of time it should take to reach project milestones.

Time	Milestones	Tasks Included
60 Days	Submit Draft EA & Variance Application	Gather background information, and document preparation
30 Days	Comment Period	Wait for comments on the EA
30-40 Days	Submit Final EA	Respond to comments, re-writes, edits & submit to DPP
60-90 days	Variance	Time for DPP to complete & issue the variance
90 days to 1.5 years	Permit Process	Prepare and submit permits, and provide any information required by DPP
10-40 Days	Construction	Mobilization, removal & construction of a seawall

Based upon the chart above and under the most ideal circumstances a Shoreline Setback Variance could be issued in 120 days, permits in 90 days and construction finished in 30 days with the whole project completed in 240 days. However, past experience indicates that there are often unanticipated delays that prolong the process.

Section 3.2 Beach and Offshore

1. *An SCP guideline pertaining to shoreline areas states that where structures are permitted on lands abutting the shoreline, adequate setbacks should be provided. Greater shoreline setbacks for new structures should be established in erosion hazard areas, using criteria from the various shoreline studies (Section 3.1.3.2). To support this guideline, the variance should consider an additional minimum setback be established as a condition of approval in the event the existing structure is destroyed by any means to an extent of more than 50 percent of its replacement at the time of destruction.*

Section 3.2 Beach and Offshore in the DEA presents a discussion of the existing physical, geological and oceanographic properties of the shoreline in the region.

The comment above pertains to the North Shore Sustainable Communities Plan that is addressed in Sections 3.9, 3.13, 4.9 and 4.13 in the DEA. This guideline pertaining to additional shoreline setback for new structures as a condition of approval in the event that the existing structure is destroyed will be added to Section 4.9 Land Use of the DEA.

Section 3.2.1 Affected Shoreline

1. *Although we will not require a Shoreline Certification Prior to the acceptance of the Shoreline Setback Variance (SV) application for processing, please submit the certified copy from the DLNR when it has been obtained.*

Section 3.2.1 Affected Shoreline in the DEA presents a discussion of the existing physical, geological and oceanographic properties of the shoreline close to the site.

We understand that a certified shoreline is required for permitting and it will be submitted as soon as it is obtained and prior to permitting. A waiver of Shoreline Certification was requested for the purposes of preparing an application for a Shoreline Setback Variance (SSV) and the waiver was granted in your letter of June 20, 2008.

Section 3.3 Hydrology

1. *State the impact this project has on hydrology.*

Section 3.3 Hydrology presents a description of the hydrologic conditions on the site. The impacts of the project on hydrology are addressed in section 4.3 Hydrology.

Section 3.3.3 Flood and Tsunami

1. *According to the FIRM, the property is located in Zone AE (EL 12). Please revise all applicable sections of the EA accordingly.*

The DEA states “The Flood Insurance Rate Map for the City and County of Honolulu (2004) indicates that the project area is Zone AE Base Flood elevation determined to be 12 feet”. This is the written explanation of Zone AE (EL 12).

2. *Confirm that the subject properties are within the tsunami evacuation zone (Oahu Civil Defense Agency) in Section 3.3.3 (Flood and Tsunami Potential) and Section 6 (Findings and Determinations), Item No. 11.*

We will indicate in all sections that address tsunami potential that the properties are entirely within the tsunami evacuation zone as illustrated in the the Civil Defense Disaster Preparedness Guide,, Tsunami Evacuation Oahu Map 13: Waialua Bay to Mokuleia.

3. *On chronically eroding shorelines, hardening of the shoreline results in beach erosion which leads to narrowing of the beach, and eventually beach loss. The draft EA state that erosion and beach retreat will occur with or without an engineered seawall (Page 21). It is unclear if the long-term effect from the proposed structure would be beach loss. This should be clarified in the Final EA.*

See Section 4.2.1 Affected Shoreline and Section 4.2.2 Beach Profile for a discussion of the long-term effect from the proposed structure on beach loss.

Section 3.7 Flora and Fauna

1. *Submit Documentation that there are no rare or endangered species on the site.*

We have contacted the U.S. Fish and Wildlife Service (Department of the Interior) to initiate consultation on the potential for rare and endangered species on the site.

Section 3.9 Land Use

1. *Sustainable Communities Plan (SCP) – the site is within a park area on SCP Land Use Map and is outside the Rural community boundary. Improvements should contribute to the North Shore’s rural character.*

The property is designated as AG-2 general Agricultural District in the Land Use ordinance (LUC) and under the State Land use designation is in the Agricultural District. The properties do contribute to the North Shore’s rural character with parcels greater than 1 acre and horses in the yard.

Section 3.12 Visual Resources

1. *The Draft EA inaccurately states (Page 19) that after the polo field there are no views from the Highway to the ocean until Camp Mokuleia and Mokuleia Beach Park. The SCP Open Space Map identifies intermittent panoramic views of the ocean from Farrington Highway between the Dillingham Airfield and the Mokuleia Polo Farm.*

Please note that the North Shore Sustainable Communities Plan was completed in 2000 and is based on conditions that existed prior to 2000. On October 25, 2007, on a reconnaissance drive from the polo field past Dillingham Airfield to Mokuleia Beach Park and Camp Mokuleia, it appeared that landscape plants and trees have grown considerably since 2000. Most of what we saw on the makai side of the road was vegetation, trees, houses, driveways and parked cars. There were no open areas allowing views from the highway to the ocean.

Section 4.1 Geology and Soils

1. *State how many cubic yards of soil will be excavated and replaced.*

At this point of the project it is very difficult to determine how many cubic yards of soil will be excavated and replaced. Once we have final approved plans for the seawall we will be able to make an estimation of the amount of material to be excavated and replaced.

Section 4.2.1 Affected Shoreline

1. *It is difficult to believe that the existing seawall has no effect on the shoreline. Provide the basis for your conclusion. How does the proposal support guidelines relating to shoreline access along the coast (See SCP Section 3.1.3.2).*

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 fronting the polo fields. The beach profile is uniform along this entire section of the shoreline. (EKNA, 2004).

The area in question undergoes a seasonal erosion and restoration pattern. This includes much of the Mokuleia shoreline that is already protected by seawalls. The eastern shoreline erodes during the winter and is restored in the summer, while the western end erodes in the summer and is restored in the winter (EKNA, 2004). It is unclear how this pattern will change if sea level continues to rise.

Seawalls do not affect the longshore of wave reflection from the near-vertical sediment processes; there may be some concern that cross-shore transport may be affected because of wave refraction 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, since 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.

Field studies conducted by EKNA services, 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 a near-vertical seawall as well as on the adjacent unprotected beach. (EKNA 2004,)

The debate as to whether or not a seawall affects the existing littoral processes has been argued in academic circles for many years. Some of the literature does indicate that the littoral processes are not affected by a seawall. Only after long term evaluations in diverse coastal environments can this debate finally be settled. Please refer to the four documents listed below which conclude that shoreline protection structures do not cause beach erosion.

EKNA. April 2004. Coastal Engineering Assessment of Existing Seawalls at Mokuleia Oahu, Hawaii. EKNA Control No. 2439-005#

U.S. Army Engineer Waterways Experiment Station, Coastal Engineering Research Center. Coastal Engineering Technical Note, CETN 111-46, (3/92), CTEN III-57 (6/95).

Griggs, Tait, Plant. 1991. The Interaction of Seawalls and beaches: Four Years of Field Monitoring, Monterey Bay, California. Proceedings Coastal Sediments.

Griggs, Tait, Corona. 1994. The Interaction of Seawalls and Beaches: Seven Years of Monitoring, Monterey Bay, California. Shore and Beach 62:21-28

- The Final EA should describe any existing lateral and mauka-makai public access conditions, and how they will be affected by the proposal. Mitigative measures, if necessary should also be included.*

The Draft EA does address existing and potential lateral and mauka-makai public access conditions and how they will be affected by the proposed action as well as mitigation measures.

Please refer to Section 2.1 Project Location on page 8, Section 2.3.1 Technical Characteristics on page 8-9, Section 4.13 Socio-Economic Resources on page 24, Section 5.3 Soft Shore Protection on page 25, Section 5.5 Preferred Alternative on page 26, Section 6.0 findings and Determinations (2) on page 26-27, and Section 7.0 Shoreline Justification on page 32

All of the references and descriptions of existing and potential access will remain in the final EA.

- 3. The proposed walkway on the makai-side of the proposed wall structure should be omitted. A lateral walkway could be considered along the top of the proposed wall, level with the mauka side grade, continuing the existing walkway condition of the Mokuleia Beach colony Seawall. This would enhance public access by continuing the existing lateral access along the shoreline.*

The proposed walkway on the makai-side of the proposed wall structure was recommended by the Office of Conservation and Coastal Land (Department of Land and Natural Resources). Unless there is some engineering criteria or legal restriction to providing public access on a lateral walkway located on the makai side of a seawall it is preferable to keep the project as proposed.

- 4. Describe recreational activities that presently occur along the shoreline and waters fronting the subject properties. The long-term impact of beach loss in front of the proposed seawall will affect opportunities for on-shore recreation, such as on-shore fishing and should be addressed in the Final EA.*

Section 3.8 Historic, archaeological and Cultural Resources in the Draft EA addresses the current on and off shore uses in the area.

“The shoreline along Mokuleia Beach is occasionally used by fisherman along the broader stretches of beach. Most are pole fishing however some throw-netting also occurs. Occasionally people have been observed walking on the shallow reef headlands and some recreational divers have also been sited. No specific cultural practitioners or cultural practices have been observed in the area”.

Section 4.2.2 Beach Profile

- 1. The Draft EA states the existing seawall has no effect on the beach profile. Provide the basis for your conclusion.*

Please refer to our response above in 4.2.1

Section 4.3.1 Groundwater

- 1. Further explain the lack of groundwater on the site.*

Section 4.3.1 states that there are no sources of ground water on the subject property. It should have stated that there are no developed potable sources of ground water on the property because the groundwater is brackish.

Section 4.7 Flora and Fauna

- 1. Please submit documentation that there is no significant impact on the flora and fauna in the area.*

We will send a letter to the U.S. Fish and Wildlife Service inquiring about any rare and endangered species that may be on the site.

Section 4.8 Historic, Archaeological and Cultural Resources

- 1. Please submit documentation from the State Office of Hawaiian Affairs that the agency has been consulted regarding impacts of the seawall.*

Please refer to Appendix A Pre-Consultation Comments in the Draft EA. There is a letter from the Office of Hawaiian Affairs (OHA) dated February 5, 2008 and a response to OHA dated February 27, 2008.

Section 5.1 No Action

- 1. These are not alleged violations: there are actual violations. These violations are stated in Section 1.1.*

The reference to the “alleged” violation refers to Conservation District Enforcement File No. OA-07-31 relating to an alleged unauthorized repair/reconstruction of a boulder revetment. This matter is currently subject to a pending contested case hearing and the outcome of the case has not yet been determined. The parties to the contested case hearing have agreed to stay the matter pending approval from the City for a variance to permit the construction of a permitted seawall.

Section 5.2 Removal of the Existing Seawall

- 1. Elaborate on the scientific statistical evidence of the catastrophic damage to support the claim of the loss of the structure.*

Please refer to the photographs below illustrating catastrophic damage to unprotected shoreline properties due to shoreline erosion.



1. *Please revise drawings to show overall wall height, above and below grade heights.*

The next iteration of the plans will indicate the overall wall height both above and below grade heights.

General Comments

1. *Please eliminate any redundancy in the EA. The Final EA should indicate in the narrative that the proposed structure extends into TMK: 6-8-003: 037 (as shown in the Wall Layout Plan)*

See the introduction on page 1 of the DEA that discusses that this Application for a Shoreline Setback Variance is for TMK (1) 6-8-003: 018 and 037. Also see Figure 4 on page 7. In the narrative we will explain that the variance and proposed engineered seawall will include both parcel 018 on which Elizabeth Dailey's home is located, and the adjacent parcel 037 which is also owned by the Dailey family.

2. *The Final EA should also explain the following:*

1. *Why a shoreline certification survey is not included for Parcel 37*

The first shoreline certification survey was prepared prior to the decision to include Parcel 37 in the shoreline setback variance application. The client was not aware of the fact that both parcels could be included in the application. When the client applies for shoreline certification both parcels will be included in the survey.

2. Why the sandbags on Parcel 37 remain even with the proposed structure (See Wall Layout Plan)

The next iteration of the plans will include protecting Parcel 37 and it will extend across the face of parcel 37. The inclusion of protecting Parcel 37 was a last minute decision. The sandbags are still on Parcel 37 because that is all that protects that parcel until a permanent seawall can be built.

Thank you for reviewing the DEA. If you have any questions or need more information please call me at (808) 596-4688.

Sincerely

A handwritten signature in black ink, appearing to read "Judy Mariant". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Judy Mariant
Project Manager

cc Michael Carroll, Attorney at Law

FAX TRANSMITTAL SHEET**ENVIRONMENTAL CENTER**

University of Hawaii

2500 Dole Street, Krauss Annex 19, Honolulu, HI 96822

Telephone: (808) 956-7361 Fax: (808) 956-3980

DATE: 9/22/2008

FROM: Peter Rappa
Environmental Review CoordinatorTO: Judy Mariant (597-1851)

Michael Carroll, Bays, Deaver, Lung, Rose & Holma
(533-4184)

Department of Planning & Permitting (527-6743)

OEQC (586-4186)SUBJECT: **REVIEW OF DRAFT EA
DAILEY SEAWALL PROJECT
MOKULEIA, OAHU**

No. of Pages: including cover sheet:4



UNIVERSITY
of HAWAII
MĀNOA

September 22, 2008
EA: 00314

Michael Dailey
c/o Michael Carroll
Bays, Deaver, Lung, Rose, Holma
P.O. Box 1760
Honolulu, HI 96813

Dear Mr. Dailey:

Draft Environmental Assessment
Dailey Seawall Project
Mokuleia, Oahu

The applicant proposes to remove an unauthorized existing concrete masonry rock structure and to replace it with an engineered seawall. The proposed bi-level seawall would include a walkway to provide lateral shoreline access to the public during high tide. The current structure encroaches in the 40-foot shoreline setback region. The applicant indicates that the replacement of the current structure is necessary given the close proximity of a residential dwelling to the concrete masonry rock structure. The proposed engineered wall will require a Shoreline Setback Variance from the City and County of Honolulu Department of Planning and Permitting.

This review was conducted with the assistance of Dolan Eversole, UH Sea Grant; and Ryan Riddle, Environmental Center.

Background (pp. 1-2)

On page 2 of the Draft Environmental Assessment (DEA) it is mentioned that the existing revetment was damaged during the winter of 2004-2005 and that emergency repairs were made at that time. Was a permit for the reconstruction of the seawall submitted at that time? Why wasn't a permanent solution to the failed seawall considered at that time?

Technical Characteristics (p. 9)

Crushed coral as backfill for trenches makai of the proposed seawall should not be used seaward of the shoreline. Dewatering equipment and sheetpile installations deemed necessary should be described.

Beach Characteristics (p. 14)

Please provide evidence supporting your assertion that the existing seawall does not impact the width of the beach. Elsewhere in the DEA it is stated that the elimination of the existing wall and long-

September 22, 2008

Page 2

term erosion would both result in residential damage. In addition, Section 3.1 indicates a potential source of sand to the beach that is being restricted due to the presence of artificial barriers along the coastline.

Economic Characteristics (p. 10)

It should not be assumed that a permit will be granted. Granting of a permit to build a structure in the shoreline is discretionary not ministerial.

Environmental Consequences (pp. 20-24)

The DEA fails to address the potential impact to water quality from excavation in the shoreline or dewatering. Allowing sediments to flow from construction projects into nearby receiving waters is a violation of the Clean Water Act. The potential for sedimentation to occur and mitigative measures to protect coastal waters should be discussed in this section.

Beach and Offshore (p. 20)

This section is missing a discussion of the cumulative long-term effects of the proposed engineered seawall.

Affected Shoreline (p. 21)

We disagree with the DEA's statement that the existing seawall has no effect upon the shoreline and that the construction of the engineered seawall will not alter the shoreline. Seawalls and other hardened structures have had the effect of scouring away beaches over time.

Beach Profile (p. 21)

The DEA states "The existing seawall has no effect on the beach profile at this time". Can you provide evidence supporting this assertion?

Foreshore (p. 21)

Can you provide evidence supporting the statement that the present seawall and engineered seawall will have no effect upon the foreshore area? The current revetment at the subject property has been dropping boulders on the adjacent beach which may have considerable impact if a boulder hits someone using the beach.

Hydrology (p. 21)

Section 4.3 discusses ways in which a project can hypothetically have significant hydrological adverse impacts, however the DEA does not mention whether this project fulfills any of the mentioned criteria.

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Page 3

Preferred Alternative (p. 26)

How will the decision on whether to re-use boulders and rocks from the existing structure be made?

What is the anticipated width of the public access walkway along the lower level of the seawall?

Findings and Determinations (pp. 27-28)

In response to criteria two, we do not agree that the project does not curtail the range of beneficial uses of the environment as the seawall will restrict landward movement of the shoreline and sediment from the littoral system.

In regards to criteria eight, the end scour issue encountered to the east needs to be addressed in order to support the assertion of no adverse cumulative effects.

In response to criteria eleven, again, we disagree with the given response that the seawalls have no effect on the existing littoral processes in the area.

Miscellaneous Comments

In addition to our comments on the contents of the DEA, we found a number of mistakes of an editorial nature. In the third paragraph on page 3, the word "wave" should be "waive". There is something wrong with the third sentence of the second paragraph on page 14. The citation to the *Atlas of Natural Hazards in the Hawaiian Coastal Zone* is given as 2004 on page 16, 22 and 34, and as 2002 in other sections of the DEA as well as in the Reference Cited section on page 38.

Thank you for the opportunity to review this Draft EIS.

Sincerely,



Peter Rappa
Environmental Review Coordinator

cc: OEQC
Judy Mariant, Wil Chee
DPP
James Moncur, WRRC
Dolan Eversole
Ryan Riddle



November 3, 2008

Peter Rappa
Environmental Center
University of Hawaii
2500 Dole Street, Krauss Annex 19
Honolulu, Hawaii 96822

Dear Mr. Rappa

Subject: Draft Environmental Assessment (DEA) for a Shoreline Setback Variance
Application for a Seawall 68-609 and 68-611 Farrington Highway (Mokuleia
Beach), Waialua, O`ahu, TMK: 6-8-3: 18 & 37

Thank you for your comments on the Draft Environmental Assessment. The comments are listed in order of the various sections in the draft EA. Each comment is in italics and is numbered. Our responses are in the paragraphs below each comment.

Section 1.1 Background

On page 2 of the Draft Environmental Assessment (DEA) it mentioned that the existing revetment was damaged during the winter of 2004-2005 and that emergency repairs were made at that time.

1. *Was a permit for the reconstruction of the seawall submitted at that time?*

An application for a permit was not submitted in 2005.

2. *Why wasn't a permanent solution to the failed seawall considered at that time?*

At that time the applicant believed that simply restoring the revetment to its pre-existing state would be sufficient and there was no reason to believe that a permit to construct a seawall was required at the time. This decision was based upon the fact that the original revetment worked for close to 40 years.

Section 1.2 Scope and Authority

1. *There is a typo under Project Information, Applicant's Representative.*

that the typo will be corrected in the final EA.

Section 2.3.1 Technical Characteristics

1. *Crushed coral as backfill for trenches makai of the proposed seawall should not be used seaward of the shoreline.*

We will change that section to designate that the most appropriate material available will be used to backfill on the beach side.

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- 2. Dewatering equipment and sheetpile installations deemed necessary should be described.*

A detailed description of best management practices and techniques for the construction phase will be completed by the contractor hired to build the structure. a detailed description of the construction phase is beyond the scope of this EA and is normally prepared prior to construction.

Section 3.2.2 Beach Characteristics

- 1. Please provide evidence supporting your assertion that the existing seawall does not impact the width of the beach.*

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 unprotect shoreline fronting the polo fields. The beach profile is uniform along this entire section of the shoreline. (EKNA, 2004).

The area in question undergoes a seasonal erosion and restoration pattern. This includes much of the Mokuleia shoreline that is already protected by seawalls. The eastern shoreline erodes during the winter and is restored in the summer, while the western end erodes in the summer and is restored in the winter (EKNA, 2004). It is unclear how this pattern will change if sea level continues to rise.

Seawalls do not affect the longshore of wave reflection from the near-vertical sediment processes; there may be some concern that cross-shore transport may be affected because of wave refraction 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, since 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.

Field studies conducted by EKNA services, 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 a near-vertical seawall as well as on the adjacent unprotected beach. (EKNA 2004,)

The debate as to whether or not a seawall affects the existing littoral processes has been argued in academic circles for many years. Some of the literature does indicate that the littoral processes are not affected by a seawall. Only after long term evaluations in diverse coastal environments can this debate finally be settled. Please refer to the four documents listed below which conclude that shoreline protection structures do not cause beach erosion.

EKNA. April 2004. Coastal Engineering Assessment of Existing Seawalls at Mokuleia Oahu, Hawaii. EKNA Control No. 2439-005#

U.S. Army Engineer Waterways Experiment Station, Coastal Engineering Research Center. Coastal Engineering Technical Note, CETN 111-46, (3/92), CTEN III-57 (6/95).

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Griggs, Tait, Corona. 1994. The Interaction of Seawalls and Beaches: Seven Years of Monitoring, Monterey Bay, California. Shore and Beach 62:21-28

2. *Elsewhere in the DEA it is stated that the elimination of the existing wall and long-term erosion would both result in residential damage.*

Please see the photographs below to see examples of residential damage that can and does occur on unprotected eroding shorelines world wide.



3. *In addition, Section 3.1 indicates a potential source of sand to the beach that is being restricted due to the presence of artificial barriers along the coastline.*

There is no reference to artificial barriers that are restricting a potential source of sand to the beach in the EA. There is a description of the regional geology and the soils.

Long-term erosion is occurring on coastlines around the world and shorelines globally are impacted by erosion caused by rising sea level. Sea level rise is caused by global warming that melts the glaciers which adds more water to the ocean basin and raise sea level. Warming also warms the ocean and the additional heat contributes to the alteration of ocean chemistry. These changes in ocean

chemistry profoundly affect Hawaii's sediment supply. Hawaii's sand is primarily composed carbonate grains produced by marine organisms. Biological production is down and now Hawaii's beaches have lost their major source of sand. Now Hawaii's sand must come from terrestrial sources or from dredging sand deposits offshore. Seawalls are not the cause of the lack of sand in Hawaii and the narrowing beaches. The need for seawalls is a symptom of the fact the global climate and ocean chemistry is rapidly changing and the evolution of marine organism that produce Hawaii's carbonate sand can not keep up with the changes in the marine environment.

Section 2.3.2 Economic Characteristics

- 1. It should not be assumed that a permit will be granted. Granting a permit to build a structure in the shoreline is discretionary not ministerial.*

We will change the wording in this section from “**When** the Shoreline Setback Variance is granted...” to “**If** the Shoreline Setback Variance is granted...”.

Section 4.0 Environmental Consequences

- 1. The DEA fails to address the potential impact to water quality from excavation in the shoreline or dewatering. Allowing sediments to flow from construction projects into nearby receiving waters is a violation of the Clean Water Act. The potential for sedimentation to occur and Mitigative measures to protect coastal waters should be discussed in this section.*

A detailed description of best management practices and techniques for the construction phase will be completed by the contractor hired to build the structure. A detailed description of the construction phase is beyond the scope of this EA and is normally prepared prior to construction.

Section 4.2 Beach and Offshore

- 1. This section is missing a discussion of the cumulative long term effects of the proposed engineered seawall.*

See response to comment on Section 4.2.1 below.

Section 4.2.1 Affected Shoreline

- 1. We disagree with the DEA's statement that the existing wall has no effect upon the shoreline and the construction of the engineered wall will not alter the shoreline. Seawalls and other hardened structures have had the effect of souring away beaches over time.*

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 fronting the polo fields. The beach profile is uniform along this entire section of the shoreline. (EKNA, 2004).

The area in question undergoes a seasonal erosion and restoration pattern. This includes much of the Mokuleia shoreline that is already protected by seawalls. The eastern shoreline erodes during the winter and is restored in the summer, while the western end erodes in the summer and is restored in the winter (EKNA, 2004). It is unclear how this pattern will change if sea level continues to rise.

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U.S. Army Engineer Waterways Experiment Station, Coastal Engineering Research Center. Coastal Engineering Technical Note, CETN 111-46, (3/92), CTEN III-57 (6/95).

Griggs, Tait, Plant. 1991. The Interaction of Seawalls and beaches: Four Years of Field Monitoring, Monterey Bay, California. Proceedings Coastal Sediments.

Griggs, Tait, Corona. 1994. The Interaction of Seawalls and Beaches: Seven Years of Monitoring, Monterey Bay, California. Shore and Beach 62:21-28

Section 4.2.2 Beach Profile

1. *The DEA states "The existing seawall has no effect on the beach profile at this time", Can you provide evidence supporting this assertion.*

Please refer to the response under Section 4.2.1 above.

Section 4.2.3 Foreshore

1. *Can you provide evidence supporting the statement that the present seawall and engineered seawall will have no effect upon the foreshore area?*

Please refer to the response under Section 4.2.1 above.

- 2. The current revetment at the subject property has been dropping boulders on the adjacent beach which may have considerable impact if a boulder hits someone using the beach.*

Currently only a small portion of the original revetment still exists. During periods of heavy wave action boulders are removed and deposited on the beach. Without strong wave action gravity would hold the boulders in place. If anyone was on the beach when the surf is strong enough to remove the boulders they would probably be washed offshore and drown prior to being hit by a boulder that has been removed by wave action.

The fact that waves can and do remove boulders is precisely why the client wishes to replace the revetment with an engineered seawall.

Section 4.3 Hydrology

- 1. Section 4.3 discusses ways in which a project can hypothetically have significant hydrological adverse impacts, however the DEA does not mention whether this project fulfills the mentioned criteria.*

Please read on through sections 4.3.1 Groundwater, 4.3.2 Surface water and Section 4.3.3 Flood and Tsunami Potential.

Section 5.5 Preferred Alternative

- 1. How will the decision on whether to re-use boulders and rocks from the existing structure be made?*

The contractor will determine which rocks have the appropriate size shape and density to be incorporated into an engineered seawall. Left over rocks may be used for landscaping or be removed from the site.

- 2. What is the anticipated width of the public access walkway along the lower level of the seawall.*

The plans indicate that the walkway will be three (3) feet wide. Please refer to the plans in Appendix D.

Section 6.0 Findings and Determinations

- 1. In response to criteria two, we do not agree that the project does not curtail the range of beneficial uses of the environment as the seawall will restrict landward movement of the shoreline and sediment from the littoral system.*

There is a vast range of interpretations on what constitutes a beneficial use of the environment. There is no clear solution or an interpretation that fits all situations. There are and always will be times when the one interpretation of the most beneficial use of the environment appears abhorrent to another.

- 2. In regard to criteria eight, the end scour issue encountered to the east needs to be addressed in order to support the assertion of no adverse cumulative effects.*

We will discuss the potential for scour at the eastern portion of the proposed structure with the both the project structural engineer and coastal engineer.

3. *In response to criteria eleven, again we disagree with the given response that the seawalls have no effect on the existing littoral processes in the area.*

See response to your comment on Section 4.2.1 above.

Miscellaneous Comments

1. *In the third paragraph on page 3 the word 'wave' should be "waive."*
This will be corrected in the Final EA.
2. *There is something wrong with the third sentence of the second paragraph on page 14*

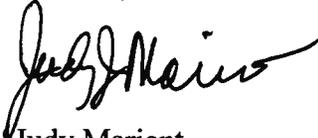
This sentence will be corrected in the Final EA.

3. *The citation to the atlas of Natural Hazards in the Hawaiian Coastal Zone is given as 2004 on page 16, 22, and 34, and as 2002 in other sections of the DEA as well as in the reference section on page 39.*

The citation will be corrected in the Final EA.

Thank you for reviewing the DEA. If you have any further questions or need more information please call me at (808) 596-4688.

Sincerely



Judy Mariant
Project Manager

cc Michael Carroll, Attorney at Law



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

HRD08/3523B

DEPT OF PLANNING
AND PERMITTING
CITY & COUNTY OF HONOLULU

08 SEP 24 AM 11:26

RECEIVED

September 16, 2008

William Ammons
City and County of Honolulu
Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, Hawai'i 96813

RE: Request for comments on the proposed shoreline setback variance and environmental assessment (EA), Mokulē'ia Beach, Waialua, O'ahu, TMKS: 6-8-003: 18 and 37.

Aloha e William Ammons,

The Office of Hawaiian Affairs (OHA) is in receipt of the above-mentioned letter dated August 12, 2008. OHA has reviewed the project and offers the following comments.

It is OHA's duty to "assess the policies and practices of other agencies impacting on native Hawaiians and Hawaiians, and conduct advocacy efforts for native Hawaiians and Hawaiians." Hawaii Revised Statutes (HRS) § 10-3(4). The proper analysis of environmental and cultural effects of projects helps us to ensure that our beneficiaries are not unduly harmed.

The lands which this project touches and concerns are ceded lands, as are all submerged lands. As such, OHA always requests of applicants that the lands be treated with the respect due to them, as they are part of the 1.8 million acres of land that belong to the Hawaiian monarchy and were transferred to the state when Hawai'i became a U.S. state.

OHA is also concerned that this project involves a loss and destruction of natural and constitutionally protected cultural resources. OHA finds that this project most likely curtails the beneficial use of the environment in an important and ever-shrinking public trust area. OHA also notes that this project conflicts with the state's, the county's, and the nation's long-term environmental policies, goals, and guidelines. (See, Coastal Zone Management Act of 1972(CZMA), as echoed in HRS, Chapter 205A-26(2)).

Congress declared a national policy to, among other things, "preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation's coastal zone for this and succeeding generations." 15 U.S.C. § 1452(1). Hawai'i mirrored this in HRS, Chapter 205A-2(b)(4), (9), (10), "protect[ing] beaches for public use and recreation," and "promot[ing] the protection, use, and development of marine and coastal resources to assure their sustainability." Further, Revised Ordinances of Honolulu Chapter 23 states that:

It is a primary policy of the city to protect and preserve the natural shoreline, especially sandy beaches; to protect and preserve public pedestrian access laterally along the shoreline and to the sea; and to protect and preserve open space along the shoreline.

It will be difficult for the applicant to make this project as proposed to conform to these stated goals, policies and purposes.

By proposing to construct a seawall on an uncertified shoreline, it is impossible to assess the potential impacts that this proposal presents. Compliance with regulations, including a shoreline setback and variance application cannot be rationally processed without this reasonable step as well. Therefore, OHA firstly and strongly urges that the applicant proceed with a shoreline certification for this project. This will also allow reviewers to properly determine impacts and recommend mitigations to better shape this project for the benefit of everyone.

OHA also urges the Department of Planning and Permitting not waive the shoreline certification process. The applicant states on page three of the EA that, "The rocks are stable and provide adequate support pending the permitting process." Therefore, there is no need to expedite this review, especially at the cost of such vital information and a much needed step as a shoreline certification. We also note that the applicant cites to a letter sent to the Department of Planning and Permitting to waive the shoreline certification in Appendix A; however, OHA cannot find such letter.

OHA further finds this environmental review to be awkwardly self-centered. The purpose of an environmental review is to "ensure that environmental concerns are given appropriate consideration in decision making along with economic and technical consideration." Hawai'i Administrative Rules (HAR) § 11-200-1. This EA should be an informational document to guide decision making. The most glaring example of this selfish review is the alternatives analysis section.

If ever there were a series of events that called for and allowed the landward retreat of a dynamic shoreline, this is it. The applicant states that their home is "Faced with the destruction and loss of their home" (EA, page three) due to the eroding shoreline. OHA notes that they have a 1.307 acre rectangular lot with plenty of empty space to re-locate mauka. OHA notes that the applicant would not be deprived of reasonable use of the land if required to comply fully with the shoreline setback ordinance and the shoreline setback rules.

The applicant chose to build their home so close to the sea that even in 1964 they needed to build "a rock shoreline structure" to "protect the home from erosion" (EA, page three) and has enjoyed the privileges of living there ever since. The applicant has even encroached onto ceded lands and the public trust beach (EA, page one) as well as placed unauthorized and harmful plastic sandbags in these areas (EA, page six, photo A) and created a safety hazard in the area (page seven of materials sent to OHA with the invitation to comment for our February 27, 2008 letter).

The applicant could reasonably re-locate or re-build their compromised (page five of the EA shows structural damage) house mauka from this threatening shoreline. This would eliminate their encroachment issues onto the public trust and ceded lands area. It would also assist with the contested case, open violation and settlement negotiations with the state that are ongoing. It could also avoid the need for a seawall altogether. In addition, if the applicant so chose, a seawall could still be built inside of the certified shoreline which would allow this shoreline to settle and could potentially increase their property value by having a pocket beach form in front of their home where currently there is none.

OHA was saddened when this obvious alternative was not even mentioned in the EA nor highlighted in the alternatives analysis section. The heart of an environmental review is its discussion of alternatives. Every EA must contain a rigorous and objective analysis of all reasonable alternatives to the proposed action, including a discussion of the no action alternative as a base-point to which the proposed action can be compared. OHA points out that while not every alternative must be considered, the existence of a viable but unexamined alternative renders an environmental impact statement inadequate.

Additionally, OHA notes that federal and state agencies are preparing for the advent of sea level rise. For example, the Coastal Zone Management Act at 16 USC §1451 (l) states, "Because global warming may result in a substantial sea level rise with serious adverse effects in the coastal zone, coastal states must anticipate and plan for such an occurrence." Therefore, because this project is so near the coast, we ask if the applicant has considered and designed for such adverse effects.

Additionally, because Hawai'i's beaches are public trust lands that are held by the state for the benefit of the public, any loss of our shoreline is a detriment to Hawai'i citizens as a whole. Native Hawaiians are also particularly harmed because the loss of access can hinder or prevent the practice of traditional and customary rights. As such, OHA was again disappointed by this EA. The cultural resources section on page 18 of the EA mentions constitutionally protected Native Hawaiian gathering as well as traditional and customary rights that occur in the area. However, the short section ends with, "No specific cultural practitioners or cultural practices have been observed in the area." This is untrue as noted in the EA itself.

OHA points out that the cultural impact assessment is required. According to the Guidelines for Assessing Cultural Impacts established by the Hawai'i State Office of Environmental Quality Control:

The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both manmade and natural, which support such cultural beliefs.

OHA takes exception to the statement on page 18 of the EA that states "Mokuleia has very few archeological sites." There are a number of heiau and fishing shrines, house sites, burials, and other important sites in the Waialua area. Therefore, OHA asks that, in accordance with Section 6E-46.6, Hawaii Revised Statutes and Chapter 13-300, Hawaii Administrative Rules, if the project moves forward, and if any significant cultural deposits or human skeletal remains are encountered, work shall stop in the immediate vicinity and the State Historic Preservation Division (SHPD/DLNR) shall be contacted.

OHA further objects to the self-centered and contradictory statement found on page two of the EA, "The (applicant's hired engineer) report concludes that the existing seawall has 'no effect on the existing littoral processes' at the site..."¹ The applicant states repeatedly that the seawall is needed to protect their home. OHA notes that the seawall obviously affects the littoral processes at the site; otherwise, there would be no need for it. The EA itself even states in section 4.2 that, "Beaches can often be profoundly changed or altered by the construction of a seawall."

Additionally, the statement in section 4.2.1 is confusing, "Erosion and beach retreat will occur with or without an engineered seawall." OHA understands that generally the purpose of a seawall is to stop shoreline erosion, which is why the applicant says they need one. Otherwise, there would essentially be no need for this proposed action. Beach retreat in the project area has already occurred, which is why there is a wet seawall there. This should be clarified.

OHA also points out that the hydrology sections of the EA (3.3 and 4.3) are not more than definitions. There is absolutely no analysis presented in these sections. Reviewers are not able to offer comments to help better shape this proposal without data or even the most general of information regarding this topic. Similarly the flora and fauna section of the EA (3.7 and 4.7) are very brief. Section 4.7 is only two sentences long and one of them ends with, "...it is unlikely that there are any rare or endangered species in situ." OHA points out that "unlikely" is not a suitable standard for endangered species analysis in an environmental review.

¹ OHA notes that page 21 of the EA also erringly states that, "The existing seawall has no effect on the shoreline..."

William Ammons
September 16, 2008
Page 5

OHA also notes that if the water table is reached during subsurface excavation, a State Department of Health National Pollutant Discharge Permit under the Clean Water Act, Section 402 is required. This would also apply for any dewatering as mentioned on page ten of the EA. We also ask if the Department of the Army has been contacted for a jurisdictional determination regarding any permits that may be required through them. We suggest that the applicant include a list of permits required in the EA.

Thank you for the opportunity to comment. If you have further questions, please contact Grant Arnold by phone at (808) 594-0263 or e-mail him at granta@oha.org.

'O wau iho nō me ka 'oia'i'o,



Clyde W. Nāmu'o
Administrator

- C: Office of Environmental Quality Control
235 S. Beretania St., Suite 702
Honolulu, Hawai'i 96813

- C: Department of the Army
Regulatory Branch
U.S. Army Engineer District
Ft. Shafter, Hawai'i 96858-5440

- C: Sam Lemmo
Office of Conservation and Coastal Lands
PO Box 621
Honolulu, Hawai'i 96809

the immediate vicinity and the State Historic Preservation Division (SHPD) will be consulted.

3. *OHA also notes that this project conflicts with the state's, the county's and the nation's long-term environmental policies, goals, and guidelines. (See Coastal Zone Management Act of 1972 (CZMA), as echoed in HRS, Chapter 205A-26(2)).*

The Federal Coastal Zone Management Act of 1972 provides guidelines for states and mandates that states set up both a state and county coastal management program. There is no conflict with this proposed action and the state and county coastal management program.

A shoreline setback variance is allowed under ROH Chapter 23, Article 1. HRS Chapter 205A on coastal management provide guidelines for granting a variance in §205A-46 Variances.

Guidelines for assessing Shoreline Alteration and Hardening Projects are outlined in HRS Chapter 205A. The Environmental Assessment for this proposed action follows those guidelines and meets those guidelines in great detail.

4. *Congress declared a national policy to, among other things, "preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation's coastal zone for this and succeeding generations." 15 U.S.C. § 1452(1). Hawai'i mirrored this in HRS, Chapter 205A-2(b)(4), (9), (10), "protect[ing] beaches for public use and recreation"; and "promot[ing] the protection, use, and development of marine and coastal resources that assure their sustainability." Further, Revised Ordinances of Honolulu Chapter 23 States that:*

It is a primary policy of the City to protect and preserve the natural shoreline, especially sandy beaches; to protect and preserve public pedestrian access laterally along the shoreline and to the sea; and to protect and preserve open space along the shoreline.

It will be difficult for the applicant to make this project as proposed to conform to these stated goals, policies and purposes.

Please read the entire section 2.0 Description of the Proposed Action in the DEA. The proposed action conforms to and is similar to numerous other permitted walls along this portion of the Mokuleia shoreline. Next please read Section 2.3.1 Technical Characteristics which describes the two level wall that will provide public lateral access at high tide.

5. *By proposing to construct a seawall on an uncertified shoreline, it is impossible to assess the potential impacts that this proposal presents. Compliance with regulations, including a shoreline setback and variance application cannot be rationally processed without this reasonable step as well. There fore, OHA firstly and strongly urges that the applicant proceed with a shoreline certification for this project. This will also allow reviewers to properly determine impacts and recommend mitigations to better shape this project for the benefic of everyone.*



November 3, 2008

Clyde W. Nāmu`o, Administrator
Office of Hawaiian Affairs
State of Hawaii
711 Kap`iolani Boulevard, Suite 500
Honolulu, Hawai`i 96813

Dear, Mr. Nāmu`o

Subject: Draft Environmental Assessment (DEA) for a Shoreline Setback Variance
Application for a Seawall at 68-609 and 68-611 Farrington Highway (Mokuleia
Beach), Waialua, O`ahu, TMK: 6-8-3: 18 & 37

Thank you for your letter of September 16, 2008, regarding the subject DEA. Your comments are reproduced in italics below and are numbered. Our response follows each comment.

- 1. The lands which this project touches and concerns are ceded lands, as are all submerged lands. As such, OHA always requests of applicants that the lands be treated with respect due to them, as they are part of the 1.8 million acres of land that belong to the Hawaiian monarchy and are transferred to the state when Hawai`i became a U.S. state.*

Ceded lands will not be involved in this proposed project. The engineered permitted seawall will be inland of a delineated certified shoreline which is not submerged.

- 2. OHA is also concerned that this project involves a loss and destruction of natural and constitutionally protected cultural resources. OHA finds that this project most likely curtails the beneficial use of the environment in an important and ever-shrinking public trust area.*

Please refer to Section 2.2 of the DEA for a description of existing site conditions, Section 3.8 for a discussion on existing historic, archaeological and cultural resources, and Section 4.8 for a discussion on the impacts of the project on archaeological and cultural resources. Sections 3.7 and 4.7 cover a similar discussion on natural (biological) resources. These sections provide a detailed description of the site and the potential for any cultural and natural resources that may or may not be on the site. Please recall that the site was developed in the 1960's and at that time nothing was found. Additionally, no cultural and archaeological resources have been found in the last 44 years. It is extremely unlikely that any would be found at this late date. However, should the proposed engineered seawall be permitted, during construction, if any cultural deposits or human skeletal remains are encountered, work shall stop in

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OHA also urges the Department of Planning and Permitting not to waive the shoreline certification process. The Applicant states on page three of the EA that, "The rocks are stable and provide adequate support pending the permitting process." Therefore, there is no need to expedite this review, especially at the cost of such vital information and a much need step as a shoreline certification. We also note the Applicant cites to a letter sent to the Department of Planning and Permitting to waive the shoreline certification in Appendix A; however OHA can not find such a letter.

On June 4, 2008 a request for waiver of a Shoreline Certification by the Department of Land and Natural Resources (DLNR) State of Hawai'i was sent to the City Department of Planning and Permitting (DPP). On June 20, 2008 a waiver was granted by DPP for the purposes of preparing an application for a Shoreline Setback Variance (SSV) and the letter further stated that a certified shoreline will be one of the conditions of the Variance. The documentation of this request and DPP's response will be included in the Final EA as well as a paragraph in the text describing the waiver and the purpose of the waiver. (Please see attached correspondence.)

It should be noted that the purpose of the waiver is not to release the applicant from ever obtaining a certified shoreline. The purpose of the waiver is to allow the applicant to prepare a SSV application pending shoreline certification. This is because the State Department of Land and Natural Resources will not issue a shoreline certification until an SSV has been issued and all permitting of the seawall has been completed. This leaves the applicant in a "Catch 22" position. To resolve this situation, City regulations for the Department of Land Utilization (now Department of Planning and Permitting) allow for a waiver under Part 2: Rules Relating to Shoreline Setbacks and the Special Management Area, §13-5 Waiver of certified shoreline survey. The waiver is only for the purposes of preparing the SSV application. The requirement to obtain a certified shoreline is then made a condition of the SSV.

After the SSV has been issued another "Catch 22" situation arises. DPP will not issue construction permits until a certified shoreline is approved and DLNR will not approve a certified shoreline until a construction permit is issued. To alleviate this situation DLNR has recently instituted a procedure whereby a shoreline will be certified prior to receiving a building permit, provided that the applicant puts up a bond to cover the cost off removing the illegal shoreline protection structure, in the event that the legal engineered shoreline protection structure is not built.

6. *OHA further finds this environmental review to be awkwardly self-centered. The purpose of an environmental review is to "ensure that environmental concerns are given appropriate consideration in decision making along with economic and technical consideration." Hawai'i Administrative rules (HAR) § 11-200-1. This EA should be an informational document to guide decision making. The most glaring example of this selfish review is the alternatives analysis section.*

HRS 343 sets up the guidelines for the environmental review process. The purpose of an Environmental Assessment is to evaluate a proposed action and the environmental effects of that action. The existing condition is used as a Baseline Condition to

attempt to predict how it may or may not affect future environmental conditions. This EA provides all of the information required under HRS 343.

7. *If ever there were a series of events that called for and allowed the landward retreat of a dynamic shoreline, this is it. The applicant states that their home is "Faced with the destruction and loss of their home" (EA, page three) due to the eroding shoreline. OHA notes that they have a 1.307 acre rectangular lot with plenty of empty space to re-locate mauka. OHA notes that the applicant would not be deprived of reasonable use of the land if required to comply fully with the shoreline setback ordinance and the shoreline setback rules.*

The house has a slab on grade foundation and it is built out of mortared brick. It **cannot** be moved. It would have to be totally rebuilt. This would deprive the applicant of a reasonable use of the land and it would also result in severe hardship for the applicant if they are required to totally rebuild their residence. The proposed action is the practicable alternative which conforms best to the purpose of the shoreline setback regulations.

8. *The applicant chose to build their home so close to the sea that even in 1964 they needed to build "a rock shoreline structure" to "protect the home from erosion" (EA, page three) and has enjoyed the privileges of living there ever since.*

The house was built in 1965 not 1964 and the rock revetment was emplaced shortly thereafter when it became evident the shoreline was retreating. When the house was constructed the shoreline was farther from the house. Please recall that Hawaii's shorelines have been eroding since sea level rise began after the peak of the last ice age 18,000 to 20,000 years ago.

9. *The applicant has even encroached onto ceded lands and the public trust beach (EA, page one) as well as placed unauthorized and harmful plastic sandbags in these areas (EA, page six, Photo A) and created a safety hazard in these areas (EA, page six, photo A) and created a safety hazard in the area (page seven of materials sent to OHA with the invitation to comment for our February 27, 2008 letter).*

The applicant did not purposefully or deliberately place rocks on the beach. The rocks were removed from their original location by large waves and the back wash from the waves moved them offshore. DLNR is aware of the presence of the sand bags and DLNR provided guidelines for the emplacement and type of sand bags to use.

10. *The applicant could reasonably re-locate or re-build their compromised (page five of the EA shows structural damage) house mauka from this threatening shoreline. This would eliminate their encroachment issues onto the public trust and ceded lands area.*

The house has a slab on grade foundation and it is built out of mortared brick. It **cannot** be moved. It would have to be totally rebuilt. This would deprive the applicant of a reasonable use of the land and it would also result in severe hardship for the applicant if they are required to totally rebuild their residence. The proposed action is the practicable alternative which conforms best to the purpose of the shoreline setback regulations.

- 11 It would also assist with the contested case, open violation and settlement negotiations with the state that are ongoing. It could also avoid the need for a seawall altogether.*

The house was built in 1965 and the rock revetment was emplaced shortly thereafter when it became evident that the shoreline was retreating. When the house was constructed the shoreline was farther from the house. The intent is to construct an engineered permitted sea wall mauka of the certified shoreline.

- 12 In addition, if the applicant so chose, a seawall could still be built inside of the certified shoreline which would allow this shoreline to settle and could potentially increase their property value by having a pocket beach form in front of their home where currently there is none.*

A beach makai of the property currently exists, please see Figures 2 and 6.

- 13 OHA was saddened when this obvious alternative was not even mentioned in the EA nor highlighted in the alternatives analysis section. The heart of an environmental review is its discussion of alternatives. Every EA must contain a rigorous and objective analysis of all reasonable alternatives to the proposed action, including a discussion of the no action alternative as a base-point to which the proposed action can be compared. OHA points out that while not every alternative must be considered, the existence of a viable but unexamined alternative renders an environmental impact statement inadequate.*

The no action alternative was included in the EA please see page 24. Moving the house was not considered as an alternative simply because it is not feasible.

The house has a slab on grade foundation and it is built out of mortared brick. It can not be moved. It would have to be totally rebuilt. This would deprive the applicant of a reasonable use of the land and it would also result in severe hardship for the applicant. The proposal is the practicable alternative which conforms best to the purpose of the shoreline setback regulations.

- 14. Additionally, OHA notes that federal and state agencies are preparing for the advent of sea level rise. For example, the Coastal Zone Management Act at 16 USC § 1451 (1) states, "Because global warming may result in substantial sea level rise with serious adverse effects in the coastal zone, coastal states must anticipate and plan for such an occurrence." Therefore, because this project is so near the coast, we ask if the applicant has considered and designed for such adverse effects.*

The proposed permitted engineered wall will provide adequate protection for the lifetime of the structure and the residents. It is anticipated that even with accelerated global warming due to the green house effect and the rate of sea level change this proposed action will extend the use of the property for many years.

- 15 Additionally, because Hawaii's beaches are public trust lands that are held by the state for the benefit of the public, any loss of our shoreline is a detriment to Hawaii's citizens as a whole. Native Hawaiians are also particularly harmed because the loss of access can hinder or prevent the practice or traditional and customary rites. As such OHA was again disappointed by this EA. The cultural resources section on*

page 18 of the EA mentions constitutionally protected Native Hawaiian gathering as well as traditional and customary rights that occur in the area. However, the short section ends with, "No specific cultural practitioners or cultural practices have been observed in the area." This is untrue as noted in the EA itself.

OHA points out that the cultural impact assessment is required. According to the Guidelines for Assessing Cultural Impacts established by the Hawaii State Office of Environmental Quality Control:

The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational and religious and spiritual customs. The types of cultural resources subject to assessment may include traditional properties or other types of historic sites, both manmade and natural, which support such cultural beliefs.

No observed or recorded cultural sites or practices are located on the subject property. If you know of any please provide information on their locations and proof that they are authentic. Literature indicates that there are no known sites on the properties in question.

- 16 *OHA takes exception to the statement on page 18 of the EA that states "Mokuleia has very few archaeological sites." There are a number of heiau and fishing shrines, house sites, burials, and other important sites in the Waialua area.*

The property is not in the Waialua area it is in Mokuleia.

- 17 *Therefore, OHA asks that, in accordance with Section 6E-46.6, Hawaii Revised Statutes and Chapter 13-300, Hawaii Administrative Rules, if the project moves forward, and if any significant cultural deposits or human skeletal remains are encountered, work shall stop in the immediate vicinity and the State Historic Preservation Division (SHPD/DLNR) shall be consulted.*

Please see Section 4.8, page 22, of the DEA which states "Should significant archaeological features be uncovered, construction will be immediately halted, and archaeological consultation will be sought with the Department of Land and Natural Resources, Historic Preservation Division in accordance with applicable regulations."

- 18 *OHA further objects to the self-centered and contradictory statement found on page two of the EA, "The (applicant's hired engineer) report concludes that the existing seawall has 'no effect on the existing littoral processes' at the site."*

Long-term erosion is occurring on coastlines around the world and shorelines globally are impacted by erosion caused by rising sea level. Sea level rise is caused by global warming that melts the glaciers which adds more water to the ocean basin and raises the sea level. Warming also warms the ocean and the additional heat contributes to the alteration of ocean chemistry. These changes in ocean chemistry profoundly affect Hawaii's sediment supply. Hawaii's sand is primarily composed carbonate grains produced by marine organisms. Biological production is down and now Hawaii's beaches have lost their major source of sand.

Seawalls are not the cause of narrowing beaches. The need for seawalls is a symptom of rapid changes in global climate and ocean chemistry. Marine organisms cannot adapt fast enough to keep up with the changes in the marine environment.

The area in question undergoes a seasonal erosion and restoration pattern. This includes much of the Mokuleia shoreline that is already protected by seawalls. The eastern shoreline erodes during the winter and is restored in the summer, while the western end erodes in the summer and is restored in the winter (EKNA, 2004). It is unclear how this pattern will change if sea level continues to rise.

There may be some concern that cross-shore transport may be affected because of wave reflection from near-vertical impermeable faces of a seawall. It has been a generally held presumption that the more reflective the structure, the greater potential for adverse impacts by discouraging sand accumulation in front of the structure. However, because beach and shoreline erosion is continuing to occur along this coastline and elsewhere where there are no shore protection structures, it can be concluded that the long-term erosion trend is a natural process that will certainly not reverse simply by constructing shore protection structures with a sloping porous surface. In fact, long-term field studies by the University of California at Santa Cruz 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 (EKNA, 2004).

Field studies by EKNA Services Inc. at Aliomanu, Kauai, demonstrated that seasonal cross-shore transport is unaffected by an existing seawall. Monitoring of beach profiles over a four month period indicated that beach accretion occurred in front of the near-vertical seawall as well as on the adjacent unprotected beach.

The debate as to whether or not a seawall affects the existing littoral processes has been argued in academic circles for many years. . Only after long term evaluations in diverse coastal environments can this debate finally be settled. Some of the literature does indicate that the littoral processes are not affected by a seawall. Please refer to the documents listed below that conclude that seawalls do not affect the shoreline.

EKNA. April 2004. Coastal Engineering Assessment of Existing Seawalls at Mokuleia Oahu, Hawaii. EKNA Control No. 2439-005#

U, S. Army Engineer Waterways Experiment Station, Coastal Engineering Research Center. Coastal Engineering Technical Note, CETN 111-46, (3/92), CTEN III-57 (6/95).

Griggs, Tait, Plant. 1991. The Interaction of Seawalls and beaches: Four Years of Field Monitoring, Monterey Bay California. Proceedings Coastal Sediments.

Griggs, Tait, Corona. 1994. The Interaction of Seawalls and Beaches: Seven Years of Monitoring, Monterey Bay California. Shore and Beach 62:21-28

19 The applicant states repeatedly that the seawall is needed to protect their home. OHA notes that the seawall obviously affects the littoral processes at the site: otherwise, there would be no need for it. The EA itself even states in section 4.2 that,

“Beaches can often be profoundly changed or altered by the construction of a seawall”.

Please refer to the previous response number 18 above.

20. *Additionally, the statement in section 4.2.1 is confusing, “Erosion and beach retreat will occur with or without an engineered seawall”. OHA understands that generally the purpose of a seawall is to stop shoreline erosion, which is why the applicant says they need one. Otherwise there would essentially be no need for this proposed action. Beach retreat in the project area has already occurred, which is why there is a wet seawall there. This should be clarified.*

Please refer to the answer to number 19 above. It is true that, in the long run, erosion and beach retreat will occur naturally, with or without an engineered seawall. The point is that without a shoreline protective structure erosion could occur very rapidly, especially during catastrophic storm events. One such storm event displaced boulders from the original revetment structure which was constructed shortly after the house was built in the 1960's.

21. *OHA also points out that the hydrology sections of the EA (3.3 and 4.3) are not more than definitions. There is absolutely no analysis presented in these sections. Reviewers are not able to offer comments to help better shape this proposal without data or even the most general of information regarding this topic.*

There is no potable source of ground water in the area. The groundwater is brackish (mix of fresh and salt water). The U.S. Department of Agriculture soil conservation Service (Foote 35 al. 1972) page 49 states that “in areas near the ocean Jaucas sandy soils found on the site contains a high concentration of soluble salts”. No ground water will be extracted and during construction of the proposed seawall best management practices will be employed by the contractor to insure that there is no runoff of muddy or tainted water.

22. *Similarly the flora and fauna section of the EA (3.7 & and 4.7) are very brief. Section 4.7 is only two sentences long and one of them ends with, “ it is unlikely that there are any rare of endangered species in situ.” OHA points out that “unlikely” is not a suitable standard for endangered species analysis in an environmental review.*

The purpose of an EA is to briefly describe the conditions and then briefly describe the potential impacts. Please recall the site was developed in 1965 and has been used as a primary residence. No rare and endangered species have ever been found on the site. It is unlikely that any would be found on the site now. However, we will seek confirmation of this from the U.S. Fish and Wildlife Service.

- 23 *OHA also notes that if the water table is reached during subsurface excavation a State Department of Health National Pollutant Discharge Permit under the Clean Water Act, Section 402 is required. This would also apply for any dewatering mentioned on page ten of the EA.*

A NPDES permit is only required when an area greater than one acre is to be disturbed during construction. The removal of an old wall and replacing it with an engineered permitted wall will not result in the disturbance of more than one acre.

24 We also ask if the Department of the Army has been contacted for a jurisdictional determination regarding any permits that may be required.

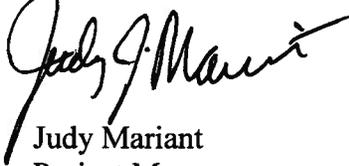
Yes, the Department of the Army was consulted. Please refer to Appendix A: Pre Consultation Comments where you will find a letter to the U.S. Army Corps of Engineer District, Honolulu. Also, a copy of the DEA was sent to the Army and they responded in a letter dated September 22, 2008. This letter will be appended in the Final EA.

25. We also suggest that the applicant include a list of permits required in the EA.

Please refer to page 4 of the DEA that lists the permits and approvals required.

Thank you for reviewing the subject DEA. If you have any further questions or need more information please call me at (808) 596-4688.

Sincerely



Judy Mariant
Project Manager

cc Michael Carroll, Attorney at Law

Appendix B Coastal Engineers Recommendations



EKNA Services, Inc.

CN 2618-01F#

May 22, 2007

Bays, Deaver, Lung, Rose and Baba
P.O. Box 1760
Honolulu, Hawaii 96806

Attn: Michael Carroll

Subject: Michael Dailey Residence at Mokuleia, Oahu
TMK:(1)6-8-003:018
Shoreline Protection Assessment

Gentlemen:

At your request, the undersigned conducted a site visit on the morning of May 22, 2007 to assess the present condition of the shoreline at the subject property and adjacent properties. Apparently, shoreline erosion has prompted your client to reconstruct the shoreline protection structure without obtaining permits. The existing shoreline protection structure is the subject of enforcement action by the State of Hawaii, Department of Land and Natural Resources (DLNR), Office of Conservation and Coastal Lands (OCCL). You have indicated your client's desire to construct/reconstruct a properly permitted shoreline protection structure. However, it is his desire to retain the existing structure until such time as the permits are obtained. The purpose of this letter is to provide an opinion regarding the present impacts of the existing shore protection structure to the beach processes at the site, and the potential consequences of removing the existing structure prior to the construction of properly permitted shoreline protection measure(s). This letter also provides recommendations for practicable options to protect the residence from continuing erosion damage.

Site characteristics and impacts of the seawall

The existing shore protection structure is a seawall comprised of very large boulders with a concrete cap. Boulders had been previously placed on the shoreline in the form of a revetment. These boulders were re-used to build the existing seawall, and a few boulders are still situated along the seaward base of the wall. The boulders also remain along a short reach between the property's seawall and the Mokuleia Beach Colony ("Colony") seawall. The seawall has a curved flank section at the east end of the property. The top elevation of the wall is estimated to be about +10 to +12 feet MLLW. The sand elevation along the base of the seawall is estimated to vary between +3 to +5 feet MLLW.

Engineers
and
Environmental
Consultants

Engineering
Planning
Surveys
Computer
Modeling

615 Piikoi Street
Suite 300
Honolulu, Hawaii
96814-3139

Telephone:
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(808) 593-8555

Michael Carroll
May 22, 2007
Page 2

This north shore coastal reach is suffering long-term erosion. The site is exposed to winter North Pacific swell and the predominant tradewind waves. Shallow fringing reef flats 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. The Colony seawall is estimated to have been constructed roughly 20 years ago, and the two adjacent properties to the west of the Colony property constructed seawalls about 5 years ago. The Colony property and the subject property are on a reef "headland" that protrudes seaward from shore, with embayments situated eastward and westward (see attached aerial photo). The beach is the narrowest fronting the Colony and the subject property because of their location at the tip of the headland. The beach widens eastward and westward into the embayments.

The existing seawall has no effect on the existing littoral processes at this site. The seawall is functionally consistent with adjacent existing seawalls along this coastal reach. The existing seawalls do not alter seasonal erosion/accretion patterns. However, there has been aggravated scouring at the immediate east end of the seawall, likely due to wave reflection off of the flank section of the seawall. This is a localized phenomenon, and does not impact other property owners as this adjacent property is also owned by Mr. Dailey. Sandbags are being used to stabilize this shoreline area.

Potential consequences of removing the existing seawall

It is obvious that removing the seawall at this time, without replacing it with another shore protection structure, will result in catastrophic damage to the existing dwelling on the property. The dwelling is situated about 20 feet from the edge of the seawall, and is a slab-on-grade structure, with brick/CMU exterior walls. The foundation of the dwelling has already experienced differential settling, as is evidenced by cracks in the exterior walls that have been patched with sealant. Removal of the existing seawall with no retaining structure to support the foundation of the dwelling will lead to substantial structural damage to the dwelling as the shoreline embankment collapses and is eroded by winter storm waves. As it will take at least a year or longer to obtain permits for the shore protection structure (or replacement structure), the existing seawall must be left in place to maintain the habitability of the dwelling. If the existing seawall and boulders are completely removed, continuing erosion will also likely impact the Colony property by causing flanking of their seawall.

Practicable options for shoreline protection/stabilization

Because of the location of the subject property on the headland, and the existing seawall fronting the Colony property, the most reasonable option is to provide a seawall similar to the Colony's seawall. It is unknown whether the subject property's seawall is properly designed and constructed for the site conditions. For example, the bottom of the seawall should be placed on

Michael Carroll
May 22, 2007
Page 3

the hard reef limestone foundation, or excavated and placed to a depth that will prevent scouring and differential settlement. The landward side of the seawall should also be protected with geotextile fabric to prevent leaching of backfill through voids in the wall. Weep holes should also be provided to allow drainage of overtopping water. An improperly designed and constructed seawall can lead to the formation of sinkholes on the mauka side of the seawall, and cracking due to differential settlement. It is recommended that a structural engineer be retained to evaluate the structural integrity of the existing seawall.

There is not enough space on the property to construct a properly designed revetment. Assuming a crest elevation of 12 feet and toe elevation of -3 feet, the horizontal footprint of the revetment slope would be 30 feet for a 1V:2H slope. The rock layer thickness would add another 8 feet or so, resulting in a total horizontal footprint of about 40 feet. A revetment structure would cover (displace) the existing beach and extend into the water. Such a structure would likely be less able to allow sand bypassing around the headland compared to the continuation of the seawall from the Colony property across the subject property.

Beach nourishment is not a viable option for this headland property. The large quantity of sand required is not available on this island. Any small quantity of sand placed in front of this property, which is at the tip of the headland, will be quickly transported eastward and westward into the embayments, and will not serve as adequate shoreline protection to prevent wave and erosion damage to the dwelling.

I trust this letter adequately addresses the issues at hand. Please contact me if you require additional services related to this matter.

Very truly yours,


Elaine E. Tamaye
President

enclosure: aerial photo



ELAINE E. TAMAYE

President, EKNA Services, Inc.

Ms. Tamaye is the President and Principal-in-charge of the Environmental and Ocean Engineering groups. With over twenty-five years of experience, she is the principal engineer responsible for coastal engineering analysis and conceptual design. She also manages and provides quality assurance for hazardous materials and remedial action investigations, asbestos and lead paint investigations, and a range of other environmental activities.

EDUCATION

University of Hawaii, M.S. Ocean Engineering, 1977 (Coastal Engineering)
University of Hawaii, B.S. General Engineering, 1974 (Marine Environmental Engineering)

EXPERIENCE

Edward K. Noda and Associates, Inc. / EKNA Services, Inc.
1983 to present

Following are some of Ms. Tamaye's notable projects:

Hawaii Shoreline Erosion Management Study, Overview and Case Study Sites. EKNA was the prime consultant on this study for the Office of State Planning, CZM Program, to provide a comprehensive overview of erosion and erosion management in Hawaii, as an initial step towards the goal of developing a uniform method or regulatory process for the implementation of structural and non-structural measures. As program manager, Ms. Tamaye was responsible for specific study tasks which included the development of recommendations and the examination of three case study sites (Makaha-Oahu, Kailua/Lanikai-Oahu, Kukuilua/Poipu-Kauai).

Statewide Highway Shoreline Protection Study. Ms. Tamaye was the Principal-in-charge of a contract with the State of Hawaii, Department of Transportation, Highways Division, to develop a long-range master plan for protection and mitigation of wave and erosion damage to the statewide highway system. Major work activities included an inventory to identify the problem areas on each island, analysis of shoreline changes and development of recommendations for dealing with the erosion/wave problem at each problem area, and prioritization and development of an implementation timetable.

Hurricane-Induced Coastal Inundation Program (HICUP™ 2.1). Ms. Tamaye was the program manager for the development of a unique computer software application which enables real-time predictions of Hawaiian island coastal inundation due to an approaching hurricane. HICUP™ is a modular program that permits user input of the hurricane parameters, user selection of the specific coastal area of interest, computation of hurricane wind/wave fields, numerical modeling of wave transformation and wave setup on a 2-dimensional numerical grid of the nearshore and shoreline area selected, and the prediction of the spatial extent of coastal inundation plotted over a USGS map of the selected coastal reach. Funded by the National Defense Center of Excellence for Research in Ocean Sciences (CEROS), the computer program was designed to run on PC-based systems to allow practical application to specific sites of interest. The software application was

Elaine E. Tamaye

calibrated and verified for sites on the south shore of Kauai, west shore of Oahu, and south side of Maui using data from Hurricanes Iwa and Iniki.

Ke'ehi Lagoon Recreation Plan and Environmental Impact Statement. Under contract with the State of Hawaii Department of Transportation, Harbors Division, Ms. Tamaye was the project manager for this program which included initial conceptual planning and design for boating improvements in Ke'ehi Lagoon related to the America's Cup Race. Subsequent efforts included updating the entire recreation master plan for Ke'ehi Lagoon and preparation of an Environmental Impact Statement for the proposed dredge/fill development of the lagoon.

Waikiki Beach Improvements. This project for the State Harbors Division and Department of Land and Natural Resources, Boating and Ocean Recreation Division, involved an extensive program of environmental, coastal engineering, and feasibility evaluations to identify conceptual alternative plans for beach improvements from Fort DeRussy to the Waikiki Aquarium. Ms. Tamaye was the program manager and coastal engineer for this multi-tasked team effort involving marine biota surveys, offshore sand source surveys, 15-month wave gaging program, current measurement program, numerical modeling, three-dimensional hydraulic modeling, and environmental impact studies. The program also included specific plans for Kuhio Beach improvements, including a demonstration offshore sand pumping effort and the Environmental Assessment for the proposed beach improvement project.

Kakaako Waterfront Park. Phase 1 of the Kakaako Waterfront Park was completed by the Hawaii Community Development Authority (HCDA), providing landscaped open space and continuous shoreline promenade with observation areas and ocean access points, encompassing about 30 acres of the Kakaako Makai Area. Ms. Tamaye was responsible for designing the 2,400 linear feet of new shoreline revetment, which improved the safety and aesthetics along the previously badly deteriorated landfilled shoreline. Additional phases included an offshore beach park and inland waterways, which have not been constructed to date.

The Admiral Clarey Bridge to Ford Island. This project for the U.S. Navy involved the design and construction of the bridge to Ford Island. As a member of the design/build project team, Ms. Tamaye was responsible for the coastal and ocean engineering design criteria for the bridge. She was also responsible for the project environmental requirements, including environmental investigations and permits such as a Department of the Army Permit, Section 401 Water Quality Certification, and NPDES/NOI for construction activity dewatering and stormwater discharges.

Civil/Hydraulic Engineer
U. S. Army Corps of Engineers, Pacific Ocean Division
1977 to 1983

Ms. Tamaye served as hydraulic engineer performing coastal engineering planning and design studies, 1977-1982. She was the responsible project manager for design of navigation and shore protection projects, preparation of planning/project reports, and plans and specifications for construction. She was involved in numerous coastal projects throughout the Pacific Basin, including Hawaii, Guam, Commonwealth of the Northern Mariana Islands, and American Samoa.

Appendix C Soils Report



Hirata & Associates

Geotechnical
Engineering

Hirata & Associates, Inc.

99-1433 Koaha Pl
Aiea, HI 96701
tel 808.486.0787
fax 808.486.0870

MEMORANDUM

December 13, 2007

W.O. 07-4517

TO: Michael Carroll
Bays, Deaver, Lung, Rose & Holma
email: mcarroll@legalhawaii.com

FROM: Con Truong

RE: Preliminary Recommendations
Shoreline Protection Seawall
Michael Dailey Residence
Mokuleia, Oahu, Hawaii

Our fieldwork for the subject project was completed on November 7, 2007 by drilling two test borings to depths of about 23 and 25 feet. Both borings were drilled behind the existing seawall as the beach fronting the wall was inundated in about 12 inches of water at the time of our fieldwork. The existing seawall was about 7.5 feet tall at the location of our borings. Attached are copies of the draft boring logs.

Below a thin layer of brown clayey silt at the surface, the near surface soil behind the existing seawall consists of brown to tan, medium to fine grained sand. The sand was poorly graded and in a loose to medium dense condition. Underlying the tan sand at depths of about 11 and 12.5 feet was a thin layer of coral rubblestone. Coral rubblestone is a partially cemented conglomerate of coralline silt, sand, and gravel-sized coral fragments. The coralline material encountered in the borings was dense to medium hard, but appears to be only about 12 inches thick. Brownish tan silty coralline gravel with occasional gray clayey silt pockets was encountered below the coral rubblestone. The silty gravel was in a medium dense to loose condition down to depths of about 20.5 and 23 feet, and was underlain by another layer of coral rubblestone. The second coral rubblestone layer was in a dense condition extending down to the maximum depths drilled.

Groundwater was encountered in the borings at depths of about 8 and 9.5 feet. The depth to groundwater can be expected to vary with tidal fluctuations and storm surge.

Preliminary Recommendations

Conventional shallow foundations may be used to support the proposed retaining structure. In general, the foundation of the retaining structure should be embedded below the scour depth to reduce the potential of being undermined by erosion. The scour depth should be determined by the Owner's coastal engineering consultant.

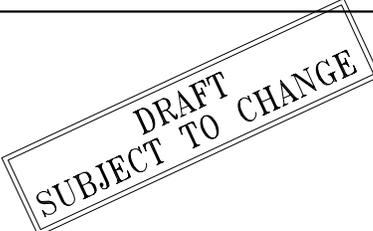
Foundation excavation will most likely expose the tan sand at the bottom of the excavation. Based on our past experience, the poorly graded sand is generally susceptible to disturbance during construction. In order to facilitate construction, we recommend that a minimum 12 inches of crushed rock, such as #3 coarse gravel,

be placed at the bottom of excavations to provide a working base. The gravel section should be enveloped in a geotextile filter fabric and thoroughly tamped to an unyielding surface.

The following parameters may be used for design.

- Allowable bearing value = 2,000 psf
- Coefficient of friction = 0.3
- Passive earth pressure = 200 pcf, passive resistance from soil above the scour depth should be disregarded in design.
- Active earth pressure = 40 and 55 for free standing and restrained condition above groundwater
- Active earth pressure = 80 and 90 for free standing and restrained condition below groundwater

Please feel free to call us if you have any questions.

MAJOR DIVISIONS		GROUP SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of the material is LARGER than No. 200 sieve size.)	GRAVELS (More than 50% of coarse fraction is LARGER than the No. 4 sieve size.)	CLEAN GRAVELS (Little or no fines.)	GW Well graded gravels, gravel-sand mixtures, little or no fines.
			GP Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amt. of fines.)	GM Silty gravels, gravel-sand-silt mixtures.
			GC Clayey gravels, gravel-sand-clay mixtures.
	SANDS (More than 50% of coarse fraction is SMALLER than the No. 4 sieve size.)	CLEAN SANDS (Little or no fines.)	SW Well graded sands, gravelly sands, little or no fines.
			SP Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amt. of fines.)	SM Silty sands, sand-silt mixtures.
			SC Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS (More than 50% of the material is SMALLER than No. 200 sieve size.)	SILTS AND CLAYS (Liquid limit LESS than 50.)	ML Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.	
		CL Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.	
		OL Organic silts and organic silty clays of low plasticity.	
	SILTS AND CLAYS (Liquid limit GREATER than 50.)	MH Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.	
		CH Inorganic clays of high plasticity, fat clays.	
		OH Organic clays of medium to high plasticity, organic silts.	
HIGHLY ORGANIC SOILS		PT Peat and other highly organic soils.	
		FRESH TO MODERATELY WEATHERED BASALT	
		VOLCANIC TUFF / HIGHLY TO COMPLETELY WEATHERED BASALT	
		CORAL	

SAMPLE DEFINITION		
 2" O.D. Standard Split Spoon Sampler	 Shelby Tube	RQD Rock Quality Designation
 3" O.D. Split Tube Sampler	 NX / 4" Coring	 Water Level

W.O. 07-4517

Shoreline Protection Seawall, Michael Dailey Residence

Hirata & Associates, Inc.

BORING LOG LEGEND

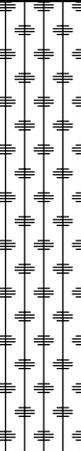
BORING LOG

W.O. 07-4517

BORING NO. B1 DRIVING WT. 140 lb. START DATE 11/7/07
 SURFACE ELEV. 99.4±* DROP 30 in. END DATE 11/7/07

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0	•••••		18	71	18	SAND (SP) – Mottled tan and brown, moist, medium dense, medium to fine grained. Covered by a thin layer of brown clayey silt.
			19	77	12	Tan in color from 3 feet.
5			36	78	12	
▽ 10			25	78	27	Groundwater encountered at 9.5 feet on 11/7/07 at 9:14 a.m.
	▧					CORAL RUBBLESTONE – Tan, dense.
15	⊞		13	68	28	Silty Coralline GRAVEL (GM) – Brownish tan, medium dense, with sand. Loose to medium dense at 14 feet. Gray color from 16 feet.
20			2/6" 28/6"	79	38	
	▧					CORAL RUBBLESTONE – Tan, dense.
			50/2"			
25						End boring at 23 feet.
30						* See Boring Location Plan for reference bench mark elevation.

BORING NO. B2 DRIVING WT. 140 lb. START DATE 11/6/07
 SURFACE ELEV. 102± DROP 30 in. END DATE 11/6/07

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						SAND (SP) – Tannish brown, moist, loose, medium to fine grained. Covered by a thin layer of brown clayey silt.
			8	80	9	Tan in color from 3 feet.
5			14	79	7	Medium dense from 4 feet.
			23	85	16	Groundwater encountered at 8 feet on 11/6/07 at 12:47 p.m.
						
10						
			10/No Penetration			CORAL RUBBLESTONE – Tan, dense to medium hard.
15						Silty Coralline GRAVEL (GM) – Brownish Tan, medium dense, with sand. Begin NX coring at 13 feet. 15% Recovery from 13 to 18 feet.
			4	55	22	Loose at 18 feet, with gray clayey silt.
20						
			71	80	35	CORAL RUBBLESTONE – Tan, dense.
25						
			41	101	18	
30						End boring at 29.5 feet.

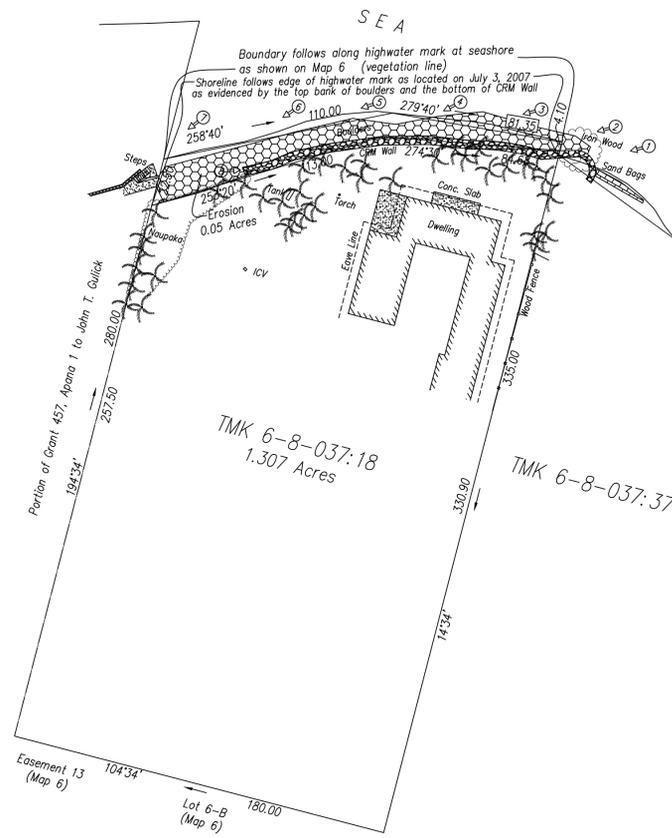
Appendix D Engineered Plans

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE "STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION OF THE CITY AND COUNTY OF HONOLULU" (LATEST).
2. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE DRAWINGS AND SPECIFICATIONS.
3. EMBED BASE OF WALL 3'-0" MIN. BELOW MEAN SEA LEVEL UNLESS SOLID NON-ERODABLE STRATA IS ENCOUNTERED AT A HIGHER ELEVATION.
4. ALL STONES SHALL BE CLEAN AND FREE FROM DIRT OR LOOSE MATERIAL.
5. THE WALL SHALL BE GROUTED SOLID. GROUT AND MORTAR SHALL HAVE MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI AT 28 DAYS.
6. WEEPHOLES, 4 INCHES IN DIAMETER, SHALL BE PLACED AT CORNERS AND SPACED NOT MORE THAN 6 FEET ON CENTER
7. BACKFILL SHALL CONSIST OF CLEAN SAND, 3B FINE OR OTHER APPROVED NON-EXPANSIVE GRANULAR MATERIAL. COMPACTION SHALL NOT EXCEED 95%. BACKFILL SHALL BE WRAPPED IN A GEOTEXTILE FABRIC SUCH AS SUPAC 4NF. LAP FILTER FABRIC 5'-0" MIN.

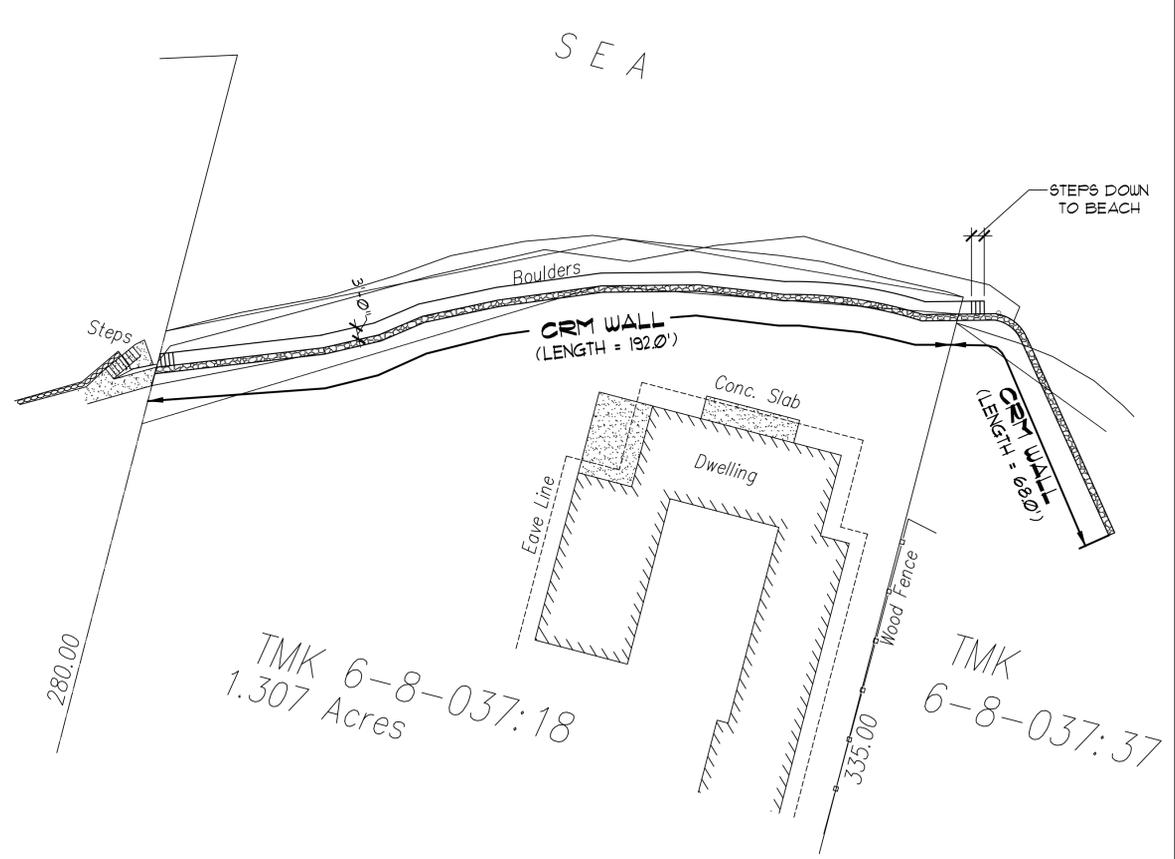
REINFORCED CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO ACI 318-95.
 2. ALL CONCRETE SHALL BE NORMAL WEIGHT (150 PCF) WITH AGGREGATES CONFORMING TO ASTM C-33. UNLESS OTHERWISE NOTED, THE COMPRESSIVE STRENGTHS OF CONCRETE AT 28 DAYS AND MAXIMUM AGGREGATE SIZES SHALL BE AS FOLLOWS:
- | STRENGTH | AGGREGATE SIZE |
|----------|----------------|
| ALL | 5000 PSI 3/4" |
3. MAXIMUM WATER-CEMENT RATIO SHALL NOT EXCEED 0.45. CONCRETE SHALL CONTAIN 5 GALLONS OF CALCIUM NITRITE PER CUBIC YARD.
 4. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60.
 5. UNLESS OTHERWISE NOTED, SPLICES, LAPS, DWEL EXTENSIONS AND EMBEDMENTS SHALL BE 45 BAR DIAMETERS MINIMUM.
 6. ALL REINFORCING BARS MARKED CONTINUOUS (CONT.) ON THE PLANS SHALL BE LAPPED 40 BAR DIAMETERS MINIMUM.
 7. STAGGER ALL SPLICES WHERE POSSIBLE.
 8. REBARS SHALL BE SUPPORTED, BENT AND PLACED AS PER "MANUAL OF STANDARD PRACTICE FOR DETAILING CONCRETE STRUCTURES" ACI 315 (LATEST).
 10. MINIMUM COVER IN INCHES FOR REBARS FOR CAST-IN-PLACE CONCRETE SHALL BE 3 1/2".
 11. IN LIEU OF THE SPECIFIED CONCRETE MIX, PROVIDE EPOXY COATED REINFORCING WITH A 3,000 PSI CONCRETE MIX.



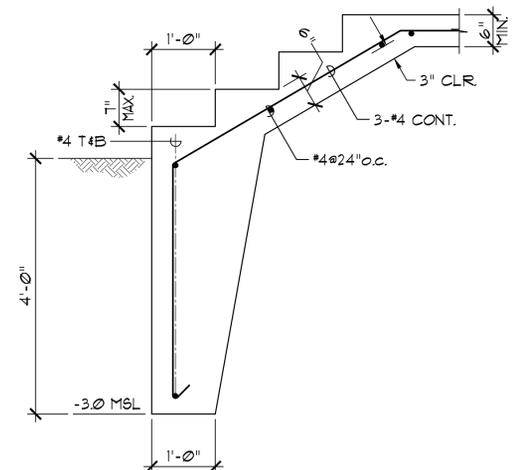
SITE PLAN

SC: 1" = 40'



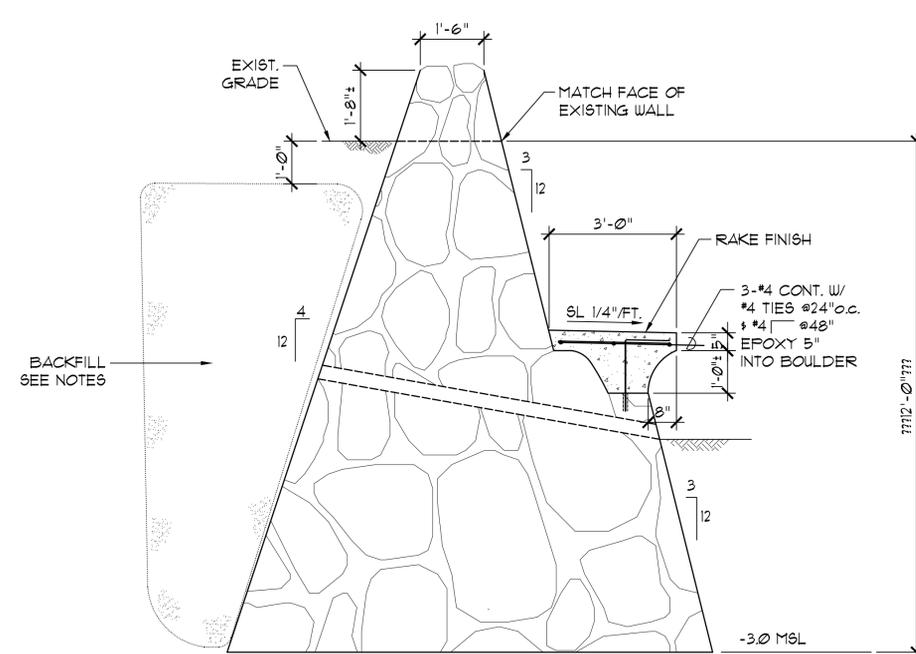
WALL LAYOUT PLAN

SC: 1" = 20'



STAIR DETAIL

SC: 3/4" = 1'-0"

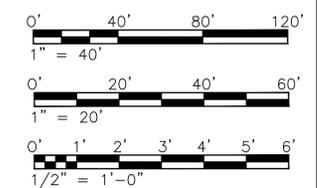


SECTION THRU NEW CRM SEAWALL

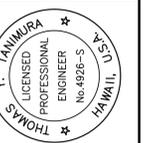
SC: 1/2" = 1'-0"

T.M.K.	WALL LENGTH
6-8-03:18	192.0 FEET
6-8-03:37	68.0 FEET
TOTAL	260.0 FEET

GRAPHIC SCALE:



REVISIONS	BY



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

Thomas Y. Tanimura
Professional Engineer
No. 4926-S
HAWAII

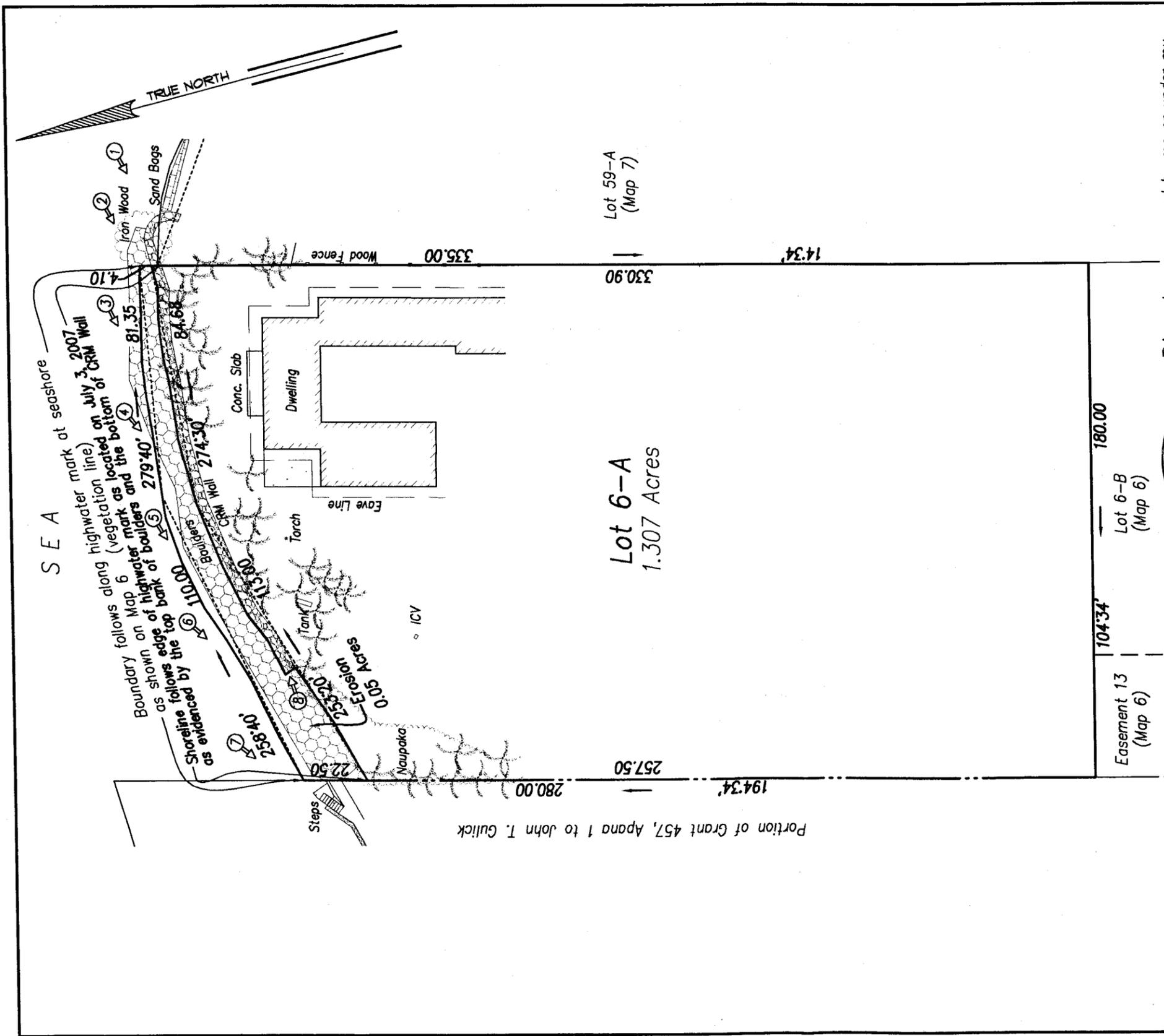
DAILY SEAWALL
TMK: 6-8-03:18 & 37

TANIMURA & ASSOCIATES, INC.
CONSULTING STRUCTURAL ENGINEERS
925 Bethel Street, Suite 309 • Honolulu, Hawaii • 96813
Phone: (808) 536-7692 • Fax: (808) 537-9022

SITE PLAN, WALL LAYOUT PLAN AND SECTION

DRAWN: TT
DATE: *
SCALE: AS NOTED
SHEET: 1

Appendix E Parcel Information
Shoreline Certification Survey



Lot 6-A
1.307 Acres

Lot 59-A
(Map 7)

Easement 13
(Map 6)

Lot 6-B
(Map 6)

This work was prepared by me or under my direct supervision



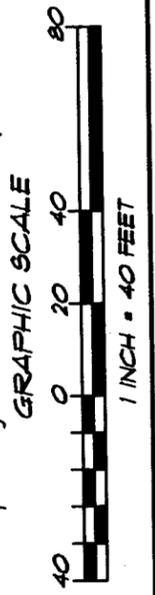
Ryan M. Suzuki
Ryan M. Suzuki
Licensed Professional Land Surveyor
Certificate Number 10059
Exp: 4/30/08

Notes:
Azimuths are referred to Government Survey
Triangulation Station "Dillingham" Δ.

Photo Number and Direction
Owner: Michael K. & Elizabeth M. Dailey
68-411 Farrington Highway
Waialua, Hawaii 96791

- Coconut Tree
- ICV Irrigation Control Valve
- CRM Concrete Rock Masonry

Shoreline Survey
Lot 6-B (Map 6)
of Land Court Application 1810
at Mokuleia, Waialua, Oahu, Hawaii
Tax Map Key: 6-8-03: 18 (1st Division)



10" x 15" = 1 Sq. Ft.
Job #1-20-0-S
FB #7675

R. M. TOWILL CORPORATION
SINCE 1988

420 Waikamilo Road Suite 411
Honolulu, Hawaii 96817
Tel: (808) 842-1133



Photo #1



Photo #2



Photo #3



Photo #4



Photo #5



Photo #6



Photo #7



Photo #8

*Shoreline Photographs
Lot 6-B (Map 6)
of Land Court Application 1810
at Mokuleia, Waialua, Oahu, Hawaii
Tax Map Key: 6-8-03: 18 (1st Division)*

*Date of Photographs: July 3, 2007
Time: 10:00 to 10:15 am*

Appendix E Parcel Information
Other Parcel Information

SOURCE:		LOC & TITLE	Mokuleia, Oahu	DIV.	
BY	DATE	DEED, ETC.	TMB NO.	6	8 03 18
RB	12/4/52		4.537 ac	Oahu Railway & Land Co.	
RB			4.266 ac	do	
NO			NONE	DROPPED	
1.	as shown on tax maps				
2.	DMB#6122'52 key: 6809-1 RB 12/4/52				
	D: 0.271 ac. dropped into 6809-1				
3	TMB 6996'57, 6901-3 etc. HN/MD 12/17/57				
	Esch/D: Oahu Railway & Land Co TO:				
	Mokuleia Ranch & Land Co Ltd.				
	Bk 3334 p 334 Const- RS#103.40				
	10/17/57 10/22/57 3.96 Ac. + etc.				
	Parcel 6803-18 area revised to 3.96 Ac +				
	F/D: 6803-18; area revised & dropped into 6803-16.				
1.	TMB M-468'64 HN/pl 7/23/64				
	R/S: From 6803-16(5), pickup, 1.438 Ac.				
2.	TMB 10171'64(6803-18) JT/sy 9/30/64				
	D: 0.124 Ac From 6803-17(2)				
	Mokuleia Ranch & Land Co Ltd To: Fred W				
	Dalley, Trustee for Elizabeth M Dalley				
	Bk 4833 p 26 RS-\$70.90 9/2/64, 9/4/64				
	Tog/Es DES				
	F/D: 6803-18; Owner, Area, Des				
	-----6 8 03 18 (pickup)				
	1.438 Ac. Mokuleia Ranch & Land Co., Ltd.				
	1.558 Ac To: Elizabeth M Dalley Trust				

THE TERRITORY OF HAWAII, FINAL DATA AS SHOWN ON TAX MAP

TAX MAPS BRANCH HISTORY SHEET

DATE: 12/21/64

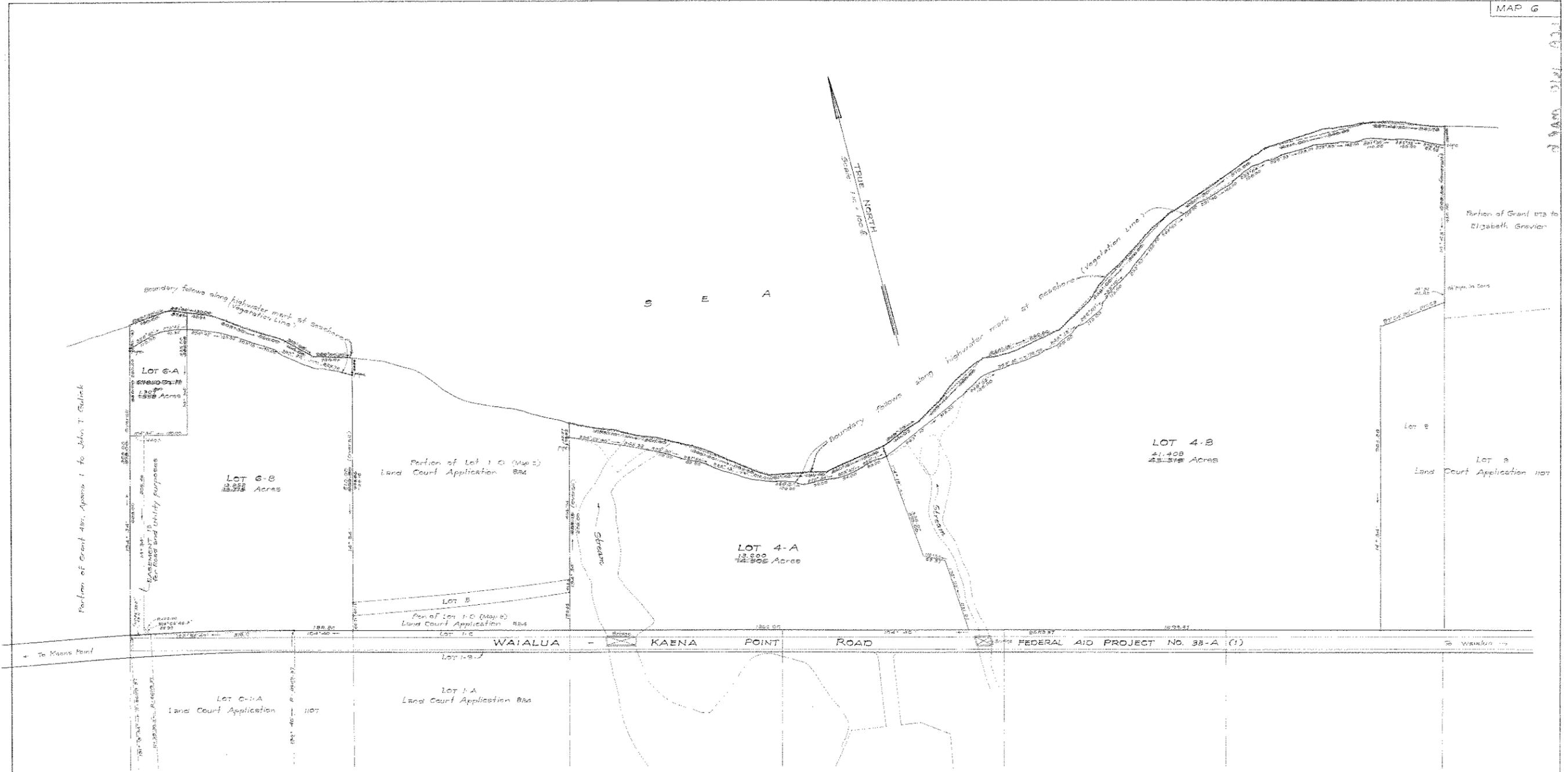
LOCATION: Mokuleia Lot 6-A Map 6, Ld Ct App 1810

TITLE:

DIV.
Z 6 PLAT 03 PAR 18

NO.	GRANTOR, ETC.	AREA OF PARCEL	GRANTEE, ETC.
3.	TMB 14285'64 JT/pl 12/21/64 L: Fred W Dailey, Tr. for Elizabeth M Dailey, etal. Bk 4893 p 467 Term: 55 yrs fr 12/1/64 1st 25 yrs \$3900 ann 11/23/64 11/27/64. DES. <i>ICApp 1810 pending?</i> <i>Tag/Le (Ld) 27, 717</i>	1.558 Ac.	Elizabeth M Dailey etal Trust (Fred W Dailey &wf Elizabeth Marie-T/E)le
4	TMB M-323 & 410'74-75 GS/en 4/30/75 R/S: Area revised from 1.558 Ac to 1.307 Ac & designated as Lot 6-A, per Map 6, ICApp 1810. Decree of Registration dated 1/10/75 issued to Mokuleia Ranch & Land Co Ltd covering Land described in ICApp 1810 & Owner's Cert of Title 173052 issued over Lot 6-A.	1.307 Ac	do
5.	F/D: Area, des, bdry & status; Lot 6-A. NOTE: Present owners acquired land from Mokuleia Ranch Co Ltd under regular system. New TCT yet to be issued.	do	do
6	LD CT ORD 45242 C-184864 6/18/76 8/25/76 KEYED ONLY - NEW TCT ISSUED	do	do
7	Canc/Le: Waikiki Corp Ltd Bk 20092 p 447 10/11/85 eff 1/1/86 11/28/86 SEE TMB NOTE ON REVERSE SIDE Canc/Le: Fred William Dailey &wf etal Doc 1421599 C-184864 12/2/86 Eff 1/1/86 12/9/86 KEYED ONLY	do	do

NOTE: INFORMATION ON THIS SHEET IS SUBJECT TO CHANGE



LAND COURT
 STATE OF HAWAII
 LAND COURT APPLICATION 1810
 SUBDIVISION OF LOTS 4 AND 6
 AS SHOWN ON MAP 2
 LOT 4 INTO LOTS 4-A AND 4-B
 LOT 6 INTO LOTS 6-A AND 6-B
 AND DESIGNATION OF EASEMENT 13 OVER AND ACROSS LOT 6-B
 AT MOKULEIA, WAIALUA, OAHU, HAWAII

858 Merchant St
 Honolulu, Hawaii
 May 18, 1964

Maxwell R. Preece
 Registered Professional Surveyor
 Certificate Number 859



OWNER: MOKULEIA RANCH AND LAND COMPANY, LIMITED
 Owner's Certificate of Title: 178,056

AUTHORIZED AND APPROVED BY ORDER OF THE JUDGE
 OF THE LAND COURT DATED JANUARY 10, 1965
 BY ORDER OF THE COURT

Richard K. Simpson
 REGISTRAR OF THE LAND COURT

I hereby certify that the map hereon being a
 subdivision of Lots 4 and 6 as shown on Map 2 of Land
 Court Application 1810 (NOW PENDING), as herein
 entitled, has been measured and checked as to form
 and mathematical correctness and found to be in
 accord.

Richard D. Powers
 State Land Surveyor
 Honolulu, Hawaii
 July 2, 1964

Map as shown hereon has been amended by Order of
 the Judge of the Land Court dated January 6, 1975
 Honolulu, Hawaii
 January 6, 1975

Ngatake Baki
 State Land Surveyor

Filed July 13, 1964 Paul G. Giffen



NOTE:
 Area of Easement 13 = 27,717 Sq Ft

See Map Key 2-B-C-1-C
 255-2-5

36x55 12.5 Ea. Pt.