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2001/ED-20(lk)
2001/SV-11

May 15, 2002

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

Dear Ms. Salmonson:

CHAPTER 343, HRS
Environmental Assessment (EA)/Determination
Finding of No Significant Impact

Owner/Applicant	:	Edward and Ann Dewey
Agent	:	Edward Dewey
Location	:	1280 Mokulua Drive, Kailua, Oahu
Tax Map Key	:	4-3-5: 60
Request	:	Shoreline Setback Variance (SV)
Proposal	:	Construct a concrete seawall and stairs landward of the existing loose rock revetment
Determination	:	A Finding of No Significant Impact is Issued

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

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the Final EA. If you have any questions, please contact Lynne Kauer of our staff at 527-6278.

Sincerely yours,

Barbara A Moon for

RANDALL K. FUJIKI, AIA
Director of Planning
and Permitting

RKF:cs
Encls.
DN 155278

2002-06-08-OA-FEA-Dewey Seawall

FINAL

ENVIRONMENTAL ASSESSMENT

CONSTRUCT A SEA WALL

MAUKA OF EXISTING REVETMENT

Lanikai, Oahu, Hawaii

Tax Map Key: 4-3-05:60

Prepared for:

Mr. & Mrs. Ned Dewey

By

Pacific Land Services

April 25, 2002

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GENERAL INFORMATION

Applicants:	Mr. & Mrs. Ned Dewey 1280 Mokulua Drive Kailua, HI 96734
Recorded Fee Owner:	Mr. & Mrs. Edward T. Dewey 1280 Mokulua Drive Kailua, HI 96734
Agent:	Pacific Land Services 810 Richards Street, Suite 900 Honolulu, HI 96813 Attn: Ned Dewey
Tax Map Key:	4-3-05:60
Lot Area:	13,053 sq. ft. 11,958 sq. ft. (Survey 10/13/00)
Agencies Consulting in Making Assessment:	Department of Planning and Permitting, City & County of Honolulu, State Department of Land and Natural Resources

1. Proposed Project

The project is located at 1280 Mokulua Drive, Lanikai (tmk 4-3-04:60). Figure 1 shows the general location of the site and Figure 2 shows the TMK map for the parcel. The property is owned and occupied by Ned and Ann Dewey and their family.

The erosion of Lanikai Beach continues to progress in a northerly direction towards Kailua. In 1995 storm wave action caused the first erosion on the Oceanside of the subject property to occur since the early 60's. The erosion formed a short bank and exposed the top of an existing loose rock revetment built in the early 60's. Erosion at the shoreline has continued over the last five years and the old revetment, now exposed in its entirety, is no longer effective. Mr. & Mrs. Dewey seek approval of their request for a shoreline setback variance to build a seawall mauka of the State certified shoreline and mauka of the existing rock revetment. Figure 3 shows the State Certified Shoreline Survey. The seawall would be sited along the 50' frontage of the parcel and be located entirely within the 40' shoreline setback. Plans for the structure may be found in Figure 4.

2. Affected Environment

a) Description of the Site and the Surrounding Area

Lanikai is a fully developed residential community occupying a narrow coastal plain bounded by the steep slopes of Kaiwi Ridge. Lanikai is one of the oldest subdivisions on the Windward side of Oahu with its own CC&R's recorded October 1, 1925. Zoned R-10 Residential, the area is

subdivided into residential lots which are generally 10-20,000 square feet in size and developed with single-family dwellings.

1280 Mokulua Drive includes a remodeled single family dwelling about 50 years old on the makai side of the property with a workshop / garage, rec room structure located on the street. The certified shoreline is approximately 17 ft. from the makai side of the Dewey's house.

The soils are Jaucas sand, according to the Soil Survey (USDA Soil Conservation Service, 1972). As shown on the Flood Insurance Rate Map, the seaward portions of the property lies in the AE zone, with a regulatory flood elevation of +6 feet MSL.

The property drops off sharply at the shoreline. The elevation at the top of the bank is between +7 ft. to +8 ft. MSL. The finished floor elevation of the residence is about +10.0 ft. MSL.

The Coastal Engineering Evaluation provides description of the shoreline and coastal processes and discussion of historic beach and shoreline changes.

The two parcels immediately south of the site are protected by vertical CRM seawalls. The next three parcels to the south are protected by sand bags. All of the properties fronting Lanikai Beach to the South of these parcels (31 total) have hard shore line protection structures.

The two parcels immediately north of the site are protected by older CRM walls at the shoreline. The beach right of way north of these parcels has a CRM drainage pipe outlet structure and head wall.

b) Coastal Resources

There is a public beach right-of-way on either side of the group of shoreline residences described above. Owned by the Lanikai Community Association, these right of ways provide access to the beach for mauka residents of Lanikai and visitors from other parts of Oahu, the mainland and other countries. There is no dry beach remaining between these two access points. In the last ten years this stretch of beach, over 500 lineal feet, has been entirely lost to erosion. The beachfront is littered with sandbags old, torn and new, vertical walls and the subject property's loose rock revetment.

Lanikai Beach is used for walking and jogging. The waters are excellent for swimming, sailing, kayaking, canoeing and fishing from shore and from small boats. The near shore fish populations are relatively sparse. Spear fishing and snorkeling are popular farther offshore. The reef is over one half mile from shore with much better fishing and diving. There are a few good surf breaks "reef", "left lefts", "wraparounds", "dog bowls" and "channels" out at the Mokulua Islands.

Lanikai Beach is not a habitat for rare, threatened or endangered species. Green Sea Turtles can be seen in the waters off Lanikai, as in Kailua and Waimanalo Bays.

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Lanikai Beach offers a 180-degree view north to Mokapu and Moku Manu, towards the ocean and the Mokulua Islands, and south to Wailea Point, Rabbit Island and Makapuu.

3. Consideration of Alternatives

The Coastal Engineering Evaluation section of this report and its Appendix discusses various alternatives to the proposed action including beach nourishment, an offshore breakwater, and a sloping rock revetment. Beach nourishment or construction of a permanent breakwater, if properly executed, are viable long-term solutions. However, both types of project need to be applied to an entire beach and require extensive federal and state permits. For these reasons, they are beyond the means of a single property owner.

The "no-action" alternative was also considered but rejected because of the continuing threat posed by chronic coastal erosion. Any further erosion would excavate the sand supporting the foundation, undermine the foundation and cause the house to break up.

The existing loose rock revetment can no longer withstand the erosion process and cannot provide the secure shore protection of a CRM seawall or a sloping rock revetment.

4. Impacts: Significance Criteria

The proposed seawall will not have a significant effect on the environment and therefore preparation of an environmental impact statement is not required. The "Significance Criteria",

Section 12 of Hawaii Administrative Rules Title 11, Chapter 200, "Environmental Impact Statement Rules", were reviewed and analyzed. Based on the analysis, the following were concluded:

- *No irrevocable commitment to loss or destruction of any natural or cultural resource would result.* There are no known significant cultural resources present at the site.

- *The proposed* sea *wall would not curtail the range of beneficial uses of the environment.* The seawall would not affect access to the shoreline and does not affect access along the shore fronting the parcels.

- *The proposed sea wall would not conflict with the state's long-term environmental policies or goals and guidelines.* The State's environmental policies and guidelines as set forth in Chapter 344, Hawaii Revised Statutes, "State Environmental Policy", encompass two broad policies: conservation of natural resources, and enhancement of the quality of life. The proposed seawall does not significantly affect natural resources, while maintaining the quality of life of the residents by preventing storm wave and stream discharge damage.

- *The proposed sea wall would not substantially affect the economic or social welfare of the community or state.* The seawall would not have economic or social

impacts to the community or the State.

- *The proposed seawall would not substantially affect public health.* There are no public health concerns relating to the proposed seawall.

- *No substantial secondary impacts such as population changes or* effects *on public facilities are expected.* There are no secondary impact concerns relating to the proposed seawall.

- *No substantial degradation of environmental quality is expected due to the proposed* sea *wall.* Construction activities would have potential short-term impacts on ambient environmental quality, in the long term, the completed seawall will improve the environmental quality at the site by replacing the eroding shoreline with a stable, protected shoreline.

- *No cumulative effect on the environment or commitment to larger actions will be involved.* The proposed seawall is intended to provide shoreline stabilization where erosion damage is threatening the integrity of the improvements on the property. The completed seawall will not affect existing littoral processes and therefore is not expected to contribute to erosion problems on adjacent shorelines, which are in fact, already armored.

- *No rare, threatened or endangered species or their habitats are affected.* There are no known rare, threatened or endangered species or their habitats located in or near the project site.

- *The proposed sea wall will not detrimentally affect air or water quality or ambient noise levels.* Construction activities may cause short-term impacts to air and noise quality. In the long term, the shore protection will result in beneficial impacts to air and noise quality by reducing the need for maintenance and repair of existing shoreline improvements.

- *The proposed* sea *wall will not detrimentally affect environmentally sensitive* areas *such* as *flood plains, tsunami zones, beaches, erosion-prone areas, geologically hazardous lands, estuaries, fresh waters, or coastal waters.* The seawall would be located in coastal flood hazard zone designated Zone AE (base flood elevation 5 feet) on the Flood Insurance Rate Map. The proposed seawall, with top elevation matching the existing ground elevation on the parcel, will have no effect on the flood characteristics. The seawall will not alter the existing long shore or cross-shore sediment transport processes affecting this shoreline area. The seawall will not have adverse long-term impacts on marine resources or coastal waters, and may result in beneficial impacts to coastal water quality by preventing erosion of the shoreline.

- *The proposed sea wall will not substantially affect scenic vistas and view planes identified in county or state plans or studies.* The seawall crest will match the existing parcel grade. The seawall will improve the shoreline appearance by replacing the appearance of an eroding shoreline with a wall, consistent with existing walls on adjacent shorelines.

- *There will be no requirement for substantial energy consumption.* Construction and maintenance of the proposed seawall will not require substantial energy consumption.

5. Consistency with the Hawaii Coastal Zone Management (CZM) Objectives and Policies

In general, Hawaii's relevant coastal zone policies seek to protect sand beaches and provide for adequate public access along the shoreline. Furthermore, they seek to discourage or prohibit the hardening of the shoreline. Unfortunately, in the case of Lanikai, the entire shoreline has some form of hardening. Furthermore, there is no sand beach fronting the subject property or the adjacent properties. When faced with emergency erosion, the State Department of Land and Natural Resources has authorized the installation of sand bag revetments to protect property. These revetments are intended to be temporary. However, they act the same as a seawall trapping mauka sand deposits, and in the words of David Lipp in his summary of the "Lanikai Demonstration Pilot Project for Beach Replenishment" dated June 19, 1998 "the sandbag

revetments are similar to rock revetments in their effect on waves and sand. They seem to be slightly more (wave) reflective than a rock revetment of a similar slope". The sand bag revetments have not helped the beach return and they are very unsightly. They have, however, protected homeowner's properties. Realistically, the sandbags are not temporary. If erosion continues they will never be removed and will create a bigger mess as they deteriorate requiring repair or replacement. A well-designed rock revetment would fulfill the same protection requirements, provide the same lateral access and dissipate more wave energy. There are two other properties 100 ft. north of the subject property, which are in the process of installing sand bags.

There are 97 properties fronting Lanikai Beach, we believe 93 have some form of hard shoreline protection. (Many shoreline structures have been concealed over time, but most can be found in lawns and under naupaka after careful inspection. See page 17). Four properties have sand bag structures and there is one property with a failed seawall which has been supplemented with sandbags.

The solution to the erosion problem in Lanikai requires the cooperation of government and the community to rebuild the beach that has been lost. The battle against shoreline hardening in Lanikai was lost 30 years ago. The CZM objective of providing public access to and along the shoreline was achieved in part, by the original Lanikai subdivision, which provided public right of ways along the entire beach. To achieve the objective of lateral beach access, the State and the community must take the lead to facilitate building a new beach in Lanikai.

6. Justification for a Shoreline Setback Variance under ROH Sec. 23-1.8(3) "Hardship Standard"

The property owners, Ned and Ann Dewey, are proposing to build a seawall within the 40-foot shoreline setback in order to protect their residence from wave damage. Chronic, progressive erosion of southern Lanikai Beach has caused 20+ feet of erosion at the shoreline boundary of their property.

The Deweys will suffer hardship if they are not allowed to construct permanent shore protection. Their application for a shoreline setback variance fulfills the three criteria for hardship set forth in ROH Sec. 23-1.8(3)(A), as discussed below.

The applicants will be deprived of reasonable use of the land. If the shore protection structure is not allowed, the foundation of the house will be undermined by the combination of storm waves and ongoing beach erosion. Undermining of the slab foundation would cause serious damage to the house and would render it uninhabitable.

The applicants' proposal is due to unique circumstances. The southern and northern ends of Lanikai Beach are known for ongoing, long-term beach erosion. The same is not true for the middle portion of Lanikai beach, which has remained more stable as the ends fluctuate. The sole reason for the variance request is the beach erosion occurring at this particular section of beach. Seven properties surrounding the subject property have installed sand bags as protection over the

last five years as this historically stable portion of Lanikai Beach has been subject to severe erosion.

The proposal is the practicable alternative, which conforms best to the purpose of the shoreline setback regulations. The subject property is flanked by a vertical seawalls to the north and south. While beach replenishment may be the long-term solution to Lanikai erosion, the size of the replenishment project required puts it beyond the means of any one homeowner. The State or Army Corps is more suited for such an undertaking. With insufficient room to build a sloping revetment the only alternative is a vertical seawall.

7. Coastal Engineering Evaluation

a) Problem Identification

The existing loose rock revetment was built in the early 60s according to the best recollection of the neighbors and the family, which owned the property since the early 1950s. A broken concrete step on the south end of the revetment had "63" imprinted in the concrete while still wet. The existence of this rock revetment was forgotten over the next 30 years until the 1995 – 1996 winter storm season when its top was exposed. See Photo 1. Over the next two years the bank was broken down and the rocks partially covered again. See Photo 2. In the 1997-1998 winter season more erosion continued and despite the installation of a sea bag revetment to the south the year before, the beach continued to disappear. Concrete steps from the gate at the subject property broke up and more of the revetment was exposed. During the winter season of 1999-2000 the City, State and Lanikai Community collaborated in a beach replenishment project trucking sand from Kaelepulu Stream to "Sand Bag Beach" approximately 100 yards south of the

subject property. The beach nourishment effort definitely increased the size of the beach for about 700-800 lineal feet of shoreline. Before and after profiles were taken by a group of UH researchers headed by Dr. Chip Fletcher. The nourishment moved the shoreline about 10'-20' seaward and increased the size of the dry beach. The City and County estimates that it placed 16,320 cubic yards of sand on Lanikai Beach. As expected with the prevailing winds and currents more sand migrated north than south from the dumping point, which was the right of way at the south end of Sand Bag Beach.

Erosion in the following year seemed to accelerate and in the last 18 months all of the sand placed on the beach and much more has eroded. See Photos 3, 4, 5, 6, 7, 8.

The loose rock revetment fronting the project site has continued to lower in elevation as the beach erodes from underneath it. Now at high tide and especially during high waves the water reaches through the voids between the rocks and pulls the sands from behind the revetment into the ocean. Clearly with a filter material backing and foundation, the rock revetment would be far more effective. In addition because the entire revetment is dropping, wave over topping is now a problem. A major storm wave event at this time would be devastating. Because the beach fronting the property is continuing to erode and the loose rock revetment is no longer effective, the applicant seeks a permanent shore protection structure.

b) Lanikai Beach History

Lanikai Beach has been moving north and south for as long as residents can recall. A review of the aerial photographic record shows a very narrow beach in front of the property in April 1950.

It is surprising to note how many seawalls are already visible along the Lanikai shoreline. By January 1961 the beach in front of the subject property appears to have very little vegetation between the house and the beach. By November 20, 1963 the beach has grown considerably and the walls fronting the two properties to the north show vegetation on their makai side, as do many other walls to the south. This seems to indicate that the loose rock revetment may have been placed in front of the house earlier than 1963, perhaps in the late 1950's. A poured in place concrete seawall located 200 yards to the south of the subject property is known to have been built in 1956. By January 1970, the beach has receded slightly in front of the subject property but has grown tremendously at the south end of Lanikai with a vegetation line that appears to be 150-200 feet makai of the properties in the 1400 block of Mokulua Drive near the Lanipo drainage channel. By February of 1988 this tremendous build up of sand has all but disappeared. By April 29, 1995 erosion has begun to severely impact the subject property again.

Our review of aerial photography clearly shows that Lanikai Beach has moved a great deal over the last 50 years. Over the last 30 years, the erosion has been moving steadily north with the beach building at the north end of Lanikai around the Kaiolena right of way. Many Lanikai residents believe that the 1960's construction of a huge revetment at Bellows to protect VIP cabins just around Wailea Point has been a primary cause of south Lanikai Beach erosion. Although this has not been verified through any scientific study. Lanikai's widest dry sand beach is now located directly in front of 12' high vertical seawalls. Where waves crashed on rocks at the base of these walls 30 years ago, the Lanikai Canoe Club now stores its fleet of canoes on dry sand!

c) Coastal Processes

Edward K. Noda and Associates in their Coastal Engineering Evaluation of an adjacent property dated December 1997 states the situation clearly and accurately as follows:

"The near shore wave approach patterns are complex due to interactions between the wave trains and the irregular offshore reefs and islands. In general, within the Lanikai littoral cell, net transport is predominantly northward from Wailea Point during summer months due to easterly trade wind-generated waves and southeasterly swell that may reach this coastal area, and southward from Alala Point during winter months due to North Pacific swell. This accounts for the greatest loss of beach at the endpoints of the Lanikai littoral cell, and the greater stability of beach area within the middle segment. Because there is a deficit of sand at the southern end of Lanikai, there is little sand transport towards the project site during predominant easterly trade wind wave conditions. During periods of more northerly trade wind waves and in winter months when northerly swell can occur, southward long shore transport of sand form the beaches in the middle segment of Lanikai can result in some buildup of sand along the project reach. However, because winter North Pacific swell can be more energetic than typical trade wind waves, they can also cause more wave damage to properties that are already vulnerable to erosion damage because of narrow or nonexistent dry beach area."

It is interesting to note that, over the last 10 years, the north swells have not been moving the beach back to the south. Seemingly constant trade winds have moved the beach relentlessly north. The beach at the north end of Lanikai in the 800-900 block has accreted dramatically.

Estimating the annual erosion rate for Lanikai Beach is problematic due to the nature of the available historic data. Rather than being able to identify a steady erosion rate, the historic data shows fluctuations in beach width and location between Aala and Wailea Points. The Hawaii Shoreline Erosion Management Study, Overview and Case Study Sites, prepared by Edward K. Noda & Associates, Inc. dated June 1989 takes a comprehensive look at the historic erosion and erosion rates of Lanikai Beach. An excerpt from this study states as follows: "Over the whole span of Lanikai, inspection of this data for the beach system will confirm the general trend of erosion in the 1950's time frame when the beach was narrow, accretion in the 1970's timeframe when the beach was widest, and erosion again in the most recent timeframe. One can see that at any one time, the state of erosion is not consistent along the entire Lanikai shoreline".

The sand bag groin placed during the Lanikai Demonstration Pilot Project for Beach Replenishment at the south end of Sand Bag Beach continues to trap sand and cause build up on its south side, creating a shallow entry at the right of way between the Davis and Binney residences. See Photo 9. Based upon data obtained in a survey performed August 25, 2001, the only areas of Sand Bag Beach which have a sand elevation above mean sea level at the toe of the bags are at the above mentioned right of way (+1") and an area just north of the bag "promontory" which is in front of the Olds property (+2"). See Beach Elevation Data Figure 6. David Lipp, in his summary of the Pilot Project concludes, "During the summer and fall the sand fronting the revetments south of the project moves north. When it gets to the groin, some sand is stopped, allowing a small beach to form fronting the right of way. This improves beach access during the summer months. Because the groin is small, it is only able to trap a small amount of sand, on the order of 100 cubic yards. One criticism of groins is that they starve the down drift

beach of sand trapped on the up drift side". The survey data generally shows increased beach elevation south of the groin at the right of way (Profile 2), indicating the groin is trapping sand moving north. The high elevation at Profile 3 (+2") does not really test the groin starving the down drift beach since this evaluation was taken at the toe of bags but where there is a 20' deep "cove" created by the bags and groin base. Elevations 150 ft. north and south of the groin showed no significant difference. See Figure 6.

Sand Bag Beach is continuing to deteriorate under the ocean's relentless assault. Even in protected Lanikai, the sand bag structures are not strong enough to survive long term. See Photos 10, 11, 12. The property owners and the community are not happy with the situation. Government policy needs to be changed. The large rock revetment built on the south side of the right of way, south of Sand Bag Beach has performed very well. See Photo 13.

New sand bags are presently being installed on the two properties north of the right of way about 150 ft. north of the subject property. There are two vertical sea walls and a drainage head wall (at right of way) between the subject property and the new sand bags. See Photo 14. The new sand bags being added north of the right of way are replacing small sand bags, which were authorized by DLNR after the installation of Sand Bag Beach did not live up to expectations. See Photo 15. The small bags, tied together in a "mat", failed quickly. The entire mat was dragged off the bank and into the ocean. An old wall was exposed recently with loose rocks on its makai side, which was built in 1967-1968. The recent high tides and waves caused further destruction and DLNR authorized the installation of new large sand bags. See Photo 16. The next property north begins the hardened northern end of Lanikai Beach with a 150 ft. poured in

place reinforced concrete vertical sea wall now being exposed north of the new bags. See Photo 17.

A careful inspection of Lanikai "dry sand" Beach was conducted on September 8, 2001 to determine the existence of shoreline structures built in the past and now covered by accretion. The tops of old seawalls or revetments were located on all but 6 properties, which could not be verified without excavation. Some areas of north central Lanikai Beach have experienced so much accretion that dunes, mature vegetation and even imported soil lawns, in our opinion, cover unseen shoreline structures on the six unverified properties. Because no excavation was performed the depth, size and structural integrity of these structures could no be determined. Accretion is continuing north into the 800 block of Mokulua Drive. The beach is in the process of covering walls, which had no dry sand beach five years ago. See Photos 18, 19, 20, and 21.

d) Consideration of Alternatives

Beach replenishment is a long-term solution to the erosion in Lanakai. The Lanikai Beach Preservation Foundation is presently working with various Federal, State and County agencies in an attempt to put together a beach replenishment program for the entire south end of Lanikai Beach. Unfortunately, using the optimal rule of thumb for 100 cubic yards of sand to build one lineal foot of beach, the 2500 lineal feet of beach in south Lanikai will require 250,000 cubic yards of sand. When materials and transportation costs are combined with the cost of studies and the engineering and construction of structures, which may be required to keep sand in place, beach nourishment is a daunting task, which in the case of south Lanikai Beach, will cost millions.

Offshore breakwaters are often used to dissipate wave energy and create a calm area in their lee for a beach to form. Besides being expensive, the aesthetics of offshore breakwaters are questionable and probably would not be acceptable to the Lanikai Community. Furthermore, offshore breakwaters require State and Federal permits which the State DLNR has discouraged.

Seawalls and revetments are the most practical alternative for the individual property owner and, accordingly, almost every home in Lanikai has a vertical seawall or sloping revetment. Sloping large rock revetments are more beach user friendly than sea walls and serve the same function to protect private property. Unfortunately, they require a great deal of land. In case of the subject property, there is not enough room to put a 2 to 1 sloping revetment mauka of the certified shoreline. See Figure 8 and Appendix: Edward K. Noda and Associates Coastal Engineering Evaluation Report, Figure 8. Erosion has progressed to the point where the top of bank is only 17 ft. from the residence. However, the property line is 23 ft. makai of the certified shoreline. It would be possible to rebuild the existing loose rock revetment to a state of the art, filter fabric based large rock revetment. This would require a conservation district use permit from the Department of Land and Natural Resources. After meeting with DLNR staff, it appears that this alternative is not available. A vertical seawall is the only practical alternative for permanent shoreline protection for the subject property.

The new concrete seawall proposed for the subject property would be 50' long tying into the seawall structures on the north and south, with stairs to access the ocean. The top of the seawall would be at an elevation of 9 ft. MSL, which is at, or slightly above, the existing grade of the

property. The bottom of the seawall would be at –3 ft. elevation MSL creating a wall of a total of 12 ft. from top to bottom. The base elevation of the wall could be higher if hard material were encountered before reaching 3 ft. below MSL. The base of the wall would be approximately 6.5 ft. wide and constructed of poured in place 5,000 psi concrete with anti-washout additive. Since the wall would be constructed behind the certified shoreline, the existing lose rock revetment would be used to prevent waves from washing into the construction area. Weep holes will be provided in the wall to relieve any hydrostatic pressure. The north and south ends of the wall will angle makai, but remaining mauka of the certified shoreline, to ensure a strong connection to the flank walls on the adjacent properties.

e) Potential Impacts

The construction of this 50 ft. length of seawall isn't expected to affect the littoral process in any measurable way. With 2,500 lineal feet of hardened and protected shoreline to the south and seawalls to the north, the incremental impact and cumulative impact is expected to be insignificant. Leaving the loose rock revetment in place will ensure no change to the littoral process since it has been in place for about 40 years. The new seawall will act as a "back stop" against erosion with the existing revetment acting as buffer between the new seawall and the ocean to dissipate wave energy. The following two passages from the Edward K. Noda study dated December 1997 for the seawall on the adjacent property states the situation quite eloquently.

> "The seawall will not affect alongshore sediment transport processes, but there may be some concern that cross-shore transport may be affected because of wave reflection from

the near-vertical impermeable face of the seawall. It has been a generally held presumption that the more reflective the structure, the greater the potential for adverse impacts by discouraging sand accumulation in front of the structure. However, given the fact that beach and shoreline erosion is continuing to occur along the Lanikai coastline where there are no shore protection structures, it can be concluded that the long-term erosion trend is a natural process that will certainty 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. Recent field studies conducted by Edward K. Noda and Associates, Inc. at Aliomanu, Kauai, also demonstrated that seasonal cross-shore transport is unaffected by an existing seawall. Monitoring of beach profiles over a four month period (July-October 1996) showed that seasonal beach accretion (increase in beach width) occurred in front of the near vertical seawall as well as on the adjacent unprotected beach."

"As of this date, the long-term erosion trend is continuing, and there is no evidence of significant difference in beach response related to the types of shore protection structures that have been built. Construction of the proposed seawall would not foreclose the possibility of future restoration of a wide beach strand, whether by natural or artificial means. In the 1960's and 70's, seawalls were built along other portions of Lanikai Beach, which were then suffering erosion but have subsequently experienced accretion. Along the middle part of Lanikai Beach, accreted sand has built-up the beach in front of the

seawalls, in some cases almost to the full height of the walls. The history along Lanikai Beach gives evidence that the presence of a seawall does not preclude natural beach accretion."

Visiting the Kaiolena right of way will confirm the massive accretion which has occurred in the last 30 years in front of a 12 ft. poured in place, vertical concrete wall. A visit to the Lanipo right of way will confirm 30 years of extreme erosion and the loss of a 200 ft. wide beach. See Photos 22, 23. The design solution to Lanikai Beach's erosion may lie in a combination of coastal structures and sand replenishment. A CRM groin at the far south end of Lanikai Beach has created an oasis of sand in an otherwise barren stretch of walls and revetments. See Photo 24.

Note:

The Coastal Engineering Evaluation for Shore Protection Structure at Lanikai, Oahu, Hawaii (tmk: 4-3-4:74, 1) by Edward K. Noda & Associates, Inc. dated December 1997 is attached as an Appendix to this Environmental Assessment. Edward K. Noda has recommended its addition to the Final EA to supplement and complete the Coastal Engineering Evaluation for the subject property's proposed seawall.

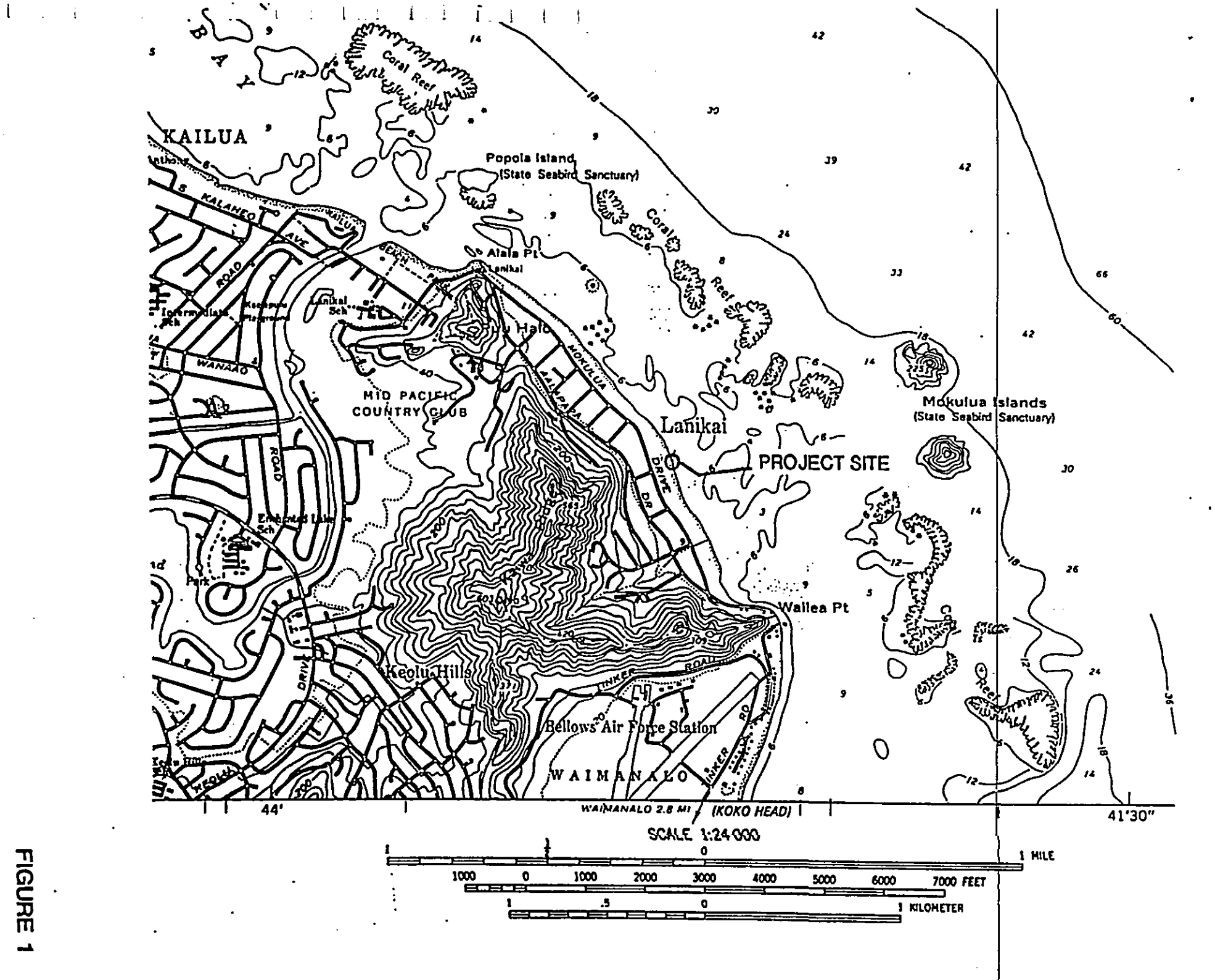

KAILUA
Popoia Island
(State Seabird Sanctuary)
Coral Reef
Alala Pt
Lanikai
Lanikai Sch
Kaelepulu Reservoir
Kaelepulu Sch
MID PACIFIC
COUNTRY CLUB
Lanikai
PROJECT SITE
Mokulua Islands
(State Seabird Sanctuary)
Wailea Pt
Keolu Hills
Bellows Air Force Station
WAIMANALO
WAIMANALO 2.8 MI
(KOKO HEAD)
44'
41'30"
SCALE 1:24 000
1 HILE
7000 FEET
1 KILOMETER

FIGURE 1

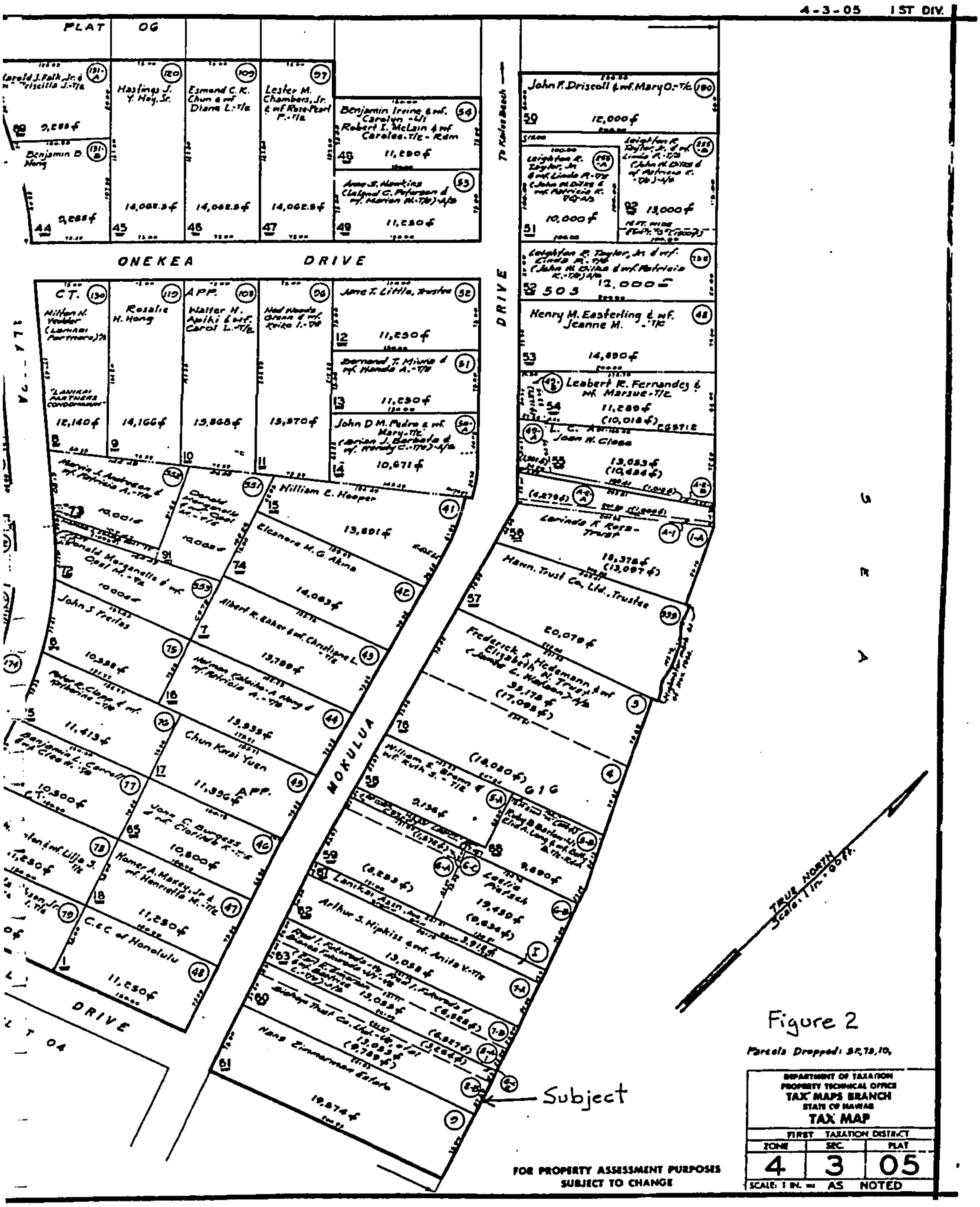
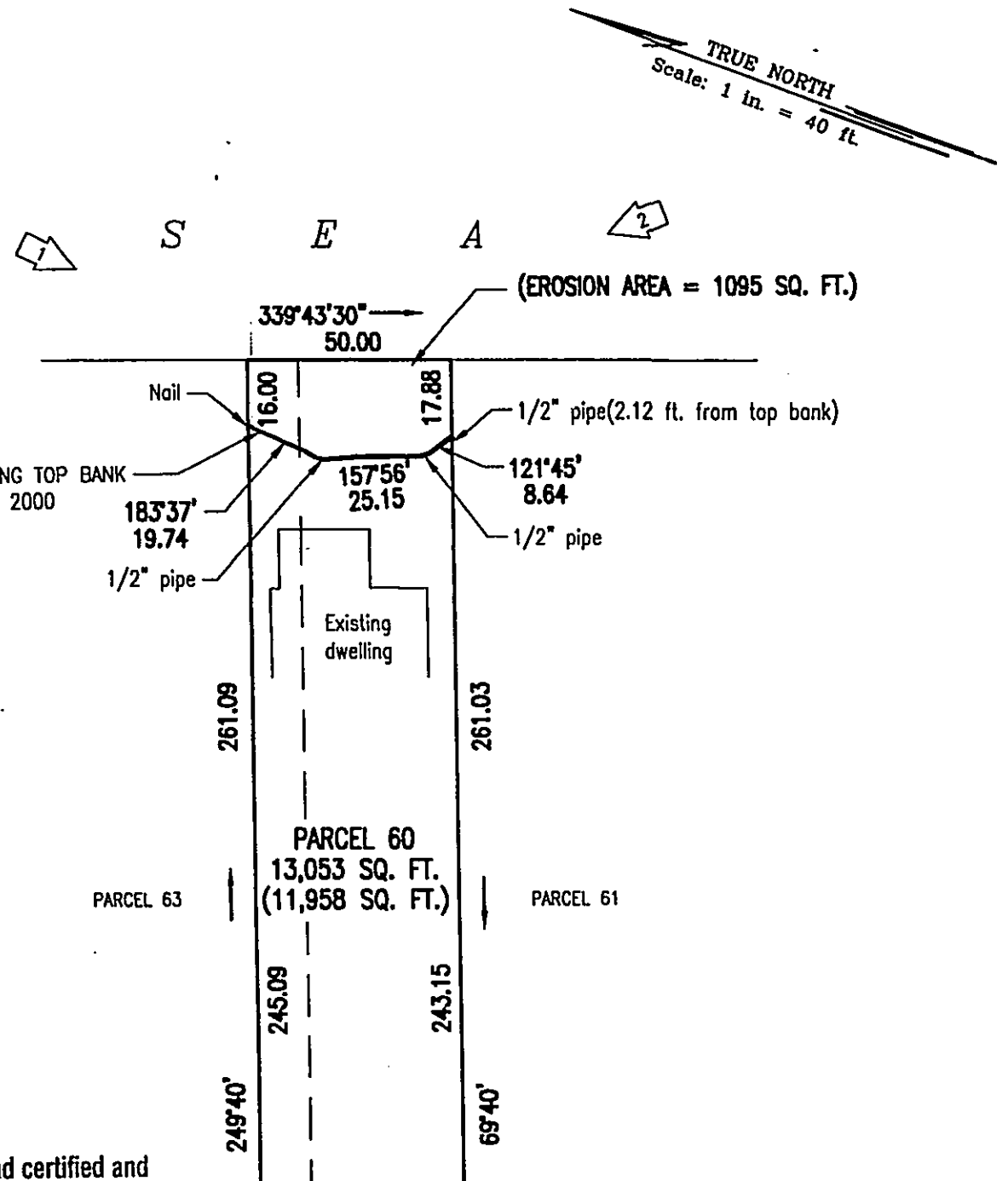
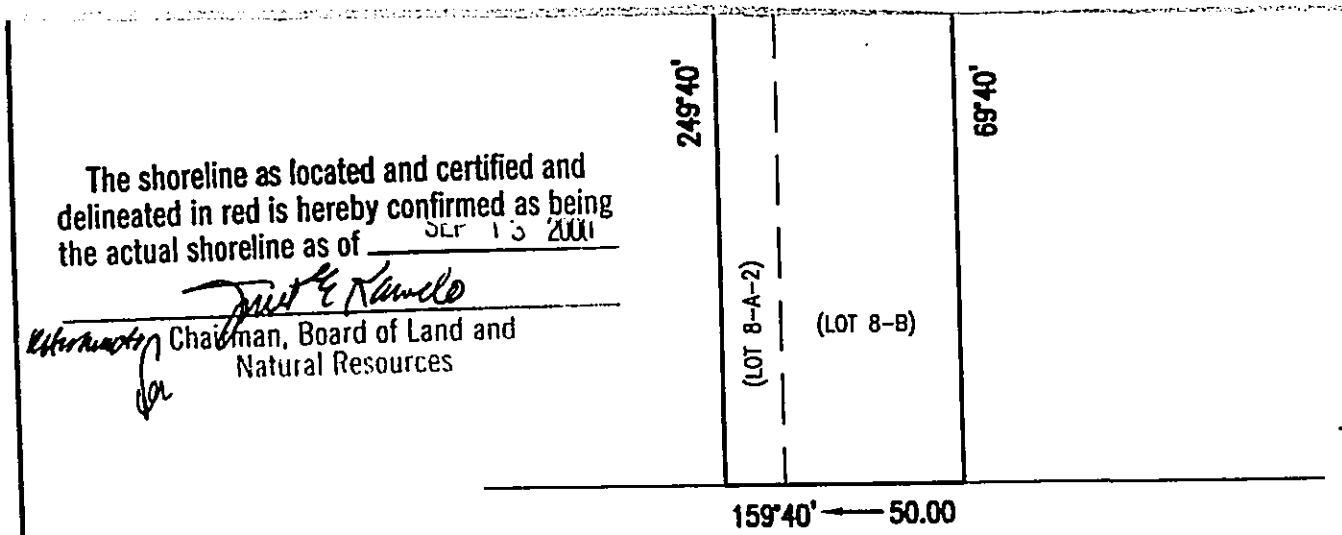

4-3-05 1ST DIV.
PLAT 06
ONEKEA DRIVE
DRIVE
MOKULUA
DRIVE
To Kailua Beach
John F. Driscoll & wf. Mary O.-T/E
Henry M. Easterling & wf. Jeanne M. -T/E
Hans Zimmerman Estate
C.C.C. of Honolulu
Chun Kwai Yuen
William E. Hooper
Eleanore M. G. Akina
Albert R. Ekker & wf. Christiane L.-T/E
John S. Trellas
Hawn. Trust Co. Ltd., Trustee
Lanikai Assn.
Arthur S. Hipkiss & wf. Anita V.-T/E
Rosalie H. Hong
Hastings J. Y. Hoy, Sr.
Benjamin D. Hong
Subject
TRUE NORTH
Scale: 1 in. = 60 ft.
Parcels Dropped: 37, 13, 10.
DEPARTMENT OF TAXATION
PROPERTY TECHNICAL OFFICE
TAX MAPS BRANCH
STATE OF HAWAII
TAX MAP
FIRST TAXATION DISTRICT
ZONE 4
SEC. 3
PLAT 05
SCALE: 1 IN. = AS NOTED
FOR PROPERTY ASSESSMENT PURPOSES
SUBJECT TO CHANGE

Figure 2



The shoreline as located and certified and



The shoreline as located and certified and delineated in red is hereby confirmed as being the actual shoreline as of SEP 13 2000

Chairman, Board of Land and Natural Resources

WESLEY T. TENGAN
LICENSED PROFESSIONAL LAND SURVEYOR
No. 6958
HAWAII, U.S.A.

SHORELINE MAP
PARCEL 60
(LOTS 8-A-2 AND 8-B OF LAND COURT APPLICATION 616)

Kailua, Koolaupoko, Oahu, Hawaii
Date: May 28, 2000
Tax Map Key: (1)4-3-05:60
Owner: Dewey

Figure 3

This work was prepared by me or under my supervision

WESLEY T. TENGAN
LICENSED PROFESSIONAL LAND SURVEYOR
Certificate Number 6958

Note: [1] denotes position and direction of photograph

1280 MOKULUA DR.

DEWEY SEAWALL
Retaining Walls

		Conversions to ft & kips
Stem Ht.	7.00 ft	7.00
Stem Thk	14.00 in	1.17
Base Thk	14.00 in	1.17
Toe Lngth	0.00 ft	0.00
Heel Lngth	5.25 ft	5.25
Key Depth	46.00 in	3.83
Key Thk	14.00 in	1.17
Dist from Toe	0.00 ft	0.00
Toe Soil Cover	1.00 ft	1.00
Active Press	45 pcf	0.05
Passive Press	150 pcf	0.15
Neglect Upper	0 in	0.00
Coef Fric	0.45	
Adhesion	0 psf	0.00
Soil Wt	110 pcf	0.11
Stem Wt.	150 pcf	0.15
Base Wt.	150 pcf	0.15
Ad'd Stem Load	0 lbs.	0.00
Conc. Strength	3000 psi	
Reinf. Grade	60000 psi	

Vertical Forces:	Force (kip)	Arm (ft)	Moment (ft-k)
Wall:			
Stem	1.23	0.58	0.71
Base	1.12	3.21	3.60
Key	0.67	0.58	0.39
Stem Load	0.00	0.58	0.00
Earth:			
Heel	4.04	3.79	15.33
Toe	0.00	0.00	0.00
Sub-total	7.06		20.04

Lateral Forces:	Force (kip)	Arm (ft)	Moment (ft-k)
Active Press	1.50	2.72	4.09
Passive Press	2.70	1.83	4.95
Friction	3.18	0.00	0.00
Adhesion	0.00	0.00	0.00

	Acting	Resist'g	Safety Fac
Overturning	4.09	15.09	3.69
Sliding	1.50	5.88	3.92

	@ Toe	@ Heel
Bearing Pressure	3.02	0.00

Resultant Loc	1.56
Base Lngt	6.42
Resit/Base	0.24
P, Vert Ld	7.06
Eccentricity	1.65

	Safety Fac
Overturning	3.69
Sliding	3.92
Bearing Pressure @ T	3.02

Top Stem to Toe Covr	6.00
Allow Shear (phi*v-c)	0.093
Beta 1	0.85
Rho Balance	0.021
min As % gross	0.0018

	Eff Depth d' (in.)	Factored Shear	Allowable Shear	Factored Moment	Req Reinf (sq. in)
Toe	10.50	0.00	11.73	0.00	0.30
Heel	11.50	6.95	12.85	18.23	0.36
Stem Top to Bot					
0.1	11.50	0.02	12.85	0.00	0.30
0.2	11.50	0.07	12.85	0.03	0.30
0.3	11.50	0.17	12.85	0.12	0.30
0.4	11.50	0.30	12.85	0.28	0.30
0.5	11.50	0.47	12.85	0.55	0.30
0.6	11.50	0.67	12.85	0.94	0.30
0.7	11.50	0.92	12.85	1.50	0.30
0.8	11.50	1.20	12.85	2.24	0.30
0.9	11.50	1.51	12.85	3.19	0.30
1.0	11.50	1.80	12.85	4.35	0.30

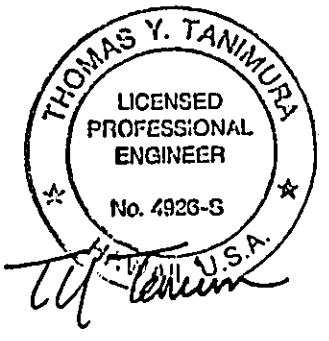


Figure 4

GENERAL NOTES

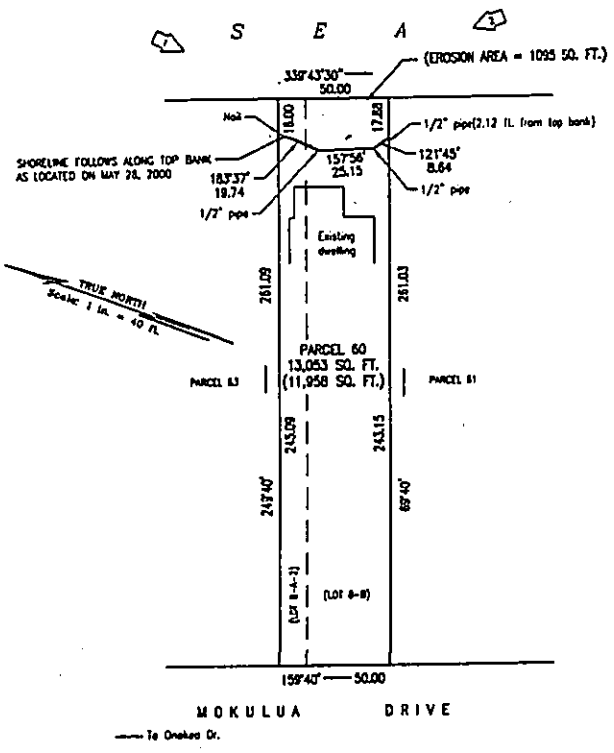
1. ALL WORK SHALL CONFORM TO THE BUILDING CODE OF THE HONOLULU CITY AND COUNTY (LATEST).
2. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE DRAWINGS AND SPECIFICATIONS.
3. EMBED BASE OF WALL 3'-Ø" MIN. BELOW MEAN SEA LEVEL UNLESS SOLID NON-ERODABLE STRATA IS ENCOUNTERED AT A HIGHER ELEVATION.
4. ALL WORK SHALL BE PERFORMED MAUKA OF THE CERTIFIED SHORELINE.
5. BACKFILL SHALL CONSIST OF CLEAN SAND.
6. A GEOTEXTILE FABRIC SUCH AS SUPAC 4NP SHALL BE PLACED UNDER THE FOOTING.
7. THE NEW WALL SHALL BE POSITIVELY TIED-IN AT EACH END TO THE RETURN WALLS OF THE ADJOINING PROPERTIES.
8. ROCKS IN THE EXCAVATION AREA SHALL BE REMOVED BY HAND AND REPLACED AT THE BASE OF THE WALL AFTER CONTRUCTION.

REINFORCED CONCRETE

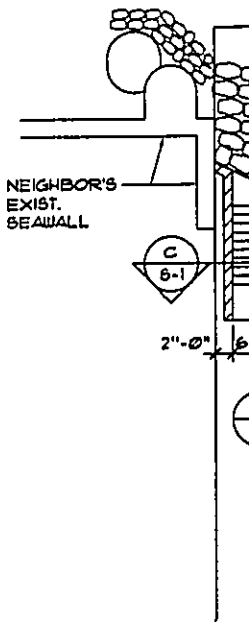
1. ALL CONCRETE WORK SHALL CONFORM TO ACI 318-95.
2. ALL CONCRETE SHALL BE NORMAL WEIGHT (150 PCF) WITH AGGREGATES CONFORMING TO ASTM C-33. UNLESS OTHERWISE NOTED, THE MINIMUM COMPRESSIVE STRENGTHS OF CONCRETE AT 28 DAYS AND MAXIMUM AGGREGATE SIZES SHALL BE AS FOLLOWS:

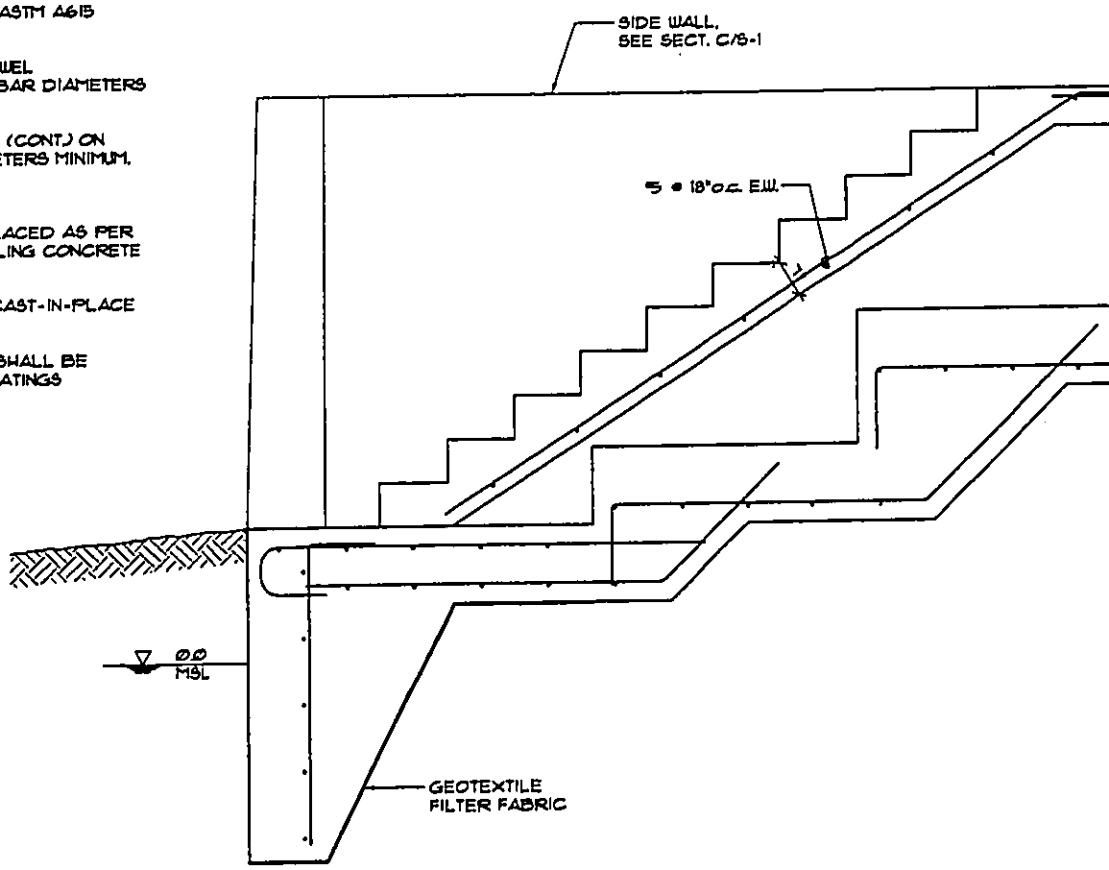
	STRENGTH	AGGREGATE SIZE
ALL	5000 PSI	3/4"

3. MAXIMUM WATER-CEMENT RATIO SHALL NOT EXCEED Ø.45. CONCRETE SHALL CONTAIN 5% SILICA FUME BY WEIGHT OF CEMENT AND 3 GALLONS OF CALCIUM NITRITE PER CUBIC YARD. IN ADDITION, TREMIE CONCRETE SHALL CONTAIN 10 FLUID OUNCES OF THE LIQUID ANTI-WASHOUT ADMIXTURE, RHEOMAC UW 450 PER 100 POUNDS OF CEMENTITIOUS MATERIAL. THE USE OF A SUPERPLASTICIZING ADMIXTURE IS RECOMMENDED FOR THE PUMP MIX.
4. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60.
5. UNLESS OTHERWISE NOTED, SPLICES, LAPS, DOWEL 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"
11. AT TIME CONCRETE IS PLACED, REINFORCING SHALL BE FREE FROM MUD, OIL, LAITANCE OR OTHER COATINGS ADVERSELY AFFECTING BOND CAPACITY.



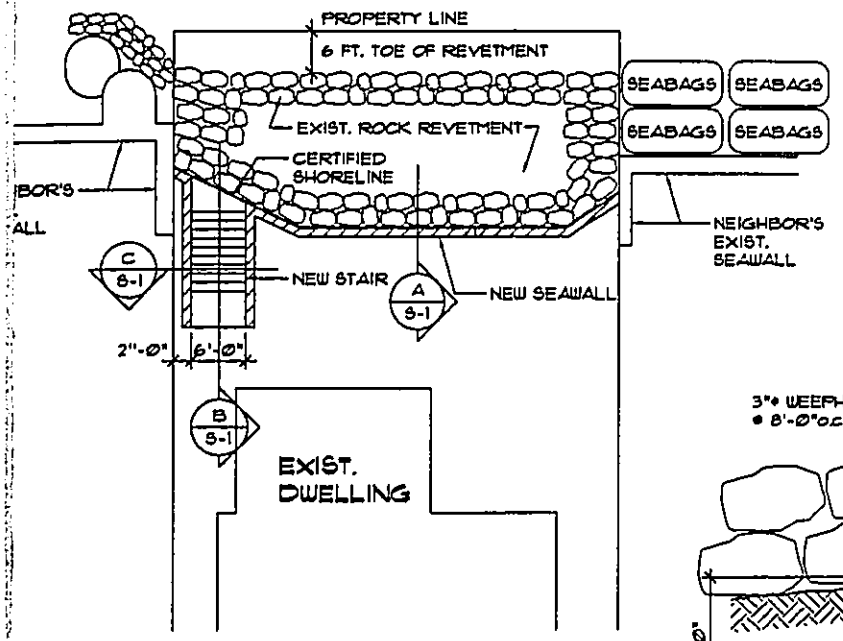
SITE PLAN
SC: 1" = 40'





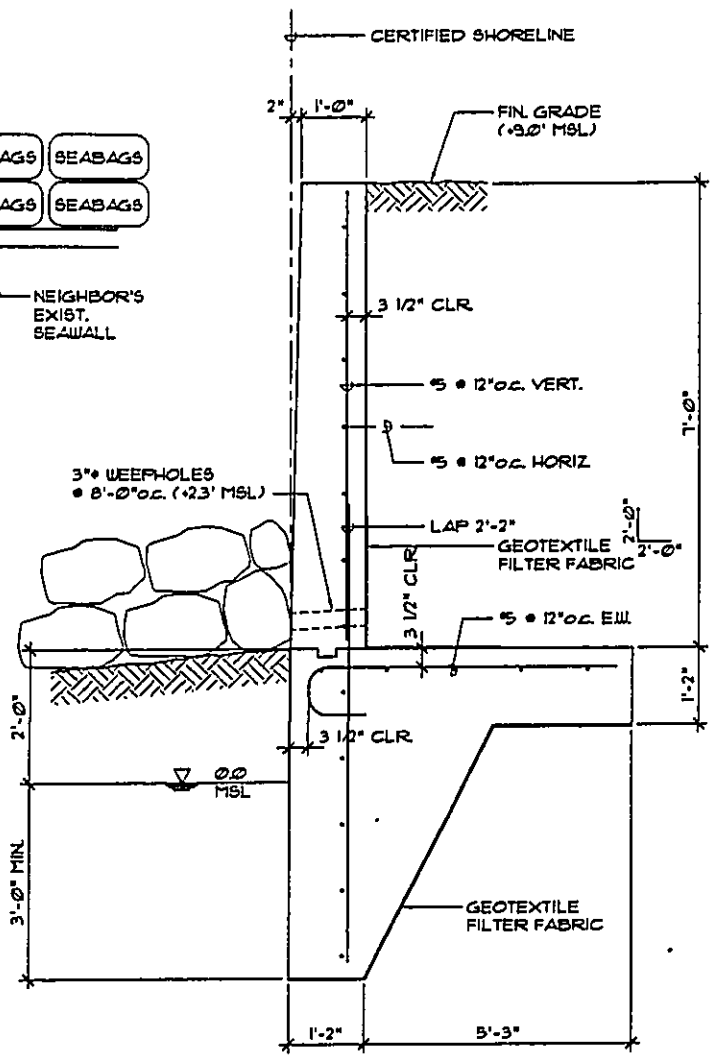
SECTION
N.T.S.

B
B-1



WALL LAYOUT PLAN

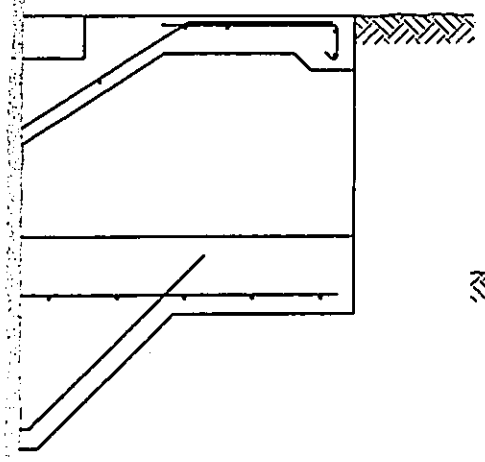
SC: 1" = 10'

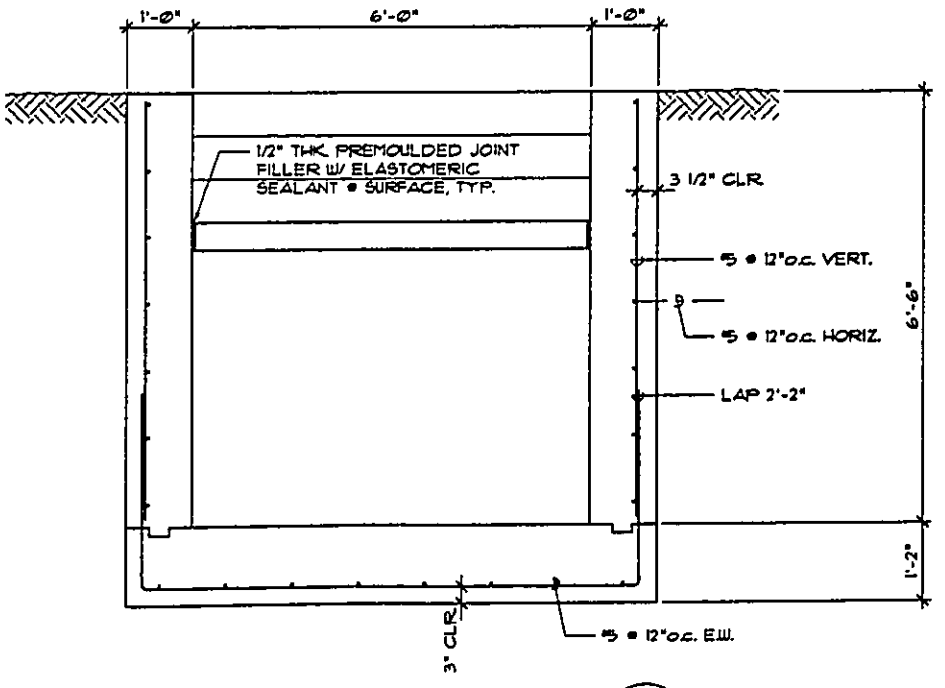


TYP. WALL SECTION

N.T.S.

A S-1





SECTION

SC: 3/4" = 1'-Ø"

C S-1

THOMAS Y. TANIMURA LICENSED PROFESSIONAL ENGINEER No. 4926-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

NEW SEA WALL FOR NED DEWEY
1280 MOKULUA DRIVE, KAILUA, HAWAII
T.M.K. 4-3-04: 60

DRAWN GTM
DATE 2/28/02
SCALE AS NOTED
SHEET S-1

Figure 5: Photos

Photo 1
April 1996

Photo 2
June 1997

← *Note only 6" of drain headwall showing at Right of Way. See photo 14

Lanikai Beach Replenishment Project

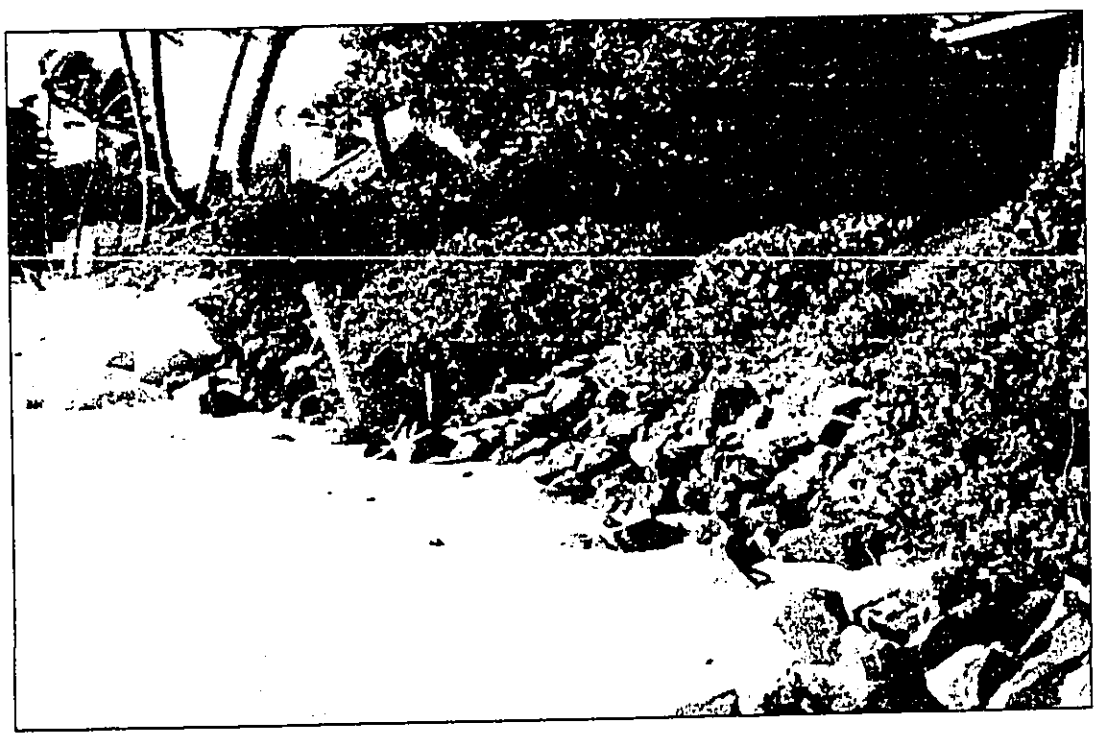


Photo 3
March 2000

Subject Property Loose Rock Revetment

Photo 4
Sept. 4, 2001

Lanikai Beach Replenishment Project

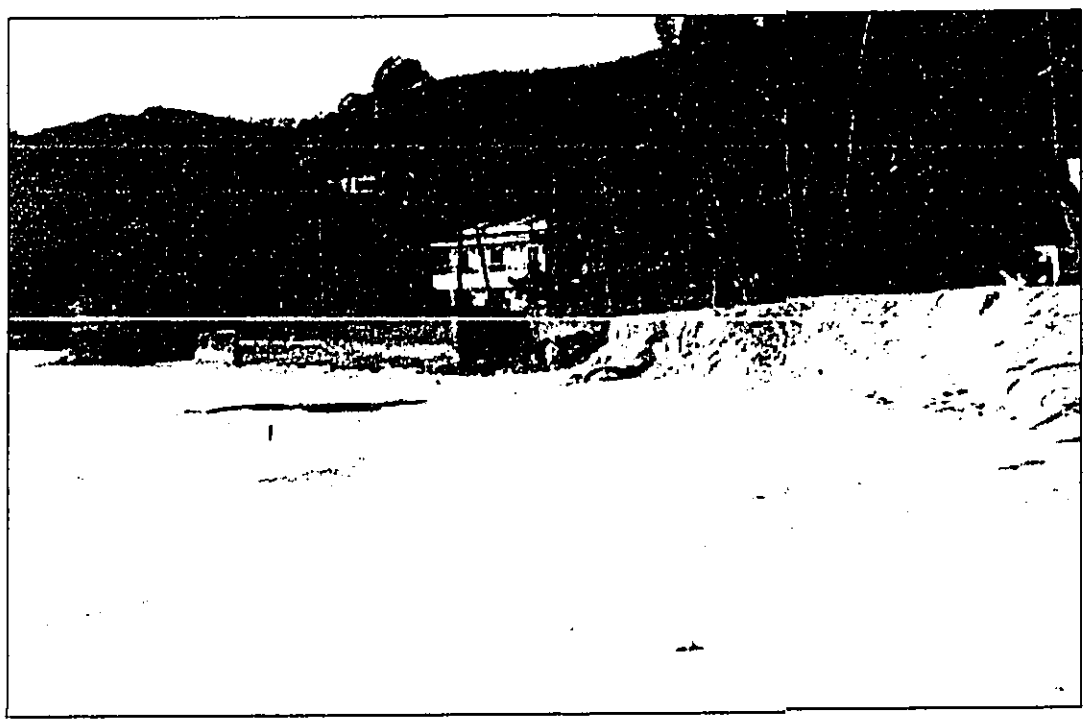


Photo 5
Complete
March 20, 2000

View South

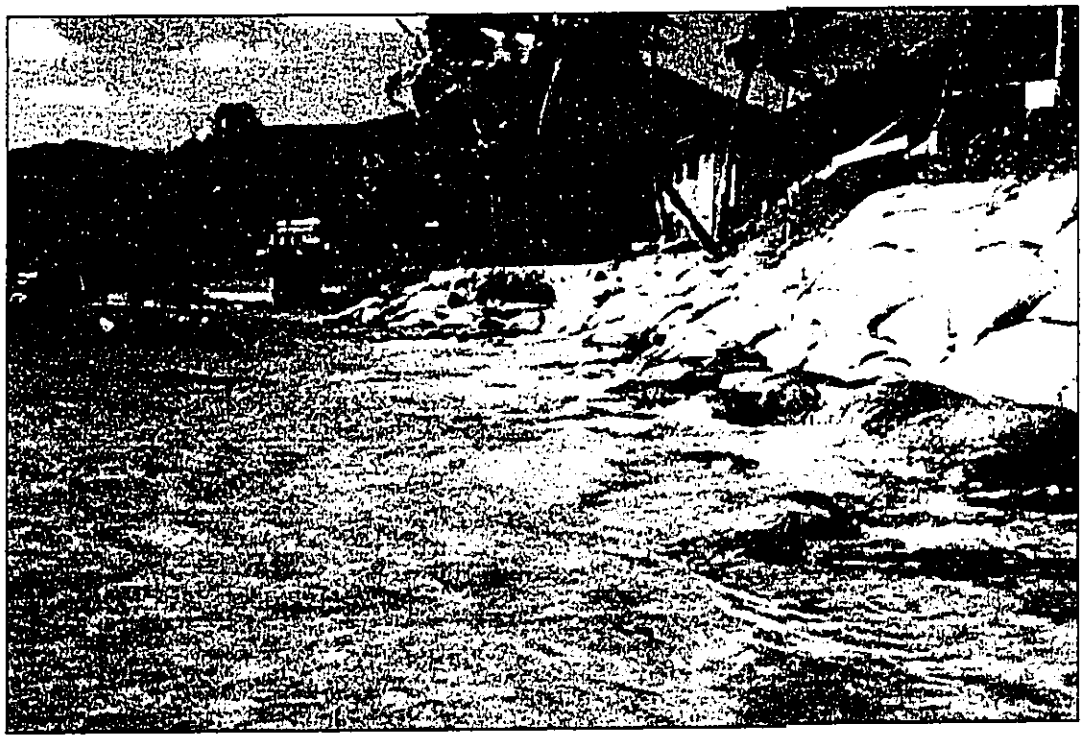


Photo 6
Sept. 4, 2001

Lanikai Beach Replenishment Project

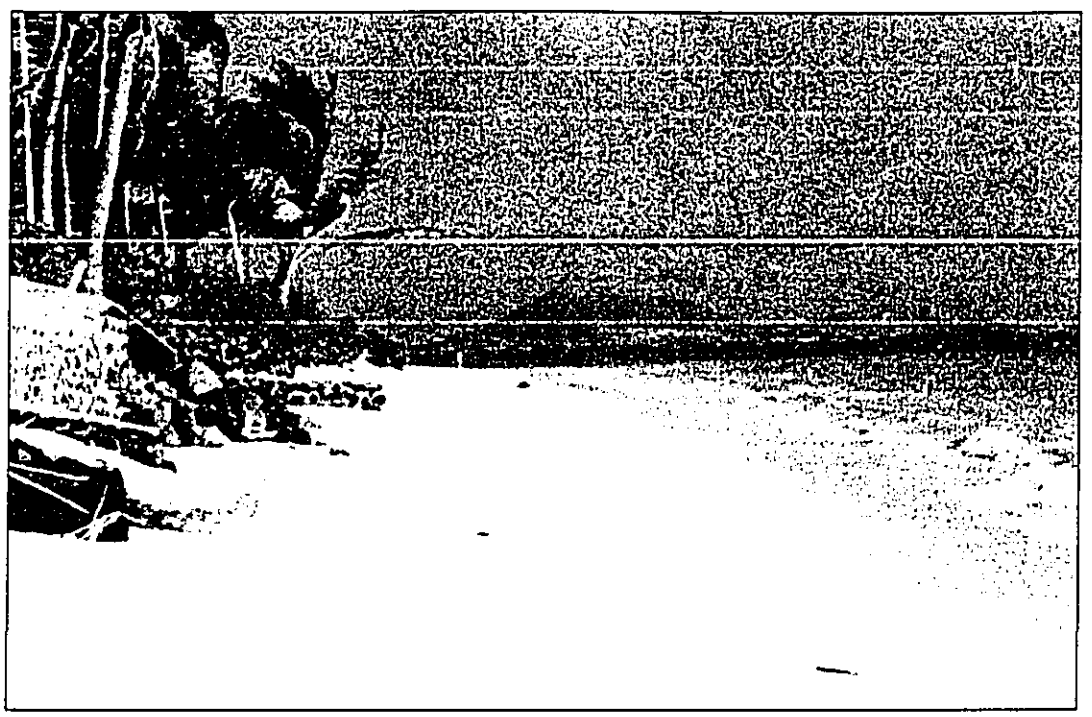


Photo 7
Complete
March 20, 2000

View North

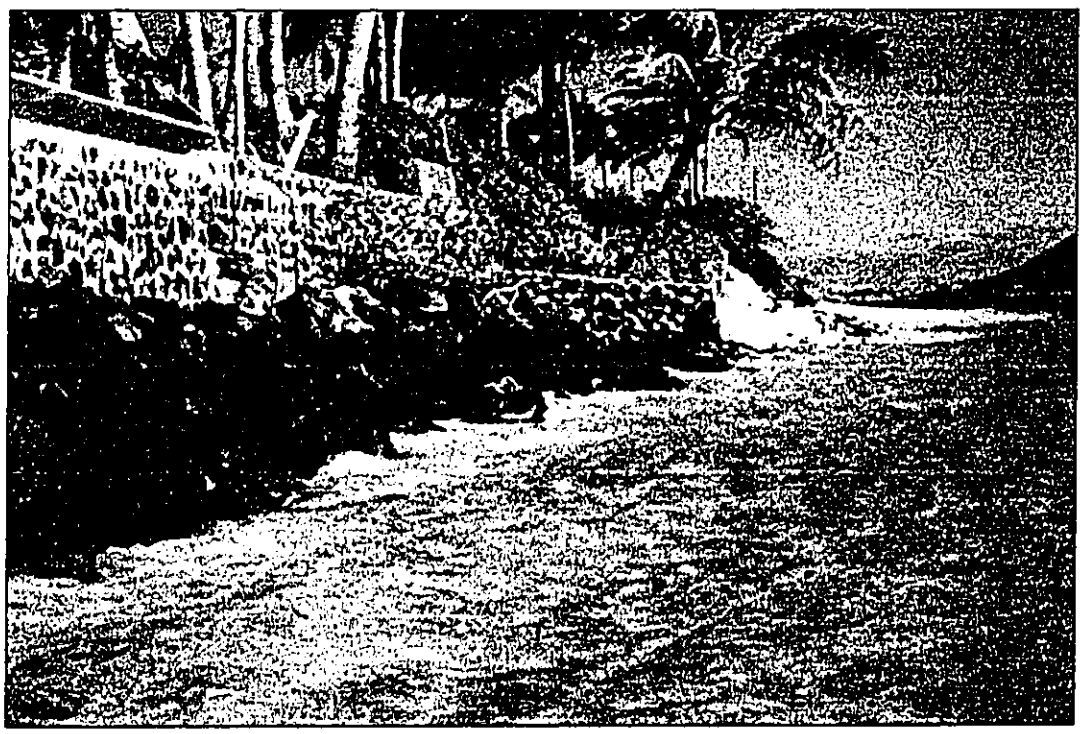


Photo 8
Sept. 4, 2001

Sand Bag Beach

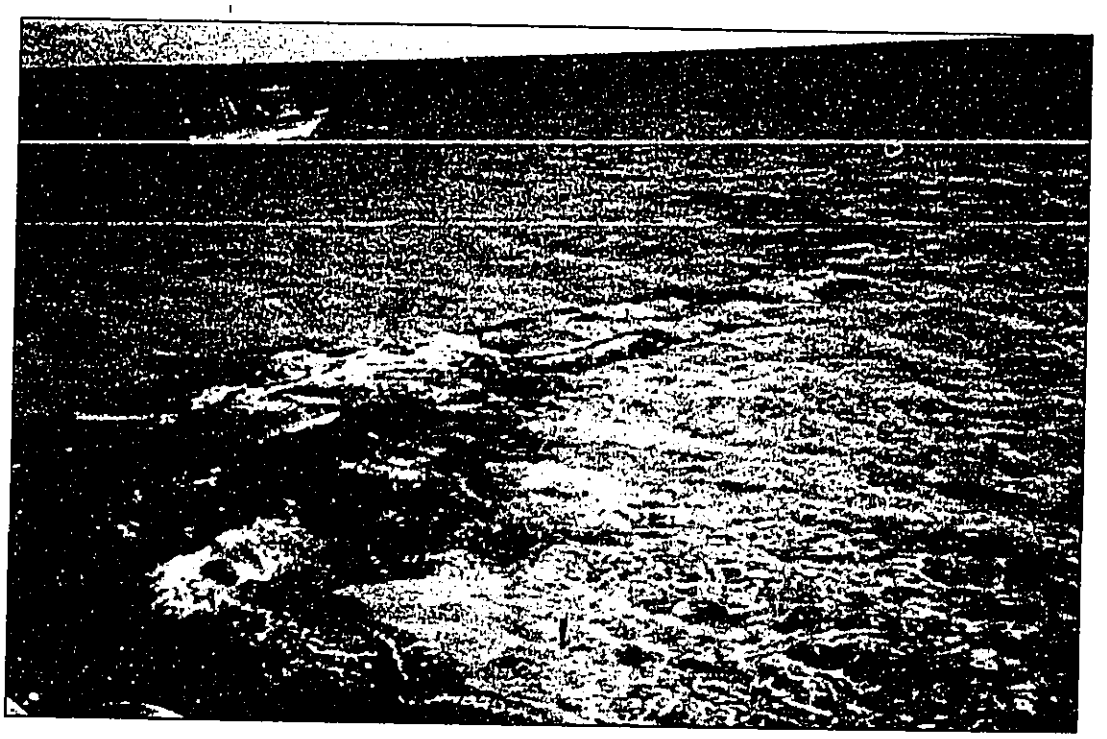


Photo 9
Sept. 4, 2001

Small Groin

Photo 10
Sept. 4, 2001

Structural Failure

Sand Bag Beach Deterioration

Photo 11
Sept. 4, 2001

View North

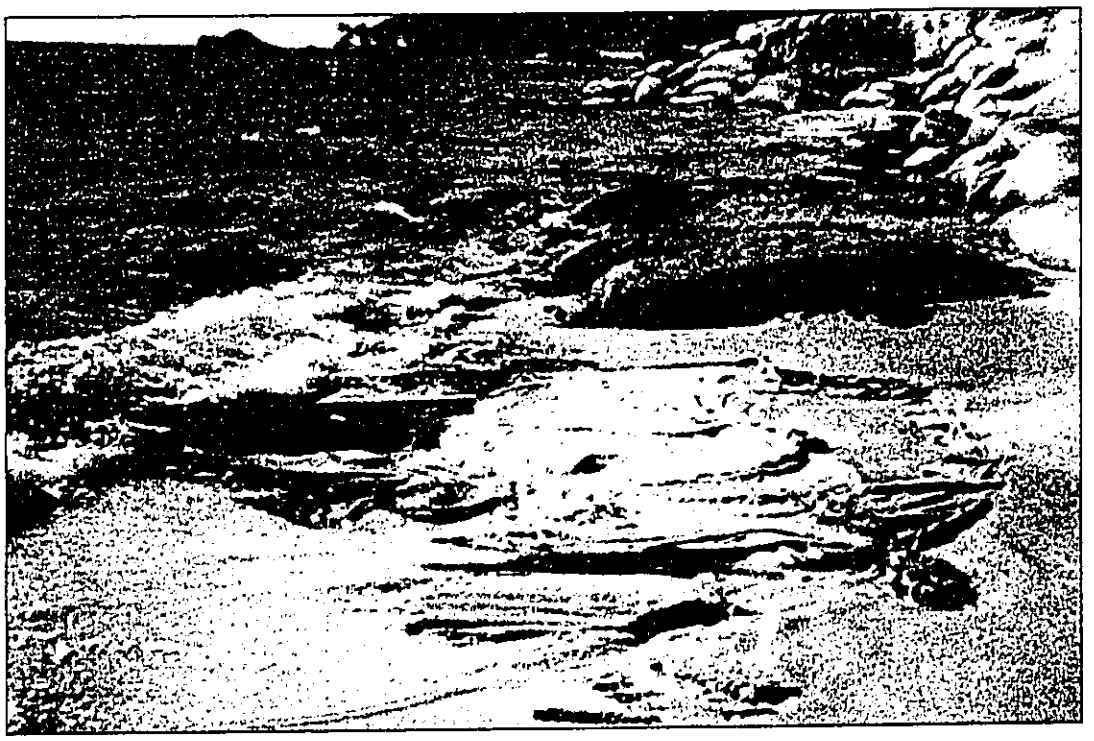


Photo 12
Sept. 4, 2001

View South

Photo 13
Sept. 4, 2001

Engineered, sloping large rock revetments directly South of Sand Bag Beach right of way are effective shoreline protection, fisherman / lateral access friendly, attractive and less reflective than sand bags.

Seawalls North of subject property

Photo 14
Sept. 4, 2001

54" vertical sand loss measured at headwall of drainage out let since June 1997. Right of way is over drainage way, now unsafe to use.

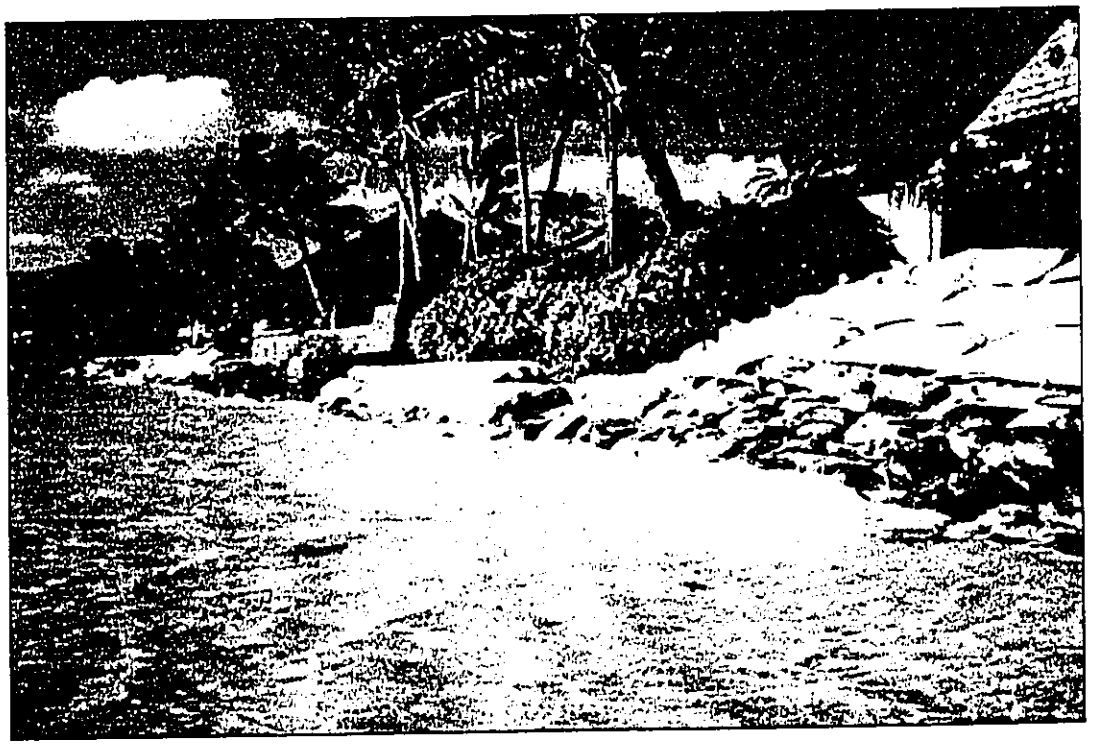


Photo 15
Sept. 4, 2001

Installation of new sand bags to the North. Note Sand Bag Beach further South.

Erosion Continues North

Photo 16
Sept. 4, 2001

New large sand bags on top of failed concrete wall built circa 1967-68. Loose rock dissipater makai of wall with "mat" of failed small sand bags makai of

Photo 17
Sept. 4, 2001

150 ft poured in place reinforced concrete vertical seawall with boat ramp and loose rock dissipater now exposed North of new sand bag site.

Lanikai's Hidden Seawalls

Photo 18
Sept. 8, 2001

Photo 19
Sept. 8, 2001

Lanikai's Hidden Seawalls

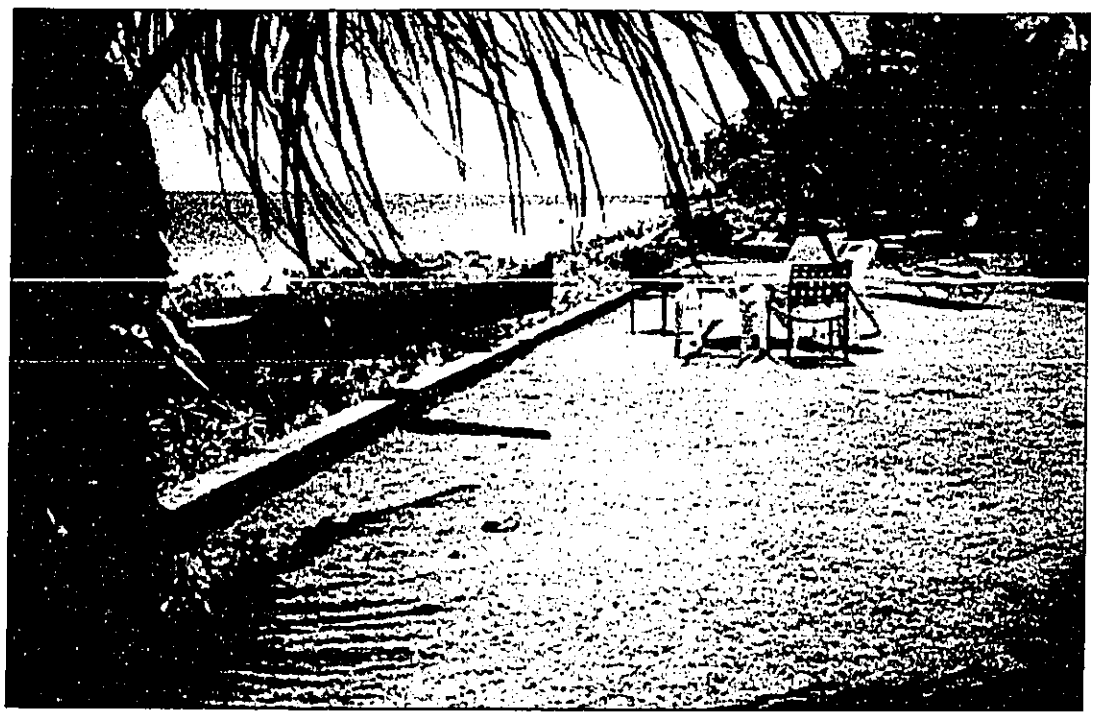


Photo 20
Sept. 8, 2001

Photo 21
Sept. 8, 2001

Dry sand beach now in the process of covering walls in the 800 block of Mokulua Drive.

Lanikai Beach moves North

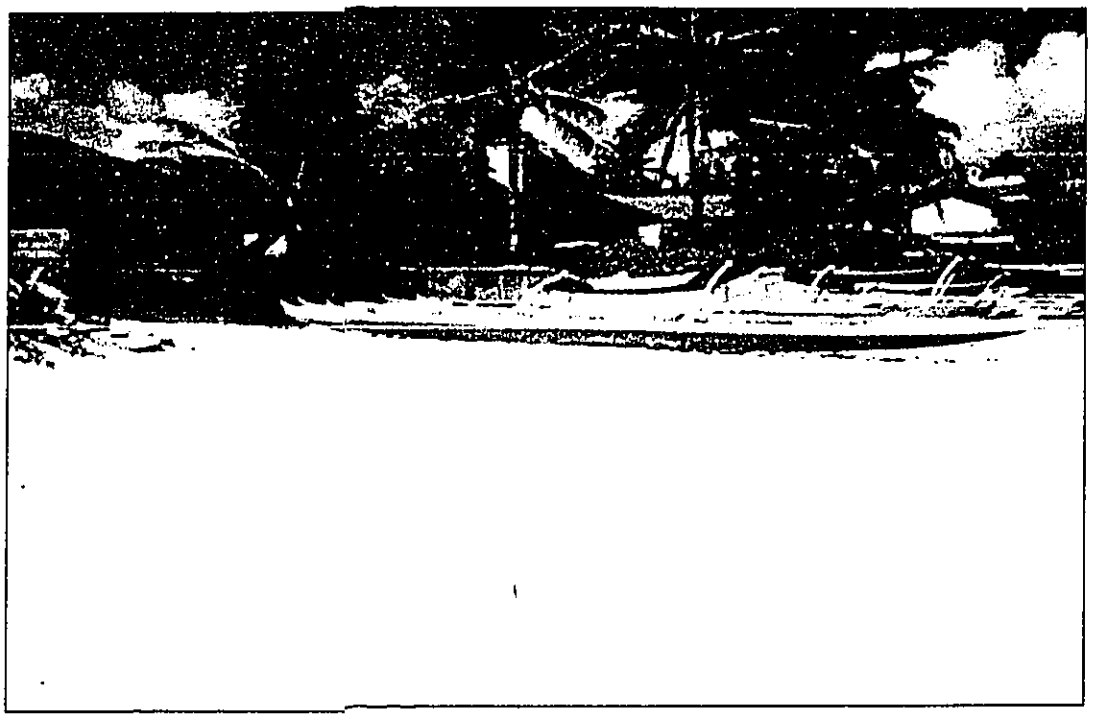


Photo 22
Sept. 8, 2001

North of Kaiolena right of way where Lanikai's widest beach continues to grow in front of 12 ft vertical concrete seawalls.

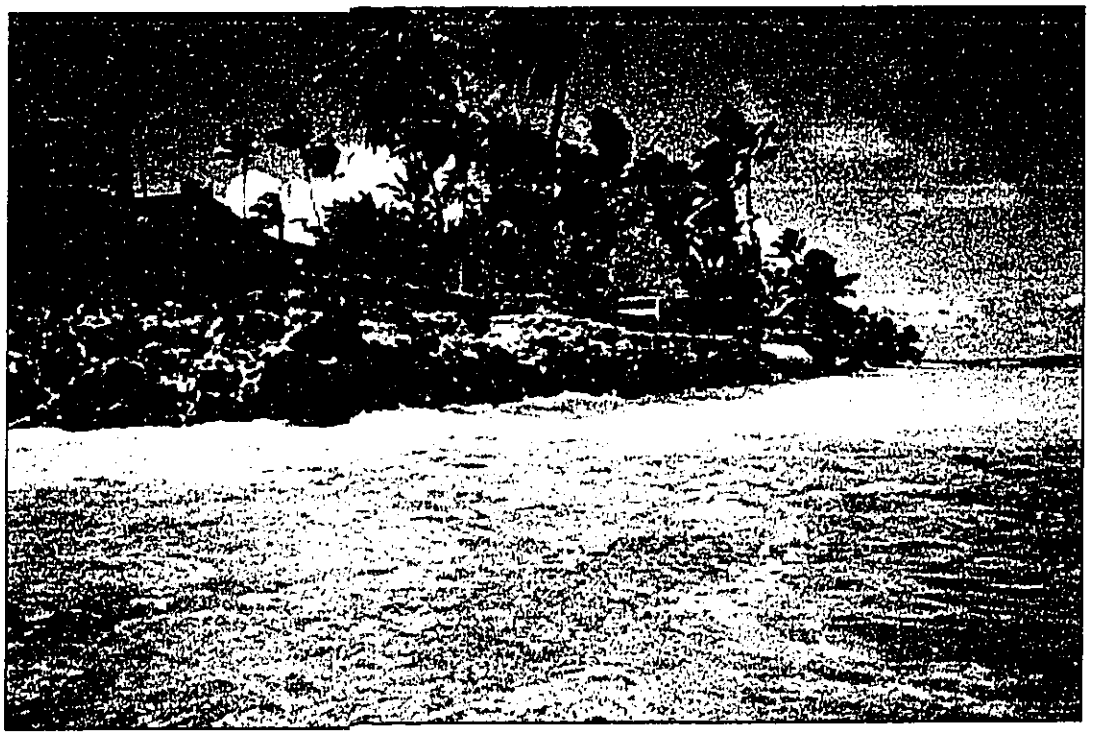


Photo 23
Sept. 8, 2001

Lanipo right of way where 150-200 ft vegetated dry sand beach was located thirty years ago.

South Lanikai Groin

Photo 24
Sept. 8, 2001

CRM groin over 40 years old located at the extreme South end of Lanikai continues to hold an attractive and inviting dry sand pocket beach.

FIGURE 6

Beach Elevation Survey

8/25/01

Distance from Shore	Toe of Bags/ Revetment	+10 ft	+20 ft	+30 ft	+40 ft	+50 ft
Elevation						
Profile 1	-10	-26	-34	-40	-44	-45
Profile 2	+1	-24	-31	-40	-45	-50
Profile 3	+2	-23	-34	-41	-49	-52
Profile 4	-6	-26	-40	-42	-48	-57
Profile 5	-8	-25	-37	-40	-46	-54
Profile 6	-5	-23	-35	-42	-49	-56

Mean Sea Level = 0"
Elevation in inches

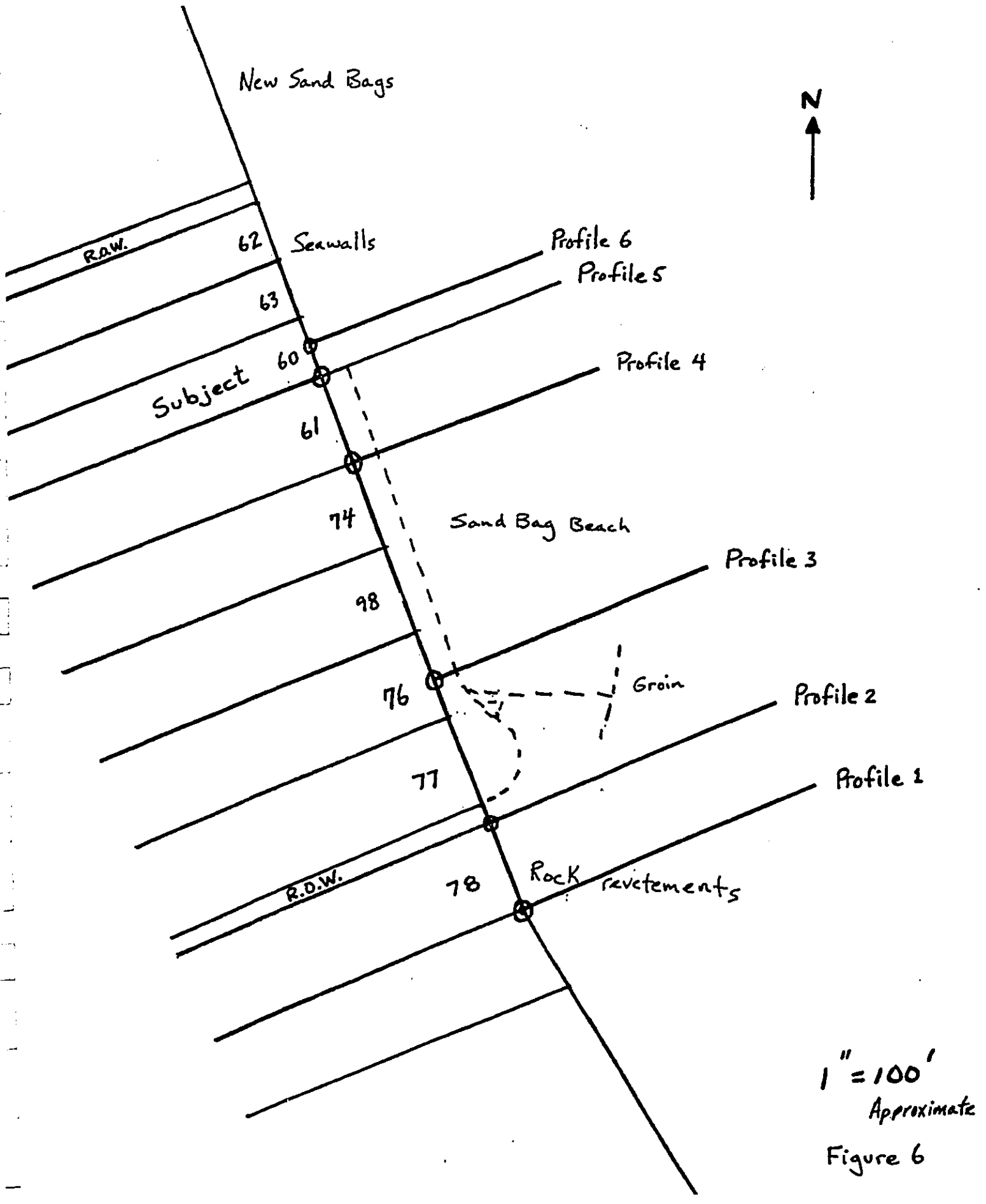
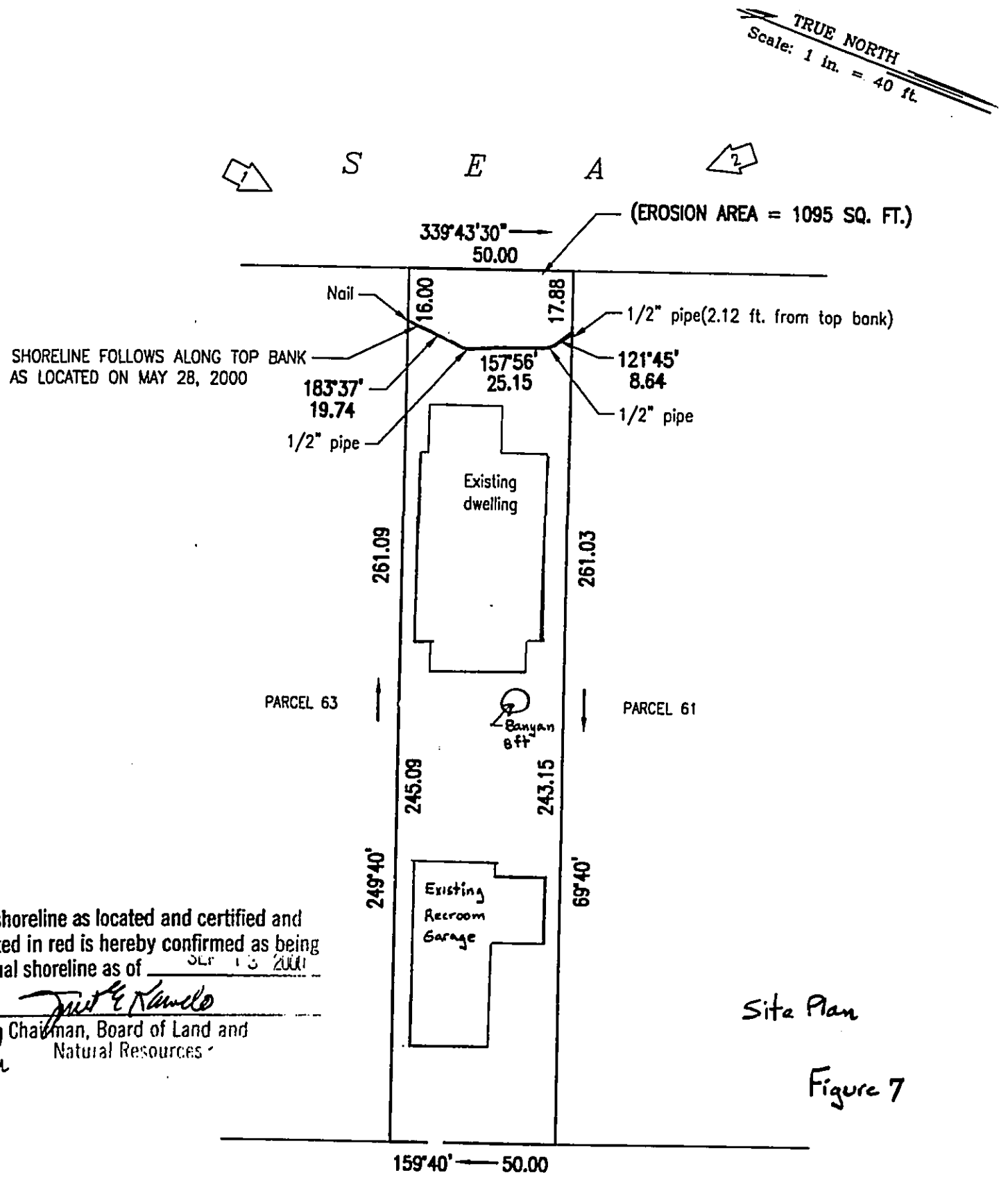

New Sand Bags
N
R.O.W.
62
Seawalls
Profile 6
Profile 5
63
Subject
60
Profile 4
61
74
Sand Bag Beach
Profile 3
98
76
Groin
Profile 2
77
Profile 1
R.O.W.
78
Rock revetements
1" = 100'
Approximate

Figure 6



The shoreline as located and certified and delineated in red is hereby confirmed as being the actual shoreline as of SEP 13 2001

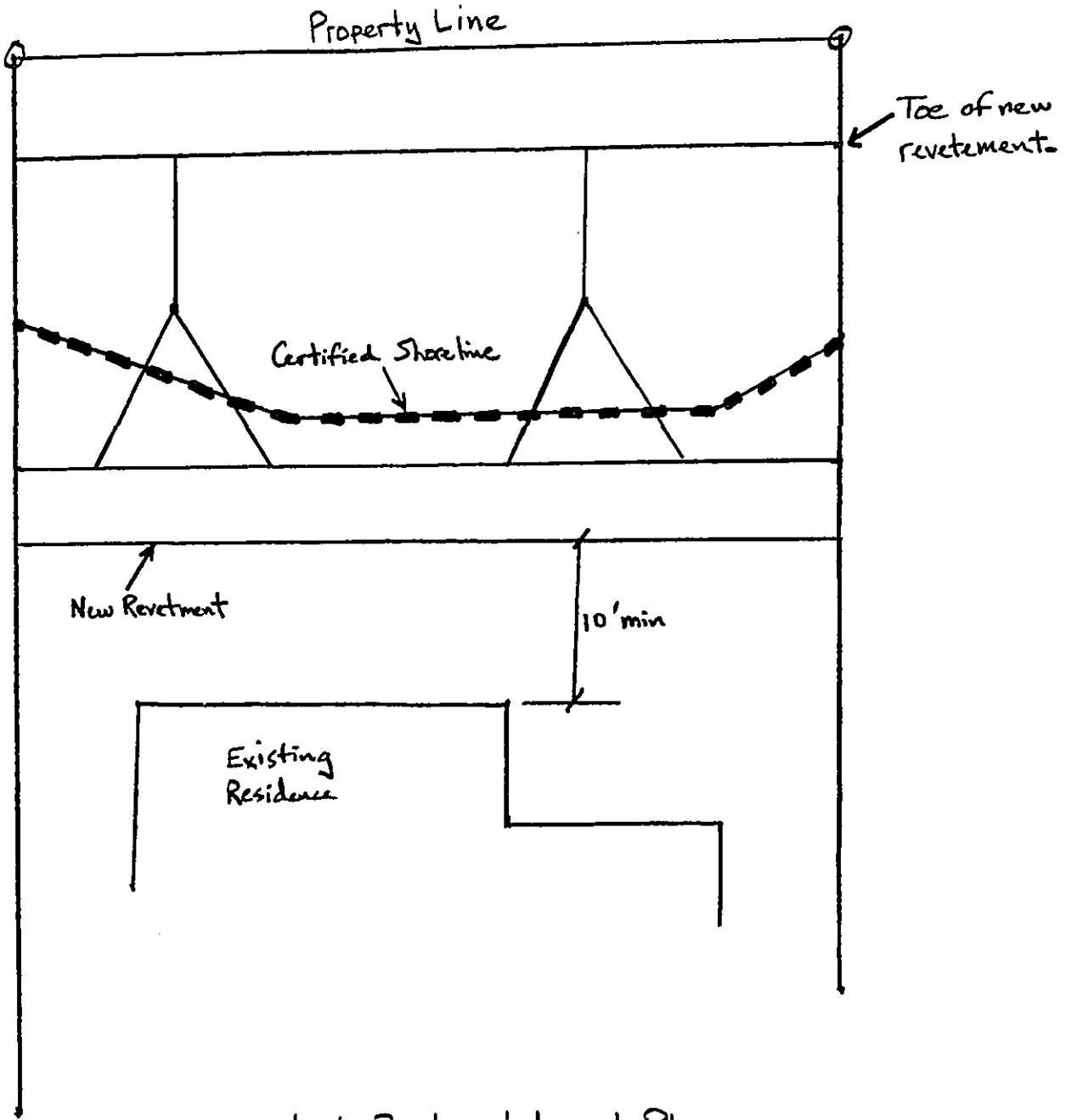
for Chairman, Board of Land and Natural Resources

Site Plan

Figure 7

WESLEY T. TENGAN
LICENSED PROFESSIONAL LAND SURVEYOR
No. 6958
HAWAII, U.S.A.

SHORELINE MAP
PARCEL 60
(LOTS 8-A-2 AND 8-B OF LAND COURT APPLICATION 616)



Conceptual Revetment Layout Plan
1"-10'

Figure 8

Appendix

APPENDIX

Edward K. Noda and Associates, Inc.

Engineers and Environmental Consultants

Engineering
Planning
Surveys
Computer Modeling

615 Piikoi Street
Suite 300
Honolulu, Hawaii
96814-3139

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

CN 2297

April 17, 2002

Mr. Randall K. Fujiki, AIA
Director of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment (DEA)
Shoreline Setback Variance for Shoreline Protection Structure
1280 Mokulua Drive - Kailua
TMK: 4-3-05:60

Dear Mr. Fujiki,

At the request of Mr. Ned Dewey of Pacific Land Services, Inc., I have reviewed the subject DEA and proposed seawall that is intended to be constructed landward of a deteriorated rock revetment on this property shorefront. Following are my comments:

1. It is quite apparent that erosion is continuing along this portion of Lanikai Beach. As you know, Edward K. Noda and Associates, Inc. (EKNA) is very familiar with the past history of shoreline changes, having provided coastal engineering services to numerous Lanikai homeowners, including Mr. John Dilks who owns the contiguous two properties on the south side of Mr. Dewey's lot (TMK: 4-3-04:74 and 4-3-05:61).

2. The Coastal Engineering Evaluation report prepared by EKNA for the Environmental Assessment to support the SSV for Mr. Dilks' seawall is also applicable and appropriate to the subject property. Although the design of the applicant's proposed cast-in-place seawall is different from the CRM seawall approved for the Dilks' properties, the functionality and impacts are substantially the same. The proposed seawall will have no significant impact on the existing coastal processes. I have recommended to Mr. Dewey that our report be included in entirety as an Appendix in his Environmental Assessment to provide the required coastal engineering information to support his SSV application.

3. With respect to a revetment alternative, I have provided a sketch to Mr. Dewey for incorporation into his Environmental Assessment showing the footprint of the revetment. The reconstructed revetment would have approximately the same footprint as the existing deteriorated rock slope. However, because much of this structure would extend seaward of the certified shoreline, it is unlikely that a Conservation District Use Permit would be issued by DLNR.

Very truly yours,

Elaine E. Tamaye
President

cc: Mr. Ned Dewey

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COASTAL ENGINEERING EVALUATION FOR A SHORE PROTECTION STRUCTURE AT LANIKAI, OAHU, HAWAII (TMK:4-3-4:74 and 4-3-5:61)

Prepared by:

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(EKNA Control No. 1781)

December 1997
(Revised)

Coastal Engineering Evaluation
for a Shore Protection Structure at Lanikai, Oahu, Hawaii

1.0 LOCATION AND PROBLEM IDENTIFICATION

The project site is located along two (2) contiguous parcel shorefronts at Lanikai, at 1286 and 1302 Mokulua Drive (TMK: 4-3-4:74 and 4-3-5:61). Both parcels are owned by John Dilks. Figure 1 shows the general site location and Figure 2 provides portions of the Tax Map Key for both parcels.

Because of severe ongoing erosion to these two parcels, particularly during the 1995-1996 winter season, emergency sandbag protection was initiated in April 1996 and completed in May 1996. The SEAbags[1] were placed along the eroded escarpment to form a protective slope. Authorization for this work was obtained from the State of Hawaii Department of Land and Natural Resources (DLNR) and from the U.S. Army Corps of Engineers. Coordination with the City and County Department of Land Utilization was also undertaken.

Unusually large North Pacific swell during November 1996 caused severe shoreline erosion and wave overtopping damage to the windward Oahu coastline. While properties adjacent to the subject parcels suffered additional erosion damage, the emergency sandbag protection prevented significant additional damage to the shoreline embankment fronting the subject properties. However, damage and loss of individual SEAbags did occur, causing slumping of the protective structure and scouring at the crest. Significant wave overtopping also caused sand and water damage to the house and property.

Because the beach fronting this Lanikai coastline is continuing to erode, and because the SEAbag structure was intended as only a temporary emergency measure, the property owner desires to construct a permanent shore protection structure. In accordance with Ordinance No. 92-34 and the Shoreline Setback Rules and Regulations of the City and County of Honolulu, this coastal engineering evaluation is prepared in support of an application for a Shoreline Setback Variance for a permanent shore protection structure extending across the two subject parcels.

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

2.0 SHORELINE CHARACTERISTICS AND COASTAL PROCESSES

Lanikai's beaches have been undergoing net long-term erosion over the past 30 years or so. The coastal reaches at both the northern and southern end of Lanikai are devoid of dry beach, and beach erosion is progressing towards the middle section of this coastline. Various types of seawalls and revetments protect about 2,500 feet of shoreline reach northward of Wailea Point (at the south end of Lanikai) and about 1,500 feet of shoreline reach southward of Alala Point (at the north end of Lanikai). A narrow beach remains along about 3,000 feet of shoreline in the middle segment, but erosional processes are continuing to affect this reach with the starving of sediment from the endpoints of the Lanikai coast.

The project site is located at the southern boundary between the "unprotected" middle segment and "armored" southern end of Lanikai. Beach and shoreline erosion has been steadily progressing northward into the "unprotected" middle segment. Where a narrow dry beach (above the limits of typical wave uprush during high tide) fronted the project site about 7 years ago, now there is no dry beach as well as additional loss of about 10-20 feet of shorefront property. The shoreline escarpment is within about 10 feet of the house foundation on parcel 74, which prompted the owner to construct emergency SEAbag protection.

Figure 3 is a shoreline survey that was performed in February 1996 just prior to the placement of the SEAbags. The SEAbags were stacked against the shoreline embankment to prevent further erosion of the property which could lead to damage to the house foundation. If not for the SEAbags, the large winter waves of November 1996 would certainly have caused more serious damage to the house. Although significant wave overtopping and wave splash carried sand and water onto the property and dwelling, the SEAbags prevented significant additional shoreline erosion and potential undermining of the house foundation. However, in preventing significant additional erosion of the shoreline, the SEAbag protective structure did suffer damage from these storm waves, compromising the integrity of the structure. Storm wave damage, coupled with the ongoing problem of vandalism (bags intentionally or unintentionally cut by beach users and fishermen), had resulted in significant damage and loss of individual SEAbags within a 6-month period following the initial placement of the emergency structure. The owner subsequently replaced the damaged bags to restore the SEAbag revetment structure to its approximate original configuration.

Although the wave climate along the Lanikai shoreline is relatively mild because of the protection afforded by the shallow offshore fringing reefs and islands, ongoing beach erosion threatens properties and homes that are not fronted by wave protective structures. Typical nearshore wave heights are 1 foot or less, with typical maximum wave heights less than 2 feet. Extreme breaking wave height at the shoreline is estimated to be less than 4.8 feet at the project site.

Beaches protect the shoreline by dissipating wave energy through wave breaking and runup processes. However, as beaches narrow because of ongoing erosion processes, more wave energy reaches the shoreline or "fastlands" mauka of the beach, causing erosion damage to the private properties. Property owners typically lose substantial property area and are faced with increasing danger of losing houses and other improvements to erosion damage before they are compelled to expend substantial amounts of money to erect shore protection measures. As in this case for the subject project, combined loss to erosion of almost 3,000 square feet has occurred for the two parcels, and erosion is threatening the foundation of the house and pool.

The nearshore wave approach patterns are complex due to interactions between the wave trains and the irregular offshore reefs and islands. In general, within the Lanikai littoral cell, net transport is predominantly northward from Wailea Point during summer months due to easterly tradewind-generated waves and southeasterly swell that may reach this coastal area, and southward from Alala Point during winter months due to North Pacific swell. This accounts for the greatest loss of beach at the endpoints of the Lanikai littoral cell, and the greater stability of beach area within the middle segment. Because there is a deficit of sand at the southern end of Lanikai, there is little sand transport towards the project site during predominant easterly tradewind wave conditions. During periods of more northerly tradewind waves and in winter months when northerly swell can occur, southward longshore transport of sand from the beaches in the middle segment of Lanikai can result in some buildup of sand along the project reach. However, because winter North Pacific swell can be more energetic than typical tradewind waves, they can also cause more wave damage to properties that are already vulnerable to erosion damage because of narrow or non-existent dry beach area.

3.0 HISTORIC BEACH AND SHORELINE CHANGES

Data from a prior study[2] indicates that the southern end of the Lanikai shoreline has experienced considerable accretion and subsequent erosion over a long-term period from 1950 to the 1980s, while the middle segment has been relatively more stable. It is evident that the erosion trend is continuing at present, and progressing into the middle segment.

Between 1950 and 1970, the southern end of Lanikai accreted substantially, a maximum of about 200 feet near the Lanipo Drive drainage channel. Over a 2,500 feet length of shoreline north of Wailea Point, average accretion of the vegetation line was 50 feet and about 90 feet for the beach toe line, over the 20-year period. From 1970 to the early 1980s, this shoreline reach eroded back to the approximate 1950s position. Most of the seawalls were constructed in response to this erosion cycle. This long-term accretion-erosion cycle was not unique to Lanikai, as similar shoreline movement occurred at Kailua Beach Park. Figure 4a shows the average cumulative movement of the shoreline at the southern end of Lanikai, and Figure 4b shows the historical shoreline movement at Kailua Beach Park at the location of two transects northward of the boat ramp. The long-term accretion-erosion cycle was a natural process, possibly caused by shifts in wind and wave patterns. In general, long-term cycles have been observed in meteorological trends and it has been postulated[3] that there is a cycle with an appropriate period involving the variation in mean direction of the tradewinds near the Hawaiian Islands.

The seawalls and revetments armoring the entire southern end of Lanikai were constructed in response to the erosion cycle to protect existing residential improvements, and were not the cause of the erosion. Their influence now, however, may be to discourage sand buildup because of the increase in reflectivity. Deficit of sand along this southern end of Lanikai is causing a gradual shift of the erosion trend northward into the middle segment of the Lanikai coast which historically has been relatively stable. The project site is in the transition zone between the armored

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[2]Based on analysis of historical aerial photos as described in the study report "HAWAII SHORELINE EROSION MANAGEMENT STUDY, Overview and Case Study Sites (Makaha, Oahu; Kailua-Lanikai, Oahu; Kukuiula-Poipu, Kauai)", prepared by Edward K. Noda and Associates, Inc. and DHM Inc., for the Hawaii Coastal Zone Management Program, Office of State Planning, June 1989.

[3]Wyrtki, K. and G. Meyers, (1975), "The Trade Wind Field Over the Pacific Ocean - Part 1. The Mean Field and the Mean Annual Variation", Hawaii Institute of Geophysics Report HIG-75-1.

southern end of Lanikai and the middle segment that has undergone relatively small fluctuations in the position of the shoreline and beach. Because there is no evidence that the long-term erosion cycle in the vicinity of the project site is likely to reverse, the subject property owner and others to the north will likely suffer progressive erosion damage, and have little recourse but to build shore protection structures to prevent erosion damage to their homes.

About seven years ago, four property owners with unpermitted seawalls were required to remove the walls and replace them with sloping revetment structures. The prevailing opinion at that time was that sloping revetment structures were less harmful to the beach than vertical seawalls. These four contiguous properties are located about 200 feet south of the project site, on the south side of the public right-of-way (TMK:4-3-4:96). The property on the immediate north side of the public right-of-way (TMK: 4-3-4:77) was the last armored property along this southern reach at that time, also with an unpermitted shore protection structure.

After lengthy litigation with the City and County, a settlement agreement was reached with the property owner of parcel 77. The settlement agreement required that the unpermitted rock slope be removed and a system of sand-filled bags would be used initially to construct a protective revetment structure. Because the Lanikai Community Association was considering pursuing a comprehensive plan for replenishment or restoration of sand along the Lanikai shoreline, the sand bag system would serve as interim protection until such time as the beach was restored. However, because of the uncertainty of the beach restoration program and the questionable long-term durability of the sand bag revetment under storm wave attack and continued beach erosion, the property owner would be permitted to construct a permanent rock revetment if and when the sand bag revetment does not serve to adequately prevent erosion and wave damage to the property. The settlement agreement also included the adjacent parcel 76 (on the north side of parcel 77) and parcel 96 (the public right-of-way on the south side of parcel 77).

The sand bag work was initiated in late 1995. By February 1996, SEAbags had been placed along parcels 77, 76 and 98 (parcel 98 is adjacent to subject parcel 74). SEAbags were not only stacked along the shoreline embankment, but were also placed seaward of the shoreline to form a somewhat protective breakwater berm seaward of the beach toe. The offshore berm was apparently intended to function by tripping the waves and, in the process, trapping suspended sand landward of the berm to rebuild

the beach. The SEAbags on the adjacent properties did not survive the 1995-1996 winter season very well. The SEAbag revetment on adjacent parcel 98 had to be rebuilt in February-March 1996, and by that time, the property owner of the two subject parcels had suffered extensive erosion damage. Photos 1 through 8 show the condition of the subject properties and adjacent properties in February-March 1996.

Whether the SEAbag work undertaken on the adjacent parcels aggravated the erosion on the subject parcels is speculative. However, the erosion that was experienced during that 1995-1996 winter season was particularly severe, prompting the subject property owner to also construct a SEAbag revetment as an emergency shore protection measure. The SEAbag revetment on the subject parcels was initiated in April 1996 and was substantially completed in May 1996. Photos 9 through 11 show the completed SEAbag revetment on the subject parcels and the condition of adjacent properties in June 1996. In November 1996, severe winter waves caused additional damage to the already deteriorated SEAbag system on the adjacent parcels, and also caused some damage to the SEAbag revetment on the subject parcels. Erosion damage to the adjacent unprotected property on the north side of the subject parcels also occurred. In early 1997, the subject property owner replaced the damaged SEAbags to restore the condition of his SEAbag revetment.

Photos 12 through 17, taken in May 1997, show the existing condition of the SEAbag revetment on the subject parcels and the condition of adjacent properties. Note that the shoreline fronting the adjacent properties to the south is continuing to be modified by placement of SEAbags, removal of prior SEAbags that were damaged, placement of additional beach sand obtained from offsite source(s), and possibly mechanical re-distribution of sand in the nearshore area. While the details are unclear, apparently the work is being done as part of a demonstration pilot project for beach replenishment by the Lanikai Beach Management Committee.[4] A Departmental Permit for use within the Conservation District was issued by the Board of Land and Natural Resources on June 3, 1996 for the demonstration beach replenishment project. A condition of the permit was the requirement to perform pre-, during-, and post-construction beach profile monitoring and topographic monitoring for at least a year. The first monitoring report for the "Pilot Research Project" was filed in September 1997 by David Lipp, the coastal engineer who is monitoring the project on a volunteer basis. The report

[4]Reference: Conservation District Use Application for a Demonstration Pilot Project for Beach Replenishment on State-owned Submerged Lands Identified as Offshore at Kailua, Oahu, File No. OA-2802, dated May 31, 1996, Department of Land and Natural Resources.

includes time series graphs of beach profiles for five transects along the shoreline. Each graph shows data from four observations made between September 1995 and June 1997. Attached as Appendix A, Lipp's report states that sand movement into the area over time is due to environmental conditions, not the SEAbags themselves. According to Lipp, *"What is important to note is that the sandbags did not prevent the beach from reforming."*

The monitoring report and its conclusions were reviewed in a memorandum dated September 8, 1997, which is attached as Appendix B. In summary, the review:

(1) concurred with Lipp's conclusions and commented on the seasonal movement of sand on Lanikai Beach;

(2) pointed out that there was no evidence of restoration of any dry beach area and that, without the SEAbags protecting the properties, there could have been greater loss of fastlands;

(3) observed that quarterly measurements would account for seasonal changes and provide more meaningful data; and

(4) observed that the monitoring report lacks any description of the work actually performed over the 21-month period, including the amounts of sand added to the littoral system and the various configurations of SEAbags tested.

In any event, the "Demonstration Pilot Project" is limited to a small portion of the Lanikai shoreline and is unlikely to benefit the Dilk's property or the adjacent properties to the north. As stated in the Conservation District Use application, it is experimental in nature. To date, there is no known plan to undertake a comprehensive beach replenishment/restoration program.

In Photo 17, note also that seawalls are now exposed on two parcels to the north of the subject parcels (TMK: 4-3-05:62 and 63). Located on the south side of a public right-of-way (TMK:4-3-05:87), these seawalls were probably built some time ago but were obscured with vegetative growth because this section of beach had accreted and was relatively stable until recent times. With this past winter storm wave damage to the shoreline area, the seawalls are now fully exposed.

In summary, the City and County of Honolulu has made concerted effort over the last ten years to enforce the shoreline setback rules and regulations in a way that would minimize potential impacts to the beach and shoreline at Lanikai. Unpermitted seawalls were required to be replaced with sloping rock revetments, and sand bags were required to be used in lieu of permanent shore protection as an interim measure in hopes that the erosion trend may diminish or reverse. As of this date, the long-term erosion trend is continuing, and there is no evidence of significance difference in beach response related to the types of shore protection structures that have been built. Construction of the proposed seawall would not foreclose the possibility of future restoration of a wide beach strand, whether by natural or artificial means. In the 1960's and 70's, seawalls were built along other portions of Lanikai Beach which were then suffering erosion but have subsequently experienced accretion. Along the middle part of Lanikai Beach, accreted sand has built up the beach in front of the seawalls, in some cases almost to the full height of the walls. The history along Lanikai Beach gives evidence that the presence of a seawall does not preclude natural beach accretion.

4.0 CONSIDERATION OF ALTERNATIVES

Beach restoration and nourishment would be the preferred alternative for the entire southern end of Lanikai. Unfortunately, this alternative is costly and not an economically viable alternative for individual residential property owners. Beach nourishment would be required for a long stretch of shoreline reach extending beyond the subject parcels, since wave energy will quickly redistribute small quantities of beach material unless beach containment structures (such as groins) are built to confine the beach fill fronting individual parcels or short stretches of shoreline. If no structural measures are built to stabilize the beach fill, periodic nourishment would likely be required. Beach restoration and nourishment, in general, is difficult to design and maintain as a "shore protection" alternative. For the beach to provide adequate protection during storm wave events, it must have adequate beach width, elevation, and length along the entire shoreline reach within the defined littoral cell. The large quantities of suitably coarse natural beach sand required for major beach restoration/nourishment projects are not readily available in Hawaii. In fact, sand is periodically barged to Hawaii from overseas locations (such as Australia) for commercial sale to golf courses at premium cost. For beach restoration programs, the actual "cost" of implementation includes the regulatory (EIS/permits), design, initial construction, and periodic nourishment costs. All phases involve substantial commitment of resources, clearly beyond the financial capability of individual residential landowners.

An offshore breakwater structure would be a suitable alternative to mitigate continued erosion damage. A low profile offshore breakwater would not significantly affect scenic views while still serving to dissipate the incoming wave energy, thereby forming a protective area in the lee of the structure. Since littoral sediment transport processes require breaking wave energy to transport the littoral materials at the shoreline, a reduction of the incident wave energy will directly reduce erosion in the lee of the breakwater. Access to the beach and nearshore waters would not be affected by the offshore structure. However, the breakwater must be properly designed to function adequately. For example, it must have adequate dimensions (length, width, height) to dissipate storm wave energy, it must be built with materials that will maintain its structural integrity under storm wave attack (large boulders or concrete armor units), and it must not affect nearshore circulation in a way that may cause water quality problems or dangerous currents. Offshore breakwater construction is costly and carries a higher risk than onshore construction. Repair or maintenance of the

structure, if damaged due to an extreme storm event, is also very costly due to difficulty in accessing the structure with conventional land equipment.

For individual residential property owners, seawalls and revetments are the most viable methods of protecting the shoreline from wave attack. Seawalls are vertical or near-vertical structures, typically concrete or grouted rock masonry walls. Revetments are sloping structures typically constructed using rock of sufficient size to remain stable under design wave attack, although there are a variety of manufactured systems and materials used to build sloping revetment structures. Seawalls are generally less costly to construct than revetments since they can be built using smaller building materials than rock revetments and require much less total quantity of building material. Near-vertical seawalls also occupy less space along the shore than sloping revetments, and their narrow footprint maximizes use of the backshore areas as well as minimizing encroachment into the public shorefront seaward of the structure.

For sandy shorelines, vertical impermeable seawalls are generally not as desirable as permeable rock revetments because of their high reflectivity, which can cause scouring of the sand in front of the structure and can lead to undermining at the base of the wall if the seawall is not founded on hard material. For beach environments, rock revetments are more effective in dissipating wave energy and are not prone to catastrophic damage due to its flexibility. However, revetments must be properly designed such that the armor layer is stable under design wave attack, and with proper provisions for underlayer(s) and filter material to prevent leaching of the foundation or backfill material through the voids in the rock layers. Revetments can also suffer scouring of sand in front of the structure, and the revetment toe must be designed to prevent undermining at the base of the rock slope, which can lead to slumping or unraveling of the rock slope. Because revetments occupy substantial space on the shoreline due to their sloping face and multiple rock layers, in some cases there is insufficient space between the certified shoreline and the dwelling to construct a revetment because of the substantial erosion that has already occurred.

To construct a sloping revetment on the Dilks' property would entail building a portion of the structure seaward of the certified shoreline, within the jurisdiction of the State Conservation District. This would necessitate applying for and obtaining a Conservation District Use Permit from the State Board of Land and Natural Resources. It could also require a permit from the U.S. Army Corps of Engineers.

The placement of SEAbags for interim shore protection, as has been used at the subject property to provide a protective revetment slope, is effective but cannot be considered a permanent measure. The bags are prone to damage from storm wave attack and vandalism, and can require frequent and continual maintenance. The cost of materials and labor to install the bags is less than $300 per linear foot of revetment (assuming that in-situ sand is used to fill the bags). But considering the potential long-term maintenance requirement, the total cost over 25 years can be greater than the cost of initially constructing a permanent shore protection structure. Sand bags are considered "environmentally benign" because the color and texture of the fabric blends in with the beach, and they can be easily removed by simply cutting the bags to release the sand contents. However, they are not "soft" structures in their as-built state. In fact, the large sand bags are solid, hard building materials when fully filled, and a sand bag revetment structure probably is more reflective than a rock revetment, for the same slope. Although the bag material is permeable (meaning that water will pass through the bag material), *once* the bags are filled and stacked to form a structure, the overall porosity (ratio of void space to hard surface) of the structure is very low on the time scale of wave impact. Therefore, because there are few voids between the stacked bags, wave energy is more readily reflected rather than dissipated within the structure slope as would be for a rock revetment. Another potential concern is that bags that are below the water line or within the tidal/swash zone become very slippery because of algal growth, and pose safety problems where people can slip and injure themselves. Even newly installed bags with no algal growth can be slippery because of the smooth surface of the bag material.

5.0 DESCRIPTION OF PROPOSED ACTION

Because of the severity of the shoreline erosion fronting the subject parcels, there is little space between the certified shoreline and the house and swimming pool structures. The only type of structure which can physically be constructed landward of the certified shoreline (county jurisdiction only) is a near-vertical seawall. As discussed in Section 4.0 above, constructing a sloping revetment would entail extending the structure seaward into the State Conservation District and would require obtaining a Conservation District Use Permit. Although the Department of Land and Natural Resources has stated that it favors a vertical seawall in this situation, a plan for a sloping revetment has been prepared and is provided as an alternative to the vertical seawall (see Section 5.2 below).

5.1 Proposed CRM Seawall

A concrete reinforced masonry (CRM) seawall is a practical and visually attractive type of shore protection which has been constructed on many lots throughout Lanikai Beach. The seawall would be built landward of the certified shoreline[5] fronting both subject parcels. The seawall would extend along approximately 150 feet of shoreline frontage, with short return sections at each end. Figure 5 shows the proposed layout plan for the seawall and Figure 6 shows a typical section prepared by the property owner's structural engineer.

The top of the seawall would be at elevation 9 feet above MSL, which is at or slightly above the existing grade of the property shoreline. The bottom of the wall would be placed 3 feet below MSL (or on hard material if encountered at shallower depth). Therefore, the total height of the wall is 12 feet. The existing SEAbags that are still intact would be left in place along the seaward base of the seawall, to the extent practicable, to provide additional scour protection and to facilitate construction of the wall. At present, there is little or no dry sand beach fronting the project site (i.e., waves reach the SEAbag revetment during high tide). Therefore, if not for the existing SEAbags, it would be very difficult to build the seawall because wave uprush would inundate the work area.

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[5]The February 12, 1996 shoreline survey was submitted for certification. The shoreline was certified by the State Land Surveyor on June 12, 1997.

The seawall would be constructed of rock set with cement mortar, using very large rocks at the base of the wall and smaller rocks near the top. The bottom width of the wall would be 7.5 feet. Because of the requirement to build the seawall entirely landward of the certified shoreline, the landward base of the wall would be within about 8 feet of the foundation of the house at its closest point, and within about 10 feet of the concrete slab of the pool. Temporary shoring may be required to stabilize the excavation side slope during construction.

Because the top of the wall would not extend much above the existing shoreline elevations, wave overtopping can occur during high tides and storm wave attack. Therefore, weepholes would be provided to relieve hydrostatic pressures that could result in damage to the wall or formation of sinkholes landward of the wall.

To facilitate access to the beach, stairs would be constructed at about midpoint near the boundary between the two subject parcels. No portion of the stairs would extend seaward of the certified shoreline.

At both ends, the seawall would turn mauka and extend approximately 20 feet landward along the side property boundaries. The flank sections of the wall would be virtually identical to the seaward section, except that the footing need not be extended as deep. Because wave crests are nearly parallel with the beach, the flank walls will not be subject to scouring problems. Their function is to prevent erosion on the back-side of the seawall in the event that the adjacent properties are not protected and are allowed to erode. Because the seawall must be built entirely within the Dilks' property, there is very little room to build the flank sections.

The top of the wall will have a green chainlink fence, bronze anodized railing or similar dark-colored fence or railing approximately 42 inches above grade. This is needed for safety.

5.2 Revetment Alternative

As a proposed alternative, a sloping rock revetment would be built along the certified shoreline fronting both parcels. It would extend along the 150 feet of shoreline frontage, with short return sections at each end. Figure 7 shows the proposed layout plan for the revetment, and Figure 8 shows a typical section.

The toe of the revetment would be placed 3 feet below MSL and would rise at a 2:1 slope—2 horizontal to 1 vertical—to an elevation approximately 9 feet above MSL, at or slightly above the existing grade at the property shoreline. The revetment would be approximately 18 feet wide from top to bottom, with a 4-foot crest at the top that would be level with the grade of the property.

As shown in the drawings, the revetment would be aligned in a straight line across the front of the properties and sited as far landward as possible. On the northern parcel, the toe of the revetment would extend to the seaward Land Court property boundary. On the southern parcel, the toe would be landward of the Land Court property boundary. On both parcels, the revetment would extend seaward of the certified shoreline, so that a portion would be in the Shoreline Setback, administered by the City, and a portion would be in the Conservation District, administered by the DLNR. Both a Shoreline Setback Variance and a Conservation District Use Permit would be required.

Based on the plans prepared by the applicant's structural engineer (Figure 8), the following describes the main elements of the revetment:

- Filter fabric and a bedding layer of spalls to 10-inch stones placed on a slope of 2H: 1V. The filter fabric/ bedding layer serves as a foundation for the armor stones to prevent differential settlement into the sand.

- A 2-stone-thick layer of armor stones 900-1,600 pounds in weight (stones of approximately 2-foot diameter), which are large enough to prevent dislocation by storm waves. The larger rocks would be placed on the outer surface. The ends of the filter fabric would be wrapped around large end stones at the crest and toe of the revetment.

The ends of the revetment would be armored to prevent erosion from waves wrapping around the structure, in the event that the adjacent properties are not protected and are allowed to erode.

The SEAbags currently protecting the shoreline of the property would be opened and the sand released. Alternatively, some or all of the SEAbags may be moved away from the Dilks' property and reused in the Lanikai Beach Management Committee's pilot project.

6.0 POTENTIAL LITTORAL IMPACTS

Neither the proposed seawall nor the alternative sloping rock revetment will alter the existing littoral processes affecting the site. The entire southern end of the Lanikai shoreline has been experiencing net long-term erosion since 1970, and erosion has been steadily progressing northward into the middle segment of the Lanikai coast. Unless permanent shore protection is constructed, there is a high risk of damage to the foundation of the house and pool in the near term.

The seawall will not affect longshore sediment transport processes, but there may be some concern that cross-shore transport may be affected because of wave reflection from the near-vertical impermeable face of the seawall. It has been a generally held presumption that the more reflective the structure, the greater the potential for adverse impacts by discouraging sand accumulation in front of the structure. However, given the fact that beach and shoreline erosion is continuing to occur along the Lanikai coastline where there are no shore protection structures, it can be concluded that the long-term erosion trend is a natural process that will certainly not 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[6], 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. Recent field studies conducted by Edward K. Noda and Associates, Inc. at Aliomanu, Kauai, also demonstrated that seasonal cross-shore transport is unaffected by an existing seawall. Monitoring of beach profiles over a four month period (July-October 1996) showed that seasonal beach accretion (increase in beach width) occurred in front of the near-

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

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

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

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

vertical seawall as well as on the adjacent unprotected beach.

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

In the long-term, passive erosion will likely continue to affect adjacent unprotected properties. However, the consequence of not building the subject shore protection structure is the eventual loss of the house and other residential improvements to erosion damage. Because the existing improvements on the subject parcels (consisting of a 3,000 square feet slab-on-grade custom-designed house and adjacent pool) cannot feasiblely be relocated, the economic and environmental consequences of erosion damage to these improvements are very significant.

If and when a major beach replenishment/restoration program is implemented, the subject seawall and other shore protection structures will not adversely affect the design and performance of the restored beach. In fact, the existing shore protection structures will be beneficial to the long-term beach nourishment program. Periodic nourishment requirements cannot be predetermined with a high degree of assurance (because erosional forces are dependent on the wind/wave climate), and therefore severe erosion of the beach can result in damage to unprotected residential properties and improvements before renourishment can be implemented. However, if properties are already protected with a seawall or other shore protection measure, then this provides flexibility in the timeframe for planning and implementation of subsequent renourishment (for example, time to obtain the necessary funding, and to design and implement the renourishment), without the worry of imminent erosion or wave damage to residential improvements. Thus, a long-term beach replenishment/restoration program can be designed for the sole purpose of maintaining recreational beaches, rather than to serve in the additional capacity of providing shoreline protection.

Potential water quality impacts during construction of a seawall would be temporary and minor, since the seawall would be constructed entirely landward of the certified shoreline. To the extent practicable, the existing SEAbags would be left in place to form a protective berm, to protect the work area from wave uprush. This would minimize wave erosion and turbidity during the excavation to place the base of the seawall. Once the seawall is completed to a height of about 4 feet above MSL (above the height of normal wave uprush), there will be no potential water quality impacts during the remainder of the wall construction.

With respect to construction of a sloping revetment, there would be minor water quality impacts during excavation and placement of the stones. These impacts can be mitigated by performing the excavation during periods of low tide and using the larger stones to form a temporary berm that would protect the work area from wave action. This would minimize wave erosion and turbidity during excavation and would facilitate construction. There would be short-term impacts to beach access and use along this shoreline reach because, for safety reasons, public access within work limits may be restricted during the period of construction.

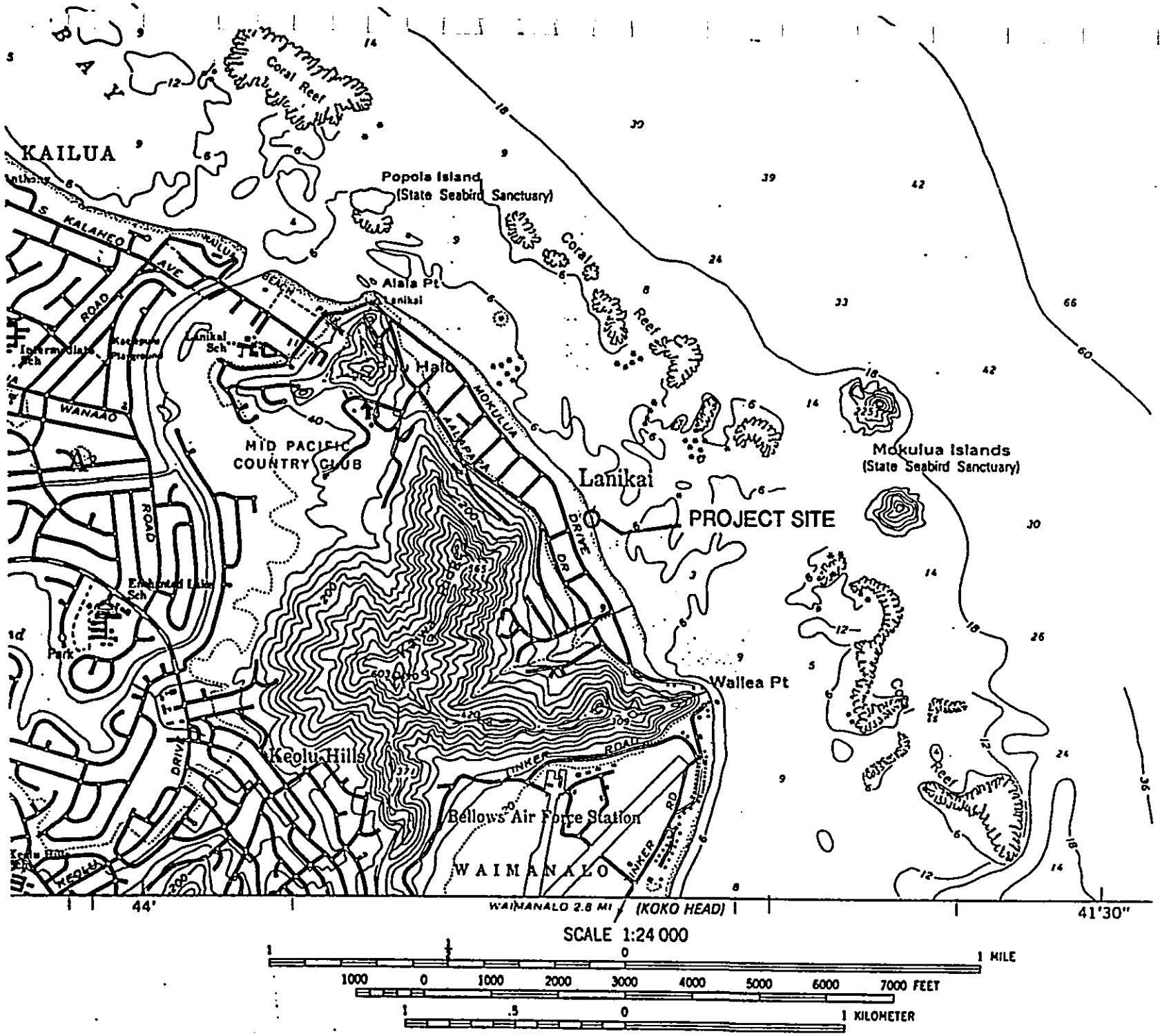

KAILUA
Popoia Island
(State Seabird Sanctuary)
Coral Reef
Alala Pt
Lanikai
Reef
Mokulua Islands
(State Seabird Sanctuary)
MID PACIFIC
COUNTRY CLUB
Lanikai
PROJECT SITE
Wailea Pt
Keolu Hills
Bellows Air Force Station
WAIMANALO
WAIMANALO 2.8 MI (KOKO HEAD)
44'
41'30"
S. KALAHEO AVE
KAILUA BEACH
WANAAO ROAD
MOKULUA DRIVE
KEOLU DRIVE
INKER ROAD
SCALE 1:24 000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

FIGURE 1

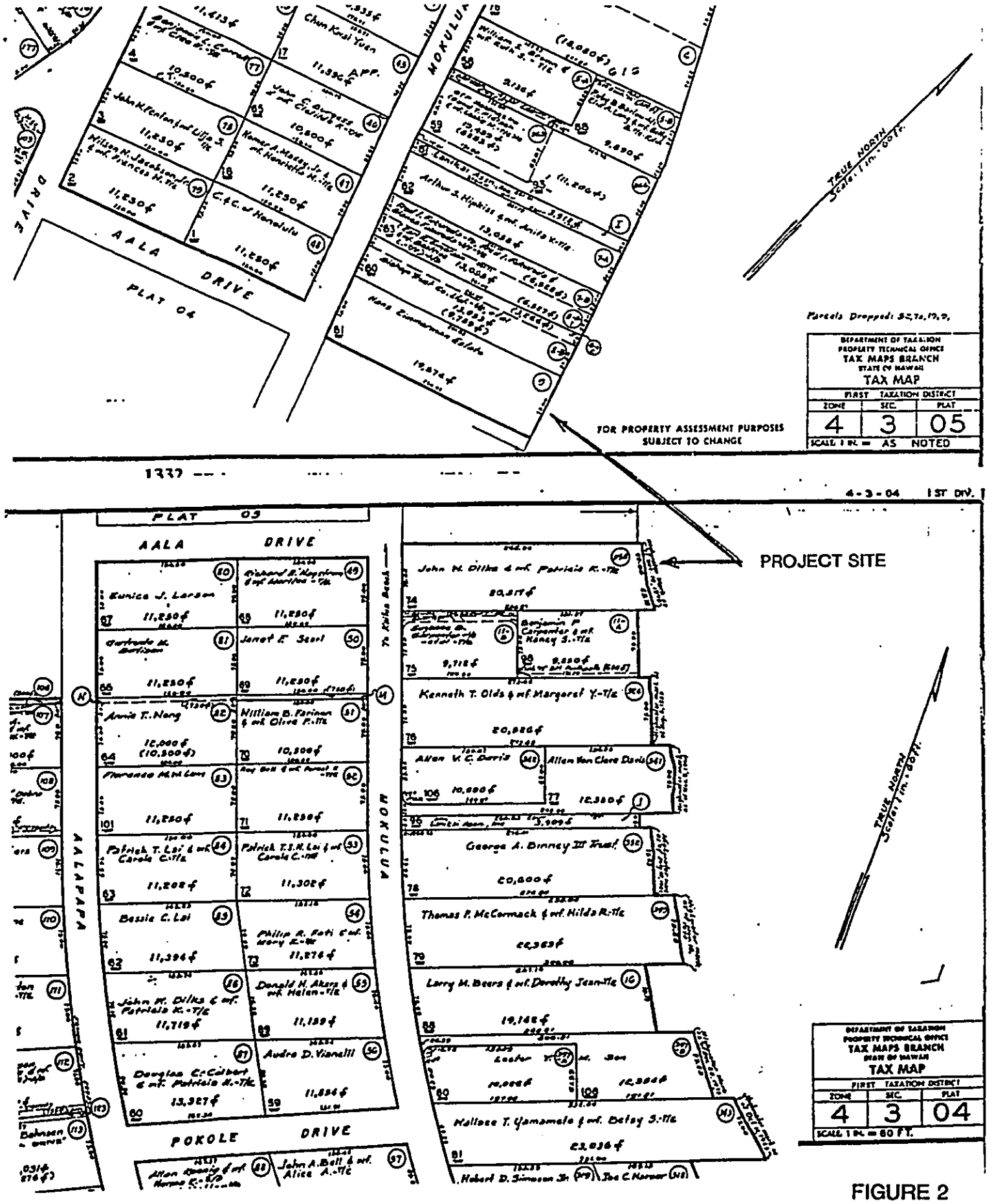
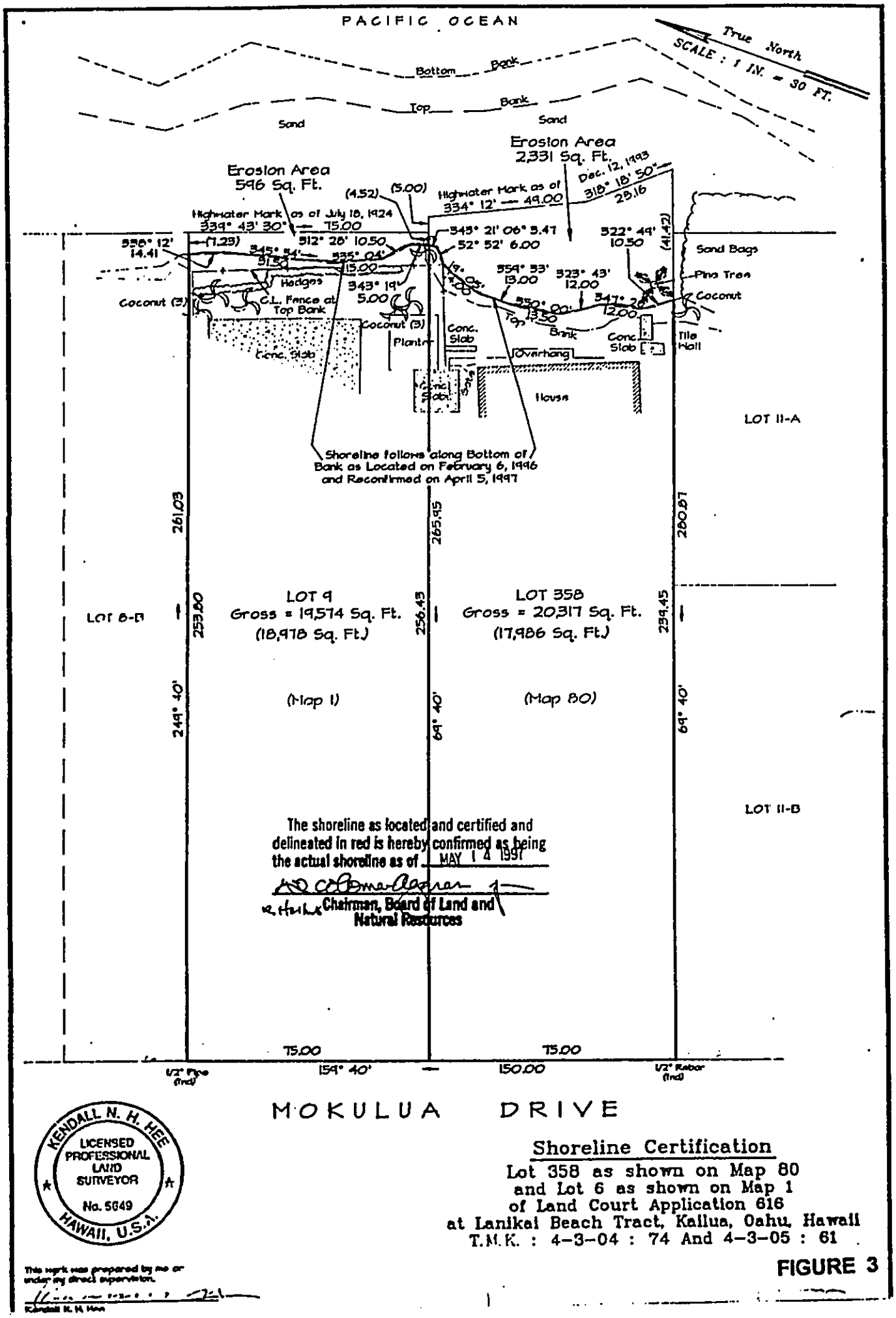

AALA DRIVE
PLAT 04
PLAT 05
MOKULUA
AALAPAPA
POKOLE DRIVE
PROJECT SITE
TRUE NORTH
Scale: 1 in. = 60 Ft.
Parcels Dropped: 32, 34, 17, 9,
FOR PROPERTY ASSESSMENT PURPOSES
SUBJECT TO CHANGE
4-3-04 1ST DIV.
DEPARTMENT OF TAXATION
PROPERTY TECHNICAL OFFICE
TAX MAPS BRANCH
STATE OF HAWAII
TAX MAP
FIRST TAXATION DISTRICT
ZONE 4 SEC. 3 PLAT 05
SCALE 1 IN. = AS NOTED
ZONE 4 SEC. 3 PLAT 04
SCALE 1 IN. = 60 FT.

FIGURE 2



KENDALL N. H. HEE
LICENSED PROFESSIONAL LAND SURVEYOR
No. 5649
HAWAII, U.S.A.

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

Kendall N. H. Hee

Shoreline Certification

Lot 358 as shown on Map 80
and Lot 6 as shown on Map 1
of Land Court Application 616
at Lanikai Beach Tract, Kailua, Oahu, Hawaii
T.M.K. : 4-3-04 : 74 And 4-3-05 : 61

FIGURE 3

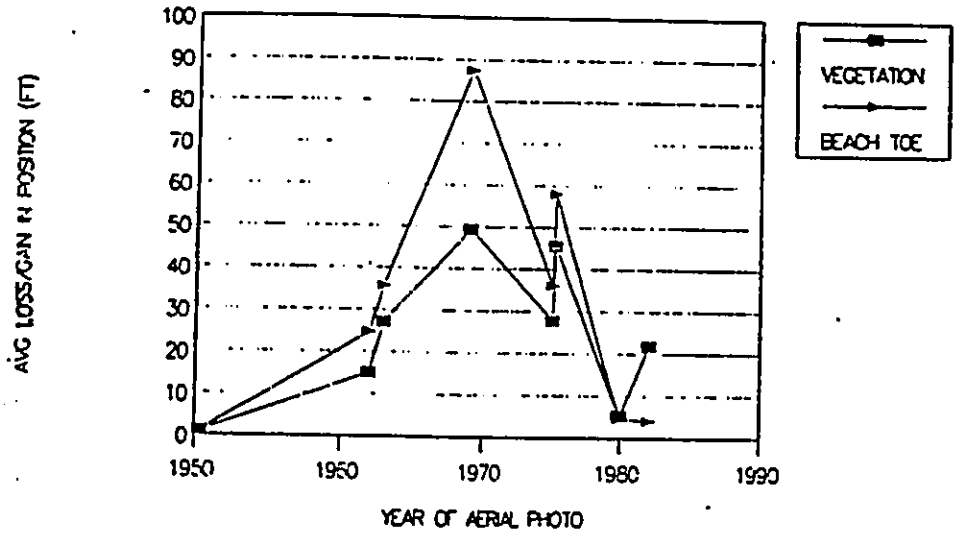


Figure 4a: Average cumulative movement for a 2,500-foot stretch of shoreline from Wailea Point northward to the project site.

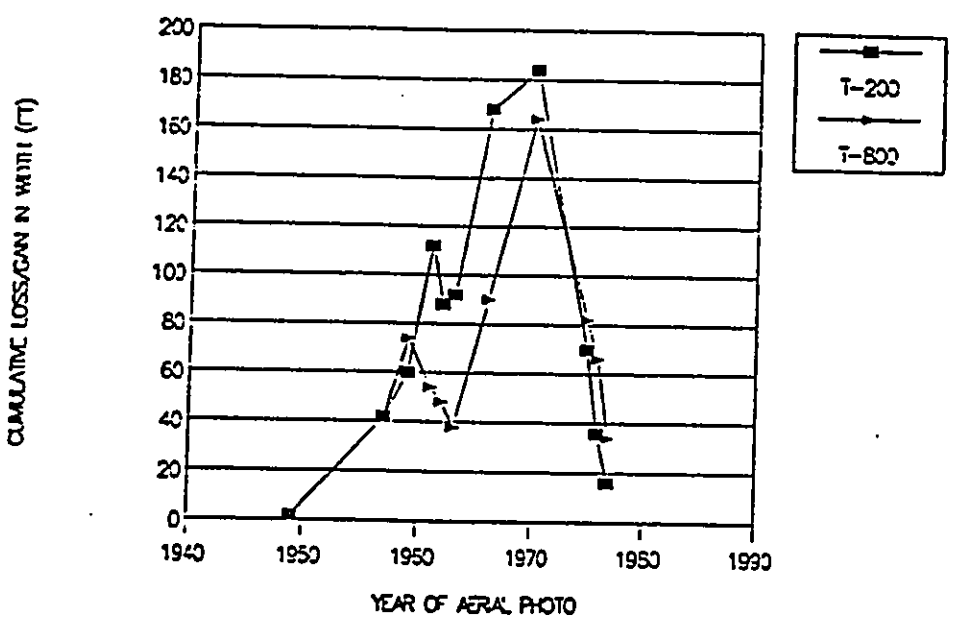
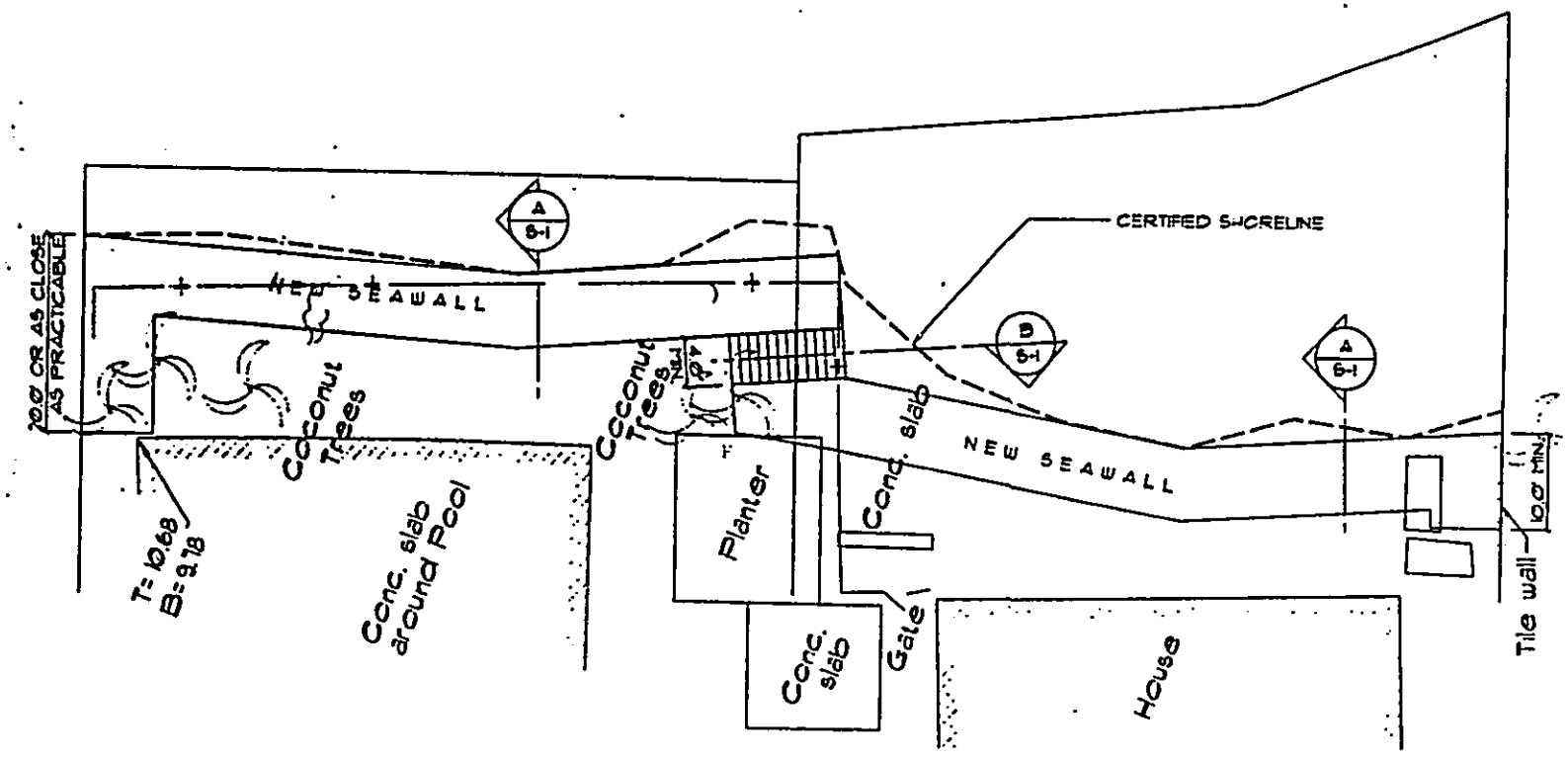


Figure 4b: Cumulative movement of the shoreline at Kailua Beach Park at locations 200' and 800' from the boat ramp.

(From "HAWAII SHORELINE EROSION MANAGEMENT STUDY, Overview and Case Study Sites - Makaha, Oahu; Kailua-Lanikai, Oahu; Kukuiula-Poipu, Kauai", by Edward K. Noda and Associates, Inc. and DHM, Inc., for the Hawaii Coastal Zone Management Program, June 1989.)

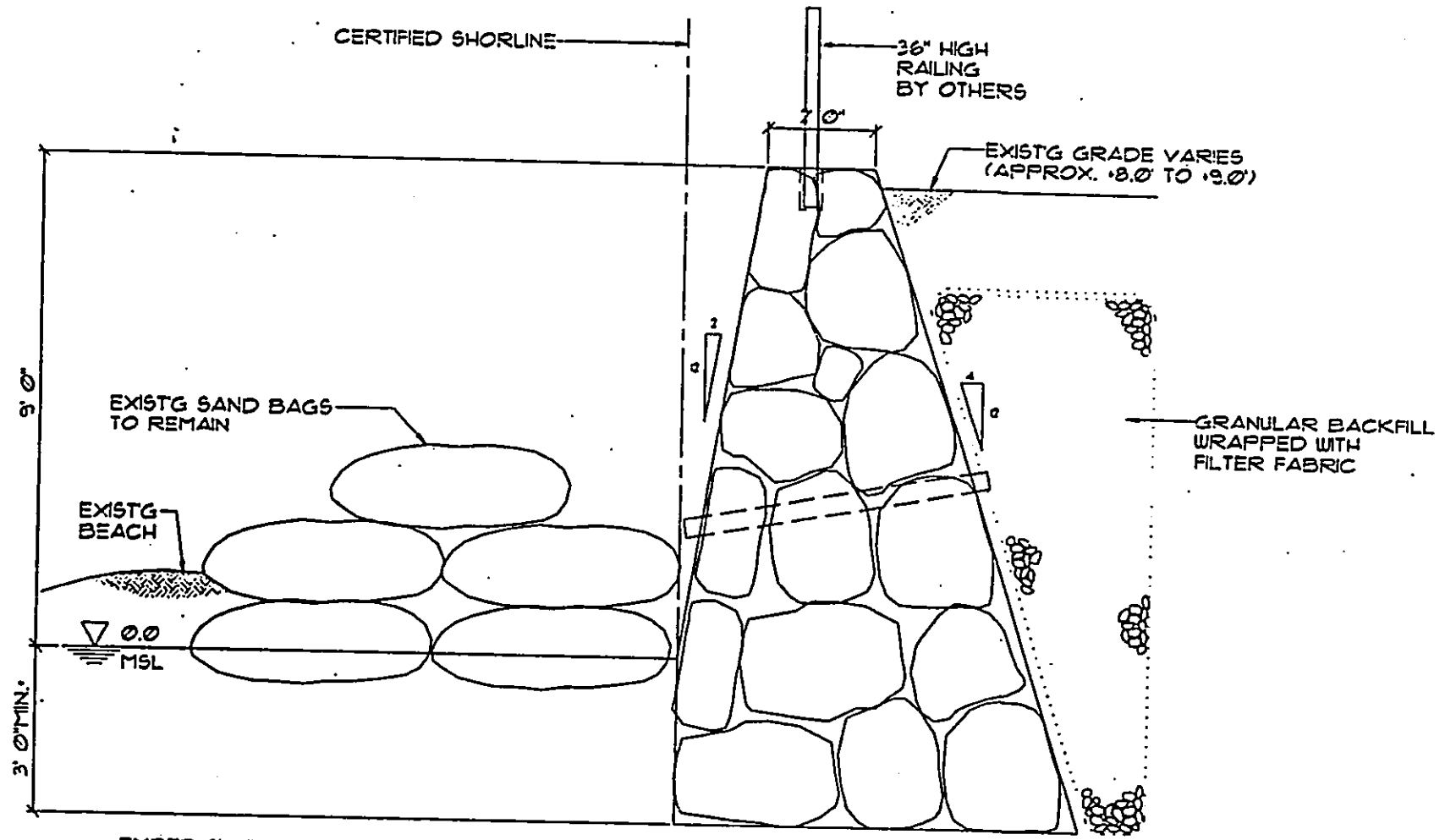
FIGURE 4



WALL LAYOUT PLAN

SCALE: 1" = 20'

FIGURE 5

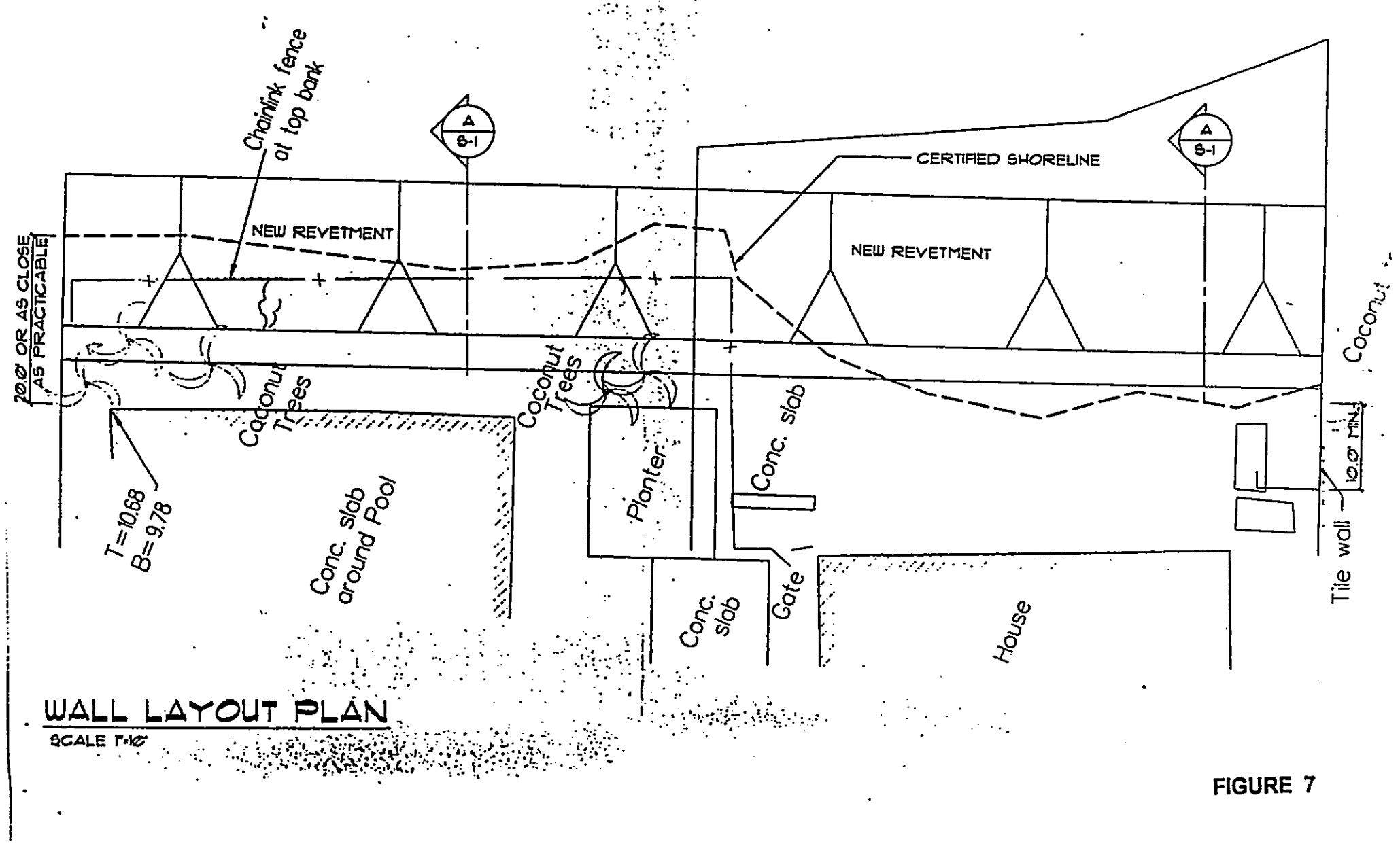


SECTION THRU NEW CRM SEAWALL

SCALE: 1" = 3'

A
S-1

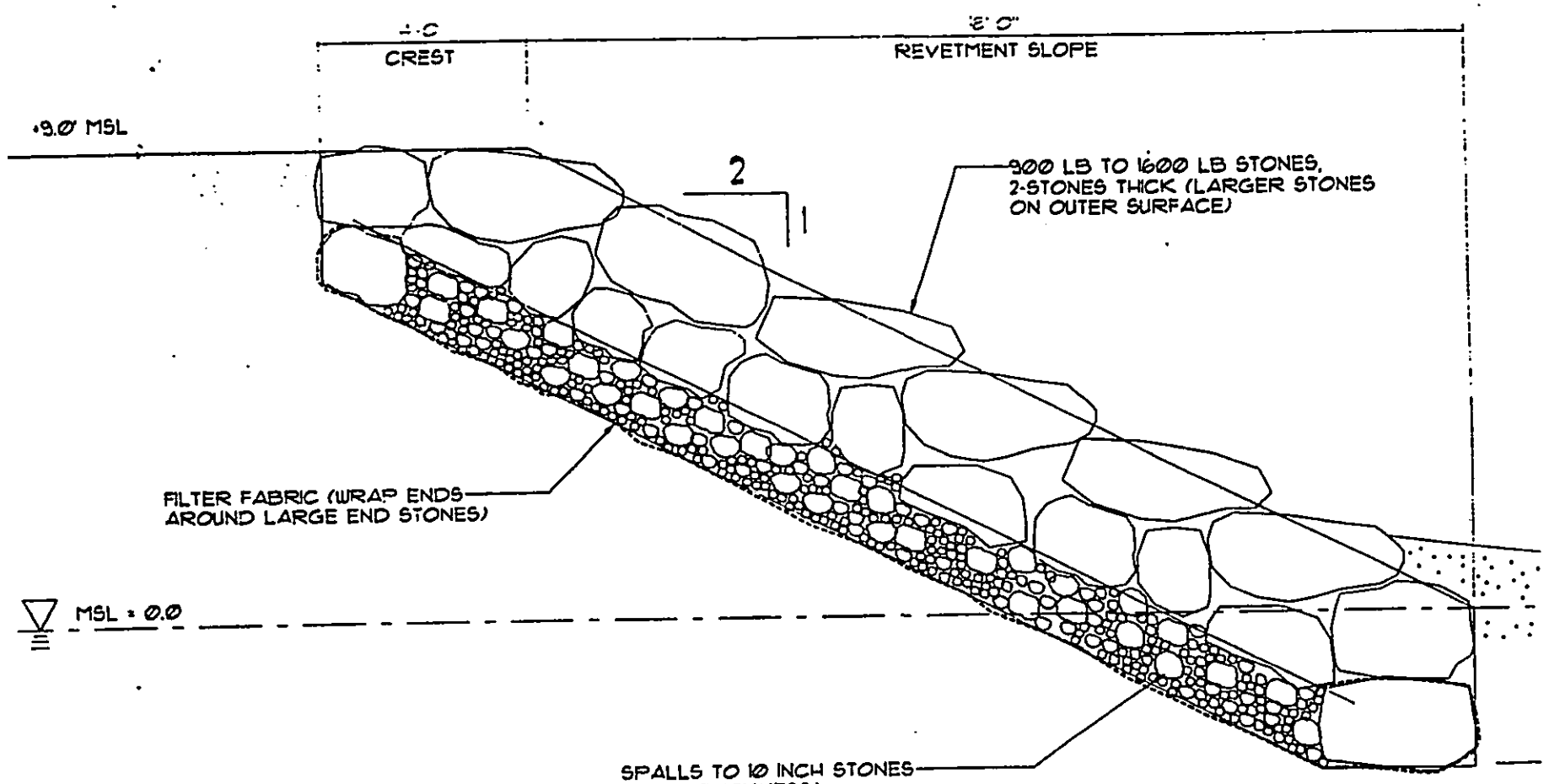
FIGURE 6



WALL LAYOUT PLAN

SCALE 1"=10'

FIGURE 7



TYPICAL SECTION THRU REVETMENT

SC 1/2" = 1-0"

FIGURE 8

Photo 1: View southward showing eroded condition of subject property at TMK:4-3-4:74. (Note sand bags on beach south of subject property.)

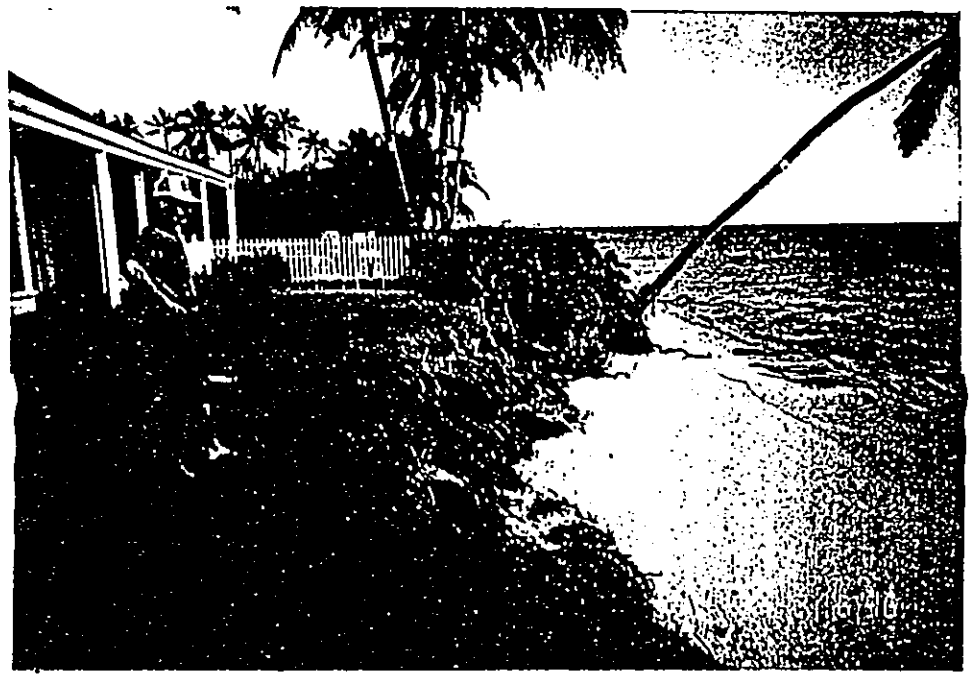


Photo 2: View northward showing eroded condition of subject property.

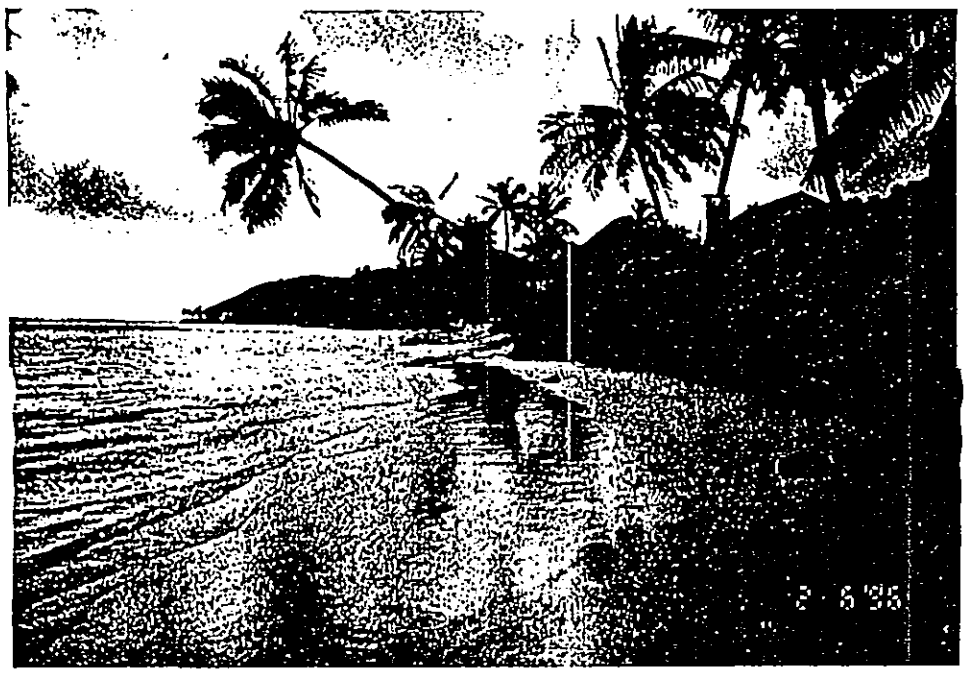


Photo 3: View southward fronting subject property TMK:4-3-5:61.

DATE OF PHOTOS: FEBRUARY 6, 1996 (Tide approx. +1' MLLW)

Photo 4: View northward showing damaged condition of sandbags fronting adjacent parcel 98 (Carpenter).

Photo 5: View southward showing sandbags fronting parcels 76 (Olds) and 77 (Davis).

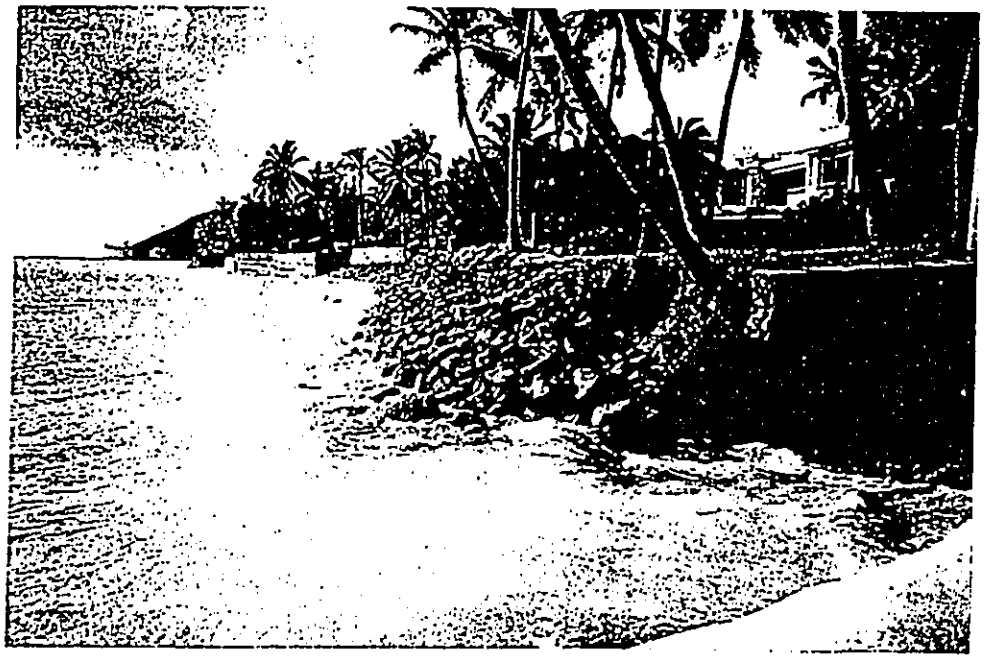


Photo 6: View southward showing condition of shoreline south of parcel 96 (public right-of-way).

DATE PHOTOS: FEBRUARY 6, 1996
(Tide approx. +1' MLLW)

Photo 7: Eroded condition of subject property at TMK:4-3-5:61. (Note erosion of shoreline vegetation and undermining/collapse of fence.)

Photo 8: View southward showing rebuilt sand bag revetment on adjacent parcel 98 (Carpenter).

DATE OF PHOTOS: MARCH 14, 1996 (Tide approx. +0.3' MLLW)

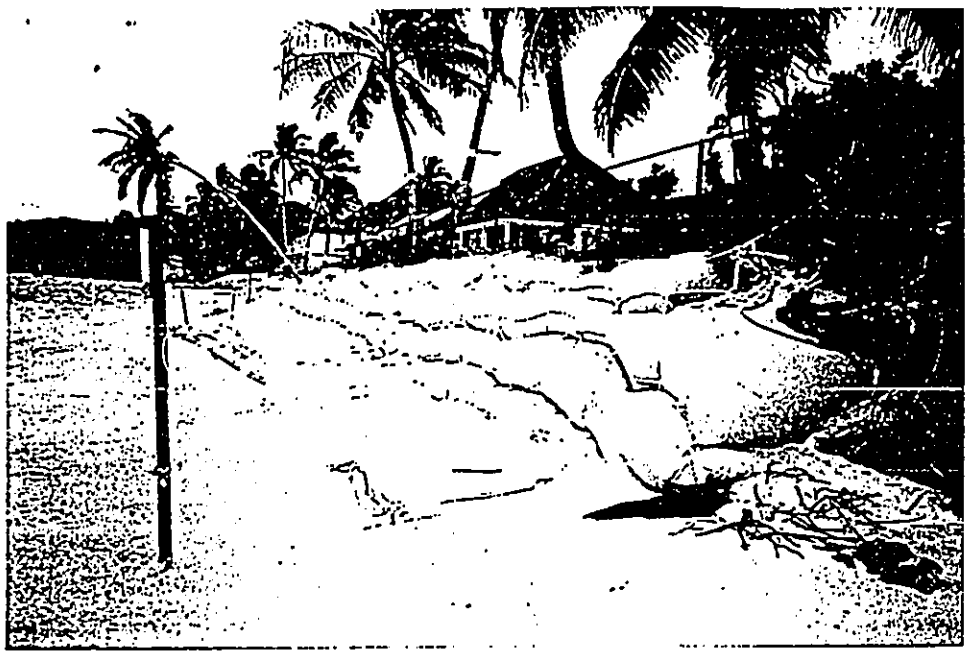


Photo 9: View southward showing completed sand bag revetment on subject property TMK:4-3-5:61.

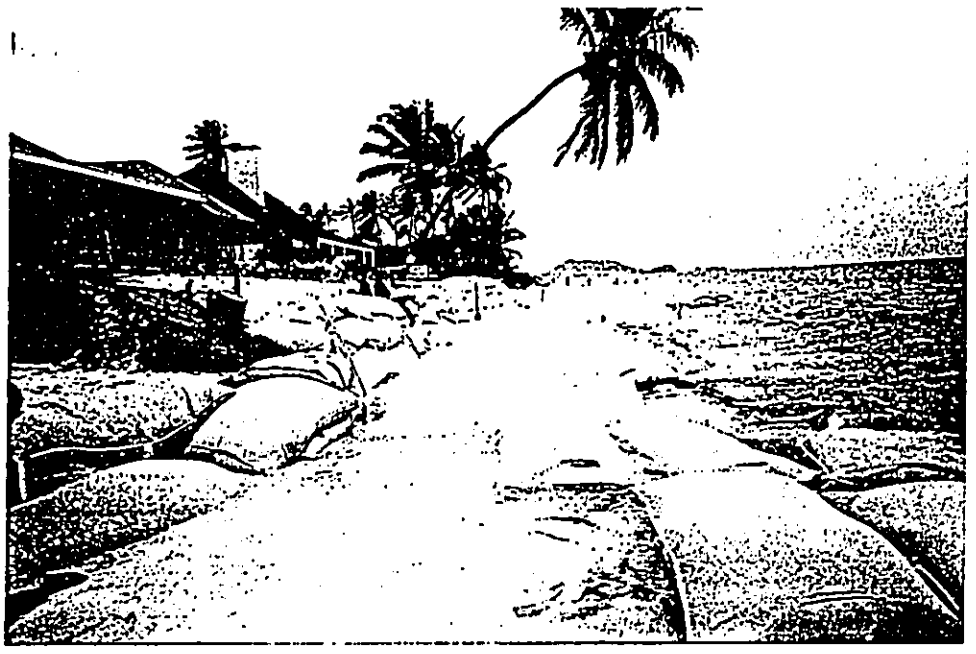


Photo 10: View northward from parcel 76 (subject property TMK:4-3-4:74 is in background).

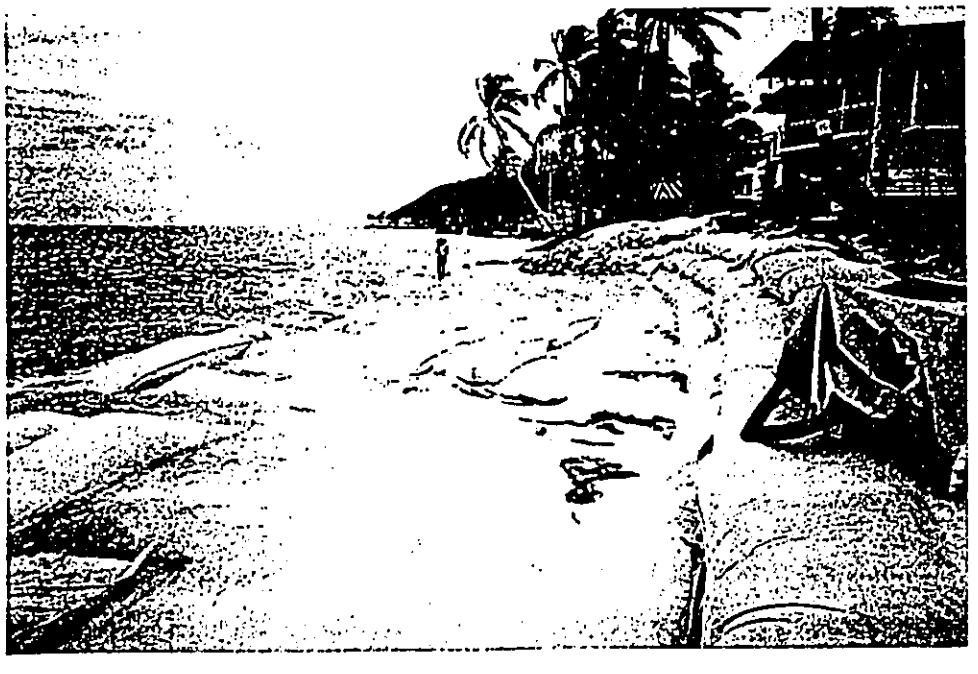


Photo 11: View southward from parcel 76.

DATE PHOTOS: JUNE 30, 1996
(Tide approx. +2' MLLW)

Photo 12: View southward fronting subject property TMK:4-3-5:61 showing condition of sand bag revetment after repairs completed.

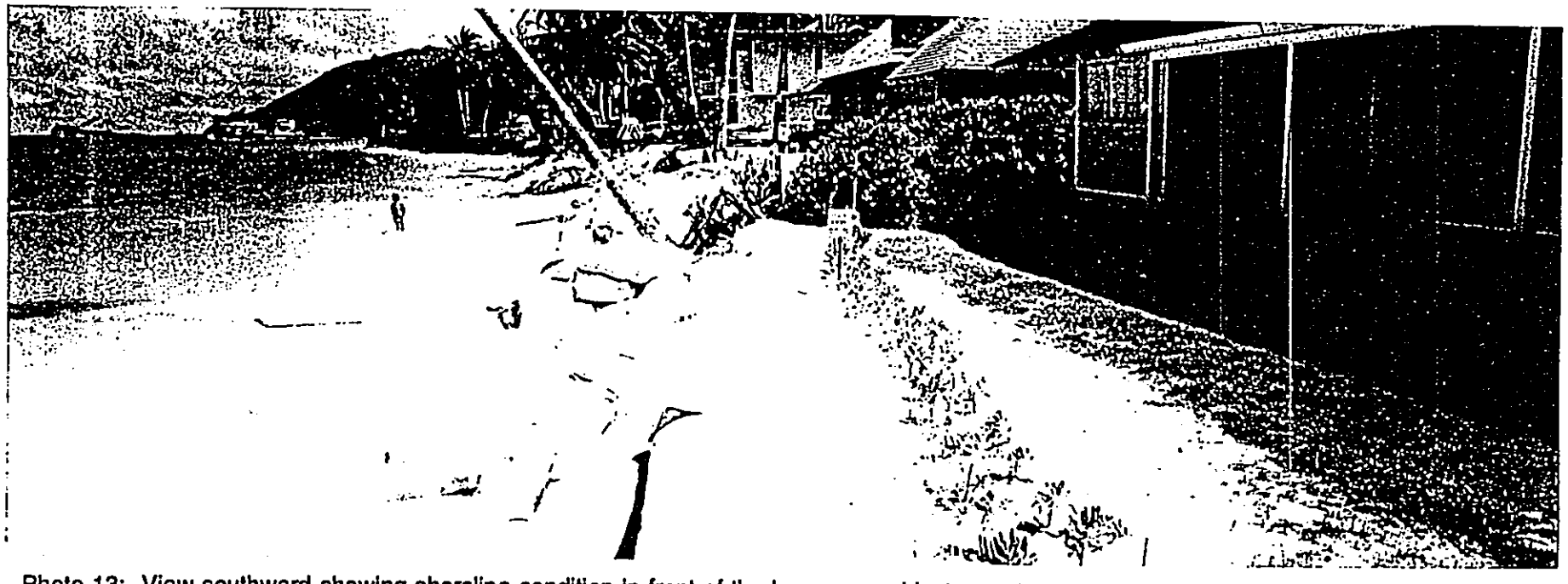


Photo 13: View southward showing shoreline condition in front of the house on subject parcel TMK:4-3-4:74.

DATE OF PHOTOS: MAY 9, 1997 (Tide approx. +1' MLLW)

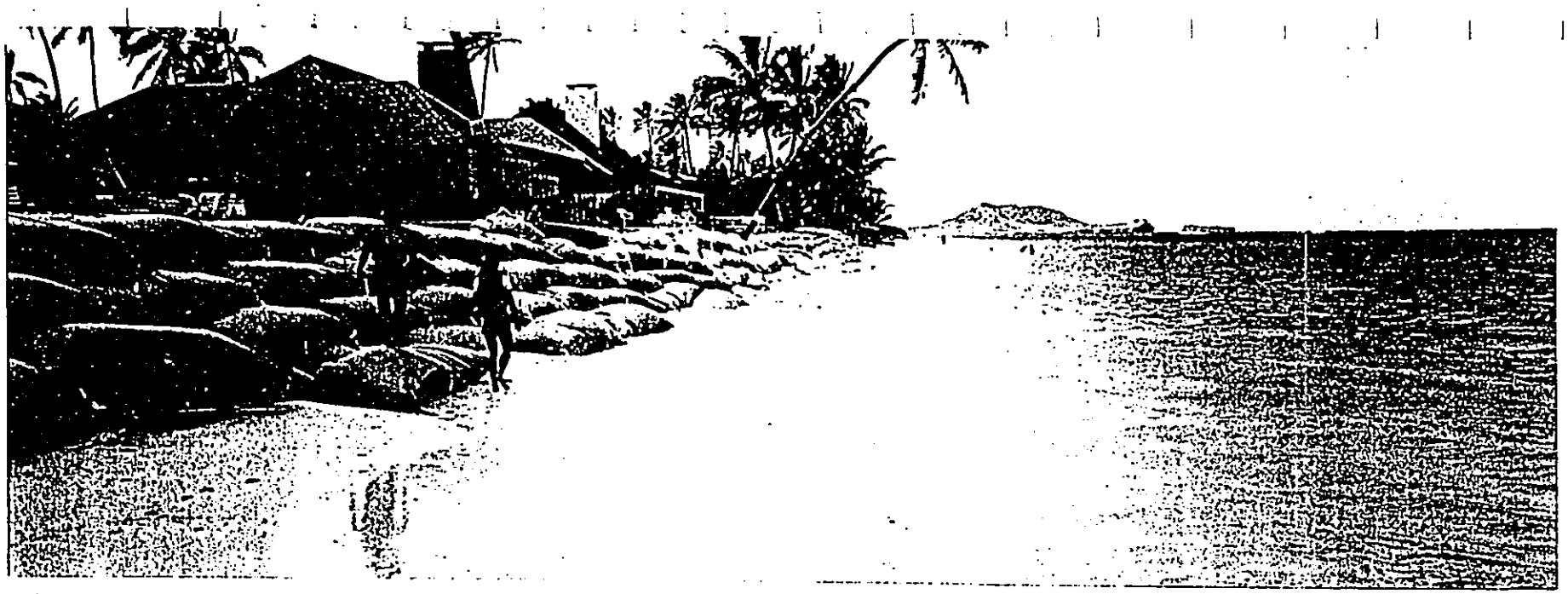


Photo 14: View northward showing condition of shoreline fronting adjacent parcels 76 (Olds) & 98 (Carpenter). Subject parcel is in background.

Photo 15: View southward fronting parcel 77 (Davis). Note stockpiled sand and new sand bags on this property.

DATE OF PHOTOS: MAY 9, 1997 (Tide approx. +1' MLLW)

Photo 16: View northward from north end of subject parcel TMK:4-3-5:61 showing eroded condition of adjacent shoreline.

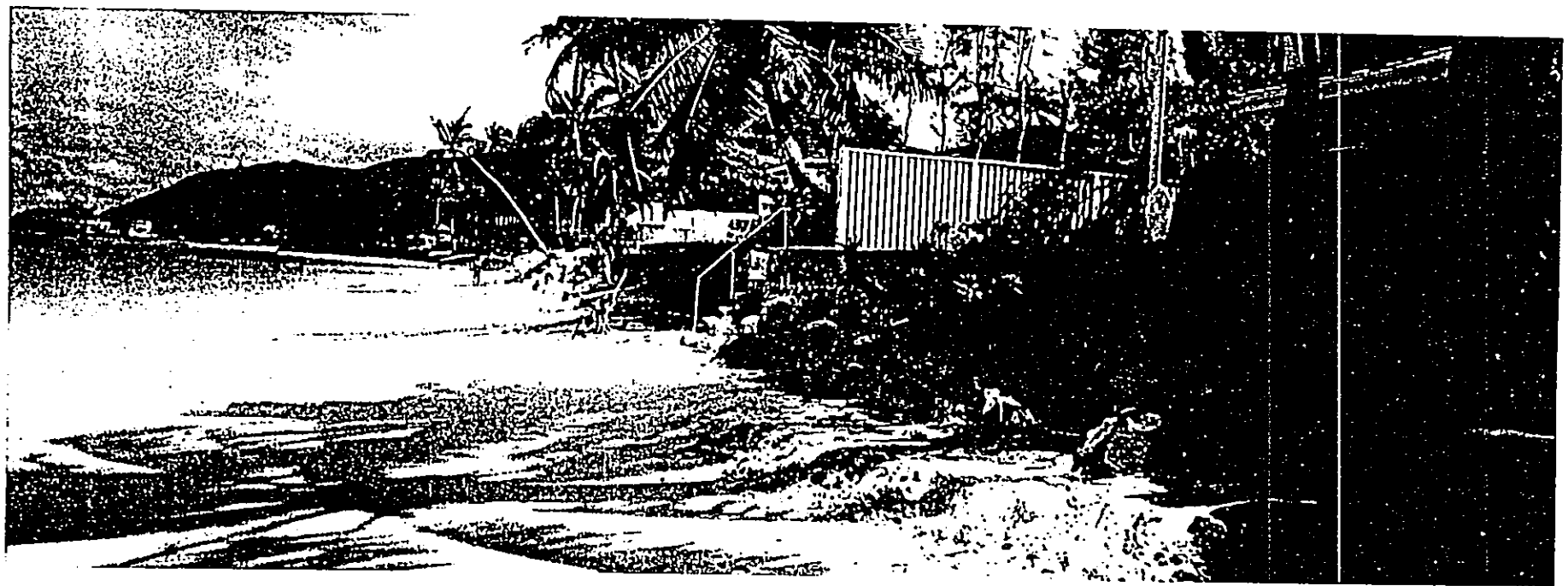


Photo 17: View southward from public right-of-way showing exposed seawalls on parcels 62 and 63 located north of subject parcel.

DATE OF PHOTOS: MAY 9, 1997 (Tide approx. +1' MLLW)

Appendixes A and B

A. Lanikai Beach Pilot Research Project
Monitoring Report - September 1997

B. Review of Monitoring Report

Lanikai Beach Management Committee

1343 Mokulua Drive
Kailua, Hawaii, 96734

July 24, 1997

Michael Wilson, Chairman
Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI, 967809

The Lanikai Beach Management Committee has prepared this report as an informational update for the various City, State and Federal agencies that were involved in the planning and permitting of our pilot project.

David Lipp, our coastal engineering consultant, has provided a series of beach profiles covering the period from September, 1995 to June, 1997. He includes a brief written assessment.

A photographic record of the area has been kept since December, 1995. Views up and down the beach are taken once a month at low tide. Prior to December, 1996, the tide height for photographs was random. We are now trying to standardize the time for shooting a photo so that changes in beach profile are more apparent. We have included a few of these pictures as a visual record of the project. More are available upon request.

We have several observations on the use of the bags as experienced over the last months:

1. The sandbags placed along the escarpments fronting the subject properties have provided protection from further erosion of the fastland. They have been shored up in several spots, but no moreso than boulder revetments that line the area to the south of the experiment. They would appear to be working well as a means of protecting the private property they front.

2. The "perched beach" has provided continuous lateral access to the open beach from the public right of way. After the erosion became acute in 1994, such access was unavailable to the public until the sandbags were positioned in this format.

3. The sandbags are "user friendly". Children play on and around them, fishermen fish from them and sunbathers sit on them. Walking on them is not difficult, as opposed to walking on boulders at the water's edge.

4. Repositioning the bags can be done relatively quickly with the right equipment. Mr. Correa has developed a method of moving the bags from spot to spot and has reconfigured the layout several times in the course of the experiment. (See photo)

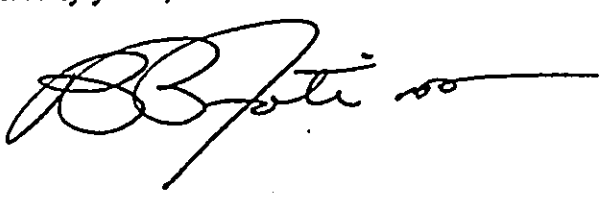
APPENDIX A

5. Since the bags have been in the water schools of halalu (young akule) have formed in the nearshore water where none were observed before. Sea turtles have also been seen grazing on the limu that grows over the submerged bags.

6. The smooth fabric bags become slippery when submerged, but the heavily textured bags, even though covered with limu, are not hazardous underfoot.

The project has another year to go under the terms of the permit. We would like to continue.

Sincerely yours,



Philip R. Foti

Summary of observations on the Lanikai Beach Revetment Alternative Pilot Research Project (9/95 to 7/96):

The sand movement in Lanikai is primarily longshore and its direction is dependant on the wind and wave directions. In the test area there is little sand transport during a mild wind and wave climate from any direction. Strong trade winds and associated wind waves produce a slight northwesterly transport (toward Kailua). Strong easterly winds and waves produced from a long duration easterly wind produce a strong northwesterly transport. North winds and north swells produce a southeasterly transport (toward Waimanalo). The trend is thus slow sand movement toward Kailua during the summer, increased sand movement toward Kailua during the fall (when the trades tend to turn easterly and increase in velocity), and variable movement during the winter dependant on wind and swell. The trend during the winter and spring is for sand movement towards Waimanalo.

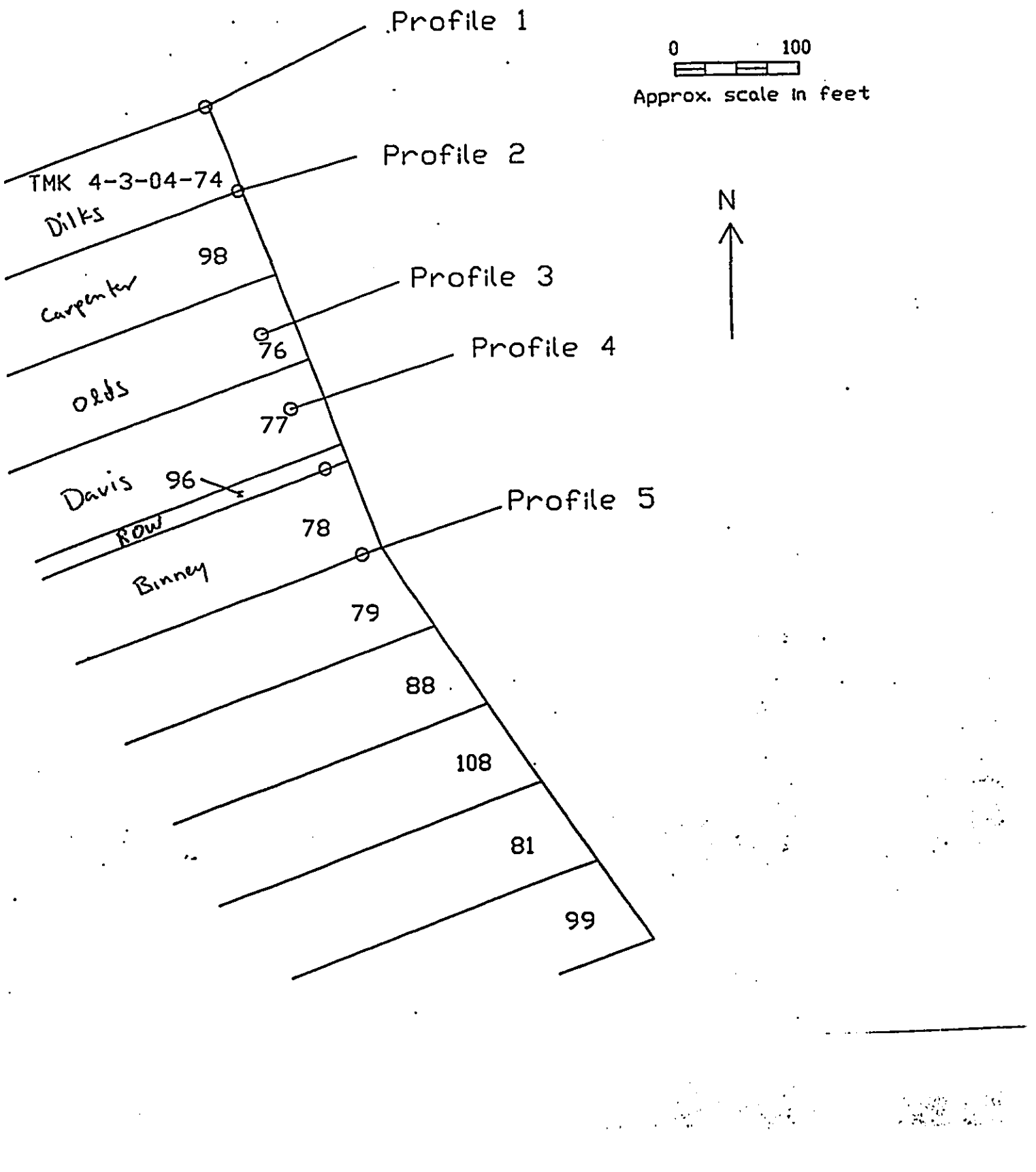
'Between the period of 9/2/95 when the first profile was taken, and 10/5/96, there was considerable loss of sand from the area fronting Dilks and Carpenter (profiles 1 and 2). During the period of 10/5/96 and 6/8/97, all the sand returned to this area, the 6/8/97 profile is very similar to the 9/2/95 profile. This sand movement into the project area during late '96 and early '97 is due to environmental factors and not the sandbags themselves. ***What is important to note is that the sandbags did not prevent the beach from reforming.***

The profiles fronting the Olds property shows no real loss between 9/95 and 10/96, but does show an increase by 6/97. Again, mother nature moved the sand, but the bags did not prevent the beach from forming.

The Davis property bags jut out slightly from the neighboring bags, this has turned out to be beneficial to the beach fronting the neighboring properties. During the winter the sand accumulated fronting the Olds property, during the summer and spring the sand accumulates fronting the public right of way to the beach. The sand accumulates because a small longshore transport gradient is created due to the sandbags fronting the Davis property. This effect is shown in the Binney profile of 10/5/96. Binney is to the southeast of Davis, during tradewind weather the sand accumulates fronting the right of way between Binney and Davis. This has enhanced public access.

I recommend continuing the pilot program.

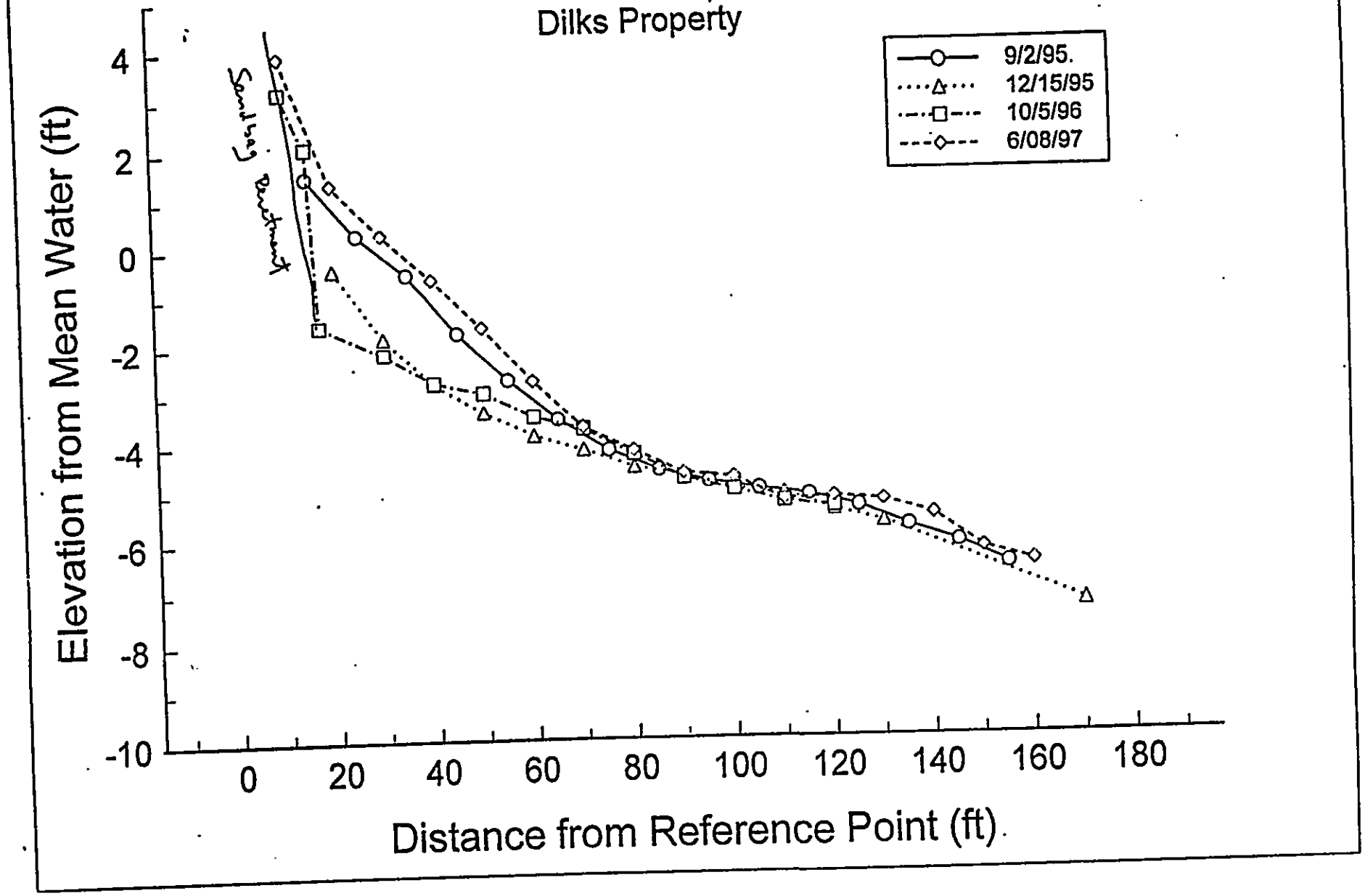
David Lipp
Coastal Engineer



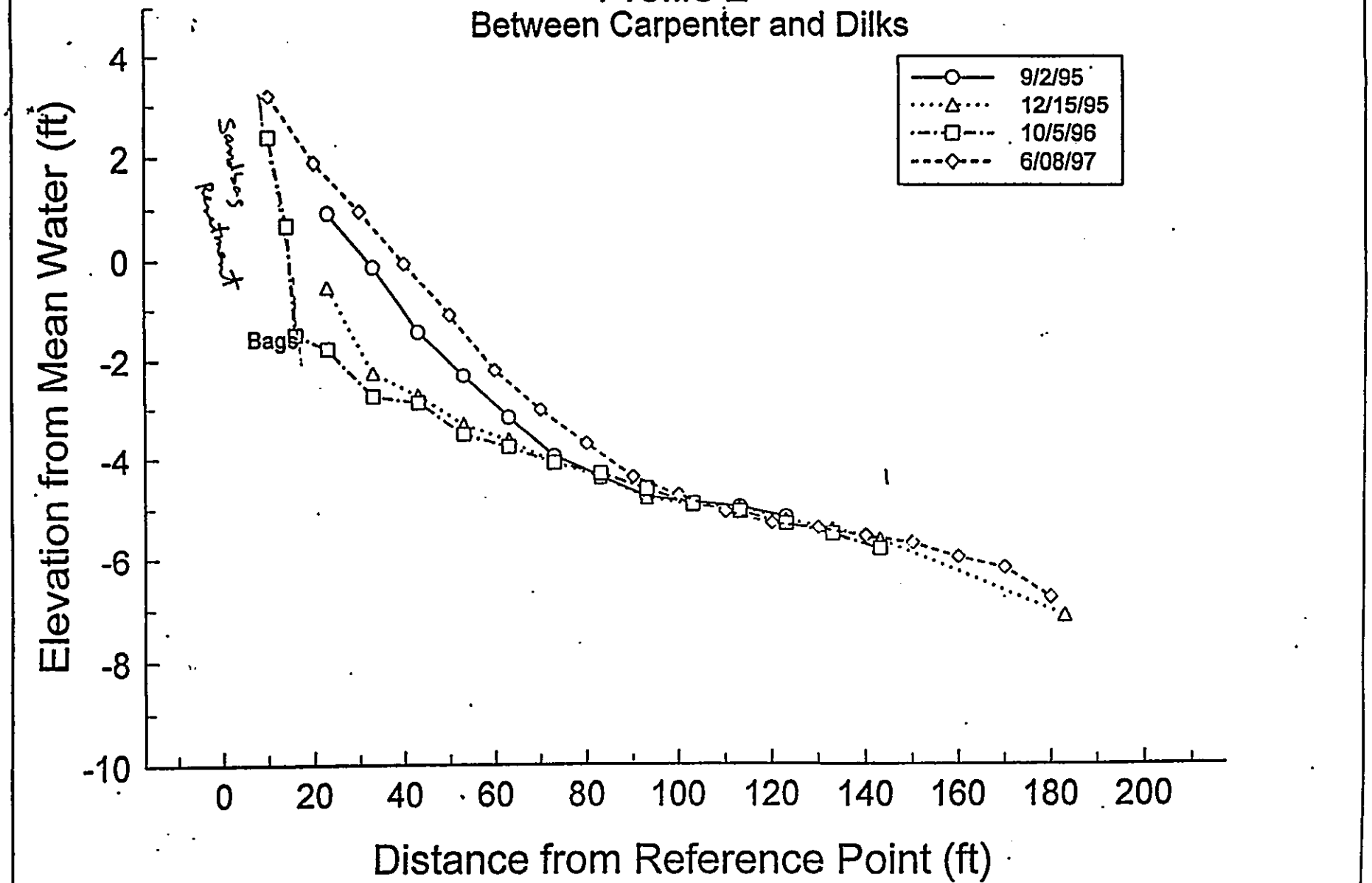
1997 SEP -8 AM 10: 11

DEPT. OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

Profile 1
Dilks Property

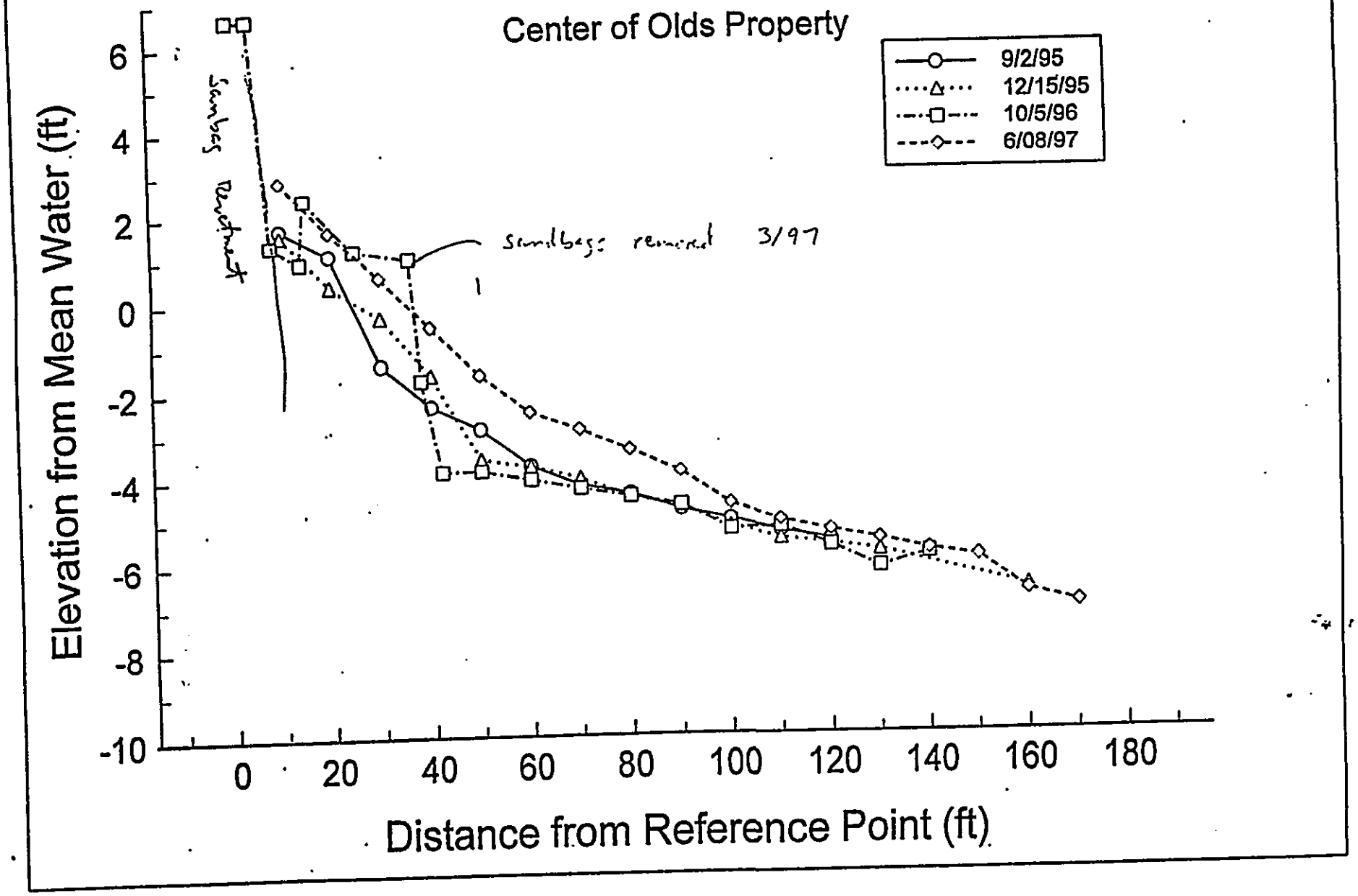


Profile 2
Between Carpenter and Dilks

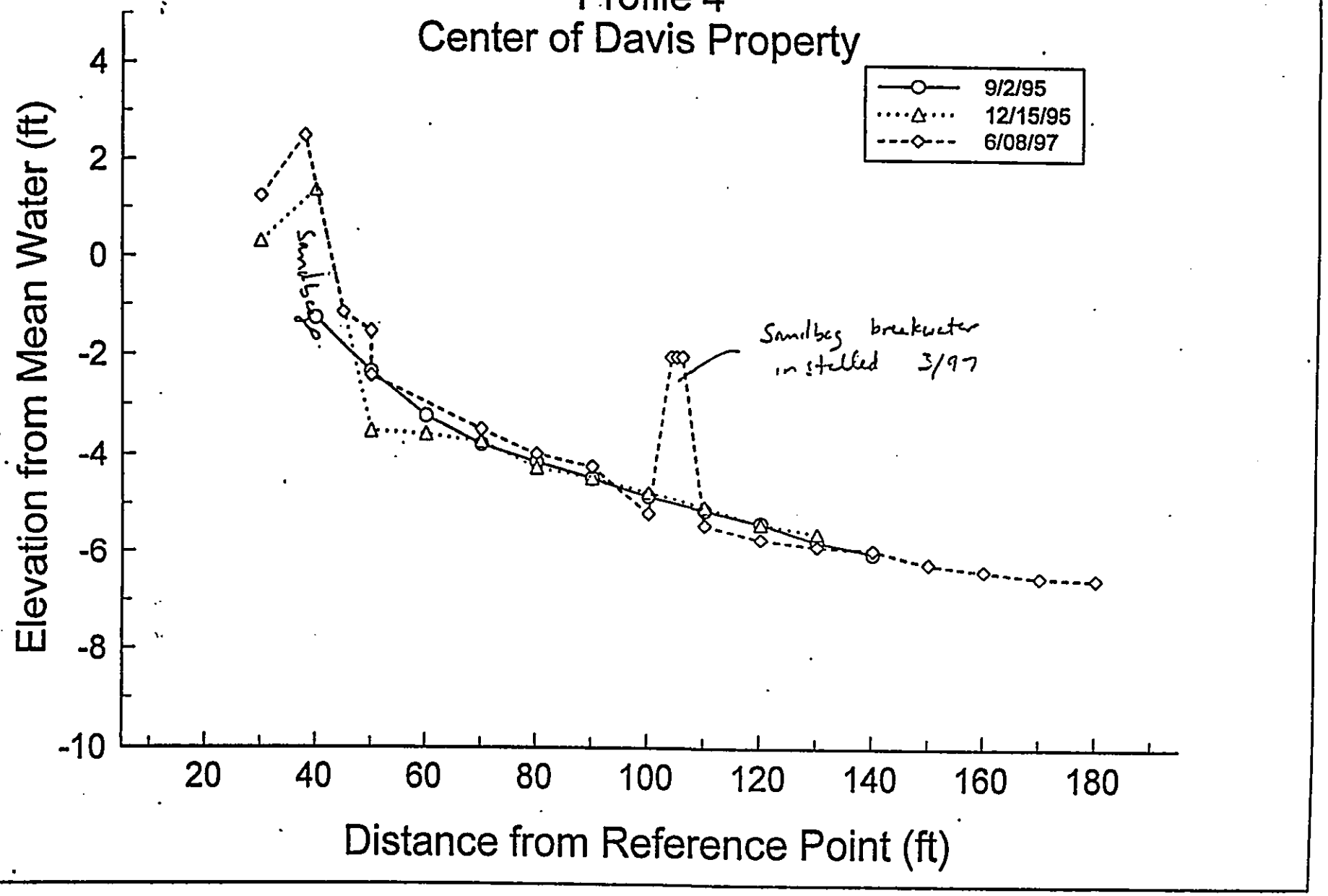


Profile 3

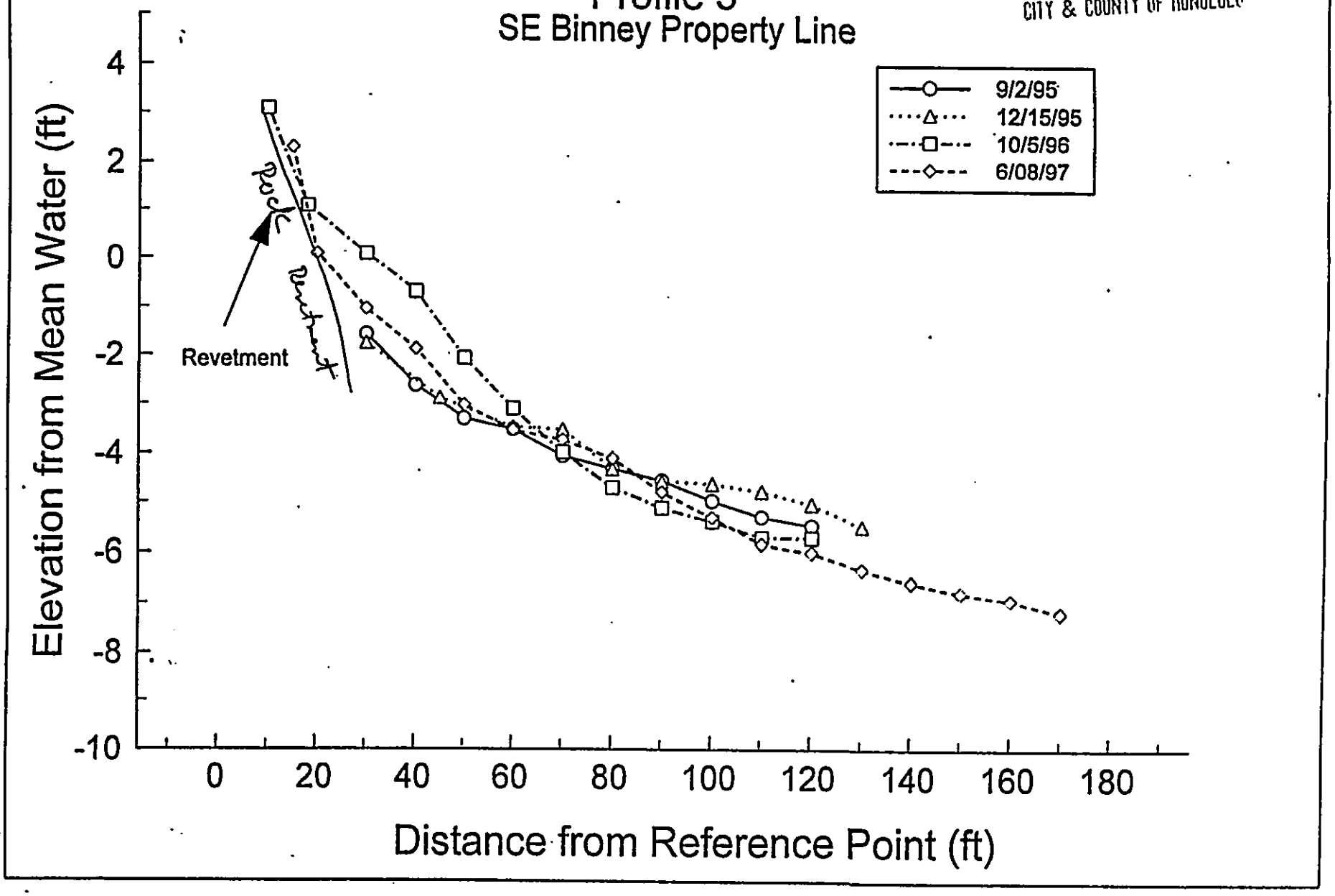
Center of Olds Property



Profile 4
Center of Davis Property



Profile 5
SE Binney Property Line



Edward K. Noda
and
Associates, Inc.

Engineers
and
Environmental
Consultants

Engineering
Planning
Surveys
Computer
Modeling

615 Piikoi Street
Suite 300
Honolulu, Hawa
96814-3139

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

CN 1781 September 8, 1997

MEMORANDUM

TO: Robin Foster

FROM: Elaine Tamaye

SUBJECT: Summary Report by David Lipp

I have reviewed the data and summary report by David Lipp and have the following comments:

(1) There is a significant seasonal movement of sand along this section of coastline. The beach profile data are not sufficient to define the extent of the seasonal variability versus long-term trend. Profiling was done only twice in 1995 (Sept and Dec), once in 1996 (Oct), and once in 1997 (Jun). Therefore, it is not possible to draw any conclusions from this data about the "effectiveness" of the pilot program. It is important to note that David Lipp's conclusion was that the sand movement is due to environmental factors and not the sandbags themselves. His only "conclusion" about the sandbags is that "the sandbags did not prevent the beach from reforming".

(2) Although the profiles indicate that the sand elevations on the beach have increased from Dec 1995 to June 1997, that is not to say that the beach has been "restored". The profiles extend seaward of the sandbag revetments, and there is no evidence of restoration of any dry beach area. The top of beach elevations (less than 4 feet above mean water level) are clearly below the wave runup level. Therefore, if not for the existing shore protection structures, there could very likely have been additional loss of fastlands (erosion of the shoreline as defined by the vegetation line), even though there may have been a slight gain in elevation of the beach foreshore.

(3) In order to provide meaningful data, the beach profiles need to be measured at least quarterly, and additional profiles should be established on the Kailua-side (across "dry" beach areas) to determine the pilot program's effect on adjacent shoreline areas and to obtain a better understanding of the

seasonal sand movement affecting this coastal reach.

(4) There is no mention about how much sand was "added" to the littoral system. How much of this sand fill contributed to the increase in beach elevations? There is also no description of what was done with the sandbags, such as what configurations were tested and for how long. There is simply insufficient information from the monitoring program to draw any valid conclusions about the pilot program.

COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT & RESPONSES

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4414 • FAX: (808) 527-6743 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

RANDALL K. FUJIKI, AIA
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

2001/ED-20(lk)
2001/SV-11

November 23, 2001

Mr. Ned Dewey
Pacific Land Services, Inc.
810 Richards Street, Suite 900
Honolulu, Hawaii 96813

Dear Mr. Dewey:

Draft Environmental Assessment (DEA)
Shoreline Setback Variance for Shoreline Protection Structure
1280 Mokulua Drive - Kailua
Tax Map Key 4-3-5: 60

We have reviewed the DEA for the above-referenced project and offer the following comments:

General Information

The zoning district and the anticipated determination should be included in this section.

Description of Proposed Action

1. A description of the proposed railing, including an elevation drawing, should be included in the Final EA.

2. The proposed 9-foot high retaining wall is within the required yard. Therefore, the wall sections should be clarified to show that there is a maximum of 6 inches from the existing/finish grade to the top of the wall along the retaining (mauka) side of the wall. If more than 6 inches is exposed, a zoning variance will be required.

3. Indicate the anticipated start and end dates of the project.

4. A coastal engineer's report for the project site must be prepared addressing:

   - The affected shoreline, including beach profile, offshore depths, foreshore and backshore areas littoral transport, cyclical and abnormal changes of beach form, changes in water level, wave run-up and changes in sources of sand; and

   - Structure description, including functional and structural stability, structural life expectancy, toe protection, foundation, flank protection, stone underlayment and filters, relation to wave run-up, and potential effects of the design on the shoreline.

Affected Environment

This section should be expanded to include historical information on the coastal erosion and accretion rates for the project site. Site maps showing previous certified shorelines could be included as documentation.

Project Impacts

1. The alignment of the proposed wall with the existing wall to the north, and the proposed wall to the south, should be described and potential impacts to the adjacent properties discussed.

2. The section on alternative designs should be expanded to more specifically describe the dimensions and impacts of the revetment alternative. A conceptual diagram, illustrating the height and bulk of the revetment, and the relationship of the structure to existing structures, would provide a comparison between the requested wall and the revetment alternative.

Significance Criteria

The Final EA must be expanded to provide an additional section which discusses the project impacts in relation to each of the significance criteria pursuant to the EIS regulations, Section 11-200-12, Hawaii Revised Statutes (HAR).

Drawings/Plans

The site plan should show all existing structures.

Should you have any questions, please call Lynne Kauer of our staff at 527-6278.

Sincerely yours,

for RANDALL K. FUJIKI, AIA
Director of Planning and Permitting

RKF:st
cc: Office of Environmental Quality Control

DN 127373

Pacific Land

April 25, 2002

Mr. Randall K. Fujiki, AIA
Director of Planning and Permitting
City & County of Honolulu
650 S. King Street
Honolulu, Hawaii 96813

Re: 1280 Mokulua Drive, Draft EA, TMK: 4-3-5:60

Dear Mr. Fujiki:

This responds to your letter dated November 23, 2001, commenting on the Draft EA. The responses were prepared with the assistance of Edward K. Noda and Associates, Inc., who has reviewed the Draft EA and proposed seawall design.

1. Comment: A description of the proposed railing, including an elevation drawing should be included in the final EA.

Response: After consultation with the City & County of Honolulu, it was determined that a railing was not required and therefore, the applicant has deleted the railing from the proposed design.

2. Comment: Description of Proposed Action: The proposed 9-foot high retaining wall is within the required yard. Therefore, the wall sections should be clarified to show that there is a maximum 6 inches from the existing/finish grade to the top of the wall along the retaining (mauka) side of the wall. If more that 6 inches is exposed, a zoning variance will be required.

Response: The wall plans have been corrected to show top of wall matching finish grade mauka of the retaining wall.

3. Comment: Description of Proposed Action; A coastal engineer's report for the project site must be prepared.

Response: The Coastal Engineering Evaluation prepared by Edward K. Noda and Associates, Inc. for the contiguous properties on the south side on the applicant's lot (TMK: 4-3-04:74 and 4-3-05:61) will be included as an Appendix in the Final EA. According to the author, this report is also applicable and appropriate to the subject property (see separate letter to DPP from Edward K. Noda and Associates).

4. Comment: Indicate the anticipated start and end dates of the project.

Response: It is anticipated that the project would commence within 6 months of building permit issuance and be complete within 30 days.

5. Comment: Affected Environment: This section should be expanded to include historical information on the coastal erosion and accretion rates for the project site.

Response: This section will reference the Coastal Engineering Evaluation report that will be included in entirety as an Appendix in the Final EA.

6. Comment: Project impacts: The alignment of the proposed wall with the existing wall to the north, and the proposed wall to the south, should be described and potential impacts to the adjacent properties discussed.

Response: A seawall layout plan will be included in the Final EA in Figure 4 to show the existing shoreline conditions and the location of the proposed seawall on the adjacent property to the south. The proposed seawall will be constructed along an alignment that is mauka of the adjacent walls. Therefore, there will be no potential impact to adjacent properties. Flank walls on the adjacent properties will provide the necessary protection to those properties. The applicant's wall will tie in to these flank walls. Both the northern and southern portion of the applicant's wall has been adjusted makai closer to the certified shoreline to ensure adequate flank wall protection to the adjacent properties.

7. Comment: Project impacts: The section on alternative designs should be expanded to more specifically describe the dimensions and impacts of the revetment alternative.

Response: The Final EA will include a conceptual revetment layout plan as Figure 8 and will reference the typical revetment section from the Coastal Engineering Evaluation Report (see Appendix, Figure 8). The horizontal width (footprint) of the revetment is 22 feet, and would therefore entail building a portion of the structure seaward of the certified shoreline, within the jurisdiction of the State Conservation District. This would necessitate applying for and obtaining a Conservation District Use Permit from the State Board of Land and Natural Resources. It would also require a permit from the U.S. Army Corps of Engineers. DLNR has indicted they would not support an application for CDUP.

8. Comment: Significance Criteria: The Final EA must be expanded to provide an additional section which discusses the project impacts in relation to each of the significance criteria pursuant to the EIS regulations, Section 11-200-12, HRS.

Response: Section 4 now includes a discussion of Significance Criteria.

9. Comment: Drawings/Plans: The site plan should show all existing structures.

Response: A site plan showing all existing structures has been included in the Final EA as Figure 7.

Thank you for the opportunity to respond to your comments.

Sincerely,

Ned Dewey

ND:tmk

Enclosure

cc: Office of Environmental Quality Control

UNIVERSITY OF HAWAI'I
ENVIRONMENTAL CENTER

November 21, 2001
EA: 0277

Edward and Ann Dewey
1280 Mokulua Drive
Kailua, Hawai'i 96734

Dear Mr. and Mrs. Dewey:

Draft Environmental Assessment
Dewey Seawall
Kailua, Oahu

The applicants Ned and Ann Dewey are applying for a shoreline setback variance to replace an existing revetment with a concrete reinforced masonry (CRM) seawall. The proposed wall would be 50-feet long with stairs to provide access to the ocean. The top of the seawall would be 9-feet above mean sea level (MSL), and would reach a depth of -3ft MSL. The CRM would be 8-feet wide, and composed of large heavy boulders. The purpose of this request is to protect the mauka property from erosion.

This review was conducted with the assistance of Renee Thompson, Environmental Center.

General Comments

The question of whether to grant yet another shoreline setback variance in the Lanikai area is a good example of the long-term problem of chronic shoreline erosion. We agree with the statements on page 16 and page 21, that "Government Policy needs to be changed", and "building sustainable beaches through sound research and coastal engineering is the only practical way to restore beach access to Lanikai". We encourage the owners of this property to be patient. It is possible that a comprehensive long-term beach nourishment project is just around the corner. If the property owners built a temporary sandbag revetment and the beach were to be restored, then there would be no need for a permanent structure. The replenished sand would protect the property. If the owners were granted this variance then it may exacerbate erosion in the area and hinder efforts to replenish the beach by increasing the rate of erosion of new sand fronting the property.

KRAUSS ANNEX 19 • 2500 DOLE STREET • HONOLULU, HAWAII 96822 • (808) 956-7361 • FAX (808) 956-3980

Alternatives

We would like to see a more complete discussion of alternatives. Page 3 *Considerations of Alternatives* indicates that beach nourishment and construction of a permanent breakwater are viable long-term solutions, but they are beyond the means of a single property owner. We believe that it is the applicant's duty to further investigate these alternatives. That is, inquire with the government as to whether these options are being considered in future plans. If so, then a temporary structure is more appropriate.

In addition, the option of shoreline retreat should be considered. According to OEQC's Shoreline Hardening Policy and Environmental Assessment Guidelines; "Applicants should evaluate the potential for moving dwellings and other structures away from the shoreline as a means of mitigating the effects of erosion". The mentioned property at present is very close to the certified shoreline, with non-dwelling structures located on the mauka side of the property. It is not possible to determine from the figures provided if there is room to move the single family dwelling landward. A figure of the layout of the property would aid in this determination.

Consistency

As indicated by section 5, page 8 *Consistency with the Hawaii Coastal Zone Management Objectives and Policies*, this project does not comply. A further investigation of the alternatives mentioned above would help to make this project comply with state policies.

Conclusion

We urge the applicants to consider more sustainable techniques to protect their property, by fully evaluating the alternatives listed above. We understand that protecting coastal homes is important, and we do agree that government policy needs to be changed. However, we do not think that building yet another seawall along Lanikai is a reasonable way to manage beaches in Hawaii.

Thank you for the opportunity to review this Draft EA.

Sincerely,

John T. Harrison, Ph.D.
U.H. Environmental Coordinator

cc: OEQC
James Moncur, WRRC
Renee Thompson

Pacific Land

April 25, 2002

Mr. John T. Harrison, PhD
UH Environmental Coordinator
Krauss Annex 19, 2550 Dole Street
Honolulu, Hawaii 96822

Re: ***Draft Environmental Assessment for Seawall***
Reference EA: 0277

Dear Dr. Harrison:

Thank you for taking the time to provide comments on the above referenced application to construct a seawall. The following responses to your letter dated November 21, 2001 were prepared with the assistance of Edward K. Noda and Associates, Inc. who has reviewed the Draft EA and proposed seawall design.

1. Comment: If the property owners built a temporary sandbag revetment and the beach were to be restored, then there would be no need for a permanent structure.

Response: Restoring the beach will not stop erosion from continuing. For this section of Lanikai Beach, continual re-nourishment will be necessary. The 16,000 cubic yards of sand that was placed in this central portion of Lanikai Beach in the 1999-2000 winter season was completely eroded within a span of about 18 months. If not for the existing protective structures, adjacent homes would be undermined. Even if beach nourishment was implemented on a large scale, there is still justification for building a permanent shore protection structure to protect the property when re-nourishment cannot be conducted in a timely manner.

2. Comment: If the owners were granted this variance then it may exacerbate erosion in the area and hinder efforts to replenish the beach by increasing the rate of erosion of new sand fronting the property.

Response: The proposed seawall will not preclude or foreclose the possibility of future beach restoration and re-nourishment, whether by natural or artificial means. The perception that seawalls cause increased erosion is not supported by factual prototype data. In fact, the majority of the Lanikai shoreline is protected by seawalls or other form of shore protection structure, and substantial accretion has occurred naturally in front of many of these walls.

3. Comment: Page 3 Considerations of Alternatives indicates that beach nourishment and construction of a permanent breakwater are viable long-term solutions, but they are beyond the means of a single property owner. We believe that it is the applicant's duty to further investigate these alternatives. That is, inquire with the government as to whether these options are being considered in future plans.

Response: Until a project is designed and funded for construction, there is no guarantee that the government will implement a project. The only effort to date towards a regional solution was the cooperative effort in placing the 16,000 cubic yards of sand from the Kaelepulu Stream clearing onto the beach in the vicinity of the applicant's property. This sand did not last very long, and the State and City governments have no funding for future beach nourishment or beach stabilization structures.

4. Comment: In addition, the option of shoreline retreat should be considered.

Response: A portion of the residence is slab-on-grade construction. Therefore, relocation of the house is not economically feasible. It would also require destroying a 60-year old Banyan tree with an 8-foot diameter trunk. Also, because the properties on both sides of the applicant's lot have their shorelines protected, if the applicant's shorefront were allowed to continue to erode, the adjacent homes and already built improvements would suffer potential damage due to flanking.

5. Comment: As indicated by section 5, page 8 Consistency with the Hawaii Coastal Zone Management Objectives and Policies, this project does not comply.

Response: The CZM Act's policy to protect beaches and to prohibit shoreline structures is a statement of general public policy. The Act, however, also recognizes that shore protection is justified in certain instances where there is a hardship and therefore provides a variance procedure.

6. Comment: We understand that protecting coastal homes is important, and we do agree that government policy needs to be changed. However, we do not think that building yet another seawall along Lanikai is a reasonable way to manage beaches in Hawaii.

Response: The seawall is intended to replace an old rock revetment that is deteriorating due to ongoing erosion. Abutting properties have seawalls protecting their homes. The applicant's seek to provide similar protection to their home, and to deny this request does nothing towards improving beach management in Lanikai.

Thank you for the opportunity to respond to your comments.

Sincerely,

Ned Dewey

Ned Dewey
President

Enclosure

cc: Office of Environmental Quality Control

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

In reply, please refer to:
File:

01-137/epo

November 23, 2001

Mr. Randall K. Fujiki, AIA, Director
Department of Planning and Permitting
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Fujiki:

Subject: Draft Environmental Assessment (DEA) to Remove Existing Revetment and Construct a New Vertical Concrete-Reinforced Masonry (CRM) Seawall Along the Shore at 1280 Mokulua Drive, Lanikai, Oahu (TMK: 4-3-05: 60)

Thank you for allowing us to review and comment on the subject zone change. We have the following comments to offer at this time:

Clean Water Branch

The proposed CRM seawall would be 50 feet long, tying into adjacent seawall structures to the north and south with stairs to access the ocean. The top and bottom elevation of the seawall would be at + 9 feet and –3 feet mean sea level (MSL), respectively. The base of the seawall would be 8 feet wide and would be constructed of large heavy boulders. The existing loose rock revetment would be used to prevent waves from washing into the construction site. As the wall progresses to a high enough elevation, the rocks from the loose rock revetment would be used in construction of the upper reaches of the new wall.

Concerns

1. There is no figure 7 provided as referenced on page 15 in the DEA.

2. Based on the information and evidence provided in the DEA, we believe that it is a viable alternative to leave the existing rock revetment on site and reshape the rock revetment at the existing footprint to form a 2 to 1 (Horizontal:Vertical) sloping rock revetment to dissipate wave energy and protect the toe of the proposed vertical CRM seawall. The DEA should consider this alternative in addition to the proposed vertical CRM seawall.

3. The applicants shall obtain a National Pollutant Discharge Elimination System (NPDES) permit from the Department of Health prior to commencement of the proposed trenching activity, if discharge of the dewatering effluent from the trenching activity into State waters is anticipated or unavoidable.

4. Additional and effective site-specific best management practices and applicable monitoring measures shall be implemented to check whether the existing revetment is sufficient to prevent construction-activity pollutants from entering State waters, and violating applicable water quality standards as specified in Chapter 11-54 of the Hawaii Administrative Rules (HAR).

5. The applicants shall also be informed of the requirements specified in HAR, §11-54-04(a).

If you have any questions, please contact Denis Lau of the Clean Water Branch at 586-4309 for assistance.

Sincerely,

for GARY GILL
Deputy Director
Environmental Health Administration

c: CWB

Pacific Land

April 25, 2002

Mr. Gary Gill
Deputy Director
Environmental Health Administration
State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Re: ***Draft EA to Construct a Seawall at 1280 Mokulua Drive, Lanikai***
TMK: 4-3-05:60

Dear Mr. Gill:

This responds to your letter dated November 23, 2001, commenting on the Draft EA. The responses were prepared with the assistance of Edward K. Noda and Associates, Inc., who has reviewed the Draft EA and proposed seawall design.

1. Comment: Based on the information and evidence provided in the DEA, we believe that it is a viable alternative to leave the existing rock revetment on site and reshape the rock revetment at the existing footprint to form a 2 to I (H:V) sloping rock revetment to dissipate wave energy and protect the toe of the proposed vertical CRM seawall. The DEA should consider this alternative in addition to the proposed CRM seawall.

Response: The portion of the existing deteriorated rock revetment that is situated seaward of the certified shoreline will be left in place to the extent practicable to dissipate wave energy and protect the toe of the proposed vertical concrete seawall.

2. Comment: The applicants shall obtain an NPDES permit from the Department of Health prior to commencement of the proposed trenching activity, if discharge of the dewatering effluent from the trenching activity into State waters is anticipated or unavoidable.

Response: Dewatering is not anticipated to be necessary.

3. Comment: Additional and effective site-specific best management practices and applicable monitoring measures shall be implemented to check whether the existing revetment is sufficient to prevent construction-activity pollutants from entering State waters, and violating applicable water quality standards as specified in Chapter 11-54 HAR.

PACIFIC LAND SERVICES, INC. 810 RICHARDS ST., SUITE 900 HONOLULU, HI 96813 PHONE: (808) 534-1141 FAX: (808) 534-1004

Response: The excavation and construction of the base of the seawall will be entirely landward of the certified shoreline and will be conducted during low tide and low wave conditions. Once the lower portion of the wall is constructed, construction of the upper portion of the wall will have minimal potential for impacts to State waters. Heavy equipment will not work on the beach. Visual monitoring will be conducted. The work will have less potential impact to State waters than the prior work that has been conducted to date on the adjacent shorelines.

4. Comment: The applicant shall also be informed of the requirements specified in HAR 11-54-04(a).

Response: The applicant is aware of the basic water quality criteria applicable to State waters.

Thank you for the opportunity to respond to your comments.

Sincerely,

Ned Dewey

ND:tmk

Enclosure

cc: Office of Environmental Quality Control

BENJAMIN J. CAYETANO
GOVERNOR

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

October 26, 2001

Mr. Randall K. Fujiki, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Fujiki:

Subject: Draft Environmental Assessment for the Dewey Seawall, Lanikai, Oahu

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

1. Please consult with adjacent homeowners and the Kailua Neighborhood Board.

2. Please provide a list of permits required for this project.

3. Please include a list of mitigation measures to minimize impacts of the project.

4. Please describe how the project will impact lateral access along the shoreline? What mitigations measures will be proposed to minimize any impacts?

5. Please review the attached *Shoreline Hardening Policy and Environmental Assessment Guidelines* and respond to the applicable questions.

6. The environmental assessment must state and justify the finding of no significant impact determination based on an evaluation of section 11-200-12 of the EIS rules. Please see the attached example.

Should you have any questions, please call Jeyan Thirugnanam at 586-4185.

Sincerely,

Genevieve Salmonson
Director

c: Pacific Land Services

Pacific
Land

April 25, 2002

Ms. Genevieve Salmonson
Director
Office of Environmental Quality Control
State of Hawaii
235 S. Beretania Street, Suite 702
Honolulu, Hawaii 96813

Re: ***Draft Environmental Assessment for the Dewey Seawall***
Lanikai, Oahu

Dear Ms. Salmonson:

This response is to your letter dated October 26, 2001, commenting on the draft EA. The responses were prepared with the assistance of Edward K. Noda and Associates, Inc. who has reviewed the draft EA and the proposed seawall design.

1. Comment: Please consult with the adjacent homeowners in the Kailua Neighborhood Board.

Response: The adjacent homeowners and the Kailua Neighborhood Board have been consulted.

2. Comment: Please provide a list of permits required for this project.

Response: Shoreline Setback Variance.

3. Comment: Please include a list of mitigation measures to minimize impacts of the project.

Response: The proposed seawall will be located mauka of the certified shoreline. At the suggestion of the State Department of Health, the existing loose rock revetment will be left in place to act as a dissipater for wave energy. By leaving the existing loose rock revetment in place there will be no change in the existing shoreline condition and no effect on coastal processes.

PACIFIC LAND SERVICES, INC. 810 RICHARDS ST., SUITE 900 HONOLULU, HI 96813 PHONE: (808) 534-1141 FAX: (808) 534-1004

4. Comment: Please describe how the project will impact lateral access along the shoreline? What mitigation measures will be proposed to minimize any impacts?

Response: The proposed seawall will be located mauka of the certified shoreline and mauka of the existing loose rock revetment. In addition, it will be located well mauka of the adjacent properties' seawalls to the north and south of the proposed wall. Therefore, lateral access along the shoreline will be unaffected. Mitigation measures are set forth above.

5. Comment: Please review the attached Shoreline Hardening Policy and Environmental Assessment Guidelines and respond to the applicable questions.

Response: We have reviewed the above referenced guidelines and have responded to the applicable questions as set forth above. The Final EA including its Appendix complies with the Shoreline Hardening Policy and Environmental Assessment Guidelines referenced in your letter.

6. Comment: The Environmental Assessment must state and justify the findings of no significant impact determination based on an evaluation of Section 11-200-12 of the EIS rules.

Response: Section 4 of the draft EA has been modified to include a significant impact determination discussion in the final EA.

Thank you for the opportunity to respond to your comments.

Sincerely,

Ned Dewey
President

Enclosure

cc: Office of Environmental Quality Control

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

GILBERT S. COLOMA-AGARAN, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DEPUTIES
JANET E. KAWELO
LINNEL NISHIOKA

'01 NOV 20 PM 2 32

CITY & COUNTY OF HONOLULU

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS

November 13, 2001

Randall K. Fujiki, Director
Department of Planning and Permitting
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

LOG NO: 28556 ✓
DOC NO: 0111EJ05

Dear Mr. Fujiki:

SUBJECT: Chapter 6E-8 Historic Preservation Review – Draft Environmental Assessment (DEA) for Shoreline Setback Variance (SV) for Construction of a Concrete-Reinforced Masonry (CRM) Seawall with Railing and Stairway at 1280 Mokulua Drive, Lanikai, O`ahu
Kailua, Ko`olaupoko, O`ahu
TMK: 4-3-005:060

Thank you for the opportunity to comment on the proposed seawall construction at 1280 Mokulua Drive in Lanikai. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was made of the project area.

The applicant proposes to replace an existing rock revetment with a 50'long CRM seawall mauka of the State certified shoreline. Although this area is comprised of Jaucus sands, a review of our records shows that there are no known historic sites at this location. Human burials have been found in the more inland lots of the Lanikai neighborhood near Aalapapa and Koohoo Drives. Because this is an active beach and no historic sites have been identified along this shoreline, we believe that this project will have "no effect" on significant historic sites.

However, in the event that historic sites, including human burials, are uncovered during routine construction activities, all work in the vicinity must stop and the State Historic Preservation division must be contacted at 692-8015.

Should you have any questions, please feel free to call Sara Collins at 692-8026 or Elaine Jourdane at 692-8027.

Aloha,

Don Hibbard, Administrator
State Historic Preservation Division

EJ:jk

Pacific Land

April 25, 2002

Mr. Don Hibbard, Administrator
State Historic Preservation Division
Department of Land & Natural Resources
601 Kamokila Boulevard
Kapolei, Hawaii 96707

Re: ***Draft EA to Construct a Seawall at 1280 Mokulua Drive***
TMK: 4-3-5:60

Dear Mr. Hibbard:

Thank you for your review of the above referenced Draft Environmental Assessment. In the event that historic sites, including human burials, are uncovered during construction activities, all work in the vicinity will stop and the State Historic Preservation Division will be contacted.

Sincerely,

Ned Dewey

ND:tmk

cc: Office of Environmental Quality Control

PACIFIC LAND SERVICES, INC. 810 RICHARDS ST., SUITE 900 HONOLULU, HI 96813 PHONE: (808) 534-1141 FAX: (808) 534-1004

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

REPLY TO
ATTENTION OF

October 22, 2001

Regulatory Branch

COPY

Mr. Randall K Fujiki, AIA
Director of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Fujiki:

Thank you for the opportunity to review and comment on the Environmental Assessment to Remove Existing Revetment and Construct a Sea Wall, dated September 10, 2001. It appears that the revetment is below the higher high tide line and therefore a Department of the Army (DA) permit will be required for the project.

If you or Mr. and Mrs. Dewey have any questions concerning this determination, please contact William Lennan of my staff at 438-6986 or FAX 438-4060, and reference File No. 200200019.

Sincerely,

Signed

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

Copy Furnished:
Mr. and Mrs. Ned Dewey, 1280 Mokulua Drive, Kailua, Hawaii 96734

Pacific Land

April 25, 2002

Mr. George P. Young, PE
Chief, Regulatory Branch
Department of the Army
U.S. Army Engineer District
Honolulu, Ft. Snafter, Hawaii 96858-5440

Re: ***Environmental Assessment to Remove Existing Revetment and Construct a Seawall, Dated September 10, 2001***
Reference File No. 200200019

Dear Mr. Young:

The proposed seawall will be constructed entirely landward of the certified shoreline. The portion of the existing deteriorated rock revetment that is situated seaward of the certified shoreline will be left in place to the extent practicable. Any rocks which need to be moved to accommodate construction will be moved by hand. Therefore, the seawall will not be constructed seaward of the higher high tide line.

Sincerely,

Ned Dewey

ND:tmk

Enclosure

cc: Office of Environmental Quality Control

PACIFIC LAND SERVICES, INC. 810 RICHARDS ST., SUITE 900 HONOLULU, HI 96813 PHONE: (808) 534-1141 FAX: (808) 534-1004

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

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

November 19, 2001

LD-NAV
Ref: 2001-SV-11.RCN

Honorable Randall K Fujiki, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Fujiki:

SUBJECT: Application: Shoreline Variance
Environmental Assessment
File No.: 2001-SV-11
Applicant: Ned Dewey
Address: 1280 Mokulua Drive, Kailua, Oahu, Hawaii
Purpose: Construct Seawall with railing and stairway
TMK: 1st/ 4-3-5: 60

This is to acknowledge your request for review of the Environmental Assessment covering the subject matter.

Please be advised that shoreline certifications are valid for a period of twelve (12) months from the date the Chairperson signs the shoreline survey map.

Certification of the subject property's shoreline is expired. Furthermore, the department has no record of the owner applying for a new shoreline certification.

Attached herewith is a copy of the Land Division Planning and Technical Services' Coastal Land Program comment.

The Department has no other comment to offer on the subject matter at this time. Should you have any questions, please free to contact Nicholas A. Vaccaro of our Land Division Support Services Branch at 808-587-0438.

Very truly yours,

HARRY M.YADA
Acting Administrator

C: Oahu District Land Office
DLNR Coastal Land Program, Sam Lemmo

PB:MA

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

NOV 19 2001

Ref No: OA-02-45

MEMORANDUM

TO: Nick Vaccaro, Land Agent
Land Division

FROM: Masa Alkire, Staff Planner
Planning Branch - Coastal Lands Program

THRU: Sam Lemmo, Senior Planner
Planning Branch – Coastal Lands Program

SUBJECT: Request for Comments Shoreline Variance (2001-SV-11) to construct a seawall within the 40-foot setback at 1280 Mokulua Drive, Kailua, Oahu [TMK (1) 4-3-5:60]

Coastal Lands Program Staff has reviewed the subject Environmental Assessment to remove an existing revetment and construct a sea wall at the subject property. After reviewing the document staff is of the understanding that the property owner wishes to build this structure in order to protect their property and improvements from erosion.

It is staff's understanding that the property in question is flanked by a vertical seawall to the north and a seawall for the adjacent property to the south has recently been approved. The house on the property in question is located approximately 23 feet from the present shoreline. In addition, according to information presented in the EA, the portion of Lanikai beach in question has undergone rapid erosion in the last five years.

Staff confirms that the majority of properties in the Lanikai area do have permanent hardened shoreline protection. This situation, in addition to large shoreline structures located to the south, has probably contributed to erosion on this portion of Lanikai Beach. The situation presents a considerable challenge to the individual homeowner wishing to protect their property in the Lanikai area.

It is DLNR policy to discourage or prohibit hardening of the shoreline. However the location of the subject structure is not within the Conservation District and thus not under the zoning jurisdiction of the DLNR. The Coastal Lands program would like to comment that as a State wide general policy it is preferred that homeowners find alternatives to permanent hardened structures to protect their property. Permanent

structures do conflict with State Coastal Zone Management policies and are unlikely to be approved within the Conservation District.

Coastal Lands Staff understands the owner's concerns about protecting their property from erosion. However, the Coastal Lands program would prefer to see methods other than the permanent hardening of the shoreline to protect the property. It would be preferred if the landowner considered all other possible alternatives and find them unfeasible before considering a sea wall.

Thank you for this opportunity to comment. If there are any questions regarding the above comments please contact Masa Alkire of the Planning Branch at 587-0385.

Pacific Land

April 25, 2002

Mr. Harry M. Yada
Acting Administrator
Department of Land & Natural Resources
Land Division
P.O. Box 621
Honolulu, Hawaii 96809

Re: Draft EA to Construct a Seawall at 1280 Mokulua Drive; TMK: 4-3-5:60

Dear Mr. Yada:

This responds to your letter dated November 19, 2001, commenting on the Draft EA. The responses were prepared with the assistance of Edward K. Noda and Associates, Inc., who has reviewed the Draft EA and proposed seawall design.

1. Comment: Certification of the subject property's shoreline is expired.

Response: The shoreline certification was valid at the time that the C&C DPP accepted the application for the shoreline setback variance.

2. Comment: Coastal Lands Staff understands the owner's concerns about protecting their property from erosion. However, the Coastal Lands program would prefer to see methods other than the permanent hardening of the shoreline to protect the property. It would be preferred If the landowner considered all other possible alternatives and find them unfeasible before considering a seawall.

Response: For this property, the only other alternative to hardening is large-scale beach nourishment. However, The 16,000 cubic yards of sand that was placed along this shoreline in the 1999-2000 winter season was completely eroded within a span of about 18 months. A continual large-scale renourishment program is clearly not within the capability of an individual property owner. Reconstruction of the revetment is an alternative to the CRM seawall. However, the horizontal width (footprint) of the revetment would require building a significant portion of the structure seaward of the certified shoreline, within the jurisdiction of the State Conservation

District. As your letter has already stated that permanent structures are unlikely to be approved within the Conservation District, the applicant has no option but to build the seawall entirely landward of the certified shoreline.

Thank you for the opportunity to respond to your comments.

Sincerely,

Ned Dewey

Enclosure

cc: Office of Environmental Quality Control

2001/ELOG-4573

PF

Barb –

11/15/01

Randall K. Fujiki, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Fujiki, [Re: TMK: 4-3-5:60]

On behalf of the Environmental Committee of the Kailua Neighborhood Board, we respectfully submit the following comments regarding the Environmental Assessment submitted by Mr. and Mrs. Ned Dewey, Lanikai, Oahu, TMK:4-3-05:60.

The Environmental Committee recommends against the granting of a permit for the construction of a seawall.

The Kailua Neighborhood Board has a longstanding policy against coastal armoring. We have watched over the years as one seawall after another has emerged along the Lanikai shoreline. Because of an inadequate setback policy and the private acquisition of accreted lands, Lanikai homeowners have heavily developed this coast without regard to future erosion hazards. Neither state nor county agencies, despite their awareness of the erosion problem, moved to stop the trend of overdevelopment. Now, widespread beach loss has accompanied the proliferation of seawalls as properties and homes become threatened by erosion. Lanika is now beginning to resemble the heavily urbanized Kahala shoreline where public access is difficult, the beach is gone and the reef is degraded.

We implore the DPP to begin a process of policy development to stop this trend before neighboring beaches (e.g., Kailua, Waimanalo) become similarly destroyed. There are alternatives to seawall construction.

The Dewey EA fails to recognize one critical alternative to armoring. It is possible to obtain a state permit for sand nourishment to rebuild a protective beach fronting their property. Ten thousand yd^3 of sand placed in front of the Dewey property could be stabilized with temporary sand bag groins that can be shifted laterally to include nourishment efforts on neighboring properties in the future. Through conversations with neighboring homeowners we know there is an interest to restore the beach. It is highly likely that a nourishment solution, especially if combined with neighboring properties to reduce mobilization expenses, would cost less than seawall construction. Nourishment at this site would also provide a demonstration of the viability of parcel-scale beach restoration.

Sincerely yours,

Donna Wong (DF)

Donna Wong, Chair
Kailua Neighborhood Board
Environmental Committee

Chip Fletcher

Chip Fletcher, Vice Chair
Kailua Neighborhood Board
Environmental Committee

Pacific Land

April 25, 2002

Ms. Faith Evans
Chair, Kailua Neighborhood
P.O. Box 487
Kailua, Hawaii 96734

Re: Draft EA to Construct Seawall at TMK: 4-3-05:60, 1280 Mokulua Drive

Dear Ms. Evans:

This responds to the Kailua Neighborhood Board letter dated November 15, 2001, commenting on the Draft EA. The responses were prepared with the assistance of Edward K. Noda and Associates, Inc., who has reviewed the Draft EA and proposed seawall design.

1. Comment: The Dewey EA fails to recognize one critical alternative to armoring. It is possible to obtain a state permit for sand nourishment to rebuild a protective beach fronting their property. Ten thousand yd^3 of sand placed in front of the Dewey property could be stabilized with temporary sand bag groins that can be shifted laterally to include nourishment efforts on neighboring properties in the future.

Response: The applicant's property frontage is only 50 feet wide. It is not reasonable to provide groins to contain 10,000 cubic yards of sand for this small lot. If the groins extended 200 ft. from the certified shoreline they would create a navigation hazard and the sand pile would still be 27 ft. high. Furthermore, temporary sand bag groins are not suitable for permanent beach stabilization, as has been well documented along this shoreline area.

2. Comment: It is highly likely that a nourishment solution, especially if combined with neighboring properties to reduce mobilization expenses, would cost less than seawall construction.

Response: As the Neighborhood Board well knows, the 16,000 cy of sand that was placed along this shoreline in the 1999-2000 winter season was completely eroded within a span of about 18 months. A continual large-scale renourishment program is clearly not within the capability of an individual property owner. A nourishment solution will never be cost effective unless unlimited source of beach sand is available for renourishment at nominal cost. Using the sand volume

recommended by the Neighborhood Board of 10,000 cubic yards, and a nominal unit cost of $25 per cubic yard, this nourishment alternative would cost $250,000 – five times more costly and much less certain than a seawall.

Thank you for the opportunity to respond to your comments.

Sincerely,

Ned Dewey

ND:tmk

Enclosure

cc: Office of Environmental Quality Control

O'AHU GROUP
SIERRA CLUB, HAWAI'I CHAPTER
P.O. Box 2577, Honolulu, Hawaii 96803
Phone: (808) 538-6616

21 November 2001

Pacific Land Services
Attn: Ned Dewey
810 Richards St. Suite 900
Honolulu, HI 96813

RE: Draft Environmental Assessment to Construct Seawall at TMK: 4-3-05:60

The Sierra Club, O`ahu Group, is concerned with the proposed construction of a seawall in Lanikai at TMK: 4-3-05:60. It has been well-established that seawalls exacerbate beach erosion. We know that 25%—about 10 miles—of Oahu's beaches have eroded thanks to coastal armoring. Studies done by the Army Corps of Engineers, the University of Hawai`i and the Coastal Zone Management Program demonstrate that if a shoreline is undergoing long-term retreat, beach narrowing and loss can be expected if the beach is armored. See, e.g., Hwang and Fletcher, *Beach Management Plan with Beach Management Districts* (June 1992).

Shoreline Setback Variances must be consistent with the objectives and policies of HRS 205A-2. 205A-4(b) These objectives and policies include:

- providing recreational opportunities accessible to the public;
- protecting the quality of coastal scenic and open space resources;
- protecting beaches for public use and recreation;
- providing and managing adequate public access to and along shorelines with recreational values; and
- prohibiting construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities.

We ask that the following issues be better discussed in the final EA:

No variance may be granted unless safe lateral access to and along the shoreline is provided. 205A-46(c)(1). Will safe lateral access be provided if the proposed seawall is built? What alternatives would provide such access?

The Coastal Engineering Evaluation and much of the DEA cites work performed by Edward K. Noda and Associates. We believe that Noda's coastal engineering studies should be viewed with skepticism. A Kauai Circuit Court (Fifth Circuit) found that a negligently designed seawall damaged neighboring property, Holtwick v. Oehlert (Civ. No. 86-0118). It is our understanding that Edward K. Noda and Associates designed this destructive seawall.

It is interesting to see the historical photographs of Lanikai Beach, especially the one on the cover, circa 1930, that shows a wide stretch of beach for the length of Lanikai. Obviously, this was before any shoreline armoring began. This may demonstrate two important points: 1) shoreline armoring does disrupt the natural state of the beach, and 2) Lanikai naturally has a wide beach. One of the main rationalizations used by the applicant for their proposed seawall is the fact that their neighbors have hardened the shoreline. It is clear that this type of rationalizing has contributed to the ongoing beach-destroying patterns in Lanikai. Each seawall applicant reasons that their seawall will not have an appreciable effect on the entire beach, yet collectively the impact is severe. What actions has the applicant taken since the concern was first recognized to develop a neighborhood approach to the beach erosion issue?

It was mentioned that beach nourishment for the entire 2500 lineal feet in Lanikai may cost millions of dollars. But given that there are over 90 lots fronting Lanikai Beach and the average cost of homes in that stretch is well over $1 million, perhaps such a cost isn't unreasonable to reestablish a beach, especially for a beach that has been named "the best beach in the nation" in 1996 by coastal geologist Stephen Leatherman, also known as "Dr. Beach." The *USA Today* reported on the honor on May 16, 1996. The article also warned of seawalls damaging Lanikai's status: "Lanikai, however, is also one of the most endangered beaches, he notes. 'Bulkheads, built by homeowners to protect their property against slow erosion, are squeezing the beach out of existence.'" Please explain how the proposed seawall will not contribute to the erosion that Leatherman warns about. What type of cost benefit analysis was done to rationalize the building of a seawall versus a neighborhood approach to establishing a beach through replenishment?

The applicant has not proven hardship. In general, a variance should be viewed as an extraordinary exception which should be granted sparingly. The reasons to justify approval must be substantial, serious and compelling. R.R. Powell on Real Property 79c.16[1] (1995). The applicant has the burden of proof. Hawaii property law does not give private property owners the right to damage public property (i.e., cause beach erosion). The beach is a public trust resource (Application of Sanborn, 57 Haw. 585) and the government, as a trustee, can restrain those activities that damage the resource (Orion Corp. v. State 747 P.2d 1062). Coastal property is encumbered with the risk that erosion will take away property. Because this principle is inherent in the property law (County of Hawaii v. Sotomura 55 Haw. 176; 5A Powell on Real Property 66.01), there is no "hardship" caused by erosion. It is a natural phenomenon.

The bottom line for the Sierra Club, O`ahu Group, is that we are not solving our coastal erosion problem on O`ahu. Individual applicants are asking for new seawalls here and there and nothing is being done comprehensively to save Oahu's beaches.

We appreciate the opportunity to offer these comments and look forward to your response.

Sincerely,

Howard Wiig
Chair, Sierra Club, O`ahu Group

cc: City and County of Honolulu, DPP
Office of Environmental Quality Control

Pacific Land

April 25, 2002

Mr. Howard Wiig
Chair, Sierra Club, Oahu Group
P.O. Box 2577
Honolulu, Hawaii 96803

Re: Draft EA to Construct Seawall; TMK: 4-3-05:60

Dear Mr. Wiig:

This responds to your letter dated November 21, 2001, commenting on the Draft EA. The responses were prepared with the assistance of Edward K. Noda and Associates, Inc., who has reviewed the Draft EA and proposed seawall design.

1. Comment: Will safe lateral access be provided if the proposed seawall is built?

Response: The applicant's property frontage is only 50 feet wide, and the seawall will be constructed landward of the certified shoreline. The alignment of the seawall will be landward of the seawalls on adjacent properties to the north and south. Therefore, lateral access will not be affected.

2. Comment: We believe that Noda's coastal engineering studies should be viewed with skepticism. A Kauai Circuit Court (Fifth Circuit) found that a negligently designed seawall damaged neighboring property, Holtwick v. Oehlert (Civ. No. 86-0118). It is our understanding that Edward K. Nods and Associates designed this destructive seawall.

Response: The seawall at Aliomanu, Kauai, the subject of the Holtwick v. Oehlert case, was not designed by Edward K. Noda and Associates, Inc.

3. Comment: What actions has the applicant taken since the concern was first recognized to develop a neighborhood approach to the beach erosion issue?

Response: As President of the Lanikai Community Association, the applicant spearheaded the recent effort with the State and the City and County of Honolulu to replenish Lanikai Beach. The City delivered over 16,000 cubic yards of sand from the clearing of Kaelepulu Stream to the central portion of Lanikai Beach where the sand bag revetments are located and where the applicant's property is located. This sand, which was placed in the 1999-2000 winter season, was

PACIFIC LAND SERVICES, INC. 810 RICHARDS ST., SUITE 900 HONOLULU, HI 96813 PHONE: (808) 534-1141 FAX: (808) 534-1004

completely eroded within a span of about 18 months. Because the State and County have little or no funding for beach nourishment projects, the applicant recently founded, and is President of, the Lanikai Beach Preservation Foundation, which is dedicated to the restoration and preservation of Lanikai Beach. To date, the foundation has received significant donations and grants. However, a large-scale renourishment program for Lanikai Beach is a long term endeavor with a great deal more funding required, and will not address the immediate erosion threat to the applicant's home.

4. Comment: Please explain how the proposed seawall will not contribute to the erosion that Leatherman warns about.

Response: The applicant's property frontage is only 50 feet wide. The adjacent properties to the north and south are already protected by seawalls. The applicant's proposed seawall will be constructed along an alignment landward of the adjacent walls, and will not contribute to the erosion that is already occurring.

5. Comment: What type of cost benefit analysis was done to rationalize the building of a seawall versus a neighborhood approach to establishing a beach through replenishment?

Response: A large-scale beach renourishment program is clearly not within the capability of an individual property owner, A nourishment solution will never be cost effective unless an unlimited source of beach sand is available for renourishment at nominal cost or the cost is funded by government, which is not likely in the foreseeable future. Maintaining a beach along this section of Lanikai will require continual and frequent renourishment. A cost-benefit analysis is not required to justify the need for shore protection for private homeowners.

6. Comment: The applicant has not proven hardship.

Response: The applicant's justification of hardship fulfills the three criteria set forth in ROH Sec. 23-1.8(3)(A). The proposed seawall will not damage public property, as the wall will be located entirely on the applicant's property landward of the certified shoreline.

Thank you for the opportunity to respond to your comments.

Sincerely,

Ned Dewey

Ned Dewey

Enclosure

cc: Office of Environmental Quality Control

No response required

PHONE (808) 594-1888

FAX (808) 594-1865

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

'01 OCT 31 P2:04
CITY & COUNTY HONOLULU
HRD017337

October 26, 2001

Mr. Randall K. Fujiki
Director of Planning and
Permitting
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Subject: Draft EAS – Shoreline Setback Variance

Dear Mr. Fujiki:

Thank you for the opportunity to comment on the above referenced Draft EAS which seeks a shoreline set back variance for the construction of a concrete-reinforced masonry seawall following the removal of an existing revetment. The Office of Hawaiian Affairs (OHA) has no comments at this point in time.

If you have any questions, please contact Jerry B. Norris at 594-1847 or email him at jerryn@oha.org.

Sincerely,

Colin C. Kippen, Jr.
Deputy Administrator
Hawaiian Rights Division

cc: OHA Board of Trustees
Clyde W. Namu'o, OHA Administrator

THE LANIKAI ASSOCIATION • P. O. BOX 481 • KAILUA, OAHU 96734

January 10, 2002

Mr. Randall K. Fujiki
Director
Department of Planning & Permitting
City & County of Honolulu
650 S. King Street
Honolulu, Hawaii 96813

Re: ***Application for a Shoreline Setback Variance to Construct a Seawall at 1280 Mokulua Drive, Lanikai***

Dear Mr. Fujiki:

The Board of Directors of the Lanikai Association voted unanimously to support the above referenced application to construct a seawall at its regularly scheduled monthly meeting on January 7, 2002. Thank you for the opportunity to comment on this application.

Best regards,

Chris Moody
Vice-President