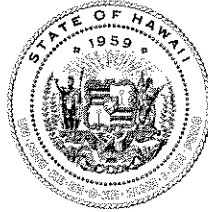
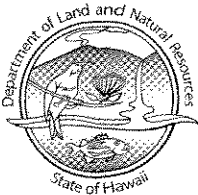


LINDA LINGLE  
GOVERNOR OF HAWAII



ALLAN A. SMITH  
INTERIM CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

KEN C. KAWAHARA  
DEPUTY DIRECTOR - WATER

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FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
KAHOOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
Office of Conservation and Coastal Lands

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

ref: OCCL: MC

File No: CDUA OA-3417

**MEMORANDUM**

**TO:** Lawrence Lau, Deputy Director  
Office of Environmental Quality Control

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

**SUBJECT:** Final Environmental Assessment /Finding of No Significant Impact (FONSI) for  
Conservation District Use Application (CDUA) OA-3417

The Department has reviewed Kenton Eldridge's CDUA OA-3417, and Final Environmental Assessment (FEA) for a new non-commercial pier in Wailupe, Honolulu District, O'ahu, TMK (1) 3-6-01:21. The Draft Environmental Assessment (DEA) for this CDUA was published in OEQC's May 8, 2007 *Environmental Notice*.

The FEA is being submitted to OEQC. We have determined that this project will not have significant environmental effects, and have therefore issued a FONSI. The FONSI does not constitute approval of the CDUA; authority to grant or deny the final permit lies with the Board of Land and Natural Resources.

Please publish this notice in OEQC's upcoming August 8, 2007 *Environmental Notice*. We have enclosed four copies of the FEA for the project. Comments on the draft EA were sought from relevant agencies and the public, and were included in the FEA.

Please contact Michael Cain of our Office of Conservation and Coastal Lands staff at 587-0380 if you have any questions on this matter.

cc: Mary O'Leary, Belt Collins Hawai'i, 2153 North King Street, Honolulu, HI 96813



**FINAL ENVIRONMENTAL ASSESSMENT**

**New Non-Commercial Pier**

**at 298 Wailupe Circle, Honolulu, Hawaii**

**Applicant:**

**Mr. Kenton Eldridge**

**298 Wailupe Circle, Honolulu, Hawaii**

**Submitted to:**

**Department of Land and Natural Resources**

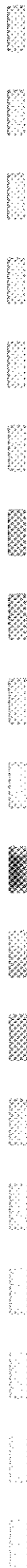
**State of Hawaii**

**Prepared by:**

**Belt Collins Hawaii**

**2153 North King Street, Honolulu, Hawaii**

**June 2007**



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Appendix A	Certified Shoreline Survey
Appendix B	Design Drawings - New Pier at 298 Wailupe Circle

- Appendix C Wave Study for Pier Design at 298 Wailupe Circle
- Appendix D Order of Magnitude Estimated Construction Cost
- Appendix E Cultural Impact Assessment for a New Pier at 292 Wailupe Circle
- Appendix F Assessment of the Marine Environment in the Vicinity of the Eldridge Residence
- Appendix G Hawaii Revised Statutes, Section 171-53 Relating to Leasing of State Submerged Lands

## ACRONYMS AND ABBREVIATIONS

DOH	Department of Health (State of Hawaii)
EA	Environmental Assessment
EIS	Environmental Impact Statement
FEMA	Federal Emergency Management Area
FONSI	Finding of No Significant Impact
FRP	fiber reinforced plastic
HAR	Hawaii Administrative Rules
HRS	Hawaii Revised Statutes
LUO	Land Use Ordinance
MLLW	Mean Lower Low Water
msl	mean sea level



## GENERAL INFORMATION

**Project:** Construction of a wood/fiber reinforced plastic (FRP) approximately 270 square foot pier (27 feet long by 10 feet wide) and associated pre-cast concrete footing and support column on the ocean-side of the subject single-family residential property.

**Location:** 298 Wailupe Circle, Honolulu, Hawaii 96821

**Applicant:** Mr. Kenton Eldridge  
298 Wailupe Circle  
Honolulu, Hawaii 96821

**Recorded Fee Owner:** State of Hawaii is landowner of submerged land below pier.

**Approving Agency:** Department of Land and Natural Resources  
State of Hawaii

**EA Preparer:** Belt Collins Hawaii, Inc.  
2153 North King Street  
Honolulu, HI 96817  
Contact: Mr. Lee Sichter  
Phone: 808-521-5361

### Property Profile:

	IN-SHORE	OFF-SHORE
TMK:	3-6-001: 021	N/A
Land Area:	Approximately 43 square feet of bulkhead to be modified.	Approximately 270 square feet of pier deck.
State Land Use District:	Urban	Conservation
Conservation Subzone:	N/A	Resource
East Honolulu Sustainable Communities Plan:	Residential and Low Density	Not specified
Zoning:	R-10 Residential	N/A
Existing Use:	Residential	Recreational
Proposed Use:	Residential	Recreational Pier

**Anticipated Determination** Finding of No Significant Impact (FONSI)

**Agencies Consulted**

**in preparing the Draft EA**

Federal

United States Army Corps of Engineers

State

Department of Land and Natural Resources  
Office of Conservation and Coastal Lands  
Land Division

City and County of Honolulu

Department of Planning and Permitting

Organizations and Individuals

Kuliouou – Kalani Iki Neighborhood Board No. 2  
Mr. Michael Pietsch, adjacent property owner at 292 Wailupe  
Circle, Honolulu, Hawaii

## **1 DESCRIPTION OF THE PROPOSED ACTION**

The proposed project is construction of an approximately 270 square foot wood/fiber reinforced plastic (FRP) pier and associated pre-cast concrete footing and support column on submerged State land along the ocean-side of the subject property at TMK: 3-6-001: 021. The proposed pier will be similar in size, appearance, and construction to piers previously constructed by adjacent and nearby property owners on Wailupe Peninsula. The applicant will obtain a lease from the State for the use of submerged land over which the pier would be constructed.

### **1.1 Description of Project Area and Background**

The subject property is located at 298 Wailupe Circle at Wailupe Peninsula in East Honolulu on the southeastern shore of Oahu, Hawaii as shown in Figure 1. Wailupe Peninsula is the site of an historic fishpond that was reclaimed for the development of a residential subdivision in 1948 by Robert Hind, Ltd. A substantial lava stone seawall was constructed around the perimeter of the entire fishpond. The fishpond was subsequently filled with more than half a million cubic yards of coral from a perimeter boat channel that was dredged around the peninsula. The boat channel is located 23 feet offshore from the subject property. The floor of the dredged channel ranges in depth from approximately 12 to 20 feet. The at-grade elevation of the Peninsula, including the rear yard of the subject property, is approximately five feet above mean sea level (msl).

The subject property, TMK 3-6-001: 021 is located on the southeastern corner of the Wailupe Peninsula, as depicted in Figure 1 and 2. The property is a trapezoidal shaped 15,878 square foot lot with the narrow end facing the street (Wailupe Circle) and the broad end facing the ocean. A shoreline survey was certified on December 21, 2006. A copy of the certified shoreline is in Appendix A. Figure 3 is a photograph that was taken along the ocean-side of the subject property. An existing seawall forms the seaward boundary of the subject property. The existing wooden boardwalk atop a portion of the length of the seawall will be removed.

### **1.2 Purpose of the Environmental Assessment**

The purpose of this Environmental Assessment (EA) is to provide information and analysis that helps to determine whether the impacts of the proposed action (the new pier) are significant enough to warrant the preparation of an Environmental Impact Statement (EIS). The EA has been prepared in accordance with the requirements of Chapter 343, Hawaii Revised Statutes (HRS) and regulations adopted pursuant thereto. The EA also describes potential mitigation measures and the alternatives considered. The "trigger" for the environmental review process is the proposed use of State land (submerged reef flat off-shore) located in the State Conservation District, on which the proposed pier would be constructed. The property owner will apply at the appropriate time for a non-exclusive easement from the state for use of state land for the submerged land area associated with the proposed pier.

### **1.3 Required Permits**

The proposed pier is an accessory use to the existing single-family dwelling and as such is exempt from the provisions of Chapter 25, Special Management Area, of the Revised Ordinances of Honolulu. Permits and approvals that may be required for the proposed new pier include the following:

## Federal

Department of the Army Corps of Engineers      To be confirmed:  
- Section 10  
- Section 404

## State

Department of Health      To be confirmed:  
- Section 401 Water Quality Certification  
Department of Land and Natural Resources      - Conservation District Use Permit  
Board of Land and Natural Resources      - Non-Exclusive Easement for Use of State  
Owned Land  
Office of Planning      - Coastal Zone Management Federal  
Consistency

## County

Department of Planning and Permitting      - Building Permit

## 1.4 Description of the Project

### 1.4.1 Use Characteristics

The purpose of the proposed pier is for recreational use by the property owner. A pier that extends to the edge of the dredged channel is necessary to provide the owners direct and safe access to the deeper waters of the dredged channel where they can swim. The reef flat, constituting the nearshore area between the existing seawall and the dredged channel, is too shallow to allow for swimming, snorkeling or related ocean activities. In addition, the rocky character of the submerged reef flat is hazardous for wading. The owners also intend to fish from the end of the pier. The owners do not contemplate using the proposed pier for the purpose of mooring a boat, although that activity may occur at some unknown time in the future.

### 1.4.2 Design Description

In general, the pier design consists of transverse Trex (wood/FRP) decking atop longitudinal wood beams that are supported on the landward side by a concrete abutment, which will be anchored into the existing seawall. On the seaward side, the decking will be supported by a pre-cast concrete T-column, beam, and footing. The surface area of the proposed pier will be approximately 270 square feet (27 feet long by 10 feet wide). A set of design drawings of the pier is included in Appendix B. All hardware (bolts, nuts, washers, screws, plates) used for pier construction will be stainless steel.

#### Pier Surface

The deck surface of the pier will be flush with the top of the existing seawall at elevation 4.30 feet above msl as depicted on Sheet S-3 in Appendix B. The pier surface will be constructed of transverse 1 ¼ inch x 5 ½ inch Trex decking supported by seven 4 inch x 14 inch longitudinal wood beams. Wood used for beams will be Douglas Fir select structural grade and will be preservative treated. In addition, 6 inch x 14 inch Trex material will be used to construct two

benches on each side of the pier, running 1 foot wide and 15 feet long from the shoreward portion of the pier towards the seaward end (Sheet S-3 in Appendix B).

#### Shoreward Seawall Support

Approximately 43 square feet of the existing rock seawall will be modified to accommodate a reinforced concrete abutment. The abutment will consist of approximately 24 cubic yards of concrete, which will be cast on-site. This activity will take place approximately two (2) feet above the Mean Lower Low Water (MLLW) height; therefore it will not be conducted in the water. The abutment will span the 10 foot width of the pier and will support the seven longitudinal wood beams. A stainless steel anchor connection plate will be bolted into the beams and anchored into the abutment.

#### Seaward Support

The pier will be supported on the seaward side by a pre-cast concrete T-column, which will consist of a footing, column, and beam all made of pre-cast concrete, which will be cast on-site. That activity will not take place in the water. The 8 foot x 7 foot x 2 foot pre-cast concrete footing will be embedded 12 inches into the hard reef substrate and located approximately 12 feet seaward of the face of the seawall. The T-column will consist of a 24-inch diameter pre-cast concrete column and a cantilevered concrete beam approximately 14 inches x 24 inches in section. The longitudinal wood beams will be attached to the cantilevered concrete beam by means of a stainless steel plate bolted to the wood and anchored into the concrete.

#### Wave Study for Proposed Pier

A wave study for the proposed pier was prepared by Oceanit in Honolulu and is contained in Appendix C. The wave study and its results were used in the design of the pier. Oceanit reviewed historical wave data for the south shore of Oahu and concluded that a reasonable estimation of the maximum expected wave conditions could be determined using the two cases of a high intensity kona storm (with strong onshore winds and short period large waves) and an extremely large south swell event (long period, large waves with no local storm effects), occurring at the highest recorded tide. "CEDAS," a three-dimensional wave transformation model developed by the United States Army Corp of Engineers, was used to run several different scenarios of high surf events to ascertain which conditions would yield the largest amount of wave energy at the proposed pier location.

Once inside the reef margin, all of the scenarios approached the similar wave height of approximately 0.25 meters (0.8 feet). Instead of using this value, however, the analysts used the larger value of the largest wave that physically could occur at the depth of the pier or the seawall. This value was found to be roughly four feet (4 feet). This value was then used for the wave force calculations which were based on empirical and theoretical models developed by the Corps. A summary of the wave force calculations, from which the proposed pier was designed, is included in the full report. Tsunami and hurricane waves were not considered because the forces and potential resulting damage are difficult to predict and would be impractical to design for. The details of the wave force tables and maps used in the analysis are included with the report in Appendix C.

### Construction Activities

Construction activities will be staged on the Eldridge property. The existing house will be demolished prior to construction of the pier. Pier construction tasks will include:

- Mobilization,
- Modify existing seawall above the MLLW in order to accommodate concrete abutment for pier anchor,
- Minor excavation of reef rubble (and removal of rubble material from the water to land) to accommodate pre-cast concrete footing embedment,
- Placement of seaward pre-cast concrete T-column and footing,
- Construction of pier deck, wood beams and bench supports, and
- Site cleanup and restoration.

### **1.5 Preliminary Schedule**

The owners intend to commence construction of the pier when the required permits are obtained. It is estimated that the proposed pier construction will take approximately three to four weeks to complete. However, work in the water will be limited to 2 to 3 days.

### **1.6 Preliminary Development Cost**

The preliminary cost for construction of the project is estimated to be approximately \$100,000. This estimate includes materials, mobilization, environmental controls, building construction, and demobilization. A description of the estimated construction cost and costs for alternative pier footing designs can be found in Appendix D.

## **2 DESCRIPTION OF THE AFFECTED ENVIRONMENT, PROJECT IMPACTS, AND MITIGATION MEASURES**

### **Land Environment**

#### **2.1 Climate**

The climate of Oahu is relatively mild. It is characterized by consistent tradewinds, relatively constant temperatures, moderate humidity and infrequent severe storms. Northeasterly tradewinds prevail throughout the year with an average wind velocity of about 10-15 miles per hour. The mean temperature at the Honolulu International Airport ranges from 70 degrees Fahrenheit in the winter months to 85 degrees and above in the summer months.

##### *Potential Impacts and Mitigative Measures*

The proposed project will have no impacts on climate conditions. No mitigation measures are proposed.

#### **2.2 Existing and Surrounding Uses**

The subject property is an improved residential lot occupied by a single-family dwelling, constructed in 1951. The house is surrounded by a grass lawn and ornamental shrubs. The property is abutted on both sides by residential properties of similar character. The subject lot and adjacent properties have an R-10 Residential zoning designation (Figure 4). There are approximately 22 existing piers associated with 31 ocean-front properties on Wailupe Peninsula.

##### *Potential Impacts and Mitigative Measures*

No negative impacts to adjacent or surrounding land uses are anticipated. No mitigation measures are proposed.

#### **2.3 Soils**

Soils in the Wailupe Peninsula consist entirely of backfill material from prior dredging of the off-shore reef. The location of the proposed pier footing consists of semi-consolidated reef substrate. The tie-in location for the pier abutment (the existing seawall) likely consists of rock and rubble-type material, similar to the existing seawall materials.

##### *Potential Impacts and Mitigative Measures*

The proposed pier will be constructed off-shore. No soils will be disturbed. No long term negative impacts to topography or soil conditions are anticipated. No mitigation measures are proposed.

#### **2.4 Flood Hazard**

According to the Flood Insurance Rate Map of the Federal Emergency Management Area (FEMA), panel 390 of 395, Map Number 15003C0390F, dated September 30, 2004, the subject property is in the "Special Flood Hazard Area, Zone A" where no base flood elevations have

been determined. The annual chance flood (a 100-year flood) is known as the "base flood." The Special Flood Hazard Area is subject to flooding by the one percent (1%) annual chance flood.

#### *Potential Impacts and Mitigative Measures*

The pier is located off-shore and is therefore not within Flood Zone A. No mitigation measures are necessary or proposed.

## **2.5 Flora and Fauna**

The landward area associated with the project area is limited to the rock seawall. The pier and related supports will be constructed off-shore. The seawall area offers no habitat for land dwelling mammals, birds, or terrestrial plants. Vegetation in the project vicinity is limited to turf and landscaping on the Eldridge property.

#### *Potential Impacts and Mitigative Measures*

The proposed project will not impact existing flora or fauna. No mitigation measures are proposed.

## **2.6 Noise Quality**

The major source of noise in the project vicinity is Kalaniana'ole Highway. The location of the proposed pier, along the seaward boundary of the property, is not significantly subject to road noise. Ambient sound at the subject property is typically limited to natural resources such as the wind and waves, and typical residential neighborhood noise.

#### *Potential Impacts and Mitigative Measures*

Construction activities at the project site would generate temporary short-term noise impacts. The construction contractor is responsible for mitigating construction noise in accordance with Title 11, Administrative Rules, Chapter 46, Community Noise Control of the State Department of Health (DOH). The DOH rules limit construction to the hours between 7:00 am and 6:00 pm on weekdays, except holidays, and 8:30 am to 6:00 pm on Saturdays. No long-term noise impacts are expected. No further mitigation measures are proposed.

## **2.7 Air Quality**

According to the State DOH's 2002 *Annual Summary of Hawaii Air Quality Data*, "Air quality in the State of Hawaii continues to be one of the best in the nation and criteria pollutant level remain well below state and federal ambient air quality standards." The State of Hawaii continues to be well below federal standards on annual averages for particulates, sulfur dioxide and nitrogen dioxide, and annual averages of daily maximum 1-hour values recorded for ozone and carbon monoxide. The State's averages have also been well below federal standards for carbon monoxide and nitrogen dioxide. The project site is subject to side-shore and onshore wind conditions, which facilitates air movement and results in generally good air quality and air circulation.



### *Potential Impacts and Mitigative Measures*

Construction activities at the subject property will generate short-term temporary impacts on air quality, including the generation of dust and emissions from construction vehicles and equipment, and commuting construction workers. The construction contractor is responsible for complying with the State DOH Administrative Rules, Title 11, Chapter 60-11.1 regarding "Air Pollution Control," including fugitive dust and the prohibition of visible dust emissions at property boundaries.

Mitigation measures to address short-term impacts include minimizing movement of construction vehicles during peak traffic periods to avoid traffic congestions and associated increase in vehicular emissions. No significant long-term impacts to air quality from the proposed project are anticipated. No further mitigation measures are proposed.

## **2.8 Visual Impacts**

The character of the project setting is that of a fully developed residential neighborhood. The Eldridge property has views of Maunalua Bay to the east, south, and west, and the Pacific Ocean beyond. The East Honolulu Sustainable Communities Plan's Figure 2-4 "Koko Head – Makapuu Viewshed" identifies two panoramic view vantage points in the general vicinity of the subject property. One is located in the vicinity of the Aina Haina Shopping Center with panoramic views looking mauka into the valley and mountains. The second panoramic view vantage point is at Kawaikui Beach Park with views of the ocean. It is unlikely that the proposed pier will be visible from Kawaikui Beach because the subject property is more than one-half mile away. Views from Wailupe Circle are relatively limited because the perimeter of Wailupe Peninsula is developed with single family residential houses.

### *Potential Impacts and Mitigation Measures*

The proposed 270 square foot pier is not anticipated to have any significant negative impacts on public views or views from public roadways. Due to the configuration of houses, vegetation, and fences along Wailupe Circle, the seawall constituting the shoreline is not visible from the street. Similarly, the eastern side of Wailupe Circle can not be seen from Kalaniana'ole Highway, which provides access to Wailupe Circle, because views are blocked by homes and landscape vegetation along the ocean side of the highway. Wailupe Peninsula is not identified as a significant view by either the City and County of Honolulu or the State of Hawaii. Finally, given the fact that the property is situated on a curve constituting the southeast corner of the peninsula, once constructed, the pier will likely only be visible from the properties abutting either side of the Eldridge property. The proposed pier will be similar in character and scale to the existing piers along the perimeter of Wailupe Peninsula. No further mitigation measures are proposed.

## **2.9 Historic, Archaeological, and Cultural Resources**

Wailupe Peninsula is the site of the previously existing historic Wailupe Fishpond that was reclaimed for the development of the residential subdivision in 1948 by Robert Hind, Ltd. The fishpond was filled with material from the perimeter boat channel that was dredged around the peninsula. A substantial lava stone seawall was constructed around the entire perimeter of the fishpond.

The subject property is located within the perimeter of the former Wailupe Fishpond, which is a fully developed urban neighborhood. The proposed pier will be constructed off-shore. Development of the pier is not expected to impact any historic, archaeological, or cultural resources within the area. The State Historic Preservation Division has previously indicated for the adjacent parcel, where a pier has been constructed (TMK 3-6-001: 022), that there are no known historic sites located in the offshore area beyond the Wailupe fishpond. The State Historic Preservation Division will review and have the opportunity to comment on this information in relationship to the subject property during the review of the Draft EA.

A cultural impact assessment was prepared by John Clark, Ocean Recreation Consultant, for the adjacent property at 292 Wailupe Circle (TMK: 3-6-001: 022) when that owner went through the permit process to construct a recreational pier, similar in scale and character to the subject project. The "Cultural Impact Assessment for a New Pier at 292 Wailupe Circle" is in Appendix E, which was published in the Final Environmental Assessment (a public document) for the adjacent 292 Wailupe Circle property. The information in that report is directly relevant to the proposed pier at the subject property of 298 Wailupe Circle (TMK: 3-6-001: 021). The information below is taken from that cultural impact assessment report.

Historic Site: Wailupe Peninsula was one of three historic fishponds that were built on the shore of Maunalua Bay. The others were located at Niu, now Niu Peninsula, and at Hawaii Kai, now Hawaii Kai Marina. In 1948, in conjunction with the development of Wailupe Valley, the historic Wailupe Fishpond was converted into a residential subdivision. The coral, which filled the fishpond, came from dredging the perimeter boat channel that surrounds the peninsula. When the boat channel was dredged, a narrow margin of shallow reef was left to remain between the perimeter seawall and the boat channel. The flat reef margin varies in width around the entire peninsula, except for a section on the west side where the reef margin was dredged completely to accommodate a boat launch ramp for Peninsula residents.

Fishing and Gathering: For numerous reasons, the reef margin is not considered to be a productive area for fishing or gathering activities. First, the reef margin is not emergent during the lowest tides of the year and is awash during high tides. Second, fishers and gatherers are discouraged from accessing the reef margin because of its exposure to surf conditions generated by Oahu's south swell, as well as most of the fish found on the reef margin are few in numbers and small in size. Third, edible seaweeds, such as limu manuea and limu eleele, are not found on the reef margin.

The reef margin is used primarily by pole fishers who occasionally use it to access the deeper waters of the dredged channel. The pole fishers access the reef margin either from Wailupe Beach Park or from a public right-of-way located along Kalaniana'ole Highway. These activities are generally limited to the western side of the peninsula (the opposite side of the peninsula from the subject property) near the Wailupe Beach Park because of the rougher ocean conditions common to the peninsula's eastern side, and also because the beach park provides such amenities as parking, showers, and restrooms.

Shellfish gathering, octopus fishing, spear fishing and thrownet fishing are not known to occur on the reef margin. Seaweed harvesting activities occur in the general area, but these activities primarily take place on the reef flat that is located on the west side of Wailupe Beach Park, away from the proposed project location.

### *Potential Impacts and Mitigative Measures*

In 2003, the owner of the parcel abutting the Eldridge property on the western side conducted the permit process for building a pier at the adjacent property (292 Wailupe Circle). The Cultural Impact Assessment report addressed the entire peninsula and its findings are relevant to the current project (Appendix E). The study concluded that any cultural use of the peninsula ended with the conversion of the fishpond to a residential development in the late 1940s. Thus, no cultural properties or historic or prehistoric artifacts exist on the peninsula. In addition, based on the fact that no gathering activities or significant fishing activities are known to occur on the reef margin fronting the Eldridge property, the assessment concluded that the impact of the construction of a new pier would be insignificant.

## **2.10 Recreational Activities and Public Access**

The "Cultural Impact Assessment for a New Pier at 292 Wailupe Circle" for the parcel adjacent to the Eldridge property also addresses recreational activities and public access (Appendix E). The information in that report is directly relevant to the proposed pier at the subject property of 298 Wailupe Circle (TMK: 3-6-001: 021). The information below is taken from that cultural impact assessment report.

Reef Margin Access and Use: Public access to the reef margin around Wailupe Peninsula is primarily from two sites: Wailupe Beach Park (TMK 3-5-022: 023) on the west side of the peninsula, and from the public right-of-way (TMK 3-7-001: 020) from Kalaniana'ole Highway on the east side. The right-of-way is a portion of a 10-foot wide storm drain easement. The public may also gain access to the reef margin from the ocean.

Recreational Activities: According to the report, the reef margin is minimally used by Wailupe Peninsula residents and non-residents. The reef margin is primarily used by pole fishers during low tides and low surf. The only other activities that tend to occur on the reef margin are landings and launchings, primarily by kayakers and surfers who are residents of Wailupe Peninsula.

Boating Activities: Given the rougher conditions on the peninsula's east side where the project is located, the occasional boating activities that take place at Wailupe Peninsula usually occur on its west side, away from the project location. These activities are generally limited to peninsula residents. A private boat ramp situated on the west side of the peninsula is infrequently used because it is narrow, steep, and can only accommodate small boats on small trailers.

Non-motorized boats, such as kayaks, are generally launched and landed from individual piers on the peninsula and the users tend to be peninsula residents or guests. Similarly, these kayakers typically land on the reef margin to reach ladders that are built into most of the small piers.

Surfing: According to the report, surfers probably comprise the largest group of ocean users in the general area. Popular surf sites off the peninsula, from east to west, include Lefts, Suicides, Bones, and Wailupe. All of these sites break on the shallow reefs on the seaward side of the dredged channel. The proposed pier would be located on the opposite side of the dredged channel and would not interfere with any surf sites. Resident surfers use the reef margin to access the surf sites and return to shore. The majority of surfers, however, are non-residents who access the surf sites from Wailupe Beach Park using the dredged perimeter channel.

Swimming: Property owners who have piers tend to swim in the perimeter boat channel fronting their properties. Residents use the reef margin to enter and exit the water. The proposed project will therefore enhance recreational opportunities by providing direct and safe access to the channel from the subject residential property.

### *Potential Impacts and Mitigative Measures*

The proposed construction of the pier at 298 Wailupe Circle is not anticipated to have an impact on public access or ocean related activities in the vicinity. Public access is provided to the reef flat by the Kalaniana'ole right-of-way on the east side of the peninsula and from Wailupe Beach Park on the west side. However, pedestrian activity does not generally occur along the reef margin fronting the seawall because the reef is always submerged, it is exposed to ocean swells on the eastern side, and it has no identified value as a gathering source. Pole fishing and spear fishing do not generally occur around the southeastern side of the peninsula, as they tend to occur nearer to the beach park. Other recreational uses are primarily transitory and are concentrated around existing piers.

It should be noted, however, that the numerous existing piers around the peninsula occasionally provide a public safety function. The aforementioned surf sites all break on shallow reefs on the seaward side of the dredged perimeter channel around the peninsula. Occasionally surfers are injured, sometimes seriously. Surfers may use the piers, which are much closer to the surf sites than the usual points of entry and exit, as emergency exits from the ocean to extricate victims and call for emergency assistance. No negative impacts to recreational resources or public access is anticipated with the proposed project. No mitigation measures are proposed.

## **Ocean Environment**

### **2.11 Assessment of the Marine Environment in the Project Vicinity**

A report entitled "Assessment of the Marine Environment in the Vicinity of the Eldridge Residence, Wailupe Peninsula, Oahu, Hawaii" was prepared by Marine Research Consultants, Inc. for the proposed pier project. The report contains the results of research and a June 2006 field investigation to evaluate the existing marine water quality and biotic community composition at the proposed pier site (Appendix B). A summary of the findings, conclusions and proposed mitigation measures are contained in the following sections.

#### **2.11.1 Description of the Marine Environment**

The shoreline boundary of the subject property consists of a vertical seawall that retains the dredged fill material which forms the land of the Peninsula. At the base of the seawall, there is a concrete footing that forms a narrow ledge, which extends approximately one foot outward from the seawall face to the reef surface (Figure 5). Beginning at the base of the ledge, a narrow band of reef flat borders the outer perimeter of the Peninsula, extending to the vertical face that forms the edge of the dredged channel (Figure 6). The surface of the reef consists of a solid fossil limestone platform interspersed with small patches of sand. Depth of the reef flat ranges from less than one foot at low tide near the seawall to approximately 5 feet to 6 feet at the edge of the channel cut. The floor of the dredged channel consists of fine-grained sandy mud pocked with numerous holes formed by burrowing organisms, and ranges in depth from approximately 12 feet to 20 feet (Figure 6).

### **2.11.2 Description of Water Chemistry/Water Quality**

The waters off Wailupe Peninsula are categorized as Open Coastal Class A under Title 11, Chapter 54, Hawaii Administrative Rules (HAR). The nearshore area is identified by the Office of Conservation and Coastal Lands, Department of Land and Natural Resources, as being part of the Resource Subzone of the Conservation District.

Water chemistry was evaluated by Marine Research Consultants, Inc. at six stations spaced along the shoreline fronting the subject property. Three stations (numbers 1-3) were located on the narrow reef flat between the seawall and the channel edge; the next three stations (numbers 4-6) were located in the dredged basin directly seaward of the reef flat stations (Figure 7). All field work was conducted on June 5, 2006. Water samples were collected by swimmers using appropriate containers at the desired locations. At each sampling station, water samples were collected at two depths; a surface sample was collected within approximately 8 inches of the surface, and a bottom sample within approximately 4 inches of the sea floor.

Water quality parameters that were evaluated include the specific criteria designated for open coastal waters and embayments in Chapter 11-54, Section 06 Open Coastal Waters, of the State of Hawaii, DOH's Water Quality Standards. These criteria include: total nitrogen, nitrate plus nitrate nitrogen, ammonium, total phosphorus, chlorophyll a, turbidity, temperature, dissolved oxygen, pH, and salinity. In addition, orthophosphate phosphorus and silica were also reported because these parameters are sensitive indicators of biological activity and the degree of groundwater mixing.

For a complete description of testing methods and results, please see the full report of the "Assessment of the Marine Environment in the Vicinity of the Eldridge Residence" in Appendix F. Overall, patterns of water chemistry off of Wailupe Peninsula exhibit slight gradients indicating a small freshwater input near the shoreline mixing with ocean water. These patterns indicate that at the present time there is very little influence to the nearshore ocean from inputs from land originating from either natural or anthropogenic activities.

During the June 2006 survey only two criteria (nitrate plus nitrate nitrogen and ammonium) were exceeded for just a single sample, and turbidity was exceeded in only two samples. In conclusion, the overall results of the sampling program off of the subject property indicate that at present the marine waters in the vicinity of the proposed pier generally comply with the most stringent State of Hawaii Water Quality Standards.

Recent analyses of water chemistry off of Wailupe Peninsula indicate that at the present time, there is very little influence to the nearshore waters from inputs from land originating from either natural or anthropogenic activities. The analyses also indicate that at the present time, the nearshore waters generally comply with the most stringent State of Hawaii Water Quality Standards (Appendix F).

### **2.11.3 Description of Nearshore Waters**

The nearshore area of Wailupe Peninsula, including the shore of the property, is a narrow margin of shallow reef approximately 23 feet wide extending from the seawall to the vertical face that forms the edge of the dredged channel. The surface of the reef consists of a solid fossil limestone platform interspersed with small patches of sand. Depth of the reef flat ranges from less than one foot at low tide near the seawall to approximately 5- to 6-feet at the edge of the channel cut. The floor of the dredged channel consists of a sandy-mud bottom pocked with

numerous holes formed by burrowing organisms, and ranges in depth from approximately 12- to 20-feet (Figure 8).

#### **2.11.4 Marine Biology**

The biotic community of the corridor along the reef flat where the footing for the proposed pier will be placed consists of a near complete coverage of a variety of fleshy and calcareous marine algae. Specific algae types are described in the "Assessment of the Marine Environment" study for the subject property in Appendix F.

In contrast to algae, reef building stony corals were very rare on the reef flat. Reconnaissance swims along the length of the reef flat revealed several small colonies of some branching corals, but the colonies occurred on the edge of the channel wall and would not be affected by the placement of the pier footing. For identification of coral types please see the "Assessment of the Marine Environment" study in Appendix F. Other benthic macroinvertebrates and reef fish were also rare on the reef platform and were limited to small individual subjects.

#### *Potential Impacts and Mitigative Measures*

The results of the Marine Assessment in the vicinity of the proposed small pier fronting the subject property indicate that construction of the pier should not have any significant or long-term negative consequences on the marine environment.

There are no indications that the proposed work would affect water chemistry in the area. Biotic composition of the entire area that will contain the footprint of the pier consists of an algae covered limestone platform. Reef corals are essentially absent from the area, likely as a result of the very shallow depths which result in elevated temperatures and possible exposure to the atmosphere.

An inspection of existing pier structures at other ocean-front Wailupe Circle residences indicates that those pier structures are having no negative effect to the biotic community structure. Therefore, there is no reason to expect that the proposed Eldridge pier would result in any negative impacts to the marine environment.

Although no significant impacts are anticipated, the following mitigation measures and best management practices will be implemented:

- Incorporating the minimal pre-cast concrete footing size required for the anticipated loading;
- Undertaking placement of the pre-cast concrete footing and support column during low tide to minimize impacts such as increased turbidity;
- Consulting with adjacent property owners regarding scheduling of construction days and hours, and location for staging of construction related equipment to minimize noise and traffic impacts;
- Limiting construction activities to daylight hours as required by the State DOH;
- Relocating marine biota that may be displaced where practicable;
- Limiting the work that takes place in the water to 2 to 3 days; and
- Treating wood in accordance with treatment rate recommended per wood preservative process for exposure to the weather for pier construction.

## **Socio-Economic Environment**

### **2.12 Social and Economic Characteristics**

The proposed pier project is limited in scale. The residential and shoreline characteristics of East Honolulu can be summarized as follows with information from the East Honolulu Sustainable Communities Plan (1999).

Shoreline Areas: According to the 1999 Plan, East Honolulu's shoreline extends for approximately 13 miles between Waialae and Makapuu. The shoreline provides residents and visitors with significant active and passive recreational value. There are five existing beach parks between Waialae and Koko Head: Waialae, Wailupe, Kawaikui, Kuliouou, and Maunalua Bay, which together total over 18 acres. There are also a few mauka-makai pedestrian easements.

The Plan notes that lateral shoreline access along some reaches of the beach from Maunalua Bay to Wailupe Beach Park is a desirable goal, but is difficult to achieve because of physical constraints, land ownership patterns, and the extent of existing urban development. The Plan states that an alternative is to pursue opportunities to acquire additional pedestrian rights-of-way from the highway to the shoreline in sections that have high recreational value, but no similar public access within at least a quarter-mile.

#### *Potential Impacts and Mitigative Measures*

The proposed pier will not impact existing public access along the shoreline, such as Wailupe Beach Park, Kawaikui Beach Park, or the public easement from Kalaniana'ole Highway along the east side of the Peninsula. The proposed pier will provide improved access to the nearshore area from the Eldridge property, which is the primary objective of the project. No negative impacts are anticipated. No mitigation measures are proposed.

Residential Areas: According to the 1999 Plan, the present land use pattern and suburban character of East Honolulu began in 1961 with the master planned community of Hawaii Kai. In the 1960s and 1970s, residential development quickly spread to the valleys of Kamikoiki and Kalama and to Mariner's Ridge. Subsequently, most of the ridges and valleys in East Honolulu - from Kahala to Kalama Valley - have been developed with residential use. In the past two decades, however, the rate of growth in East Honolulu has slowed as the availability of suitable development sites has diminished.

#### *Potential Impacts and Mitigative Measures*

The proposed pier will have no significant impacts to adjacent residential uses or on the residential character of East Honolulu. There are 22 piers fronting 31 residential properties along Wailupe Peninsula. The property owner will benefit if the pier is constructed by improved access to the ocean and the possibility of an increase in property value. No negative impacts are anticipated. No mitigation measures are proposed.

### **2.13 Utilities**

The proposed pier will not generate any demand for potable water, wastewater, solid waste, or electricity. Any demands on these utilities will be temporary and limited to the construction phase.

*Potential Impacts and Mitigative Measures*

No significant or long-term impacts to utilities and public services are anticipated. No mitigation measures are proposed.



### 3 RELATIONSHIP TO LAND USE, POLICIES, AND CONTROLS

This section discusses State and City and County of Honolulu land use controls, plans, and policies relating to the proposed project.

#### 3.1 State Land Use District

The Hawaii State Land Use Law of Chapter 205, HRS, classifies all land in the State into four land use districts: Urban, Agricultural, Conservation, and Rural. The proposed pier site is in the State Conservation Land Use District, Resource Subzone (Figure 9).

The applicant is applying for a Conservation District Use Permit from the Office of Conservation and Coastal Lands, State Department of Land and Natural Resources. Per HAR, Section 13-5-24, identified land uses in the Resource Subzone include "*R-6 (D-1) Marine construction, dredging, filling or any combination thereof of submerged lands.*" The proposed pier is considered "marine construction" for purposes of the Conservation District Use Permit, which will require approval from the Board of Land and Natural Resources.

#### 3.2 Leasing of Submerged Lands

Following approval of the Conservation District Use Permit, the applicant will apply with the State Department of Land and Natural Resources, Land Division, for a lease of the submerged lands associated with the proposed pier. Per HRS, Section 171-53, the Board of Land and Natural Resources may lease state submerged lands. Appendix G contains a copy of Section 171-53 HRS.

#### 3.3 Coastal Zone Management Objectives and Policies (Section 205A, HRS, as amended)

The following is a discussion of the how the proposed project relates to the objectives and policies of the Coastal Zone Management program.

(a) *The objectives and policies in this section shall apply to all parts of this chapter.*

(b) *Objectives.*

(1) *Recreational resources;*

(A) *Provide coastal recreational opportunities accessible to the public.*

Discussion: The proposed pier will enhance coastal recreational opportunities.

(2) *Historic resources;*

(A) *Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone*

*management area that are significant in Hawaiian and American history and culture.*

Discussion: There are no known historic or cultural resources associated with the property.

(3) *Scenic and open space resources;*

(A) *Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.*

Discussion: The proposed project will not have significant negative impacts on the scenic character of the coastline. The proposed pier will be consistent in character and scale with other similar piers along Wailupe Peninsula. Open space resources will not be impacted.

(4) *Coastal ecosystem;*

(A) *Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.*

Discussion: No living coral is present where the proposed pier is to be constructed. Potential impacts to the submerged lands will be mitigated through the implementation of best management practices, including: incorporating the minimal pre-cast concrete footing size required for the anticipated loading; undertaking work in the water during low tide to minimize potential impacts; relocating marine biota by hand, where practicable, that may be displaced; and limiting the time of work in the water to 2 to 3 days.

(5) *Economic use;*

(A) *Provide public or private facilities and improvements important to the State's economy in suitable locations.*

Discussion: The project is limited to improvements associated with a single-family residential property. The proposed pier will have no substantive impact upon the State's economy. However, the improvements may enhance the value of the residential property.

(6) *Coastal hazard;*

(A) *Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.*

Discussion: As outlined in the design description Section 1.4.2, the proposed pier has been designed to withstand wave forces generated

by the largest wave which physically could occur at the depth of the pier or seawall, with the exception of the extreme wave forces associated with rare hurricane or tsunami events. Tsunami and hurricane waves were not considered because the forces resulting from them would be impracticable to design for.

(7) *Managing development;*

(A) *Improve the development review process, communication, and public participation in the management of coastal resources and hazards.*

Discussion: The property owner is applying for the required county, state, and federal permits. Depending on the nature of the permit, the public will be afforded the opportunity to participate in the process.

(8) *Public participation;*

(A) *Stimulate public awareness, education, and participation in coastal management.*

Discussion: See discussion # 7, above.

(9) *Beach protection;*

(A) *Protect beaches for public use and recreation.*

Discussion: There is no beach at the project site.

(10) *Marine resources;*

(A) *Promote the protection, use, and development of marine and coastal resources to assure their sustainability.*

Discussion: As described in greater detail in Section 2.11, the proposed project will have no significant impacts on coastal resources.

(c) *Policies.*

(1) *Recreational resources;*

(A) *Improve coordination and funding of coastal recreational planning and management; and*

(B) *Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:*

- (i) *Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;*
- (ii) *Requiring replacement of coastal resources having significant recreational value including, but not limited to, surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;*
- (iii) *Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;*
- (iv) *Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;*
- (v) *Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;*
- (vi) *Adopting water quality standards and regulating point and no point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;*
- (vii) *Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and*
- (viii) *Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6.*

Discussion: The policies articulated in HRS § 205A-2(c)(1) focus largely on the role of public agencies and, therefore, are not entirely applicable to the applicant. It is noted, however, that according to the Cultural Impact Assessment for the parcel adjacent to the subject property, that the reef margin framing Wailupe Peninsula is relatively infrequently used by either the public or the peninsula's residents, depending in part on tides and ocean conditions. A full description of the reports findings is contained in Section 2.10 and the report is included as Appendix E.

- (2) *Historic resources;*
  - (A) *Identify and analyze significant archaeological resources;*

- (B) *Maximize information retention through preservation of remains and artifacts or salvage operations; and*
- (C) *Support state goals for protection, restoration, interpretation, and display of historic resources.*

Discussion: There are no known historic or cultural resources present at the project site.

(3) *Scenic and open space resources;*

- (A) *Identify valued scenic resources in the coastal zone management area;*
- (B) *Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views by and along the shoreline;*
- (C) *Preserve, maintain, and where desirable, improve and restore shoreline open space and scenic resources; and*
- (D) *Encourage those developments that are not coastal dependent to locate in inland areas.*

Discussion: The character and scale of the proposed pier is consistent and compatible with existing piers along Wailupe Peninsula. The pier would not be visible from Wailupe Circle and will likely appear small in scale, if visible at all from any public view points, such as Kawaikui Beach Park, which is more than one-half mile away.

(4) *Coastal ecosystems;*

- (A) *Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;*
- (B) *Improve the technical basis for natural resource management;*
- (C) *Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;*
- (D) *Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and*

- (E) Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.*

Discussion: The location of the proposed pier does not contain any living corals and the coastal resources of the impacted area are not considered unique. The project has been designed to minimize adverse impacts upon the immediate and surrounding ecosystems, such as limiting the only long-term disturbance caused by the project to the permanent placement of the pier footing on the bench reef. Best management practices will be implemented throughout the construction process to mitigate potential impacts such as: incorporating the minimal pre-cast concrete footing size required for the anticipated loading; undertaking work in the water during low tide to minimize potential impacts; relocating marine biota by hand, where practicable, that may be displaced; and limiting the time of work in the water to 2 to 3 days.

- (5) Economic uses;*
- (A) Concentrate coastal dependent development in appropriate areas;*
- (B) Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and*
- (C) Direct the location and expansion of coastal dependent developments to areas presently designated and use for developments and permit reasonably long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:*
- (i) Use of presently designated locations is not feasible;*
  - (ii) Adverse environmental effects are minimized; and*
  - (iii) The development is important to the State's economy.*

Discussion: The proposed pier is associated with a single-family residential property. The pier will be consistent in character and scale with the other piers along Wailupe Peninsula.

(6) *Coastal hazards;*

(A) *Develop and communicate adequate information about storm wave, tsunami, flood erosion, subsidence, and point and nonpoint source pollution hazards;*

(B) *Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and non-point source pollution hazards;*

(C) *Ensure that developments comply with requirements of the Federal Flood Insurance Program; and*

(D) *Prevent coastal flooding from inland projects.*

Discussion: The project will have no significant adverse affects on coastal systems and will not enhance flooding associated with storm waves. The proposed pier has been designed in accordance with a wave regime analysis conducted for the project.

(7) *Managing development;*

(A) *Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;*

(B) *Facilitate timely processing of applications for development permits and resolve or overlapping or conflicting permit requirements; and*

(C) *Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.*

Discussion: The policies articulated in HRS § 205A-2(c)(7) focus on the role of public agencies and, therefore, are not applicable to the actions of the applicant.

(8) *Public participation;*

(A) *Promote public involvement in coastal zone management processes;*

(B) *Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and*

- (C) *Organic workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.*

Discussion: The policies articulated in HRS § 205A-2(c)(8) focus on the role of public agencies and, therefore, are not applicable to the actions of the applicant.

(9) *Beach protection;*

- (A) *Locate new structures inland from the shoreline setback to conserve open space, minimize loss of improvements due to erosion;*

- (B) *Prohibit 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; and*

- (C) *Minimize the construction of public erosion-protection structures seaward of the shoreline.*

Discussion: There is no sand beach at the project site. The proposed pier will be constructed seaward of the property and anchored into a portion of the existing seawall structure. The proposed pier will not interfere with existing recreational or waterline activities.

(10) *Marine resources;*

- (A) *Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;*

- (B) *Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;*

- (C) *Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;*

- (D) *Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and*



*(E) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.*

Discussion: The policies articulated in HRS § 205A-2(c)(11) focus on the role of public agencies and, therefore, are not applicable to the actions of the applicant.

In conclusion, the proposed pier project is consistent with the objectives and policies of the Coastal Zone Management program.

### **3.4 City and County of Honolulu**

#### **3.4.1 The General Plan**

The City and County of Honolulu directs land use and growth through a three-tier system of objectives, policies, planning principles, guidelines and regulations. The General Plan forms the first tier of this system. The General Plan, first adopted by resolution in 1977, is a short document that provides broad statements of objectives and policies to guide the future of the City and County of Honolulu. The basic objectives and policies set forth in 1977 remain intact, although the General Plan has been amended many times.

The City's General Plan contains comprehensive objectives and policies that outline the City's long-range development goals. The proposed pier project is consistent with the following objectives and policies of the City's General Plan:

#### **Chapter III Natural Environment:**

Objective A: "To protect and preserve the natural environment."

Policy 1: "Protect Oahu's natural environment, especially the shoreline, valleys, and ridges, from incompatible development."

Objective B: "To preserve and enhance the natural monuments and scenic views of Oahu for the benefit of both residents and visitors."

Policy 2: "Protect Oahu's scenic views, especially those seen from highly developed and heavily traveled areas."

Policy 4: "Provide opportunities for recreational and educational use and physical contact with Oahu's natural environment."

## **Chapter VIII Public Safety:**

Objective B: “To protect the people of Oahu and their property against natural disasters and other emergencies, traffic and fire hazards, and unsafe conditions.”

Policy 2: “Require all developments in areas subject to floods and tsunamis to be located and constructed in a manner that will not create any health or safety hazard.”

Discussion: The proposed pier is consistent with the objectives and policies stated above. The new pier will have minimal impact to a shoreline that has already been significantly altered for over 50 years. The proposed pier is of similar scale and character as the other existing small piers found along Wailupe Peninsula. The new pier will not significantly affect scenic views due to the pier’s relatively small size and its location fronting residential development. The closest public park is over one-half mile away, therefore, the pier should not be readily visible from that public view point. The pier will provide improved access to the ocean and therefore will enhance recreational opportunities. The scale and location of the pier does not preclude the general public from continued use of the nearshore environment. The pier will be constructed in a manner that will not create any health or safety hazards.

### **3.4.2 East Honolulu Sustainable Communities Plan**

The second tier of the system is the development plans – now many are called Sustainable Communities Plans. These are adopted and revised by ordinance and are required to implement the objectives and policies set forth in the General Plan. In May 1999, the East Honolulu Sustainable Communities Plan was adopted by the City Council as Ordinance 99-19.

Section 3.1.3.6 “Shoreline Areas,” a subsection of Section 3, “Land Use Policies, Principles, and Guidelines,” of the East Honolulu Sustainable Communities Plan addresses maintaining and improving lateral and mauka-makai access to the shoreline. The proposed pier will provide improved access to the shoreline and the ocean. The pier’s location and scale, similar to the other piers along Wailupe Peninsula, will not significantly impact shoreline views. The proposed pier is consistent with the East Honolulu Sustainable Communities Plan.

### **3.4.3 Land Use Ordinance - Zoning**

The third tier of the system consists of implementing the ordinances, including the Land Use Ordinance (LUO) (Honolulu’s zoning code) and the City’s Capital Improvements Program. These ordinances, mandated by the City Charter, constitute the primary means of implementing the City’s plans. The zoning ordinances are required to be consistent with and carry out the purposes of The General Plan, the Development Plans, and each other.

The subject residential lot has a zoning designation of R-10 Residential (Figure 4). The proposed pier will be located off-shore from the lot and within the State Conservation District. The pier would be an accessory use to the existing single-family dwelling and is therefore exempt from the provisions of Chapter 25, Special Management Area, of the Revised Ordinances of Honolulu.

## 4 ALTERNATIVES TO THE PROPOSED ACTION

### 4.1 No Action Alternative

If the pier is not constructed, the owner will not have safe and convenient access to the shoreline area and the safer waters of the dredged channel. The seawall's vertical face is over three feet high and there is a submerged rough-surfaced reef between the property and the safer waters of the approximately 12- to 20-foot deep dredged channel. There are no other existing safe means to access the near-shore waters.

### 4.2 Alternative Pier Footing Designs

Four alternative configurations of the ocean-side pier footing design were considered. The following is a description of those alternatives. Alternative One is the preferred alternative, which is the proposed project.

#### Proposed Project – Preferred Alternative One:

The preferred alternative is the design chosen for the new Eldridge pier. The proposed pier is similar in design and scale to existing piers in the neighborhood, as depicted in Figure 10 which is a photograph taken along Wailupe Peninsula. The preferred alternative has one pre-cast concrete column 24-inches in diameter and an 8 foot x 7 foot x 2 foot pre-cast concrete footing as illustrated in Figure 11 "Alternate No. 1." The footing will be secured to the reef and embedded 6 to 12 inches into the reef substrate to provide lateral resistance from potential wave forces. The construction equipment will be able to access the proposed pier site from the landside because the existing house will be demolished prior to construction of the pier.

#### Alternative Two:

This alternative differs in configuration in that the footing would be embedded 24 inches into the reef, as compared to 12 inches, as illustrated in Figure 11 "Alternate No. 2." As such, the cost is somewhat higher than the Preferred Alternative. Although this alternative would provide more lateral resistance from potential wave forces, it would impact the construction method in that larger equipment would be required underwater and the construction period would be lengthened by approximately one month for a total of 14 weeks.

#### Alternative Three:

This alternative has two pre-cast pre-stressed concrete piles, each 20 inches in diameter. The piles would be driven 15 feet below the surface of the mudline, as illustrated in Figure 12. This alternative requires heavy pile-driving equipment from the landside of the property. At a minimum, portion of the existing house would need to be demolished in order to provide access to the proposed new pier site. It is not feasible to mobilize a crane-barge with pile-driving equipment along the ocean-side because the water depth at the project site is too shallow (2- to 5-foot deep). The cost of this alternative is approximately 2.5 times greater than the preferred alternative.

#### Alternative Four:

This alternative requires a shaft to be pre-drilled to accommodate a 24-inch in diameter concrete column that would be poured-in-place and reach a depth of 15 feet below the surface of the mudline, as illustrated in Figure 13. The materials excavated from drilling activity would be

disposed of on dry land. This alternative requires heavy drilling rig equipment from the landside of the property. At a minimum, a portion of the existing house would need to be demolished in order to provide access to the proposed new pier site. It is not feasible to mobilize a crane-barge with pile-driving equipment along the ocean-side because the water depth at the project site is too shallow (2- to 5-feet deep). This alternative has the highest construction costs.

## 5 PRELIMINARY DETERMINATION

This Draft EA demonstrates that the proposed action is not anticipated to have a significant adverse effect on the environment and that an EIS would not be warranted. A FONSI is therefore anticipated for this project.

### 5.1 Findings and Reasons Supporting the Preliminary Determination

The following findings and reasons demonstrate that the proposed action will not have significant adverse impacts on the environment and, consequently, support the above preliminary determination. Potential impacts have been evaluated and are addressed in terms of how the proposed project relates to the thirteen criteria of Section 11-200-12 of the DOH's Administrative Rules. In general, the proposed project will not:

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

The proposed pier footing would disturb a relatively small area of the reef flat. No live coral will be disturbed or destroyed. As discussed in the "Assessment of the Marine Environment" study for the subject project, the proposed work is not expected to affect water chemistry in the area. The entire area that will contain the pier footing consists of an algae covered limestone platform and reef corals are essentially absent from the area. Although some marine algae will be lost as a result of the construction of the footing, the surface of the footing itself will provide new habitat for algae. The presence of the pier will likely attract juvenile species of fish due to the shade it provides, also constituting a positive environmental benefit. No known cultural or historic resources will be affected by the proposed pier.

**2. Curtail the range of beneficial uses of the environment;**

The proposed project will increase the accessibility of the shoreline and the ocean environment from the Eldridge property. The pier will enhance the property owner's use of the environment. The presence of the pier will not impact current recreational activities that occur in the area.

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

The proposed project does not conflict with long-term environmental policies or goals or guidelines of the State of Hawaii. The project's potential environmental impacts are primarily short-term temporary impacts associated with construction of the new pier. The pier will provide access to the shoreline. It will improve recreational use of the ocean resources. It has been designed in a manner to minimize negative impacts on the environment. It will have a beneficial impact upon the health and welfare of its users.

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

The nature and relatively small scale of the proposed project precludes any substantial impacts to the economic or social welfare and cultural practices of the community or the state.

**5. Substantially affect public health;**

As discussed in the "Assessment of the Marine Environment" study for the subject project, the proposed work is not expected to affect water chemistry in the area. Short-term impacts during the construction period are not anticipated to be significant in nature and would not substantially affect public health.

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

There are no anticipated secondary impacts to population or public facilities. The proposed action does not change the existing land use nor generate increased resident population.

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

The proposed pier is not expected to have any significant negative impacts nor substantial degradation of environmental quality. The pier's scale and character will be similar to the existing piers along the perimeter of Wailupe Peninsula. Construction activities are anticipated to result in short-term impacts. However, mitigation measures will be implemented during construction in order to minimize impacts. The property owner will apply for the required permits for the construction of the proposed pier. No long-term degradation of environmental quality is anticipated.

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

No cumulative effects are anticipated and the proposed project does not involve a commitment for a larger action.

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

As discussed in the "Assessment of the Marine Environment" study for the subject project, the biotic community of the area consists of a near complete coverage of a variety of marine algae. Reef building stony corals were very rarely present on the reef flat, as were benthic macroinvertebrates. No known rare, threatened or endangered species were identified within the project area. As the pier footing will be constructed in relatively shallow water on a reef flat, the proposed pier is not expected to impact species such as sea turtles or large marine mammals. No live coral will be disturbed or destroyed.

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

Construction activities associated with the proposed pier are anticipated to result in limited short-term impacts to air quality and water quality in the immediate vicinity of where the pier is to be constructed. Impacts will be limited to the construction period, which is anticipated to take place over three to four weeks. However, work in the water

will be limited to 2 to 3 days. Mitigation measures will be implemented during construction in order to minimize impacts in accordance with applicable federal, state and city laws, statutes, ordinances, and rules and regulations.

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

The proposed pier is not designed to withstand environmental events and ocean forces associated with rare events such as tsunami and hurricane waves. The proposed pier will not impact any nearby streams. The proposed pier has been designed to withstand wave forces generated by the largest wave that physically could occur at the depth of the pier or seawall, with the exception of the extreme wave forces associated with rare hurricane or tsunami events. Tsunami and hurricane waves were not considered because the forces resulting from them would be impracticable to design for.

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

The East Honolulu Sustainable Communities Plan identifies a panoramic ocean view vantage point at Kawaikui Beach Park. It is unlikely that the proposed pier will be visible from Kawaikui Beach because the pier is relatively small in scale and the subject property is more than one-half mile away from the Park. Views from Wailupe Circle are relatively limited because the perimeter of Wailupe Peninsula is developed with single family residential houses.

**13. Require substantial energy consumption.**

Energy consumption will be limited to the construction period. The proposed project is relatively small in scale. It will not require a substantial consumption of energy.

## 6 CONSULTATION

### 6.1 Parties Consulted During the Pre-EA Consultation Period

The following agencies were contacted during the preparation of the Draft EA.

**Agencies Consulted**

Federal  
United States Army Corps of Engineers

State  
Department of Land and Natural Resources  
Office of Conservation and Coastal Lands  
Land Division

City and County of Honolulu  
Department of Planning and Permitting

Organizations and Individuals  
Kuliouou – Kalani Iki Neighborhood Board No. 2  
Mr. Michael Pietsch, adjacent property owner at 292 Wailupe Circle, Honolulu, Hawaii

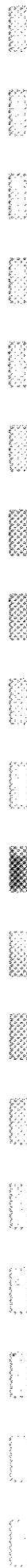
### 6.2 Parties who Received and/or Commented on the Draft EA

Respondents and Distribution	Received April 2007 Draft EA	Comments Received on Draft EA
<b>A. Federal Agencies</b>		
US Army Corps of Engineer	X	X
<b>B. State Agencies</b>		
Dept. of Business, Economic Development and Tourism		
- Office of Planning	X	
- Coastal Zone Management Program	X	
Dept. of Land and Natural Resources		
- Aquatics	X	
- Division of Boating and Ocean Recreation	X	X
- Historic Preservation Office	X	
- Land Division	X	X
- Office of Conservation and Coastal Lands	X	
Office of Environmental Quality Control	X	X
Office of Hawaiian Affairs	X	
<b>C. Organizations and Individuals</b>		
Chris Cramer		X
Jeannie Johnson		X
Kuliouou – Kalani Iki Neighborhood Board #2	X	



## 7 REFERENCES

- Arnold Okubo and Associates. March 2007. *New Pier Design Drawings for 298 Wailupe Circle, Honolulu, Oahu, Hawaii.*
- City and County of Honolulu, Department of General Planning. 1992. *The General Plan.*
- City and County of Honolulu, Department of Planning and Permitting. April 1999. *East Honolulu Sustainable Communities Plan.*
- Clark, John. June 2003. *Cultural Impact Assessment for New Pier at 292 Wailupe Circle.* John Clark, Ocean Recreation Consultant.
- Hawaii State Legislature. Hawaii Revised Statutes, Chapter 343, Environmental Impact Statements. [http://www.capitol.hawaii.gov/hrscurrent/Vol06\\_Ch0321-0344/HRS0343/HRS\\_0343-.HTM](http://www.capitol.hawaii.gov/hrscurrent/Vol06_Ch0321-0344/HRS0343/HRS_0343-.HTM) accessed March 2007.
- Hawaii State Legislature. Hawaii Revised Statutes, Chapter 344, State Environmental Policy. [http://www.capitol.hawaii.gov/hrscurrent/Vol06\\_Ch0321-0344/HRS0344/HRS\\_0344-.HTM](http://www.capitol.hawaii.gov/hrscurrent/Vol06_Ch0321-0344/HRS0344/HRS_0344-.HTM) accessed March 2007.
- Marine Research Consultants Inc. August 2006. *Assessment of the Marine Environment in the Vicinity of the Eldridge Residence, Wailupe Peninsula, Oahu, Hawaii.*
- Oceanit. Letter report June 13, 2006. *Wave Study for Pier Design at 298 Wailupe Circle.*





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

REPLY TO  
ATTENTION OF

May 24, 2007

RECEIVED  
OFFICE OF CONSERVATION  
AND COASTAL LANDS

File Number POH-2007-182  
A 11: 52

Regulatory Branch

DEPT OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII

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

ATTN: Mr. Michael Cain

Dear Mr. Lemmo:

This is in reply to your request dated May 9, 2007, for comments on the Conservation District Use Application CDUA-OA-3417 and draft Environmental Assessment (EA) for the Kenton Eldridge New Non-Commercial Pier, located at 298 Wailupe Circle (TMK (1) 3-6-001: 21), Wailupe, Oahu Island. Based on the information provided, I have determined that the proposed new pier will require a Department of Army (DA) permit under the authority of Section 10 of the Rivers and Harbors Act or Section 404 of the Clean Water Act.

Upon the submittal of a DA permit application by Mr. Eldridge, or his designated agent, the Corps of Engineers will likely evaluate the activity in accordance with Federal Regulations at 33 CFR Part 330, Appendix A, Paragraphs B.18 (NWP#18, Minor Discharges) and B.19 (NWP#19, Minor Dredging) which became effective on March 19, 2007. The location of this activity is in West Maunaloa Bay, a waterbody included on the Section 303(d) List of the Clean Water Act. Accordingly, this authorization will also require an individual Water Quality Certification from the Clean Water Branch, Hawaii State Department of Health.

In the future, if Mr. Eldridge proposes similar activities in or near jurisdictional waters (i.e., the discharge of dredged or fill material below the high tide line of the Pacific Ocean), consultation should take place prior to the start of in-water activities with Mr. Farley Watanabe of my staff at 808-438-7701, by fax at (808)438-4060, or [Farley.K.Watanabe@usace.army.mil](mailto:Farley.K.Watanabe@usace.army.mil). Please refer to File Number POH-2007-182 in any future correspondence with us.

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

Copy Furnished:

Mr. Kenton Eldridge, property owner, 22 Niuhi Street, Honolulu, HI 96821  
Mr. Lee Sichter, Principal Planner, Belt Collins Hawaii, Ltd., 2153 North King St.  
Honolulu, HI 96819



June 19, 2007  
2005.33.6700 / 07P-228

Mr. George P. Young, P.E.  
Chief, Regulatory Branch  
U.S. Army Engineer District, Honolulu  
Department of the Army  
Ft. Shafter, HI 96858-5440

Dear Mr. Young:

**Draft Environmental Assessment  
Private Recreational Pier  
298 Wailupe Circle, Honolulu, Hawaii**

Thank you for participating in the Chapter 343 (HRS) public and agency review process. We are writing in response to the comments you provided on May 24, 2007 for the above document. Our responses are presented in the order of your comments.

- 1) The applicant acknowledges that the proposed project will require a Department of Army (DA) permit under the authority of either Section 10 of the Rivers and Harbors Act or Section 404 of the Clean Water Act, as well as an individual Water Quality Certification from the Clean Water Branch of the Hawaii State Department of Health.
- 2) Belt Collins staff, on behalf of the applicant, met with Mr. Farley Watanabe of your staff on August 14, 2006. The purpose of the meeting was to obtain his input prior to initiating the design of the pier.

Again, thank you for participating in the review process.

Very truly yours,

BELT COLLINS HAWAII LTD.



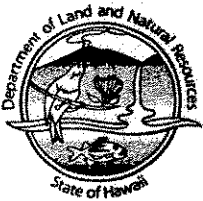
Lee W. Sichter  
Principal Planner

LWS:MO:lf

cc: Kenton Eldridge

Honolulu  
Guam  
Hong Kong  
Philippines  
Seattle  
Singapore  
Thailand

LINDA LINGLE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

ALLAN A. SMITH  
INTERIM CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA  
DEPUTY DIRECTOR

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

REF:OCCL:MC  
FILE NO.: CDUA OA-3417

ACCEPTANCE DATE: APRIL 25, 2007  
180-Day Expiration Date: October 22, 2007

MAY - 9 2007

MEMORANDUM:

TO: DLNR  Historic Preservation  
 DOBOR  
 Land Division,  
 Aquatic Resources

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

SUBJECT: REQUEST FOR COMMENTS  
Conservation District Use Application (CDUA) OA-3417  
Private Recreational Pier

APPLICANT: Kenton Eldridge

TMK: (1) 3-6-01:21

LOCATION: Wailupe, Honolulu, O'ahu

PUBLIC HEARING: YES NO X

Please contact Michael Cain at 587-0048, should you have any questions on this matter.

If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

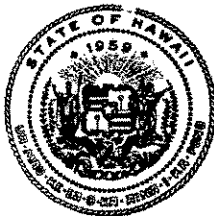
Comments Attached  
 No Comments

Signature

Enclosures: Conservation District Use Application  
Draft Environmental Assessment

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& COASTAL LANDS  
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LINDA LINGLE  
GOVERNOR OF HAWAII



ALLAN A. SMITH  
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BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA  
DEPUTY DIRECTOR

AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
BUREAU OF CONVEYANCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
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HISTORIC PRESERVATION  
KAHOOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

REF:OCCL:MC  
FILE NO.: CDUA OA-3417

ACCEPTANCE DATE: APRIL 25, 2007  
180-Day Expiration Date: October 22, 2007

MEMORANDUM:

MAY - 9 2007  
Suspense date: June 10, 2007

~~TO:~~ FROM: DLNR  Historic Preservation  
 DOBOR  
 Land Division,  
 Aquatic Resources

~~FROM:~~ TO: Samuel J. Lemmo, Administrator  
Office of Conservation and Coastal Lands

SUBJECT: REQUEST FOR COMMENTS  
Conservation District Use Application (CDUA) OA-3417  
Private Recreational Pier

APPLICANT: Kenton Eldridge

TMK: (1) 3-6-01:21

LOCATION: Wailupe, Honolulu, O'ahu

PUBLIC HEARING: YES NO X

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LAND DIVISION  
MAY 9 2007

Please contact Michael Cain at 587-0048, should you have any questions on this matter.

If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

- Comments Attached
- No Comments

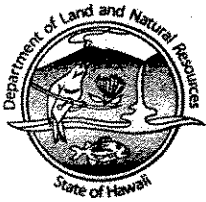
*Steve Lee*  
\_\_\_\_\_  
Signature

Enclosures: Conservation District Use Application  
Draft Environmental Assessment

LINDA LINGLE  
GOVERNOR OF HAWAII



ALLAN A. SMITH  
INTERIM CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

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DEPARTMENT OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII

May 11, 2007

MEMORANDUM

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

Through: Russell Y. Tsuji, Administrator  
Land Division

From: Steve Lau  
Land Agent

Subject: Request for Comments  
Conservation District Use Application (CDUA) OA-3417  
Private Recreational Pier

Thank you for allowing us the opportunity to comment on the above subject matter.

The law (Act 261, SLH 2000, as amended) allowing the Board to issue direct leases for private non-commercial piers will sunset on June 30, 2007. Any lease for pier purpose issued after June 30, 2007 requires the Lessee to post a sign on the pier indicating the public's right to use the pier (Sec. 171-36 (a) (9), HRS).



June 19, 2007  
2005.33.6700 / 07P-226

Mr. Steve Lau, Land Agent  
Land Division  
Department of Land and Natural Resources  
State of Hawaii  
P.O. Box 621  
Honolulu, HI 96809

Dear Mr. Lau:

**Draft Environmental Assessment  
Private Recreational Pier  
298 Wailupe Circle, Honolulu, Hawaii**

Thank you for participating in the Chapter 343 (HRS) public and agency review process. We are writing in response to the comments you provided on May 11, 2007 for the above document.

The applicant acknowledges the obligation to post a sign on the proposed pier pursuant to Act 261, SLH 2000, as amended.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter  
Principal Planner

LWS:MO:lf

cc: Kenton Eldridge

Honolulu  
Guam  
Hong Kong  
Philippines  
Seattle  
Singapore  
Thailand



LINDA LINGLE  
GOVERNOR OF HAWAII



GENEVIEVE SALMONSON  
DIRECTOR

STATE OF HAWAII  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

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

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MAY 22 A 11: 01

DEPT. OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII

May 17, 2007

Mr. Samuel Lemmo, Administrator  
Department of Land and Natural Resources  
Office of Conservation and Coastal Lands  
P. O. Box 621  
Honolulu, Hawai'i 96809  
Attention: Mr. Michael Cain

Dear Mr. Lemmo:

Subject: Draft Environmental Assessment (DEA) for Conservation District Use Application (CDUA) OA-3417 for 298 Waiupe Circle, Honolulu, Hawai'i Private Recreational Pier

Our office has reviewed the DEA for the project noted above. We have the following comments:

Page 4, Section 1.4 Description of Project, 1.4.1 Use Characteristics,  
lines 1-3: Please discuss potential noise impacts to adjacent properties from the use of the pier.  
lines 7-8: Please discuss the potential impacts to ocean waters from gas and oil residue if this pier is used to moor a boat. There is no ordinance to preclude such a use of the pier. Such a use would also create potential noise impacts to neighboring properties emanating from the boat's engines.

Page 4, Section 1.4 Description of Project, 1.4.2 Design Description, Pier Surface, lines 4-5: Please address future potential impacts to ocean waters from the preservatives used to treat the Douglas Fir beams after they begin to deteriorate.

Page 4, Section 1.4 Description of Project, 1.4.2 Design Description, Shoreward Seawall Support, lines 3-5: Please refer to the comment above for page 4, Section 1.4 Description of Project, 1.4.2 Design Description, Pier Surface, lines 4-5.

Page 8, Section 2.6, Noise Quality, lines 3-4: Please refer to the comment above for page 4, Section 1.4 Description of Project, 1.4.1 Use Characteristics, lines 1-3.

Page 15, Section 2.12 Social and Economic Characteristics, Shoreline Areas, paragraph 2: Please address an alternative in the DEA whereby the pier will be moved to the vicinity of the Koko Head end of the Eldridge property and a four-foot access easement will be dedicated along the Koko Head property line to allow public access to the pier. The design for this alternative could include fencing, landscaping and a locked gate to shield the Eldridge residence. The gate could be placed adjacent to the pier. Please refer to the East Honolulu Sustainable Communities Plan adopted by the City Council as Ordinance 99-19. Section

3.1.3.6 of this ordinance under "Shoreline Areas," a subsection of Section 3, "Land Use Policies, Principles and Guidelines" addresses the goal of improving mauka-makai access to the shoreline.

Page 26, Section 3.4.2 East Honolulu Sustainable Communities Plan, paragraph 2, lines 1-3: Please refer to comments for page 15, Section 2.12 Social and Economic Characteristics, Shoreline Areas, paragraph 2.

Page 27, Section 4, Alternatives to the Proposed Action, 4.2 Alternative Pier Footing Designs: Please provide cost estimates for each of the four alternative designs. This information will enable a cost-benefit analysis to be made regarding the ability of the pier to withstand hurricane or tsunami events.

Page 31, Item 11, Affect or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters: Please refer to the comment above for page 27, Section 4, Alternatives to the Proposed Action, 4.2 Alternative Pier Footing Designs.

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

Sincerely,



Jeyan Thirugnanam  
Acting Director

c: Mr. Kenton Eldridge  
Ms. Mary O'Leary, Senior Planner, Belt Collins Hawaii Ltd.



June 19, 2007  
2005.33.6700 / 07P-227

Mr. Jeyan Thirugnanam, Acting Director  
Office of Environmental Quality Control  
Department of Health  
State of Hawaii  
235 South Beretania Street, Suite 702  
Honolulu, HI 96813

Dear Mr. Thirugnanam:

**Draft Environmental Assessment  
Private Recreational Pier  
298 Wailupe Circle, Honolulu, Hawaii**

Thank you for participating in the Chapter 343 (HRS) public and agency review process. We are writing in response to the comments you provided on May 17, 2007 for the above document. Our responses are presented in the order of your comments.

- 1) The proposed project's impacts on noise quality are discussed in Section 2.6 on page 8 of the document. No significant noise impacts upon neighboring properties resulting from the applicant's use of the proposed pier are anticipated. Noise impacts resulting from the applicant's use would be generally limited to the conversation among persons using the pier. As stated in Section 1.4.1 of the EA, the applicant does not intend to use the pier for the mooring of a boat. While the proposed pier is to be located in public waters, and it is conceivable that someone could attempt to moor a boat there, the depth of the water is quite shallow over the reef flat in the location of the proposed pier. As no mooring cleats are proposed on the pier, a boat would have to be tied to the support column. As evidenced in Figure 11, the end of the pier extends over the edge of a dredged channel, but the support column is situated about 8 feet from the channel edge. The shallowness of the reef flat extending out from the seawall, coupled with the general rough water conditions on the east side of Wailupe Peninsula where the project is located, would render the mooring of a boat difficult. For these reasons, the applicant does not anticipate motor boat activity at the pier. Thus, no impacts upon water quality or noise quality emanating from motor boat use are anticipated.
  
- 2) A 2001 publication by the United States Department of Agriculture entitled, Guide for Minimizing the Effect of Preservation-Treated Wood on Sensitive Environments, concludes "Although treated wood does contain chemicals that are potentially toxic, studies indicate that there are no measurable impacts on aquatic organisms if the wood is properly treated and installed." Because the wood beams will not be submerged and will be covered by decking, thereby eliminating their exposure to the sun, they are anticipated to last 50 years or more. The area where the proposed pier is to be located is subject to rapid turnover of the water column. No significant adverse impacts are anticipated.

Honolulu  
Guam  
Hong Kong  
Philippines  
Seattle  
Singapore  
Thailand

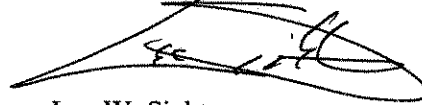
- 3) With regard to the potential environmental impacts resulting from the material used in the decking of the pier, none are anticipated. The pier decking will consist of a plastic-wood composite, commercially known as Trex. It contains no chemical preservatives.
- 4) As discussed above, the applicant does not anticipate the pier to be used for mooring a motorized boat.
- 5) The dedication of a four-foot-wide access easement across the residential property to a relocated pier is inconsistent with the City's policy for acquiring new pedestrian rights-of-way. The guidelines presented under Section 3.1.3.6 of the East Honolulu Sustainable Communities Plan include the following statement: "...pursue opportunities to acquire additional pedestrian rights-of-way from the highway to the shoreline in sections which have high recreation value but no similar public access within at least a quarter-mile." The Eldridge property is located approximately 3,000 feet from Kalaniana'ole Highway, at the makai end of a residential subdivision. As discussed in Appendix E of the EA, "Use of the reef margin by Wailupe Peninsula residents and non-residents is minimal. The reef margin is not regarded as a productive area for fishing or gathering activities...[o]ther uses of the reef margin are primarily transitory with swimmers, surfers, and kayakers crossing it to enter and exit the perimeter boat channel." Based upon these conditions, it would appear that the Eldridge property does not conform with the guidelines for right-of-way acquisition: it is located too far from the highway to warrant an exclusive right-of-way from the highway to the shoreline and its shoreline does not have high recreational value.
- 6) See item 5 above.
- 7) Cost estimates for the alternative pier designs are presented in Appendix D in the EA. Please note that Dr. Warren Bucher states in his analysis of wave forces for the design of the pier in Appendix C: "For this study, conditions arriving from hurricanes or tsunamis were not considered as they would be so extreme that the forces resulting from them would be impractical to design for." Clearly, a cost-benefit analysis is not warranted.
- 8) As the strength of a hurricane and/or the height of a tsunami can vary widely, it is not practical to design a non-commercial pier to withstand their associated wave forces. Please see item 7 above.

Mr. Jeyan Thirugnanam  
June 19, 2007  
2005.33.6700 / 07P-227  
Page 3

Again, thank you for your participation in the Chapter 343 comment and review process.

Very truly yours,

BELT COLLINS HAWAII LTD.



Lee W. Sichter  
Principal Planner

LWS:MO:lf

cc: Kenton Eldridge

Department of Land and Natural Resources Office of Conservation and Coast Lands,  
P.O. Box 621, Honolulu HI 96809

Aloha DLNR Office of Conservation and Coastal Lands,

Here is my complete testimony regarding the proposed Wailupe Recreational Pier. If you could be so kind as to include it in the minutes I would be most appreciative.

Mahalo,

Chris Cramer  
Recreational Spearfisherman  
P.O. Box 240204  
Honolulu, HI 96821

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& COASTAL LANDS  
MAY 30 A 10:29  
DEPT. OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII

Aloha, My name is Chris Cramer and I would like to express my opposition to the proposed Recreational Pier near 298 Wailupe Circle, Honolulu.

1) The area being proposed for the pier has no legal connection to the landowners. They have no legal title to the ocean. However they are requesting a private pier that they claim the public will be able to use. However the facts do not support this claim. I have submitted photos to the Board of the non-permitted piers surrounding the proposed new pier. These piers have numerous Keep Out and No Trespassing signs, designed to intimidate the public from using the piers. In addition, some of the existing piers have guard dogs to keep out the public. Enclosed are photographs of the pier adjacent to the proposed new pier.


2) Wailupe is an ancient fishing ground and until the fifties contained a massive fishpond. The reef shelf where the pier is proposed contains numerous fish, especially 'aweoweo. Blasting massive concrete structures into the reef will destroy this habitat and greatly increase the sedimentation problem that already exists.

3) With sea levels rising significantly, building codes no longer allow structures extremely close to the ocean. Building structures in the ocean itself is a violation of building codes as well as SMA codes. The Wailupe area gets significant surf during the south swells and the structure will sustain significant wave impacts.

4) Previous piers in Maunalua Bay have become safety hazards as they age. Hazardous pier remnants of piers can in Kuliouou, and Portlock have become navigational and safety hazards when the owners have abandoned them.

5) Previous piers have been erected in the area illegally without permits. They now serve as an unpermitted and illegal boat harbor where numerous boats are docked daily with no enforcement by the DLNR.

Due to these conditions I respectfully ask you to deny any future pier building on the reef in Wailupe.

Mahalo  
  
Chris Cramer  
Recreational Spearfisherman  
P.O. Box 240204  
Honolulu, HI 96821



June 19, 2007  
2005.33.6700 / 07P-224

Mr. Chris Cramer  
P.O. Box 240204  
Honolulu, HI 96821

Dear Mr. Cramer:

**Draft Environmental Assessment  
Private Recreational Pier  
298 Wailupe Circle, Honolulu, Hawaii**

Thank you for participating in the Chapter 343 (HRS) public and agency review process. We are writing in response to the comments you provided to DLNR on May 30, 2007 for the above document. Following are our responses in the order your comments were presented.

- 1) Contrary to your assertion that landowners have no legal title to the ocean, if a landowner is granted a lease by the Department of Land and Natural Resources to construct a non-commercial pier in the ocean abutting their property, the landowner is, in fact, legally entitled to do so. With regard to your concerns about other pier owners allegedly preventing the public from accessing piers, please be assured that the applicant regrets the actions of those who do not comply with regulations of the Department of Land and Natural Resources which hold that public access from navigable waters to non-commercial piers that have been constructed pursuant to leases granted by the state cannot be denied. Unfortunately, there is little the applicant can do in this matter, other than to assure you, as I assured the Neighborhood Board at its April 5, 2007 meeting during my presentation of the project, the applicant does not intend to erect a sign on the proposed pier that would discourage public access.
  
- 2) *An Assessment of the Marine Environment in the Vicinity of the Eldridge Residence* was prepared for the proposed project by Marine Research Consultants in August 2006 and is presented in the EA in Appendix F. The author concludes:

“Results of the marine assessment in the vicinity of the proposed small pier fronting the Eldridge residence on Wailupe Peninsula indicate that construction of the pier should not have any significant or long-term negative consequences. The area of proposed construction is a narrow strip of reef flat that remains from the dredging and filling that occurred to create Wailupe Peninsula. There are no indications that the proposed work would affect water chemistry in the area. Biotic composition of the entire area that will contain the footprint of the pier consists of an algae covered limestone platform. Reef corals are essentially absent from the area, likely as the result of the very shallow depths which result in elevated

Honolulu  
Guam  
Hong Kong  
Philippines  
Seattle  
Singapore  
Thailand

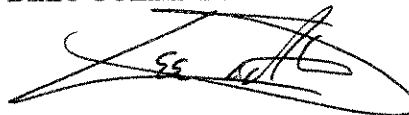
temperatures, and possible exposure to the atmosphere." Based upon these findings, we do not anticipate any significant adverse impacts on fish populations in the area. With regard to your comment that "...[b]lasting massive concrete structures into the reef will destroy this habitat..." please be assured that no blasting is proposed. As discussed on page 5 of the EA, the concrete T-column, which will support the pier, will be embedded 12 inches into the reef shelf substrate and will be cast in place.

- 3) The construction of the proposed pier is allowed, subject to the approval of the Board of Land and Natural Resources and is, therefore, not a violation of building codes. Please be advised that because the certified shoreline delineates the seaward extent of the Special Management Area, the proposed project is not located within the Special Management Area and is, therefore, not subject to SMA regulations. As discussed in Appendix D of the EA, the proposed pier has been designed to accommodate the maximum expected wave conditions for the Wailupe area.
- 4) The applicant has no intention of abandoning the proposed pier if it is approved for construction. As the proposed pier is to be located on a shallow reef shelf abutting the dredged channel, it will not pose a hazard to navigation.
- 5) The applicant intends to secure all necessary permits before commencing construction of the proposed pier. The applicant regrets the actions of those who have allegedly constructed piers without the necessary permit approvals, but is unable to determine which, if any, of the 22 existing piers at Wailupe Circle were built illegally. As state law provides that non-commercial piers built in navigable waters are accessible to the public, it is not illegal to dock a boat at them. In the instance of the proposed project, the applicant does not intend to moor a boat at the pier. While members of the public are legally permitted to do so, the shallow character of the reef shelf and the proposed design of the pier may not be conducive to mooring a boat, especially during low tide or rough sea conditions.

Again, thank you for participating in the Chapter 343 review process.

Very truly yours,

BELT COLLINS HAWAII LTD.



Lee W. Sichter  
Principal Planner

LWS:MO:lf

cc: Kenton Eldridge



Jeannine Johnson, Subdistrict 7 Representative  
Kuli'ou'ou / Kalani Iki Neighborhood Board #2  
5648 Pia Street, Honolulu, Hawai'i 96821  
Phone: 373-2874 (h) / 523-5030 (w)  
May 31, 2007

DEPARTMENT OF LAND & NATURAL RESOURCES  
STATE OF HAWAII

2007 MAY 32 A 8:05

RECEIVED  
OFFICE OF CONSERVATION AND COASTAL LANDS

*Via fax 527-6743 and e-mail*

Mr. Michael Cain  
State of Hawai'i, DLNR  
Office of Conservation and Coastal Lands  
P.O. Box 621  
Honolulu, Hawai'i 96809

Re: Private Recreation Pier  
Conservation District Use Application (CDUA) OA-3417  
Address: 298 Wailupe Circle, Honolulu, Hawai'i 96821 [TMK: (1) 3-6-01:21]

Dear Mr. Cain,

Mr. Kenton Eldridge has applied for a Conservation district use permit in order to build a 270 square foot "private" recreational pier in the State Land Use Urban District. The bulk of the pier will lie makai of the shoreline, in submerged lands that are in the Resource Subzone of the State Conservation District.

Until the 1950s, Wailupe Peninsula was a fishpond used by the Native Hawaiians with compact walls so that the water level and salinity could be closely controlled. The reef shelf where the pier is proposed, contains numerous fish and many members of the public regularly dive for 'aweoweo (Hawaiian red fish) on the ledge. My father was a fisherman from Miloli'i who also loved to spear fish these waters. Driving concrete pylons into the reef shelf will destroy this habitat and significantly increase the sedimentation problem that already exists.

At the April 5, 2007, meeting of the Kuli'ou'ou /Kalani Iki Neighborhood #2, 'Aina Haina resident Chris Cramer submitted photos of other Wailupe Circle piers with numerous "Private Property," "Keep Out" and "No Trespassing" signs and even guard dogs to prevent the public using these "private" piers. Therefore, in addition to the cumulative adverse impact 23 "private" piers has on these ancient fishing grounds, **the public's access to them is consistently denied.** Beach-front homeowners have been behaving in a threatening manner to keep people off beaches for years. For instance, after the story "Beach Wars" was published by the Star Bulletin on October 25, 2006, I received a threatening phone call from two beachfront homeowners threatening to sue me personally for expressing my opinion regarding the public's right to access the beach.

Mr. Michael Cain  
State of Hawai'i, DLNR  
Office of Conservation and Coastal Lands  
June 1, 2007  
Page 2

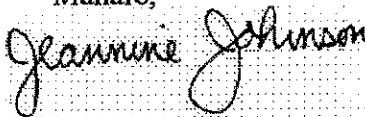
The OCCL's own publication "A Participant's Guide to the Special Management Area (SMA) Permit Process in the State of Hawai'i" states that, pursuant to Hawai'i Revised Statutes Chapter 205A-26:

(2) No development shall be approved unless the authority has first found (A) that the development will **not have any substantial adverse environment or ecological effect** ... including but not limited to **the potential cumulative impact of individual developments**, each one of which taken in itself might not have a substantial adverse effect..

(3) The authority shall seek to minimize, where reasonable... (C) any development which **would reduce or impose restrictions upon public access to tidal and submerged lands**, beaches, portions of rivers and streams within the SMA and the mean high tide line where there is no beach; ... and (E) any development **which would adversely affect water quality, existing areas of open water free of visible structures, existing and potential fisheries and fishing grounds, wildlife habitats, or potential or existing agricultural uses of land.**

Consequently, it is your responsibility to deny this conservation district use permit. Please feel free to contact me if you have any questions regarding this matter.

Mahalo,



Jeannine Johnson, Subdistrict 7 Representative  
Kuli'ou'ou / Kalani Iki Neighborhood Board #2

cc: Mr. Kenton Eldridge, 298 Wailupe Circle, Honolulu, HI 96821  
Belt Collins Hawai'i Ltd., 2153 North King St., #200, Honolulu, HI 96819-4554  
Mr. Samuel J. Lemmo, Office of Conservation and Coastal Lands (via fax 587-0322)  
Bob Chuck, Chairman, Kuli'ou'ou / Kalani Iki Neighborhood Board #2 (via email)  
Marvin Heskett and Matt Dunlap, The Surfrider Foundation (via email)  
Michelle S. Matson (via email)  
Rep. Lyla Berg (via email)  
Sen. Sam Slom (via email)  
Chris Cramer (via email)  
Ann Marie Kirk (via email)



June 19, 2007  
2005.33.6700 / 07P-225

Ms. Jeannine Johnson  
Subdistrict 17 Representative  
Kuli'ou'ou/Kalani Iki Neighborhood Board #2  
5648 Pia Street  
Honolulu, HI 96821

Dear Ms. Johnson:

**Draft Environmental Assessment  
Private Recreational Pier  
298 Wailupe Circle, Honolulu, Hawaii**

Thank you for participating in the Chapter 343 (HRS) public and agency review process. We are writing in response to the comments you provided on May 31, 2007 for the above document. Our responses are presented in the order of your comments.

- 1) An Assessment of the Marine Environment in the Vicinity of the Eldridge Residence was prepared for the proposed project by Marine Research Consultants in August 2006 and is presented in the EA in Appendix F. The author concludes:

“Results of the marine assessment in the vicinity of the proposed small pier fronting the Eldridge residence on Wailupe Peninsula indicate that construction of the pier should not have any significant or long-term negative consequences. The area of proposed construction is a narrow strip of reef flat that remains from the dredging and filling that occurred to create Wailupe Peninsula. There are no indications that the proposed work would affect water chemistry in the area. Biotic composition of the entire area that will contain the footprint of the pier consists of an algae covered limestone platform. Reef corals are essentially absent from the area, likely as the result of the very shallow depths which result in elevated temperatures, and possible exposure to the atmosphere.”

Given this information, your conclusion that the proposed construction will “...destroy this habitat and significantly increase the sedimentation problem...” is inconsistent with the findings of the marine biologist.

- 2) With regard to your concerns about other pier owners allegedly preventing the public from accessing piers, please be assured that the applicant regrets the actions of those who do not comply with regulations of the Department of Land and Natural Resources which hold that public access from navigable waters to non-commercial piers that have been constructed pursuant to leases granted by the state cannot be denied. Unfortunately, there is little the applicant can do in this matter, other than to

Honolulu  
Guam  
Hong Kong  
Philippines  
Seattle  
Singapore  
Thailand

Ms. Jeannine Johnson  
June 19, 2007  
2005.33.6700 / 07P-225  
Page 2

assure you, as I assured the Neighborhood Board at its April 5, 2007 meeting during my presentation of the project, he does not intend to erect a sign on the proposed pier that would discourage public access. Please understand, however, that given the shallow character of the reef shelf under the pier, it may be prudent to warn the public of the shallow conditions.

- 3) Your citation of Section 26 of Chapter 205A, the State's law regarding the Special Management Area (SMA), is noted, but please understand that as the project is located makai of the certified shoreline it is not situated within the SMA. No SMA permit is required and the SMA guidelines for approval are not applicable to the project, *per se*.
- 4) With regard to your concern about cumulative impacts, please be assured that the consulting marine biologist surveyed other existing piers in the vicinity of the proposed project and concluded that they are having no negative effect upon the biotic community structure. His analysis and conclusions are presented in Appendix F of the EA.
- 5) The proposed project has been demonstrated in the EA to have no significant adverse impact upon the environment, water quality, the fishery, or upon public access to the nearshore area. Given these facts, we believe that the proposed pier can be constructed in a manner that is consistent with regulatory requirements of the Department of Land and Natural Resources.

Again, thank you for participating in the Chapter 343 review process.

Very truly yours,

BELT COLLINS HAWAII LTD.



Lee W. Sichter  
Principal Planner

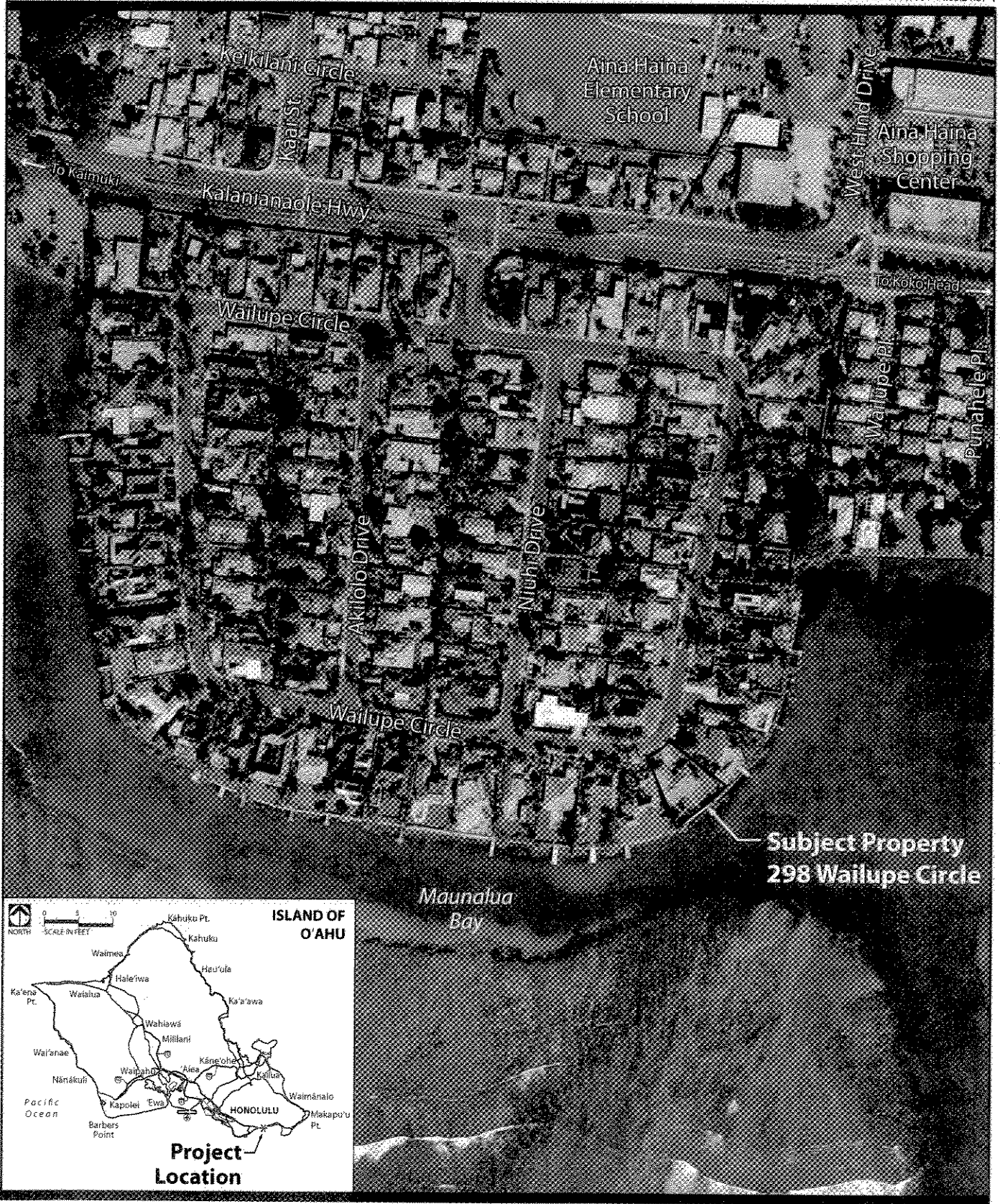
LWS:MO:lf

cc: Kenton Eldridge



# Figures



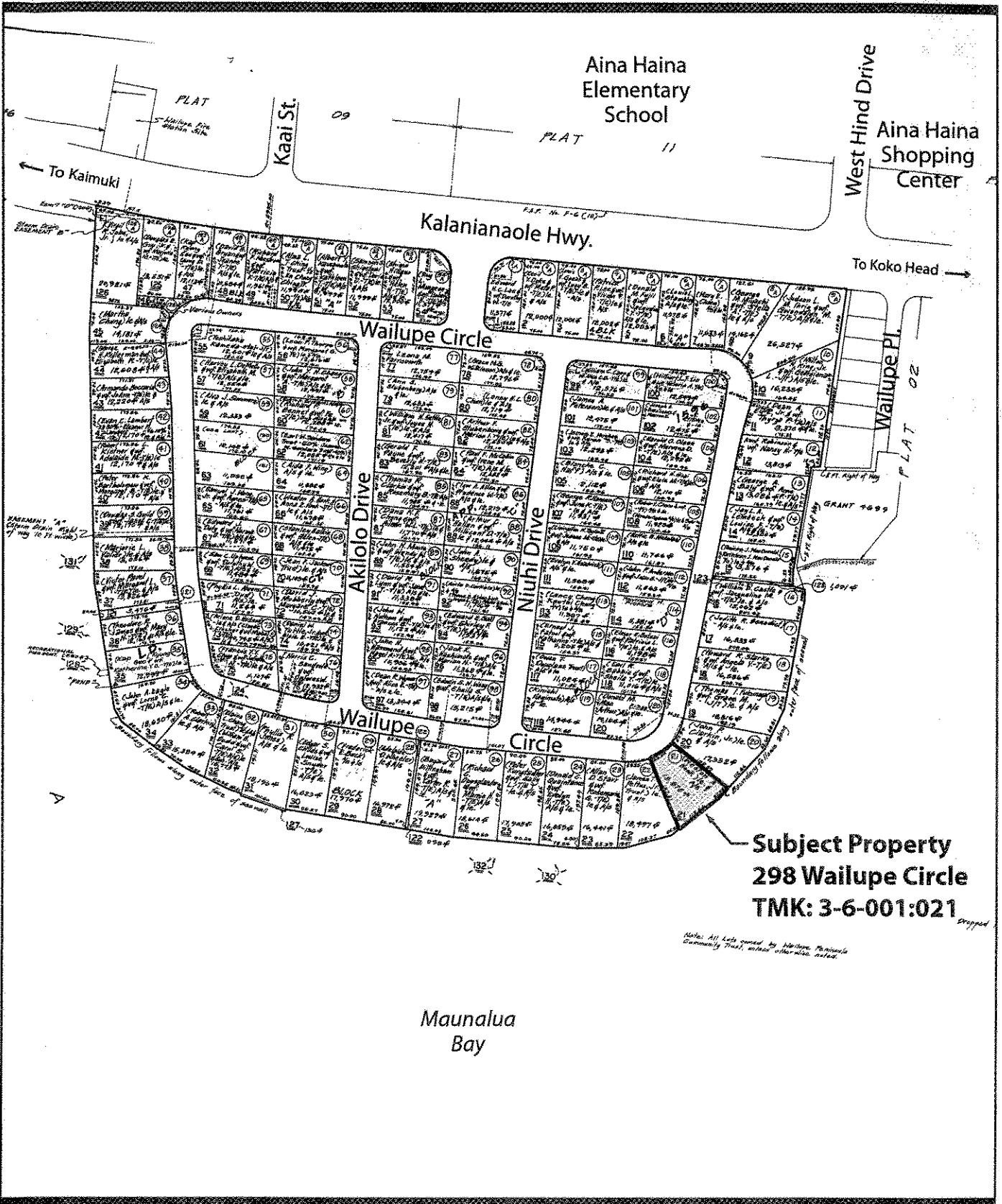


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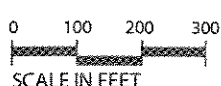


**Figure 1**  
**PROJECT LOCATION MAP**

Environmental Assessment  
Proposed Recreational Pier  
Prepared for Mr. Kenton Eldridge  
Prepared by Belt Collins Hawaii—June 2007



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**Figure 2**  
**TAX MAP KEY**

Environmental Assessment  
 Proposed Recreational Pier  
 Prepared for Mr. Kenton Eldridge  
 Prepared by Belt Collins Hawaii—June 2007



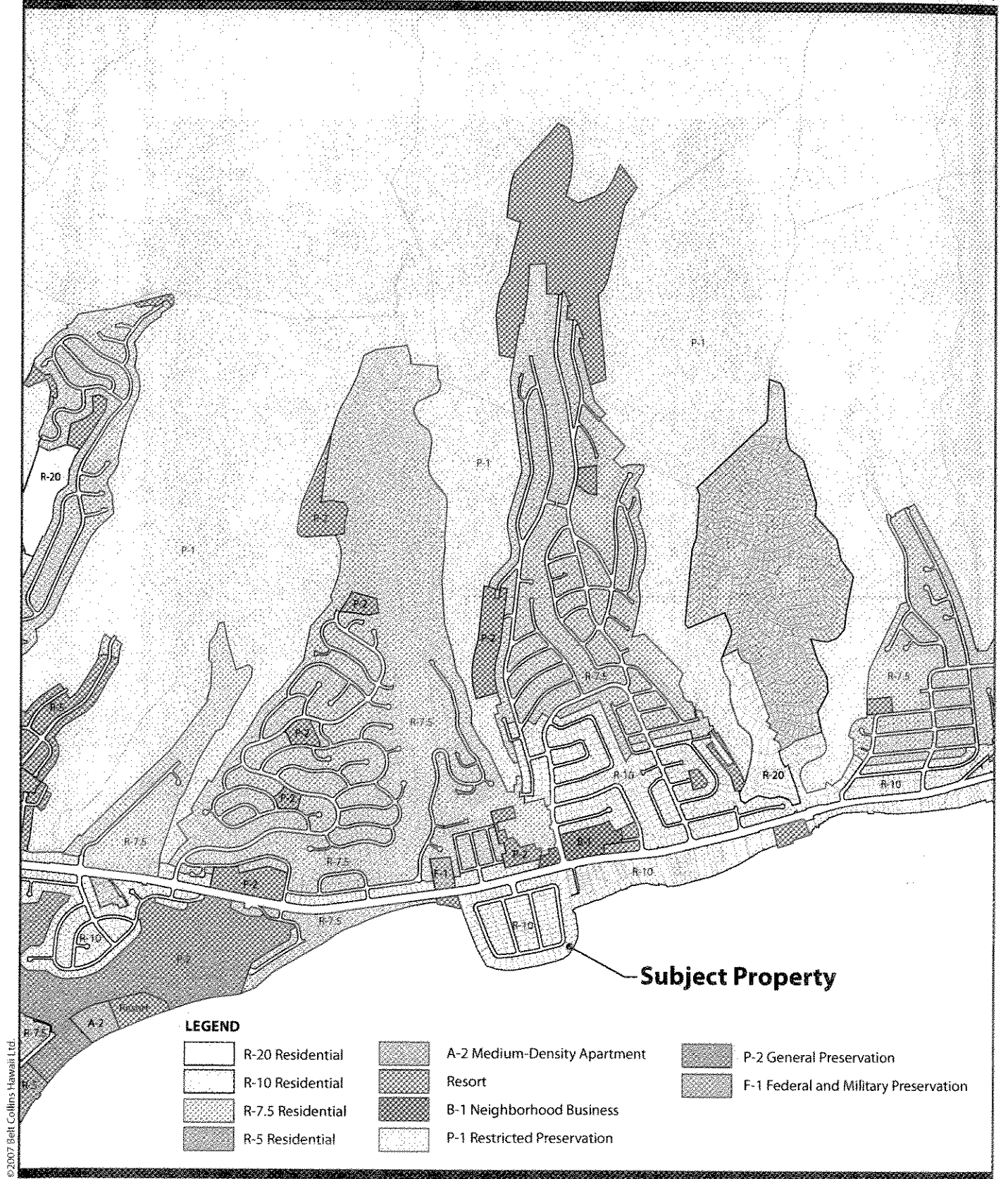


Existing Boardwalk  
will be Removed

**Figure 3**

**SUBJECT PROPERTY —  
GENERAL LOCATION OF PROPOSED PIER**

Environmental Assessment  
Proposed Recreational Pier  
Prepared for Mr. Kenton Eldridge  
Prepared by Belt Collins Hawaii—June 2007



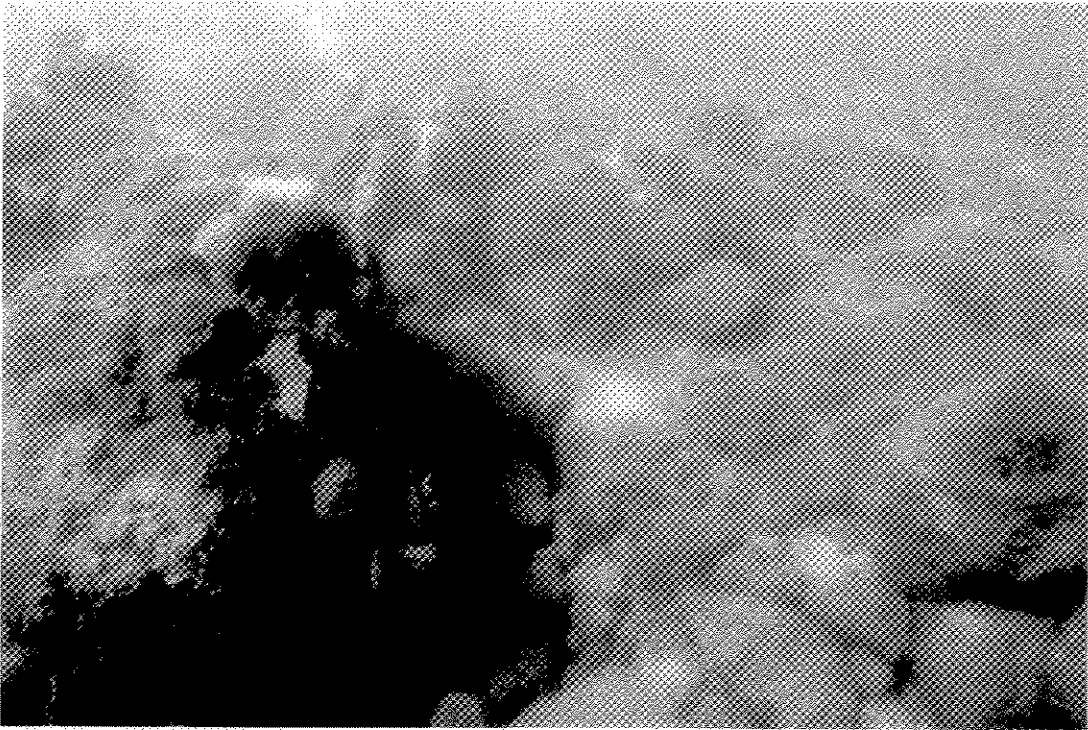
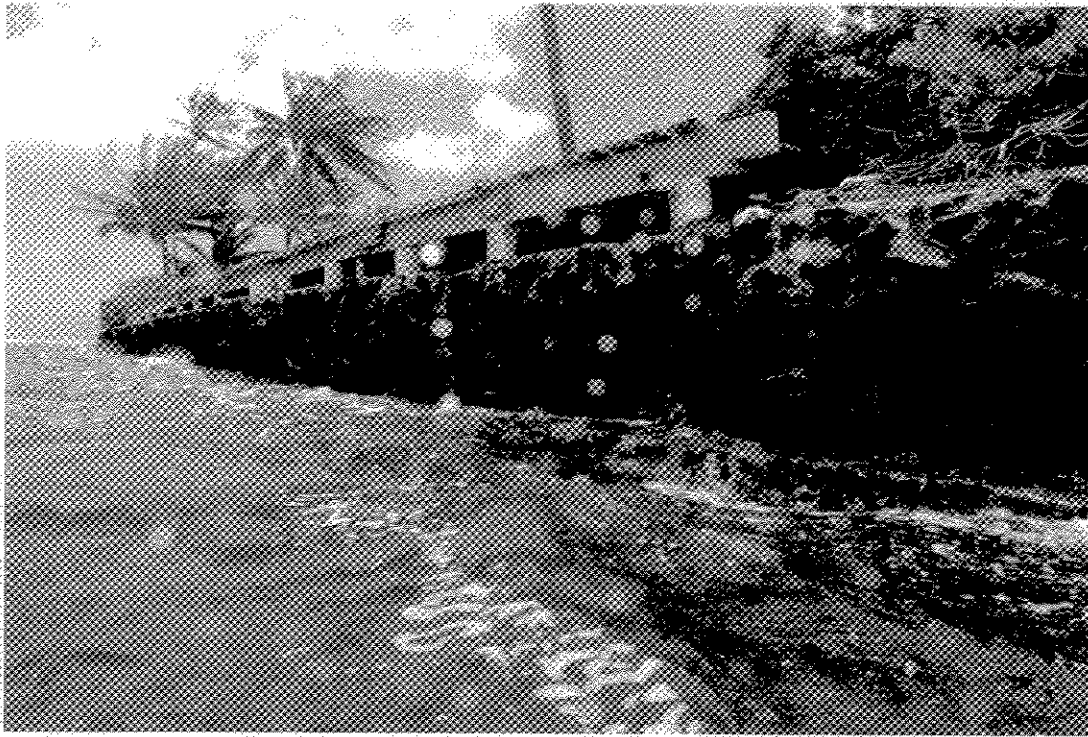
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0 500 1000 2000  
SCALE IN FEET

**Figure 4  
ZONING**

Environmental Assessment  
Proposed Recreational Pier  
Prepared for Mr. Kenton Eldridge  
Prepared by Belt Collins Hawaii—June 2007



*Shoreline wall and ledge fronting Eldridge Residence on Wailupe Peninsula looking south (top). Wooden boardwalk to be removed. Bottom photo shows rock-rubble bottom at base of shoreline wall. Water depth is approximately 1 foot.*

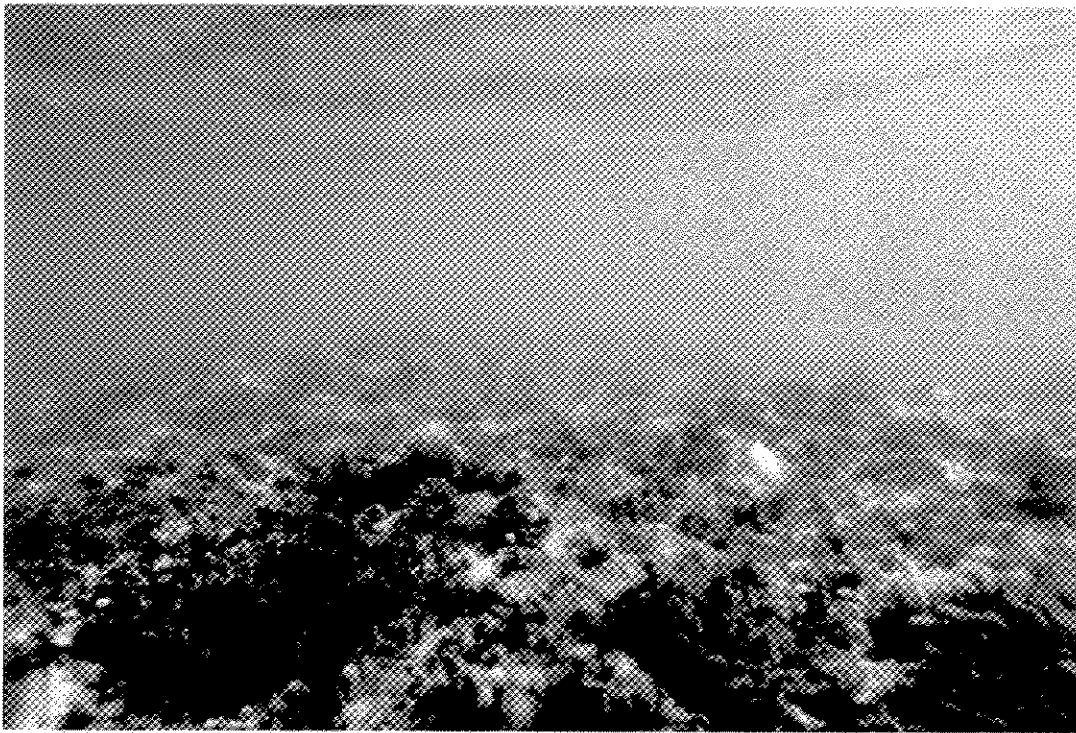
©2007 Belt Collins Hawaii Ltd.



Source:  
Marine Research Consultants Inc. August 2006.  
*Assessment of the Marine Environment in the Vicinity of  
the Eldridge Residence Wailupe Peninsula, Oahu, Hawaii.*

## **Figure 5 GENERAL LOCATION OF PROPOSED PIER**

Environmental Assessment  
Proposed Recreational Pier  
Prepared for Mr. Kenton Eldridge  
Prepared by Belt Collins Hawaii—June 2007



*Top photo shows view of reef platform offshore of Eldridge Residence in approximate location of proposed pier footing. Bottom photograph shows vertical edge of channel cut which extends to channel floor. Water depth in top photo is approximately 3 feet; water depth in bottom photo is approximately 6 feet.*

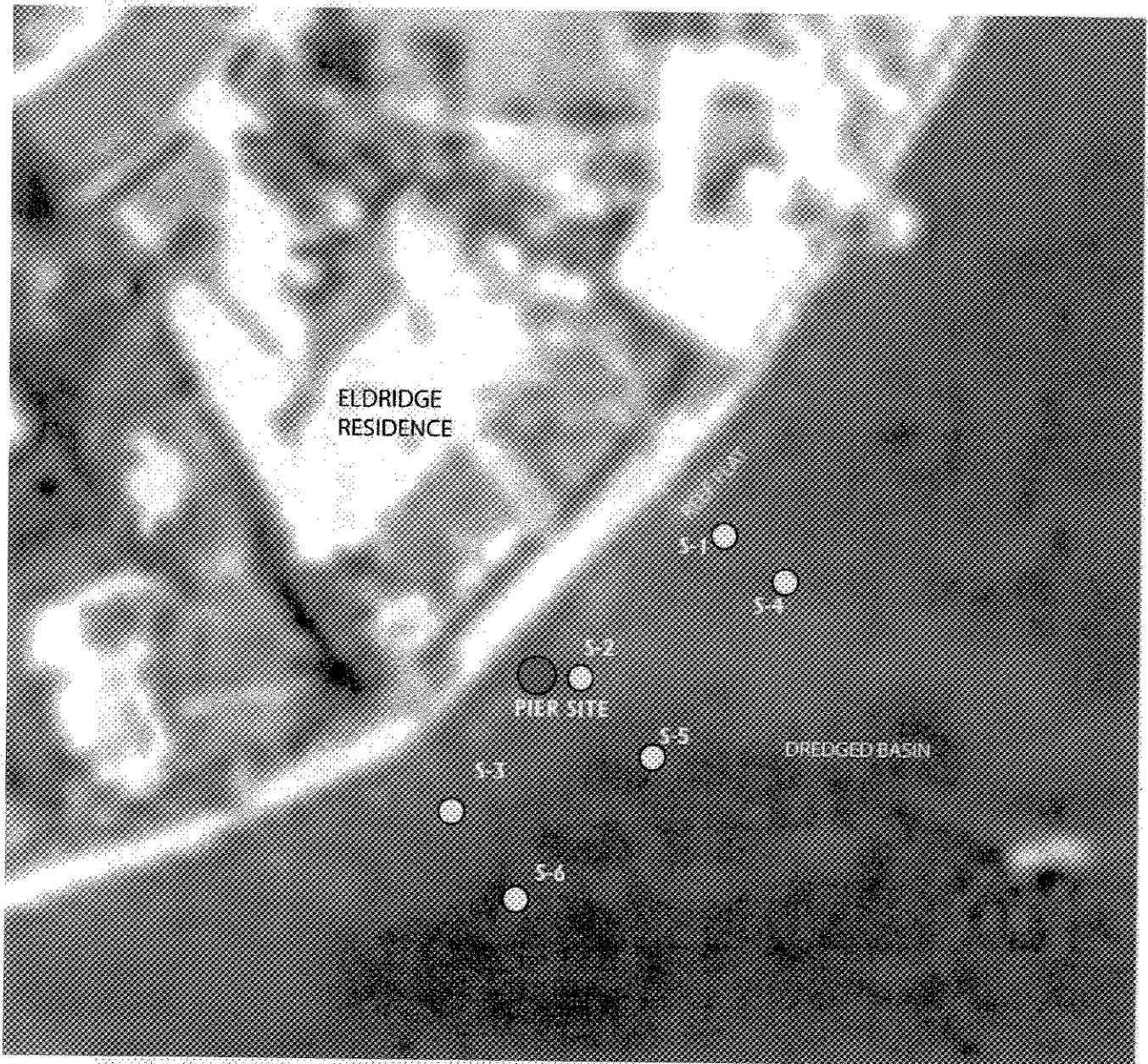
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Source:  
Marine Research Consultants Inc. August 2006.  
*Assessment of the Marine Environment in the Vicinity of  
the Eldridge Residence Waiupe Peninsula, Oahu, Hawaii.*

**Figure 6**  
**PROPOSED PIER FOOTING**  
**IN REEF MARGIN**

Environmental Assessment  
Proposed Recreational Pier  
Prepared for Mr. Kenton Eldridge  
Prepared by Belt Collins Hawaii—June 2007



Aerial photograph showing location of proposed pier on reef flat shelf fronting the Eldridge Residence, Wailupe Peninsula, Oahu, Hawaii. Also shown are locations of six water sampling stations where surface and near-bottom samples, as well as vertical profiles of temperature, salinity, and dissolved oxygen, were collected on June 5, 2006.

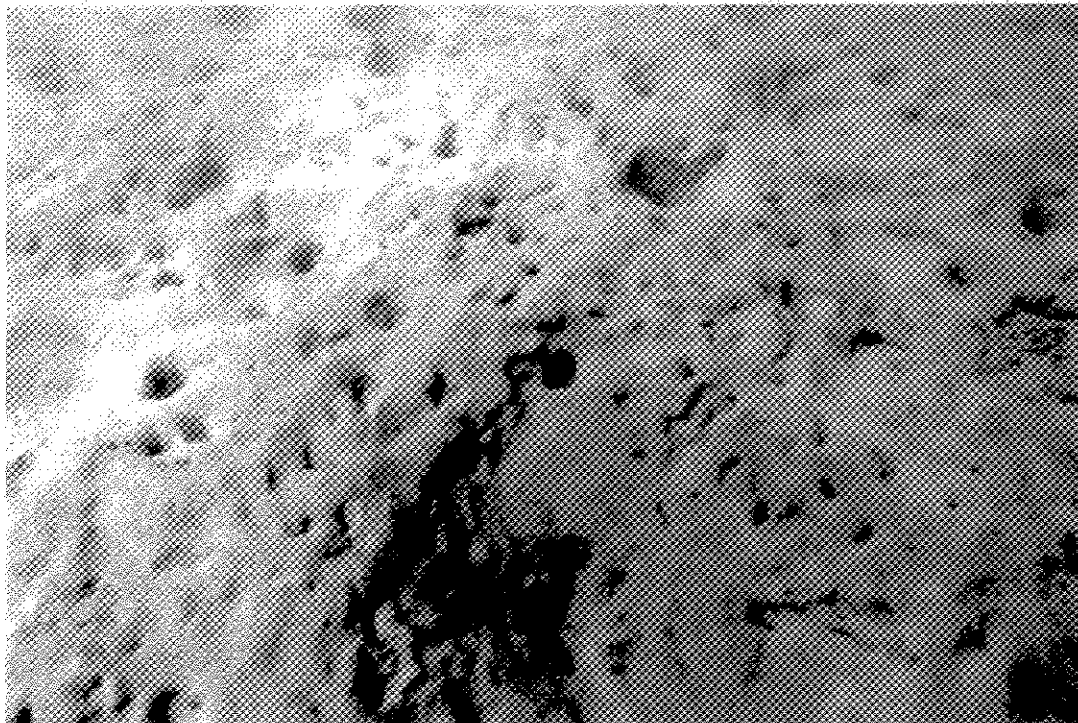
©2007 Belt Collins Hawaii Ltd.



Source:  
Marine Research Consultants Inc. August 2006.  
*Assessment of the Marine Environment in the Vicinity of  
the Eldridge Residence Wailupe Peninsula, Oahu, Hawaii.*

## Figure 7 WATER SAMPLING STATION LOCATIONS

Environmental Assessment  
Proposed Recreational Pier  
Prepared for Mr. Kenton Eldridge  
Prepared by Belt Collins Hawaii—June 2007



*Top photo shows intersection of vertical edge of reef wall and sandy-mud bottom of channel. Bottom photo shows numerous burrows in sandy-mud covering the floor of the dredged channel. Water depth in both photos is approximately 12 feet.*

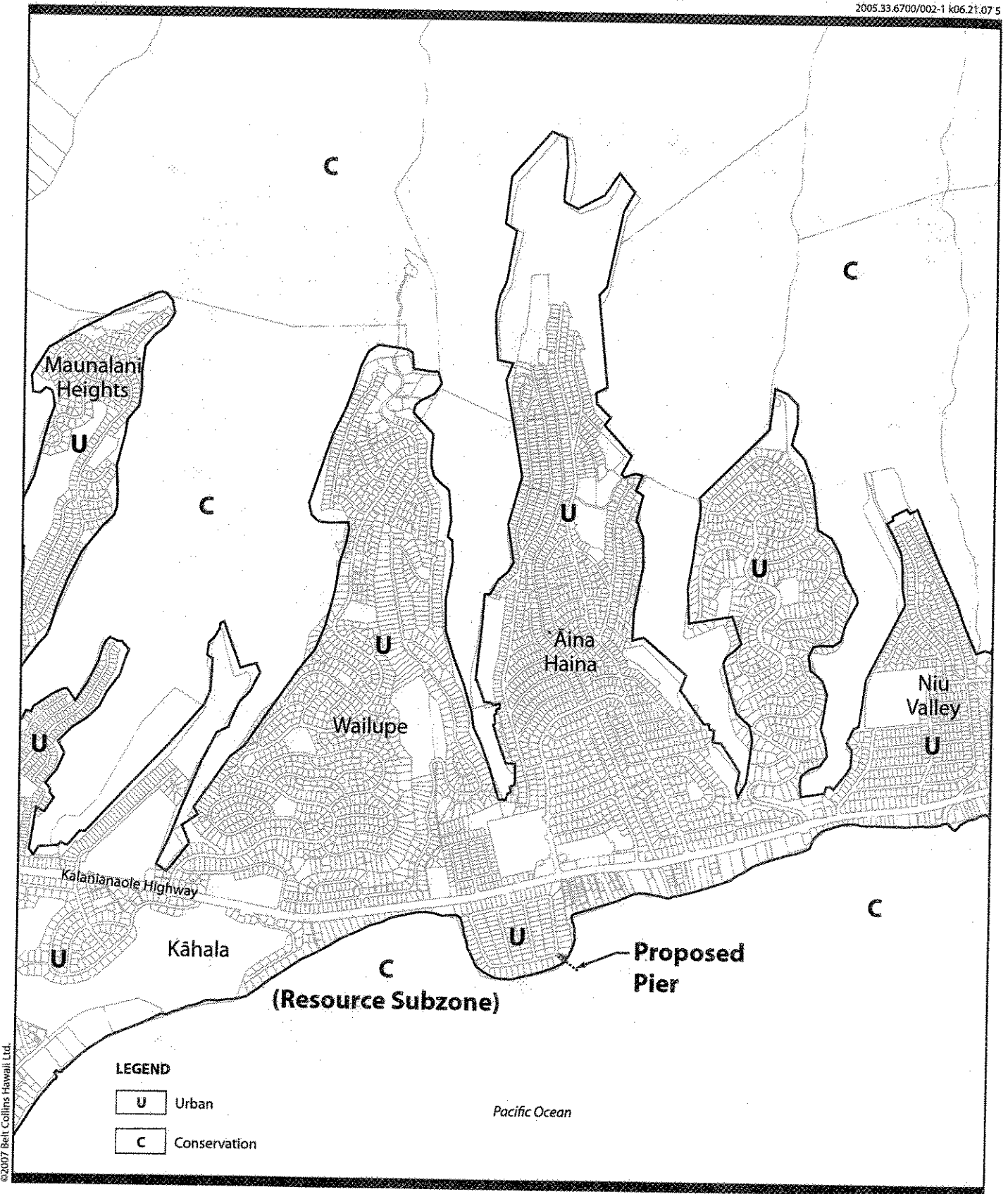
©2007 Belt Collins Hawaii Ltd.



Source:  
Marine Research Consultants Inc. August 2006.  
*Assessment of the Marine Environment in the Vicinity of  
the Eldridge Residence Wailupe Peninsula, Oahu, Hawaii.*

### **Figure 8 DREDGED CHANNEL SANDY BOTTOM**

Environmental Assessment  
Proposed Recreational Pier  
Prepared for Mr. Kenton Eldridge  
Prepared by Belt Collins Hawaii—June 2007



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0 500 1000 2000  
SCALE IN FEET

**Figure 9**  
**STATE LAND USE**

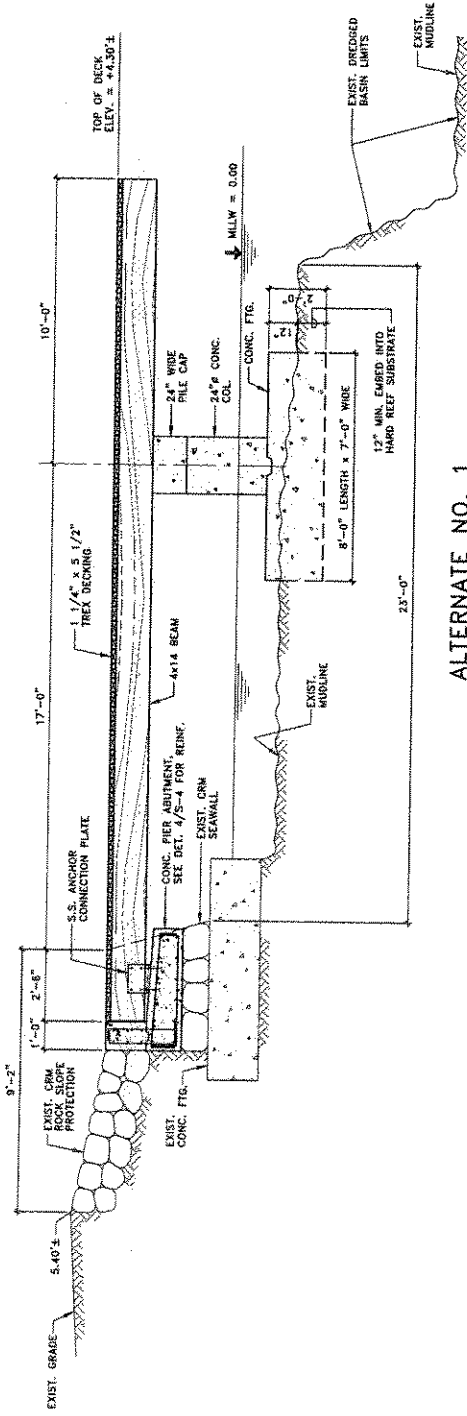
Environmental Assessment  
Proposed Recreational Pier  
Prepared for Mr. Kenton Eldridge  
Prepared by Belt Collins Hawaii—June 2007



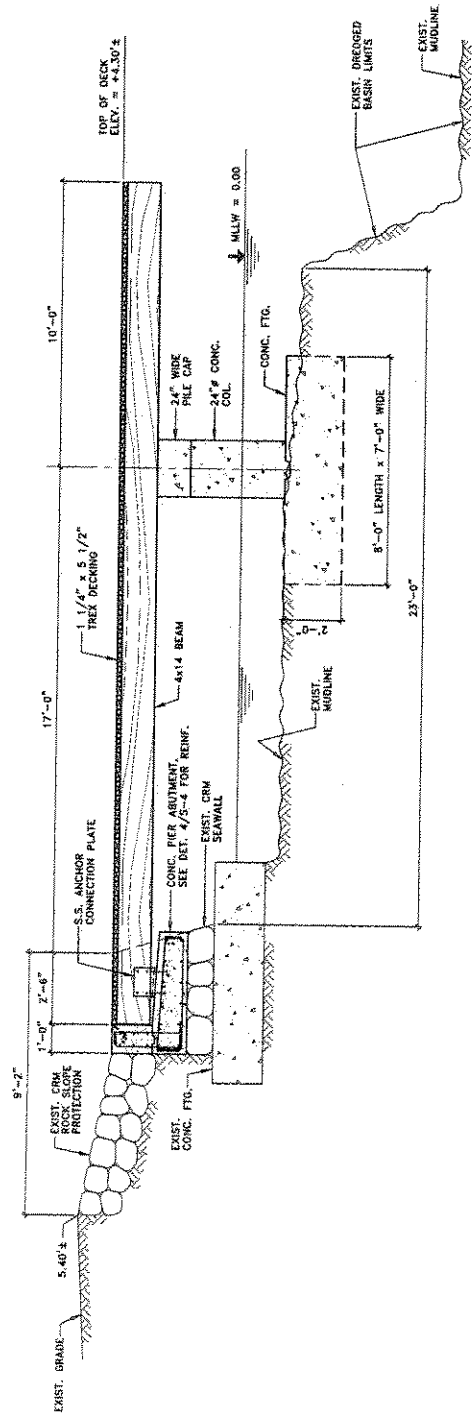
**Figure 10**  
**EXISTING PIERS ALONG WAILUPE CIRCLE**

Environmental Assessment  
Proposed Recreational Pier  
Prepared for Mr. Kenton Eldridge  
Prepared by Belt Collins Hawaii—June 2007





ALTERNATE NO. 1  
Not to Scale



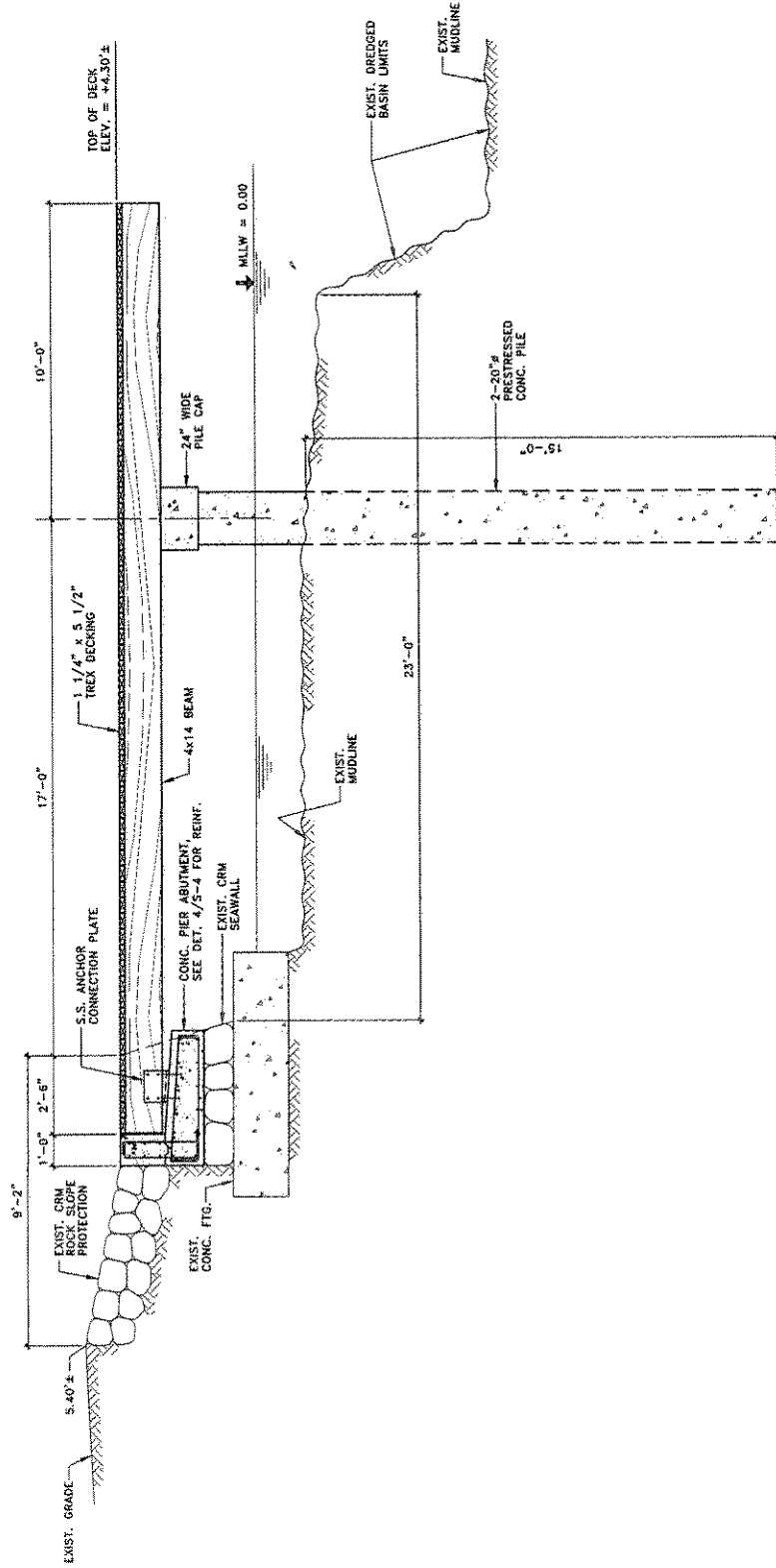
ALTERNATE NO. 2  
Not to Scale

Source: Arnold T. Okubo & Associates, Inc.  
Consulting Engineers Oahu, Hawaii

Figure 11  
ELDRIDGE PROPOSED PIER—  
ALTERNATIVE #1 AND #2

Environmental Assessment  
Proposed Recreational Pier  
Prepared for Mr. Kenton Eldridge  
Prepared by Belt Collins Hawaii—June 2007





ALTERNATE NO. 3

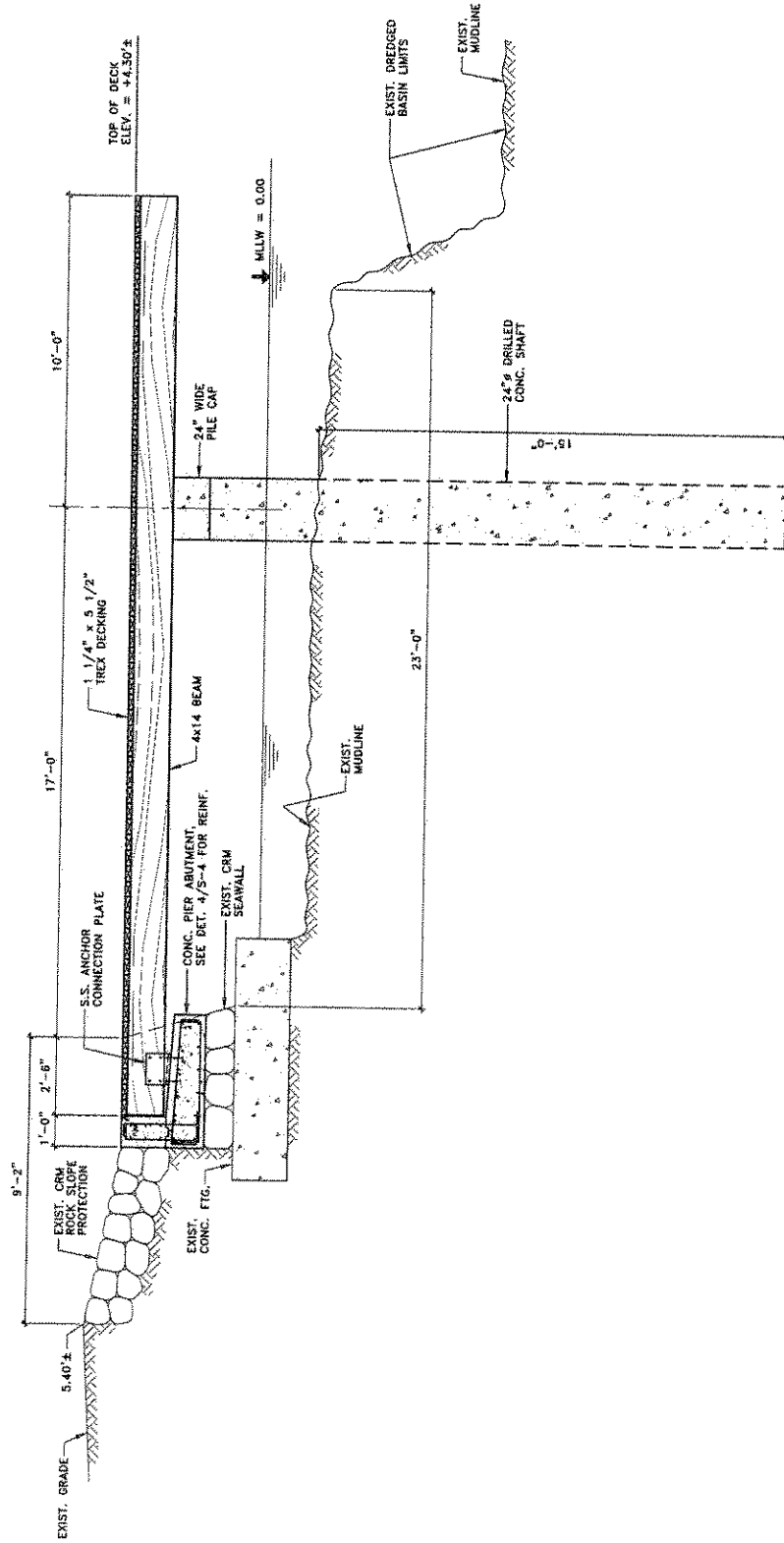
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**Figure 12**  
**ELDRIDGE PROPOSED PIER—**  
**ALTERNATIVE #3**

Environmental Assessment  
 Proposed Recreational Pier  
 Prepared for Mr. Kenton Eldridge  
 Prepared by Belt Collins Hawaii—June 2007

Source: Arnold T. Okubo & Associates, Inc.  
 Consulting Engineers Oahu, Hawaii





ALTERNATE NO. 4

Not to Scale

Source: Arnold T. Okubo & Associates, Inc.  
Consulting Engineers Oahu, Hawaii

**Figure 13**  
**ELDRIDGE PROPOSED PIER—**  
**ALTERNATIVE #4**

Environmental Assessment  
Proposed Recreational Pier  
Prepared for Mr. Kenton Eldridge  
Prepared by Belt Collins Hawaii—June 2007





# Appendix A



LINDA LINGLE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

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

ROBERT K. MASUDA  
DIRECTOR

DEAN NAKANO  
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES  
BEACH AND OCEAN RECREATION  
BY PLANNING DIVISIONS  
COMMISSION ON WATER RESOURCE MANAGEMENT  
CONSERVATION AND FORESTAL LANDS  
CONSERVATION AND RESOURCES INFORMATION  
ENGINEERING  
FLORISTRY AND WILDLIFE  
HISTORIC PRESERVATION  
KUIKIO LAKE AND RESERVE COMMISSION  
LAND  
STATE PARKS

December 22, 2006

File No.: OA-1107

Robert K. Y. Lee, LPLS  
Towill, Shigeoka & Associates, Inc.  
2153 North King Street, Suite 308  
Honolulu, Hawaii 96819

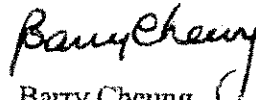
Dear Mr. Lee:

Subject: Transmittal of Signed Shoreline Certification Map  
Owner: Kenton Eldridge  
Tax Map Key: (1) 3-6-001:021

Enclosed please find eight (8) copies of the certified shoreline survey maps for the subject property.

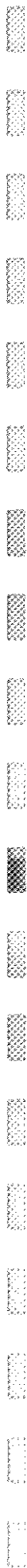
If you have any questions, please feel free to contact us at 587-0430. Thank you.

Sincerely,

  
Barry Cheung  
Land Agent

Enclosures

Cc DAGS  
Central Files  
8

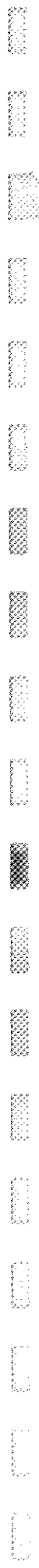








# Appendix B



# NEW PIER

## 298 WAILUPE CIRCLE

### HONOLULU, OAHU, HAWAII

#### T.M.K.: 3-6-01:21

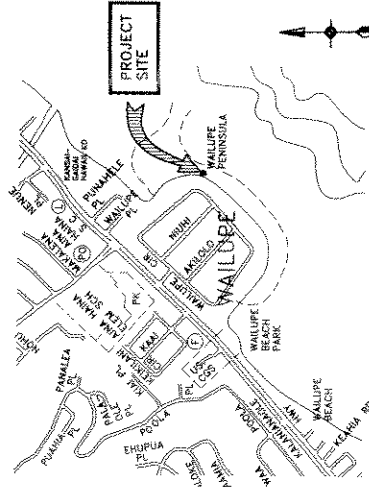


Arnold T. Okubo & Associates, Inc.  
CONSULTING ENGINEERS  
OAHU, HAWAII

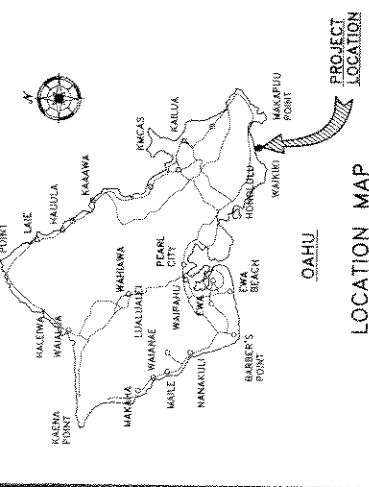


NEW PIER  
298 WAILUPE CIRCLE  
HONOLULU, OAHU, HAWAII  
TITLE: LOCATION MAP VICINITY MAP  
DATE: 3-6-01  
T.M.K.: 3-6-01:21

DESIGNED BY:	ATD
DRAWN BY:	DKA
CHECKED BY:	ATD
DATE:	
SHEET NUMBER:	S-1
OF	SUITS



VICINITY MAP  
NOT TO SCALE



LOCATION MAP  
NOT TO SCALE

### GENERAL NOTES

- A. DESIGN LOADS:
  - WIND VELOCITY . . . . . 80 MPH EXPOSURE D
  - PIER LIVE LOAD . . . . . 100 PSF
- B. CONCRETE:
  - 1. ALL CONCRETE SHALL HAVE A MINIMUM 28 DAYS COMPRESSIVE STRENGTH (f'c) AS FOLLOWS:
    - ALL CAST-IN-PLACE CONCRETE . . . . . 4,000 PSI
    - AND TREMIE CONCRETE . . . . . 16" = 4,000 PSI
    - AND CURBS 1/2" x 1/2" UNLESS OTHERWISE NOTED ON THE PLANS.
  - 2. CHAMFER ALL EXPOSED EDGES OF FILE CAPS, WALLS, AND CURBS 1/2" x 1/2" UNLESS OTHERWISE NOTED ON THE PLANS.
  - 3. UNLESS OTHERWISE NOTED ON THE DRAWINGS, MINIMUM CLEAR CONCRETE PROTECTION FOR REINFORCEMENT SHALL BE PROVIDED AS FOLLOWS:
    - CAST-IN-PLACE CONCRETE . . . . . 3"
- C. REINFORCING STEEL:
  - 1. ALL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH ASTM A775/A775M AND CONFORM TO THE FOLLOWING:
    - #4 AND LARGER . . . . . ASTM A615, GRADE 60 KSI
    - STIRRUPS . . . . . ASTM A615, GRADE 40 KSI
    - WELDED WIRE FABRIC . . . . . ASTM A185, GALVANIZED
  - 2. ALL LARGE MARKED CONTINUOUS (COBT) ON THE PLANS SHALL BE LARGELY MARKED CONTINUOUS (COBT) ON THE PLANS. ALL INTERSECTIONS, AND CORNERS AT ALL LAP, SPICES, AND BOTTOM BARS AT MIDSPAN.
- D. PIER CONSTRUCTION:
  - 1. PROVIDE AND COAT PARAPET WALL AND SEALER (TWO COATS) TO ALL CONCRETE SURFACE EXPOSURE. PROVIDE AND COAT ALSO COAT ALL WOOD LUMBER BEAMS WITH THE PARAPET WALL SEALER. RECOMMENDED BY THE MANUFACTURER.

- 2. REMOVE AND REPLACE GOM SEAWALL TO FACILITATE PIER CONSTRUCTION AS REQUIRED.
- 3. THE DICKING AND BENCH SEATS SHALL BE TREX LUMBER MANUFACTURED BY TREX COMPANY OR APPROVED EQUAL.
- 4. ALL HARDWARE (BOLTS, NUTS, WASHERS, DRERWS) SHALL BE STAINLESS STEEL TYPE 316 (ASTM A197-88).
- E. STAINLESS STEEL METAL:
  - 1. ALL BOLTS, NUTS, AND WASHERS SHALL BE STAINLESS STEEL BOLTS CONFORMING TO ASTM A197-88, TYPE 316.
  - 2. ALL STEEL SHAPES AND PLATES SHALL BE STAINLESS STEEL CONFORMING TO ASTM A197-88, TYPE 316.
- F. WOOD PRESERVATIVE TREATMENT FOR LUMBER:
  - 1. WOOD PRESERVATIVE SHALL BE BY PRESSURE TREATMENT WITH OS-BORNE PRESERVATIVE TRIBUDES (HONOLULU WOOD TREATING). TREATMENT RATE SHALL BE AS RECOMMENDED WEATHER FOR TREX CONSTRUCTION. ACCESS TO THE PARAPET SEALER TO SEAL WOOD SURFACE FROM WATER PENETRATION AFTER WOOD PRESERVATIVE TREATMENT IS COMPLETED.
- G. CONSTRUCTION NOTES:
  - 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UNDERGROUND, SURFACE, AND OVERHEAD UTILITIES AND ADJUST THE PROJECT SITE DURING PIER CONSTRUCTION. ANY DAMAGE TO UTILITIES DURING CONSTRUCTION SHALL BE REPAIRED BY HIM AT HIS OWN EXPENSE.
  - 2. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS SHOWN PRIOR TO CONSTRUCTION AND FABRICATION OF ALL MEMBERS. NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES BEFORE STARTING WORK.
  - 3. THE CONTRACTOR SHALL NOT DISPOSE ANY CONCRETE, WOOD, AND ANY OTHER DEBRIS INTO HARBOUR WATERS. DEBRIS THAT FALLS INTO THE HARBOUR WATER SHALL BE REMOVED AT THE CONTRACTOR'S OWN EXPENSE.

- 4. NO PENETRATIONS WILL BE ALLOWED THROUGH ANY STRUCTURAL MEMBERS WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.
- 5. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE UNIFORM BUILDING CODE, 1987 EDITION.
- 6. THE CONTRACTOR SHALL DETAIL, FURNISH AND INSTALL ALL MEMBERS, CONNECTIONS, AND ACCESSORIES NOT SHOWN BUT WHICH ARE REQUIRED TO COMPLETE THE WORK AND SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL CONNECTIONS. THESE MEMBERS, CONNECTIONS, AND ACCESSORIES SHALL BE INCLUDED IN THE CONTRACTORS BID PRICE. THE CONTRACTOR SHALL PERFORM HIS WORK IN A WORKMANLIKE MANNER.
- 7. PROVIDE AND INSTALL SILT CURTAIN CONTAINMENT ALL AROUND CONSTRUCTION WORK AREA.
- H. SHOP DRAWING SUBMITTALS:
  - 1. THE CONTRACTOR SHALL SUBMIT SIX (6) SETS OF SHOP DRAWINGS FOR DECKING, CONCRETE MIX DESIGN, REINFORCING BARS, FORMWORK, STAINLESS STEEL PLATES AND SHAPES, PARAPET WALL SEALER, AND PARAPET WALL SEALER. SHOP DRAWINGS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO FABRICATION.

REV. NO.	DESCRIPTION	DATE





Arnold T. Okubo & Associates, Inc.  
CONSULTING ENGINEERS  
OAHU, HAWAII

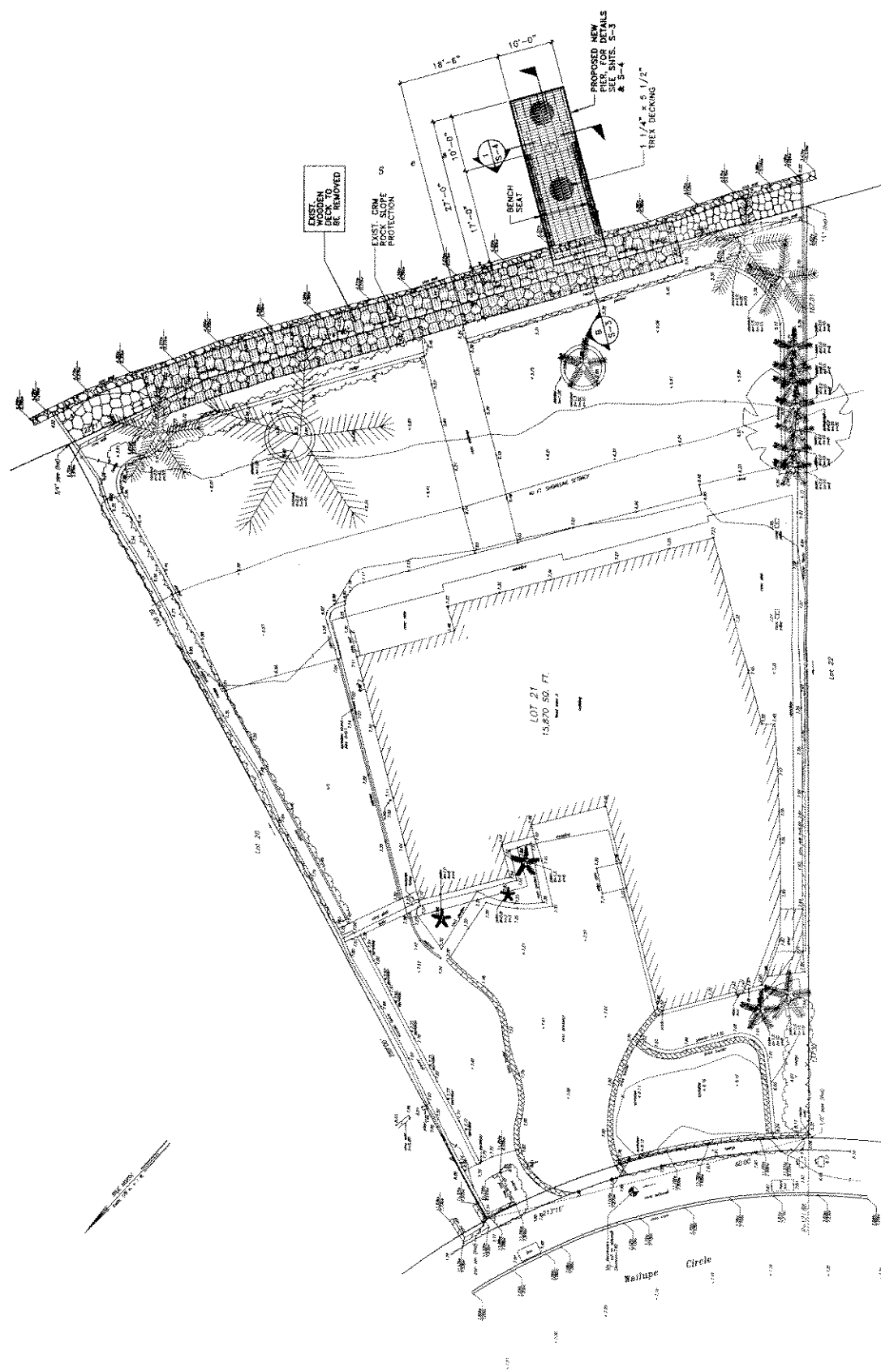


NEW PIER  
298 WALLUPE CIRCLE  
HONOLULU, OAHU, HAWAII  
T.M.C. 3-8-01:21  
SITE PLAN

JOB NO.  
DESIGNED BY: ATO  
DRAWN BY: RMA  
CHECKED BY: ATO  
DATE:

SHEET NUMBER  
**S-2**

REV. NO.	DESCRIPTION



**SITE PLAN**  
SCALE: 1/8" = 1'-0"

At Waipu, Waikiki, Honolulu, Oahu, Hawaii  
T.M.C. (1) 3-8-01: 21  
Address: 288 Waluape Circle

DATE: \_\_\_\_\_







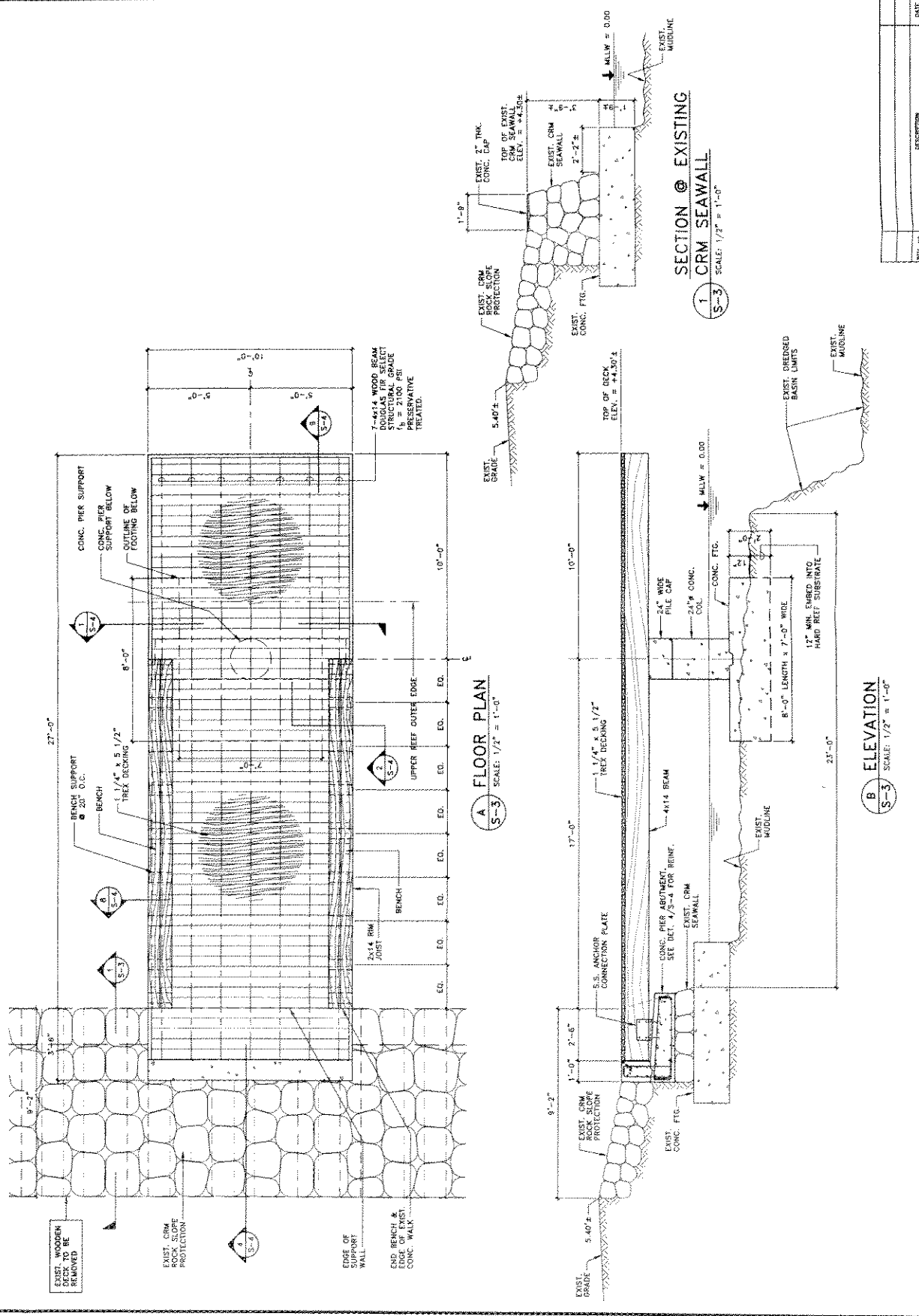
Arnold T. Okubo & Associates, Inc.  
CONSULTING ENGINEERS  
OAHU, HAWAII



FLOOR PLAN & ELEVATION  
298 WAIALUE CIRCLE  
HONOLULU, OAHU, HAWAII  
T.M. 3-8-8 (1-21)

DATE: \_\_\_\_\_  
SHEET NUMBER: **S-3**  
DRAWN BY: ATO  
CHECKED BY: ATO

DATE: \_\_\_\_\_  
DESCRIPTION: \_\_\_\_\_



**A FLOOR PLAN**  
SCALE: 1/2" = 1'-0"

**B ELEVATION**  
SCALE: 1/2" = 1'-0"

REV. NO.	DATE	DESCRIPTION







NOTIFICATION: CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.



Arnold T. Okubo & Associates, Inc.  
 CONSULTING ENGINEERS  
 OAHU, HAWAII

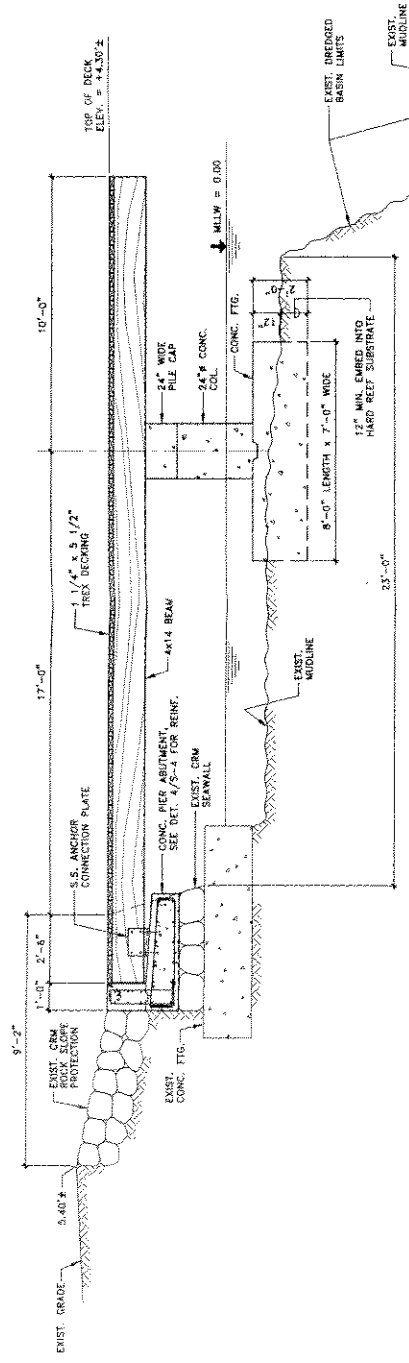


NEW PIER  
 289 WAIKUPA ERIKA STREET  
 HONOLULU, OAHU, HAWAII  
 T.M.K. 3-6-0121  
 ALTERNATE NO. 1 & 2

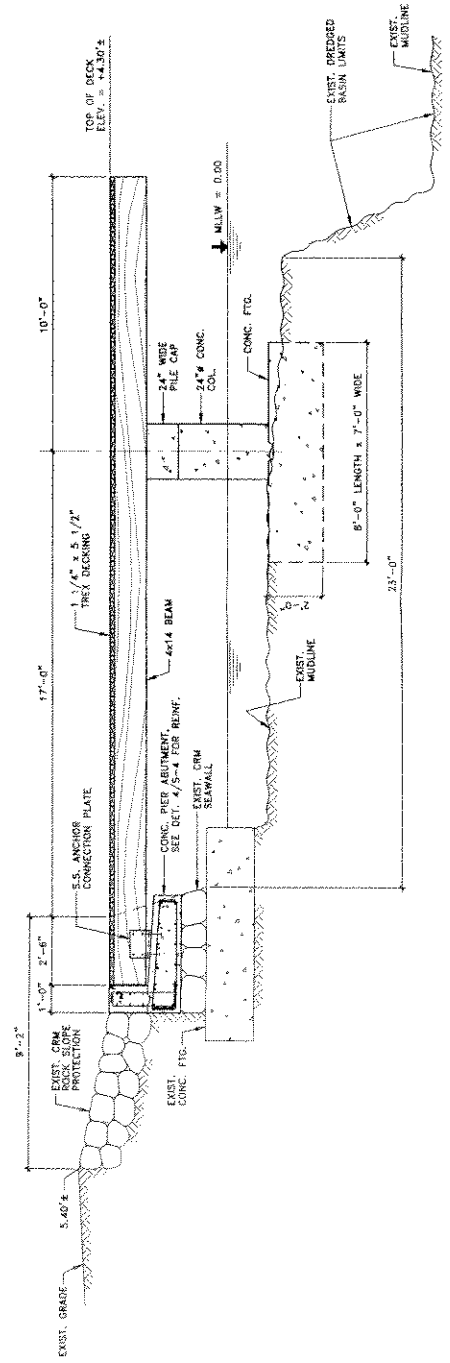
DATE:	
CHECKED BY:	ATQ
DRAWN BY:	RMA
DESIGNED BY:	ATQ
JOB NO.:	

SHEET NUMBER  
**1**  
 OF SHEETS

REV. NO.	DESCRIPTION	DATE



**A** ALTERNATE NO. 1  
 SCALE 1/2" = 1'-0"



**B** ALTERNATE NO. 2  
 SCALE 1/2" = 1'-0"









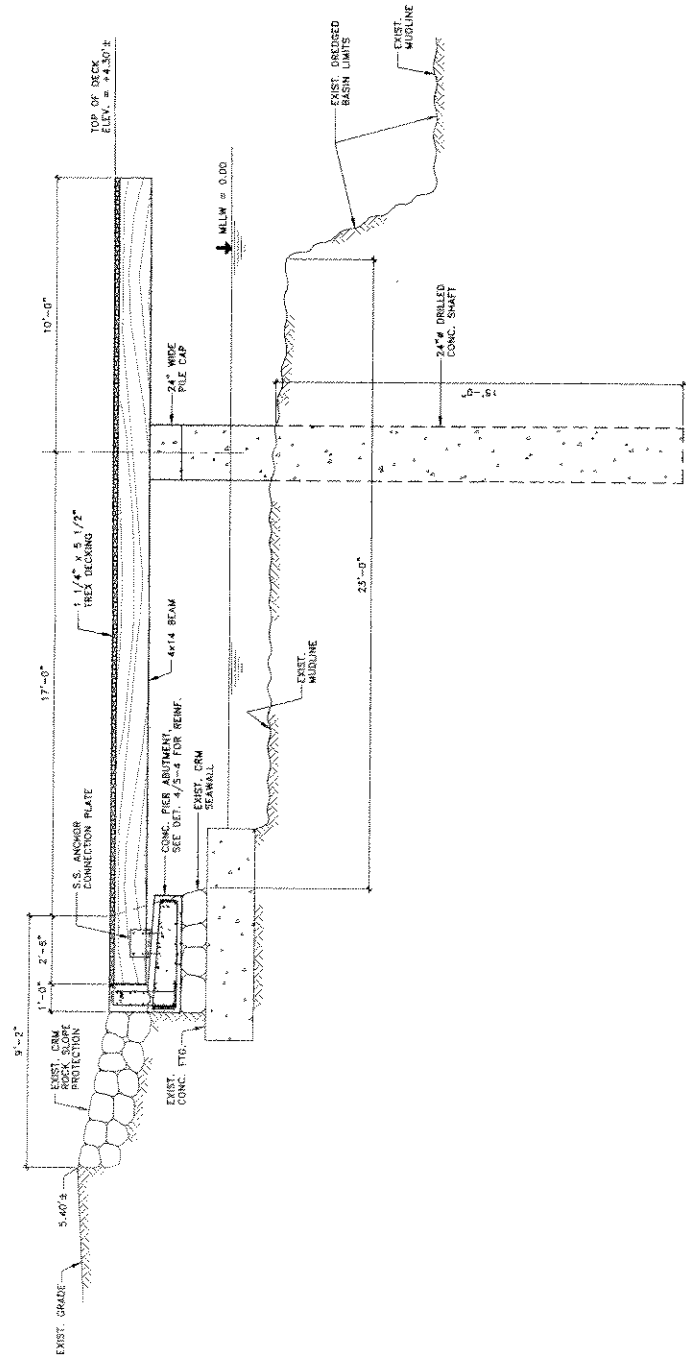


Arnold T. Okubo & Associates, Inc.  
 CONSULTING ENGINEERS  
 OAHU, HAWAII



NEW PIER  
 298 WALLUPE CIRCLE  
 HONOLULU, OAHU, HAWAII  
 T.M.K. 3-9-0121  
 ALTERNATE NO. 4

JOB NO.  
 DESIGNED BY: JAT  
 DRAWN BY: DM  
 CHECKED BY: JAT  
 DATE:  
 SHEET NUMBER  
**3** OF SHEETS

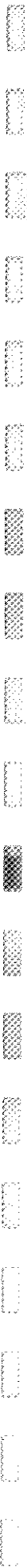


**D** ALTERNATE NO. 4  
 3 SCALE: 1/2" = 1'-0"

REV. NO.	DESCRIPTION	DATE



# Appendix C





COPY

June 13, 2006

Mr. Kenton Eldridge  
22 Niuhi St.  
Honolulu, HI 96821

Subject: Wave Study for Pier Design at 298 Wailupe Circle

Dear Mr. Eldridge:

The results of our calculations to determine wave forces for design of a new pier at your property are attached. These calculations are based on a breaking wave striking circular pier pilings and the existing rock bulkhead. The design wave is the highest that can cross the fronting reef before breaking at the pier. Water depth includes an extremely high tide with additional water depth caused by wave setup. Waves can overtop the existing seawall under these conditions. Hurricane waves were not considered because hurricane forces and resulting damage are difficult to predict and could lead to expensive over-design. Please note that no factor of safety was added to the force calculations.

The attached package includes wave force tables plus additional maps and information used in our analyses. The wave force results will be provided to Belt Collins for transmittal to your structural engineer.

If there are questions or you need clarification, please contact Chris Goody of our staff or me at 531-3017.

Sincerely,

Warren E. Bucher, Ph.D., P.E.  
Project Manager

Attachment

cc: Lee Sichtler, Belt Collins Hawaii Ltd.

## **Wave Force Calculation Procedure Summary for Wailupe Peninsula**

### **Baseline Data**

In order to reasonably predict an expected site specific maximum wave force value, an amount of baseline data must be acquired to proceed, such as the following: bathymetry (depth) data, tidal datum and maximum range data, and wave climate data. For this study, conditions arising from hurricanes or tsunamis were not considered as they would be so extreme that the forces resulting from them would be impracticable to design for. Bathymetry data used for this study was a combination of high resolution LiDAR data collected by the Army Corps of Engineers, and nearshore survey data collected by Oceanit coastal engineers. Tidal elevation data was obtained from the NOAA's Center for Operational Oceanographic Products and Services, where the maximum expected water level was extracted from the Honolulu Harbor tide station on Pier 4. Since a true statistical analysis of the wave climate for the area of interest is beyond the scope of this study, it was found after a review of historical wave data for the south shores that a reasonable estimation of the maximum expected wave conditions can be bracketed using the two cases of a high intensity kona storm (with strong onshore winds and short period large waves), and an extremely large south swell event (long period, large waves with no local storm effects), occurring at the highest recorded tide. The calculations were performed based on these two events.

### **Computational Modeling**

The three-dimensional wave transformation model developed by the USACE known as CEDAS was used in this study to run several different scenarios of high surf events to ascertain which conditions would yield the largest amount of wave energy at the proposed pier location. It was found that there were significant variations in wave height at and outside of the surf zone, however once inside the fringing reef all scenarios approached the similar reduced wave height of approximately 0.25m (0.8 ft), as shown in Figures 1 and 2, where the seawall location is 0 on the x-axis. Although possible, it was instead decided to use the larger value of a depth limited wave, or the largest wave that physically could occur at the depth of the pier or seawall. This value was found to be roughly 3 feet and was subsequently used for the force calculations.

### **Calculations**

All calculations were based on empirical or theoretical models developed by the US Army Corps of Engineers, and are referenced specifically on the attached worksheets. Conservative values were used in the equations wherever appropriate to yield highest expected values. A summary of the calculation results is presented in the attached Wave Force Calculations Summary.

### **Graphical Deliverables**

Sheet S-1 is a cross shore bathymetric profile of the nearshore slope at the approximate centerline of the property's makai boundary. This drawing illustrates

the relation between tidal datums and the property's elevation with respect to it. The design water level used for the calculations is shown and labeled as "3.2' MSL (4.0' MLLW)". The results of the CEDAS computational model are presented on Sheets S-2 and S-3, where the case of highest resultant wave energy is shown. Maximum wave heights (in meters) are displayed as contours overlaid on a map of the project area.

200611 Eldridge Estate, Wailupe Pier Design  
 Wave Force Calculations Summary

**NOTE:** For these manual calculations, certain assumptions, constants and criteria were required to be made and are described below:

From NOAA water level records, the maximum observed water level to date was 3.39ft (MLLW) and is assumed in this analysis to trigger worst-case conditions in terms of expected waves forces at the proposed pier location. Depth at the structure is therefore taken as **5.5ft at this elevated level.**

Maximum wave height is thus depth-limited and found to be approximately 0.78 x depth, yielding  $H_m = 4.2ft$

Wave periods were chosen to bracket the two most likely conditions expected to cause most excessive wave forces (excluding hurricanes or tsunamis), which are a severe Kona Storm or extremely large South Swell event. **Wave period, T for Kona Storm = 6 seconds & for South Swell = 20 seconds**

NON-BREAKING  
WAVE ON PILE

Summary of Non-Breaking Wave Forces on Vertical Pile:

Assume wetted length of 7ft (depth at SWL plus  $H_m$ ).

Period	Inertia Forces (lbf)		Drag Forces (lbf)		Total Force (lbf)	
	12" dia.	24" dia.	12" dia.	24" dia.	12" dia.	24" dia.
T = 6 s	88.6	354.1	129.4	258.8	218.0	612.9
T = 20 s	31.2	124.6	177.9	355.9	209.1	480.5

BREAKING  
WAVE ON PILE

Summary of Breaking Wave Forces on Vertical Pile:

Assume wetted length of 7ft (depth at SWL plus  $H_m$ ).

Period	Inertia Forces (lbf)		Drag Forces (lbf)		Total Force (lbf)	
	12" dia.	24" dia.	12" dia.	24" dia.	12" dia.	24" dia.
T = 6 s	N/A	N/A	1668.6	3337.3	1668.6	3337.3
T = 20 s	N/A	N/A	1668.6	3337.3	1668.6	3337.3

PIER

Summary of Vertical Upward Force on Bottom of Pier Deck:

Assume water depth at structure is 5.5ft

2" x 4" Planking >>	45.1	lbf/ft of plank	for a 15' plank >>>	677 lbf
2" x 6" Planking >>	67.7	lbf/ft of plank	for a 15' plank >>>	1015 lbf
Resultant Press. >>	0.94	psi		

VERTICAL  
WALL

Summary of Wave Forces on CMU wall built on rubble foundation:

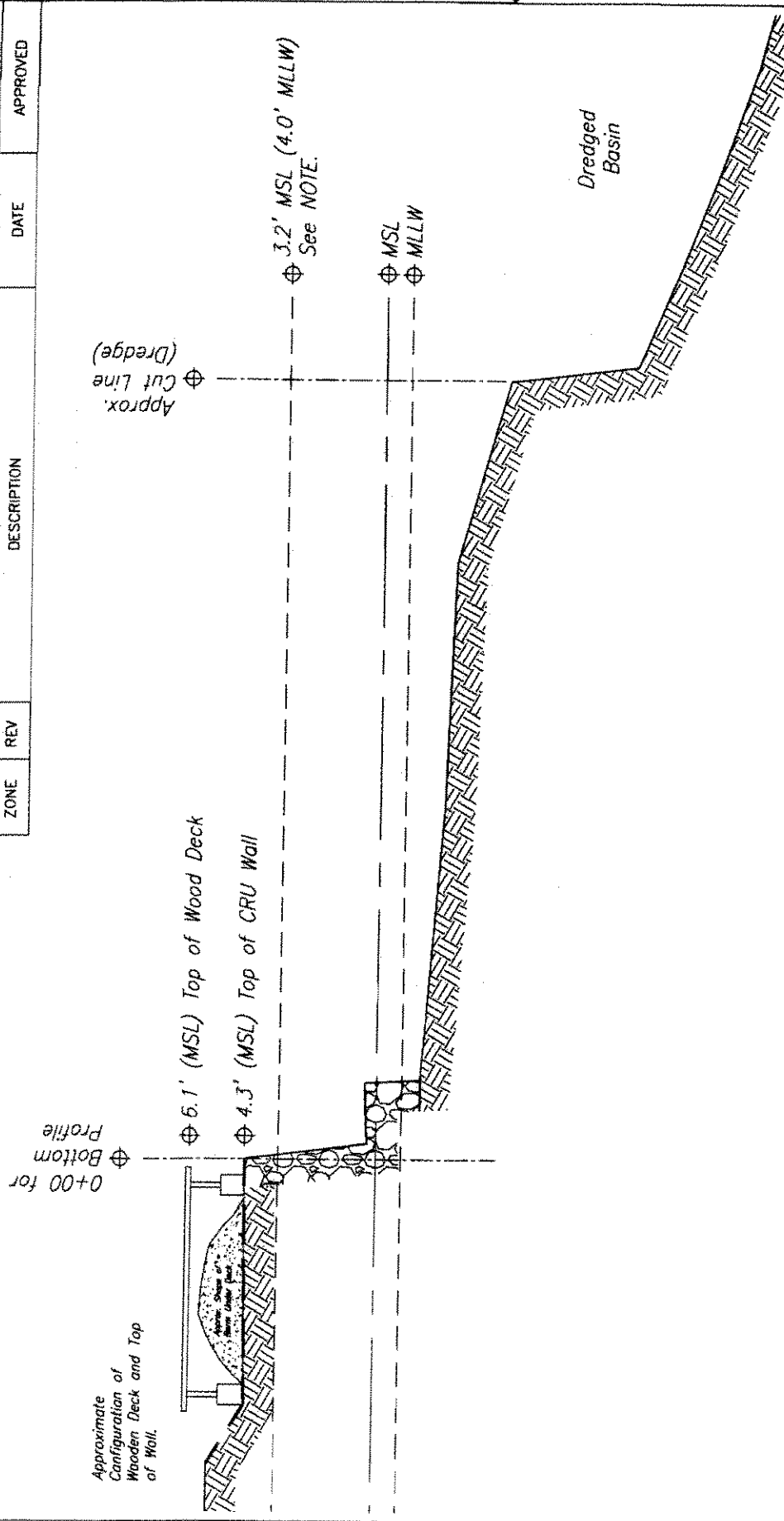
Assume wetted height of 4ft (depth at SWL to bottom of wall) and overtopping is occurring.

**NOTE: Results are pounds force per foot horizontal length of wall**

Period	Nonbreaking Wave	Breaking Wave	Max. Force (lbf/ft)
T = 6 s	575.3	1239.6	1239.6
T = 20 s	607.3	1373.0	1373.0



REVISIONS			DATE	APPROVED
ZONE	REV	DESCRIPTION		



Approximate Configuration of Wooden Deck and Top of Wall.

0+00 for Bottom Profile

6.1' (MSL) Top of Wood Deck

4.3' (MSL) Top of CRU Wall


3.2' MSL (4.0' MLLW) See NOTE.

MSL MLLW

Approx. Cut Line (Dredge)

Dredged Basin

NOTE: Design Water Level Used For Wave Force Calculations & Modeling.



**Oceanit**  
Specialists in Bathymetry & Coastal Modeling

1001 Bishop St., ASB Tower  
 Suite 2970  
 Honolulu, HI 96813

tel: +1 808 531 3017  
 fax: +1 808 531 5177

**Nearshore Bathymetric Profile**

-- Combined Results From Oceanit Survey & USACE LIDAR Data --

**Eldridge Estate Pier Design**  
 Wailupe Peninsula, Oahu, Hawaii

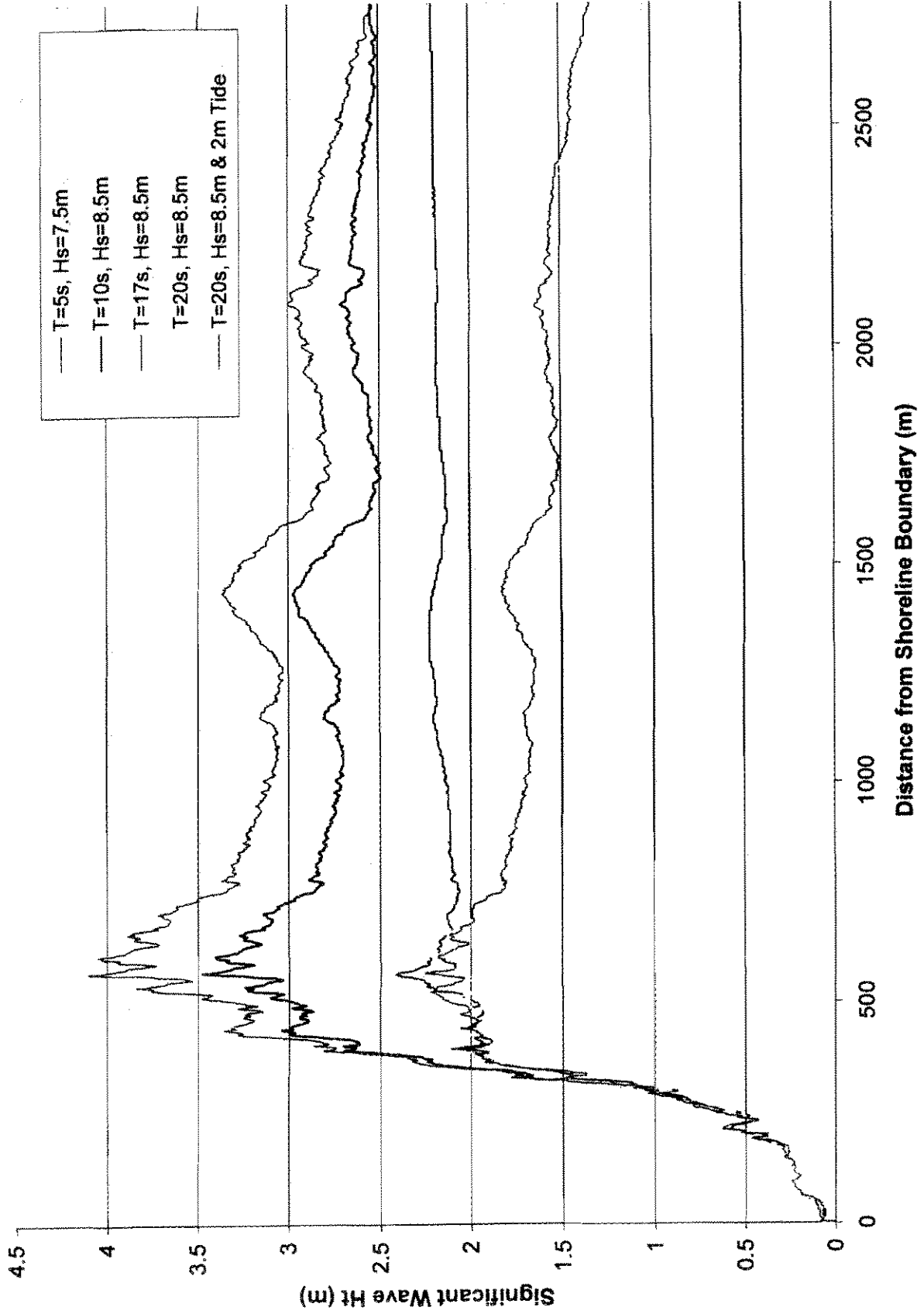
SIZE	FSCM NO.	DWG NO.	REV
A	CCG	200611-SvBPT-002.DWG	0

SCALE 1" = 5'

01 June 2006

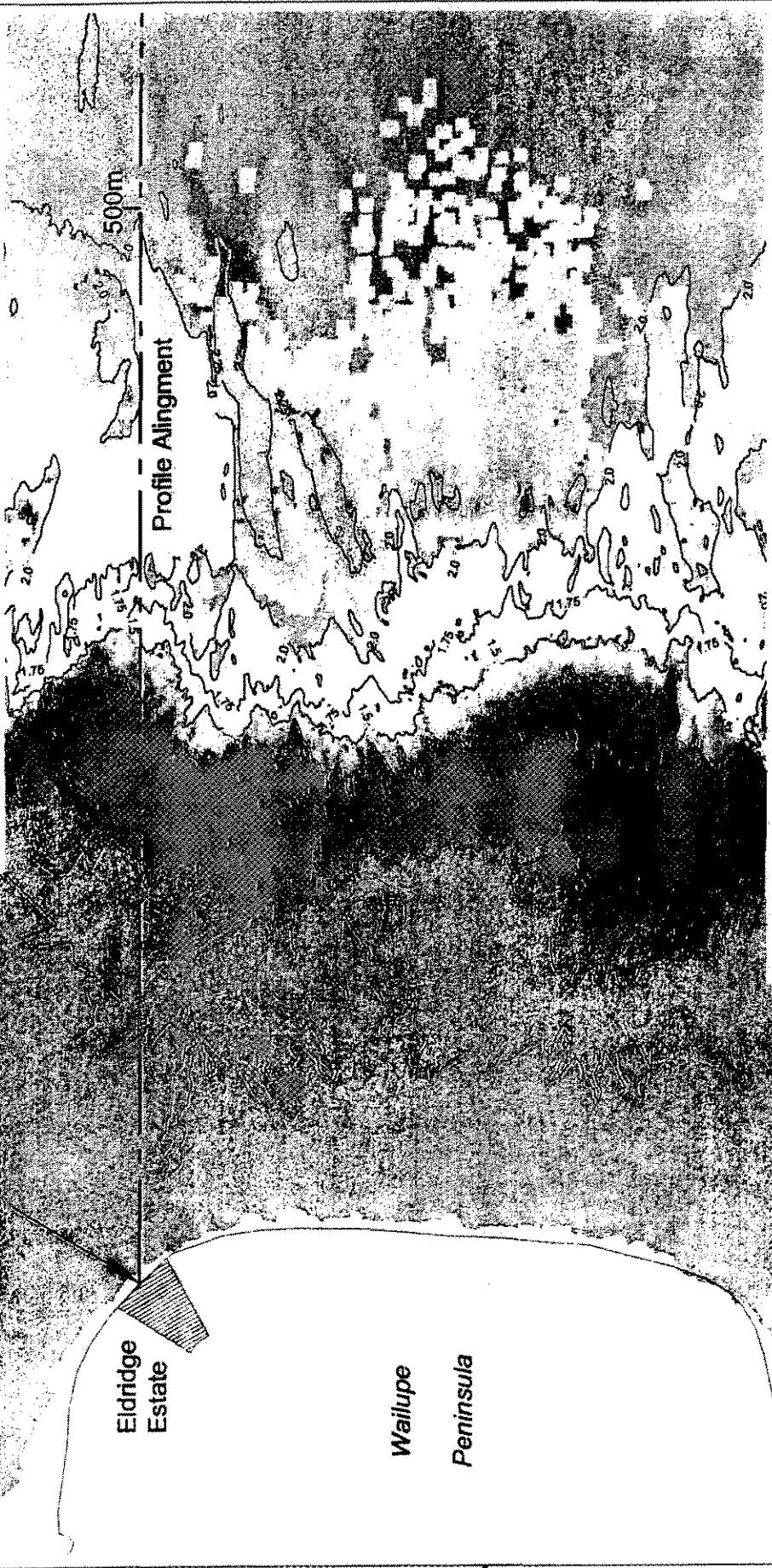
SHEET S - 1

Figure 1. Wailupe Nearshore Significant Wave Height (Hs) Profiles

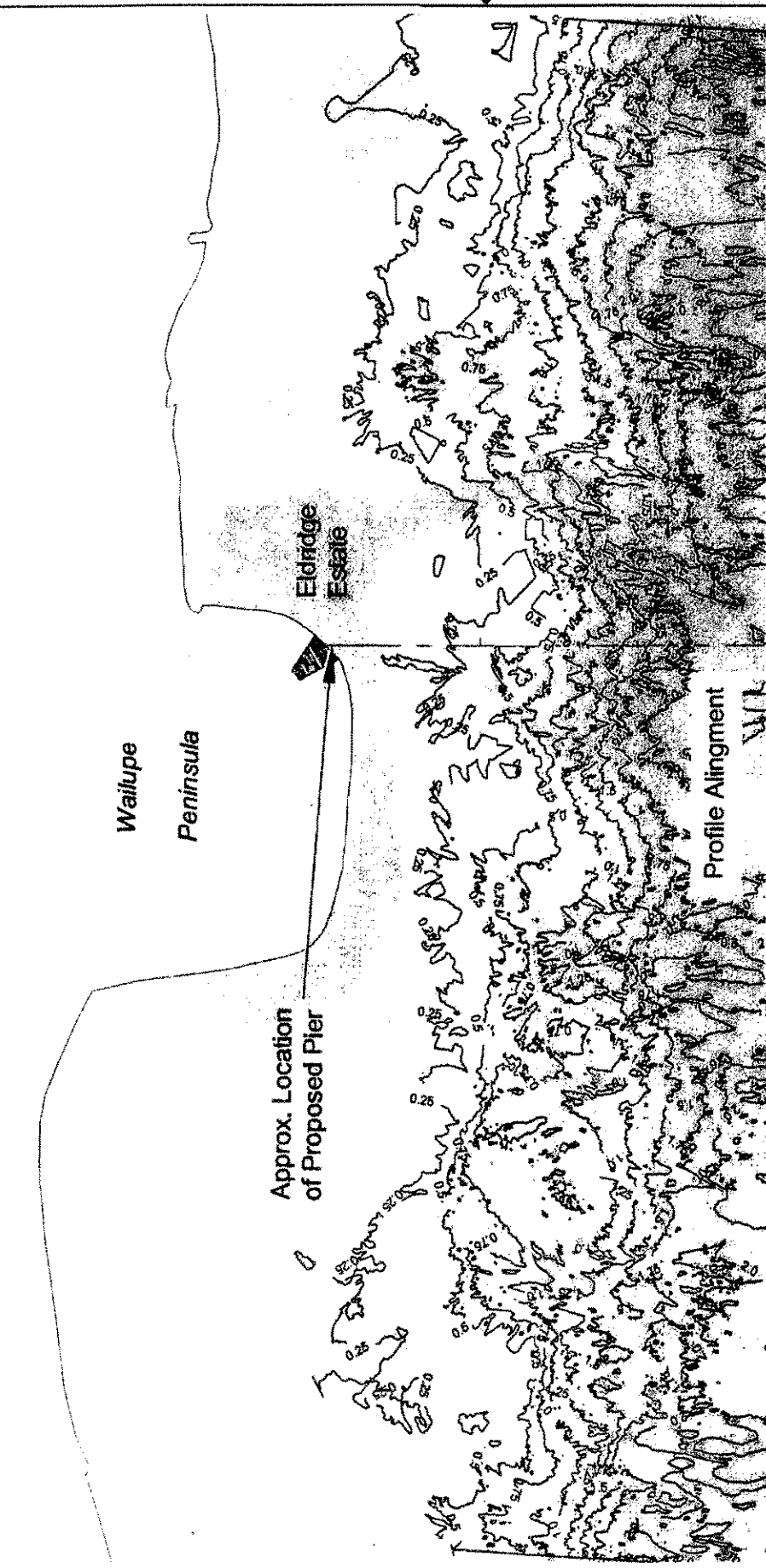




REVISIONS		DESCRIPTION	DATE	APPROVED
ZONE	REV			



REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



**Wave Shoaling / Surfline Comparison**  
 -- From Results of CEDAS Model Where: H = 7.5m & T = 5s --

**Eldridge Estate Pier Design**  
 Waiupe Peninsula, Oahu, Hawaii

SIZE	FSCM. NO.	DWG. NO.	REV
A	CCG	200611-BsICWV-001.DWG	0
SCALE: 1 : 800		01 June 2006	SHEET S - 3

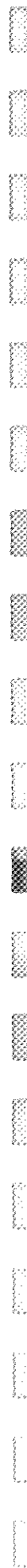
**oceanit**  
 Innovation through engineering & scientific excellence

1001 Bishop St., 4th Floor  
 Suite 2510  
 Honolulu, HI 96813  
 Tel: +1 808 531 3017  
 Fax: +1 808 531 3177

**NOTE: Contours of Estimated Wave Height (measured in meters) with contour value as given.**



# Appendix D





## ORDER OF MAGNITUDE ESTIMATED CONSTRUCTION COST

Submitted By: Arnold T. Okubo and Associates, Inc.  
Project: New Pier @ 298 Wailupe Circle,  
Honolulu, Hawaii

Date: 08/18/2006

Sheet 1 of 9

**SUMMARY**

Item Description		<u>Estimated Construction Cost</u>
1. Alternate No. 1 - (Concrete Footing Embedded 12" into Coral Layer)		\$ 100,000
2. Alternate No. 2 - (Concrete Footing Embedded 24" into Coral Layer)		\$ 105,000
3. Alternate No. 3 - (2 - 20" dia. Prestressed Concrete Pile Support)		\$ 262,000
4. Alternate No. 4 - (1 - 24" Drilled Shaft Concrete Support)		\$ 264,000



# Appendix E



Re: Item #3

**Cultural Impact Assessment  
for  
New Pier at 292 Wailupe Circle**

**Prepared for**

**Michael Pietsch  
292 Wailupe Circle  
Honolulu, Hawaii 96821**

**Prepared by**

**John Clark, Ocean Recreation Consultant  
P.O. Box 25277  
Honolulu, Hawaii 96825**

**June 2003**

## 1.0 CULTURAL AND RECREATIONAL USES

### 1.1 Purpose.

This cultural impact assessment was prepared to provide information to the State of Hawaii's Office of Environmental Quality Control (OEQC) in regard to the construction of a new pier at 292 Wailupe Circle, Honolulu, Hawaii, 96821, TMK 3-6-001:022. In a letter dated May 15, 2003 to Mr. Michael Pietsch, owner of the subject property, OEQC Director Genevieve Salmonson recommended that Mr. Pietsch provide a cultural impact assessment that includes consulting with "individuals who fish or gather offshore in the regional waters as to whether the proposed action affects cultural resources or practices" and that Mr. Pietsch "address the cumulative impact of pier building in the waters offshore of the former Wailupe fishpond on nearshore gathering and fishing."

### 1.2. Project Description.

The owner of the subject property is proposing to build a wooden deck pier with a concrete footing across a shallow reef shelf adjoining the seawall that defines the southeast boundary of his property. The pier will be approximately 27 feet long and 10 feet wide. The top of the wooden deck will be approximately 5.6 feet above mean sea level (MSL). The deck will be supported by a concrete piling on a rectangular concrete footing embedded a minimum of 8 inches into the reef substrate. The existing seawall along the seaward boundary of the property will also support the deck.

### 1.3 Project location.

The subject property is located on Wailupe Peninsula, a residential community on the shore of Wailupe Valley, also known as Aina Haina, in East Honolulu. The subject property, TKM 3-6-01:22, is located on the ocean in the southeastern corner of Wailupe Peninsula at 292 Wailupe Circle.

### 1.4 Scope.

The scope of work included:

1. Observing ocean activities, including fishing and gathering practices, at the subject property, at Wailupe Peninsula, and in the nearshore regional waters adjacent to Wailupe Peninsula, hereafter known as "the subject area."
2. Interviewing nearshore and offshore ocean users who practice fishing and gathering activities in the subject area.
3. Identifying nearshore cultural resources in the subject area.

3. Identifying potential impacts of the new pier on ocean activities, including fishing and gathering practices, and determining whether the proposed action affects cultural resources or practices.

### 1.5 Report methodology.

Information for this report was gathered from site visits to the subject property and from interviews with people familiar with the shore and offshore waters of Wailupe Peninsula. The most recent site visits and interviews were conducted in June 2003.

In addition, the consultant who authored this report has personal and professional knowledge of this area. He first surfed off Wailupe Peninsula in 1960 and has surfed there regularly approximately twice a month for the past 15 years. During the past 43 years, he has observed all the ocean activities, including fishing and gathering practices, which occur in the subject area. He also knows several members of the group of long-time fishers and gathers that frequent Wailupe Beach Park and has spoken to them on many occasions regarding their fishing and gathering activities.

In addition, as the author of the beaches of Hawaii series published by the University of Hawaii Press, a series of books that inventory all of the beaches on the eight major Hawaiian Islands, he has interviewed many individuals, including long-time residents of Wailupe Peninsula, Aina Haina, and other areas of East Honolulu and other informants who are long-time users of the subject area.

The information in this cultural impact assessment is a summary of the information provided by all of the informants identified above.

## 2.0 PHYSICAL CONDITIONS

### 2.1 Historic Site Description.

Wailupe Peninsula was one of three historic fishponds that were built on the shore of Maunalua Bay. The others were located at Niu, now Niu Peninsula, and at Hawaii Kai, now Hawaii Kai Marina. The historic Wailupe fishpond was described by J. Gilbert McAllister in *Archaeology of Oahu* (Bernice P. Bishop Museum Bulletin 104, Bishop Museum Press, Honolulu, 1933) as follows:

Site 56. Wailupe fishpond, adjacent to the land of the same name.

The pond is 41 acres in area. The wall is approximately 2500 feet long. The west side is a broad sandy area, at least 50 feet wide, through which the four outlets (makaha) now pass. The remainder of the wall is 12 feet wide, with waterworn basalt faced higher on the outside than within. The central part is of dirt and sand fill.

In 1947, Robert Hind, Ltd., began developing Wailupe Valley as the residential community of Aina Haina. In 1948, in conjunction with the development of the valley, the Hawaiian Dredging Company, the owner of the historic fishpond, converted it into a

residential subdivision known today as Wailupe Peninsula. The reclamation project included pumping more than one-half million cubic yards of coral into the pond at a cost of \$750,000. The coral fill came from dredging operations to create the perimeter boat channel that surrounds the peninsula and that also cuts through the reef to the open ocean.

## 2.2 Present Site Description

When Hawaiian Dredging filled in the historic Wailupe fishpond and created the Wailupe Peninsula subdivision, many of the perimeter lots were approximately five feet or more above mean sea level (MSL). This is the situation for the subject property. In addition, when Hawaiian Dredging dredged the perimeter boat channel surrounding the peninsula, they left a narrow margin of shallow reef between the perimeter seawall and the boat channel. The reef margin varies in width from approximately 10 to 20 feet around the entire peninsula, except one section on the west side where it was dredged completely to accommodate a private launch ramp for peninsula residents.

In order to access the deep waters of the perimeter boat channel from the seawall, property owners along the seawall have built short piers that span the shallow reef margin to the edge of the perimeter boat channel. The subject property does not have a pier.

## 3.0 OCEAN ACTIVITIES

The shore of Wailupe Peninsula, including the shore of the subject property, is a narrow margin of shallow reef approximately 10 to 20 feet wide between the peninsula's seawall and its perimeter boat channel. No public access is permitted to the reef margin through the peninsula's private boat ramp or its two private beach rights-of-way. The public gains access to the reef margin primarily from two sites, Wailupe Beach Park (TMK 3-5-022:023) on the west side of the peninsula and the public right-of-way from Kalaniana'ole Highway on the east side (TMK 3-7-001:020). The Kalaniana'ole right-of-way is a portion of a 10-foot wide storm drain easement. The public may also access the reef margin from the ocean.

Use of the reef margin by Wailupe Peninsula residents and non-residents is minimal. The reef margin is not regarded as a productive area for fishing or gathering activities. It is also not emergent, even during the lowest low tides of the year, and is awash during high tides, often with small waves surging into the seawall during periods of moderate to high surf. These conditions discourage most fishers and gathers, so the few activities that occur on the reef margin usually occur during periods of low tides and low surf.

### 3.1 Specific Activities on the Reef Margin

The shallow reef margin that borders the perimeter seawall of Wailupe Peninsula is used primarily by pole fishers during periods of low tides and low surf. They access the site either from Wailupe Beach Park or from the Kalaniana'ole public right-of way. The only other activities that occur on the reef margin are landings and launchings, primarily by



kayakers and surfers. The kayakers and surfers are usually residents of Wailupe Peninsula or their guests who are accessing either the perimeter boat channel or the offshore surf sites. They land on the reef margin to reach the ladders that are built into most of the small piers.

Fishing. Pole fishing is the most prominent activity on the reef margin with several groups of fishers who use it to fish in the deep waters of the perimeter boat channel. One small group of mullet fishers, approximately six in total, fish on the west side of the peninsula between the boat ramp and the southwest point of the peninsula. They feed the fish in one particular spot in the boat channel and have conditioned the fish to frequent this spot. Mullet catches are sparse, the best catch to date in 2003 being five two-pound mullet in one day by one person. Pualu, a larger and more aggressive fish than mullet, are also attracted to the same spot by the feeding activities and are caught there, too.

The mullet fishers on the west side of the peninsula do not fish on the east side and are not aware of other mullet fishers who do. The ocean conditions on the east side of the peninsula are normally rougher with the prevailing trade winds, and they prefer to fish in the protected lee of peninsula. The west side of the peninsula is also close to the beach park, which offers park amenities such as paved parking, showers, and restrooms, which the public right-of-way on west side does not.

Thrownet fishing for mullet and other schooling species does not occur on the reef margin. Schooling fish that are usually the target of thrownet fishers normally do not frequent the reef margin and the boat channel is too deep for thrownet fishing. Thrownet fishers in the subject area prefer a natural channel through the reef to the west of Wailupe Beach Park where schools of fish such as mullet and weke are found. Most of the fish found on the reef margin are few in numbers and small in size, juveniles of their species.

In addition to the mullet pole fishers, other pole fishers use the reef margin for whipping into the boat channel, primarily for papio. These fishers are usually found between Wailupe Beach Park and the southwest point of the peninsula, but may occasionally be found anywhere on the reef margin. They, too, usually fish only during periods of low tides and low surf.

#### Gathering.

Traditional gathering activities on the shores of the subject area once included harvesting two popular edible species of seaweed, limu manaua and limu eleele. However, few seaweed grounds in the subject area today include these species, and they are not found on the reef margin. Seaweed harvesting activities in the subject area occur primarily on the reef flat to the west of Wailupe Beach Park.

The boulder seawall bordering the peninsula, including the seawall fronting the subject property, supports some populations of edible shellfish, specifically pipipi, and crabs, specifically aama. No gathering of these species, however, has been reported or observed

at the subject property or along the reef margin. The shellfish and crab populations are small in number and size. No opihi were observed or reported on the seawall.

### 3.2 Specific Activities Off the Reef Margin

#### Boating.

Boating, an occasional activity in the perimeter boat channel, is usually limited to residents of Wailupe Peninsula. The channel through the reef and the perimeter boat channel are unmarked and unlighted and normally not used by non-resident boaters. The small piers on the reef margin are usually not used to secure motorized boats. Residents who own motorized boats bring them into the boat channel and anchor them off their homes. In general, this activity takes place off the homes in the lee of the peninsula or on its south side, and infrequently on its windward side.

Although the residents of Wailupe Peninsula have access to a private boat ramp on the west side of the peninsula, use of the ramp is infrequent. The ramp is narrow and steep and can only accommodate small boats on small trailers.

Non-motorized boats such as surf skis (racing kayaks) and ocean kayaks (recreational kayaks) are launched and landed from residents' piers or from the private rights-of-way, including the boat ramp, and kayakers use the reef margin in this process.

#### Surfing.

Surfers probably comprise the largest group of ocean users around in the subject area. The popular surf sites off the peninsula from east to west include Lefts, Suicides, Bones, and Wailupe. All of these sites break on the shallow reefs on the seaward side of the perimeter boat channel. Resident surfers use the reef margin to access the surf sites and return to shore, but the majority of the surfers are non-residents and use the perimeter boat channel to access the surf sites, entering the channel from Wailupe Beach Park and the Kalaniana'ole public right-of-way.

#### Swimming.

Some ocean swimming occurs in the perimeter boat channel, usually by residents who swim in front of their homes. They use the reef margin to enter and exit the water or to access the ladders on their piers, if they have piers.

#### Spear Fishing.

Spear fishing usually does not occur on the reef margin or in the perimeter boat channel. Spear fishers usually walk across the reef flat fronting Wailupe Beach Park and dive outside the reef and the surf sites. Spear fishing for octopus, or "squidding", also usually does not occur on the reef margin. Octopus fishers prefer the wide, shallow reef flat to the west of Wailupe Beach Park.

#### Public Safety.

The small piers on the reef margin occasionally provide a public safety function. The surf sites off the peninsula all break on shallow reefs, and occasionally surfers are injured,

sometimes seriously. In the event of serious injuries or reported drownings, surfers may use the piers as emergency exits from the ocean to extricate victims and call for emergency assistance. The piers are much closer to the surf sites than the usual points of exit, Wailupe Beach Park and the Kalaniana'ole public right-of way.

## 5.0 IMPACTS ON OCEAN ACTIVITIES

The impact on ocean activities, including fishing and gathering practices, by the construction of a new pier at the subject property will be insignificant.

The historic Wailupe fishpond was destroyed by the construction of the Wailupe Peninsula subdivision. All fishpond operations and associated activities ended when the fishpond Hawaiian Dredging filled in the fishpond.

The narrow reef margin between the base of the Wailupe Peninsula seawall and the perimeter boat channel is used primarily by pole fishers. The construction of one additional pier on the reef margin will not interfere with their access to the reef margin or their activities on it. Their fishing activities are concentrated in the perimeter boat channel and not on the reef margin.

Opportunities for gathering activities such as for shellfish and seaweed are minimal to non-existent on the reef margin and on the perimeter seawall. Neither the reef margin nor the seawall is regarded as a productive gathering site by long-timer users of the area, and no gathering activities were observed or reported.

Other uses of the reef margin are primarily transitory with swimmers, surfers, and kayakers crossing it to enter and exit the perimeter boat channel. One additional pier on the reef margin will not interfere with their access to the reef margin or their activities on it.

In summary, the proposed action, the construction of a new pier at 292 Wailupe Circle, will not have an impact on cultural resources or practices, including nearshore gathering and fishing, in the subject area. In addition, the construction of a new pier will not contribute to a cumulative impact of pier building in the waters offshore of the former Wailupe fishpond on nearshore gathering and fishing.



# Appendix F



ASSESSMENT OF THE MARINE ENVIRONMENT

IN THE VICINITY OF THE

ELDRIDGE RESIDENCE

WAILUPE PENINSULA, OAHU, HAWAII

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## I. INTRODUCTION AND PURPOSE

Planning is underway to construct a small pier to allow swimmers safe access from the residence of Kenton Eldridge at 298 Wailupe Circle to a dredged channel just offshore. The residence is located on the eastern side of Wailupe Peninsula, which is semi-circular extension of the natural shoreline constructed by infilling on the reef flat with dredged fossil reef that was excavated from the reef flat that forms the nearshore marine margin along much of the southeast shoreline of Oahu (Figure 1). The entire circumference of the peninsula is bounded by a narrow strip of reef flat that terminates in a dredged vertical wall which marks the boundary of the dredged channel. In addition to the semi-circular channel that borders the peninsula, another dredged access channel extends through the reef flat to the open ocean (Figure 1).

At present, there are twenty-one private piers for residential use on Wailupe Peninsula. The proposed pier fronting the Eldridge residence is similar in design and structure as many of the existing piers. The proposed design for the pier consists of a 7'x7'x2' concrete pad set into the reef surface. A concrete ring 24 inches in diameter set on top of the pad will provide vertical support for the pier. The upper surface of the pier will consist of a marine lumber platform that connects with a walkway to the boardwalk which fronts the property.

While there are no expected negative effects from the project to the ocean, there is always the potential for unexpected factors that may result in changes to marine water quality. In order to fully address the potential for any changes, part of the planning process for the Eldridge pier included a field investigation in June 2006 to evaluate existing marine water quality and biotic community composition at the project site. This baseline data can serve to provide information for any required permits that might be required for the project.

## II. ANALYTICAL METHODS

### A. Water Chemistry

Water chemistry was evaluated at six stations spaced along the shoreline fronting the Eldridge residence. Three stations (1-3) were located on the narrow reef flat between the shoreline wall and the channel edge; three stations (4-6) were located in the dredged basin directly seaward of the reef flat stations (Figure 2). All fieldwork was conducted on June 5, 2006 with sampling personnel working from the shoreline. Water samples were collected by swimmers opening triple-rinsed 1-liter polyethylene bottles at the desired location

At each sampling station, water samples were collected at two depths; a surface sample was collected within approximately 20 cm (8 inches) of the surface, and a bottom sample was collected within 10 cm of the sea floor.

Water quality parameters evaluated included the specific criteria designated for open coastal waters and embayments in Chapter 11-54, Section 06 (Open Coastal waters) of the State of Hawaii, Department of Health (DOH) Water Quality Standards. These criteria include: total nitrogen (TN), nitrate + nitrite nitrogen ( $\text{NO}_3^- + \text{NO}_2^-$ ) (hereafter referred to as  $\text{NO}_3^-$ ), ammonium ( $\text{NH}_4^+$ ), total phosphorus (TP), chlorophyll a (Chl a), turbidity,



temperature, dissolved oxygen, pH and salinity. In addition, orthophosphate phosphorus ( $\text{PO}_4^{3-}$ ) and silica (Si) were also reported because these parameters are sensitive indicators of biological activity and the degree of groundwater mixing.

Following field collection, subsamples for nutrient analyses were immediately placed in 125-milliliter (ml) acid-washed, triple rinsed, polyethylene bottles and stored on ice until returned to Honolulu. Analyses for  $\text{NH}_4^+$ ,  $\text{PO}_4^{3-}$ , and  $\text{NO}_3^- + \text{NO}_2^-$  were performed using a Technicon Autoanalyzer according to standard methods for seawater analysis (Strickland and Parsons 1968, Grasshoff 1983). TN and TP were analyzed in a similar fashion on unfiltered samples following oxidative digestion. Detection limits for nutrients are  $0.01 \mu\text{M}$  ( $0.14 \mu\text{g/L}$ ) for  $\text{NO}_3^-$  and  $\text{NH}_4^+$ ,  $0.01 \mu\text{M}$  ( $0.31 \mu\text{g/L}$ ) for  $\text{PO}_4^{3-}$ ,  $0.1 \mu\text{M}$  ( $1.4 \mu\text{g/L}$ ) for TN and  $0.1 \mu\text{M}$  ( $3.1 \mu\text{g/L}$ ) for TP.

Water for other analyses was subsampled from 1-liter polyethylene bottles and kept chilled until analysis. Chl *a* was measured by filtering 300 ml of water through glass fiber filters; pigments on filters were extracted in 90% acetone in the dark at  $-20^\circ \text{C}$  for 12-24 hours, and the fluorescence before and after acidification of the extract was measured with a Turner Designs fluorometer. Salinity was determined using an AGE Model 2100 laboratory salinometer with a precision of  $0.0003\text{‰}$ . In-situ field measurements of pH, temperature, dissolved oxygen and turbidity were acquired with an RBR Model 450 CTD calibrated to factory specifications. The CTD provided in-situ data with readability of 0.01 pH units,  $0.01^\circ \text{C}$ , 0.01% dissolved oxygen saturation. Turbidity was measured on a HACH Model 2100P calibrated with factory standards, with a readability of 0.01 nephelometric turbidity units (ntu).

All laboratory water chemistry analyses were conducted by Marine Analytical Specialists (Honolulu, HI). Marine Analytical Specialists possesses acceptable ratings from EPA-compliant proficiency and quality control testing.

## **2. Marine Biotic Community Structure**

Because the area of potential effect from the proposed pier is relatively small, the entire area was recorded photographically. A diver equipped with a camera fitted with a wide angle lens photographed the reef surface from the shoreline to the edge of the channel cut along three overlapping transects that encompassed the area where the pier footing is planned to be placed (Figure 3). In addition, divers conducted reconnaissance swims along the adjacent regions of reef flat and dredged channel to determine if the subject property contains any unique attributes that are not common throughout the region.

## **III. RESULTS**

### **a. Description of the Marine Environment**

The shoreline boundary of Wailupe Peninsula consists of vertical wall that retains the dredged fill material that forms the emergent land of the Peninsula (Figure 4). At the base of the wall a concrete footing forms a ledge that extends approximately one foot to the reef surface (Figure 4). Beginning at the base of the ledge, a narrow band of reef flat

borders the outer perimeter of the Peninsula, extending to the vertical face that forms the edge of the dredge channel (Figure 5). The surface of the reef consists of a solid fossil limestone platform interspersed with small patches of sand. Depth of the reef flat ranges from less than one foot at low tide near the seawall to approximately 5-6 at the edge of the channel cut. The floor of the dredged channel consists of fine-grained sandy mud pocked with numerous holes formed by burrowing organisms, and ranges in depth from approximately 12-20 feet (Figure 5).

## **b. Water Chemistry**

Table 1 shows results of water chemistry analyses for samples collected in June 2006 at the sampling stations shown in Figure 2. Values of salinity at the inshore sampling sites indicate a slight gradient of vertical stratification with all surface samples slightly lower than the corresponding bottom sample. In addition, there is also a slight horizontal gradient of increasing salinity with distance seaward in the surface samples. Station 1 had the lowest values (34.67‰) and Station 3 the highest (34.73‰). These slight gradients suggest that there is a freshwater source in the vicinity of the shoreline which is mixing with ocean water with distance from shore. Offshore stations 4-6 were essentially identical in terms of salinity indicating that the freshwater source is restricted to the nearshore area over the reef flat.

With the exception of Station 1, values of dissolved Si, which is usually found in high concentrations in groundwater and surface water relative to ocean water also display the same gradients as salinity with higher concentrations at the surface relative to deep samples. At Station 1, the concentration of Si was anomalously higher in the bottom sample than the surface sample. Concentrations of Si are elevated overall at Stations 1-3 relative to Stations 4-6. The general trend with the other dissolved nutrients ( $\text{PO}_4^{3-}$ ,  $\text{NO}_3^-$ ,  $\text{NH}_4^+$ , and Total N and P) also reveals slightly elevated concentrations at the nearshore stations (1-3) relative to the offshore stations (4-6). Turbidity also displays the same trend with slightly higher values at the nearshore site, while the other measured constituents (pH, Chl a, temperature and dissolved oxygen) are essentially uniform throughout the sampling regime.

Figure 7 shows vertical profiles of salinity, temperature, and dissolved oxygen at the six sampling stations. As with the discrete samples, the vertical profiles also reveal a slight gradient of lower salinity water in the upper meter of the water column at the inner stations located at the outer edge of the reef flat. Temperature at most stations is slightly warmer in the upper meter of the water column, likely as a result of solar heating of the relatively calm water during the course of the day. Dissolved oxygen decreases from the surface through the water column at all stations (Figure 7).

Overall, patterns of water chemistry off of Wailupe Peninsula exhibit slight gradients indicating a small freshwater input near the shoreline mixing with ocean water. These patterns indicate that at the present time, there is very little influence to the nearshore ocean from inputs from land originating from either natural or anthropogenic activities.

Also shown in Table 1 are State of Hawaii Department of Health (DOH) water quality standards for open coastal waters under both "dry" conditions. The criteria separating dry from wet conditions is input of less (dry) or more (wet) than 3 million gallons per day of freshwater discharge per shoreline mile. While determination of such a flux is difficult at best, the Wailupe area is relatively dry, prompting the use of the dry standards. DOH standards include specific criteria for three situations; criteria that are not to be exceeded during either 10% or 2% of the time, and criteria that are not to be exceeded by the geometric mean of samples. With only one sample set collected from each sampling station, comparison of the 10% or 2% of the time for any sample is not statistically meaningful. However, comparing sample concentrations to these criteria provide an indication of whether water quality is near the stated specific criteria.

During the June 2006 survey, two criteria ( $\text{NO}_3^-$ ,  $\text{NH}_4^+$ ) were exceeded for a single sample, while turbidity was exceeded in two samples. The overall results of the sampling program off the Eldridge Residence at Wailupe Peninsula indicate that at present, marine waters generally comply with the most stringent State of Hawaii Water Quality Standards.

### c. Marine Biota

Figures 8-11 document the biotic composition of the corridor along the reef flat where the footing for the proposed pier will be placed. The biotic community of the area consists of a near complete coverage of a variety of fleshy and calcareous marine algae. Predominant general occupying the reef flat include the green alga *Codium* spp., *Neomeris annulata*, and *Halimeda* spp. Brown alga included *Turbinaria ornata*, *Dictyota* spp. and *Dictyopteris* spp. Red algae included *Galaxaura* spp. *Acanthophora specifera*, and *Gracillaria* spp. The red encrusting calcareous alga *Porolithon* spp. was also very abundant.

In contrast to algae, reef building stony corals were very rare on the reef flat. Reconnaissance swims along the length of the reef flat revealed several small colonies (5-10 cm) of the branching corals *Pocillopora damicornis* and *Pocillopora meandrina*. A single colony of *Pocillopora* occurred on the photo-transects (last photo on Transect 2) (Figure 10). However, this colony occurred on the edge of the channel wall and would not be affected by placement of the pier footing.

Other benthic macroinvertebrates were also rare on the reef platform, and were limited to several boring sea urchins of the species *Echinometra matheai* and *Echinostrephus aciculatus*. Reef fish were also rare on the reef flat, and were restricted to several small individuals of wrasses (Labridae) and damselfish (Pomacentridae).

## IV. CONCLUSIONS

Results of the marine assessment in the vicinity of the proposed small pier fronting the Eldridge residence on Wailupe Peninsula indicate that construction of the pier should not have any significant or long-term negative consequences. The area of proposed construction is a narrow strip of reef flat that remains from the dredging and filling that occurred to create Wailupe Peninsula. There are no indications that the proposed work

would affect water chemistry in the area. Biotic composition of the entire area that will contain the footprint of the pier consists of an algae covered limestone platform. Reef corals are essentially absent from the area, likely as a result of the very shallow depths which result in elevated temperatures, and possible exposure to the atmosphere. In addition, a large percentage of ocean-front residences of Wailupe Circle presently include piers of similar design as the proposed pier. Inspection of these existing structures indicates that they are having no negative effect to biotic community structure. As a result, there is no reason to expect that the proposed pier structure off the Eldridge residence would cause an negative impacts to the marine environment.

V. REFERENCES CITED

Grasshoff, K. 1983. *Methods of seawater analysis*. Verlag Chemie, Weinheim, 419 pp.

Strickland J. D. H. and T. R. Parsons. 1968. *A practical handbook of sea-water analysis*. Fisheries Research Bd. of Canada, Bull. 167. 311p.



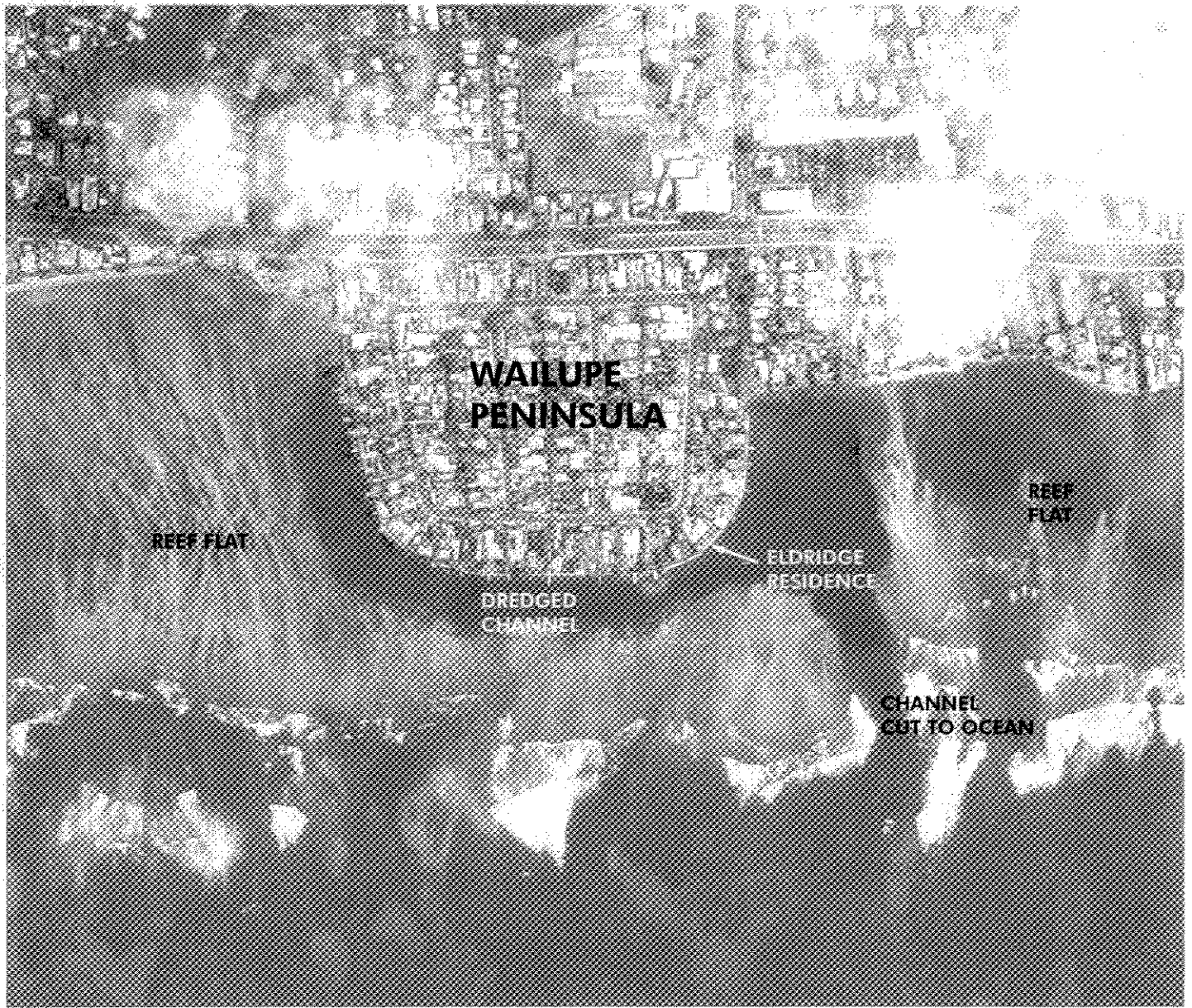


FIGURE 1. Aerial view of Wailupe Circle showing location of Eldridge residence and location of proposed pier (near tip of arrow). Also shown is the dredged channel on the wide reef flat and the channel opening to the ocean.

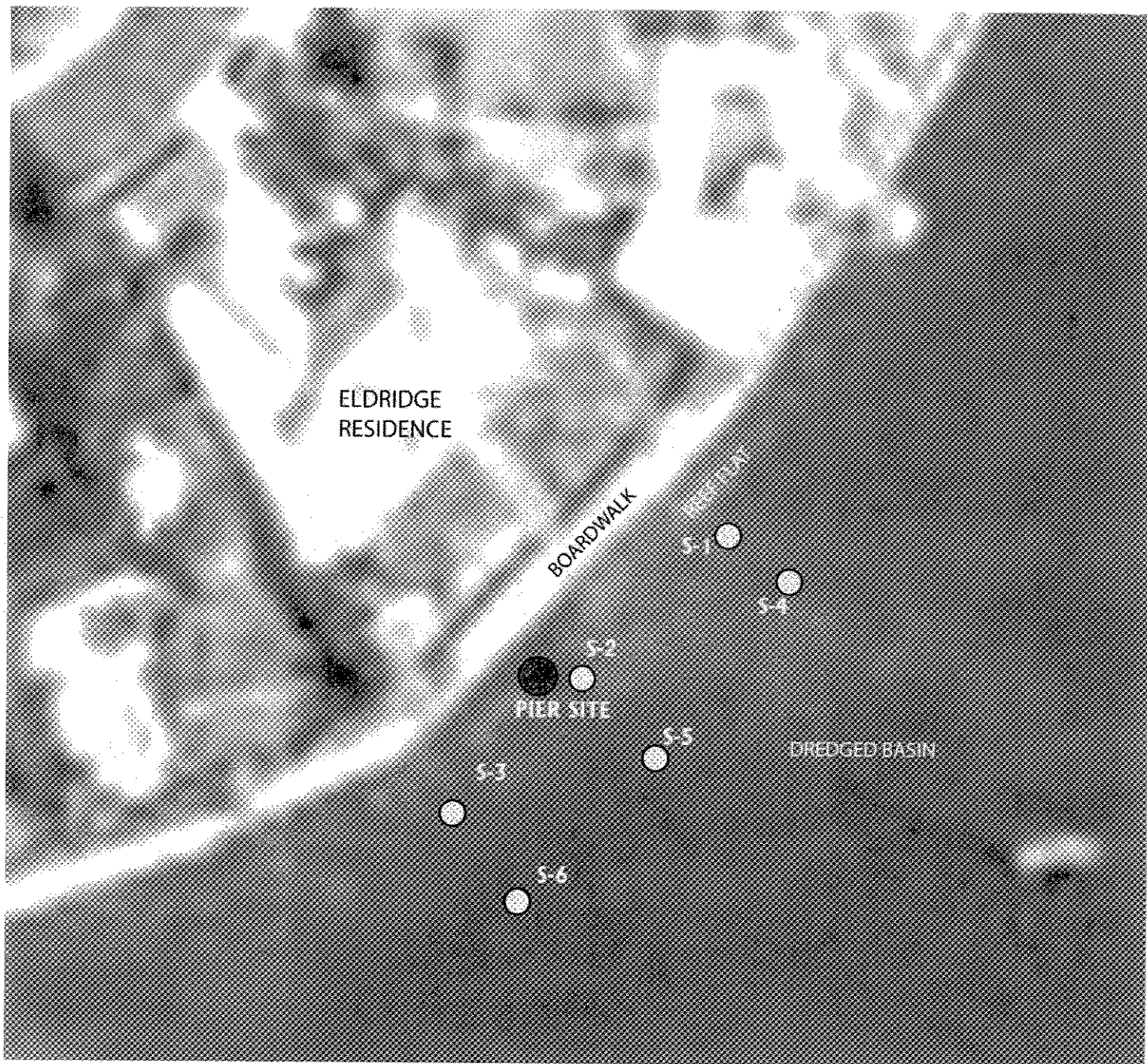


FIGURE 2. Aerial photograph showing location of proposed pier on reef flat shelf off of existing boardwalk fronting the Eldridge Residence, Waiupe Peninsula, Oahu, Hawaii. Also shown are locations of six water sampling stations where surface and near-bottom samples, as well as vertical profiles of temperature, salinity, and dissolved oxygen were collected on June 5, 2006.



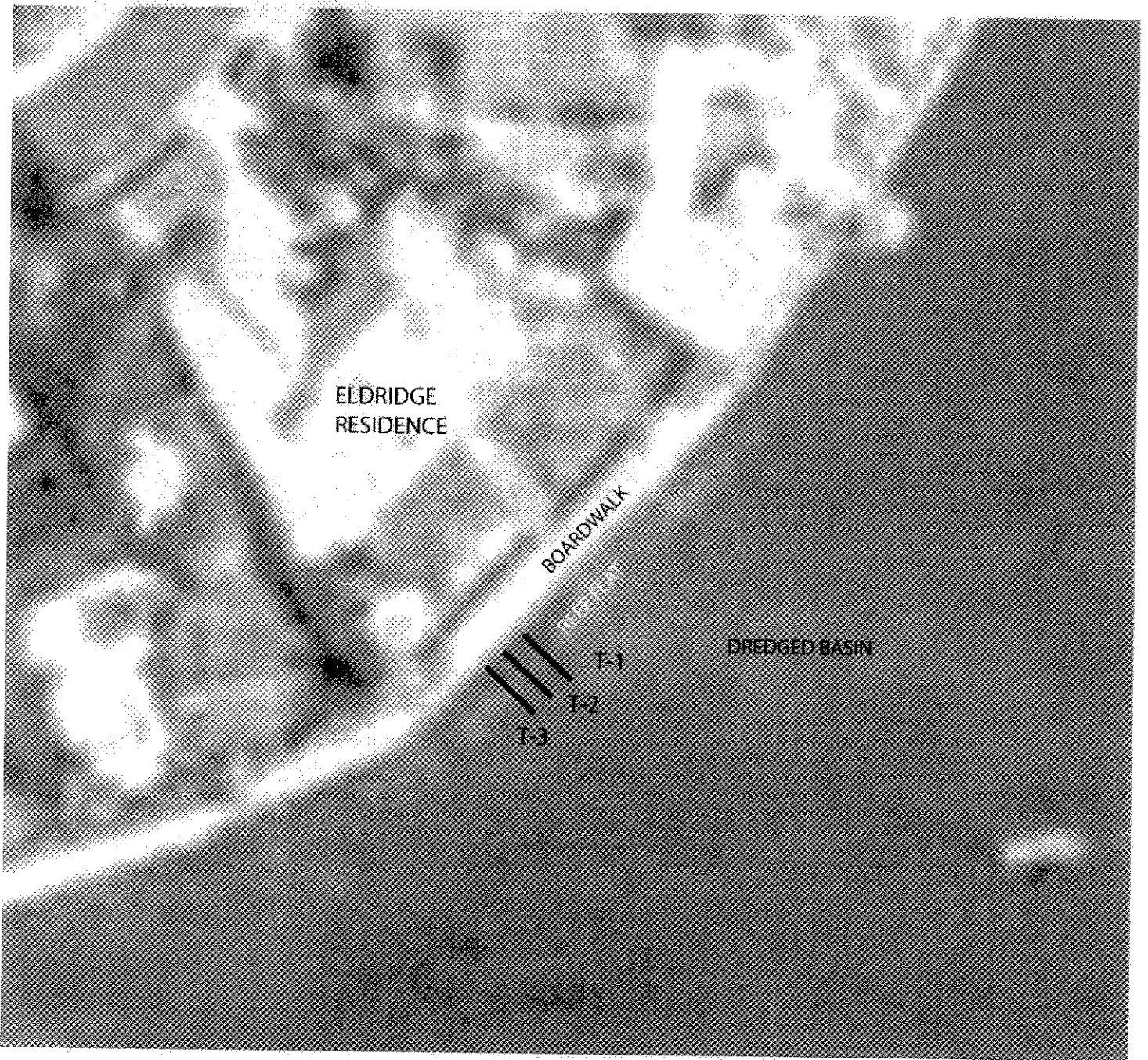


FIGURE 3. Aerial photograph showing location of proposed pier on reef flat shelf off of existing boardwalk fronting the Eldridge Residence, Waiupe Peninsula, Oahu, Hawaii. Also shown are locations of three photographic transects that extended from the seawall to the dredged vertical face of the reef flat. The three transects covered the entire area where the pier footings will be located.

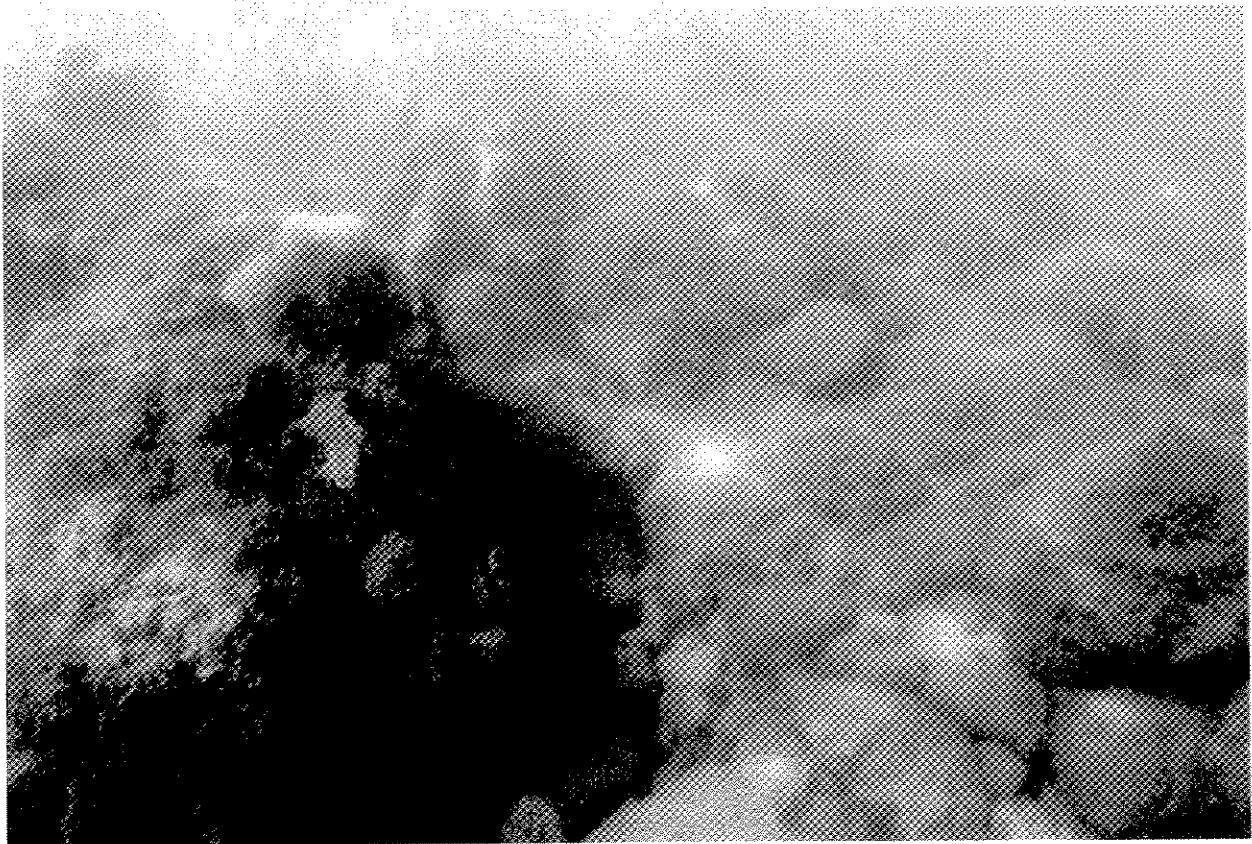
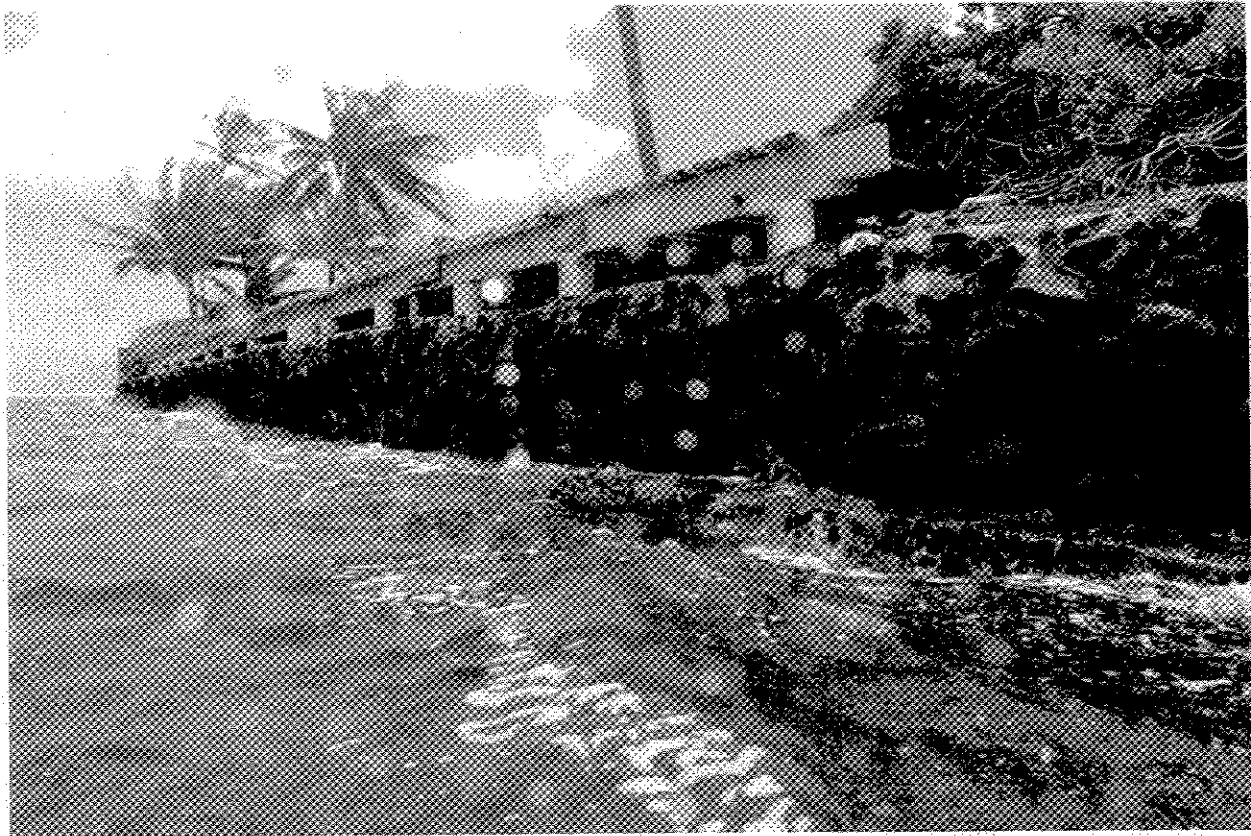


FIGURE 4. Shoreline wall and ledge fronting Eldridge Residence on Wailupe Peninsula looking south (top). Proposed location of near distal end of wooden boardwalk on left side of photo. Bottom photo shows rock-rubble bottom at base of shoreline wall. Water depth is approximately 1 foot.

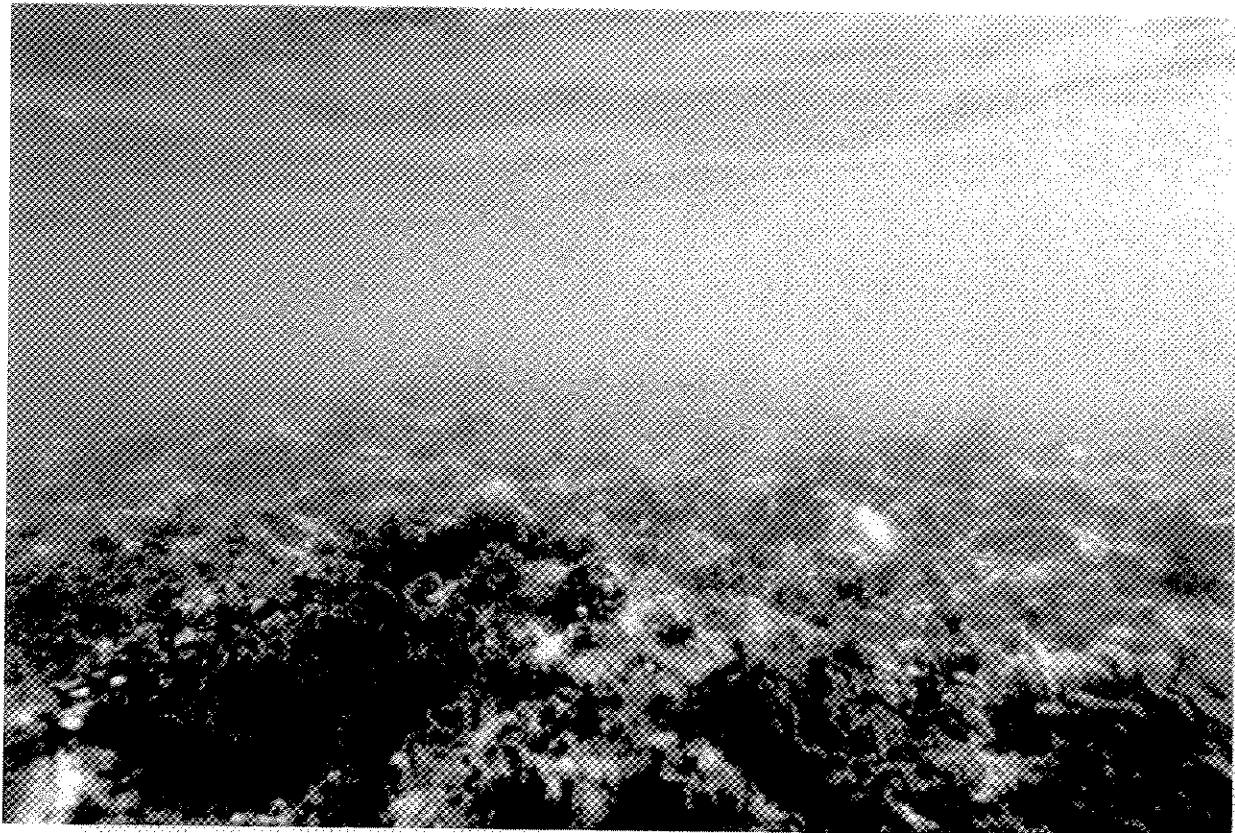


FIGURE 5. Top photo shows view of reef platform offshore of Eldridge Residence in approximate location of proposed pier footing. Bottom photograph shows vertical edge of channel cut which extends to channel floor. Water depth in top photo is approximately 3 feet; water depth in bottom photo is approximately 6 feet.

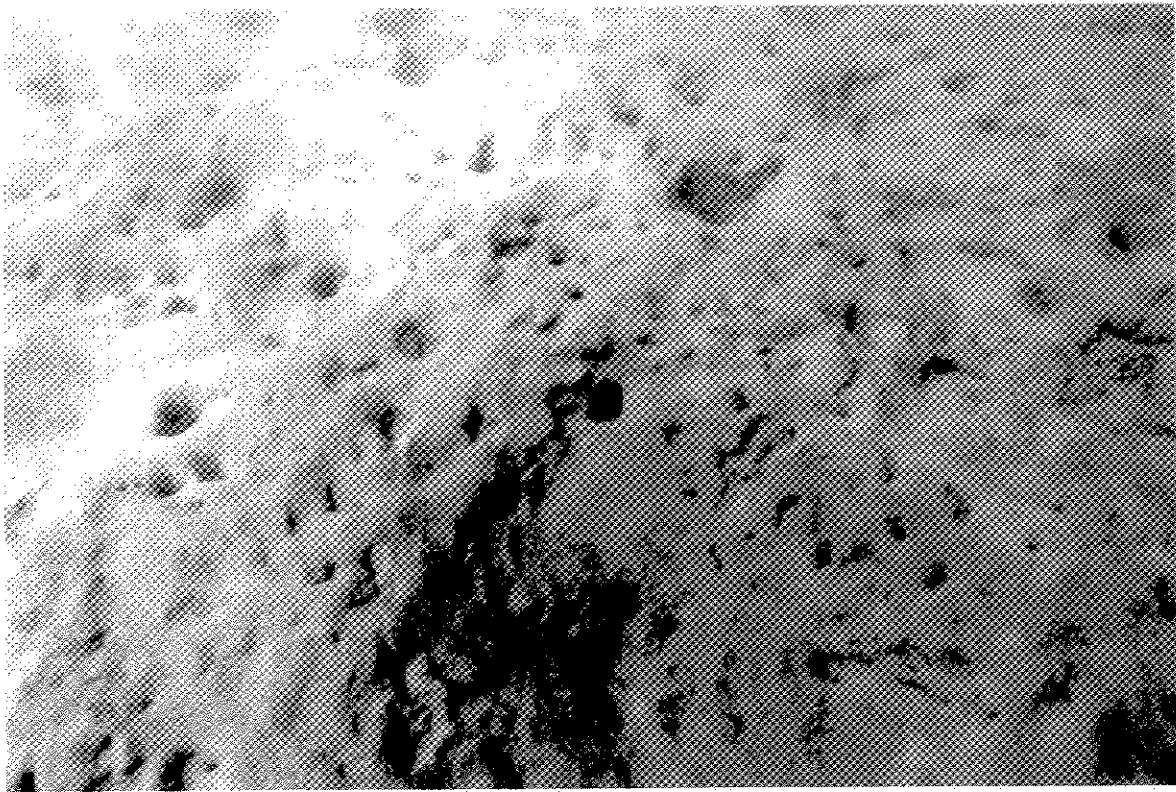
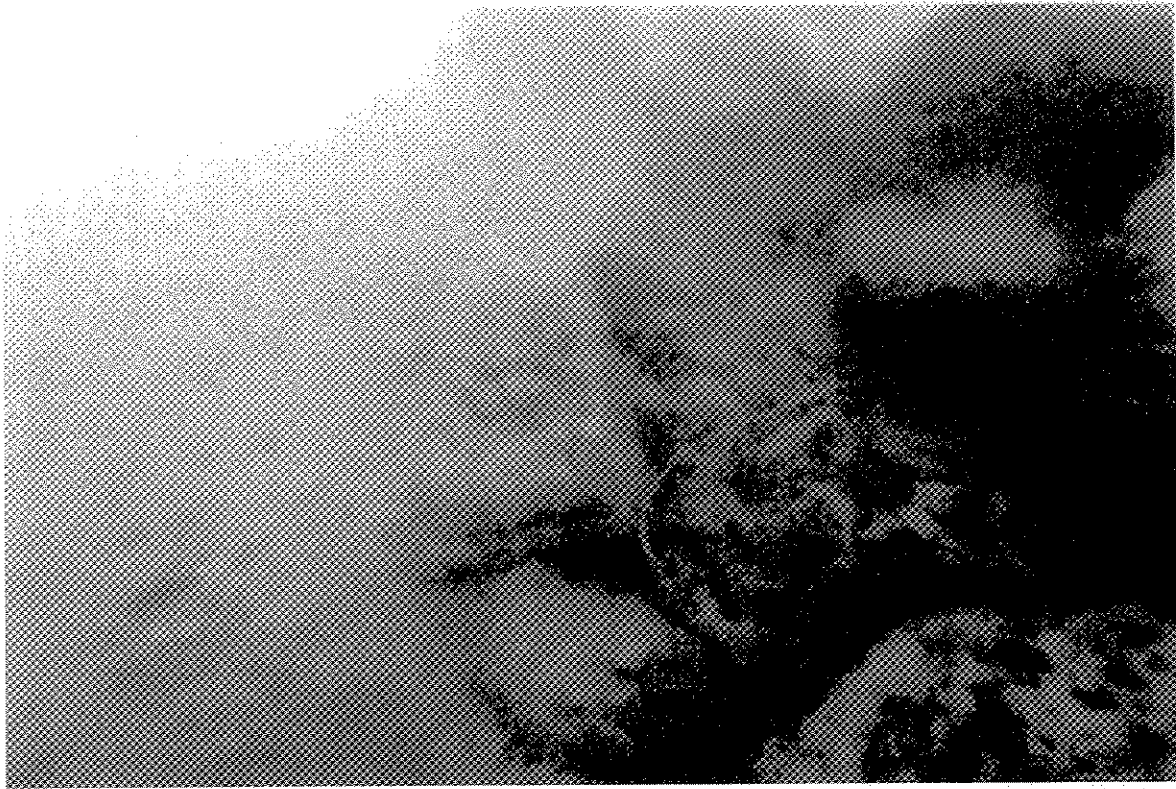


FIGURE 6. Top photo shows intersection of vertical edge of reef wall and sandy-mud bottom of channel. Bottom photo shows numerous burrows in sandy-mud covering the floor of the dredged channel. Water depth in both photos is approximately 12 feet.

TABLE 1. Results of water chemistry analyses from ocean sampling stations in the vicinity of the proposed pier fronting the Eldridge Residence on Waialupe Peninsula, Oahu, Hawaii. Samples were collected on June 5, 2006. See Figure 1 for locations of sampling stations. Also shown are DOH WQS for "open coastal waters" under "dry" conditions, "not to exceed more than 10% and 2% of the time" criteria. Shaded values indicate samples that exceed the 2% standard.

STATION	DEPTH (meters)	PO <sub>4</sub> <sup>3-</sup>	NO <sub>3</sub> <sup>-</sup> +NO <sub>2</sub> <sup>-</sup>	NH <sub>4</sub> <sup>+</sup>	Si	TP	TN	TURB	SALT	pH	Chl-a	TEMP	Diss. O <sub>2</sub>	Diss. O <sub>2</sub>
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(ntu)	(o/oo)	(std. units)	(µg/L)	deg. C	% sat.	mg/L
1-S	0.1	1.86	11.34	6.02	84.58	12.40	208.88	0.78	34.671	8.11	0.24	24.60	86.3	5.98
1-D	2.3	3.72	10.36	9.38	111.84	13.95	233.24	1.39	34.782	8.08	0.58	24.63	81.3	5.63
2-S	0.1	1.86	12.04	2.10	87.67	11.47	223.86	0.75	34.737	8.10	0.27	24.66	86.3	5.97
2-D	3.3	1.24	12.60	2.10	60.13	10.54	207.62	0.53	34.823	8.07	0.21	24.58	80.9	5.60
3-S	0.1	1.55	16.94	2.52	80.93	11.16	218.40	3.50	34.773	8.10	0.18	24.71	89.9	6.22
3-D	3.1	1.55	17.08	1.68	56.76	11.16	210.84	0.55	34.865	8.06	0.44	24.58	82.2	5.70
4-S	0.1	0.93	19.46	0.98	52.83	10.54	200.90	0.29	34.858	8.07	0.20	24.60	92.2	6.39
4-D	5.4	1.24	13.72	2.66	54.23	10.54	204.68	0.32	34.849	8.07	0.27	24.59	82.2	5.69
5-S	0.1	1.24	1.96	1.68	47.77	10.23	196.84	0.34	34.858	8.07	0.21	24.59	96.2	6.67
5-D	7.2	1.24	9.52	0.42	48.89	10.23	203.56	0.45	34.860	8.07	0.25	24.60	82.5	5.71
6-S	0.1	0.62	15.40	0.14	41.03	9.61	202.02	0.46	34.889	8.08	0.20	24.64	94.1	6.51
6-D	7.5	0.93	20.86	0.28	44.68	10.23	182.56	0.27	34.884	8.08	0.23	24.63	84.1	5.82
10%		-	10.00	5.00	-	30.00	180.00	0.50	*	**	0.50	***	****	
2%		-	20.00	9.00	-	45.00	250.00	1.00	*	**	1.00	***	****	

Notes:

\* = Salinity shall not vary more than 10% from natural or seasonal changes considering hydrologic input and oceanographic factors.

\*\* = pH shall not deviate more than 0.5 units from a value of 8.1.

\*\*\* = Temperature shall not vary more than one degree C. from ambient conditions.

\*\*\*\* = Dissolved Oxygen not less than 75% saturation

DOH = Department of Health

mg/L = milligrams per liter

ntu = nephelometric turbidity units

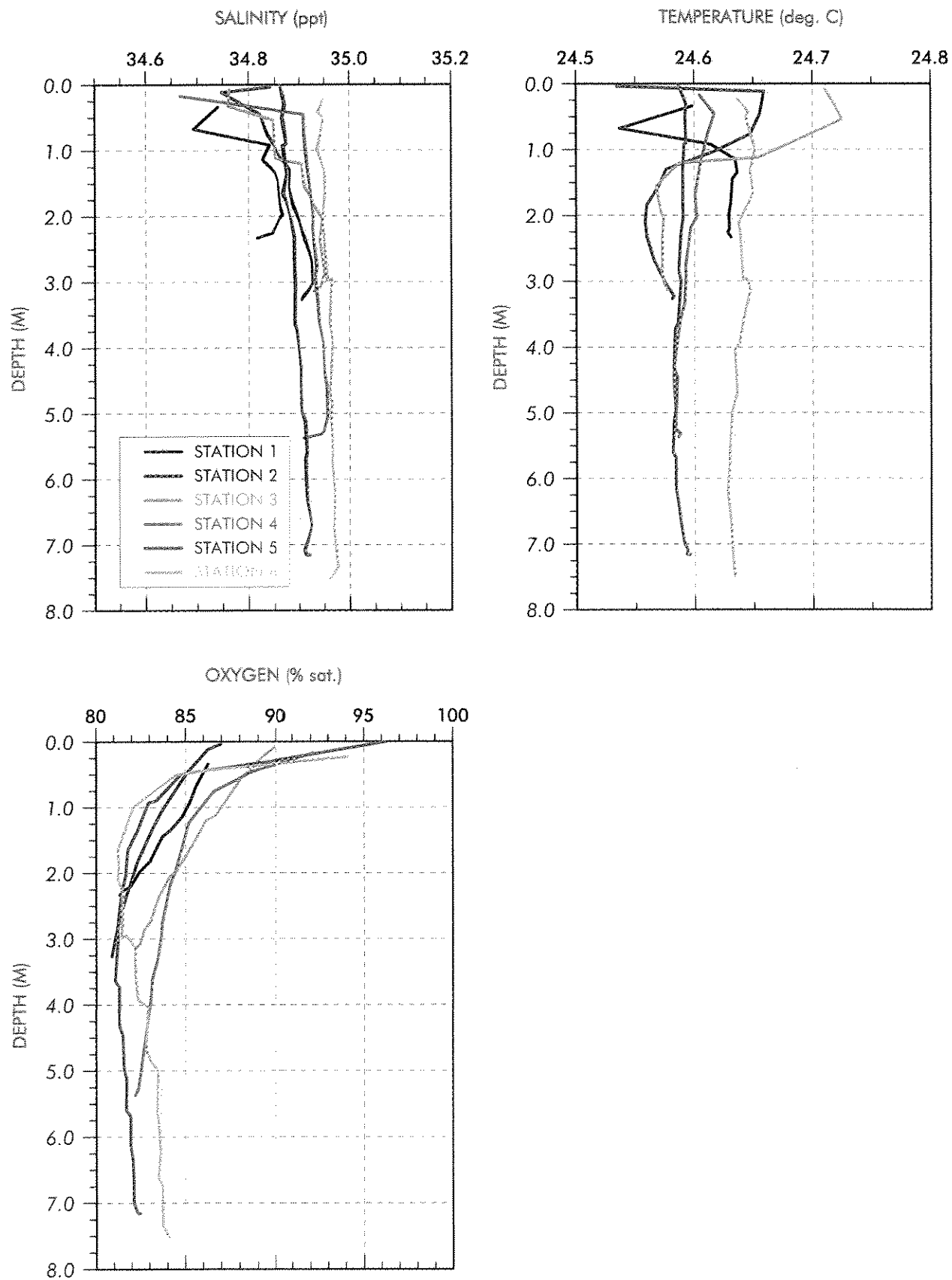


FIGURE 7. Vertical profiles of salinity, temperature and dissolved oxygen at six sampling stations in the vicinity of the proposed pier fronting the Eldridge Residence, Waiupe Peninsula, Oahu, Hawaii. For locations of stations, see Figure 1.

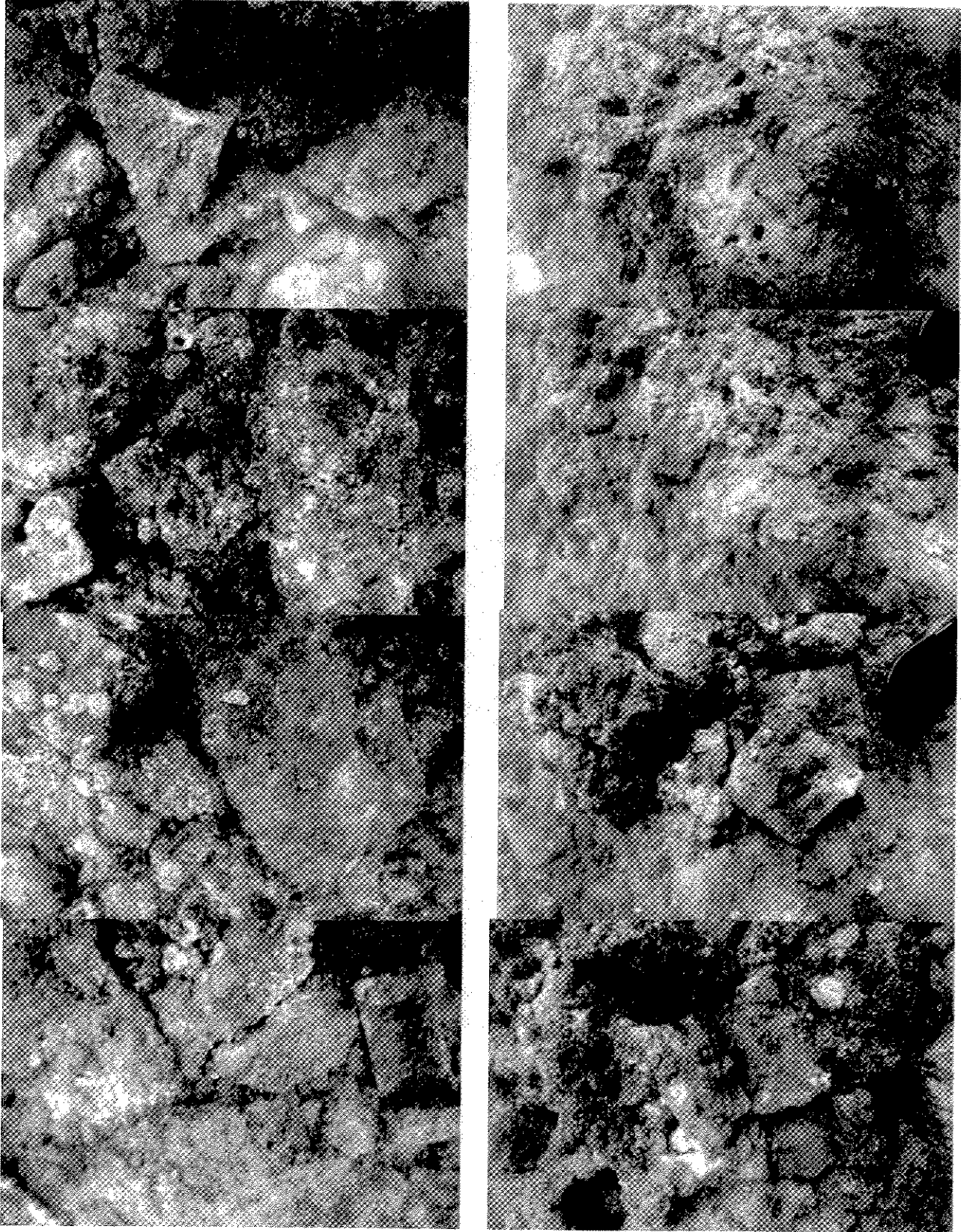


FIGURE 8. Photo-transect 1 on reef flat off Eldridge Residence on Wailupe Peninsula. Photo at upper left is taken adjacent to shoreline ledge, and each successive photo moves offshore by approximately 3 feet. For location of transect 1, see Figure 1.

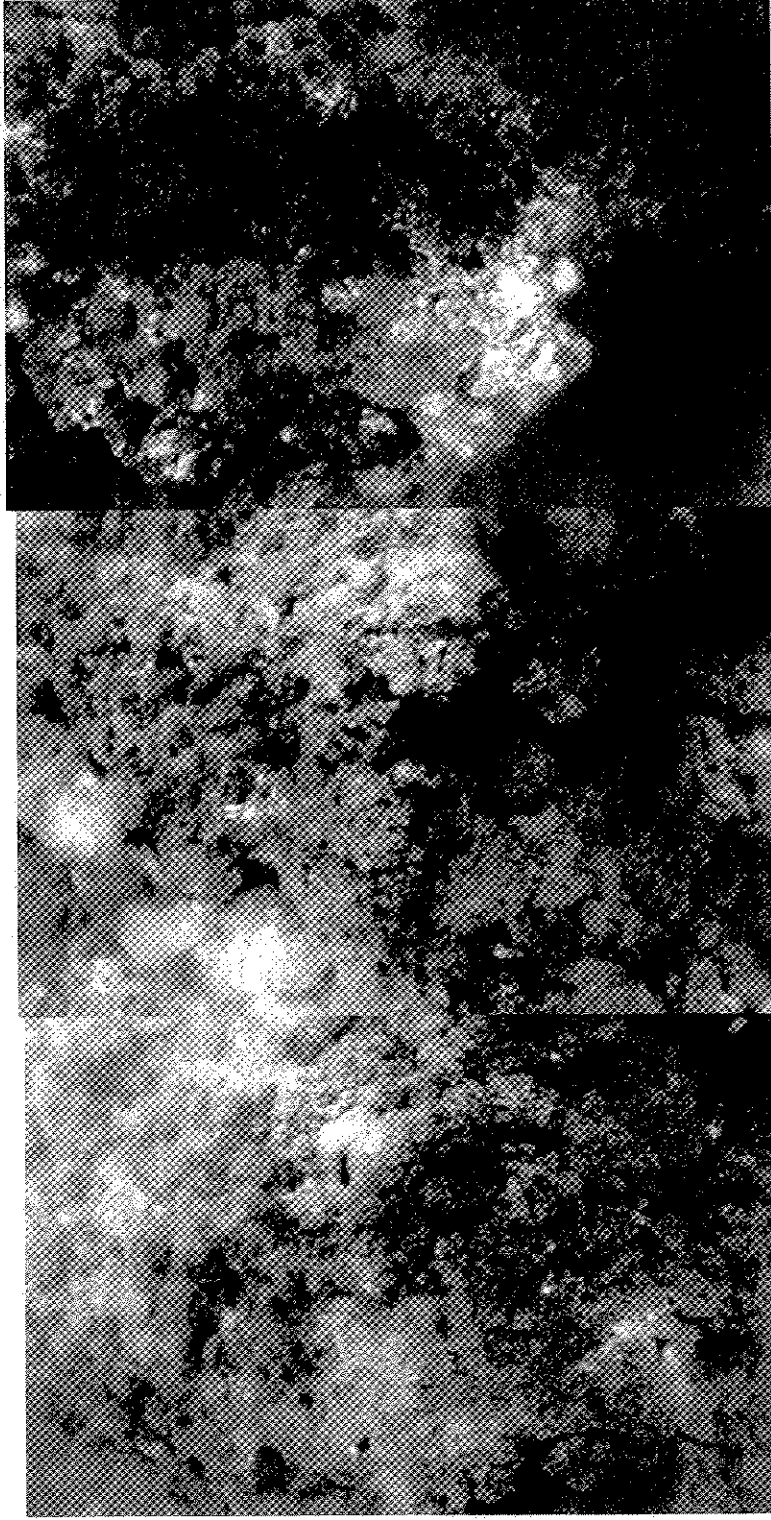


FIGURE 9. Terminal portion of Photo-transect 1 of reef flat off Eldridge Residence on Wailupe Peninsula. Photo at right shows vertical edge of channel water. For location of transect, see Figure 1.





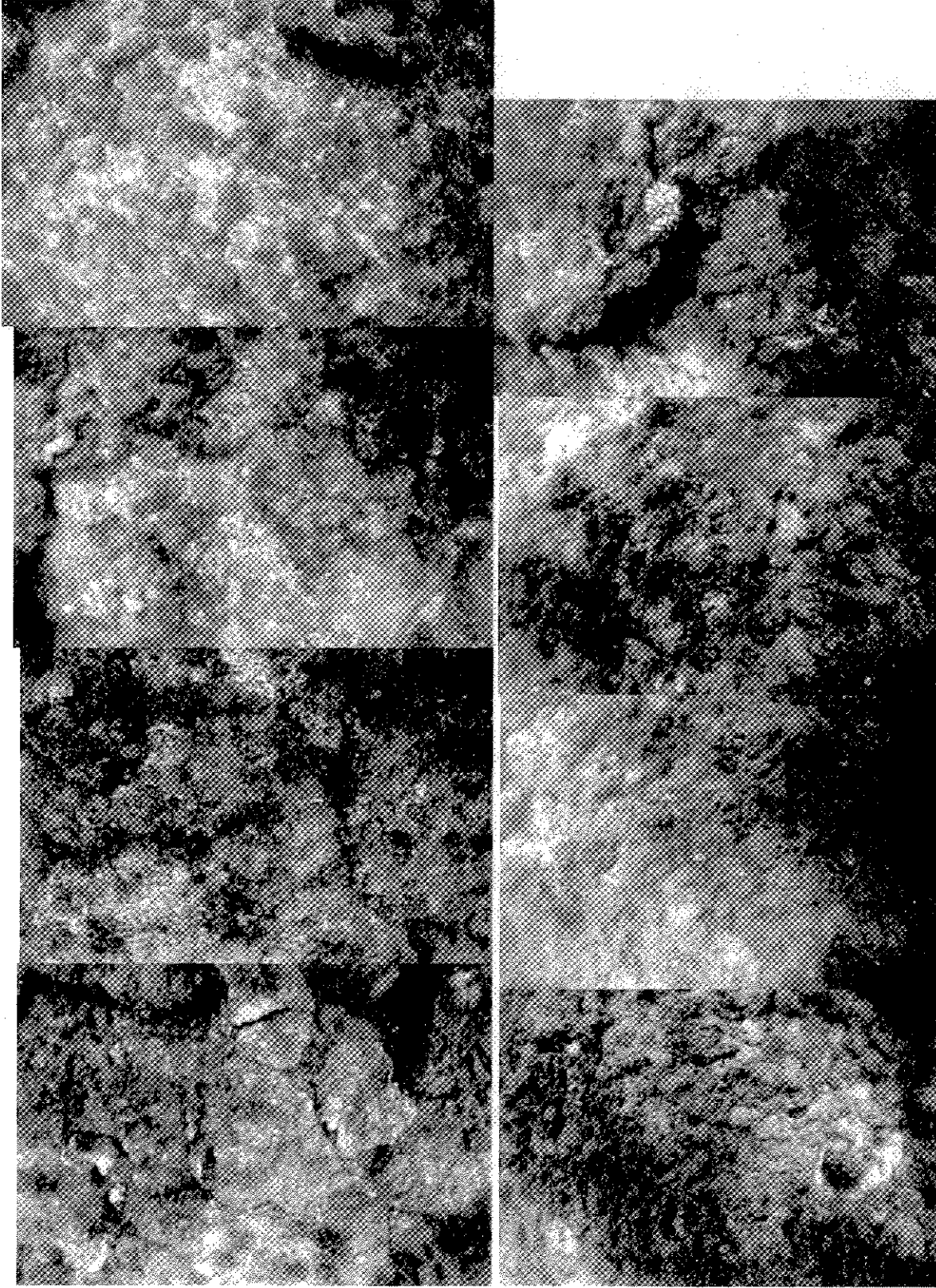


FIGURE 10. Photo-transect 2 on reef flat off Eldridge Residence on Wailupe Peninsula. Photo at upper left is taken adjacent to shoreline ledge, and each successive photo moves offshore by approximately 3 feet. Photo at lower right shows vertical face of dredge channel. For location of transect 2, see Figure 1.

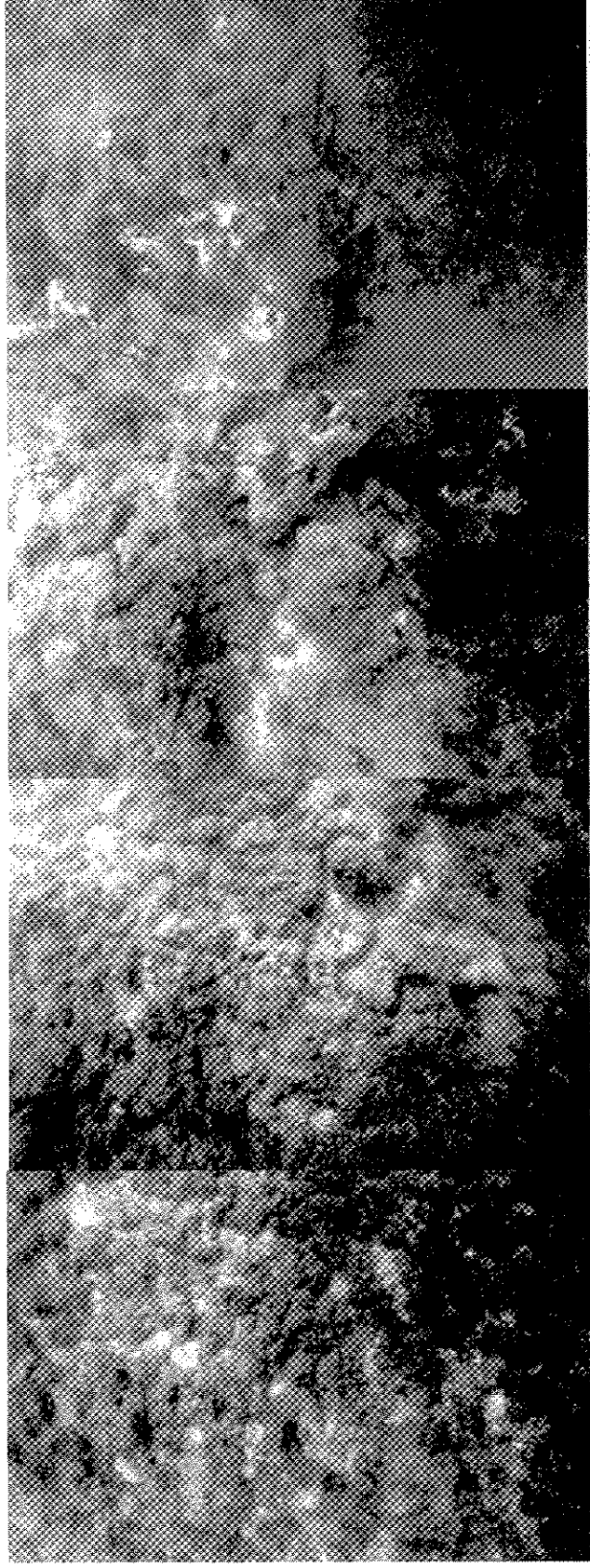
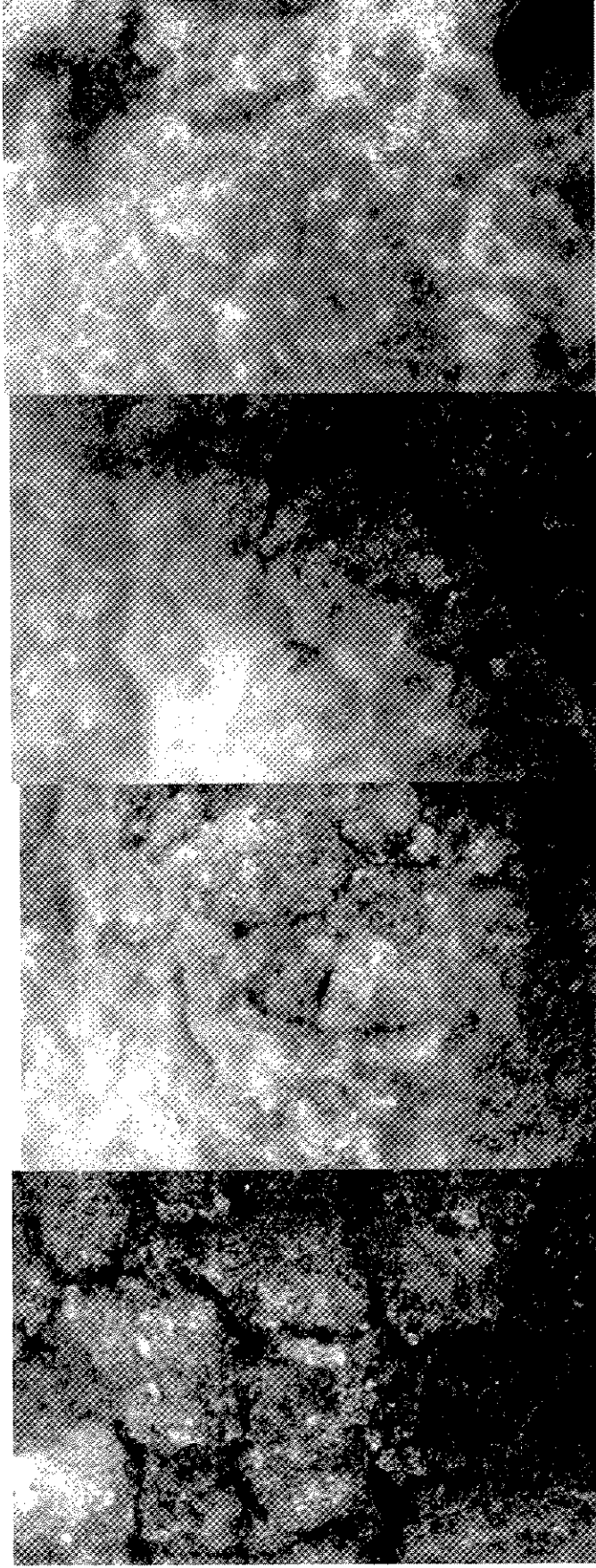


FIGURE 11. Photo-transect 3 on reef flat off Eldridge Residence on Wailupe Peninsula. Photo at upper left is taken adjacent to shoreline ledge, and each successive photo moves offshore by approximately 3 feet. Photo at lower right shows vertical face of dredge channel. For location of transect 3, see Figure 1.

# Appendix G



**§171-53 Reclamation and disposition of submerged or reclaimed public land.** (a) Any submerged public land or land beneath tidal waters shall not hereafter be reclaimed by private abutting owners, except as hereinafter provided.

(b) As to presently reclaimed land, the board of land and natural resources, after finding that its disposition is not prejudicial to the best interest of the State, community or area in which such reclaimed land is located and after giving public notice in accordance with section 171-16(d) of its intention to dispose, may dispose of it, without recourse to public auction, to the abutting owner, by sale or lease; provided that if the reclaimed land has been filled in or made with the prior approval of government authorities, and not otherwise filled in or made contrary to the public interest, it may be disposed of at fair market value or fair market rental of the submerged public land, but if the reclaimed land has been filled or made otherwise, it shall be disposed of at the fair market value or fair market rental of the reclaimed land.

(c) *[Repeal and reenactment on June 30, 2007. L 2005, c 129, §2.]* The board, with the prior approval of the governor and the prior authorization of the legislature by concurrent resolution, may lease state submerged lands and lands beneath tidal waters under the terms, conditions, and restrictions provided in this chapter; provided that the authorization of the legislature shall not be required for leases issued under chapter 190D; and provided further that the approval of the governor and authorization of the legislature shall not be required for any grant of easement or lease of state submerged lands or lands beneath tidal waters used for moorings, cables, pipelines, or noncommercial piers; provided further that this exemption shall not apply to easements for cables used for interisland electrical transmission or slurry pipelines used for transportive materials, mined at sea, or waste products from the processing of the same.

The lease shall provide that the lands shall be reclaimed at the expense of the lessee. Title to the reclaimed lands shall remain in the State.

(d) Whenever in connection with reclaimed lands or the reclamation of submerged lands or lands beneath tidal waters by authority of law, the board deems it advantageous to the State in order to settle the rights (littoral or otherwise), if any, of an abutting owner, to create public beaches, or to consolidate the holdings of public lands in the vicinity or provide public ways or access to the public lands, it may, with the prior approval of the governor, sell, lease, or transfer by way of an exchange, without recourse to public auction but subject to the limitations contained in section 171-50 and to the other provisions of this chapter, lands having the status of public lands. [L 1962, c 32, pt of §2; am L 1965, c 239, §28; Supp, §103A-50; am L 1967, c 234, §3; HRS §171-53; am L 1981, c 199, §2; am L 1987, c 367, §2; am L 1999, c 176, §1; am L 2000, c 261, §§3, 5; am L 2002, c 68, §2 and c 103, §1(2)]

**Note**

Private noncommercial piers (repealed June 30, 2007). L 2000, c 261, §1; L 2002, c 68, §1; L 2005, c 129, §2.

The reenactment of §171-36(a)(9) on June 30, 2007 does not affect lease agreements or extensions made prior to or after June 30, 2007. L 2000, c 261, §5; L 2002, c 68, §2; L 2005, c 129, §2.

L 2005, c 129, §3, provides in part: ". . . the department of land and natural resources is urged to commence using the prevailing real property tax assessment value of the fast land in determining lease rent for a lease of the state submerged land or land beneath tidal water entered into after July 1, 2006."

**Cross References**

Generally, see chapter 173.

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