BENJAMIN J. CAYETANO
GOVERNOR

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
HAR-ED
8443.00

February 8, 2000

TO: GENEVIEVE SALMONSON, DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
DEPARTMENT OF HEALTH

FROM: BRIAN MINAAI
DEPUTY DIRECTOR

SUBJECT: FINDING OF NO SIGNIFICANT IMPACT FOR PIER 1C EXTENSION
KAHULUI HARBOR, MAUI - JOB H. C. 3296

In accordance with Act 241, SLH 1992, we have completed the formal Draft Environmental Assessment 30-day review period. We have not received any adverse comments and have determined that this project will not have a significant environmental effect. Therefore, we are filing a Finding of No Significant Impact (FONSI). Please publish the notice of availability for this project in the February 10, 2000 OEQC Bulletin.

Enclosed are the original and four (4) copies of the FONSI as well as the OEQC publication notice.

Should you have any questions, please contact Angela Kunioka of our Harbors Division at 587-1959.

Enc.

c: Ken Hayashida
KAI Hawaii, Inc

Michael Miyahira, P.E.
Akinaka & Associates, Inc.

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OFC. OF ENVIRONMENTAL QUALITY CONTROL

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2000-02-23- NA-FEA-

FINAL ENVIRONMENTAL ASSESSMENT

For the
PIER 1C EXTENSION, KAHULUI HARBOR
Maui, Hawaii - JOB H.C. 3296
TMK: 3-7-01:22

PROPOSING AGENCY:

State of Hawaii
Department of Transporation
Harbors Division
79 South Nimitz Highway
Honolulu, Hawaii 96813

Responsible Official: Brian Minaai
Kazu Hayashida, Director

2/8/00
Date

PREPARED BY:

Akinaka & Associates, Ltd.
250 North Beretania Street, Suite 300
Honolulu, Hawaii 96813

JANUARY 2000

This Environmental Document Was Prepared Pursuant to Chapter 343, Hawaii Revised Statutes and the Hawaii Administrative Rules, Title 11, Chapter 200 of the Department of Health

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1. INTRODUCTION

1.1 PURPOSE AND NEED

The proposed project involves extending the existing 200-foot wide active area of Pier 1C by approximately 300 linear feet in Kahului Harbor, Maui. The project will also include provisions for new fendering and mooring bollards; an extension of water, molasses and electrical services; the installation of floodlighting; and the construction of a drainage system. The primary purpose of the project is to increase the container storage yard area and to provide additional berthing sites for the larger overseas vessels and barges at Kahului Harbor.

Similar to the rest of the Hawaiian islands, Maui is almost wholly dependent on ocean transportation for its basic sustenance and economy. Since Kahului Harbor is Maui's only commercial harbor, the proposed project is needed to meet the projected demands of Maui's growing population and its increasing economic activities. According to the 2010 Master Plan for Kahului Harbor, berthing conflicts could result from any increase in the current scheduled uses of Pier 1 (DOT-Harbors, 1989).

In addition, as facilities at Honolulu Harbor (the hub of Hawaii's commercial harbor system) are modified to meet growing cargo demands, the port facilities on the neighbor islands such as Maui, must also be modified to maintain an efficient and safe Statewide Commercial Harbor System (DOT-Harbors, 1989).

1.2 PROJECT SUMMARY

Proposing Agency:	Department of Transportation-Harbors Division (DOT-Harbors) State of Hawaii 79 South Nimitz Highway Honolulu, Hawaii 96813
Approving Agency:	Department of Transportation-Harbors Division State of Hawaii 79 South Nimitz Highway Honolulu, Hawaii 96813
Preparer of EA:	Akinaka and Associates, Ltd. 250 North Beretania Street, Suite 300 Honolulu, Hawaii 96817-4716

Project Name:	Pier 1C Extension, Kahului Harbor, Maui (H.C. 3296)
Proposed Action:	Extend Pier 1C by approximately 300 feet
Project Location:	Kahului, Maui, Hawaii
Tax Map Key:	(2nd Division) 3-7-01:22
State Land Use District:	Conservation
County of Maui Zoning Designation:	None (submerged lands)
Maui Community Zoning Designation:	None (submerged lands)
Land Ownership:	State of Hawaii

1.3 *AGENCIES CONSULTED DURING THE PREPARATION OF THE EA*

The following agencies were consulted during the preparation of the Draft EA. A copy of the responses received during the Draft EA 30-day comment period are included in Appendix A.

1.3.1 Federal Government

U.S. Army Corps of Engineers
U.S. Coast Guard

1.3.2 State Government

Department of Business, Economic Development and Tourism, Office of Planning
Department of Health
Department of Land and Natural Resources
Department of Land and Natural Resources, State Historic Preservation Division
Office of Environmental Quality Control
University of Hawaii, Environmental Center

1.3.3 County of Maui Agencies

Department of Planning
Department of Public Works and Waste Management
Board of Water Supply

1.3.4 Other Parties

Alexander and Baldwin Properties
American Hawaii Cruises
Chevron USA
GTE Hawaiian Telephone Company
Kahului Trucking & Storage
Matson Navigation Company
Maui Electric Company
Maui Land and Pineapple Company
Maui Oil Company
Maui Petroleum, Inc.
McCabe Hamilton & Renny
Sealand Service
Tesoro Hawaii Corporation
Young Brothers, Ltd.
Office of the Mayor
Senator Joe Tanaka
Representative Bob Nakasone
Coucilmember Alan M. Arakawa

2. DESCRIPTION OF THE PROPOSED PROJECT

2.1 PROJECT LOCATION

The proposed project is located in Kahului Harbor in Kahului, Maui, Hawaii as shown in **Exhibits 2-1** and **2-2**. Wailuku town is located approximately two miles west of the harbor, while the Maui Community College, Kaahumanu and Kahului Shopping Centers are located to the south. Pier 1 is located just off of Hobron Point and abuts the eastern breakwater of the harbor. The reference Tax Map Key is 3-7-01:22.

2.2 EXISTING CONDITIONS

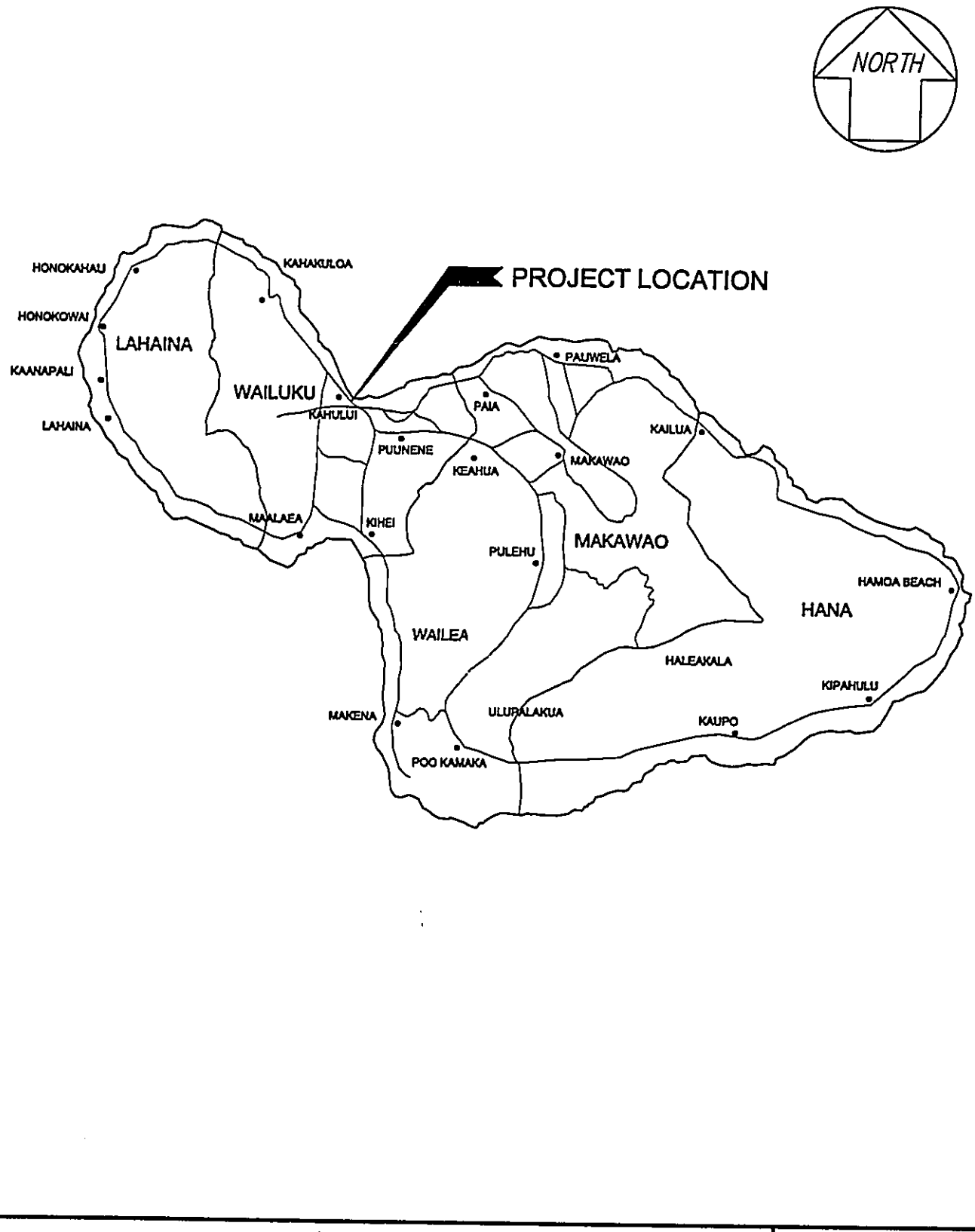
Kahului Harbor is one of nine commercial harbors in the State of Hawaii and the only deep-draft commercial harbor that services ocean shipping for the island of Maui. The harbor is located on Maui's northern shore and is served by two separate breakwaters. The entrance channel to Kahului Harbor is approximately 660 feet wide, while the harbor basin is approximately 2,050 feet by 2,400 feet long and 35 feet deep.

Pier 1 serves the larger overseas vessels and barges that enter Kahului Harbor. In 1987, a 235-foot extension to the pier was completed which consequently allowed the simultaneous berthing of two overseas vessels. Weekly scheduled users of the overseas facilities include inter-island container operations, cruise passenger ships, and fuel barges. Bulk cargo handled at Pier 1 include liquids such as molasses, and occasional petroleum products, as well as dry bulk such as sugar, cement, fertilizer and sand. The introduction of inter-island cruise passenger ships have resulted in berthing conflicts since the berth required by the passenger vessels is also required by cargo vessels.

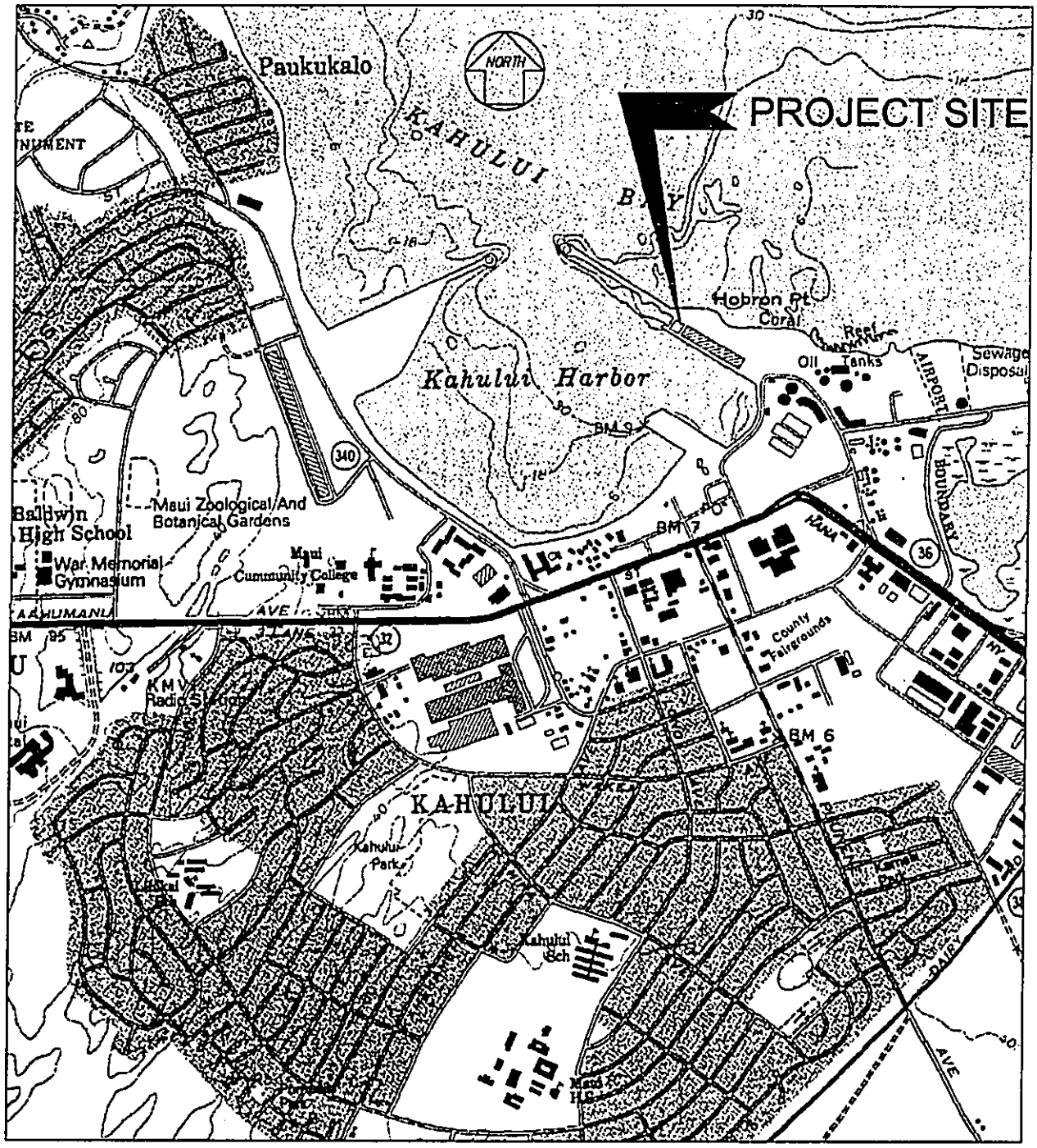
Despite the 1987 pier extension, the 2010 Master Plan for Kahului Harbor acknowledged the need to consider provisions for additional overseas berthing. According to this master plan, berthing conflicts would result from any increase in the current scheduled uses of Pier 1 (DOT-Harbors, 1989).

2.3 PROPOSED IMPROVEMENTS

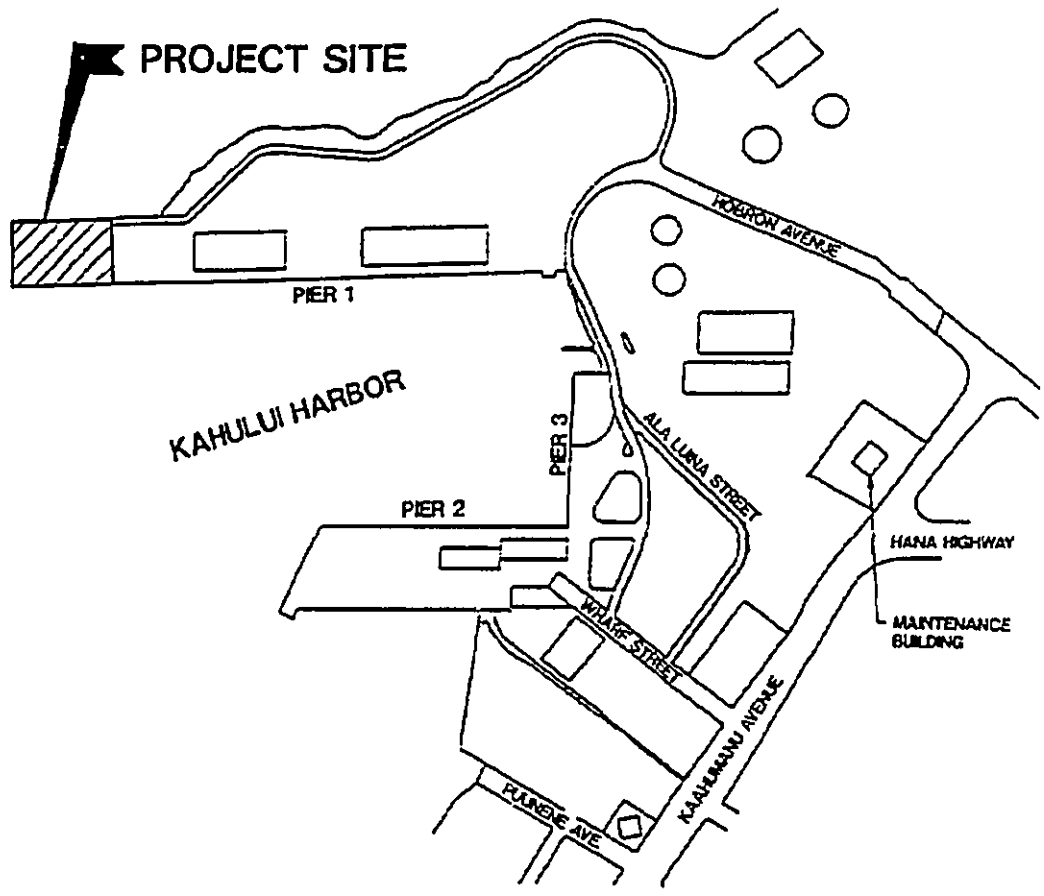
The proposed project involves the construction of a 300-foot long by roughly 200-foot wide extension to Pier 1C and container storage yard as shown in **Exhibits 2-3, 2-4 and 2-5**. Provisions will also be made for fendering and new bollards around the pier extension. The utility systems to be provided for the pier extension include water, molasses electrical, fire protection and drainage services. Utility hatches with steel covers will also be installed and accommodations for the extension of molasses and domestic water lines will be provided. Improvements to the molasses line will be completed under



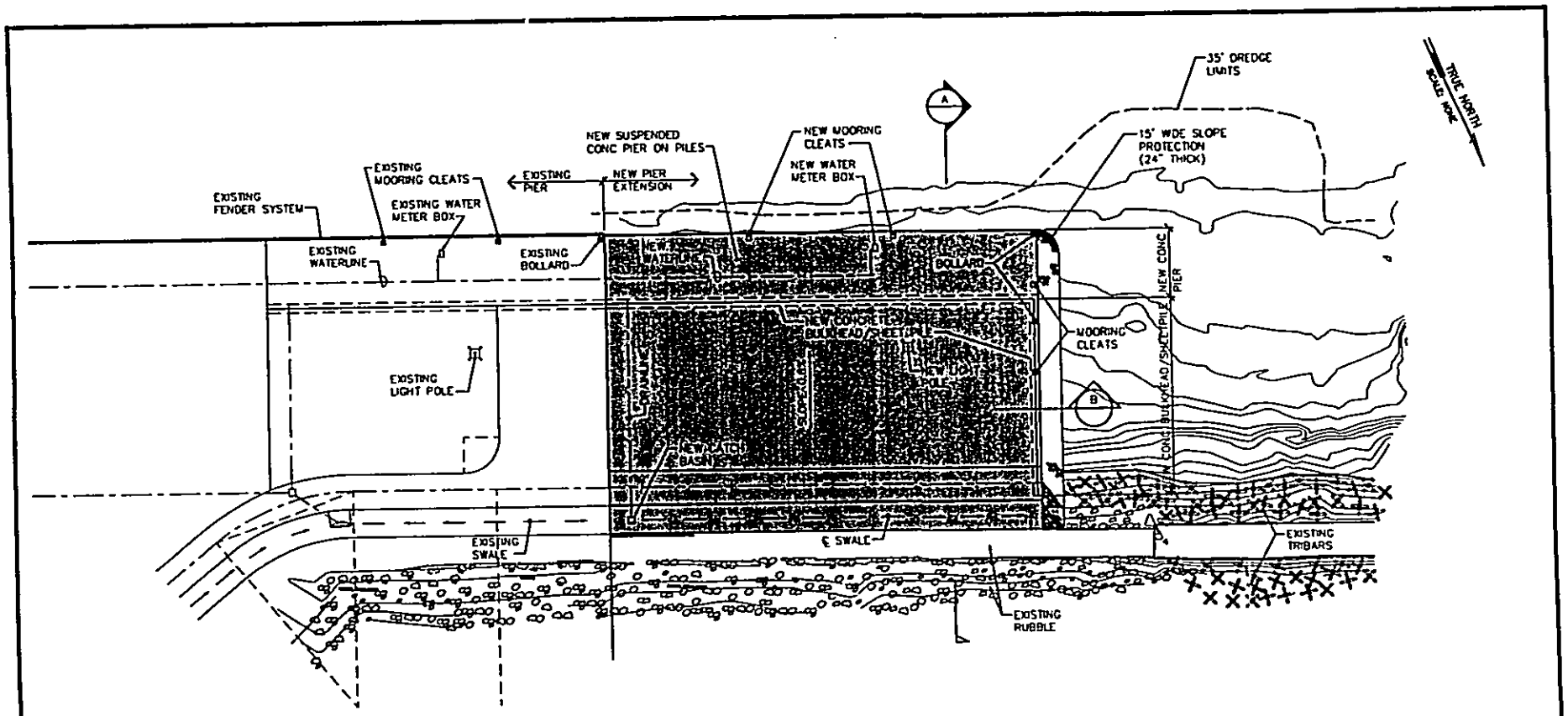
ISLAND MAP		EXHIBIT
Project:	Pier IC Extension, Kahului Harbor Maui, Hawaii State Project No. H.C. 3296 Scale: None	2-1



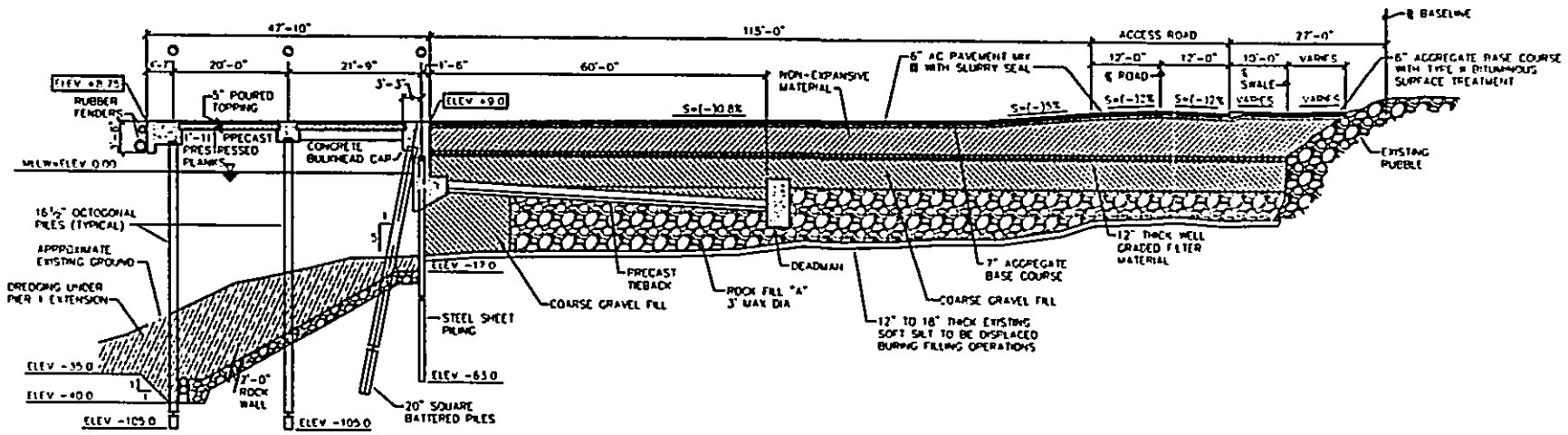
VICINITY MAP		EXHIBIT
Project:	Pier IC Extension, Kahului Harbor Maui, Hawaii State Project No. H.C. 3296 Scale: 1" = 2000'	2-2



LOCATION MAP		EXHIBIT
Project:	Pier IC Extension, Kahului Harbor Maui, Hawaii State Project No. H.C. 3296 Scale: None	2-3

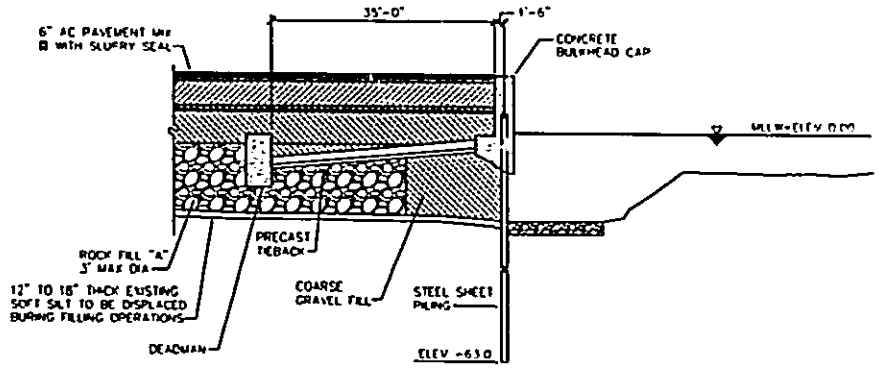


SITE PLAN - PROPOSED PIER 1C EXTENSION	EXHIBIT
Project: Pier IC Extension, Kahului Harbor Maui, Hawaii State Project No. H.C. 3296 Scale: None	**2-4**



A CROSS – SECTION

NOTE:
DEPTH OF MUDLINE VARIES ALONG LONGITUDINAL FACE OF NEW PIER EXTENSION



B SECTION

TYPICAL CROSS SECTION - PROPOSED PIER 1C EXTENSION

EXHIBIT

Project: Pier 1C Extension, Kahului Harbor
Maui, Hawaii
State Project No. H.C. 3296
Scale: None

2-5

a separate contract, not under the State contract, since this line is currently being turned over to the Kahului Trucking and Storage.

In a related portion of this project, the existing water meter vault piping behind the DOT-Harbors Maui District office will be renovated to try to improve water system pressures out at the far end of the new pier extension and the existing 2-inch meter will be replaced with a new 3-inch meter. A new 18-inch drain line will be provided to accommodate runoff from the Pier 1C extension area. Illumination will be supplied by a new lighting system designed to accommodate 5 footcandle operational and 0.5 footcandle security lighting requirements.

The asphaltic concrete pavement surface of the pier will be supported by a new sheet pile bulkhead on the breakwater side and will be pile supported where the pier concrete surface cantilevers further out into the harbor waters. A sloped underwater rock revetment will be constructed against the exposed sheet piling to reduce wave forces and protect the exposed harbor bottom from erosion as previously shown in **Exhibit 2-5.** The proposed rock revetment will be keyed in to a stable substrate based on actual field conditions.

2.3.1 Discharge Activities

The proposed discharge activities associated with the proposed project involve three primary actions during construction: construction of, and filling behind the sheet pile bulkhead; and the driving of piles to support the concrete pier extension into the harbor. A third discharge action involves the placement of a sloped rock revetment at the toe of the sheet pile interface with the harbor bottom.

The area behind the sheet pile bulkhead is expected to be stabilized first in order to accept the multiple layers of engineered fill material (roughly 20,000 cubic yards) which ultimately supports the asphaltic concrete paving surface. Stabilization methods may include:

- removal (dredging) of soft harbor sediments and loose rock to firmer substratum; and /or
- placement of larger boulders which can "bridge" softer areas and provide a firm foundation for the finer graded layers above. The large boulders can be supplemented by smaller stones which can fill voids or cavities and provide better interlocking between boulders. An alternative method may involve placement of a geofabric to cover the voids, reduce the loss of fines, and act as a foundation reinforcement layer.

Excavated onsite granular soils generated from the dredging operation may be reused as a source of structural fill material provided that certain criteria are met as specified in the construction plans. The soft harbor sediments excavated from the dredging operations will not be used as fills or backfills and will be dewatered and disposed of properly offsite.

Concrete pier construction extending beyond the sheet pile bulkhead into the harbor is expected to utilize 20" octagonal concrete piles approximately 115 feet long. Piles are expected to encounter soft harbor sediments, loose coral detritus, stiff alluvial soils, and hard basalt rock formations.

2.3.2 Dewatering and Disposal of Dredged Sediment

Due to the lack of space within the Pier 1C project area, the dredged material will be hauled from the dredging site to a 2-acre dewatering site located along Alahao Street, approximately 2.5 miles east of the project area as shown in **Exhibit 2-6.** The dewatering site is owned by the Department of Transportation-Airports Division (DOT-Airports) and consists of vacant land overgrown with Kiawe and grasses. Permission has been granted by the DOT-Harbors-Airports to temporarily occupy the dewatering site for approximately 2 years for the purposes of stockpiling and drying dredged harbor sediment, and to provide an offsite staging area for materials and equipment during construction.

The material dredged at the Pier 1C construction site will be directly deposited into hauling trucks which will be lined to minimize spillage on harbor grounds and County roadways. Each hauling truck would have a capacity of approximately 14 to 20 cubic yards (c.y.) per load and would transport the dredged sediment to the designated dewatering site along Alahao Street. A maximum of roughly16 to 24 truck loads of material could be hauled per day to the dewatering site over a period of approximately two to six months. Dredging operations are expected to begin between August 2000 and November 2000.

Once the sediment is unloaded from the trucks, it will be spread out within one or more dewatering cells or pits to allow the water to percolate into the ground or evaporate from the surface. No impacts to groundwater supplies are expected from the dewatering operations since the site is located roughly 700 feet from the shoreline, where more brackish groundwater exists. DOT-Harbors is expecting a determination of no anticipated groundwater impacts from the Department of Health, Safe Drinking Water Branch.

Berms designed with a freeboard for a 25-year, 24-hour storm event plus one foot will be provided around the perimeter of each dewatering cell to prevent any surface discharge into the adjacent wetlands or state waters. Drier material may be removed and air dried

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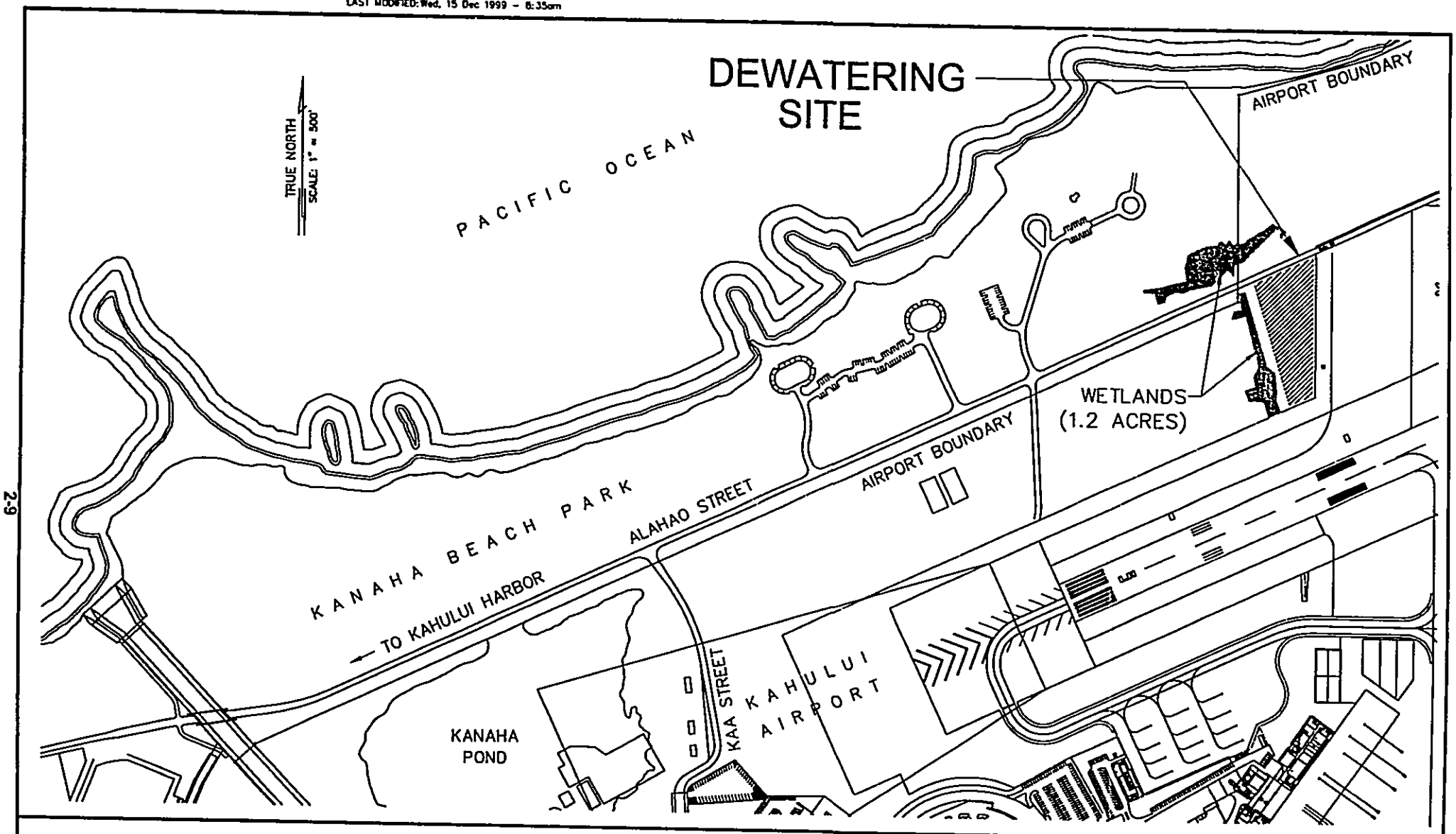


VICINITY MAP - PROPOSED DEWATERING SITE

EXHIBIT

Project: Pier IC Extension, Kahului Harbor
Maui, Hawaii
State Project No. H.C. 3296
Scale: None

2-6

by spreading and turning mechanically. The contractor's dredging operations will be limited to the capacity of these dewatering cells. A site plan of the proposed dewatering site and a section view of a dewatering cell are shown in **Exhibits 2-7 and 2-8,** respectively.

Dewatered and dried sediment will be stockpiled and eventually transported to the Central Maui Sanitary Landfill located approximately 5.5 miles away from the dewatering site as shown in **Exhibit 2-9.** The County of Maui, Department of Public Works and Waste Management (DPWWM) has agreed to accept the dried sediment for use as cover material at the Central Maui Sanitary Landfill. The County's requirements include that the material not be contaminated and that it be dewatered prior to hauling. Dredged sediment samples were previously analyzed during the preliminary stages of the project for contamination. Results from the laboratory tests indicated that daily contaminant levels were negligible and the sediment was found to be acceptable for use as cover material in the County landfill. Moisture content specifications require that the material contain no free liquids as determined by the Paint Filter Liquids test (EPA 9095). A total of approximately 6,000 cubic yards of dewatered sediment is expected to be available deposition for the landfill.

2.4 DEVELOPMENT SCHEDULE AND COST

The capital cost for the proposed project is estimated at $9.4 million at 1999 prices. Construction of the pier extension is expected to commence in the year 2000, and would require approximately 2 years to complete. A specific project schedule will be determined following the final design of the project.

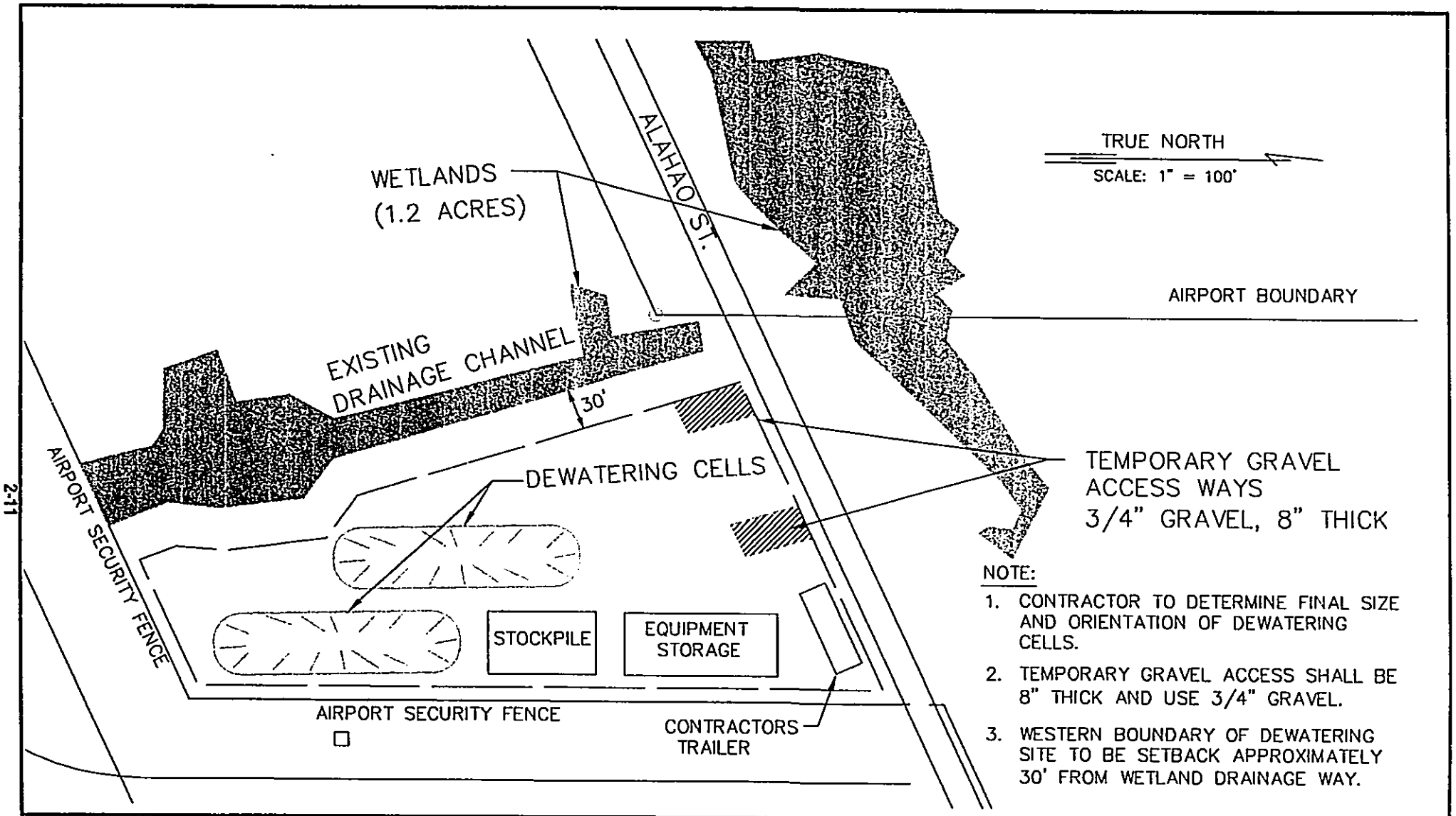
2.5 LIST OF POTENTIAL PERMITS AND APPROVALS

The proposed project will require compliance with the rules, policies and objectives of various governmental agencies on the federal, state, and local levels. According to the County of Maui, Department of Planning, the project site is not located within the designated Special Management Area (SMA) and therefore will not require a SMA permit. A summary of the potential permits and approvals associated with the proposed pier extension is as follows:

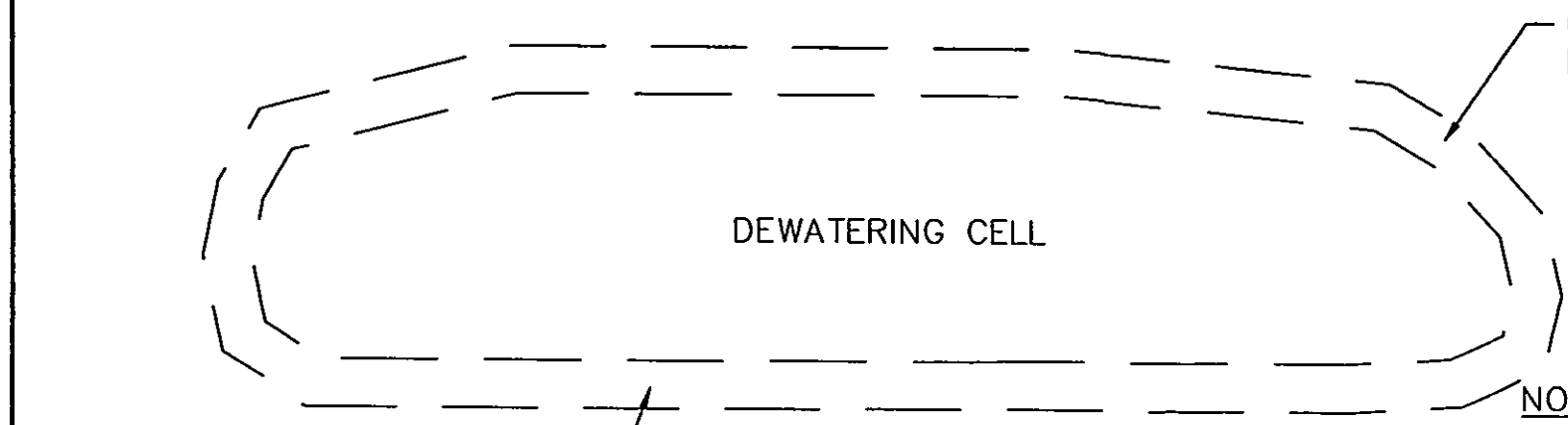
2.5.1 Federal Government

U.S. Army Corps of Engineers

- Department of the Army Permit



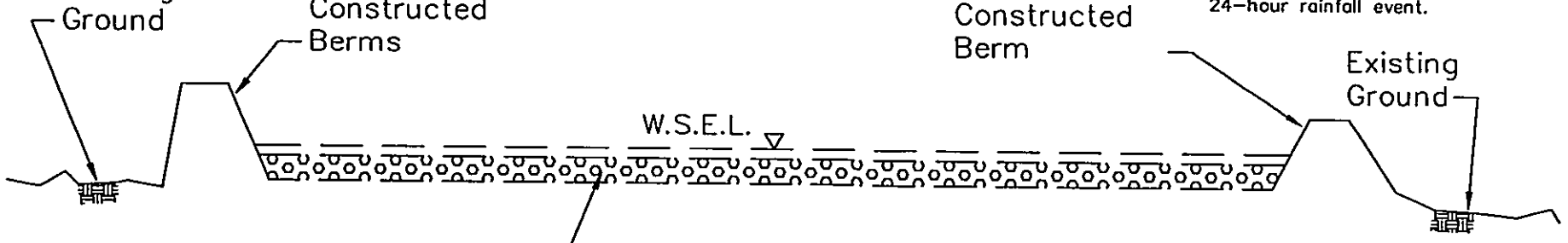
PROPOSED DEWATERING CELL	EXHIBIT
Project: Pier IC Extension, Kahului Harbor Maui, Hawaii State Project No. H.C. 3296 Scale: None	**2-7**



PLAN – DEWATERING CELLS
N.T.S.

NOTE:

1. Estimated area and volume to be verified by Contractor based on his selected dredging and materials handling method.
2. Overflow of dewatering cells is prohibited. Contractor to provide adequate freeboard for 25-yr 24-hour rainfall event.



ELEVATION – DEWATERING CELLS
N.T.S.

2-12

PROPOSED DEWATERING CELL	EXHIBIT
Project: Pier IC Extension, Kahului Harbor Maui, Hawaii State Project No. H.C. 3296 Scale: None	**2-8**

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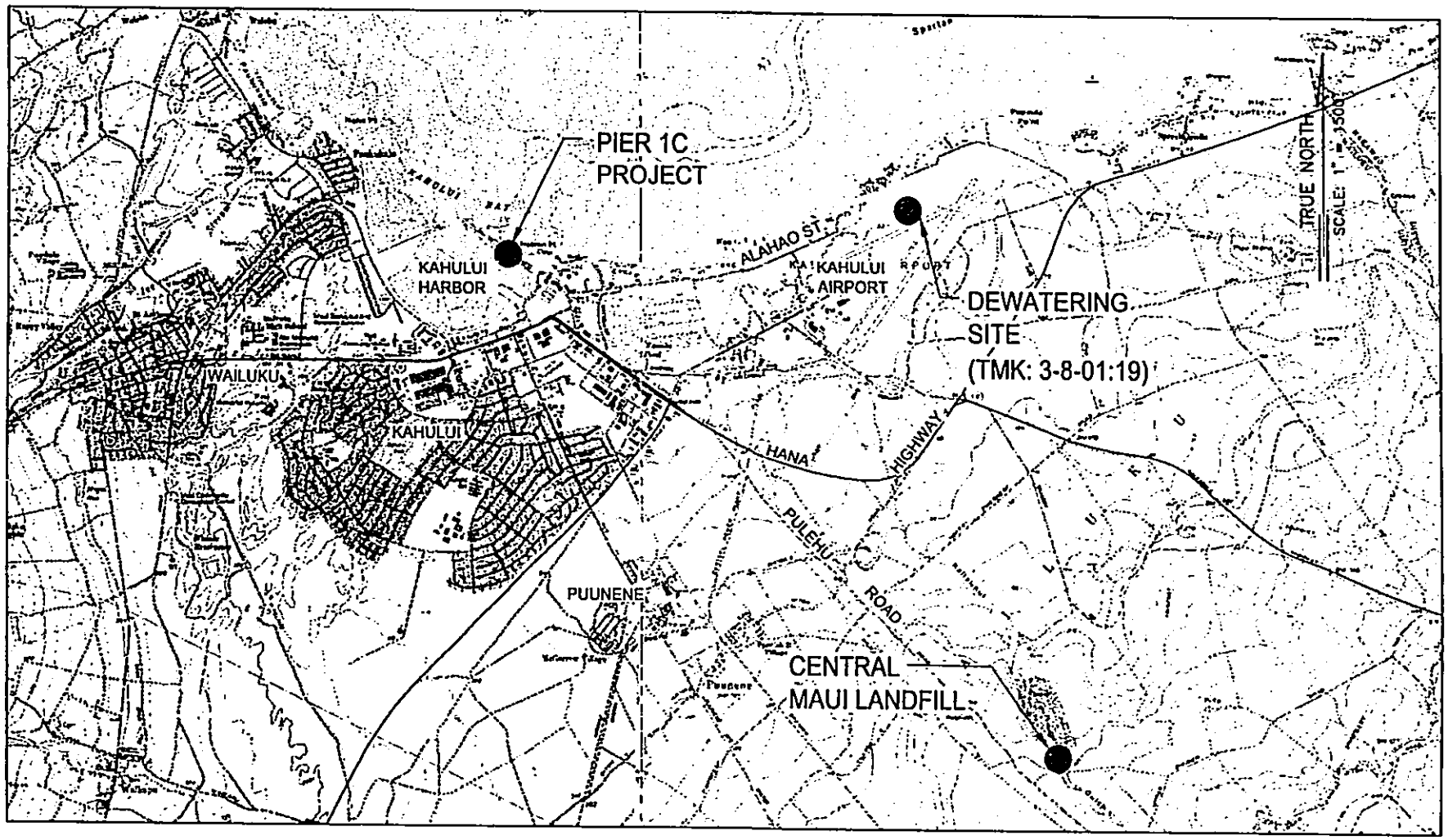


PROPOSED DEWATERING SITE & ULTIMATE DISPOSAL SITE	EXHIBIT
Project: Pier IC Extension, Kahului Harbor Maui, Hawaii State Project No. H.C. 3296 Scale: None	**2-9**

2.5.2 State Government

Department of Business, Economic Development and Tourism

- Coastal Zone Management Program Federal Consistency Determination

Department of Health

- Community Noise Permit for Construction Activities
- Community Noise Variance
- Section 401 Water Quality Certification

3. ALTERNATIVES CONSIDERED

3.1 NO ACTION ALTERNATIVE

Maui is almost totally dependent on ocean transportation for its basic sustenance and economy, and Kahului Harbor represents the only commercial harbor on the island. Maui's growing population and increase in economic activities warrant additional port facilities. Thus, the No Action alternative is not feasible since it would not only restrict Maui's growing population, but would also limit the island's economic growth. According to the 2010 Master Plan for Kahului Harbor, any increase in the current scheduled calls at Pier 1 could result in berthing conflicts (DOT-Harbors, 1989).

Honolulu Harbor is the hub of the State's Commercial Harbor System where all major overseas calls are made. From Honolulu Harbor, an inter-island cargo distribution system branches out to service all the Neighbor Islands. Thus, as facilities at Honolulu Harbor are modified to meet growing cargo demands (generated by the Statewide growth in population, the growing economy, and the technological operational change occurring in the maritime industry), port facilities on neighbor islands such as Maui must be modified to maintain an efficient and safe Statewide Commercial Harbor System (DOT-Harbor, 1989).

3.2 ALTERNATIVE PIER EXTENSION SITE

An alternative to the proposed Pier 1C extension would be to construct an extension at the existing Pier 2 structure. However, this option is not viable since Pier 2 was not designed to accommodate the large overseas vessels and barges as Pier 1. Instead, Pier 2 services the inter-island barges and contains no provisions for a molasses line as Pier 1. An extension of Pier 2 would not fulfill the need for additional berthing sites required for the larger overseas vessels and barges.

3.3 NEW COMMERCIAL HARBOR

Since Kahului Harbor is Maui's only deep draft commercial harbor, the closure or blockage of Kahului Harbor could cut-off the island's supply line for its needed goods and necessities such as fuel for energy. Following recommendations in Kahului Harbor's 2010 Master Plan, the U.S. Army Corps of Engineers (ACOE) investigated a proposal for the location of a second commercial harbor for Maui at Kealia Pond. The ACOE found that the proposal for a second harbor was not feasible at the time due to economic factors, construction and maintenance costs and environmental concerns (DOT-Harbors et al., 1989).

Constructing a new harbor facility may also result in undesirable economic and social impacts. Potential impacts include the displacement of beach front homes and recreational areas, relocation of public and privately owned facilities, dividing of communities and costly land acquisition and infrastructure improvements.

4. ENVIRONMENTAL SETTING

4.1 TOPOGRAPHY

The project site is located at the northern end of Pier 1 in Kahului Harbor, adjacent to the eastern breakwater. The site is currently an open area that is approximately bounded by the existing paved container yard to the east, a concrete driveway to the north, and open water to the east and south. According to field observations , the northeastern portion of the project site is covered with many rocks and boulders, while the northwestern portion of the site is covered with some tribars (Geolabs, Inc., 1999).

The existing topography of the project site ranges from approximately +2 to + 8 feet MLLW (Mean Lower Low Water). The harbor floor in the area of the project site gently slopes down seaward at a gradient of about 15 percent until the mudline reaches an elevation of roughly -10 feet MLLW. Following this, the elevation of the harbor floor drops off sharply to -28 feet MLLW along the southwestern boundary of the new pier deck before flattening out again toward the ocean (Geolabs, Inc., 1999).

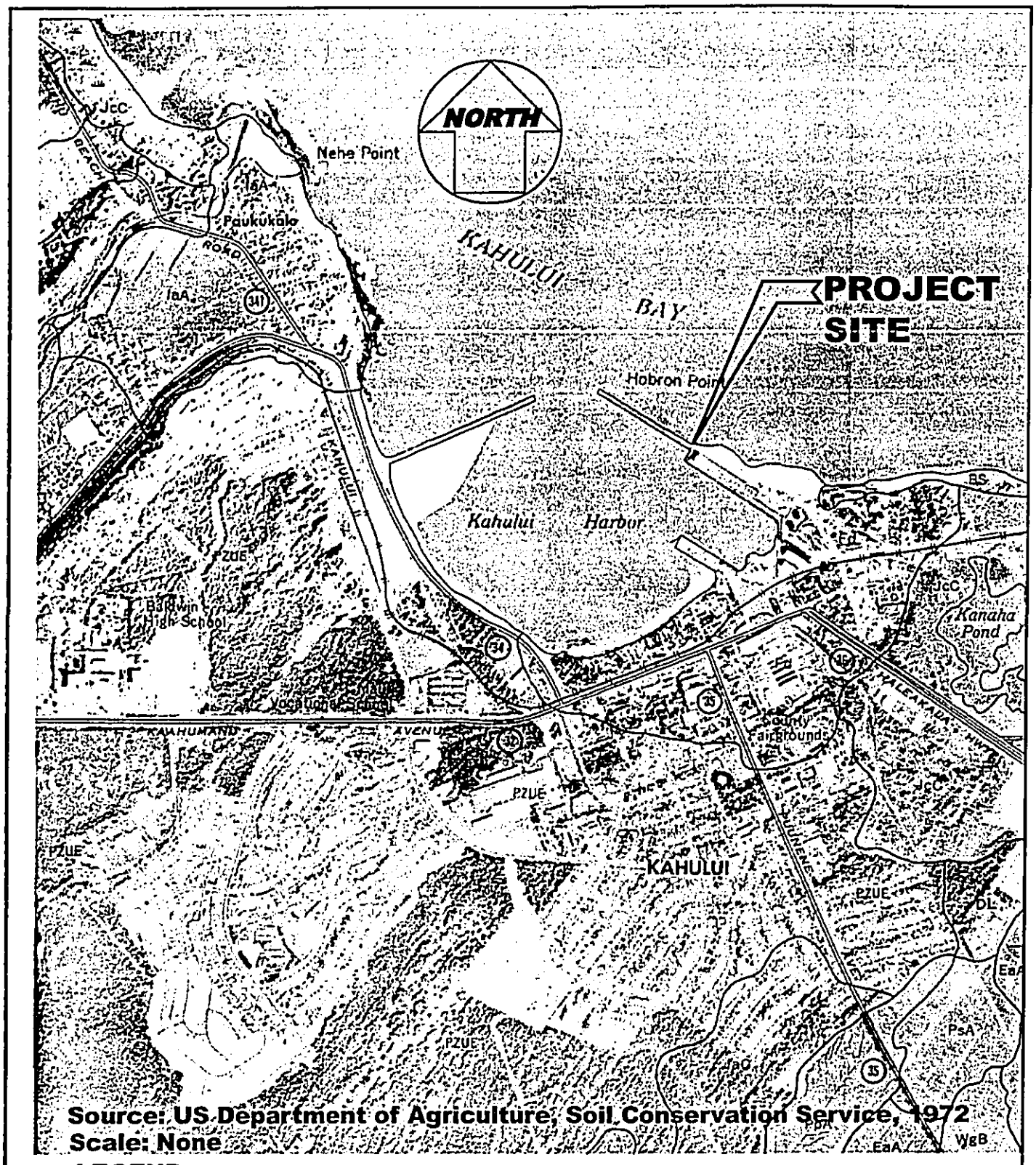
4.2 GEOLOGY

The island of Maui was formed by two major volcanoes: the Haleakala and West Maui volcanoes. Consequently, three different types of volcanic rocks were produced including the Wailuku Volcanic Series, the Honolua Volcanic Series, and the Lahaina Series. Olivine basalts from the Wailuku Volcanic Series comprise most of the mountains in West Maui. The Wailuku Volcanic Series consists of thin pahoehoe and a'a lava flows of tholeiite, olivine tholeiite, and oceanite, and is highly permeable (DOT-Harbors, 1997).

The convergence of volcanic material from the Haleakala and West Maui volcanoes, together with the natural erosion processes, resulted in the formation of Maui's isthmus. The isthmus was created primarily by a combination of old and young alluvium. Following the West Maui eruptions, deep valleys in the lava formations were formed from erosion. A sloping alluvial plain extending from present day Waihee to Maalaea was eventually formed as deposits of older alluvium accumulated in the valleys and alluvial fans coalesced. Over time, silt, sand, and gravel were deposited over the plains at the bases of the alluvial fans (GMP Associates, 1996).

4.3 SOILS

According to the U.S. Department of Agriculture's Natural Resource Conservation Service, the soil type present in the project area consists of "Fill Land (Fd)" as shown in **Exhibit 4-1**. Fill land primarily consists of areas filled with bagasse and slurry from sugar



LEGEND

Fd - Fill Land

SOIL SURVEY MAP	EXHIBIT
Project: Pier IC Extension, Kahului Harbor Maui, Hawaii State Project No. H.C. 3296 Scale: None	**4-1**

mills or material from dredging and soil excavations. Fill material is generally deposited over marshes, low-lying areas along the coastal flats, coral sand, coral limestone, or areas shallow to bedrock (USDA, 1972). Soil borings were taken at the proposed project site to determine general subsurface conditions. Results from boring tests taken at the location of the proposed pier deck showed soft harbor sediments occurring at depths between 35 to 45 feet. Loose coral detritus occurred at depths between 40 to 55 feet while stiff alluvial soils were found at depths of 50 to 95 feet. Hard basalt rock formation occurred at approximately 105 to 133 feet.

4.4 WATER SOURCE

The water source serving the proposed project area is the Central Maui System. The major source water for this system is the Iao Aquifer which is currently not designated as a State Groundwater Management Area (GMA). According to the County of Maui, Department of Water Supply (DWS), the rolling annual average groundwater withdrawals from the Iao aquifer were 17.574 million gallons per day (mgd), while the regulatory sustainable yield is 20 mgd. Should the rolling annual average withdrawals exceed 20 mgd, the State Commission on Water Resource Management (CWRM) intends to designate the Iao Aquifer as a GMA.

The DWS is currently implementing a plan to bring new sources on-line and to mitigate withdrawals from the aquifer. Although two wells in the North Waihee area were brought on-line in July of 1997, additional source water is still needed.

4.5 CLIMATE

Kahului town is characterized by a moderate tropical climate with monthly average temperatures of approximately 75° F. Average temperatures range from roughly 68° F in February (the coldest month) to approximately 82° F in August (the warmest month). The average annual rainfall is approximately 20 inches, with heavier rainfall normally occurring between the months of December and February.

Trade winds prevail from the north and northeast. Kahului Harbor typically experiences trade winds with speeds averaging from 8 to 18 miles per hour. The dominant tradewind conditions usually result in partly cloudy skies with brief showers common toward the mountain areas. Although storms usually occur during the autumn and winter months, intense local convection storms of short duration can occur at any time of the year (DOT-Harbors, 1997).

4.6 OCEANOGRAPHIC CONDITIONS

4.6.1 Waves

During July 1966 to March 1969, wave gauge data for the Kahului area was measured from a sensor located approximately 1,860 feet north of the east breakwater head. Results of the data showed recorded wave heights of 9 feet or less 96.1 percent of the time. The highest recorded wave height was 28 feet with a period of 16 seconds which occurred during a storm event (DOT-Harbors, 1997).

4.6.2 Currents

Within Kahului Harbor, currents typically run clockwise during the flood tide and counterclockwise during the ebbtide. Currents along the west and south shores of the harbor generally appear to flow eastward since build-up occurs at Pier 2. Outside of Kahului Harbor, currents typically run east to west and northward along Maui's coastline (DOT-Harbors, 1997).

4.6.3 Tides

Tidal data are based off a primary tidal bench mark for Kahului Harbor located at the northeast corner of a warehouse at the shore end of Pier 2. The bench mark consists of a standard disc stamped as "2 1929" that is set in the concrete deck floor of the warehouse (DOT-Harbors, 1997).

The U.S. Coast and Geodetic Survey recorded tidal data for nine years, between the years of 1951 and 1959. The highest observed tide was recorded at 3.6 feet, while the lowest observed tide was -1.2 feet. The Mean High Water, Mean Tide Level, and Mean Low Water were measured at 1.9 feet, 1.15 feet, and 0.4 feet, respectively.

4.6.4 Water Quality

According to the Department of Health's Water Quality Standard Maps and Title 11, Chapter 54 - Water Quality Standards, Kahului Harbor is a part of Kahului Bay and falls under the "Class A" classification. The objective of Class A waters is to protect their use for recreational purposes and aesthetic enjoyment. Other uses within these waters can be permitted if the use is compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters. Although new sewage discharges and new industrial discharges are prohibited from entering Class A waters, non-contact thermal and drydock or marine railway discharges are permitted within Kahului Harbor in accordance with 11-54-03 (2) (A).

Water quality data for the Kahului Harbor area has been recorded since 1988 by the Department of Health, Clean Water Branch. Turbidity levels measured between 1988 and 1997 from a sampling point located approximately 25 yards from the mouth of the harbor and 15 yards inside of the eastern breakwater, ranged from a low of 0.2 NTU to a high of 37.7 NTU. The average turbidity level measured during this period was 2.94 NTU.

Kahului Bay and Harbor is considered to be a "Moderate Category I Impairment" water body according to a study done by the Department of Health titled, "Hawaii's Water Quality-Limited Waters: 1997 Assessment." High turbidity levels and/or excessive algal blooms are characteristic of these water types. Stormwater runoff and high surf conditions can contribute to high turbidity levels, while algal blooms may be attributed to poor circulation within the harbor.

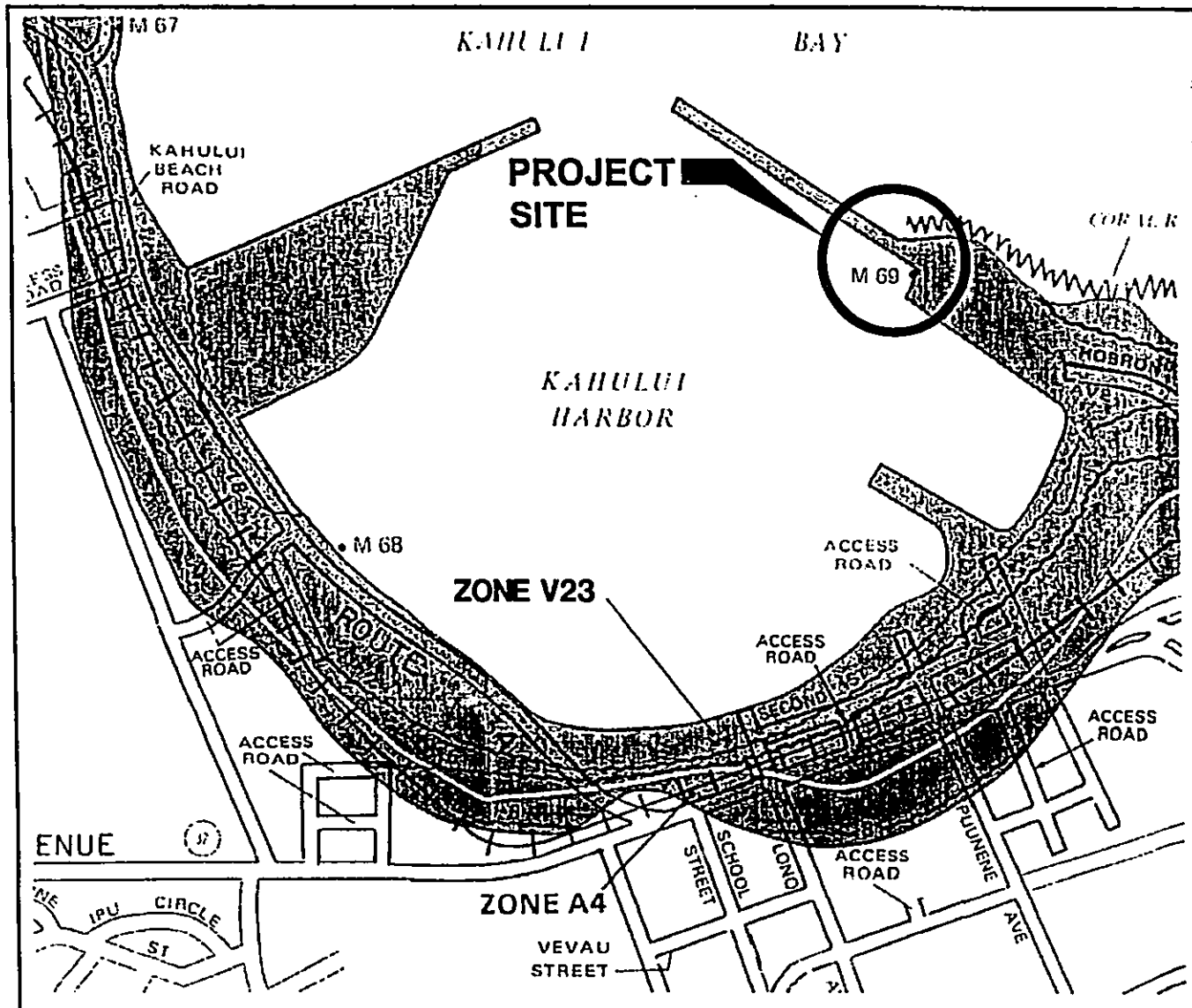
4.7 WETLANDS

No wetlands exist in the immediate area of the Pier 1C extension. However, the U.S. Army Corps of Engineers has delineated a nearby 280-foot unlined portion of a drainage channel as a wetland. This wetland area is located roughly 2000 feet away and is part of a drainage channel owned by the County of Maui that extends from Kaahumanu Avenue and empties into Kahului Harbor (DOT-Harbors, 1997).

The proposed 2-acre dewatering site located along Alahao Street is also located next to a 1.2 acre wetland area. This wetland site lies to the west and north sides of the dewatering site as previously shown in **Exhibits 2-6 and 2-7.** The portion of the wetland area to the west of the dewatering site consists of a vegetated man-made drainage channel which conveys runoff from the adjacent airport area to a depressed area just seaward of Alahao Street. A 30-foot setback will be established from the wetland to the western boundary of the dewatering site.

4.8 FLOOD HAZARD

The Pier 1C Extension project area, as well as most of Kahului Harbor, is located within a flood hazard area as shown in **Exhibit 4-2.** According to Panel No. 150003 0190B of the "Flood Insurance Rate Map," the harbor's coastal area is designated as "Zone V23," or areas of a 100-year coastal flood with velocity (or wave action) where base flood elevations and flood hazard factor have been determined.



KEY TO MAP

500-Year Flood Boundary	ZONE B
100-Year Flood Boundary	
Zone Designations	
100-Year Flood Boundary	
500-Year Flood Boundary	ZONE B
Base Flood Elevation Line With Elevation In Feet**	513
Base Flood Elevation in Feet Where Uniform Within Zone**	(EL 987)
Elevation Reference Mark	RM7x
Zone D Boundary	
River Mile	•M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

FLOOD HAZARD DISTRICT

EXHIBIT

Project: Pier IC Extension, Kahului Harbor
Maui, Hawaii
State Project No. H.C. 3296
Scale: None

4-2

4.9 AIR QUALITY

The majority of the data from the State Department of Health's air quality monitoring stations in the Kahului region did not exceed the State's air quality standards (DOT-Harbors, 1997). Although levels of particulate matter increase when agricultural burning takes place, prevalent tradewinds from the north and northeast minimize nuisance air quality problems in the Kahului area.

The existing air quality around the Pier1C Extension area is consistent with the land uses of the harbor. Air quality in the area is typically affected by emissions from industrial activities, vehicular traffic and the large vessels and barges in the harbor.

4.10 NOISE EMISSION

The ambient noise levels in the Kahului Harbor area are consistent with the industrial and deep draft harbor activities that regularly occur. Vehicular noise from nearby Kaahumanu Avenue as well as trucks, cranes, powered ramps and other equipment associated with loading and unloading the ships also contribute to the high ambient noise levels in the harbor area. Since the land use around the harbor area is designated as industrial and business, such high noise levels should be expected.

4.11 FLORA / FAUNA

Since no terrestrial vegetation or landscape planting exist within the project site, there is minimal concern at the Pier 1C Extension project area. A botanical study was completed for the Department of Transportation - Harbor Division's Barge Terminal Improvement project site which is located in the Kahului Harbor area, approximately 2000 feet away from the project site. The botanical species identified from the survey consisted primarily of landscape plantings, and common weedy species. A few native plants were also identified, but none of the plants were found to be threatened or endangered (Char & Associates, 1997).

Some of the aquatic species known to exist within the waters of Kahului Harbor include the nehu (Stolopherus purpureus), seasonal runs of oama (Mulloides flavolineatus), and halalu (Selar crumenophthalums). Fish habitats within the harbor are commonly located in the interstices of the armor stone revetment and the pilings of the wooden dock near the western breakwater and the existing boat launch ramp. The western breakwater also provides an artificial habitat for intertidal organisms such as a'ama crab (Graspus tenuicrustatus), periwinkles (Littorina spp.), false opihi (Siphonaria normalis), and various algae (Ulva sp.)(DOT-Harbors, 1997).

Avifauna were also observed as a part of the Barge Terminal Improvement project. Some of the species that were identified include the house sparrow, common mynah, doves, wandering tattle (Heteroscelus incanus), and ruddy turnstone (Arenraria interpres). The brown and Norway rats are also known to exist in the harbor area.

The State Wildlife Sanctuary Kanaha Ponds are located approximately one half of a mile east of the project site. This sanctuary provides habitat to two known endangered species: the Hawaiian Stilt (Himantopus mexicanus knudseni) and the Hawaiian coot (Fulica americana alai). A native Hawaiian seabird called the Newell's Shearwater may also exist around the Kahului Harbor area even though most of these birds are found on Kauai.

4.12 HISTORIC, ARCHAEOLOGICAL AND CULTURAL CHARACTERISTICS

No archaeological work has been conducted at the specific project site. However, according to the State Department of Land and Natural Resources, Historic Preservation Division (SHPD), the project area has undergone extensive disturbance due to prior groin extension and dredging activities, making it unlikely that significant historic sites remain (see letter dated 7/30/99 in Appendix B).

The Pier 1C Extension project site is located within the Wailuku ahupua'a. Although the project site is near to the historic Kahului District, it is located well outside of the district boundaries. An archaeological inventory survey was recently performed for a nearby DOT-Harbors Barge Terminal Improvement Project located approximately 2000 feet east of the Pier 1C Extension site. Results of the archaeological survey revealed no surface cultural remains but uncovered isolated historic remains during the trench testing (Aki Sinoto Consulting, 1997).

Archaeological monitoring was also performed for the DOT-Harbors Storage Yard Paving and Utility Improvement project located near to the Barge Terminal Improvement project area. Although the Maui State Historic Preservation Division had previously identified one subsurface historic site within this project area, no significant cultural remains were found during the archaeological monitoring of the trench excavations (Scientific Consultants Services, Inc., 1998).

4.13 LAND USE, PLANS & POLICIES

The 2010 Master Plan for Kahului Harbor was completed in 1989 in a cooperative planning effort by the local community, private businesses, the Kahului Harbor Task Force and DOT-Harbors. The dynamic plan serves as a the State's long-range planning

guide for the development of Kahului Harbor. In order to review development plans for the harbor facilities based on the current and projected needs of the community, the plan was updated in 1994 (DOT-Harbors, 1994). The plan acknowledged the need to consider additional overseas berthing for Pier 1 since berthing conflicts would result from any increase in the scheduled uses of the existing pier (DOT-Harbors, 1989).

The existing land areas surrounding the harbor facilities consist mainly of private lands. Hotels are located along the southwestern shoreline, while the larger public land areas near the harbor are designated as public parks (Kahului Harbor Park and Hoaloha Park). According to the County of Maui, Department of Planning, the project site is located outside of the Special Management Area (SMA). Thus, the SMA objectives, policies and guidelines pursuant to the Hawaii Revised Statutes 205A are not applicable to the proposed project.

The proposed pier extension project involves the use of submerged lands which are considered to be within the State's conservation district. However, based on an existing Conservation District Use Application (CDUA) for Kahului Harbor that was approved on February 9, 1990, the proposed project will not need to fulfill further CDUA requirements. The existing CDUA (MA-2302) allows for the future use of submerged lands within Kahului Harbor.

4.14 EXISTING TRAFFIC

The Kahului and Wailuku regions are linked by a network of arterial roadways, collector roads, and local roads. Kaahumanu Avenue is a six-lane divided highway that serves as the main connector roadway between Kahului and Wailuku towns. Other major roadways which serve the Kahului area include Kahului Beach Road / Lower Main Street, Hana Highway, and Puunene Avenue. Access to Kahului Harbor is mainly provided via Hobron Avenue, Wharf Street and Puunene Avenue which all intersect Kaahumanu Avenue. Pier 1 can be accessed directly through Hobron Avenue or via Wharf Street/Ala Luina Street.

The growing volume of cargo within Kahului Harbor has consequently led to an increase in truck traffic to and from the harbor. Intersections around the harbor area frequently experience heavy congestion particularly during construction periods. A traffic study was recently conducted on the intersections of Kaahumanu Avenue with Wharf Street and Puunene Avenue. Results of the study showed that traffic demand in the general vicinity of Kahului Harbor is expected to be reduced following the completion of two major roadway improvement projects: the Maui Lani Parkway and the Puunene Bypass Road (DOT-Harbors, December 1997).

4.15 EXISTING DRAINAGE

Drainage for the Pier 1 area is served by an existing 18-inch line that runs beneath the pier and discharges into Kahului Harbor. Storm water runoff that does not sheet flow directly into the harbor is directed to grated inlets which connect to the 18-inch drain line. This existing drain line is not expected to be affected by the proposed Pier 1C extension.

Storm flooding problems often occur within the Kahului Harbor property following heavy rain events due to inadequate drainage facilities (DOT-Harbors and Kahului Harbor Task Force, 1994). As a result, the County of Maui plans to enlarge a drainage channel located between Wharf Street and Puunene Avenue (DOT-Harbors, December 997) in a separate future project. No impacts are expected to the Pier 1C extension site since this area associated with inadequate drainage is located far from the proposed project site.

4.16 EXISTING UTILITIES

The existing underground utilities that serve the Pier 1 area include the following: a 12-inch molasses line; a 4-inch water line; a drainage line and grated inlets; and two Maui Electric Company duct lines. Ownership of the existing molasses line is currently being turned over to Kahului Trucking and Storage. No sewer lines exist beneath Pier 1.

4.17 RECREATIONAL ACTIVITIES

In addition to providing normal harbor operations, Kahului Harbor is used for various recreational activities such as surfing, canoeing, fishing and boating. Kahului Harbor Park is located adjacent to the western breakwater, while the County's Kanaha Beach Park and the Kahului Community Center are also located in the vicinity of the harbor.

4.18 DEWATERING SITE

The proposed 2 acre dewatering site is located approximately 2.5 miles east of the Pier 1C project site and roughly 700 feet from the shoreline as previously shown in **Exhibits 2-6 and 2-9.** The dewatering site is located within the DOT-Airports property along Alahao Street on Tax Map Key parcel 3-08-01:19. The lot is currently vacant and consists mainly of overgrown Kiawe and grasses. Site selection was based on site availability, proximity to the project site and to the County landfill, and environmental concerns (such as potential impacts from noise and odors) . The proposed site along

Alahao Street is desirable since it is will help to reduce disruption to traffic during material transport and is somewhat isolated (no residential communities or businesses in the immediate area thereby minimizing potential dust and odor nuisances to the general public).

Most of the vegetation is comprised of Kiawe canopy trees and an understory of buffel grass, Indian fleabane, aheahea, and Chinese violet (Edward K. Noda & Associates, Inc., 1997). Kanaha Beach Park is located nearby on the seaward side of Alahao Street. The eastern and southern limits of the dewatering site are bounded by an airport security fence, while the north side is bounded by Alahao Street. A designated 1.2 acre wetland area is located to the west and north of the dewatering site as discussed previously in Section 4.7. A 30-foot setback will be established from the wetland to the western boundary of the dewatering site.

According to the Kahului Airport Improvements Final Environmental Impact Statement (FEIS) completed in September 1997, no significant archaeological or historical sites are known to exist within the dewatering site. Kanaha Pond, a state wildlife sanctuary which is home to a couple of known endangered waterbirds, is located approximately 1.5 miles west of the proposed dewatering site. One of these waterbirds, the Hawaiian Stilt has been known to frequent the airport area, especially where ponded water exists.

The flood zone classification of Kahului Airport lands was also discussed in the 1997 FEIS. The dewatering site is located within two different flood zones: Zone V23 and Zone A4. Zone V23 represents areas of 100-year coastal flooding with velocity (wave action), where base flood elevation and flood hazard factors have been determined. Zone A4 represents areas of a 100-year flood where base flood elevation and flood hazard factors have been determined.

5. SOCIO-ECONOMIC SETTING

According to the State of Hawaii's 1990 census data, the resident population of Kahului town was 16,889 persons. The resident population of neighboring Wailuku town, located approximately 1 mile west of Kahului, was recorded at 10,688 persons (DBEDT, 1994).

Over the past two decades, the resident population of Maui County has been growing faster than the rest of the Counties in the State of Hawaii. Maui County's resident population increased approximately 53.8% between the years of 1970 through 1980, and approximately 41.6% between the years of 1980 through 1990. Maui County's increasing population growth is expected to continue in the future (DOT-Harbors, 1997).

The Kahului and Wailuku region is considered to be the central commerce area of Maui. A wide range of commercial, service, and governmental activities are located in this region. Nearby agricultural resources include sugar cane, pineapple and macadamia nut fields.

6. PROBABLE IMPACTS AND MITIGATIVE MEASURES

6.1 SHORT TERM IMPACTS

Short term impacts are of a temporary nature and are typical of site mobilization and other construction activities. These impacts can be mitigated through compliance with applicable regulations/rules or applicable permit conditions, and through the use of current construction techniques and best management practices.

6.1.1 Water Quality

The construction of the Pier 1C Extension will require dredging within Kahului Harbor, thereby temporarily affecting water quality. Dredging is expected to temporarily increase the suspended solids and turbidity within the Pier 1C project area. However, this water quality condition is regularly experienced since large vessels and barges create turbidity plumes as they enter and exit the harbor. Periodic maintenance dredging activities also contribute to the regular disturbance of harbor sediments as does stormwater runoff and storm surf conditions during the winter.

The discharge activities associated with the construction of the pier extension consist primarily of the placement of sheet pile bulkhead and engineered fill material behind the bulkhead; concrete pile driving; and rock revetment protection around the exposed toe of the sheet pile bulkhead perimeter. Dredging and discharge activities within the harbor will require a Department of the Army permit (33 CFR 320-330) in addition to, a State Department of Health, Section 401 Water Quality Certification (H.A.R. 11-54) and a Federal Coastal Zone Management Consistency Determination (H.R.S., Section 205A-3(3)). The selected contractor shall be required to comply with the provisions of these and all other applicable permit conditions and requirements to minimize any adverse impacts to the receiving water body.

No biological, chemical or thermal characteristics of the discharge are expected to detrimentally impact harbor water quality or local marine life habitats. All of the engineered materials to be placed will be relatively inert (chemically and biologically) to the harbor marine environment and will not absorb or release significant amounts of thermal energy during construction or while in place.

However, construction activities within the harbor have the potential to 1) create a sediment plume during pile driving/drilling, sheet pile placement and dredging; 2) create a visible plume during the placement of engineered fills; and 3) create a visible plume due to the mobilization and movement of water-based construction equipment.

Consequently, as a part of the Section 401 Water Quality Certification, the Contractor will be required to implement a DOH approved Best Management Practice (BMP) Plan to minimize impacts to the water quality and marine habitats within Kahului Harbor. Such BMPs will include the placement of silt curtains surrounding the construction area to contain turbidity. Silt curtains will also be deployed around the perimeter of any barges carrying pile driving, dredging, or drilling equipment. All BMPs shall remain in place and any revisions shall be coordinated between the contractor and DOT. Any revisions to the BMP plan are also subject to approval by DOH. The project specifications will require the Contractor to take appropriate measures during construction to prevent fuel, oil and cement products from discharging or leaching into the ocean.

In addition, the Contractor shall be required to implement and comply with an approved Water Quality Monitoring (WQM) plan as specified in the Section 401 Water Quality Certification to monitor the effectiveness of the BMPs during construction. The WQM plan shall be designed to monitor the adequacy of the deployed BMPs so that the potential project construction activities related to discharge or disturbances are in compliance with applicable State Water Quality Standards. The WQM plan shall describe water quality monitoring parameters, frequency of sampling, and sampling locations within Kahului Harbor, the State receiving water body. Visual plume monitoring and turbidity sampling within Kahului Harbor at points inside and outside the construction area (as delineated by silt the curtains) will be required in accordance with the BMP and WQM plans. Should physical changes in the receiving water be observed resulting from the in-water construction operations, mitigative measures shall be employed as discussed in the BMP plan. If mitigative measures do not control the pollutant, the discharge will be discontinued and the Department of Health notified. As appropriate, alternate remedial measures will be developed.

6.1.2 Dewatering and Disposal of Dredged Sediment

Construction activities of the proposed project are expected to generate approximately 6,000 cubic yards of dredged material from Kahului Harbor that require proper disposal. This dredged material will be dewatered at an approved dewatering site as previously shown in **Exhibits 2-6 thru 2-8**. After the dredged material is dewatered and dried, it will be transported to the County's Central Maui Sanitary Landfill where it will be used as cover material. Prior to dewatering operations at the site, the contractor shall secure County clearing and grubbing permits. The contractor shall also be required to assist the State in filing a "Solid Waste Disposal" form with the State Department of Health Solid and Hazardous Waste Branch (SHWB) at the start of construction for disposal into a DOH regulated landfill.

According to records from the Department of Health, SHWB, no hazardous materials are known to exist within the proposed dewatering site. Should hazardous material be

discovered on grounds of the dewatering site, all construction activities shall cease and the Department of Health, SHWB shall be notified immediately.

The material dredged at the Pier 1C construction site will be directly deposited into hauling trucks standing by. Since there is the potential to spill some of the dredged sediment onto the Pier area, the trucks receiving the material will be parked as close to the dredging site as possible. The hauling trucks will then transport the dredged sediments from the Pier 1C site to the designated dewatering site via DOT-Harbors property on Hobron Street and then along a County of Maui roadway, Alahao Street. In order to minimize spillage or leakage of the dredged material onto the roadway, leak-tight lining will be installed in the truck beds. The majority of the haul route from the Pier 1C construction site to the dewatering site will be along Alahao Street. This roadway is not heavily traveled since it mainly provides access to the backside (north side) of the Kahului Airport and to the Kanaha Beach Park. Temporary gravel access ways shall be provided at the dewatering site to help reduce tracking of dirt and sediment on Alahao Street from the ingress and egress of hauling trucks and construction equipment. Following the close of construction activities each day, the construction area around Pier 1C and all roadway haul routes will be cleaned as required.

Dredged sediment will be unloaded from the hauling trucks into the dewatering cells where most of the water should either percolate or evaporate. The contractor may construct 6-foot high dewatering berms around the perimeter of each cell or excavate a pit with berms around it to deflect runoff. Dewatering berm percolation rates shall match hauling of dredged material to prevent overflow of the water. The contractor shall also maintain adequate freeboard of a 25-year, 24-hour rainfall event plus one foot at all times to prevent overflow water from running off into the adjacent lands.

The dewatering site may also be used as an offsite staging area for materials and equipment during construction. A temporary fence may be provided for site security. The dewatered and dried sediment may also be temporarily stockpiled on-site until the hauling trucks transport the material to the County's Central Maui Landfill. The contractor shall employ Best Management Practices during stockpiling to protect the adjacent areas from pollutants. Berms shall be constructed around the perimeter of the dewatering site to prevent runoff from entering or exiting the site. A water tank truck shall be used to provide watering for fugitive dust control when needed.

Since the dewatering site is in close proximity to the Kahului Airport, equipment and machinery stored on-site shall meet all height requirements of the Federal Aviation Regulations, Part 77, "Objects Affecting Navigable Airspace" of the U.S. Department of Transportation, Federal Aviation Administration.

Once the dredged sediments is sufficiently dried, it will be stockpiled and eventually transported to the Central Maui Landfill located approximately 5.5 miles away as previously shown in **Exhibit 2-9.** The County's requirements include that the material not be contaminated and that it be dewatered prior to hauling. Samples of the harbor sediment from the project site have been tested for specific contaminants that are restricted at the Central Maui Sanitary Landfill. A Toxicity Characteristic Leaching Procedure (TCLP) test was performed for specific constituents to determine if the harbor sediment contained any hazardous substances capable of leaching into the environment. Recent TCLP tests of sediment samples have shown "non detectable" results for metals, pesticides and herbicides. Since the disposal criteria of the landfill was met, the County of Maui, DPWWM agreed to accept the dried sediment.

Moisture content specifications require that the material contain no free liquids as determined by the Paint Filter Liquids test (EPA 9095). The County of Maui shall approve all Paint Filter test results and will be given free access to inspect the dewatered material brought on-site in the landfill. The contractor shall be responsible for obtaining the necessary approvals to haul the dewatered material from the dewatering site to the Central Maui Landfill.

6.1.3 Wetlands

No short term impacts are expected to wetlands from construction activities at the Pier 1C project site and the dewatering site along Alahoa Street. Since the Pier 1C extension project site is located roughly 2000 feet away from the nearest wetland area, no adverse impacts are expected during construction.

The designated 1.2 acre wetland area adjacent to the proposed dewatering site along Alahao Street is not expected to be impacted during dewatering activities. Dredged sediment will be deposited into the dewatering cells where most of the water should either percolate or evaporate. 6-foot high berms will be constructed around the perimeter of the cells and the contractor shall provide adequate freeboard to accommodate a 25-year, 24-hour rainfall event plus one foot to prevent the dewatered water from running off into the adjacent lands, including the wetland drainage area. In addition, a 30-foot setback has been established from the wetland drainage area to the west side of the dewatering site.

6.1.4 Flood Hazard

Construction of the proposed pier extension will not affect the coastal flood elevations within the harbor area. The project will be in accordance with the County of Maui's flood hazard requirements.

In addition, the construction of dewatering cells at the site located along Alahao Street is not anticipated to adversely impact any flood elevations in the area. 6-foot high berms will be constructed around the perimeter of each dewatering cell and the contractor will also provide freeboard to accommodate a 25-year, 24-hour rainfall event plus one foot. During large storm events, minimal construction is also anticipated, thereby reducing the amount of dredged material deposited in the cells.

6.1.5 Air Quality

During construction, the air quality around the Pier 1C project area is expected to be affected by exhaust fumes from construction equipment. Construction activities also generate dust concerns. Earth material deposited on the roads from trucks or equipment may also cause dust problems when agitated by traffic.

Adequate and proper maintenance of construction equipment and vehicles will help to reduce emissions around both the Pier 1C project area and the dewatering site. The Contractor will be required to have all heavy machinery equipped with proper air pollution abatement devices. Frequent watering of exposed dirt areas and equipment travel ways will help to control fugitive dust concerns. Open body trucks will be covered at all times while transporting materials. Precautions shall also be taken when the dried sediment is hauled away to the Central Maui Landfill to minimize dust. Other types of dust controls shall be implemented by the Contractor as required to minimize air borne particles that may cause health problems and/or property damage.

The air quality may also be temporarily affected around the dewatering site where the dredged material will be dried since stockpiled sediment could potentially create unpleasant odors. However, the dewatering site will be located in a somewhat isolated area adjacent to the airport. No residential communities or businesses are located in the immediate area of the dewatering site. Odors may potentially become a nuisance to park users of Kanaha Beach Park. located to the north of Alahao Street. Should mitigation be necessary, the dewatered sediment could be mixed with lime and aerated to neutralize odors more quickly. Stockpiling will be temporary and the contractor will be required to promptly remove and transport the dewatered sediment to the Central Maui Landfill once it is sufficiently dried.

6.1.6 Noise Emission

Noise from construction equipment and activities may be a nuisance to nearby property owners and businesses of the Pier 1C project area. The increase in noise levels is unavoidable during construction. However, unnecessary noise should be reduced through the use of mufflers on construction equipment/trucks, and through the adequate and proper maintenance of construction equipment and vehicles. The community and nearby

businesses will be given ample notice of construction activities and the elevated noise levels that are anticipated.

Noise levels are also expected to temporarily increase in the area of the dewatering site during construction. Such construction related noise can be attributed to the following: frequent traffic of the hauling trucks that are unloading dredged sediment or loading dried sediment; and the equipment used to move or turn the dredged materials in the dewatering cells. The use of construction equipment and machinery is also expected to temporarily increase noise levels around the dewatering site. However, the dewatering site will be located where there are no residential communities or businesses in the immediate area. In addition, existing noise levels from the take-off and landing of airplanes are much greater than the noise levels to be generated at the dewatering site.

All activities will be coordinated with the Department of Health to minimize noise generation and shall comply with the provisions of Title 11, Chapter 42 "Vehicular Noise Control," and Chapter 46, "Community Noise Control." of the Hawaii Administrative Rules (H.A.R). The Contractor will be required to obtain a noise permit for in accordance with H.A.R. Title 11, Chapter 46 for construction activities proposed during regular daylight working hours. Should any night work be required to minimize disruptions to the nearby businesses, the Contractor will be required to obtain a noise variance from the Department of Health pursuant to H.A.R. Title 11, Chapter 46.

6.1.7 Flora / Fauna

Turbidity of the water is expected to increase during dredging activities thereby possibly disturbing and/or displacing the aquatic life around the project area. However, once the project is completed, water quality should be restored to normal conditions and the pier improvements may facilitate the return of aquatic life to the area. The selected contractor shall also implement Best Management Practices during construction to prevent pollutants from entering the harbor waters outside of the silt containment areas of the Pier 1C project site.

According to the State Department of Land and Natural Resources, Division of Aquatic Resources, the proposed activity is in a highly developed and modified area and is not likely to further diminish the existing aquatic resource values within Kahului Harbor (see letter dated 6/10/99, Appendix B).

Night work at the Pier 1C project site will be minimized since there may be the possibility of Newell's Shearwaters flying around the harbor area during the evening. These birds are naturally attracted to bright lights and can become temporarily blinded, confused or stunned, thereby causing them to fall to the ground. Should any night work be necessary, precautions will be taken to prevent bright lights from potentially attracting these birds.

Dewatering activities at the proposed site along Alahoa Street may also potentially attract an endangered waterbird known as the Hawaiian Stilt which is a resident native bird recorded at the Kanaha Pond Wildlife Sanctuary. According to the Kahului Airport Improvements FEIS, the Hawaiian Stilt has been known to frequent the Kahului airfield area during wet periods to feed in low areas which pond with rain runoff (Edward Noda & Associates, Inc., 1997). In order to minimize the interaction between aircrafts and the Hawaiian Stilt, the Department of Agriculture, Animal and Plant Health Service, Animal Damage Control has acquired a taking permit to haze the Stilts from the airport area. In addition, DOT-Airports has undertaken operational and maintenance measures to deter and reduce the feeding attraction of the ponded areas on the airfield to the Stilt.

Water that accumulates in the dewatering cells could potentially attract more Hawaiian Stilts to the dewatering site and the surrounding airport area. Potential odors from the drying sediment could also draw these birds to the dewatering area. However, the constant activities of trucks entering and exiting the site and the constant movement of construction equipment to spread and turn the sediment is expected to discourage the Stilts from frequenting the dewatering site. Water from the dredged sediment is also not expected to accumulate for long periods of time due to percolation and evaporation. Should odors from the drying sediment attract many Stilts to the dewatering site, mitigation measures shall be employed.

6.1.8 Historic, Archaeological and Cultural Characteristics

According to the State Historic Preservation Division, the proposed pier extension is not anticipated to impact historic sites during construction (see letter dated 7/30/99 in Appendix B) since the project area has previously been disturbed during the development and dredging of Kahului Harbor. In addition, no significant archaeological or historical sites are known to exist within the dewatering site along Alahao Street (Edward Noda & Associates, Inc., 1997).

However, should evidence of historic sites be encountered during construction at either the Pier 1C project site or the proposed dewatering site, all activities in the area of the find shall cease, and the State Historic Preservation Division shall be notified immediately. The Division shall be provided sufficient time to assess the find and recommend appropriate mitigation measures. Any archaeological data recovery work that may be recommended by the Division shall be completed by a qualified archaeologist prior to the commencement of work in the area of the find. Completion of the mitigation work shall be confirmed by the Division, and a report of the findings shall be prepared and submitted to the Division for review and acceptance. If human skeletal remains are inadvertently encountered during construction, procedures outlined in the Hawaii Revised Statutes 6E-43.6 shall be followed.

6.1.9 Traffic

During construction, temporary traffic congestion can be anticipated in the Kahului Harbor area, especially near the Pier 1 facilities. The transportation of construction equipment, materials and wastes to and from the project site will affect normal harbor traffic and can cause temporary inconveniences to customers or businesses in the area. An approved traffic control plan will be developed with the input of affected harbor users and implemented to ensure the most efficient flow of traffic through the project area. The Contractor will be required to maintain at least two travel lanes, one lane of traffic in each direction at all times, or provide for flagmen with harbor security present. The travel corridor will be delineated and signed to promote safety in a construction work zone.

6.1.10 Utilities

The existing utilities beneath Pier 1C to be extended for provision of services to the new pier section include approximately 365 lineal feet of 4-inch domestic water line used for cruise ship demand, and approximately 330 lineal feet of 12-inch molasses line. Drainage provisions for the Pier 1C extension area will include 140 lineal feet of new 18-inch drain line and a single concrete drain inlet. Offsite utility extensions or renovations include approximately 575 lineal feet of 8-inch fire protection line and fire hydrant, and piping renovation of the existing 2-inch meter vault near the DOT-Harbors Maui District office. In order to minimize disruptions to these existing services, construction activities will be coordinated with the appropriate agencies. In addition, the Contractor will be required to coordinate all work with the Harbors District Manager to prevent interference or interruptions with harbor operations. Should accidental disruptions to existing utilities occur during construction, the appropriate utility agencies will be notified immediately so that service can be promptly restored.

6.1.11 Recreational Activities

Construction of the proposed project will also cause secondary impacts on the recreational activities in Kahului Harbor. Dredging activities will temporarily produce turbid waters around the project area. Activities such as surfing and canoeing are not expected to be impacted. The nearest surf sites are located across the turning basin, over 2,000 feet away. Thus, localized project site turbidity and movement of construction equipment will create no impacts. Similarly, the distant location of the canoeing activities (practices and races) near Kanaha Beach Park will ensure no impacts during construction. Fishing activities around Pier 1 will be affected since dredging activities will disturb and/or displace marine life around the project area. Following construction, the water quality around the Pier 1C extension area will return to its normal conditions and the full use of the harbor for recreational activities such as surfing, canoeing and fishing will be restored.

6.1.12 Socio-Economic

The proposed project will provide temporary employment opportunity during the construction period. Local material suppliers and dining establishments may benefit slightly from the project due to their proximity and the increased amount of construction workers in the area.

Due to the anticipated traffic congestion in the project area during construction, access to nearby businesses / facilities may be temporarily inconvenienced. These businesses may need to allow for additional commuting time to and from these facilities, especially during the morning and afternoon peak hours of traffic. Mitigation measures include scheduling construction activities during off-peak hours when these facilities are closed, and implementing an approved traffic control plan that is developed with the input of the affected harbor users.

6.2 LONG TERM IMPACTS

No significant long term adverse impacts are anticipated as result of the construction of the proposed project. The long term impacts of the proposed project are expected to be more beneficial to the welfare and economy of Maui.

6.2.1 Water Quality

Dredging activities are expected to temporarily affect the water quality of Kahului Harbor in the area of the project site. An expected increase in turbidity during construction could potentially disturb and/or displace the marine life in the area. However, in the long term, the original water quality conditions will be restored, thereby allowing marine life to return to the new rock revetment habitats created by the new pier extension.

6.2.2 Dewatering Site

Following completion of the proposed pier extension project, all material and equipment, as well as the dewatering cells will be removed from the dewatering site located along Alahao Street. The dewatering site will also be graded to match the surrounding areas and will be restored in a manner agreeable to the Airports Division. A beneficial long term impact of the project would be the improvements made to the dewatering site following construction. Grading and clearing of overgrown shrubbery/vegetation would increase the usability of the site for the DOT-Airports.

6.2.3 Water Source

Since additional source water is still needed for the Central Maui System, the proposed project may be affected with potential delays until new sources can be found (see letter dated 5/2799 from DWS in Appendix B). Domestic water use calculations will be submitted to DWS prior to construction to determine if the existing 2" water meter serving the project can be upgraded to meet additional water use.

Previous sampling of the sediment to be dredged at Pier 1C has indicated negligible contaminant levels. Thus, the dewatered and dried sediment will be acceptable for use as cover material at the Central Maui Sanitary Landfill and is not expected to have any adverse impacts to the underlying aquifer over the long term.

6.2.4 Oceanographic Conditions

The long-term effects of the proposed 300-foot pier extension on the natural currents, tidal action or shoreline erosion within Kahului Harbor is expected to be negligible. Since the proposed extension shall follow the alignment of the existing eastern breakwater, no new obstruction within the harbor area will be created.

6.2.5 Aesthetics

Following construction, the aesthetic quality of the Kahului Harbor area will essentially remain unchanged since the proposed project involves the extension of an existing pier which impacts few sight lines.

6.2.6 Flora / Fauna

Potential long term lighting impacts on wildlife such as the Newell's Shearwater will be mitigated by providing cutoff luminaries that will be shielded and oriented downwards. In addition, the new lighting control system for the pier extension area will be designed to allow the user to turn off most of the lights when the pier is not in use while allowing several lights to remain in operation for security purposes.

The arrival of large overseas vessels and barges in Kahului Harbor has the potential to introduce alien pest species into the State. Harmful alien pest species include organisms, plants, predators and insects which can damage native forests, streams and watersheds; compete with and cause the extinctions of native flora and fauna; carry diseases that affect native species, agricultural crops and humans; and interrupt the shipment of local produce (USDOT-FAA, 1997). Alien pests may be present aboard the incoming ships, especially in areas such as the ballast water. The additional berthing sites provided by the proposed Pier 1C extension would increase the potential for such species to be introduced in the islands.

In order to prevent harmful alien pest species from entering the State, the U.S. Department of Agriculture and the State of Hawaii, Department of Agriculture monitors, inspects, quarantines and certifies cargo from foreign ports, and inter-state / intra-state cargo, respectively. DOT-Harbors is also participating in a task force to monitor and resolve the potential introduction of alien pest species (DOT-Harbors, 1997). Continual coordination between Federal agencies, State agencies, businesses, and private organizations will help to ensure more effective protection measures against harmful alien pests are established.

In the mean time, Hawaii's status as primarily an import state minimizes somewhat the potential for alien species to be introduced. Cargo ships typically come in laden with cargo and minimum ballast water. As cargo is off-loaded from the ship, ballast water is taken on rather than discharged.

6.2.7 Traffic

Vehicular and equipment traffic is expected to increase as a long-term result of the Pier 1C extension project. Intra-harbor traffic is also expected to increase from the future development of two separate harbor improvement projects currently being planned by DOT-Harbors (timelines for both future projects are undetermined). One of these projects, called the Kahului Inter-Island Cargo Facility, involves the expansion of the harbor's inter-island cargo yard associated with operations from Piers 2 and 3. In order to alleviate congested cargo handling operations, DOT-Harbors acquired a 9.2 acre parcel in March of 1994 located adjacent to Piers 2 and 3. DOT-Harbors also separately acquired an 8.13 acre parcel bounded by Wharf Street on the east, Kaahumanu Avenue on the south, and Puunene Avenue on the west for the proposed "Barge Terminal Improvement" project. DOT-Harbors intends to use this parcel to help reduce congested cargo operations by providing an interim storage area for materials and vehicles in transit.

The additional traffic to be generated by the Pier 1C Extension project may require the implementation of extra traffic control measures during the construction phases for both the "Kahului Inter-Island Cargo Facility" and the "Barge Terminal Improvement" projects. The proposed Pier 1C Extension project in addition to other future harbor improvement projects are expected to affect the overall traffic circulation within Kahului Harbor. Potential adverse traffic conditions can be minimized through the effective coordination and planning of all intra-harbor projects.

6.2.8 Land Use, Plan & Policies

The 2010 Master Plan for Kahului Harbor was developed as a cooperative planning effort by the local community, private businesses, the Kahului Harbor Task Force and DOT-

Harbors. The proposed Pier 1C Extension is consistent with the objectives of this master plan which recognized the need for additional overseas berthing facilities at Pier 1 (DOT-Harbors et. al., 1989).

6.2.9 Recreational Activities

As previously stated in Section 6.2.2, the long-term effects of the proposed 300-foot pier extension on the natural currents, tidal action or shoreline erosion within Kahului Harbor is expected to be minimal. Consequently, long term impacts to surfing sites located across the harbor are expected to be minimal.

No long term impacts to the local canoe club practice and race areas are expected from the proposed pier extension due to the project's distant location across the harbor abutting the existing Pier 1. The area being filled for this project's pier extension currently consists of mostly breakwater armor stone and concrete tribar dolos used for wave energy dissipation. Thus, no canoe club practice or race areas will be displaced.

6.2.10 Socio-Economic

As the population on Maui continues to grow, the island's economic activities also continue to increase. The proposed pier extension would allow an increase in the current scheduled users of Pier 1, thereby helping to meet the projected demands of the island's increasing population and growing economy.

7. DETERMINATION

In accordance with the Hawaii Revised Statues, Chapter 343, the State of Hawaii, Department of Transportation anticipates that the proposed Pier 1C Extension at Kahului Harbor will not have significant impacts to the environment. This document constitutes a "Finding of No Significant Impact," (FONSI) and as a result, an Environmental Impact Statement will not be required for the proposed project.

8. REASONS SUPPORTING THE DETERMINATION

The anticipated determination of the proposed project was based on the following significance criteria in accordance with the Hawaii Administrative Rules 11-200-12:

- *The proposed action does not involve an irrevocable commitment or loss of or destruction of unique natural or cultural resources:*

  The proposed project should have no adverse impacts on historic sites since the project area has already been substantially disturbed during the development and periodic maintenance dredging within Kahului Harbor. However, should evidence of historic sites be encountered during construction, all activities in the area of the find shall cease, and the State Historic Preservation Division shall be notified immediately.

- *The proposed action does not curtail the range of beneficial uses of the environment:*

  The proposed project is consistent with the State and County land use designations of the surrounding area. Traffic disruptions during construction of the pier extension are expected to temporarily curtail the full commercial and recreational uses of the facilities at Pier 1. However, the long term economic benefit of extending Pier 1 far outweighs the temporary traffic impacts and inconveniences to nearby businesses and facilities.

- *The proposed action is in concert with the State's long term environmental policies, goals and guidelines as expressed in Chapter 343, HRS, and any revisions and amendments thereto, court decisions and executive orders:*

  The proposed project is consistent with the State's Land Use Plan which is in concert with all applicable policies, goals, and guidelines. The State's environmental policy is to conserve the natural resources and enhance the quality of life. The proposed project does not conflict with the State's long term environmental policies or goals and guidelines as expressed in Chapter 343 of the Hawaii Revised Statues.

- *The proposed action does not substantially affect the economic or social welfare of the community or State:*

  The proposed pier extension is a relatively small project in size, duration and cost. Thus, no substantial adverse impacts to the economic or social welfare of the community or State are expected.

During construction, access to businesses or facilities at Pier 1 may be temporarily disrupted. The transportation of construction equipment, materials and wastes to and from the project site may also cause temporary inconveniences to customers or businesses in the area. The implementation of an approved traffic control plan together with responsive communication between the affected harbor users and the contractor will help to ensure the most efficient movement of traffic through the project area.

Positive economic impacts resulting from the proposed project include the short term production of construction related jobs and the benefit to local material suppliers and dining establishments from the increase in the amount of construction workers in the area. In the long term, the proposed project will benefit the island's economy by enhancing the flow of goods and commerce and by minimizing the amount of time wasted from harbor congestion.

- *The proposed action does not involve substantial secondary impacts, such as population changes or effects on public facilities:*

The proposed pier extension is needed to help meet the projected economic demands of the increasing population and growing economy on an island-wide basis. The lengthened pier will be able to accommodate an increase in scheduled users and should have a positive effect on the overall operations of Kahului Harbor. Although the proposed project is not expected to cause an increase in the island's population, the extended pier facility could result in a increase in available jobs such as harbor security personnel, equipment operators, and harbor administration.

- *The proposed action does not substantially affect public health:*

Construction activities will generate short term impacts with the potential for affecting public health. Such short term impacts include noise and dust which will be minimized through the implementation of the mitigative measures previously identified in Section 6. These impacts are addressed and regulated through the permit processes established by the appropriate regulatory agencies. In addition, the Contractor will be directed to communicate with the community to mitigate public concerns during construction.

Fishing activities may be temporarily impacted since dredging within the harbor may temporarily disturb and/or displace the aquatic life in the project area. However, fishing activities will be restored following construction since the water quality of the harbor is expected to return to normal conditions.

- *The proposed action does not involve a substantial degradation of environmental quality:*

Although dredging activities are expected to temporarily affect the water quality and consequently, the marine life near the project area, mitigative measures shall be implemented during construction to minimize degradation to the environment. The contractor shall be required to comply with a D.O.H. approved Best Management Practices Plan (as specified in the 401 Water Quality Certification) to minimize impacts to the water quality and marine habitats within Kahului Harbor. In the long term, the water quality of the harbor should be revert back to normal conditions once the project is completed.

A section of the existing rock revetment which provides habitat for marine life will be removed during construction. However, this revetment will be replaced and lengthened by the construction of the new pier extension, thereby providing additional habitat for the marine life in the harbor area.

- *The proposed action is individually limited and cumulatively, does not have a considerable adverse effect upon the environment or involve a commitment for larger actions:*

  The proposed pier extension, either individually or cumulatively, will not have a considerable adverse effect on the environment. The project addresses a direct need to accommodate a projected increase in the current scheduled users of Pier 1 and consequently helps to meet the projected demands of the island's increasing population and growing economy. No commitment of any larger action is triggered by the construction of this project.

- *The proposed action does not substantially affect rare, threatened or endangered species or habitats:*

  No direct adverse impact to wildlife resources are anticipated from the proposed improvements. The Pier 1C project site area lacks rare, threatened, or endangered species.

- *The proposed action does not detrimentally affect air or water quality or ambient noise levels:*

  Short term impacts on air and ambient noise levels are expected to occur during the construction period, but will be mitigated through typical construction practices and regulations specified in the project plans and specifications. Upon completion of the pier extension, the air quality and noise levels should return to the existing condition.

Since dredging activities will take place within the harbor, the water quality of the harbor will be temporarily affected during construction. Dredging is expected to temporarily increase the turbidity around the Pier 1C extension area. However, the original water quality conditions should eventually be restored following construction activities. The project specifications will require the Contractor to take appropriate measures during construction to prevent fuel, oil and cement products from discharging or leaching into the ocean waters. The Contractor will also be required to implement an approved Best Management Practice (BMP) plan to minimize impacts to Kahului Harbor.

- *The proposed action does not affect an environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary or coastal waters:*

  Although the proposed project is located within a coastal flood hazard area, the new pier extension is not expected to adversely impact any flood plain, tsunami zone erosion-prone area, geologically hazardous land, estuary or coastal waters. The proposed project is of a relatively small size and is located within an area that has already been substantially disturbed from past construction activities and maintenance dredging.

- *The proposed action does not substantially affect scenic vistas and view planes identified in county or state plans or studies:*

  No scenic vistas or view planes should be affected by the proposed project due to the following reasons: the pier extension will follow the profile of the existing pier; and the project area is surrounded by industrial and commercial harbor uses.

  Any piece of construction equipment or machinery to be stored at the dewatering site along Alahoa Street will be in compliance with all height requirements of the Federal Aviation Regulations, Part 77, "Objects Affecting Navigable Airspace" of the U.S. Department of Transportation, Federal Aviation Administration.

- *The proposed action does not require substantial energy consumption:*

  No significant amount of fuel, electrical or labor resources will be expended by the construction of the new pier extension. Following construction, the new pier extension utilities and operations will not have a substantial effect upon current energy consumption within the harbor due to its relatively small size.

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APPENDIX A

CORRESPONDENCE DURING THE DRAFT EA 30-DAY COMMENT PERIOD

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December 30, 1999

Mr. Thomas E. Arizumi, P.E., Chief
Environmental Management Division
State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Project: Pier 1C Extension (Job H.C. 3296)
TMK: (2) 3-7-001: 022
Kahului Harbor, Kahului, Maui, Hawaii

Owner: State of Hawaii
Department of Transportation
Harbors Division

Subject: Response to Draft Environmental Assessment Comments
October 25, 1999 Clean Water Branch Letter (Ref: I0078CEC.99)

Dear Mr Arizumi:

Thank you for your October 25, 1999 letter comments to the Draft Environmental Assessment. We offer the following responses:

1. **Please clarify whether the DEA and project design are based on the "2010" (see p.2-1 & 3-1) or "2020" (see p.3-1) Master Plan for Kahului Harbor?** The 2020 Master Plan for Kahului Harbor is currently not complete. The 2010 document is the properly referenced document.

2. **As specified in page 4-1 of the DEA, mudline in the area of the proposed pier extension is at a depth of approximately 35 feet below the water surface. However, Exhibit 2-5 demonstrates that the existing mudline starts at approximately 17 feet below the Mean Lowe Low water (MLLW). Please also provide the quantity of the dredged spoils.** Text and Figure 2-5 revised for clarification based on the geotechnical consultant findings.

3. **Page 4-3 of the DEA stated that boring tests taken at location of the proposed pier deck showed soft harbor sediments occurring at depth between 35 to 45 feet, loose coral detrius occurred at depths between 40 to 50 feet. Will the rock wall (rock revetment?) be properly stabilized when the toe of the proposed rock wall is located at depth of 40 feet (Exhibit 2-5)?** The rock revetment will be keyed in to a stable substrate based on actual field conditions. Text revised in Section 2.3 to clarify this.

4. **Please provide the layout of the existing 18-in drain line and how would this drain line be extended. Please also provide the relationship between the 18" drain line and the County drainage channel located between the Wharf Street and Puunene Avenue. Would County's plan to enlarge the drainage channel affect the storm water quality to be discharged through this 18" drain line?** The existing 18" drain line in the previous pier extension will not be affected by this project. The County drainage channel is located approximately 2,000' across the harbor from the existing drain line, and another 300 feet more distant from the proposed 18" drain line. No impacts to the County channel are anticipated as a result of the construction of this project. Text has been revised to try to clarify this.

5. **Please clarify which approved Best Management Practices (BMPs) plan shall the contractor follow (p.6-1)? Exhibit BMP-1 indicated that "silt screen" shall not exceed 20' from the sheet pile bulkhead without "DOT's" approval. Please clarify will the DOT first secure clearance from all jurisdictional agencies' concurrence before giving the approval to the "contractor".** The contractor shall follow the BMP practices described in the Section 401 WQC application. The text will be revised to better clarify this. Additional language will be incorporated into the Section 401 WQC application to address the DOH's concerns regarding the protocol for placement/relocation of silt screens and other mitigative practices. The Contractor and the DOT will coordinate any revisions with the DOH Clean Water Branch and will receive their approval before proceeding.

6. **Please clarify the purpose of the proposed monitoring plan (p 6-1). The DOT, Harbors Division is required to fully comply with the site-specific BMPs plan that is acceptable to the Department. However, the intent of the deployment of the BMPs is to insure that potential project construction activity related discharge or disturbances will comply with applicable State WQS. Monitoring plan shall also be designed to monitor the adequacy of the deployed BMPs.** Text will be revised to clarify that the monitoring plan's purpose is to monitor the adequacy of the deployed BMPs.

Your letter will be included in the Final Environmental Assessment. If you have any questions concerning this letter, please call me at 536-7721.

Very Truly Yours,

Michael Miyahira, P.E.
Project Manager

cc: Ken Hayashida, KAI Hawaii Inc.
Angela Kunioka, State DOT-Harbors-Design

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September 22, 1999

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

Project: Pier 1C Extension (Job H.C. 3296)
TMK: (2) 3-7-001: 022
Kahului Harbor, Kahului, Maui, Hawaii

Owner: State of Hawaii
Department of Transportation
Harbors Division

Subject: Response to Draft Environmental Assessment Comments

Dear Mr Young:

Thank you for your April 13, 1999 letter comments to the Draft Environmental Assessment. We acknowledge your determination that the project will require a Department of the Army (DA) Permit under Section 404 of the Clean Water Act and Section 10 of the Rivers and harbors Act of 1899. Any future DA permit application correspondence will include the DA File Number 990000274.

Your letter will be included in the Environmental Assessment. If you have any questions concerning this letter, please call me at 536-7721.

Very Truly Yours,

Michael Miyahira, P.E.
Project Manager

cc: Ken Hayashida, KAI Hawaii Inc.
Angela Kunioka, State DOT-Harbors-Design

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

REPLY TO
ATTENTION OF

April 13, 1999

Regulatory Branch

Mr. Michael Miyahira
Akinaka & Associates, Ltd.
250 North Beretania Street, Suite 300
Honolulu, Hawaii 96817

Dear Mr. Miyahira:

Thank you for the opportunity to review the Draft Environmental Assessment (EA) for Pier 1C Extension (H.C. 3296). Based on the information contained in the EA I have determined that a Department of the Army (DA) permit will be required for this activity, under the authorities of both Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899.

If you have any questions concerning this matter, please contact Mr. Bill Lennan of my staff at 438-9258 extension 13, and refer to File Number 990000274.

Sincerely,

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

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September 22, 1999

Mr. Bill Frampton
127 Ainakula Road
Kula, Maui, Hawaii 96790

Project: Pier 1C Extension (Job H.C. 3296)
TMK: (2) 3-7-001: 022
Kahului Harbor, Kahului, Maui, Hawaii

Owner: State of Hawaii
Department of Transportation
Harbors Division

Subject: Response to Draft Environmental Assessment Comments

Dear Mr Frampton:

Thank you for your April 14, 1999 letter comments to the Draft Environmental Assessment. We acknowledge your concerns regarding this project's long-term impacts to the local canoe club practice and race areas within Kahului Harbor. The State's proposed Pier 1C Extension improvements are not expected to have any long-term impacts to the local canoe club practice and race areas due to the project's distant location across the harbor, abutting the existing Pier 1. The area being filled for this project's pier extension currently consists of mostly breakwater armor stone and concrete tribar dolos used for wave energy dissipation. Thus, no practice or race areas will be displaced by this project's construction.

Your letter will be included in the Environmental Assessment. If you have any questions concerning this letter, please call me at 536-7721.

Very Truly Yours,

Michael Miyahira, P.E.
Project Manager

cc: Ken Hayashida, KAI Hawaii Inc.
Angela Kunioka, State DOT-Harbors-Design

BENJAMIN J. CAYETANO
GOVERNOR

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

IN REPLY REFER TO:

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HARBORS DIVISION
79 SO. NIMITZ HWY. • HONOLULU, HAWAII 96813-4898

DATE: April 20, 1999

FACSIMILE TRANSMITTAL

TO: Michael Miyahira

COMPANY: Akinaka & Associates

FAX NO. 521-2153

FROM: *Carter W.S. Luke* *Ph. 587-1959* *Fax. 587-1864*

Number of pages (including this sheet): 2

SUBJECT: Pier 1C Extension, Kahului Harbor, Maui - H. C. 3296

REMARKS: As discussed, attached for your action is an inquiry for Mr. Bill Framption. Please coordinate response with our office. Also, I received a request for a copy of the Draft EA from Mr Scott Matsuura from A&B, P.O. Box 3440, Honolulu, HI 96801 - Please send a copy.

THANKS

c: HAR-E File
KAI Hawaii (Wayne Nakamura) 523-2486

April 14, 1999

State of Hawaii
Department of Transportation
Harbors Division
ATTN: Mr. Carter Luke
79 South Nimitz Highway, 2nd Floor
Honolulu, Hawaii 96813-4898

RE: Draft EA for Kahului Harbor Pier 1C Extension (TMK 3-7-01:22)

Aloha,

As a concerned citizen and a resident of Maui for over 30 years, I am responding to the notice of the Draft EA for the above referenced project in your OEQC Environmental Notice. I am concerned about the long-term impacts that the proposed pier extension will have upon the displacement of the local canoe clubs practice and race areas which are located adjacent to the proposed project area. The applicant may have discussed this in the Draft EA, however, I have not had a chance to review this.

Please respond to me by letting me know if this long-term impact upon the traditional recreational and cultural needs of the community and region have been adequately addressed. Thank you for your time and consideration.

Mahalo,

Bill Frampton

Bill Frampton
127 Ainakula Road
Kula, Hawaii 96790

CC: Mr. Gary Gill, Office of Environmental Quality Control
Mr. Michael Miyahara, Akinaka & Associates

AKINAKA & ASSOCIATES, LTD.
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Civil Engineering • Land Planning

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MICHAEL M. MIYAHIRA. L.P.E.
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BENJAMIN M. GANAL. L.P.L.S.
JOSEPH S. KEANE. JR
MARIAN N. NAKAMA. L.P.E.
CRAIG K. MATSUMOTO
STATE A. INFANTE

September 22, 1999

Mr. John E. Min, Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Maui, Hawaii 96793

Project: Pier 1C Extension (Job H.C. 3296)
TMK: (2) 3-7-001: 022
Kahului Harbor, Kahului, Maui, Hawaii

Owner: State of Hawaii
Department of Transportation
Harbors Division

Subject: Response to Draft Environmental Assessment Comments

Dear Mr. Min:

Thank you for your April 20, 1999 letter comments to the Draft Environmental Assessment. We acknowledge your comments pertaining to: 1) SMA requirements for the storage of dredged material for dewatering, 2) long-term impacts to existing surfing activities, and 3) discussion of this project's cumulative impacts within the context of the Kahului Harbor Master Plan. We offer the following responses:

Special Management Area Requirements:
Your Department's December 9, 1998 Early Consultation response letter noted that the project was not located within the Special Management Area. Please clarify if this is no longer the case.

Long-Term Impacts to Surfing Activities
As stated in Section 6.2.2 Oceanographic Conditions of the Draft EA, "The long-term effects of the proposed 300-foot pier extension on the natural currents, tidal action or shoreline erosion within Kahului Harbor is expected to be minimal." Consequently, long term impacts to surfing sites located across the harbor are expected to be minimal.

Kahului Harbor Master Plan

This project was identified in the 1989 Kahului Harbor Master Plan as a "future pier extension" and is therefore consistent with the intended expansion plans of the harbor over the past ten years. No other projects are identified in the immediate vicinity that could lead to significant cumulative impacts.

Similarly, the 1994 Master Plan Update for Kahului Harbor did not identify any additional projects in the vicinity of this project's pier extension which could lead to significant cumulative impacts.

This pier extension project is individually limited in its impacts and does not involve a commitment to larger actions. The latter statement is evidenced by this project's *extension of existing* utility lines (water, molasses, etc.). Individual projects with commitments to larger actions typically include *extension and oversizing* of infrastructure, sometimes outside the project site boundaries.

Your letter will be included in the Final Environmental Assessment. If you have any questions concerning this letter, please call me at 536-7721.

Very Truly Yours,

Michael Miyahira, P.E.
Project Manager

cc: Ken Hayashida, KAI Hawaii Inc.
Angela Kunioka, State DOT-Harbors-Design

JAMES "KIMO" APANA
Mayor

JOHN E. MIN
Director

CLAYTON I. YOSHIDA
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

April 20, 1999

Mr. Michael M. Miyahira, P. E.
Akinaka and Associates, Ltd.
250 North Beretania Street, Suite 300
Honolulu, Hawaii 96817

Dear Mr. Miyahira:

RE: Draft Environmental Assessment (EA) for the Pier 1C Extension, Kahului Harbor Project, TMK: 3-7-1:22, Kahului, Maui

This letter is in response to your letter dated April 7, 1999, transmitting the above-mentioned document. Based on our review, we offer the following comments:

1. Storage of dredged material for de-watering are subject to the Special Management Area Rules and Regulations.

2. Section 6.1.11 of the Draft EA discussed only temporary impacts during dredging which may discourage surfing activities. Long-term impacts to existing surf sites should be discussed as well. It would be appropriate to incorporate the project's impacts on oceanographic conditions (Section 6.2.2) to support your findings.

3. All projects contained in the Master Plan for Kahului Harbor should be mentioned in this document. This information is necessary to adequately analyze the cumulative impacts of the project and the commitment for larger actions.

Thank you for the opportunity to comment. Should you have any questions, please contact Mr. Daren Suzuki, Staff Planner, of this office at 243-7735.

Very truly yours,

JOHN E. MIN
Director of Planning

JEM:DMS:cmb
c: Gary Gill, Office of Environmental Quality Control
Clayton Yoshida, AICP, Deputy Director of Planning
Daren Suzuki, Staff Planner
Project File
General File
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JOSEPH S. KEANE, JR
MARIAN N. NAKAMA, L.P.E.
CRAIG K. MATSUMOTO
STATE A. INFANTE

September 22, 1999

Mr. John T. Jackson, General Manager
Kahului Trucking & Storage, Inc.
140 Hobron Avenue
Kahului, Maui, Hawaii 96732

Project: Pier 1C Extension (Job H.C. 3296)
TMK: (2) 3-7-001: 022
Kahului Harbor, Kahului, Maui, Hawaii

Owner: State of Hawaii
Department of Transportation
Harbors Division

Subject: Response to Draft Environmental Assessment Comments

Dear Mr Jackson:

Thank you for your April 26, 1999 letter comments to the Draft Environmental Assessment. We acknowledge that you have no comments.

Your letter will be included in the Environmental Assessment. If you have any questions concerning this letter, please call me at 536-7721.

Very Truly Yours,

Michael Miyahira, P.E.
Project Manager

cc: Ken Hayashida, KAI Hawaii Inc.
Angela Kunioka, State DOT-Harbors-Design

KAHULUI TRUCKING & STORAGE, INC.
140 HOBRON AVENUE
KAHULUI, MAUI, HAWAII 96732
PHONE 808-877-5001 FAX 808-877-0572

April 26, 1999

Mr. Michael M. Miyahira, P.E.
Project Manager
Akinaka & Associates, Ltd.
250 North Beretania St., Suite 300
Honolulu, Hawaii 96817-4716

Dear Mr. Miyahira:

Thank you for the copy of the Draft Environmental Assessment for the Pier I Extension Project. After review, we have no comments as you have done a very thorough assessment.

Sincerely,

John T. Jackson
General Manager

JTJ:cjs

Enclosure

AKINAKA & ASSOCIATES, LTD.
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JOSEPH S. KEANE, JR.
MARIAN N. NAKAMA, L.P.E.
CRAIG K. MATSUMOTO
STATE A. INFANTE

September 22, 1999

Mr. Stanley Kiyonaga, Manager
Production Department
Maui Electric Company, Ltd.
210 West Kamehameha Avenue
Kahului, Maui, Hawaii 96732-0398

Project: Pier 1C Extension (Job H.C. 3296)
TMK: (2) 3-7-001: 022
Kahului Harbor, Kahului, Maui, Hawaii

Owner: State of Hawaii
Department of Transportation
Harbors Division

Subject: Response to Draft Environmental Assessment Comments

Dear Mr Kiyonaga:

Thank you for your April 30, 1999 letter comments to the Draft Environmental Assessment. We acknowledge that your concerns relate to the potential disruption of fuel barge service and fuel handling operations during the construction period.

The State DOT will require the Contractor to be familiar with the various facets of the existing fuel barge service and fuel handling operations occurring nearby and will coordinate his schedule with Maui Electric Company, Ltd. (MECO) and notify them of any changes to the construction schedule which could disrupt normal fueling operations. In addition, the Contractor and MECO will work together with the DOT Harbormaster's office to develop mitigation procedures to minimize construction impacts to existing fueling operations before the Contractor mobilizes onsite.

Your letter will be included in the Environmental Assessment. If you have any questions concerning this letter, please call me at 536-7721.

Very Truly Yours,

Michael Miyahira, P.E.
Project Manager

cc: Ken Hayashida, KAI Hawaii Inc.
Angela Kunioka, State DOT-Harbors-Design

Maui Electric Company, Ltd. • 210 West Kamehameha Avenue • PO Box 398 • Kahului, Maui, HI 96732-0398 • (808) 871-8.

April 30, 1999

Mr. Michael Miyahira, P.E.
Project Manager
Akinaka & Associates, Ltd.
250 N. Beretania Street, Suite 300
Honolulu, Hawaii 96817

Dear Mr. Miyahira,

Subject: Draft, Environmental Assessment for the Pier 1C Extension, Kahului Harbor

Thank you for the opportunity to comment on the subject matter. At this time, Maui Electric Company's only comment/concern relates to potential disruption of vital fuel barge service and fuel handling operations during the construction period. We trust that every effort will be made to ensure minimal impact to this operation.

If you have any questions regarding this matter, please call Greg Kauwe, (Station Manager, Kahului Power Plant) at 871-2355.

Sincerely,

Stanley Kiyonga
Manager
Production Department

SK:jst

xc: Carter Luke
DOT – Harbors Division

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JOSEPH S. KEANE, JR.
MARIAN N. NAKAMA, L.P.E.
CRAIG K. MATSUMOTO
STATE A. INFANTE

September 22, 1999

Mr. William F. Anonsen, Vice President
Maritime Affairs & Training
American Hawaii Cruises
Amfac Center
700 Bishop Street, Suite 800
Honolulu, Hawaii 96813

Project: Pier 1C Extension (Job H.C. 3296)
TMK: (2) 3-7-001: 022
Kahului Harbor, Kahului, Maui, Hawaii

Owner: State of Hawaii
Department of Transportation
Harbors Division

Subject: Response to Draft Environmental Assessment Comments

Dear Mr Anonsen:

Thank you for your May 3, 1999 letter comments to the Draft Environmental Assessment. We acknowledge that you have no objections to the submitted proposed plans aside from concerns regarding mooring bollard particulars and placement assignments. The State and their project design team will continue to coordinate with you regarding mooring bollard placement for this project.

Your letter will be included in the Environmental Assessment. If you have any questions concerning this letter, please call me at 536-7721.

Very Truly Yours,

Michael Miyahira, P.E.
Project Manager

cc: Ken Hayashida, KAI Hawaii Inc.
Angela Kunioka, State DOT-Harbors-Design

AMERICAN HAWAII CRUISES

May 3, 1999

(wfa –2168)

RECEIVED
MAY 7 1999
AKINAKA & ASSOCIATES, LTD.

Mr. Michael Miyahira, P.E.
Project Manager
Akinaka & Associates, Ltd.
250 North Beretania Street, Suite 300
Honolulu, Hawaii, 96817

Subject: Draft Environmental Assessment – Pier 1-C Extension
Kahului Harbor Project (Job. H.C. 3296)

Dear Mr. Miyahira,

Thank you for the opportunity to review and comment on the pier extension construction project at Kahului Harbor. Based on the information you have provided under cover letter dated April 7, 1999, we have no objections to the submitted proposed plans aside from our concerns regarding mooring bollard particulars and placement assignments.

By copy of this document to Harbors Division we reserve our desire to incorporate a mooring arrangement plan as part of the overview Pier 1-A, B, and C configuration to ensure appropriate holding capabilities are in place. We will be available to address any questions and/or concerns your staff and/or the Harbors Division may have regarding this issue.

Should you have any questions, please feel free to contact me at (808) 538-8227.

Sincerely,

William F. Anonsen
Vice President
Maritime Affairs & Training

Cc: T. Fujikawa, Chief – Harbors Division
K. Hayashida, Pres. KAI Hawaii, Inc.
S. Cunningham, Maui District Mgr.
T. Carman, Exec. Vice Pres., American Hawaii Cruises

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JOSEPH S. KEANE, JR
MARIAN N. NAKAMA, L.P.E
CRAIG K. MATSUMOTO
STATE A. INFANTE

September 22, 1999

Mr. Timothy E. Johns, Chairperson
State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Project: Pier 1C Extension (Job H.C. 3296)
TMK: (2) 3-7-001: 022
Kahului Harbor, Kahului, Maui, Hawaii

Owner: State of Hawaii
Department of Transportation
Harbors Division

Subject: Response to Draft Environmental Assessment Comments

Dear Mr Johns:

Thank you for your May 7, 1999 letter comments to the Draft Environmental Assessment. We acknowledge that your Engineering Branch has identified the project site as being located in Flood Hazard Zone V23, areas of 100-year coastal flood and wave velocity (wave action); base flood elevations and flood hazard factors determined. In addition, we acknowledge your staff's suggestion that the project be done according to Chapter 19.62 Flood Hazard Areas of the Maui County Code.

The project design will meet the intent of the Maui County Code. Because of the project's relatively small displacement volume and tidally-influenced harbor location, no increase or decrease in the base flood elevations of the area is anticipated. No watercourses will be altered, relocated or will have their flood carrying capacities reduced. The low profile, contiguous nature of the pier extension against the adjacent breakwater and existing Pier 1 will minimize the possibility of wave damage to the concrete pier structure and paved sheet pile bulkhead area.

Since this project's flood hazard impacts are minimal, the State DOT-Harbors has elected to invoke Hawaii Revised Statutes (HRS) Section 266-2 *Powers and duties of department* Item (b) which exempt them from the formal County flood hazard permit process.

Your letter will be included in the Environmental Assessment. If you have any questions concerning this letter, please call me at 536-7721.

Very Truly Yours,

Michael Miyahira, P.E.
Project Manager

cc: Ken Hayashida, KAI Hawaii Inc.
Angela Kunioka, State DOT-Harbors-Design

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P.O. BOX 621
HONOLULU, HAWAII 96809

MAY 7 - 1999

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

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MAY 8 1999
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Ref:PS:EH

Mr. Michael M. Miyahira, P.E.
Akinaka and Associates
250 North Beretania Street, Suite 300
Honolulu, Hawaii 96817

Dear Mr. Miyahira:

Subject: Draft Environmental Assessment (DEA)
For the Pier 1C Extension, Kahului
Harbor Project (JOB H.C. 3296)
Kahului, Maui, Hawaii (TMK: 3-7-01:22)

We have reviewed the subject DEA document and have the following comments for your consideration.

Engineering Branch:

We suggest the proposed project be done according to Chapter 19.62 Flood Hazard Areas of the Maui County Code.

We confirm that the proposed project site is located in Zone V23, areas of 100-year coastal flood and wave velocity (wave action); base flood elevations and flood hazard factors determined.

Thank you for the opportunity to review the DEA document.

Should you have any questions or require further assistance, please contact staff planner Ed Henry at 587-0380.

Very truly yours,

TIMOTHY E. JOHNS,
Chairperson

c.c. MDLO
Engineering Branch

AKINAKA & ASSOCIATES, LTD.
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CRAIG K. MATSUMOTO
STATE A. INFANTE

September 22, 1999

Mr. Charles Jenks, Director
Department of Public Works
and Waste Management
County of Maui
200 South High Street
Wailuku, Maui, Hawaii 96793

Project: Pier 1C Extension (Job H.C. 3296)
TMK: (2) 3-7-001: 022
Kahului Harbor, Kahului, Maui, Hawaii

Owner: State of Hawaii
Department of Transportation
Harbors Division

Subject: Response to Draft Environmental Assessment Comments

Dear Mr Jenks:

Thank you for your May 10, 1999 letter comments to the Draft Environmental Assessment. This project's small work area does not include an analysis of the circulation patterns and algal bloom problems within the harbor. Your comments regarding the need to improve circulation within the harbor to minimize or eliminate algal blooms have been forwarded to the State DOT Harbors Division for further planning consideration.

Your letter will be included in the Environmental Assessment. If you have any questions concerning this letter, please call me at 536-7721.

Very Truly Yours,

Michael Miyahira, P.E.
Project Manager

cc: Ken Hayashida, KAI Hawaii Inc.
Angela Kunioka, State DOT-Harbors-Design

JAMES "KIMO" APANA
Mayor

CHARLES JENCKS
Director

DAVID C. GOODE
Deputy Director

Telephone: (808) 243-7845
Fax: (808) 243-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

ANDREW M. HIROSE
Solid Waste Division

May 10, 1999

Mr. Michael M. Miyahira, P.E.
Akinaka and Associates, Ltd.
250 North Beretania Street, Suite 300
Honolulu, Hawaii 96817

Dear Mr. Miyahira:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
KAHULUI HARBOR PIER 1C EXTENSION
TMK: (2) 3-7-001: 022

This is in response to your April 7, 1999, letter requesting our comments on the Draft Environmental Assessment for the Kahului Harbor Pier 1C extension project.

Section 4.5.4 of the report pertaining to Water Quality mentions the problem of poor water circulation within the harbor as attributing to the cause of algal blooms. Whether as a part of this or some future project, the State should improve water circulation within the harbor to minimize or eliminate algal blooms. Further study should be made to determine if this proposed project will cause changes in water circulation that will increase the intensity or frequency of the algal blooms.

The County of Maui has, for the last three to five years, expended approximately $50,000 annually to clean algae off the beach along Kahului Beach Road and to pump rotten seaweed from the water area nearest to the Harbor Lights Condominium. This County expenditure for cleaning State waters could be eliminated with better water circulation.

Please call David Goode at 243-7845 if you have any questions regarding this letter.

Sincerely,

for CHARLES JENCKS
Director of Public Works
and Waste Management

RMN/DG:msc/mt
cc: Charles Jencks
Land Use and Codes Administration
Highways Division
Mayor's Office

S:\LUCA\CZM\KAHULUI.WPD

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BENJAMIN M. GANAL, L.P.L.S
JOSEPH S. KEANE, JR
MARIAN N. NAKAMA, L.P.E
CRAIG K. MATSUMOTO
STATE A. INFANTE

September 22, 1999

Ms. Gabriella Barrett, Chair
Surfrider Foundation Maui
P.O. Box 1093
Paia, Maui, Hawaii 96779

Project: Pier 1C Extension (Job H.C. 3296)
TMK: (2) 3-7-001: 022
Kahului Harbor, Kahului, Maui, Hawaii

Owner: State of Hawaii
Department of Transportation
Harbors Division

Subject: Response to Draft Environmental Assessment Comments

Dear Ms. Barrett:

Thank you for your May 10, 1999 letter comments to the Draft Environmental Assessment. We acknowledge your concerns regarding this project's long-term cumulative impacts to the local surf/canoe paddle sites within Kahului Harbor and to the harbor water quality.

The State's proposed Pier 1C Extension improvements are not expected to have any long-term impacts to the local canoe club practice and race areas due to the project's distant location across the harbor, abutting the existing Pier 1. The area being filled for this project's pier extension currently consists of mostly partially-submerged breakwater armor stone and concrete tribar dolos used for wave energy dissipation. Thus, no practice or race areas will be displaced by this project's construction.

Measures to mitigate the potential for increased turbidity within the project area will be implemented, including silt curtains, sheet pile cofferdams, water quality monitoring and Best Management Practices (BMPs). Long-term, existing water quality is expected to be restored to its current conditions.

Regarding your public input concerns, please be assured that both the public and the necessary regulatory agencies will be provided ample opportunity to review and comment on the project and its impacts, not only through the Hawaii Environmental Review Process (Title 11 Chapter 200 HAR and Chapter 343 HRS), but through the processing of a Department of the Army Section 10 and Section 404 Permit, a Section 401 Water Quality Certification (State DOH), and a Federal Consistency Review (CZM) under the State Office of Planning.

Your letter will be included in the Final Environmental Assessment. If you have any questions concerning this letter, please call me at 536-7721.

Very Truly Yours,

Michael Miyahira, P.E.
Project Manager

cc: Ken Hayashida, KAI Hawaii Inc.
Angela Kunioka, State DOT-Harbors-Design

ATTN: MIKE MIYAHIRA
AKINAKA and ASSOCIATES, LTD.

RECEIVED
MAY 10 1999
AKINAKA & ASSOCIATES, LTD.

May 10, 1999

To Whom It May Concern:

Please accept the following letter from the Maui Chapter of the Surfrider Foundation as our official comment on the Draft EA for the Pier 1C Extension of Kahului Harbor.

The Surfrider Foundation is a national organization of 15,000 members, with international affiliates in Australia, France, Brazil, and Japan. We are a non-profit environmental organization dedicated to the protection and enjoyment of the world's oceans, waves, and beaches, for all people, through conservation, activism, research and education.

Surfrider has been an active participatory voice in state and federal decision-making processes in the U.S. for fifteen years. We have initiated thousands of Blue Water Task Force water quality testing programs in coordination with governmental agencies and have worked with hundreds of schools nationwide to implement "respect the beach" programs.

In regards to the Draft EA for the Pier 1C Extension, we are concerned about a number of topics that several agencies have already addressed in their comments. We are most concerned about the level of analysis currently given to long-term cumulative impacts to surf/canoe paddle sites as well as to water quality.

Given the fact that there is no SMA review required for harbors, Surfrider is also concerned that public input will be limited and that individuals affected by the final decision will not be effectively heard.

Consequently, Surfrider Maui respectfully requests that comments received on the Draft EA be responded to and included in a CZM consistency review, as required.

We also request that this review be completed prior to issuance of the Final EA.

Thank you for your time and consideration,

Gabriela Barrett
Chair, Surfrider Foundation Maui
P. O. Box 1093
Paia, Hi 96779
808 575-2113

573-3104

6/9/99

AKINAKA & ASSOCIATES, LTD.
CONSULTING ENGINEERS
Civil Engineering • Land Planning

250 NORTH BERETANIA STREET, SUITE 300, HONOLULU, HAWAII 96817-4716 • TELEPHONE (808) 536-7721 • FAX (808) 521-2153 • E-mail: akinaka@aloha.net

ROBERT Y. AKINAKA, L.P.E.
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SALVADOR M. QUITORIANO, L.P.L.S.
BENJAMIN M. GANAL, L.P.L.S.
JOSEPH S. KEANE, JR.
MARIAN N. NAKAMA, L.P.E.
CRAIG K. MATSUMOTO
STATE A. INFANTE

September 22, 1999

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

Project: Pier 1C Extension (Job H.C. 3296)
TMK: (2) 3-7-001: 022
Kahului Harbor, Kahului, Maui, Hawaii

Owner: State of Hawaii
Department of Transportation
Harbors Division

Subject: Response to Draft Environmental Assessment Comments

Dear Mr Gill:

Thank you for your May 13, 1999 letter comments to the Draft Environmental Assessment regarding the filing of a "Solid Waste Disclosure Form for Construction Sites" with the Office of Solid Waste Management (OSWM). The completed form will be provided once the specific construction methods and Contractor information are better identified.

Your letter will be included in the Environmental Assessment. If you have any questions concerning this letter, please call me at 536-7721.

Very Truly Yours,

Michael Miyahira, P.E.
Project Manager

cc: Ken Hayashida, KAI Hawaii Inc.
Angela Kunioka, State DOT-Harbors-Design

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

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

In reply, please refer to:
File:

May 13, 1999

RECEIVED
MAY 15 1999
AKINAKA & ASSOCIATES, LTD.

99-069/epo

Mr. Michael M. Miyahira, P.E.
Project Manager
Akinaka & Associates, Ltd.
250 N. Beretania Street, Suite 300
Honolulu, Hawaii 96817-4716

Dear Mr. Miyahira:

Subject: Draft Environmental Assessment (DEA)
Pier 1C Extension
Kahului Harbor Project (Job H.C. 3296)
Kahului, Maui
TMK: 3-7-1: 22

Thank you for allowing us to review and comment on the subject project. We have the following comments to offer:

Solid and Hazardous Waste Branch (SHWB)

The Office of Solid Waste Management (OSWM) would like the applicant to fill out the enclosed "Solid Waste Disclosure Form for Construction Sites" because of the production of dredged spoils. Please mail the completed form to the SHWB, OSWM, P. O. Box 3378, Honolulu, Hawaii 96801-3378.

Sincerely,

GARY GILL
Deputy Director for
Environmental Health

Enclosure

c: SHWB

STATE OF HAWAII
DEPARTMENT OF HEALTH
OFFICE OF SOLID WASTE MANAGEMENT

Solid Waste Disclosure Form for Construction Sites

The following form shall be filled out for construction projects either identified as under 40 CFR 122.26(b)(14)(x) or produces (or will produce) dredged spoils. A response must be provided for each item. If an item is not relevant to the activity, indicate by "Not Applicable" (N/A), with a short comment.

This form will help the Department of Health, Office of Solid Waste Management (OSWM), to identify sources of construction/ demolition and site clearing debris. The Department is responsible for the proper disposal of such solid waste. Violators of the regulations Title 11, Chapter 58, "Solid Waste Management Control," are subject to enforcement, corrective actions, and fines.

Completed forms shall be mailed to the Department of Health, Environmental Management Division, OSWM, P.O. Box 3378, Honolulu, Hawaii 96801-3378. Questions regarding this form should be directed to OSWM at 586-4240.

I. Site Information

A. Address of site:_____

B. Owner of site: _____
Address of owner:_____
_____
Phone Number: _____

C. Tax map key: _____
Size of site: (in acres) _____

D. Department of Public Work's grading permit no.:_____
_____

II. Site Activity Information

A. State the kinds of site clearing activities to be completed. State final use of site. Describe the general topography of site, i.e., whether level or sloped._____
_____
_____
_____

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CRAIG K. MATSUMOTO
STATE A. INFANTE

September 22, 1999

Mr. David R. Craddick, Director
Department of Water Supply
County of Maui
P.O. Box 1109
Wailuku, Maui, Hawaii 96793-7109

Project: Pier 1C Extension (Job H.C. 3296)
TMK: (2) 3-7-001: 022
Kahului Harbor, Kahului, Maui, Hawaii

Owner: State of Hawaii
Department of Transportation
Harbors Division

Subject: Response to Draft Environmental Assessment Comments

Dear Mr Craddick:

Thank you for your May 27, 1999 letter comments to the Draft Environmental Assessment regarding water source, water system, water resource protection and water conservation. We offer the following responses to these comments:

Water Source
The Final EA will include a discussion that identifies the water system sources and expected potable and non-potable uses.

Water System
We acknowledge that the existing 2" water meter serving the project site may need to be upgraded to meet additional water use. Domestic water use calculations will be submitted to DWS prior to construction. Construction plans will be coordinated with DWS as early as possible during design.

Water Resources Protection
The Draft EA identifies the U.S. Department of Agriculture and the State Department of Agriculture as lead agencies in the development and implementation of education, inspection, quarantine and other protection measures designed to mitigate the increased risk of alien species being introduced by overseas ships passing through Kahului Harbor. The DOT-Harbors is currently participating in a task force to monitor and resolve the potential introduction of alien pest species through their ports.

Water Conservation

The current project's water system improvements are expected to utilize 100% potable drinking water sources. No non-potable demands are anticipated for this project. The following DWS-recommended water conservation methods do not apply to the project's improvements: elimination of single-pass cooling, utilization of low flow fixtures and devices, use of climate adapted plants, and prevention of over-watering by automated systems. Regarding the maintenance of fixtures to prevent leaks, the State performs regular yearly inspection of their utility systems for leakage, corrosion, operational problems and remaining operational life.

Your letter will be included in the Environmental Assessment. If you have any questions concerning this letter, please call me at 536-7721.

Very Truly Yours,

Michael Miyahira, P.E.
Project Manager

cc: Ken Hayashida, KAI Hawaii Inc.
Angela Kunioka, State DOT-Harbors-Design

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109
Telephone (808) 243-7816 • Fax (808) 243-7833

May 27, 1999

Mr. Michael M. Miyahira
Akinaka and Associates, Ltd.
250 North Beretania Street, Suite 300
Honolulu, Hawaii 96817

SUBJECT: Pier 1C Extension, Kahului Harbor Project (JOB H.C. 3296), Kahului, Maui, Hawaii, TMK: 3-7-01:022

Dear Mr. Miyahira,

Thank you for the opportunity to provide comments in preparation of the Draft Environmental Assessment (EA). The Department of Water Supply provides the following information:

Water Source

The EA should include the sources and expected potable and non-potable water usage. This project is served by the Central Maui System. The major source of water for this system is the Iao Aquifer. Rolling annual average groundwater withdrawals from the Iao Aquifer as of May 1, 1999 were 17.574 MGD. The regulatory sustainable yield of this aquifer is 20 MGD. On August 13, 1997, the State Commission on Water Resource Management (CWRM) elected not to designate Iao Aquifer as a State Groundwater Management Area. However, if rolling annual average withdrawals exceed 20 mgd, CWRM will designate Iao Aquifer. The Department is implementing a plan to bring new sources on-line and to mitigate withdrawals. Two wells in North Waihee were brought on-line in July 1997. No moratorium is currently in effect. However, more source water is still needed. The applicants should be made aware that the timing of this project may be affected with possible delays until new sources can be brought on line. No guarantee of water is granted or implied as a result of these comments or the approval of the requested permits. Water availability will be reviewed at the time of application for meter or meter reservation.

Water System

Enclosed is a portion of our water system map pertaining to the project area.. The existing 2 inch water meter serving the project site may need to be upgraded to meet additional water use. Domestic water use calculations must be submitted to DWS prior to construction. Construction plans should be coordinated with DWS as early as possible in the design process. Our engineering division can be contacted at 243-7835.

Water Resource Protection

The Department of Water Supply strives to protect the integrity of watersheds and water resources. Additional

berthing sites for overseas ships, carrying various cargo and ballast water, increase the potential of further alien species introduction to Maui. Alien species can out-compete native species, leaving large areas unprotected against erosion and other watershed damage. The EA should define adequate inspection, quarantine and other protection measures and describe continuing implementation by participating agencies to ensure mitigation of the increased risk for influx of alien species through the Kahului Harbor.

Water Conservation

It is required by County Code that water conservation practices be incorporated into project design. As much of the water demand as possible should be delivered from non-potable sources (reclaimed or brackish). Further, the applicants should consider these measures:

Eliminate Single-Pass Cooling: Single-pass, water-cooled systems should be eliminated per Maui County Code Subsection 14.21.20. Although prohibited by code, single-pass water cooling is still manufactured into some models of air conditioners, freezers, and commercial refrigerators.

Utilize Low-Flow Fixtures and Devices: Maui County Code Subsection 16.20A.680 requires the use of low flow water fixtures and devices in faucets, showerheads, urinals, water closets and hose bibs. Water conserving washing machines, ice-makers and other units are also available.

Maintain Fixtures to Prevent Leaks: A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day. Refer to the attached handout, "The Costly Drip". The applicant should establish a regular maintenance program.

Use Climate-adapted Plants: Native plants adapted to the area, conserve water and further protect the watershed from degradation due to invasive alien species. The project site is located in "Maui County Planting Plan" - Plant Zone 5. Please refer to the attached documents, "XERISCAPE: Water Conservation Through Creative Landscaping", "Maui County Planting Plan", and "Hawaiian Alien Plant Studies."

Prevent Over-Watering By Automated Systems: Provide rain-sensors on all automated irrigation controllers. Check and reset controllers at least once a month to reflect the monthly changes in evapotranspiration rates at the site.

If you need more information, please contact our Water Resources and Planning Division anytime at (808) 243-7199.

Sincerely,

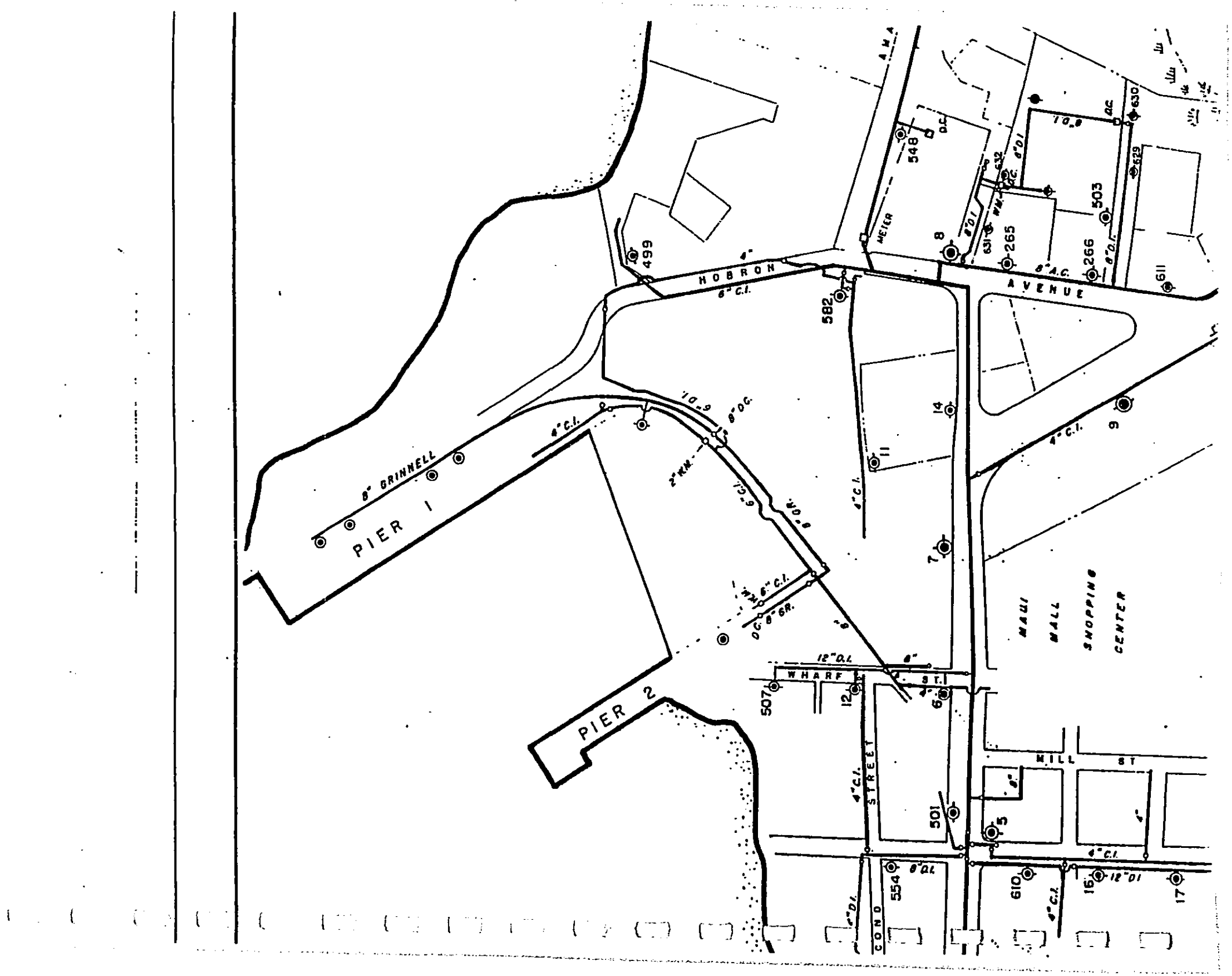
David R. Craddick, Director
Maui Department of Water Supply
emb

cc: engineering division

attachments:

"The Costly Drip"
"Maui County Planting Plan"
"Hawaiian Alien Plant Studies - Pest Plants of Native Hawaiian Ecosystems"
Ordinance 2108 - An ordinance amending Chapter 16.20 of the Maui County Code, pertaining to the plumbing code"
"XERISCAPE - Water Conservation through Creative Landscaping"
"A Checklist for Water Conservation Ideas for Cooling"

C:\WPdocs\Permcomm\Pier1C.wpd


HOBRON
AVENUE
4" C.I.
6" C.I.
8" GRINNELL
PIER 1
PIER 2
10_9
8" D.C.
2" KM.
6" C.I.
8" D.C.
4" C.I.
MEIER
8" D.I.
8" A.C.
6" D.C.
12" D.I.
WHARF
ST.
STREET
MILL ST
MAUI MALL SHOPPING CENTER
COND
499
548
630
529
503
265
266
611
582
8
14
11
9
7
12
6
507
501
5
554
610
16
17

Zone-specific Native and Polynesian plants for Maui County

Zone 5

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Sh	Hedyotis spp.	au, pilo	3'	2'	1,000' to 3,000'	Dry to Wet
Sh	Lipochaeta lavarum	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	Osteomeles anthyllidifolia	'ulei, eluehe	4'	6'	sea to 3,000'	Dry to Medium
Sh	Scaevola sericea	naupaka, naupaka-kahakai	6'	8'	sea to 1,000'	Dry to Medium
Sh	Senna gaudichaudii	kolomana	5'	5'	sea to 3,000'	Dry to Medium
Sh	Solanum nelsonii	'akia, beach solanum	3'	3'	sea to 1,00'	Dry to Medium
Sh	Vitex rotundifolia	pohinahina	3'	4'	sea to 1,000'	Dry to Medium
Sh	Wikstroemia uva-ursi kauaiensis kauaiensis	'akia, Molokai osmanthus				
Sh - Tr	Myoporum sandwicense	naio, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh-Tr	Dodonaea viscosa	'a'ali'i	6'	8'	sea to higher	Dry to Medium
Tr	Aleurites moluccana	candlenut, kukui	50'	50'	sea to 3,000'	Medium to Wet
Tr	Calophyllum inophyllum	kamani, alexandrian laurel	60'	40'	sea to 3,000'	Medium to Wet
Tr	Cordia subcordata	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	Hibiscus furcellatus	'akiohala, hau-hele	8'			
Tr	Morinda citrifolia	indian mulberry, noni	20'	15'	sea to 1,000'	Dry to Wet
Tr	Pandanus tectorius	hala, puhala (HALELIST)	35'	25'	sea to 1,000'	Dry to Wet
Tr	Thespesia populnea	milo	30'	30'	sea to 3,000'	Dry to Wet
V	Ipomoea pes-caprae	beach morning glory, pohuehue	1			

Zone-specific Native and Polynesian plants for Maui County

Zone 5

TYPE: F Fern G Grass Gr Ground Cover Sh Shrub P Palm S Sedge Tr Tree V Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
G	Colubrina asiatica	'anapanapa	3'	10'	sea to 1,000'	Dry to Wet
G	Eragrostis variabilis	'emo-loa	1'	2'	sea to 3,000'	Dry to Medium
G	Fimbristylis cymosa ssp. spathacea	mau'u'aki'aki fimbristylis	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Boerhavia repens	alena	0.5'	4'	sea to 1,000'	Dry to Medium
Gr	Chamaesyce celastroides var. laehiensis	'akoko	2'	3'	sea to 1,000'	Dry to Medium
Gr	Cressa truxillensis	cressa	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Heliotropium anomalum var. argenteum	hinahina ku kahakai	1'	2'	sea to 1,000'	Dry to Medium
Gr	Jacquemontia ovalifolia ssp. sandwicensis	pa'u o hi'iaka	0.5'	6'	sea to 1,000'	Dry to Medium
Gr	Lipochaeta integrifolia	nehe	1'	5'	sea to 1,00'	Dry to Medium
Gr	Sesuvium portulacastrum	'akulikuli, sea-purslane	0.5'	2'	sea to 1,000'	Dry to Wet
Gr	Sida fallax	'ilima	0.5'	3'	sea to 1,000'	Dry to Medium
Gr	Tephrosia purpurea var. purpurea	'auhuhu	2'	2'	sea to 1,000'	Dry to Medium
Gr - Sh	Hibiscus calyphyllus	ma'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lycium sandwicense	'ohelo-kai, 'ae'ae	2'	2'	sea to 1,000'	Dry to Medium
P	Cocos nucifera	coconut, niu	100'	30'	sea to 1,000'	Dry to Wet
P	Pritchardia hillebrandii	lo'ulu, fan palm	25'	15'	sea to 1,000'	Dry to Wet
S	Mariscus javanicus	marsh cypress, 'ahu'awa	0.5'	0.5'	sea to 1,000'	Dry to Medium
Sh	Argemone glauca var. decipiens	pua kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	Artemisia australis	'ahinahina	2'	3'	sea to 3,000'	Dry to Medium
Sh	Bidens hillebrandiana ssp. hillebrandiana	ko'oko'olau	1'	2'	sea to 1,000'	Dry to Wet
Sh	Bidens mauiensis	ko'oko'olau	1'	3'	sea to 1,000'	Dry to Medium
Sh	Chenopodium oahuense	'aheahea, 'aweoweo	6'		sea to higher	Dry to Medium
Sh	Dianella sandwicensis	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	Gossypium tomentosum	mao, Hawaiian cotton	5'	8'	sea to 1,000'	Dry to Medium

DO NOT PLANT THESE

Plant Pests of Hawaiian Native Ecosystems
Clifford Smith, UH Botany Department

Plant Pests of Hawaiian Native Ecosystems - These alien plant species are among the greatest threats to native Hawaiian biota.
(Reference: http://www.botany.hawaii.edu/faculty/cw_smith/aliens.htm)

Common Name(s)	Scientific Name	Plant Family
	Jasminum fluminense	Oleaceae
	Mimosa invisa	Mimosaceae
	Rubus sieboldii	Rosaceae
African Tulip Tree	Spathodea campanulata	Bignoniaceae
Aramina	Urena lobata	Malvaceae
Australian Blackwood	Acacia melanoxylon	Mimosaceae
Australian Red Cedar	Toona ciliata	Meliaceae
Australian Tree Fern	Cyathea cooperi	Cyatheaceae
Banana Poka	Passiflora mollissima	Passifloraceae
Beggar's Tick, Spanish Needle	Bidens pilosa	Asteraceae
Bengal Trumpet, Blue Trumpet Vine	Thunbergia grandiflora	Acanthaceae
Black-eyed Susan Vine	Thunbergia alata	Acanthaceae
Black Wattle	Acacia mearnsii	Mimosaceae
Blue Gum	Eucalyptus globulus	Myrtaceae
Bocconia	Bocconia frutescens	Papaveraceae
Broad-leaved Cordia	Cordia glabra	Boraginaceae
Broomsedge, Yellow Bluestem	Andropogon virginicus	Poaceae
Brush Box, Brisbane Box, Vinegar Tree	Lophostemon confertus	Myrtaceae
Buffelgrass	Cenchrus ciliaris	Poaceae
Bush Beardgrass, Little Bluestem	Schizachyrium condensatum	Poaceae
Butterfly Bush, Smoke Bush	Buddleja madagascariensis	Buddlejaceae
California Grass	Brachiaria mutica	Poaceae
Castor Bean	Ricinus communis	Euphorbiaceae
Cats Claw, Mysore Thorn, Wait-a-bit	Caesalpinia decapetala	Caesalpiniaceae
Charcoal Tree, Gunpowder Tree	Trema orientalis	Ulmaceae
Chinaberry, Pride-of-India	Melia azedarach	Meliaceae
Chinese Banyon, Maylayan Banyon	Ficus microcarpa	Moraceae
Chinese Violet	Asystasia gangetica	Acanthaceae
Chinese Wisteria	Wisteria sinensis	Fabaceae
Christmas Berry	Schinus terebinthifolius	Anacardiaceae
Cluster Pine	Pinus pinaster	Pinaceae
Common Ironwood	Casuarina equisetifolia	Casuarinaceae
Common velvet Grass, Yorkshire Fog	Holcus lanatus	Poaceae

New Zealand Flax, New Zealand Hemp	Phormium tenax	Agavaceae
New Zealand Laurel, Karakaranut	Corynocarpus laevigatus	Corynocarpaceae
New Zealand Tea	Leptospermum scoparium	Myrtaceae
Oleaster	Elaeagnus umbellata	Elaeagnaceae
Olive	Olea europaea ssp. africana	Oleaceae
Opiuma	Pithecellobium dulce	Mimosaceae
Oriental Mangrove	Bruguiera gymnorrhiza	Rhizophoraceae
Oxyspora	Oxyspora paniculata	Melastomataceae
Padang Cassia	Cinnamomum burmanii	Lauraceae
Palmgrass	Setaria palmifolia	Poaceae
Panama Rubber Tree, Mexican Rubber Tree	Castilloa elastica	Moraceae
Paper Bark, Cajeput	Melaleuca quinquenervia	Myrtaceae
Passionfruit, Liliko'i, Purple Granadilla	Passiflora edulis	Passifloraceae
Pearl Flower	Heterocentron subtriplinervium	Melastomataceae
Prickly Florida Blackberry	Rubus argutus	Rosaceae
Purple allamanda, Laurel-leaved Thunbergia	Thunbergia laurifolia	Acanthaceae
Quinine Tree	Cinchona pubescens	Rubiaceae
Raspberry	Rubus glaucus	Rosaceae
Red mangrove, American Mangrove	Rhizophora mangle	Rhizophoraceae
Rose Apple	Syzygium jambos	Myrtaceae
Rose Myrtle, Downy Myrtle	Rhodomyrtus tomentosa	Myrtaceae
Satin Leaf, Caimitillo	Chrysophyllum oliviforme	Sapotaceae
Shoebutton Ardisia	Ardisia elliptica	Myrsinaceae
Silkwood, Queensland Maple	Flindersia brayleyana	Rutaceae
Silky Oak, Silver Oak	Grevillea robusta	Proteaceae
Slash Pine	Pinus caribaea	Pinaceae
Sourbush	Pluchia symphytifolia	Asteraceae
Stinkweed, Marigold	Tagetes minuta	Asteraceae
Strawberry Guava	Psidium cattleianum	Myrtaceae
Swamp Oak, Saltmarsh or Longleaf Ironwood	Casuarina glauca	Casuarinaceae
Sweet Granadilla	Passiflora ligularis	Passifloraceae
Sweet Vernalgrass	Anthoxanthum odoratum	Poaceae
Tree Daisy, Montanoa	Montanoa hibiscifolia	Asteraceae
Tree Manuba	Leptospermum ericoides	Myrtaceae
Tree of Heaven	Ailanthus altissima	Simaroubaceae
Tropical Almond, False Kamani, Kamani-haole	Terminalia catappa	Combretaceae
Trumpet Tree, Guarumo	Cecropia obtusifolia	Cecropiaceae
Umbrella Tree, Octopus Tree	Schefflera actinophylla	Araliaceae
Wedelia	Wedelia trilobata	Asteraceae
White Ginger	Hedychium coronarium	Zingiberaceae
White Moho	Heliocarpus popayanensis	Tiliaceae
Wood Rose	Merremia tuberosa	Convolvulaceae
Yellow Ginger, Awapuhi Melemele	Hedychium flavescens	Zingiberaceae
Yellow Granadilla	Passiflora laurifolia	Passifloraceae
Yellow Himalyan Raspberry	Rubus ellipticus	Rosaceae

Fiddlewood	Citharexylum spinosum	Verbenaceae
Firethorn	Pyracantha angustifolia	Rosaceae
Firetree, Fayatree	Myrica faya	Myricaceae
Formosan Koa	Acacia confusa	Mimosaceae
Fountain Grass	Pennisetum setaceum	Poaceae
German Ivy, Italian Ivy	Senecio mikanioides	Asteraceae
Glenwood Grass	Sacciolepis indica	Poaceae
Glorybower	Clerodendrum laponicum	Verbenaceae
Glorybush, Cane Ti	Tibouchina herbacea	Melastomataceae
Gorse, Furze, Whin	Ulex europaeus	Fabaceae
Guava	Psidium guajava	Myrtaceae
Guinea Grass	Panicum maximum	Poaceae
Hairy Cat's Ear, Gosmore	Hypochoeris radicata	Asteraceae
Hill or Mysore Raspberry	Rubus niveus	Rosaceae
Hilo Grass	Paspalum conjugatum	Poaceae
Huehue Haole	Passiflora suberosa	Passifloraceae
Indian Fleabane	Pluchia indica	Asteraceae
Indian Rhododendron	Melastoma candidum	Melastomataceae
Ivy Gourd, Scarlet-fruited Gourd	Coccinea grandis	Cucurbitaceae
Japanese Honeysuckle	Lonicera japonica	Caprifoliaceae
Java Plum, Jambolan Plum	Syzygium cumini	Myrtaceae
Jhalna	Terminalia myriocarpa	Combretaceae
Juniper Berry	Citharexylum caudatum	Verbenaceae
Kahili Flower	Grevillea banksii	Proteaceae
Kahili Ginger	Hedychium gardnerianum	Zingiberaceae
Kikuyu Grass	Pennisetum clandestinum	Poaceae
Klu, Popinac	Acacia farnesiana	Mimosaceae
Koa Haole	Leucaena leucocephala	Mimosaceae
Koster's Curse	Clidemia hirta	Melastomataceae
Lantana	Lantana camara	Verbenaceae
Lasiandra	Tibouchina urvilleana	Melastomataceae
Logwood, Bloodwood Tree	Haematoxylon campechianum	Caesalpiniaceae
Loquat	Eriobotrya japonica	Rosaceae
Mahogany	Swietenia mahagoni	Meliaceae
Mauritius Hemp	Furcraea foetida	Agavaceae
Meadow Ricegrass	Ehrharta stipoides	Poaceae
Melochia	Melochia umbellata	Sterculiaceae
Mesquite, Kiawe, Algaroba	Prosopis pallida	Mimosaceae
Mexican Ash, Tropical Ash	Fraxinus uhdei	Oleaceae
Mexican Tulip Poppy	Hunnemannia fumariifolia	Papaveraceae
Mexican Weeping Pine	Pinus patula	Pinaceae
Miconia	Miconia calvescens	Melastomataceae
Molasses Grass	Melinis minutiflora	Poaceae
Moluccca Albizia	Paraserianthes falcataria	Mimosaceae
Monkeypod, Rain Tree, 'Ohai	Samanea saman	Mimosaceae
Mules foot, Madagascar Tree Fern	Angiopteris evecta	Marattiaceae
Mullein	Verbascum thapsus	Scrophulariaceae
Narrow-leaved Carpetgrass	Axonopus fissifolius	Poaceae

ORDINANCE NO. 2108

BILL NO. 6 (1992)
Draft 1

A BILL FOR AN ORDINANCE AMENDING CHAPTER 16.20 OF THE MAUI COUNTY CODE, PERTAINING TO THE PLUMBING CODE

BE IT ORDAINED BY THE PEOPLE OF THE COUNTY OF MAUI:

ECTION 1. Title 16 of the Maui County Code is amended by adding a section to Chapter 10 of the Uniform Plumbing Code to be designated and to read as follows:

"16.20.675 Section 1050 added. Chapter 10 of the Uniform Plumbing Code is amended by adding a new section, pertaining to low-flow water fixtures and devices, to be designated and to read as follows:

Sec. 1050 Low-flow water fixtures and devices. (a) This section establishes maximum rates of water flow or discharge for plumbing fixtures and devices in order to promote water conservation.

(b) For the plumbing fixtures and devices covered in this section, manufacturers or their local distributors shall provide proof of compliance with the performance requirements established by the American National Standards Institute (ANSI) and such other proof as may be required by the director of public works. There shall be no charge for this registration process.

(c) Effective December 31, 1992, only plumbing fixtures and devices specified in this section shall be offered for sale or installed in the County of Maui, unless otherwise indicated in this section. All plumbing fixtures and devices which were installed before December 31, 1992, shall be allowed to be used, repaired or replaced after December 31, 1992.

(1) Faucets (kitchen): All kitchen and bar sink faucets shall be designed, manufactured, installed or equipped with a flow control device or aerator which will prevent a water flow rate in excess of two and two-tenths gallons per minute at sixty pounds per square inch of water pressure.

(2) Faucets (lavatory): All lavatory faucets shall be designed, manufactured, installed or equipped with a flow control device or aerator which will prevent a water flow rate in excess of two and two tenths gallons per minute at sixty pounds per square inch of water

pressure.

(3) Faucets (public rest rooms): In addition to the lavatory requirements set forth in paragraph (2), lavatory faucets located in rest rooms intended for use by the general public shall be of the metering or self-closing types.

(4) Hose bibbs: Water supply faucets or valves shall be provided with approved flow control devices which limit flow to a maximum three gallons per minute.

EXCEPTIONS: (A) Hose bibbs or valves not used for fixtures or equipment designated by the director of public works.

(B) Hose bibbs, faucets, or valves serving fixed demand, timing, or water level control appliances, and equipment or holding structures such as water closets, pools, automatic washers, and other similar equipment.

(5) Showerheads: Showerheads, except where provided for safety or emergency reasons, shall be designed, manufactured, or installed with a flow limitation device which will prevent a water flow rate in excess of two and one-half gallons per minute at eighty pounds per square inch of water pressure. The flow limitation device must be a permanent and integral part of the showerhead and must not be removable to allow flow rates in excess of two and one-half gallons per minute or must be mechanically retained requiring force in excess of eight pounds to remove.

(6) Urinals: Urinals shall be designed, manufactured, or installed so that the maximum flush will not exceed one gallon of water. Adjustable type flushometer valves may be used provided they are adjusted so the maximum flush will not exceed one and six tenths gallons of water.

(7) Water closets (toilets): Water closets shall be designed, manufactured, or installed so that the maximum flush will not exceed one and six tenths gallons of water.

(d) Beginning December 31, 1992, it is unlawful to sell r install any plumbing fixtures or devices not specified in his section, except as permitted under this section.

(e) The director of public works may exempt the use of ow-flow water fixtures and devices if there is a finding hat the use of such fixtures and devices would not be onsistent with accepted engineering practices and would be etrimental to the public health, safety and welfare.

(f) Any person violating this section shall be fined
;0 for each violation and shall correct all instances of
i-compliance for which a citation is issued. Violation of
.s section shall constitute a violation as defined in
:tion 701-107 Hawaii Revised Statutes and shall be
:orceable by employees of the department of public works.
: foregoing fine may also be imposed in a civil,
iinistrative proceeding pursuant to Rules and Regulations
)pted by the department of public works in accordance with
apter 91 Hawaii Revised Statutes."

:TION 2. New material is underscored. In printing this bill,

ity Clerk need not include the underscoring.

:TION 3. This ordinance shall take effect upon its approval.

AP: ROVED AS TO FORM
ND LEGALITY:

M. FUKUSHIMA
Corporation Counsel
of Maui
\ords\flows4\pk

WE CERTIFY that the foregoing BILL NO. 6 (19 92), Draft 1

ed FINAL READING at the meeting of the Council of the County of Maui, State of
Ha on the 1st day of May , 1992 , by the following votes:

Patrick S. KAWANO Vice-Chair	Vince G. BAGOYO, Jr.	Goro HOKAMA	Alice L. LEE	Ricardo MEDINA	Wayne K. NISHIKI	Joe S. TANAKA	Lenaala TERUYA DRUMMOND
Aye	Excused	Excused	Aye	Aye	Aye	Aye	Aye

s transmitted to the Mayor of the County of Maui, State of Hawaii, on the 1st day
of , 1992 .

D. WAILUKU, MAUI, HAWAII, this 1st day of May , 19 92 .

HOWARD S. KIHUNE, CHAIR
Council of the County of Maui

DARYL T. YAMAMOTO, COUNTY CLERK
County of Maui

THE FOREGOING BILL IS HEREBY APPROVED THIS 5th DAY OF MAY , 1992 .

LINDA CROCKETT LINGLE, MAYOR
County of Maui

BY CERTIFY that upon approval of the foregoing BILL by the Mayor of the County of
id BILL was designated as ORDINANCE NO. 2108 of the County of Maui, State
C

DARYL T. YAMAMOTO, COUNTY CLERK
County of Maui

t Reading on January 17, 1992.
ate of Ordinance May 5, 1992.

I HEREBY CERTIFY that the foregoing is a true and correct copy of Ordinance No. 2108 , the original of which is on file in the Office of the County Clerk, County of Maui, State of Hawaii.

Dated at Wailuku, Hawaii, on

County Clerk, County of Maui

XERISCAPE

Water Conservation Through Creative Landscaping

Xeriscape Defined

Seven Water Conservation Fundamentals

Planning and Design

Soil Improvement

Efficient, Zoned Irrigation

Limited Turf Area

Use of Mulches

Use Of Low Water-Demand Plants

Appropriate Maintenance

Community Water Management

XERISCAPE

The Department of Water Supply is faced with increasingly more difficult demands regarding water--its supply, quality, distribution, purification, management, and associated costs. Potable water is becoming scarce and the costs of building delivery systems and water treatment plants prohibitive. Consequently, there is a need to conserve water, not only during droughts, but to reduce demands of peak loading on systems in an attempt to delay construction of larger, expensive facilities. Saving water saves energy while conserving other valuable resources.

Water conservation takes on two broad aspects. First, efficient manipulation of physical factors in the landscape - delivery and irrigation systems, soils, percent hardscape used in a design, plants, microclimates, mulch, etc. Secondly, the people factors, which are often more important.

The incorrect perception that water is "cheap" or "inexpensive" has led to the ideas that the water supply is not finite and that it flows towards money. This in turn has fostered a national consciousness that high water use landscapes are normal, desirable and acceptable. Little has been done to change this mind set, particularly as it relates to water conservation in the landscape.

With the increased, continuous demand for high quality water exceeding supply of both surface and below ground sources, a new, philosophy for conservation must be engendered: billing must reflect the real costs of water and people must learn and practice the "whys" and "hows" of water conservation. This is why Xeriscape began.

Xeriscape Defined

XERISCAPE (zir' i scap) is an integrated approach to landscape water conservation. Xeriscape was coined from the Greek word "xero" for dry. Thus, Xeriscape means dryscape or low water use landscaping. Xeriscapes are designed through wise planning, plant and construction materials selection, and proper installation to provide beautiful, water efficient, low maintenance landscapes.

In Hawaiian E' Malama Wai meaning "Cherish Our Water" is used to refer to Xeriscaping.

Many have misread the term as zeroscape, which would imply noscape or no landscape plantings. Others have equated Xeriscape landscaping with "rockscapes," many of which are not aesthetically pleasing and may not always conserve water or energy. Rockscapes are harsh, produce glare, and do little to prevent noise and air pollution, making them a poor substitute for Xeriscape landscaping.

Seven Water Conservation Fundamentals

The Xeriscape motto, "Water conservation through creative landscaping," provides the umbrella under which a wide variety of landscape water conservation activities may be taught and employed in a community. And although there are many landscape and horticultural techniques that conserve water, Xeriscape programming has focused on seven broad, fundamental areas.

1. Planning and Design
2. Soil Improvement
3. Efficient, Zoned Irrigation
4. Limited Turf Areas
5. Use of Mulches
6. Use of Low Water Demand Plants
7. Appropriate Maintenance

Planning and Design

Architects, planners, and homeowners are encouraged and taught to incorporate standard design elements of function, circulation, topography, exposure, seasonal color, texture, safety, etc. into existing landscapes and new designs with emphasis on conserving, limiting and/or reusing water. 40% to 60% of the water homeowners use goes for yard watering. Appropriate design and planning can provide these very necessary aspects of urban life and conserve water at the same time. Xeriscapes can ameliorate the impact of a severe drought and avoid the costly clean-up resulting from a "boom and bust" water policy. Tree removal, replanting of landscapes and turfgrass fields are eliminated and real savings to Maui County.

Thayer and Richman (1984) suggest that designing water-conserving landscapes should be considered in two parts. First, the physical ecology of plants and plant communities must be integrated within the microclimates of the landscape. Logically, plants best adapted to the climate, temperatures, sun, wind, and physical nuances of the site thrive best and require the least expenditures for water, energy and maintenance. Secondly, landscape designers must accept that there is a "human ecology" of water use in landscapes. That is, the intensity of human

activity dictates landscape water use. This includes all uses, whether functional or aesthetic. Thayer and Richman coined the term "hydrozone" to describe the type and intensity of human activity in the landscape and identified four classes of hydrozones. These will be discussed under the heading "Efficient, Zoned Irrigation".

Soil Improvement

Residential soils can be difficult soils to manage because they have been badly disturbed by construction and urban activities. Normal soil horizons are mixed unevenly both vertically and horizontally. Often, hardpans exist and impede drainage, and most urban soils have been compacted by heavy equipment or traffic. Many of the physical and chemical soil properties plants require for growth are present at less than optimum levels in urban soils. Soil improvements must correct poor water infiltration, percolation, and drainage, while providing adequate water holding capacity and improving the nutritional status of the soil. Organic amendments meet most of these requirements and improve tilth, making it easier to till the soil and manage weeds. Adding 3-5 cubic yards of well composted organic matter per 1000 square feet and tilling it into the top 8-12 inches of soil is recommended.

Other amendments such as lime be added to adjust an undesirable acid soil condition. These adjustments should be made prior to planting.

Efficient, Zoned Irrigation

Matching the amount of water supplied to each plant with the plant's water requirement is the most efficient way to irrigate.

Until recently this was difficult to do and most landscapes were irrigated to meet the needs of the turfgrass or other plants with high water requirements. Sprinklers cover large areas without regard to the water needs of individual plants. To eliminate waste by overwatering and run-off, group plants according to their water requirements and use zoned irrigation systems to deliver water to individual plants or to plants with similar moisture requirements (Figure 10-2). Fewer plants will develop disease or die from overwatering.

Not only are irrigation zones established to meet the physical or ecological water needs of plants, but Xeriscape landscaping also recognizes that human activity will impact plant water needs. Thayer and Richman (1984) describe this irrigation zoning to match man's activity as hydrozone planning, and they define four irrigation regimes (Figure 10-3).

The Principal Hydrozone represents the area with the greatest human activity and consequently the greatest water and energy use: sites in yards, parks, and play fields where people frequently, play, sit, walk, gather, or relax: places where people regularly contact plants.

The Secondary Hydrozone is less physically impacted by humans, but is visually important: areas of passive activities space delineation or focal interest such as flower and shrub beds, entrances, prominent plantings, etc; areas of high visual impact, but seldom touched by humans.

Buffer zones, distant views, median strips, parkways, and embankments--these make up the third hydrozone, called the Minimal Hydrozone. In this case, plants are selected that need minimal supplemental water to survive the natural climatic conditions.

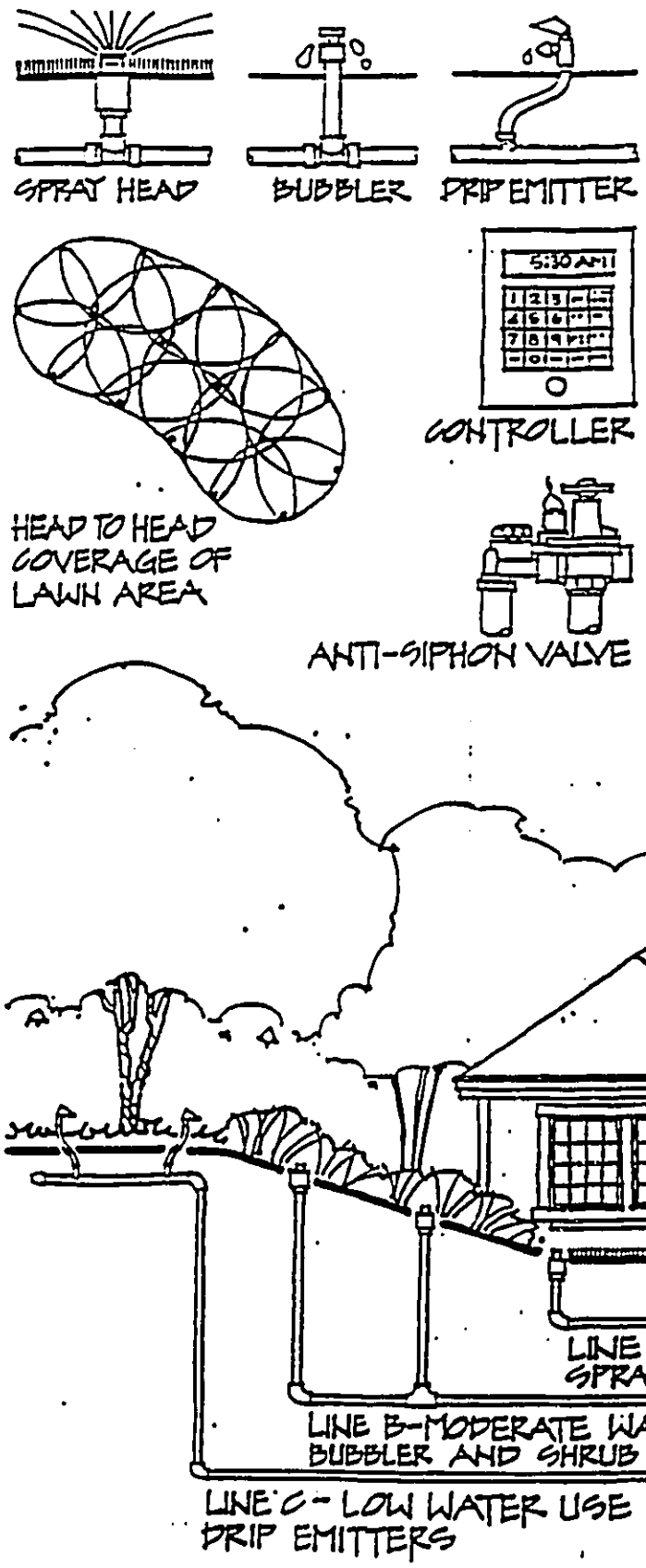
The Elemental hydrozone constitutes landscape plantings that require only natural precipitation to survive and seldom, if ever, incur human activity. Utility areas, mulched native plantings, and naturally sustainable, exotic vegetation belong to this hydrozone (Figure 10-4).

Flexible sprinkler heads and nozzles, adjustable delivery rates and coverage, modern valves, and automated controllers - these allow greater water conservation through zoned irrigation. On-off watering is easily programmed to match water infiltration rates into soils, thus avoiding surface runoff. Also, water is better applied to meet specific plant needs as impacted by seasonal human activity and changes in the weather.

Collection systems should be designed and constructed throughout the landscape to gather storm runoff from roofs, walks, drives, and slopes. By grouping high or moderate water requiring plants near swales and collection basins, much of their water needs can be met by natural moisture accumulations rather than irrigation. On the other hand, drought tolerant species may succumb to frequent accumulations of water and should be located on southern exposures or at the tops of slopes. Because they often only require supplemental irrigation during establishment or during a severe drought, a permanent irrigation system may not be needed.

Limited Turf Area

Turfgrass plays a primary role in most landscapes. Turfgrasses make excellent ground covers. They tolerate heavy foot traffic in the backyard, at the park, or on the athletic field. And mowed or unmowed, they stabilize slopes and prevent erosion. They serve to unify designs and instill a sense of pride in home and neighborhood when well kept. Moreover, turf helps keep homes and communities cleaner by reducing particulate and chemical air pollution. Unfortunately, a lawn consumes approximately half the landscape water and requires weekly care. As well, equipment, pest control and periodic cultural practices, such as coring or dethatching contribute to the expense, both in time and money, of maintaining a lawn.



1. Separate irrigation lines into high, moderate and low water-use zones or areas and set an automatic valve at the head of each line. The same plant material on the north side of a structure or in a sheltered area will require less water than in a more severe exposure.

2. To help achieve uniform water distribution for turfgrass, overlap sprinkler spray patterns (100%) so that water from one head reaches out to the next nearest head (head-to-head coverage). Ask your irrigation supplier for low gallonage sprinkler heads that have "matched precipitation rates."

3. Wire each valve into an automatic timer to control how many minutes each valve applies water. Select a timer that allows recycling, that is, several cycles of on/off "runtime" during each irrigation day. Heavy soils, clays, require several hours between short on periods to allow water to move deeper into soils. Sandy soils require less time between on times and may require mulching to enhance water retention qualities.

4. Prepare and follow an irrigation schedule by contacting a local landscape architect or irrigation specialist. Determine the precipitation requirements for your particular trees, shrubs, lawn and flower beds and program the timer to meet their individual water requirements. Settings will have to be changed seasonally to meet the plants demand for water.

5. Prevent surface run-off by adjusting heads to eliminate over spray on hard surfaces; reduce misting by spraying larger water droplets; utilizing on/off cycling; reducing slopes; using low precipitation heads and applying mulch whenever possible.

Figure 10-2. Five Steps to Efficient Irrigation

Likewise, the amount of turfgrass in a landscape may be reduced by increasing the hardscape. Patios, wooden decks, rocked and graveled walks limit the turf area while reducing the water requirement.

Use of Mulches

Mulches function to buffer soils against climatic extremes. In summer, they reduce soil heating and slow evaporation water loss from soil surfaces. They also reduce weeds and make those present easier to remove. Proper use of mulches reduces or prevents soil erosion. Organic mulches also contribute to the nutritional level and tilth of the soil as they breakdown.

These practical functions are important: however, many mulches are included in the landscape for their design flexibility and attractiveness, not simply because they save water, protect roots, and reduce maintenance.

Mulches are classified as organic, inorganic, and living. Organic mulches include plant refuse, such as chips and slash from tree trimming operations, saw dust, composted leaves and manures, peat moss, and graded bark products. Sized and washed rocks and gravels are popular inorganic mulches which come in many sizes, colors, and textures. *Impervious* sheet plastics covered with either organic or inorganic mulches were popular, but because sheet plastic prevents gas and water exchange between air and soil and creates a water-logged root environment, woven, porous plastics are now preferred. Mulches are applied 3 to 4 inches deep over bare soil and only 2 to 3 inches deep over woven fabrics. Living mulches include low growing groundcovers and low maintenance turfgrasses. They function well as mulches, but may be heavy competitors for water and nutrients under newly planted trees and shrubs. If used, select hardy, drought-tolerant species that resist common diseases. These species provide the best results and require less maintenance.

Use Of Low Water-Demand Plants

Many beautiful and functional plants, both exotics and natives, are available that thrive with natural precipitation or small amounts of supplemental water.

Chapter Two lists tree characteristics including their water requirements ranging from dry (less-thirsty) to wet (very-thirsty).

All types of plants with low water requirements are now available and more will become available as demand increases. The range of drought-tolerant plant species and those with low water requirements is now wide enough to permit selecting for function, beauty, and seasonal interest. As with all plant selections and planting, take care to match the specific needs of the plant to the environmental conditions and the intensity of human activity at the planting site. This is critical when using drought tolerant and low water use plants in the landscape. Choosing the proper plants and planting them correctly will reduce water consumption and maintenance costs over many years.

Appropriate Maintenance

Low maintenance is not <u>no maintenance.</u> The use of all or most of the Xeriscape principles will reduce but not eliminate maintenance. And generally, the greater the human activity at a site, the greater its maintenance requirements will be. Trees, shrubs, groundcovers, and turfgrasses are living organisms that require care. Timely fertilizing, watering, pruning, pest management, and other cultural practices are necessary in Xeriscape landscapes, but at reduced levels compared to conventional landscape plantings. Even mulched sites without plants must have litter removed periodically. Irrigation components for drip and sprinkler systems require routine checks and servicing. Xeriscape landscaping coupled with sound maintenance produces water and energy savings and environmentally adapted landscapes that are aesthetically pleasing.

As has been stressed, integrating these principles in landscapes will conserve water and reduce annual maintenances costs. Most importantly though, Xeriscape landscaping provides these benefits without sacrificing function or beauty. And although these seven points are stressed in Xeriscape literature and are the basis for Xeriscape programming, there is no substitute for creativity as a means of discovering and sharing new ways to conserve water without making yards and parks into zeroscapes.

Community education in Xeriscape landscaping is the key to a successful water conservation program. The principles of Xeriscape landscaping challenge the widespread but mistaken belief that water is cheap, unlimited resource which will always be available. Hopefully, the public will recognize that this is a misconception and that water conserving landscapes are necessary and should be considered "normal" within our society. At the same time, it teaches people the "whys" and "hows" of effective water conserving horticulture. To reach these objectives requires the cooperation of government leaders,

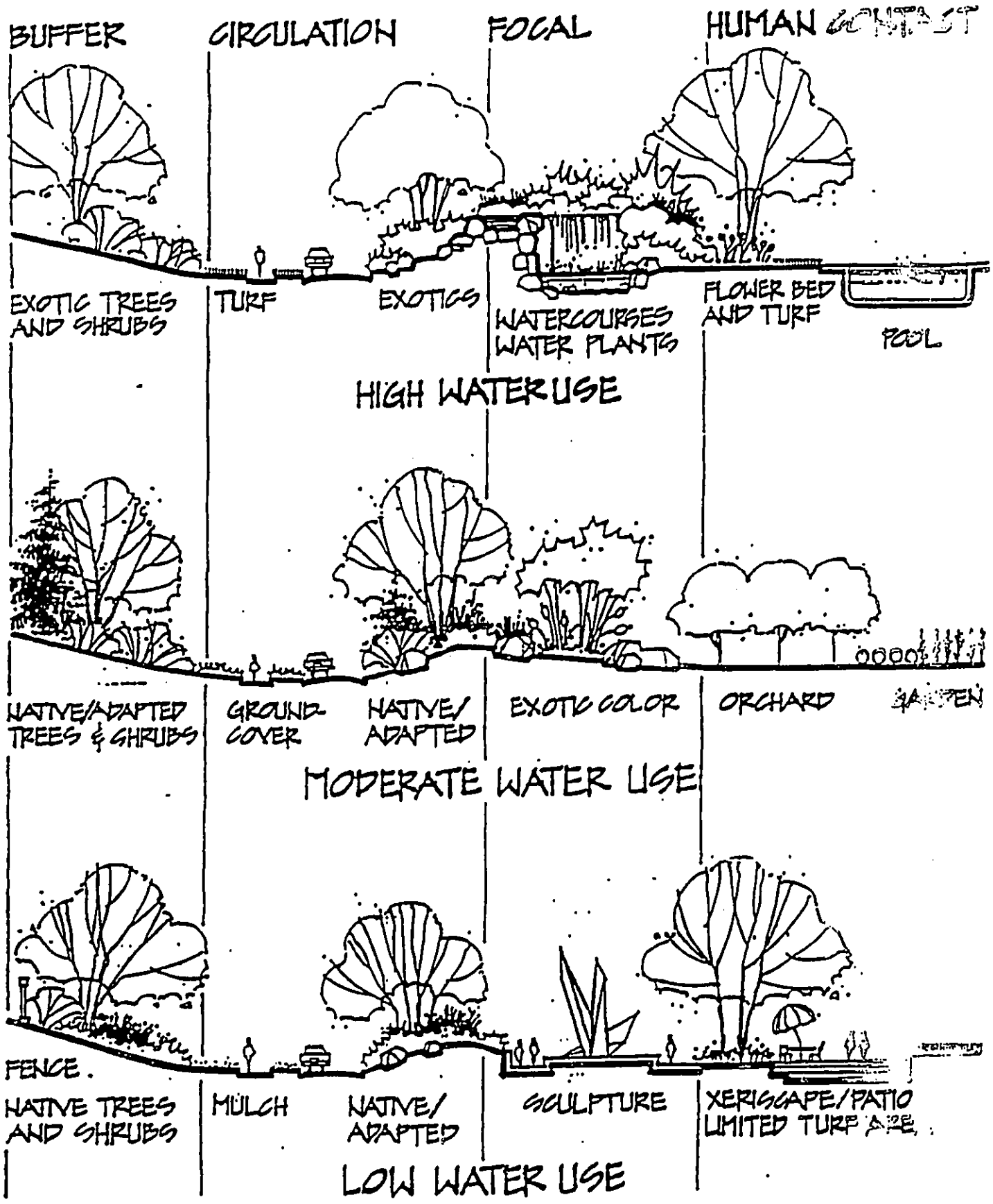


Figure 10-4. Water Use Relating to Human Use—Three Approaches

agencies, landscape professionals, horticulturists, irrigation specialists, concerned citizens, and an army of volunteers enthusiastically supporting and promoting Xeriscape programming.

Community Water Management

Xeriscape landscaping, when followed, will conserve water, reduce maintenance costs, and establish beautiful, environmentally sound landscapes, parks, recreational facilities and greenspaces throughout a community. Conserving water averts the need to construct costly new delivery systems and waste treatment plants that would otherwise be needed to meet periods of peak loading. Xeriscaping also leads to changes in attitudes about water quality, water use, and how a community's water should be managed, especially in landscape irrigation.

Literature Cited

Urban and Community Forestry - A Guide for the Interior Western United States - United States Department of Agriculture - Forest Service

Thayer, Jr., Robert L. and TG. Richman, "Water-Conserving Landscape Design," In Energy Conserving Site Design, Ed. G. McPherson, Am. Soc. Landscape Architects, 1984.

LOW WATER USE/DROUGHT TOLERANT PLANT LIST

All plants require water for establishment. After they are rooted and growing well their water requirements will vary.

The following is an incomplete list of drought tolerant plants. It is provided for your convenience.

Please review the following reference lists for many other suggestions.

1. Drought Resistant Plants For Hawaiian ardens by Norman C. Benzona, County Extension Agent, Cooperative Extension Service.

2. Drought Tolerant Native Hawaiian Plants for the Landscape - by Heidi Bornhorst Horticulturist, Honolulu Botanic Gardens.

3. Halawa Xeriscape Garden Registry of Nurseries that grow Less-Thirstry-Plants-Honolulu Board of Water Supply, November 1989.

Key to Symbols

A	Accent Plant
F	Flower Color
GC	Groundcover
G	Grass
OG	Ornamental Grass
S	Shrub
SC	Succulent
ST	Small Tree
MT	Medium Tree
LT	Large Tree
V	Vines

Key to Zones

Zone 1 - Normal watering level. Includes lush lawns and gardens.

Zone 2 - Moderate watering level. Includes lawns, ground covers and shrubs.

Zone 3 - Low watering level. Includes self-sustaining plant materials and natural vegetation with emphasis on plants that require little or no supplemental irrigation.

Type	Botanical Name	Zone	Common Name
S	Abutilon menziesii	3	Ko'o Loa'ula
MT	Acacia koa	2	Koa
A,F,S,SC	Adenium obeseum	3	Desert Rose
A,F,GC	Agapanthus africanus	2	Lily of the Nile
A,SC,S	Agave attenuata	3	Agave
MT	Aleurites moluccana	2	Kukui
S,GC,F	Aniscanthus thurberi	3	Desert Honeysuckle
V,GC,F	Antigonon leptopus	3	Mexican Creeper(3 colors)
S,GC,A	Asparagus densiflorus cv 'Meyers'	2	Foxtail Asparagus
S,GC,A	A. densiflorus 'Sprengeri'	2	Sprenger Asparagus
A	Aspidistra elatior 'variegata'	2	Cast Iron Plant
GC	Asystasia gangetica	3	Asystasia
V,SC,GC	Aptenia cordifolia	3	Hearts and Flowers
MT,F	Bauhinia blakeana	2	Hong Kong Orchid Tree
V,F	B. galpinii	2	Red Bauhinia
ST,F	B. tomentosa	3	Yellow Bauhinia
A,SC,ST	Beaucarnea recurvata	3	Pony tail
A,V,F	Bougainvillea 'Crimson Jewel'	2	
A,V,F	Bougainvillea 'Jamaica White'	2	
A,V,F	Bougainvillea 'Rosenka'	2	
A,V,F	Bougainvillea 'Temple Fire	2	
ST	Brexia madagascariensis	2	Brexia

Type	Botanical Name	Zone	Common Name
MT	Caesalpinia ferrea	2	Brazilian Ironwood
A,S,F	Caesalpinia pulcherrima	3	Ohai ali'i(3 colors)
S	Calotropis gigantea	3	Crown Flower
ST	Canthium odoratum	3	Alahe'e
S	Carissa grandiflora	3	Natal Plum
S,GC	C. grandiflora prostrata	3	Creeping Natal Plum
S,ST,F	C. surratensis	3	Kolomona
SC,GC	Carpobrotus edulis	3	Hotentot Fig
MT,F	Cassia fistula	2	Yellow Shower
MT,F	Cassia fistula x C. javanica	3	Rainbow Shower (All Colors)
ST	Ceratonia siliqua	3	Carob Tree
V,GC,S	Clerodendron inerme	3	Glory Bower
MT	Clusia rosea	3	Autograph Tree
S	Clusia sp.	3	Small Leaf Clusia
MT,F	Cochlospermum vitiflium	2	Buttercup Tree
MT,F	Cordia subcordata	3	Kou
OG	Cortederia selloana	3	Pampas Grass
S,SC,A	Crassula argentea	3	Jade Plant
ST	Cresentia cujete	3	Calabash Tree
V	Cryptostegia grandiflora	2	India Rubber Vine
A,S	Cycas revoluta	3	Sago Palm
G	Cynodon dactylon	3	Bermuda Grass
A,S,SC	Dasyliron wheeleri	2	Spoon Flower
MT,A,F	Delonix regia	3	Royal Poinciana (3 colors)
S	Dodonaea viscosa	3	'A'ali'i
LT	Enterolobium cyclocarpum	2	Earpod
MT	Eriobotrya japonica	3	Loquat
MT	Erythrina sandwicensis	2	Wiliwili
MT	Erythrina "Tropic Coral"	2	Tropic Coral Wiliwili
MT	E. variegata var. orientalis	2	Tigers Claw
S,SC,A	Euphorbia cotinifolia	3	Hierba mala
A,GC,SC	E. millii	2	Crown of Thorns
ST,A	Feijoa sellowiana	2	Pineapple Guava
S	Ficus buxifolia	2	Boxwood Ficus
ST,A	Ficus carica	3	Fig
S,A	F. diversifolia	2	Mistletoe Fig
LT	F. microcarpa	3	Chinese Banyan
S,GC	F. microcarpa var. crassifolia	3	Taiwan Ficus
A,SC	Furcraea aff. giantea variegata	3	Variegated Furcraea

Type	Botanical Name	Zone	Common Name
S,A	Gardenia brighamii	2	Nanu
S,GC	G. radicans	2	Creeping Gardenia
S	Gossvplum tomentosum	3	Ma'o
S,A	Grewia occidentalis	2	Lavendar Star
ST,A	Guaiacum officinale	3	Lignum Vitae
S,A,F	Hibiscus brackenridge	2	Ma'o hau hele
S,GC	H. calyphyllus	3	Rock's Hibiscus
S,A,F	H. 'Carnation'	2	Carnation Hibiscus
S,A,F	H. 'Cooperi'	2	Calico Hibiscus
S,A,F	H. schizopetalus	2	Coral Hibiscus
S,A,F	H. schizopetalus 'Pagoda'	2	Pagoda Hibiscus
S,A,F	H. waimeae	2	Koki'o ke'o ke'o
S,F	Jasminum sambac	2	Pikake
S,F	J. sambac 'Duke of Tuscany'	2	Giant Pikake
GC	Juniperus chinensis procumbens	2	Japanese Garden Juniper
S,GC,F	Lantana camara 'Radiation'	2	Lantana
GC,F	Lantana cv 'Gold Mound'	2	Trailing Lantana
GC,F	L. montevidensis	2	Bay Laurel
S,A	Laurus nobilis	2	
ST	Myoporum sandwicense	3	Naio
S,A	Nandina domestica compacta nana	2	Dwarf Nandina
S,F	Nerium oleander	3	Oleander
S,F	Nerium oleander f. 'dwarf'	3	Dwarf Oleander
S	Nototrichium sandwicensis	3	Kului
MT	Olea europaea	3	Olive
S	Osteometes anthylliditolia	3	'Ulei
G	Paspalum vaginatum	2	Seashore Paspalum
MT	Pithecellobium dulce 'variegata'	2	Variegated Opiuma
S,GC	Pittosporum tobira 'wheeleri'	2	Wheeler's Pittosporum
S,F	Plumbago auriculata	3	Cape Leadwort
S,GC	P. zeylanicum	3	'Ilie'e
MT,F	Plumeria hybrid(and spp.)	2	Plumeria
S,A,SC	Potulacaria afra	3	Miniature Jade
MT,F	Pseudobombax ellipticum	2	Pink Bombax
S,ST	Punica granatum	3	Pomegranate
A,GC	P. granatum nana	3	Dwarf Pomegranate

Type	Botanical Name	Zone	Common Name
S	Rosemarinus offcinalis	3	Rosemary
GC	R. officinalis var. prostrata	3	Creeping Rosemary
S,A,F	Russelia equisetifolia	2	Coral Plant
T	Samanea saman	3	Monkey Pod
A	Sansevieria spp.	3	Sansevieria
MT	Sapindus saponaria	2	Soapberry Tree
S	Scaevola taccada	3	Naupaka
ST	Schinus molle	3	California Pepper Tree
GC,SC	Sedum spp.	3	Sedum
V,F	Senecio confusus	2	Mexican Flame Vine
V,GC	Stapelia nobilis	3	Giant Carrion Flower
G	Stenotaphrum secundatum	2	St. Augustine Grass
OG	S. secundatum variegatum	2	Variegated St. Augustine Grass
A,F	Strelitzia reginae	2	Bird of Paradise
MT	Tabebuia argentea	2	Silver Trumpet Tree
LT	T. chrysantha	2	Trumpet Tree
LT	T. donnel-smithii	2	Gold Tree
MT	Tamarix aphylla	3	Desert Athel
V,GC,F	Thevetia peruviana	3	Be-still Tree
GC	Tradescantia spathacea	3	Oyster Plant
S,GC	Wikstroemia uva-ursi	3	'Akia
A,SC	Yucca gloriosa	3	Spanish Bayonet
G	Zoysia tenuifolia 'Elegance'	2	
G	Z. tenuifolia 'Emerald'	2	

A Checklist of Water Conservation Ideas
For

COOLING

COOLING TOWERS

Understanding Your System

[ ] Prepare an inventory of each cooling tower you have, its cooling capacity, and the equipment or processes that it serves.

[ ] Meter and record the amount of make-up water added to each tower, and the amount of blow-down water discharged from each tower.

[ ] If you purchase chemicals for the treatment of the recirculating cooling tower water, have the chemical vendor explain the purpose and action of each chemical.

[ ] Have your chemical vendor provide a written report of each service call, and be sure that the vendor explains the meaning of each analysis performed, as well as the test results.

[ ] Tell your chemical vendor that water conservation is a priority at your facility. Ask your vendor to tell you about alternative programs that could reduce the amount of water that is bled-off from the towers.

Water Conservation Opportunities

[ ] If you are using conventional water treatment, work with your chemical vendor to increase your cycles of concentration, thereby decreasing the amount of water bled off.

[ ] Establish a performance-based specification, and have vendors make proposals for your facility's cooling tower water treatment. Require that vendors commit to a predetermined minimum level of water-efficiency. Have them provide figures showing projected annual water and chemical consumption and costs.

[ ] Consider incorporating sulfuric acid in your treatment program. This could enable you to reduce carbonate scale and achieve significantly higher cycles of concentration. If you use sulfuric acid, e sure to observe the appropriate safety precautions.

[ ] Ozone is another alternative to consider for cooling water treatment in appropriate situations. Ozone can help remove dissolved minerals and act as a biocide. Again, observe the appropriate safety precautions.

[ ] If available, use reclaimed water as a source of cooling tower make-up water. Be sure to verify that the water is sufficiently clean for use in your system.

[ ] Re-use blow-down for lower-grade non-potable uses.

EVAPORATIVE COOLERS

[ ] Be sure your coolers have pumps to recirculate the water through them.

[ ] Check to make sure you are not bleeding off an excessive amount of water. For a typical small cooler, anything more than a few gallons per hour may be excessive.

[ ] Pipe the bleed-off from your coolers to help water a landscaped area.

ONCE-THROUGH COOLING

§14.21 of The Maui County Code prohibits discharge of drainage or filter backwash from cooling systems into the public wastewater system, or private wastewater systems connected to the public wastewater system.

[ ] Eliminate all uses of water for once-through or "single-pass" cooling, unless you reuse the water elsewhere for a beneficial purpose.

[ ] Many items of water-cooled equipment can be replaced by very similar air-cooled models.

[ ] Connect to a recirculating cooling water loop (such as the plant chilled water system) instead of using once-through cooling.

This checklist provides water conservation tips successfully implemented by facilities which utilize cooling systems. This list has been revised from the original copy first published and distributed by the City of Phoenix Water Conservation and Resources Division. For more information, contact the Board of Water Supply's Water Resources Planning Division at 243-7835, or the Public Works Department's Wastewater Division at 243-7417.

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September 22, 1999

Mr. Richard Sixberry, Aquatic Biologist
Division of Aquatic Resources
State of Hawaii
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, Hawaii 96813

Project: Pier 1C Extension (Job H.C. 3296)
TMK: (2) 3-7-001: 022
Kahului Harbor, Kahului, Maui, Hawaii

Owner: State of Hawaii
Department of Transportation
Harbors Division

Subject: Response to Draft Environmental Assessment Comments

Dear Mr Sixberry:

Thank you for your June 10, 1999 letter comments to the Draft Environmental Assessment. We acknowledge your determination that the proposed activity is not likely to diminish further the aquatic resource values in Kahului Harbor. Furthermore, impacts adverse to the existing resident aquatic resource populations should be minimal and temporary. The suggested Best Management Practices will likely be incorporated into the project permits by the jurisdictional agency (DOH Clean Water Branch or Department of the Army).

Your letter will be included in the Environmental Assessment. If you have any questions concerning this letter, please call me at 536-7721.

Very Truly Yours,

Michael Miyahira, P.E.
Project Manager

cc: Ken Hayashida, KAI Hawaii Inc.
Angela Kunioka, State DOT-Harbors-Design

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

TIMOTHY E. JOHNS
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY DIRECTOR
JANET E. KAWELO

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF AQUATIC RESOURCES
1151 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

FAX TRANSMITTAL

Date: June 10, 1999

To: Michael M. Miyahira
Akinaka & Associates, Ltd.

From: Richard Sixberry RS
Division of Aquatic Resources

FAX No. (808) 521-2153 FAX (808(587-0115, Voice (808) 587-0097

Subject: Pier 1C Extension, Kahului Harbor Project

No. of Pages: 1 (Including transmittal sheet)

Disposition: X Your information or _____
__ For Review/Comments
__ Immediate Reply

Message:

We have reviewed the Draft Environmental Assessment for the Pier 1C extension at Kahului Harbor at Kahului, Maui.

The activity proposed is not likely to diminish further, aquatic resource values in Kahului Harbor which is in a highly developed and modified area. Impacts adverse to the existing resident aquatic resource populations should be minimal and temporary.

Mitigation measures have been proposed by the applicant, including Best Management Practice, which should limit or prevent excessive impact to aquatic resource values within Kahului Harbor. We suggest that those mitigation measures be incorporated, as conditions, into the permit process.

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JOSEPH S. KEANE, JR.
MARIAN N. NAKAMA, L.P.E.
CRAIG K. MATSUMOTO
STATE A. INFANTE

September 22, 1999

Mr. Don Hibbard, Administrator
State Historic Preservation Division
Department of Land and Natrual Resources
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Project: Pier 1C Extension (Job H.C. 3296)
TMK: (2) 3-7-001: 022
Kahului Harbor, Kahului, Maui, Hawaii

Owner: State of Hawaii
Department of Transportation
Harbors Division

Subject: Response to Draft Environmental Assessment Comments

Dear Mr Hibbard:

Thank you for your July 30, 1999 letter comments to the Draft Environmental Assessment. We acknowledge your determination that the presence of historic sites within the project area is unlikely due to prior groin extension and dredging activities and that the proposed project will have "no effect" on historic sties.

Your letter will be included in the Environmental Assessment. If you have any questions concerning this letter, please call me at 536-7721.

Very Truly Yours,

Michael Miyahira, P.E.
Project Manager

cc: Ken Hayashida, KAI Hawaii Inc.
Angela Kunioka, State DOT-Harbors-Design

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

TIMOTHY E. JOHNS, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

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STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

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

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

July 30, 1999

Mr. Michael Miyahira, Project Manager
Akinaka & Associates, LTD.
250 North Beretania, Suite 300
Honolulu, Hawaii 96817

LOG NO: 23846
DOC NO: 9907CD24

Dear Mr. Miyahira:

SUBJECT: **Chapter 6E-106 Historic Preservation Review of the Draft Environmental Assessment for the Proposed Pier 1C Extension, Kahului Harbor Project (JOB H.C.3296) Wailuku Ahupua'a, Wailuku District, Island of Maui**
TMK: 3-7-01:022

Thank you for the opportunity to comment on the proposed extension of Pier 1C project at the Kahului Harbor. Our review is based on reports, maps and aerial photographs maintained at the State Historic Preservation Office; no field inspection was made of the subject property.

From the submitted EA, we understand the proposed project to includes, but is not limited to a 300 foot extension to the existing Pier 1 and the installation of water, electrical, fire protection and drainage services utility systems.

The subject property has not undergone an archaeological inventory survey. However, a search of our records shows that the subject property has undergone extensive disturbance due to prior groin extension and dredging activities, making it unlikely that significant historic sites remain. Therefore we believe that this project will have "no effect" on significant historic sites.

In the event that historic remains (i.e. historic structural remains, artifacts, human skeletal remains, etc.) are inadvertently encountered during construction, all work needs to cease in the immediate vicinity of the find and the find needs to be protected from further damage. The Contractor needs to immediately contact the State Historic Preservation Office at 243-5169 on Maui or 692-8023 on O'ahu. The Division will assess the significance of the find and recommend mitigation measures, if necessary.

Please call Cathleen Dagher at 692-8023 if you have any questions.

Aloha,

Timothy E. Johns
State Historic Preservation Officer

CD:jen

BENJAMIN J. CAYETANO
GOVERNOR

GARY GILL
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
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DEC 5 - 1998
AKINAKA & ASSOCIATES, LTD.

November 30, 1998

Mr. Carter Luke
Hawaii State Department of Transportation
Harbors Division
79 South Nimitz Highway
Honolulu, Hawaii 96813

Dear Mr. Luke:

Subject: Pre-assessment Consultation for the Pier 1C Extension, Kahului, Maui

We have the following pre-assessment comments:

1. To the extent reasonable and foreseeable, the environmental assessment should cover the direct, indirect and cumulative impacts of all projects in the Kahului Harbor master plan.

2. Harbor activities have the potential to introduce alien pest species into Hawaii. The environmental assessment must fully study this issue. For an example of mitigation measures, please refer to the Final EIS for Kahului Airport and the attached Alien Species Action Plan for Kahului Airport.

3. These activities will cause adverse water quality impacts. Please provide details of the Best Management Practice (BMP) procedures that will be implemented to minimize water quality impacts.

4. Lighting of the harbor could adversely affect the Newell's Shearwater and other birds that frequent the area. What specific mitigation measures will be applied to minimize spillover, glare and other lighting impacts? Please consider designing the lighting using the Department of Land and Natural Resources' guidelines entitled The Newell's Shearwater Light Attraction Problem, A Guide for Architects, Planners, and Resort Managers to reduce lighting impacts on birds.

5. Dredging of the harbor will be required for this project. Please fully analyze potential upland spoil disposal sites for the dredged materials.

6. If the project may affect sandy beaches, please refer to the attached draft shoreline hardening policy and, if appropriate, answer the questions listed in the document.

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

Sincerely,

Gary Gill
Director

c: Akinaka & Assoc.

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JOSEPH S. KEANE, JR.
MARIAN N. NAKAMA, L.P.E.
CRAIG K. MATSUMOTO
STATE A. INFANTE

March, 1, 1999

Mr. Gary Gill, Director
Office of Environmental Quality Control
Department of Health
State of Hawaii
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

RE: Response to Comments Regarding Pre-Assessment Consultation for the Kahului Harbor Pier 1C Extension - Draft Environmental Assessment
Kahului, Maui, Hawaii (TMK: 3-7-01:22)

Dear Mr. Gill:

Thank you for your comment letter, dated November 30, 1998, during the pre-assessment consultation period for the Kahului Harbor Pier 1C Extension - Draft Environmental Assessment. We offer the following responses to your comments:

1. COMMENT: "To the extent reasonable and foreseeable, the environmental assessment should cover the direct, indirect and cumulative impacts of all projects in the Kahului Harbor master plan."

   RESPONSE: Direct, indirect, and cumulative impacts will be discussed in the Draft Environmental Assessment where applicable.

2. COMMENT: "Harbor activities have the potential to introduce alien pest species into Hawaii. The environmental assessment must fully study this issue. For an example of mitigation measures, please refer to the Final EIS for Kahului Airport and the attached Alien Species Action Plan for Kahului Airport."

   RESPONSE: The appropriate mitigative measures to prevent the possible introduction of alien pest species shall be addressed in the environmental assessment as appropriate.

3. COMMENT: "These activities will cause adverse water quality impacts. Please provide details of the Best Management Practice (BMP) procedures that will be implemented to minimize water quality impacts."

RESPONSE: The selected contractor shall be responsible for providing BMP procedures to be implemented during construction to minimize water quality impacts to Kahului Harbor. These BMP procedures will be specified in the 401 Water Quality Certification.

4. COMMENT: "Lighting of the harbor could adversely affect the Newell's Shearwater and other birds that frequent the area. What specific mitigation measures will be applied to minimize spillover, glare and other lighting impacts? Please consider designing the lighting using the Department of Land and Natural Resources' guidelines entitled The Newell's Shearwater Light Attraction Problem, A Guide for Architects, Planners, and Resort Managers to reduce lighting impacts on birds."

RESPONSE: The proposed floodlighting to be installed as part of the Pier 1C extension project will be similar to the lighting that currently exists along Pier 1. Potential lighting impacts to the Newell's Shearwater will be mitigated by providing cutoff luminaries that will be shielded and oriented downwards. In addition, the new lighting control system for the pier extension area will be designed to allow the user to turn off most of the lights when the pier is not in use while allowing several lights to remain in operation for security purposes.

5. COMMENT: "Dredging of the harbor will be required for this project. Please fully analyze potential upland spoil disposal sites for the dredged materials."

RESPONSE: A Solid Waste Management Plan for the disposal of construction waste and the dredged material will be submitted to the Department of Public Works and Waste Management for approval.

The dredged material will be dewatered and air dried at a site within the harbor to be approved by the Department of Transportation - Harbors Division. The dried sediment will then be transported to the County of Maui's Central Maui Sanitary Landfill. The Department of Public Works and Waste Management has agreed to accept the dried sediment for use as cover material at this landfill.

6. COMMENT: "If the project may affect sandy beaches, please refer to the attached draft shoreline hardening policy and, if appropriate, answer the questions listed in the document."

RESPONSE: The proposed project is not expected to affect any sandy beaches in the area. Since the proposed pier extension shall follow the alignment of the existing eastern breakwater, no new obstruction within the harbor area will be created.

Upon publication of the Draft EA in the Office of Environmental Quality Control's bulletin, you are welcome to submit additional comments during the 30-day review period. If you have any questions or require additional information, please contact me at 536-7721. Thank you for your time.

Sincerely,

Michael Miyahira, P.E.
Project Manager

cc: Mr. Carter Luke, Project Manager, DOT-Harbors
Mr. Ken Hayashida, President, KAI Hawaii, Inc.

END

CERTIFICATION

I HEREBY CERTIFY THAT THE MICROPHOTOGRAPH APPEARING IN THIS REEL OF FILM ARE TRUE COPIES OF THE ORIGINAL DOCUMENTS.

2004
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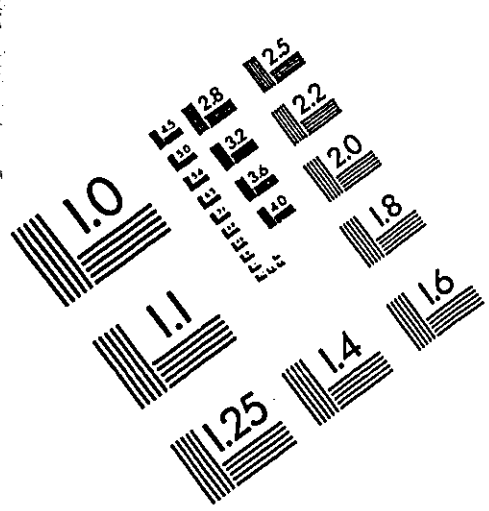
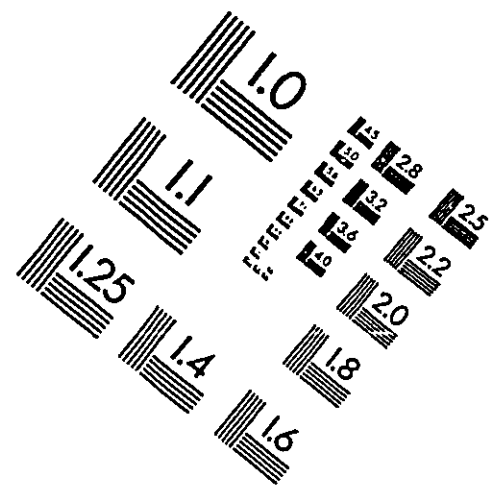
Tammy Yoshimura
SIGNATURE OF OPERATOR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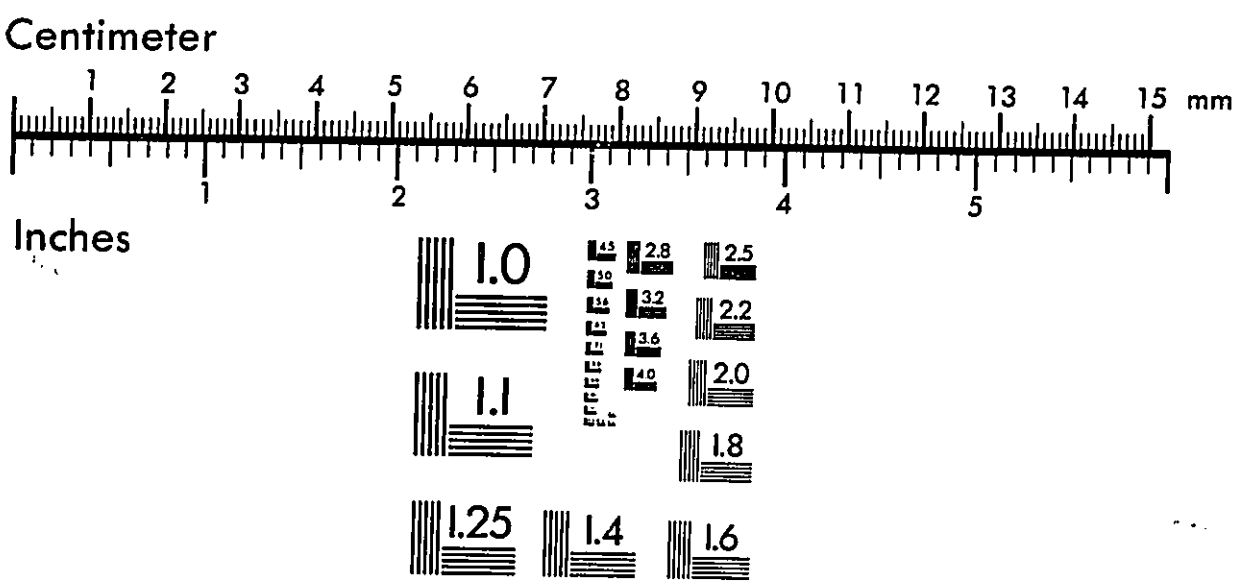

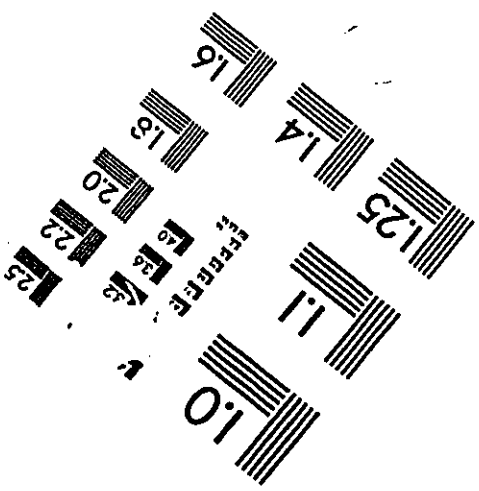
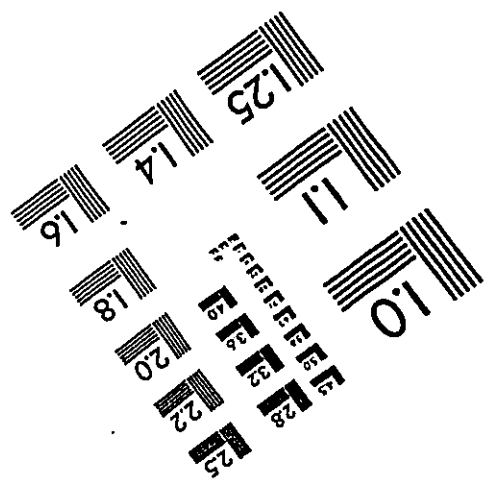

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