Kamehameha Hwy Shoreline Protection.

BENJAMIN J. CAYETANO
GOVERNOR

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

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IN REPLY REFER TO:
HWY-DS
2.1581

TO: GARY GILL, DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

FROM: KAZU HAYASHIDA
DIRECTOR OF TRANSPORTATION

SUBJECT: FINAL ENVIRONMENTAL ASSESSMENT, KAMEHAMEHA HIGHWAY SHORELINE PROTECTION, VICINITY OF KAAAWA, PUNALUU AND HAUULA, PROJECT NO. NH-083-1(34)

The Hawaii State Department of Transportation, Highways Division has reviewed the comments received during the 30-day public comment period which began on September 23, 1996. The agency has determined that this project will not have environmental effects and has issued a Finding of No Significant Impact (FONSI). ✓ Please publish this notice in the November 23, 1998, issue of the OEQC Environmental Notice.

We are enclosing a completed OEQC Publication Form, project summary in both hardcopy form and on disk and four copies of the EA.

Please call Craig Watanabe, Project Manager at 587-2124 if you have any questions.

Enclosures

1998-11-23-OA-FEA-Kamehameha Highway Shoreline Protection

KAMEHAMEHA HIGHWAY SHORELINE PROTECTION
Vicinity of Kaaawa, Punaluu, and Hauula

Island of Oahu
Tax Map Keys: 1:5-1-01, 1:5-3-06, 1:5-3-14

FINAL ENVIRONMENTAL ASSESSMENT

Proposing Agency:
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
869 Punchbowl Street
Honolulu, Hawaii 96813

Prepared by:
Edward K. Noda and Associates, Inc.
615 Piikoi Street, Suite 300
Honolulu, Hawaii 96814

September 1998

This document is prepared pursuant to Chapter 343, HRS and the Administrative Rules, Title 11, Chapter 200, of the Hawaii Department of Health.

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1.0 PROJECT DESCRIPTION

1.1 General Information

This environmental assessment (EA) is prepared pursuant to Chapter 343, Hawaii Revised Statutes. In accordance with §343-5(a), the statutory conditions which trigger the preparation of this EA are:

- Use of State lands/funds
- Use within Conservation District Lands
- Use within the Shoreline Setback Area.

Applicant: State of Hawaii
Department of Transportation
Highways Division
869 Punchbowl Street
Honolulu, Hawaii 96813
Contact: Craig Watanabe (587-2124)

Accepting Authority:
Mr. Kazu Hayashida, Director
State Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Agent: Edward K. Noda and Associates, Inc.
615 Piikoi Street, Suite 300
Honolulu, Hawaii 96814
Contact: Elaine Tamaye (591-8553)

Required Permits / Approvals:
Conservation District Use Permit
Special Management Area Use Permit
Shoreline Setback Variance

Affected Land Parcels:

Kaaawa 880 linear feet shore frontage	Punaluu 630 linear feet shore frontage	Hauula 1150 linear feet shore frontage
TMK: 1:5-1-01: highway R/W Fee owner: State of Hawaii Department of Transportation	TMK: 1:5-3-06: highway R/W Fee owner: State of Hawaii Department of Transportation	TMK: 1:5-3-14: highway R/W Fee owner: State of Hawaii Department of Transportation
TMK: 1:5-1-01:8 Fee owner: Kualoa Ranch Inc.	TMK: 1:5-3-06:37 Fee owners: Hung Fat Choy, Agnes K. Choy, Melvin K.H. Choy, Judith Nalani W.K. Choy, Darryl K.H. Choy and Gary Allen Choy	TMK: 1:5-3-14:16 Fee owners: Alan Shigeyuki Hayashi and Amy Chizuko Hirano
TMK: 1:5-1-01:9 (portion) Fee owner: Kualoa Ranch Inc.		TMK: 1-5-3-14:18 Fee owner: Henry S. Hirosumi (Trustee) and Elaine T. Hirosumi (Trustee)
TMK: 1:5-1-06:17 (portion) Fee owner: Kualoa Ranch Inc.		TMK: 1:5-3-14:15 Fee owner: Charlotte Patsy Caminos
		TMK: 1:5-3-14:14 Fee owner: Charlotte Patsy Caminos
		TMK: 1:5-3-14:13 Fee owner: James Valentine Low and Janice Lynn Low
		TMK: 1:5-3-14:10 Fee owner: Jean L. Young (Trustee) and James Sutton McCandless II
		TMK: 1:5-3-14:9 Fee owner: Hawaiian Trust Company, ltd. (Trustee)
		TMK: 1:5-3-16:1 (portion) Fee owner: Property Reserve Inc.

Note that identified parcels, other than the highway right-of-way, are located seaward of the highway. The areas of these parcels affected by the shoreline protection improvements no longer exist as fast lands because of erosion. The State will resolve the matter of ownership of these parcels prior to construction.

1.2 Background

The U.S. Army Corps of Engineers (USACE) intends to undertake shore protection improvements for three sections of Kamehameha Highway under the authority of Section 14 of the Flood Control Act of 1946, as amended. Reconnaissance studies for all three project sites were undertaken in response to a request from the State Department of Transportation, for assistance in addressing shoreline erosion along Kamehameha Highway in the vicinity of Kaaawa, Punaluu, and Hauula. Section 14 Reconnaissance Reports were completed by the USACE in June 1994, which determined the feasibility of Federal interest in providing highway erosion protection for sections of Kamehameha Highway in the vicinity of Kaaawa, Punaluu, and Hauula. Environmental Assessments and Findings of No Significant Effect (FONSI) were prepared by the USACE as part of the Section 14 reconnaissance studies for each project site.

Under the local cooperation agreement with the USACE, the State Department of Transportation is responsible for obtaining all local permits and approvals necessary for the construction of the shore protection projects. This Environmental Assessment is prepared in accordance with Chapter 343, Hawaii Revised Statutes, Chapter 200 of Title 11, Hawaii Administrative Rules.

1.3 Proposed Action and Purpose

Shore protection for three sections of Kamehameha Highway is planned in the vicinity of Kaaawa, Punaluu, and Hauula on the northeast coast of Oahu. The three project sites are identified in Figures 1 and 2. The purpose of the shore protection is to prevent further damage to the highway due to wave action. These sections of highway were built within 10-15 feet of the shoreline. Under normal wave conditions, very little wave energy reaches the shore because of the protection afforded by the wide fringing reef along this coastline. However, during periods of large waves and high water levels, substantial wave energy can reach the shore causing severe shoreline erosion and damage to the highway. The State Department of Transportation has undertaken highway maintenance and repair measures in the past, including dumping rock to temporarily protect the shoreline and highway. However, without properly designed and constructed shore protection measures, the highway is susceptible to continued erosion damage which threatens the integrity of the highway. This highway is a major transportation link on this northeast side of the island, and closure of the highway due to major storm wave damage would result in severe social and economic impacts to the communities served by this major transportation link.

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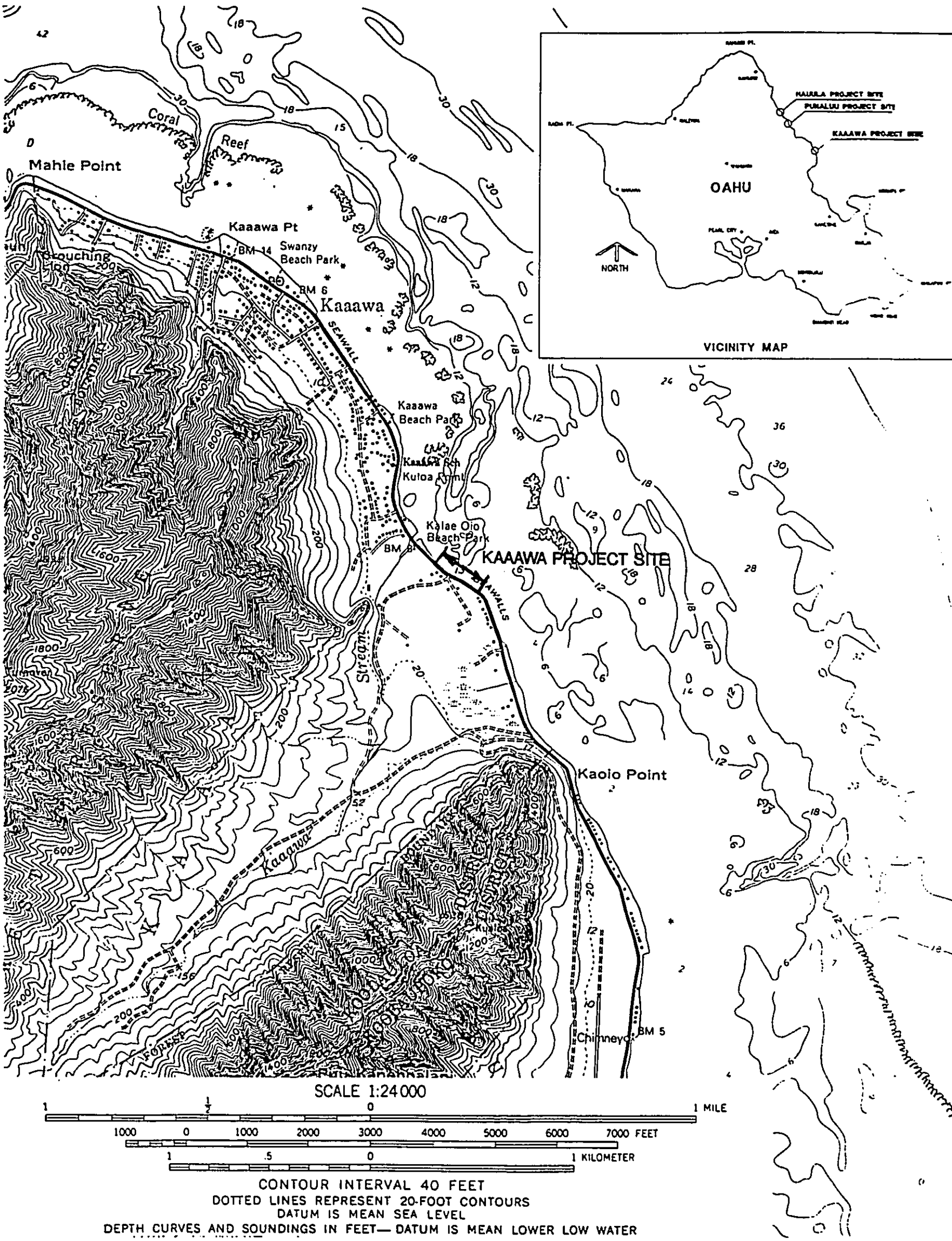

LOCATION MAP – KAAAWA PROJECT SITE

FIGURE 1

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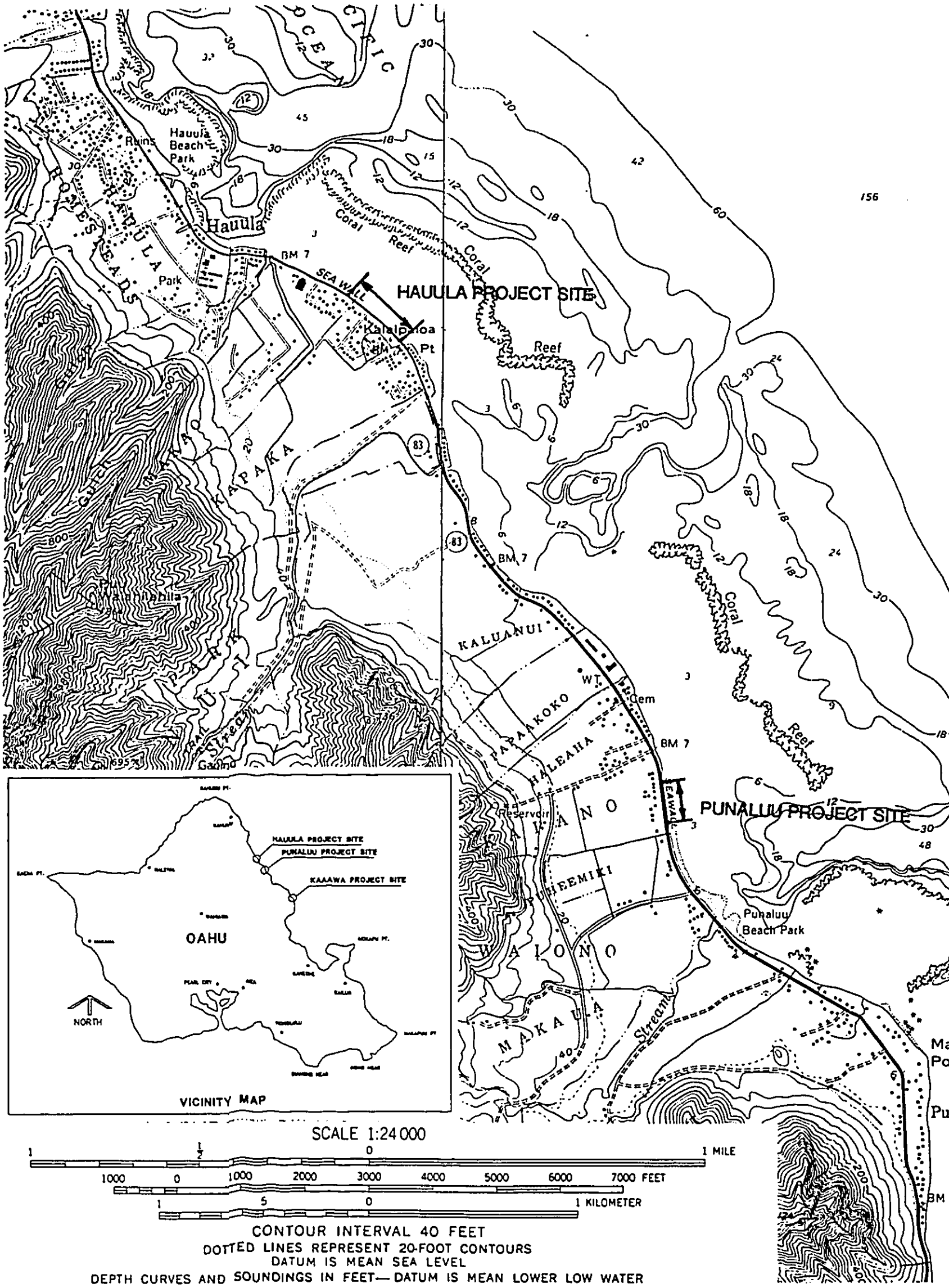


LOCATION MAP – PUNALUU AND HAUULA PROJECT SITE

FIGURE 2

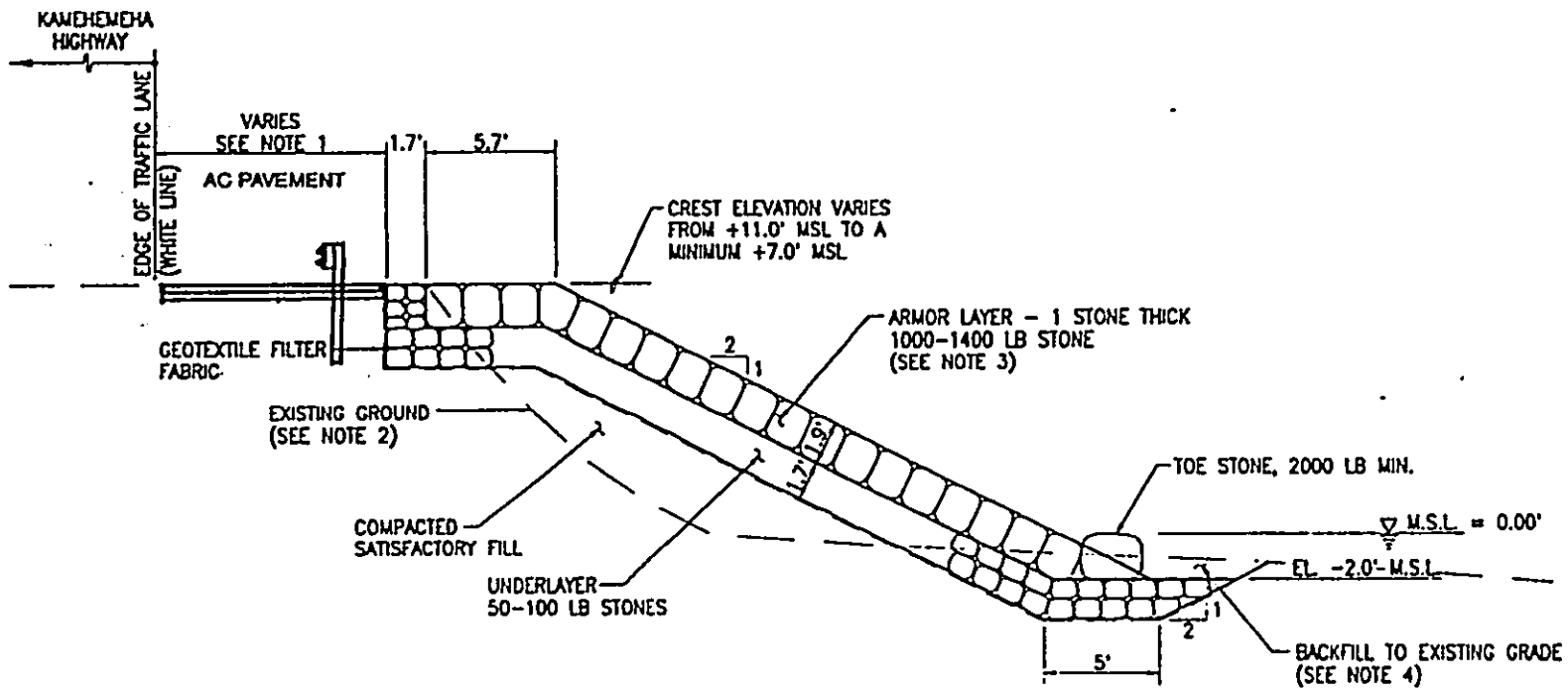
The shore protection measure proposed by the USACE consists of a rock revetment constructed on a 1V:2H slope. The revetment typical section consists of a 1.9-foot thick single layer of 1000-1400 pound armor stones, keyed and fitted, underlain by a 1.7-foot thick layer of 50-100 pound stones. Geotextile filter fabric will be layed on the backfilled and compacted subgrade to prevent migration of fines through the rock layers. All backfill material will consist of sands and gravels with no more than 15 percent passing the No. 200 sieve. Revetment crest elevation is +7 feet MSL or higher to match the existing grade of the highway. The revetment toe will be excavated below existing grade and extended to provide scour protection. Additionally, a 1-ton stone will be placed at the toe to anchor the revetment slope. Figure 3 shows a typical section for the revetment, and Figures 4-6 show site plans of the proposed revetment. The revetment will extend along approximately 880 linear feet of shoreline in the Kaaawa area, 630 linear feet in the Punaluu area, and 1,150 linear feet in the Hauula area.

During storm wave activity, the water level is higher than normal due to wave setup over the shallow reef. Superelevation of water level occurs also due to reduced atmospheric pressure and storm surge effects. The higher water level allows larger waves to reach the shore, causing erosion damage and wave overtopping of the shoreline. The design water level determined by the USACE is 4.4-4.6 feet above MLLW based on design storm parameters from Hurricane Iwa. For a nearshore water depth of approximately 1 foot, the total design water depth is 5.4-5.6 feet, and the depth-limited breaking wave height is 3.0-3.3 feet. The armor stones were sized based on this design breaking wave height. The revetment crest elevation of +7 feet MSL (or higher to match the existing highway grade) will sustain only minor wave overtopping during the design storm conditions.

The USACE is the federal sponsor of these projects. Federal funding is 65% of the project first cost, subject to an overall statutory limitation of $1 million. The following summarizes the cost sharing for each project, based on USACE engineering and design costs to date and estimated construction costs:

	Kaaawa	Punaluu	Hauula
Estimated project cost	$1,294,000	$954,000	$1,467,000
Federal cost apportionment (65%)	$841,000	$620,000	$954,000
State cost apportionment (35%)	$453,000	$334,000	$513,000
State cost (not subject to apportionment)	$44,000	$31,500	$57,500
Total State cost	$497,000	$365,500	$570,500

The construction is estimated to start in spring of 2000 pending receipt of necessary permits and approvals. Total construction duration is estimated to be 12 months. A work/storage area for the contractor's equipment will be provided at a suitably secure location in Sacred Falls Park.



REVETMENT TYPICAL SECTION

SCALE: 1" = 10'–0"

NOTES:

1. The distance from the edge of the highway traffic lane to the start of the revetment shall be 10 feet for the Kaaawa and Punaluu reaches and 8 feet for the Hauula reach.

2. Existing rip-rap shore protection (stone and concrete rubble) shall be removed prior to construction of the new revetment, and disposed of at an approved location. Basalt stone may be salvaged from the existing shore protection and used for revetment construction, provided it meets the requirements of the plans and specifications and with the approval of the Contracting Officer.

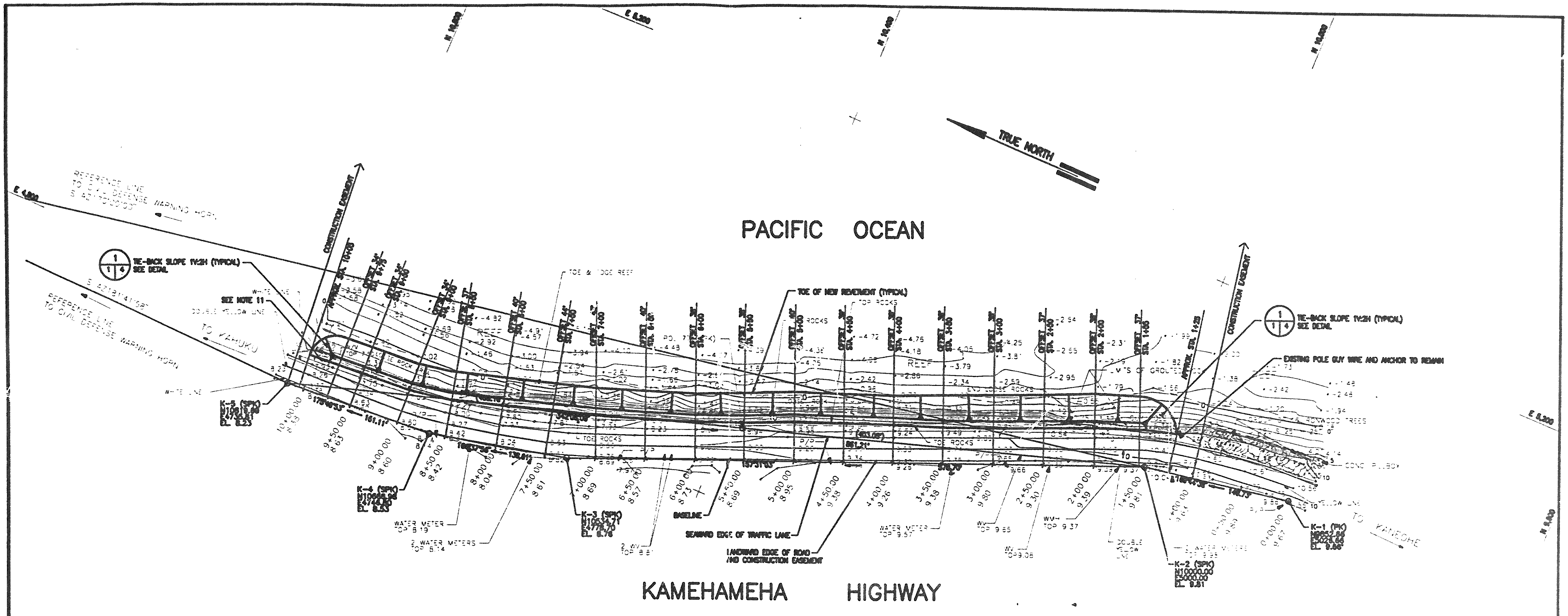
3. Armor stone shall be keyed, fitted, and in contact with adjacent stones.

4. Excavated beach sand and cobbles shall be stock piled and replaced on the beach at the completion of construction.

5. Where hard reef rock substrate exists, loose material (sand, rubble, stone) shall be excavated as necessary to place revetment toe on hard bottom. A 1.9 foot deep trench shall be further excavated into the hard bottom to key the toe stone into the reef. Excavated beach material (sand and cobbles) shall be stock piled and replaced on the beach at the completion of construction.

FROM U.S. ARMY CORPS OF ENGINEERS CONSTRUCTION DRAWINGS
FOR WINDWARD OAHU SHORE PROTECTION, KAAAWA, PUNALUU AND HAUULA, OAHU, HAWAII, 14 APRIL 1995.

FIGURE 3



GENERAL NOTES

1. KAAAWA SHORE PROTECTION CONSISTS OF CONSTRUCTING A 820 FT LONG ROCK REVETMENT ALONG KAMEHAMEHA HIGHWAY IN KAAAWA, FROM STATION 1+60 TO STATION 9+75, PLUS TIE-BACK SECTIONS AT EACH END.
2. ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL (MSL).
3. TOPOGRAPHIC SURVEY WAS PERFORMED BY THE U.S. ARMY ENGINEER DIVISION, PACIFIC OCEAN, DATED FEBRUARY 1995. COORDINATES ARE REFERENCED TO STATION "K-2" (SPK) WITH AN ASSUMED VALUE OF 10,000 NORTH AND 5,000 EAST. AZIMUTHS ARE MEASURED CLOCKWISE FROM A REFERENCE AZIMUTH FROM STATION "K-2" TO A CIVIL DEFENSE WARNING HORN OF 170° 00'.
4. ALL CONSTRUCTION WORK WILL BE CONTAINED WITHIN THE CONSTRUCTION EASEMENT.
5. REVETMENT CREST ELEVATIONS SHALL BE AS SHOWN ON THE CROSS SECTIONS. CREST ELEVATIONS APPROXIMATELY MATCH THE EXISTING HIGHWAY GRADE VARYING FROM +8 FT TO +11 FT MSL AS INDICATED ON SHEETS 6 & 7. REVETMENT CREST SHALL MAKE A SMOOTH TRANSITION BETWEEN ELEVATION CHANGES.
6. REVETMENT OFFSET DISTANCES ARE MEASURED FROM AND PERPENDICULAR TO THE BASELINE.
7. CONTRACTOR SHALL VERIFY AND MARK THE LOCATIONS OF ALL EXISTING UTILITIES BEFORE COMMENCING CONSTRUCTION, AND SHALL INFORM THE CONTRACTING OFFICER IN WRITING OF ANY UTILITIES NOT INDICATED THAT WILL BE AFFECTED BY THE CONSTRUCTION OPERATION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING FACILITIES, STRUCTURES, ROADWAYS, UTILITIES AND SIGNS RESULTING FROM HIS OPERATIONS. REPAIRS, RESTORATIONS, OR REPLACEMENTS SHALL BE AT NO ADDITIONAL COST TO THE GOVERNMENT.
9. ALL VISIBLE UTILITY STRUCTURES HAVE BEEN LOCATED IN THE FIELD, HOWEVER, CONNECTION OF UNDERGROUND UTILITIES AS SHOWN ARE UNVERIFIED AND COMPILED FROM EXISTING DATA. UNDERGROUND UTILITIES SHOWN HEREON ARE FOR INFORMATION ONLY, HAVING BEEN OBTAINED FROM THE BEST AVAILABLE SOURCES, THEREFORE NO GUARANTEE IS MADE ON THE ACCURACY OR COMPLETENESS OF SAID INFORMATION.
10. EXISTING RIP-RAP SHORE PROTECTION (STONE AND CONCRETE RUBBLE) SHALL BE REMOVED PRIOR TO CONSTRUCTION OF THE NEW REVETMENT, AND DISPOSED OF BY THE CONTRACTOR. BASALT STONE MAY BE SALVAGED FROM THE EXISTING SHORE PROTECTION AND USED FOR REVETMENT CONSTRUCTION, PROVIDED IT MEETS THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS AND WITH THE APPROVAL OF THE CONTRACTING OFFICER.
11. EXISTING WATER VALVE (W/V) TO BE RELOCATED AS NECESSARY, IN ACCORDANCE WITH PLANS APPROVED BY THE CONTRACTING OFFICER.
12. THE CONTRACTOR SHALL TAKE CARE TO PRESERVE EXISTING TREES AND BUSHES WITHIN THE CONSTRUCTION EASEMENT SO FAR AS POSSIBLE.

LEGEND

BUILDING
CONCRETE SLAB
TREE
ELEC. &/OR TEL. POLE
GUY WIRE & POLE
LIGHT POLE
FIRE HYDRANT
WATER VALVE
COCONUT OR PALM TREE
MANHOLE
SIGN
CONTOUR LINE
TOP &/OR BOTTOM BREAK
TRAVERSE STATION
FENCE
SPOT ELEVATION

GRAPHIC SCALE
1" = 40'
40' 0 40' 80'

REV LTR	ZONE	DESCRIPTION	DATE	BY	CHK	APPD

REVISIONS

SEA ENGINEERING, INC.
HONOLULU, HAWAII

U. S. ARMY ENGINEER DIVISION, PACIFIC OCEAN
HONOLULU DISTRICT
HONOLULU, HAWAII

PREPARED: JB, CT
CHECKED: SS

WINDWARD OAHU SHORE PROTECTION

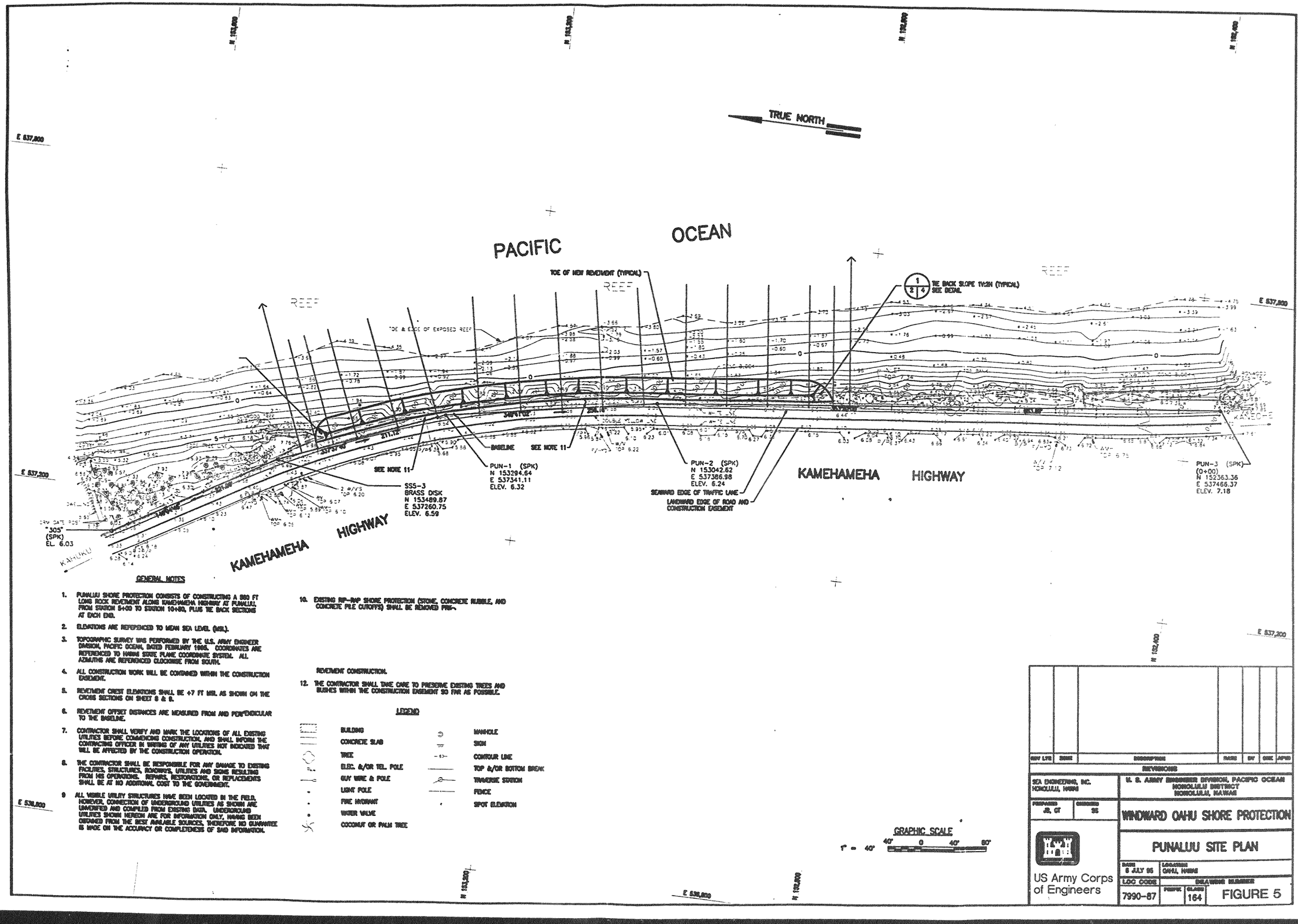
KAAAWA SITE PLAN

US Army Corps of Engineers

DATE: 6 JULY 95
LOCATION: OAHU, HAWAII

LOC CODE: 7990-87
DRAWING NUMBER: PREFIX / CLASS 164

FIGURE 4



GENERAL NOTES

1. PUNALUU SHORE PROTECTION CONSISTS OF CONSTRUCTING A 880 FT LONG ROCK REVETMENT ALONG KAMEHAMEHA HIGHWAY AT PUNALUU, FROM STATION 5+00 TO STATION 10+80, PLUS TIE BACK SECTIONS AT EACH END.
2. ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL (MSL).
3. TOPOGRAPHIC SURVEY WAS PERFORMED BY THE U.S. ARMY ENGINEER DIVISION, PACIFIC OCEAN, DATED FEBRUARY 1996. COORDINATES ARE REFERENCED TO HAWAII STATE PLANE COORDINATE SYSTEM. ALL AZIMUTHS ARE REFERENCED CLOCKWISE FROM SOUTH.
4. ALL CONSTRUCTION WORK WILL BE CONFINED WITHIN THE CONSTRUCTION EASEMENT.
5. REVETMENT CREST ELEVATIONS SHALL BE +7 FT MSL AS SHOWN ON THE CROSS SECTIONS ON SHEET 8 & 9.
6. REVETMENT OFFSET DISTANCES ARE MEASURED FROM AND PERPENDICULAR TO THE BASELINE.
7. CONTRACTOR SHALL VERIFY AND MARK THE LOCATIONS OF ALL EXISTING UTILITIES BEFORE COMMENCING CONSTRUCTION, AND SHALL INFORM THE CONTRACTING OFFICER IN WRITING OF ANY UTILITIES NOT INDICATED THAT WILL BE AFFECTED BY THE CONSTRUCTION OPERATION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING FACILITIES, STRUCTURES, ROADWAYS, UTILITIES AND SIGNS RESULTING FROM HIS OPERATIONS. REPAIRS, RESTORATIONS, OR REPLACEMENTS SHALL BE AT NO ADDITIONAL COST TO THE GOVERNMENT.
9. ALL VISIBLE UTILITY STRUCTURES HAVE BEEN LOCATED IN THE FIELD, HOWEVER, CONNECTION OF UNDERGROUND UTILITIES AS SHOWN ARE UNVERIFIED AND COMPILED FROM EXISTING DATA. UNDERGROUND UTILITIES SHOWN HEREON ARE FOR INFORMATION ONLY. HAVING BEEN OBTAINED FROM THE BEST AVAILABLE SOURCES, THEREFORE NO GUARANTEE IS MADE ON THE ACCURACY OR COMPLETENESS OF SAID INFORMATION.
10. EXISTING RIP-RAP SHORE PROTECTION (STONE, CONCRETE RUBBLE, AND CONCRETE PILE CUTOFFS) SHALL BE REMOVED PRIOR TO REVETMENT CONSTRUCTION.
12. THE CONTRACTOR SHALL TAKE CARE TO PRESERVE EXISTING TREES AND BUSHES WITHIN THE CONSTRUCTION EASEMENT SO FAR AS POSSIBLE.

LEGEND

	BUILDING		MANHOLE
	CONCRETE SLAB		SIGN
	TREE		CONTOUR LINE
	ELEC. &/OR TEL. POLE		TOP &/OR BOTTOM BREAK
	GUY WIRE & POLE		TRAVERSE STATION
	LIGHT POLE		FENCE
	FIRE HYDRANT		SPOT ELEVATION
	WATER VALVE		
	COCONUT OR PALM TREE		

GRAPHIC SCALE
1" = 40'
40' 0 40' 80'

DWG LTR	SHEET	DESCRIPTION	MADE	BY	CHKD	APVD

REVISIONS

SEA ENGINEERING, INC.
HONOLULU, HAWAII

U. S. ARMY ENGINEER DIVISION, PACIFIC OCEAN
HONOLULU DISTRICT
HONOLULU, HAWAII

PREPARED: JB, GT
CHECKED: SS

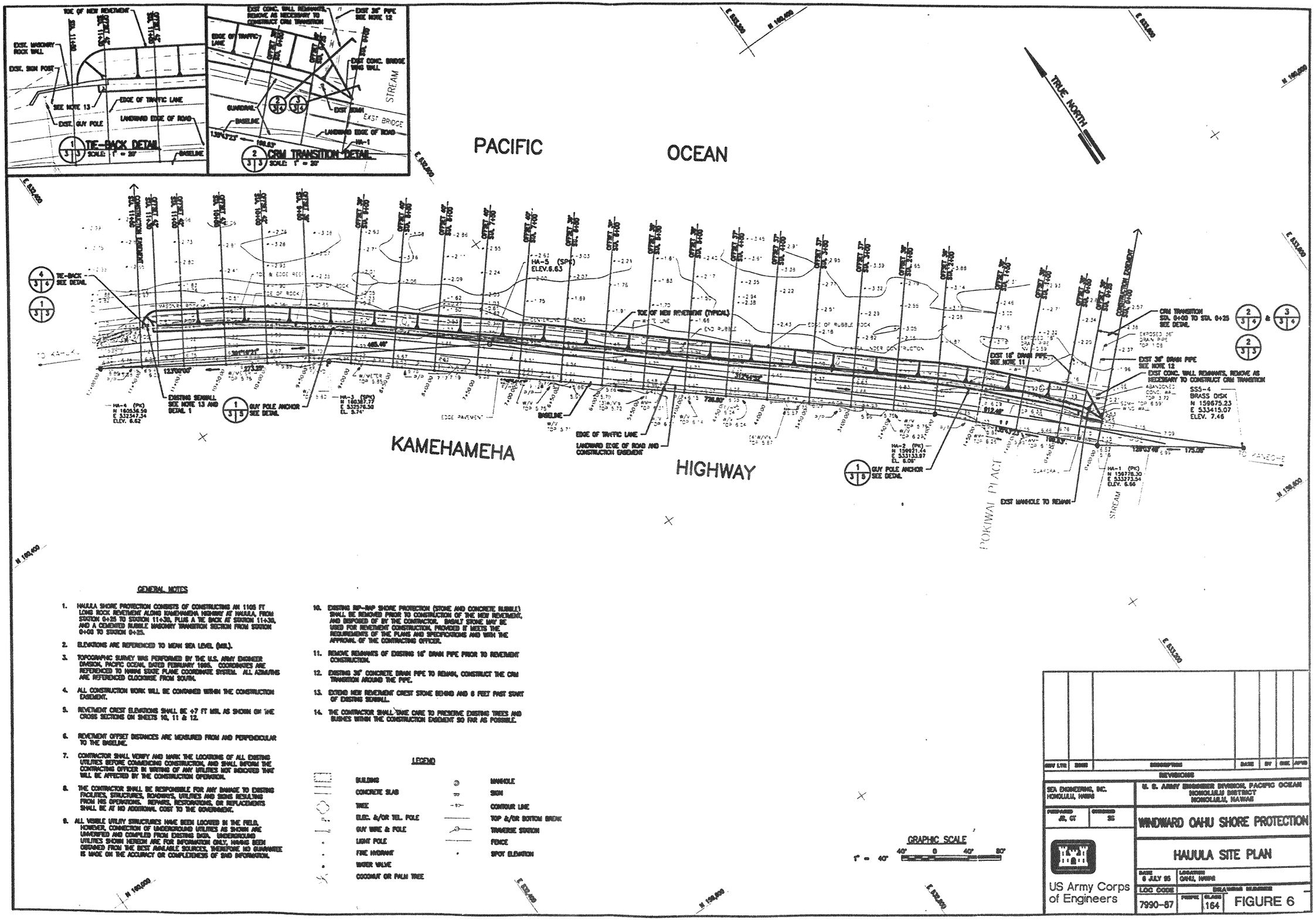
WINDWARD OAHU SHORE PROTECTION

PUNALUU SITE PLAN

DATE: 8 JULY 96
LOCATION: OAHU, HAWAII

LOG CODE: 7990-87
DRAWING NUMBER: PROJECT 164 FIGURE 5

US Army Corps of Engineers



GENERAL NOTES

1. HAUULA SHORE PROTECTION CONSISTS OF CONSTRUCTING AN 1105 FT LONG ROCK REVETMENT ALONG KAMEHAMEHA HIGHWAY AT HAUULA, FROM STATION 0+25 TO STATION 11+30, PLUS A TIE BACK AT STATION 11+30, AND A CEMENTED RUBBLE MASONRY TRANSITION SECTION FROM STATION 0+00 TO STATION 0+25.
2. ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL (MSL).
3. TOPOGRAPHIC SURVEY WAS PERFORMED BY THE U.S. ARMY ENGINEER DIVISION, PACIFIC OCEAN, DATED FEBRUARY 1995. COORDINATES ARE REFERENCED TO HAWAII STATE PLANE COORDINATE SYSTEM. ALL AZIMUTHS ARE REFERENCED CLOCKWISE FROM SOUTH.
4. ALL CONSTRUCTION WORK WILL BE CONFINED WITHIN THE CONSTRUCTION EASEMENT.
5. REVETMENT CREST ELEVATIONS SHALL BE +7 FT MSL AS SHOWN ON THE CROSS SECTIONS ON SHEETS 10, 11 & 12.
6. REVETMENT OFFSET DISTANCES ARE MEASURED FROM AND PERPENDICULAR TO THE BASELINE.
7. CONTRACTOR SHALL VERIFY AND MARK THE LOCATIONS OF ALL EXISTING UTILITIES BEFORE COMMENCING CONSTRUCTION, AND SHALL INFORM THE CONTRACTING OFFICER IN WRITING OF ANY UTILITIES NOT INDICATED THAT WILL BE AFFECTED BY THE CONSTRUCTION OPERATION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING FACILITIES, STRUCTURES, ROADWAYS, UTILITIES AND SIGNS RESULTING FROM HIS OPERATIONS. REPAIRS, RESTORATIONS, OR REPLACEMENTS SHALL BE AT NO ADDITIONAL COST TO THE GOVERNMENT.
9. ALL VISIBLE UTILITY STRUCTURES HAVE BEEN LOCATED IN THE FIELD, HOWEVER, CONNECTION OF UNDERGROUND UTILITIES AS SHOWN ARE UNVERIFIED AND COMPILED FROM EXISTING DATA. UNDERGROUND UTILITIES SHOWN HEREON ARE FOR INFORMATION ONLY. NAVFAC HAS BEEN OBTAINED FROM THE BEST AVAILABLE SOURCES. THEREFORE NO GUARANTEE IS MADE ON THE ACCURACY OR COMPLETENESS OF SAID INFORMATION.
10. EXISTING RIP-RAP SHORE PROTECTION (STONE AND CONCRETE RUBBLE) SHALL BE REMOVED PRIOR TO CONSTRUCTION OF THE NEW REVETMENT, AND DISPOSED OF BY THE CONTRACTOR. BASALT STONE MAY BE USED FOR REVETMENT CONSTRUCTION, PROVIDED IT MEETS THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS AND WITH THE APPROVAL OF THE CONTRACTING OFFICER.
11. REMOVE REMNANTS OF EXISTING 18" DRAIN PIPE PRIOR TO REVETMENT CONSTRUCTION.
12. EXISTING 36" CONCRETE DRAIN PIPE TO REMAIN, CONSTRUCT THE CRM TRANSITION AROUND THE PIPE.
13. EXTEND NEW REVETMENT CREST STONE BEYOND AND 8 FEET PAST START OF EXISTING SEAWALL.
14. THE CONTRACTOR SHALL TAKE CARE TO PRESERVE EXISTING TREES AND BUSHES WITHIN THE CONSTRUCTION EASEMENT SO FAR AS POSSIBLE.

LEGEND

	BUILDING		MANHOLE
	CONCRETE SLAB		SIGN
	TREE		CONTOUR LINE
	ELEC. &/OR TEL. POLE		TOP &/OR BOTTOM BRINK
	GUY WIRE & POLE		TRAVERSE STATION
	LIGHT POLE		FENCE
	FIRE HYDRANT		SPOT ELEVATION
	WATER VALVE		
	COCONUT OR PALM TREE		

GRAPHIC SCALE
1" = 40'
40' 0 40' 80'

DRW LTR	BASIS	DESCRIPTION	DATE	BY	CHK	APVD

REVISIONS

SEA ENGINEERING, INC.
HONOLULU, HAWAII

U. S. ARMY ENGINEER DIVISION, PACIFIC OCEAN
HONOLULU DISTRICT
HONOLULU, HAWAII

PREPARED: JB, GT
CHECKED: SS

US Army Corps of Engineers

WINDWARD OAHU SHORE PROTECTION

HAUULA SITE PLAN

DATE: 6 JULY 95
LOCATION: OAHU, HAWAII
LOG CODE: 7990-87
PREFIX:
CLASS: 164
DRAWING NUMBER: FIGURE 6

2.0 AFFECTED ENVIRONMENT

2.1 Physical Environment

REGIONAL CLIMATE AND AIR QUALITY

Hawaii has a subtropical climate, with temperatures that are mild and fairly uniform year round. The mean annual temperature in Honolulu is 76°F. August and September are typically the warmest months, while January and February are normally the coolest. On Oahu, strong uplifting of the predominant northeast tradewinds by the Koolau Mountains generates maximum precipitation just leeward of the summit ridge. The median annual precipitation ranges from less than 50 inches along the coastal areas to over 150 inches in the Koolau Mountains. The annual rainfall cycle is generally recognized as wet period from October to April and dry period from May to September. Air quality along this northeast coast of Oahu is generally very good due to the prevailing northeast tradewinds.

COASTAL SETTING

The residential communities of Kaaawa, Punaluu, and Hauula are concentrated along the coastal plain on the northeast coast of Oahu. To the west, the Koolau Mountain Range rises to more than 2,000 feet above sea level. A shallow and broad fringing reef fronts this coastal reach, extending about 1,500 to 2,000 feet offshore. This coastal reach is sheltered by the island mass from the direct approach of summer southern swell, local Kona storm waves from the southerly and westerly direction, and infrequent hurricanes traveling in a west-northwesterly direction passing south and west of the island chain. These waves undergo considerable diffraction and refraction effects prior to reaching this coastline, resulting in reduced wave energy. Predominant wave types affecting this coastal reach are the predominant northeasterly tradewind-generated waves and the winter North Pacific swell. However, the shallow offshore fringing reef provides considerable protection from deepwater wave energy. The maximum wave height that can reach the shore is limited by the water depth over the nearshore reef area. Elevated water levels during storms can allow higher than normal wave energy to reach the shore.

This coastal reach is also subject to tsunamis. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), the three shoreline areas are located within a coastal flood hazard zone designated Zone VE (areas inundated by the 100-year coastal flood with velocity hazards), with base flood elevation 10 feet above mean sea level. At the Kaaawa site, the VE Zone extends as a narrow zone to the seaward edge of the highway, with a Zone AE extending mauka of the highway, also with base flood elevation of 10

feet. At the Punaluu and Hauula sites, the VE Zone extends mauka of the highway.

The Kaaawa project site is located just south of Kalae Oio Beach Park, about 500 feet south of the Kaaawa Stream mouth. A narrow, sand-bottomed channel cuts through the reef at the mouth of Kaaawa Stream. The shoreline adjacent the existing highway consists of a steep scarp of dumped rock (basaltic and coralline). Shoreline elevations adjacent the highway are 8-11 feet above mean sea level. At the base of the boulder scarp, the intertidal zone is comprised of numerous scattered boulders and interspersed coralline sand, with no dry sand beach. Seaward, the nearshore substrate is dominated by sand with occasional limestone outcrops. Most of the outer reef flat and reef front are consolidated limestone. A narrow sandy beach extends north of the project site and widens past the mouth of Kaaawa Stream, into Kalae Oio Beach Park. Figure 7 provides photographs of the project site. Figure 8 shows representative shoreline profiles along the project reach.

The Punaluu project site is located just north of Punaluu Beach Park, about 1,500 feet north of the Punaluu Stream mouth. A channel cuts through the reef at the mouth of Punaluu Stream. The shoreline adjacent the existing highway consists of dumped rock (basaltic and coralline) and loose coralline sand. Shoreline elevation adjacent the highway is about 7 feet above mean sea level. At the base of the boulder scarp, the intertidal zone is comprised of a narrow strip of sand with some loose rocks. Seaward, the nearshore substrate is dominated by sand with occasional limestone outcrops. The outer reef flat and reef front are consolidated limestone. The narrow sandy beach adjacent the south end of the project site widens southward towards the mouth of Punaluu Stream. Punaluu Beach Park is on the south side of Punaluu Stream. A narrow sandy beach also extends northward of the project site. Figure 9 provides photographs of the project site. Figure 10 shows representative shoreline profiles along the project reach.

The Hauula project site is located at Kalaipaloa Point, about 4,000 feet south of Hauula Beach Park. A channel extends through the reef on the south side of Hauula Beach Park. The southern limit of the project is marked by a concrete culvert which drains Waimanana Pond, crossing under Kamehameha Highway. The shoreline adjacent the existing highway consists of dumped rock (basaltic and coralline). Shoreline elevation adjacent the highway is about 7 feet above mean sea level. At the base of the steep boulder scarp, the intertidal zone is comprised of boulders and cobbles, with relatively minor deposits of sand. Seaward, the nearshore substrate is a mixture of rubble and sand over a limestone base, while the reef front is consolidated limestone. There is no dry sandy beach immediately fronting the project site. A narrow sandy beach extends north of the project site. Figure 11 provides photographs of the project site. Figure 12 shows representative shoreline profiles along the project reach.

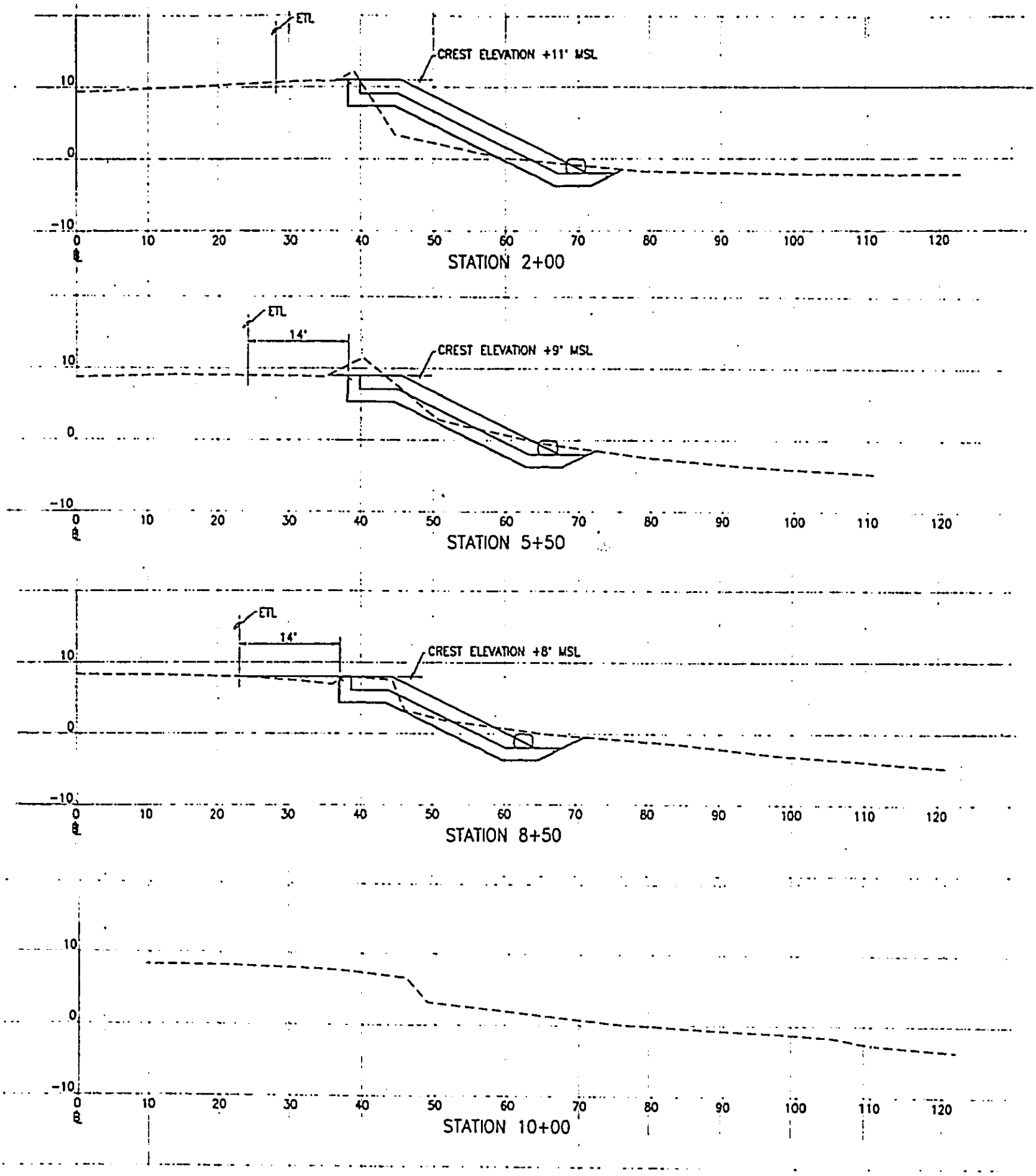
View northward from south end of project reach. (7/22/96, tide approx. +0.9' MLLW)

View southward from north end of project reach. (7/22/96, tide approx. +0.9' MLLW)

PHOTOGRAPHS OF THE KAAAWA PROJECT SITE

FIGURE 7

KAAWA



TOPOGRAPHIC SURVEY DATED FEB 1995

ETL = EDGE OF TRAFFIC LANE (WHITE LINE)

MSL = 0.00'

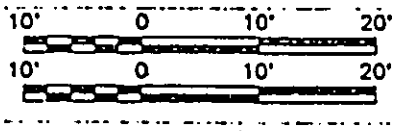
STA 1+40 = SOUTH END OF REVETMENT CREST

STA 9+80 = NORTH END OF REVETMENT CREST

GRAPHIC SCALE

HORIZ. 1" = 10'

VERT. 1" = 10'



From U.S. Army Corps of Engineers Construction Drawings for Windward Oahu Shore Protection, Kaaawa, Punaluu and Hauula, Oahu, Hawaii, 14 April 1995

SHORELINE PROFILES AT THE KAAAWA PROJECT SITE

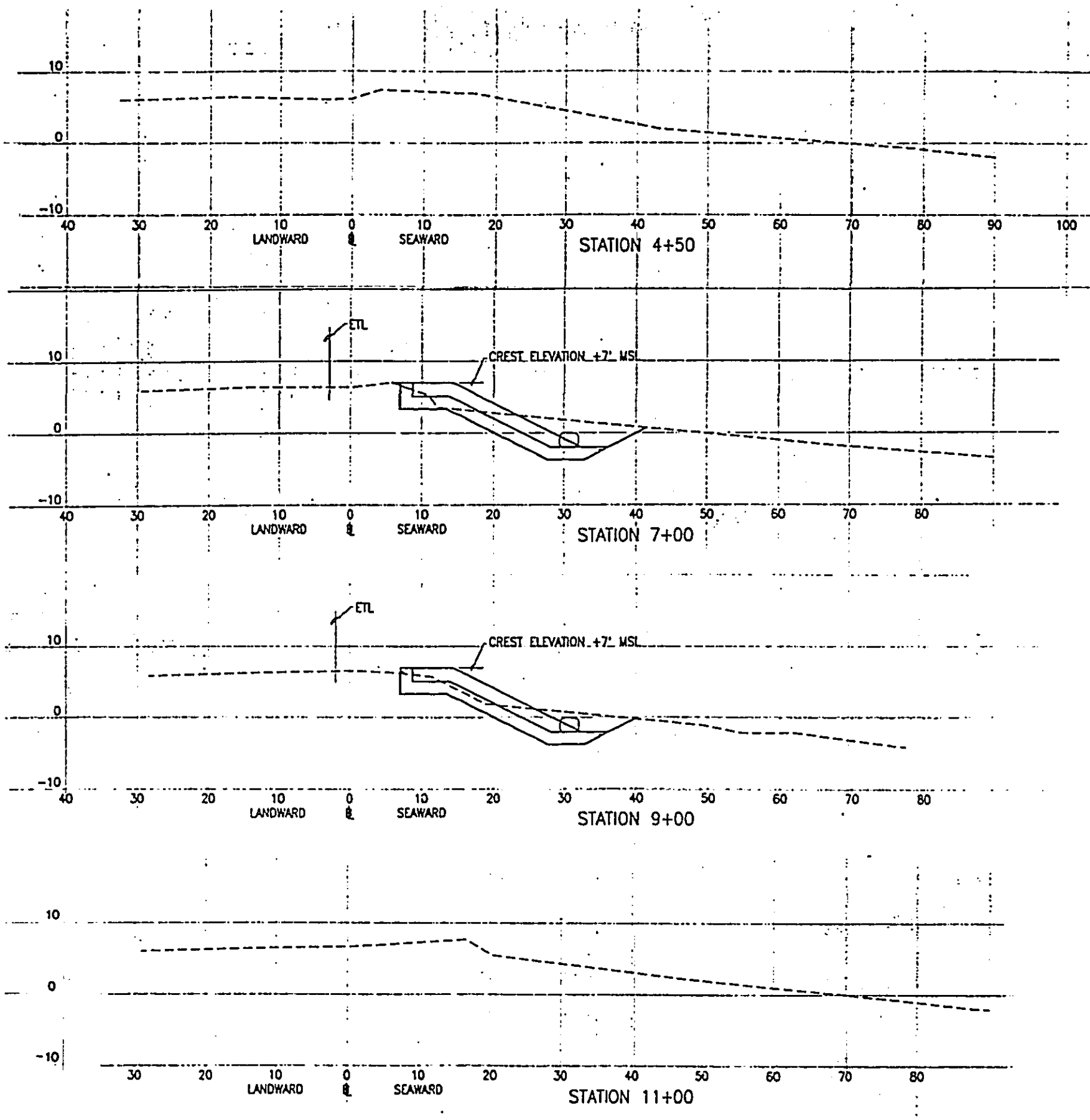
FIGURE 8

View northward from south end of project reach. (7/22/96, tide approx. +0.9' MLLW)

View southward from north end of project reach. (7/22/96, tide approx. +0.9' MLLW)

PHOTOGRAPHS OF THE PUNALUU PROJECT SITE

FIGURE 9



TOPOGRAPHIC SURVEY DATED FEB 1995

ETL = EDGE OF TRAFFIC LANE (WHITE LINE)

MSL = 0.00'

STA 4+95 = SOUTH END OF REVETMENT CREST

STA 10+85 = NORTH END OF REVETMENT CREST

GRAPHIC SCALE

HORIZ. 1" = 10'

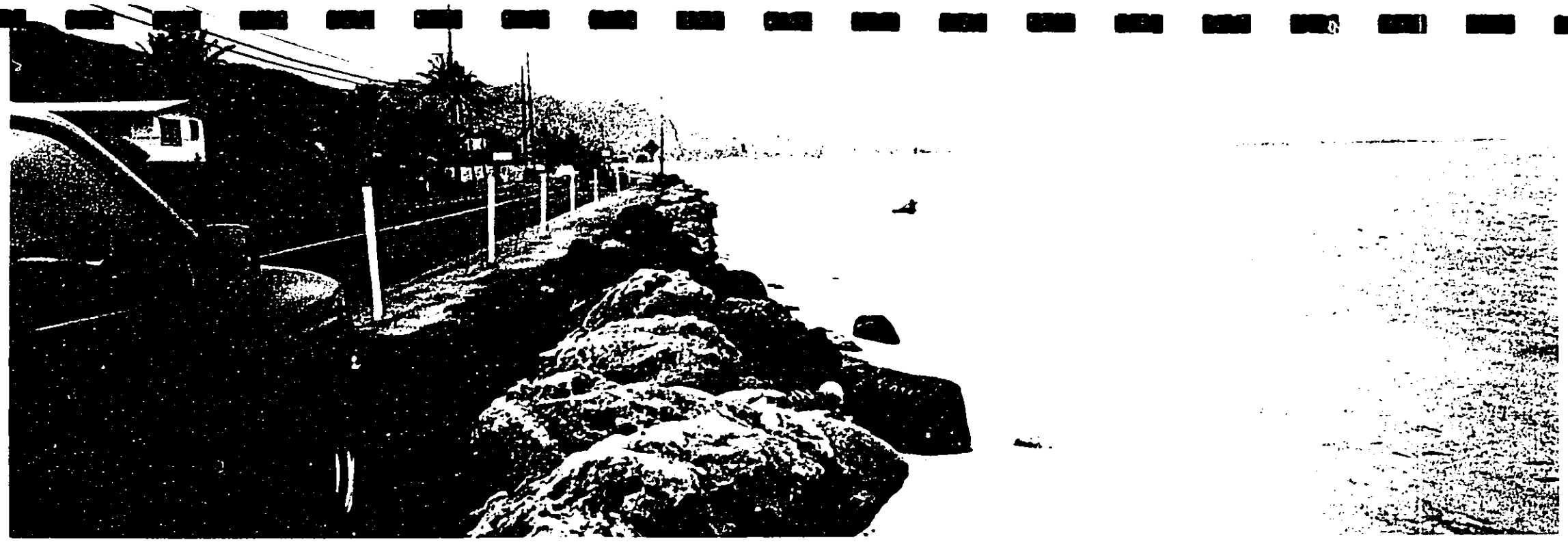
VERT. 1" = 10'

10' 0 10' 20'

From U.S. Army Corps of Engineers Construction Drawings for Windward Oahu Shore Protection, Kaaawa, Punaluu and Hauula, Oahu, Hawaii, 14 April 1995

SHORELINE PROFILES AT THE PUNALUU PROJECT SITE

FIGURE 10

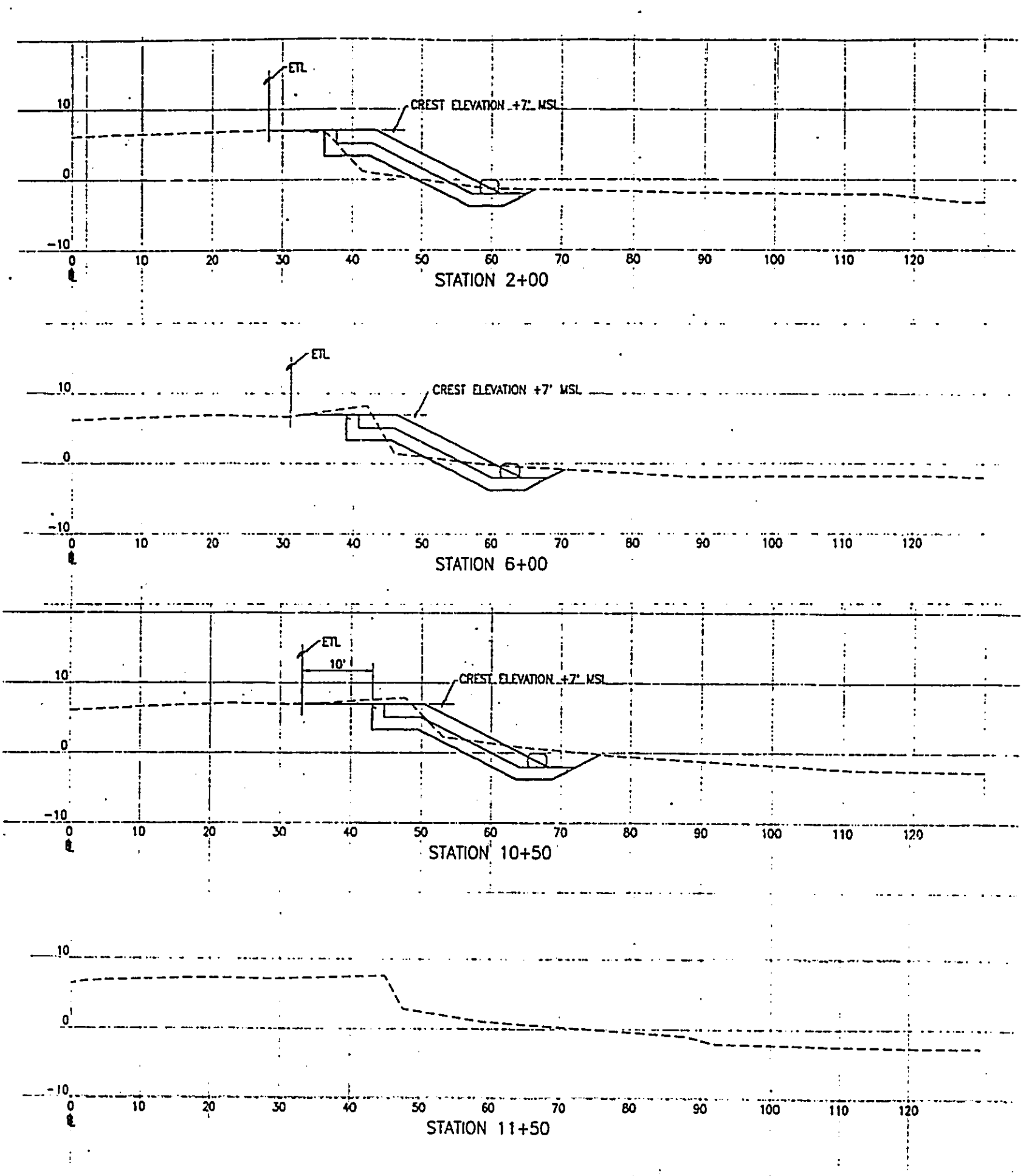


View northward from approximately midway along project reach. (7/22/96, tide approx. +1.0' MLLW)

View southward from approximately midway along project reach. (7/22/96, tide approx. +1.0' MLLW)

PHOTOGRAPHS OF THE HAUULA PROJECT SITE

FIGURE 11



TOPOGRAPHIC SURVEY DATED FEB 1995

ETL = EDGE OF TRAFFIC LANE (WHITE LINE)

MSL = 0.00'

STA 0+25 = SOUTH END OF REVETMENT CREST

STA 11+30 = NORTH END OF REVETMENT CREST

GRAPHIC SCALE

HORIZ. 1" = 10' (10' 0 10' 20')

VERT. 1" = 10' (10' 0 10' 20')

From U.S. Army Corps of Engineers Construction Drawings for Windward Oahu Shore Protection, Kaaawa, Punaluu and Hauula, Oahu, Hawaii, 14 April 1995

SHORELINE PROFILES AT THE HAUULA PROJECT SITE

FIGURE 12

TERRESTRIAL RESOURCES

Because of the narrow highway shoulder and previous erosion damage, there is little, if any, terrestrial vegetation at the three project sites. At the Kaaawa site, there are small stands of strand vegetation consisting of native beach morning glory (Ipomoea pes-caprae) and beach naupaka (Scaevola sericea), as well as introduced tree heliotrope (Tournefortia argentea) and false kamani (Terminalia catappa). There are also some large ironwood trees (Casurina equisetifolia) just beyond the south end of the project reach at Makahonu Point. At the Punaluu site, there are a few small patches of strand vegetation consisting of native beach morning glory (Ipomoea pes-caprae) and some young bushes of the native beach naupaka (Scaevola sericea), as well as introduced tree heliotrope (Tournefortia argentea).

MARINE RESOURCES

A reconnaissance survey of the three sites was conducted by ecologists from the USACE during June 1992. The reconnaissance included in-water (snorkeling) investigation of the nearshore area for plants and animals, as summarized below. According to the USACE, the marine algae, invertebrates and vertebrates observed are consistent with the results reported by AECOS (1979) and are typical of the inshore areas of the windward reefs.

Kaaawa Project Site:

Algae: The nearshore area is dominated by loose calcareous sand which does not support stands of benthic algae in the active surge zone. However, scattered boulders and occasional rock outcrops support dense stands of algae on their sides and tops, with estimated cover exceeding 50 percent in some areas. The brown alga Sargassum polyphyllium and the red alga Acanthophora spicifera were abundant. Also seen were the green algae Ulva reticulata, U. fasciata, and Enteromorpha sp., as well as the red algae Hypnea musciformis and Coelothrix irregularis.

Invertebrates: In the intertidal zone on the existing dumped rock, the snail Nerita picea was abundant, while Littorina pintado was occasionally seen. Rock crabs (Grapsus tenuicrustatus) were common. No corals were observed in the inshore area, nor are any likely to occur in the immediate vicinity of the project area due to the turbid water conditions which commonly occur because of the proximity of Kaaawa Stream. No benthic macroinvertebrates (e.g., sea cucumbers) were observed during the reconnaissance, possibly due to conditions of surf, silt and sand.

Vertebrates: Due to the active surf and turbid conditions present during the

survey, fish observations were difficult. Fishes likely to occur in the project area include Polydactylus sexfilis (moi), Mugil cephalus (mullet), Albula vulpes (o'io), Mulloides flavolineatus (weke), M. vanicolensis (red weke), Caranx sp. juveniles (papio), Chanos chanos (milkfish), Kuhlia sandvicensis (aholehole), Synodus variegatus and S. binotatus (lizardfishes).

Punaluu Project Site:

Algae: The nearshore area is dominated by loose calcareous sand which does not support stands of benthic algae in the active surge zone. However, scattered large outcrops of limestone reef rock or boulders support dense stands of algae on their sides and tops, with estimated cover exceeding 50 percent in some areas. Thirteen species were occasionally to commonly seen, including the green algae Ulva reticulata, U. fasciata, and Codium edule; the brown algae Sargassum palyphyllium, S. echinocarpa, Dictyota acutiloba, and U. bartayresii; and the red algae Acanthophora spicifera, Spyridia filimentosa, Galaxaura fastigiata, Hypnea musciformis, Laurencia sp., and Corallina sp. Species seen relatively rarely (once or twice) during the survey included the green alga Neomeris annulata and a red alga, Liagora sp.

Invertebrates: In the intertidal zone on the existing dumped rock, the snail Nerita picea was occasionally seen, while Littorina pintado was common. Rock crabs (Grapsus tenuicrustatus) were occasionally seen on the rocks, while ghost crabs (Ocypode sp.) were seen in sand areas. No corals were observed in the inshore area, although turbid water conditions during the survey (which is a common occurrence in this area) hampered observations. Small colonies of species which are tolerant of silt and brackish water may occur on the occasional rocky outcrops which are just seaward of the project area. The only echinoderm observed was the sea cucumber Holothuria atra, which was occasionally found in stands of algae on top of the rock outcrops. Shell remains of mollusks observed included only the gastropod Trochus intextus, and the common bivalve Isognomon perna.

Vertebrates: Due to the active surf and turbid conditions present during the survey, fish observations were difficult. Fishes likely to occur in the project area include moi, mullet, o'io, weke, red weke, papio, milkfish, aholehole, and lizardfishes.

Hauula Project Site:

Algae: The nearshore reef flat has abundant algae, with estimated cover exceeding 50 percent in some areas. The two dominant species were the abundant brown alga Sargassum palyphylium and red alga Acanthophora spicifera. Eight

species were occasionally to commonly seen, including the blue-green alga Lyngbya majuscula; the green algae Boodlea composita, Dictyospaeria verluysii and Ulva fasciata; and the brown algae Dictyota acutilopa, Padina japonica, P. thivyi, and Turbinaria ornata. Nine species seen relatively rarely (once or twice) during the survey include the green algae Neomeris annulata, Codium arabicum, C. edule, C. reediae, and Halimeda discoidea; the brown alga Dictyota bartayresii; and the red algae Galaxaura fastigiata, Hydrolithon sp., and Hypnea sp.

Invertebrates: In the intertidal zone on the existing rocks, the snails Nerita picea and Littorina pintado and the rock crab Grapsus tenuicrustatus were observed to be common. Only a few small coral colonies were observed in the inshore area. These included Pocillopora damicornis and Porites lobata. Crustaceans observed included a single individual of the shrimp Stenopus hispidus and remains of the crab Calappa calappa. The only echinoderm observed was the sea urchin Echinometra matheae, which was locally common. The most common observed mollusk was the sea slug Stylocheilus longicaudus, which was seen in aggregations of more than 100 individuals, in apparent association with the blue-green alga Lyngbia majuscula. One medium-sized octopus was observed in a reef hole adjacent to the project area. Other mollusks (or their shell remains) observed included the gastropods Bulla vernicosa, Conus abbreviatus, C. pennaceus, C. sp., Tonna perdix, Rhinoclavis sinensis, and an unidentified naticid, and the common bivalve Isognomon perna.

Vertebrates: The most abundant fishes observed in the inshore area included the flagtail Kuhlia sandvicensis, the goatfish Mulloides flavolineatus, the damselfish Abudefduf abdominalis, juveniles of the wrasse Thalassoma duperrey, juveniles of the parrotfishes Scarus sordidus and Calotomus carolinus, and the surgeonfishes Acanthurus triostegus and Ctenochaetus strigosus. Less commonly seen were other species of goatfishes (Parupeneus multifasciatus, P. porphyreus), damselfish (Stegastes fasciolatus), wrasses (Cheilio inermis, Anampses cuvier, Thalassoma fuscum, Stethojulis balteata), and surgeonfishes (Acanthurus nigrofuscus, juvenile A. olivaceus). Also recorded were a juvenile of the moray eel (Gymnothorax flavimarginatus , the cardinalfish Apogon maculifera, the hawkfish Paracirrhites fosteri, juveniles of the butterflyfish Chaetodon miliaris, the boxfish Ostracion meleagris, and the puffer Canthigaster jactator.

ENDANGERED SPECIES

There are no known rare, threatened, or endangered species located at the three project sites. The only listed endangered and threatened species known to occur in the general nearshore waters around Oahu are the endangered hawksbill turtle and the threatened green turtle. No turtles were observed in the nearshore waters by the USACE ecologists during a June 1992 site visit, nor was any other

species of plant or animal which is candidate, proposed or listed as threatened or endangered. However, comments received from the Punalu'u Community Association indicate that there have been numerous sightings of turtles in the nearshore waters at the Punaluu site, and that the beach in this area is also frequented by monk seals. The U.S. Fish and Wildlife Service has reviewed the projects and has concurred with the USACE's determination of no effect.

WATER QUALITY

Marine waters adjacent to the three sites are designated Class A by the State of Hawaii. In general, water quality and flushing are good in the vicinity of the three sites. However, active wave conditions resuspend calcareous sediments, producing low visibility and unfavorable conditions for sessile organisms such as corals. Water quality at the Kaaawa and Punaluu sites are also affected by the nearby stream discharges, which results in turbid conditions during heavy rainfall. It is reported that rainstorms also produce turbid nearshore waters in the Hauula region due to non-point and stream discharges.

2.2 Socio-Economic Environment

TRANSPORTATION

The single coastal highway is a vital link in maintaining the economic and social well-being of the local communities and of Oahu in general. The road is heavily trafficked not only by residents but by tourists traveling by rental car and tour bus around the island and to specific destinations such as the Polynesian Culture Center in Laie. Partial or complete blockages of the highway due to erosion damage, and temporary closure of lanes for repairs can result in economic loss through delays in movement of people, services and goods.

The USACE reports that according to 1990 traffic counts, the average daily traffic through the Kaaawa project area is 11,241 vehicles, for an average hourly traffic of 468 vehicles. The average daily traffic through the Punaluu and Hauula area is 10,409 vehicles, for an average hourly traffic of 433 vehicles.

RECREATION USES

The narrow road shoulder, dumped rock on the steep shoreline scarp, and little or no fronting beach, discourages recreational use of the shoreline at the three project sites. At Kaaawa and Punaluu, portions of the intertidal and nearshore area are dominated by sand and possibly suitable for wading and swimming. According to AECOS (1979), the shallow outer portion of the reef flat (outside of the project

area) is a popular octopus hunting ground. Spearfishing, trap fishing, and net fishing generally occur in other portions of the reef (reef margins or sand channels), also well outside the immediate project areas. Pole fishermen also use adjacent areas that are accessible.

ARCHAEOLOGICAL/HISTORICAL RESOURCES

No sites listed or eligible for listing in the National and/or State Registers of Historic Places are located within nor in close proximity to the project areas. An archaeological reconnaissance survey was conducted by the USACE staff archaeologist in 1992. Examination of the seaward scarp was not possible due to the presence of dumped boulders which obscures the scarp face. According to the USACE, significant cultural deposits are not expected to be found landward of the scarp since the area has been previously disturbed during construction of the highway. The Department of Land and Natural Resources, State Historic Preservation Division, has reviewed the projects and has concurred with the USACE determination that the projects will have "no effect" on historic sites.

2.3 Land Use Plans/Policies/Controls

STATE LAND USE DISTRICT

The shoreside lands are classified as "Urban", and are regulated in their use by the City and County of Honolulu. The tidal and submerged lands seaward of the upper reaches of the wash of waves are classified "Conservation", and are regulated in their use by the State Department of Land and Natural Resources (DLNR). Figures 13, 14, and 15 show the shoreline surveys for each of the project sites.[1] The Administrative Rules of the DLNR, Chapter 5, Subchapter 2 of Title 13, establishes subzones for lands classified as conservation. The conservation lands at the three sites are located in the Resource subzone. Identified land use in the Resource subzone includes seawalls and shoreline protection, which requires approval by the Board of Land and Natural Resources.

COUNTY DEVELOPMENT PLAN

The Development Plans (DPs) for the City and County of Honolulu provide a relatively detailed framework for implementing the objectives and policies of the General Plan. They set forth desired sequence, patterns, and characteristics of future development. The three project areas are within the Koolauloa Development

[1]The shoreline surveys had been submitted for certification in 1996, but will be resubmitted due to ongoing coordination with property owners affected by the proposed shoreline protection improvements.

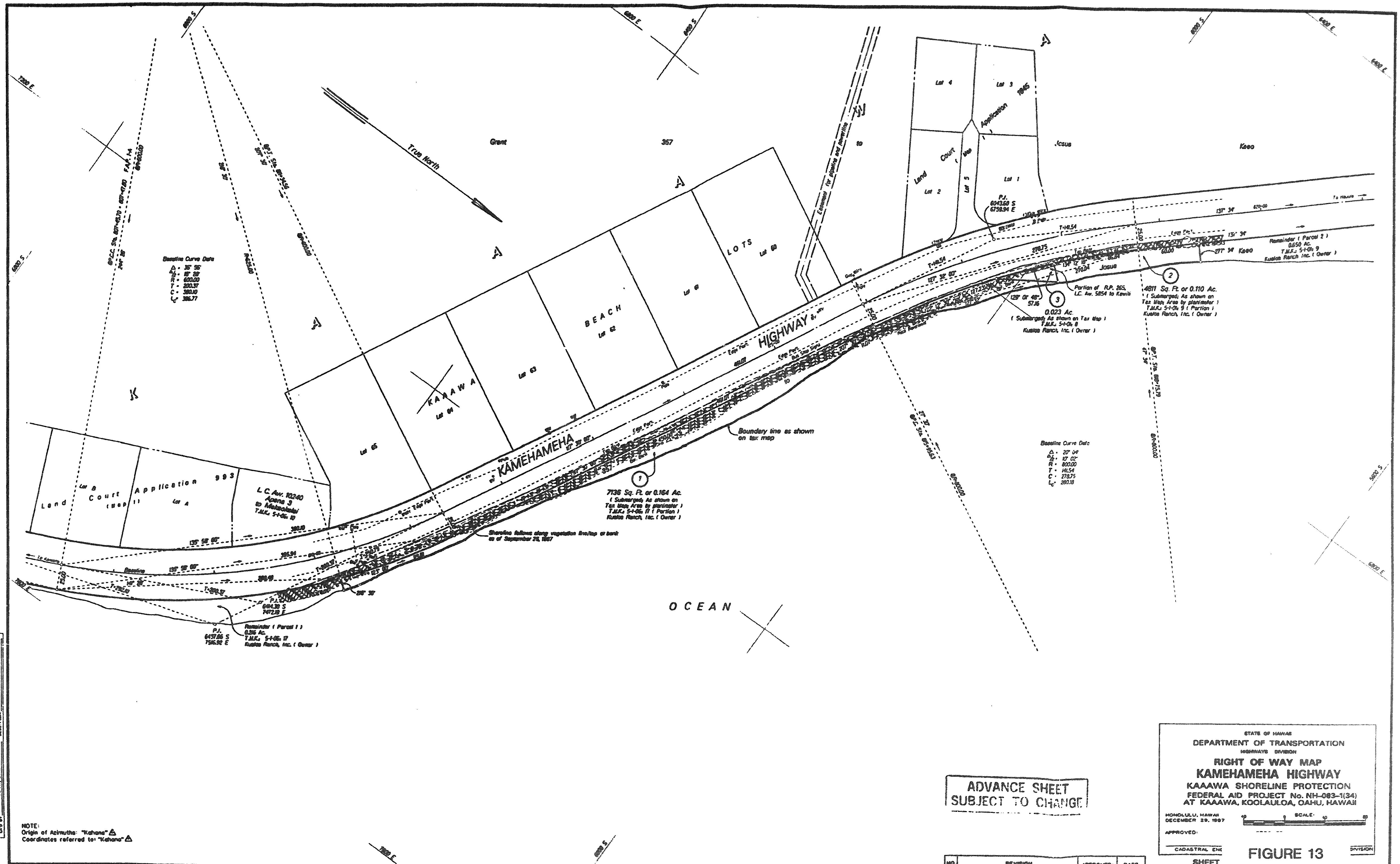

True North
Grant
357
Josue
Keao
KAMEHAMEHA
HIGHWAY
KAAAWA
BEACH
LOTS
Lot 65
Lot 64
Lot 63
Lot 62
Lot 61
Lot 60
Land Court Application 1045
Lot 1
Lot 2
Lot 3
Lot 4
Land Court Application 993
Lot A
Lot B
OCEAN
Boundary line as shown on tax map
7136 Sq. Ft. or 0.164 Ac.
4811 Sq. Ft. or 0.110 Ac.
0.023 Ac.
Kualoa Ranch, Inc. (Owner)
Baseline Curve Data
NOTE:
Origin of Azimuths: "Kahana"
Coordinates referred to: "Kahana"
ADVANCE SHEET
SUBJECT TO CHANGE
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
RIGHT OF WAY MAP
KAMEHAMEHA HIGHWAY
KAAAWA SHORELINE PROTECTION
FEDERAL AID PROJECT No. NH-083-1(34)
AT KAAAWA, KOOLAULOA, OAHU, HAWAII
HONOLULU, HAWAII
DECEMBER 29, 1997
SCALE
APPROVED:
NO.
REVISION
APPROVED
DATE
SHEET

FIGURE 13

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
RIGHT OF WAY MAP
KAMEHAMEHA HIGHWAY
PUNALUU SHORELINE PROTECTION
FEDERAL AID PROJECT No. NH-083-1(34)
AT HALEAHA, KOOLAULOA, OAHU, HAWAII

HONOLULU, HAWAII
DECEMBER 29, 1997

SCALE:

APPROVED:

CADASTRAL ENG ... DIVISION

SHEET

FIGURE 14

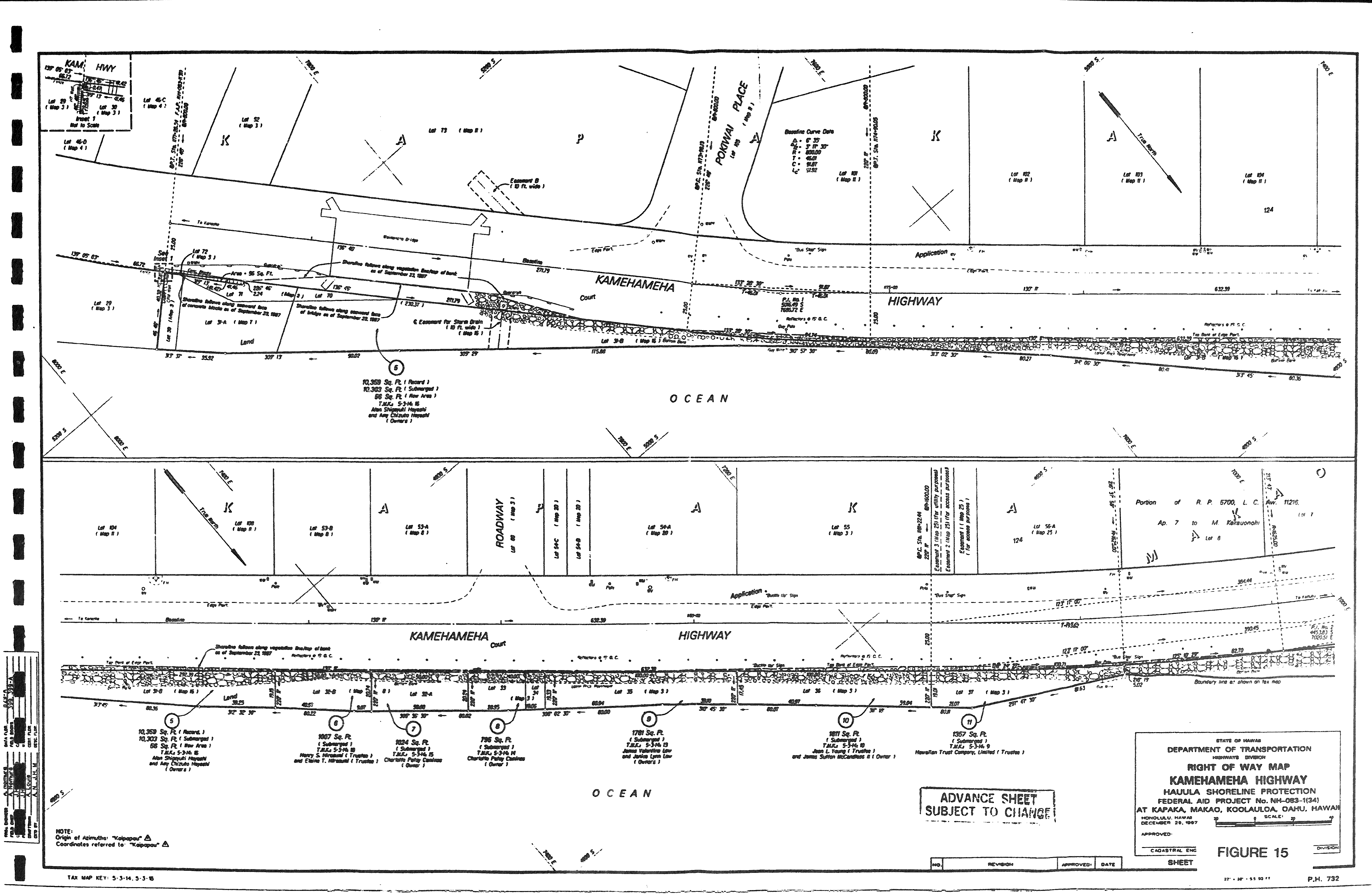
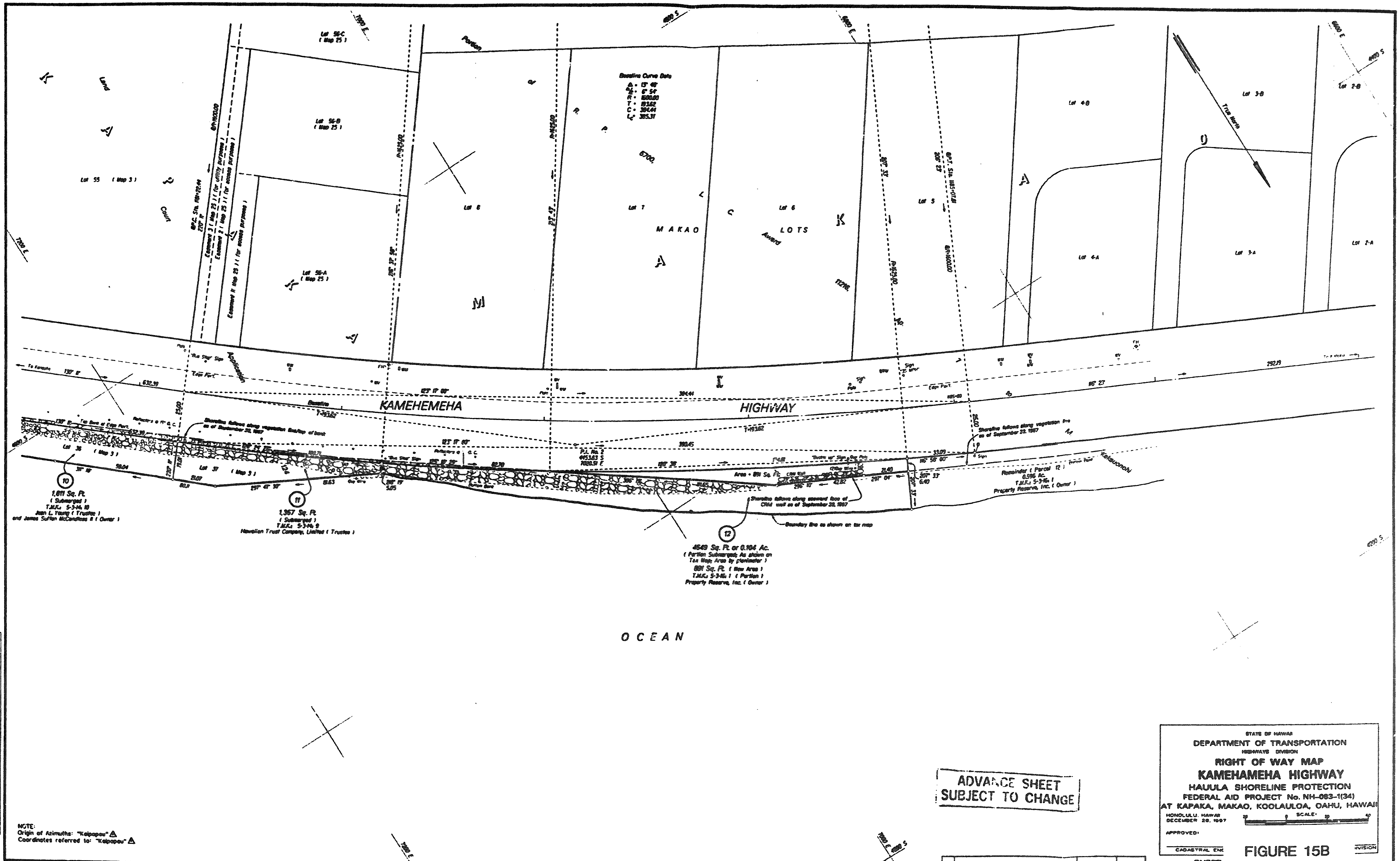

KAMEHAMEHA HIGHWAY
OCEAN
ROADWAY
Application
Baseline
Baseline Curve Data
True North
Shoreline follows along vegetation line/top of bank as of September 23, 1997
Shoreline follows along seaward face of concrete blocks as of September 23, 1997
Shoreline follows along seaward face of bridge as of September 23, 1997
Easement for Storm Drain (10 ft. wide)
Inset 1 Not to Scale
10,359 Sq. Ft. (Record)
10,303 Sq. Ft. (Submerged)
56 Sq. Ft. (New Area)
T.M.K.: 5-3-14: 16
Alan Shigeyuki Hayashi and Amy Chizuko Hayashi (Owners)
1007 Sq. Ft. (Submerged)
1024 Sq. Ft. (Submerged)
796 Sq. Ft. (Submerged)
1781 Sq. Ft. (Submerged)
1871 Sq. Ft. (Submerged)
1357 Sq. Ft. (Submerged)
Hawaiian Trust Company, Limited (Trustee)
Portion of R. P. 5700, L. C. Aw. 11216, Ap. 7 to M. Kekauonohi
Boundary line as shown on tax map
NOTE:
Origin of Azimuths: "Kaipapau"
Coordinates referred to: "Kaipapau"
ADVANCE SHEET
SUBJECT TO CHANGE
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
RIGHT OF WAY MAP
KAMEHAMEHA HIGHWAY
HAUULA SHORELINE PROTECTION
FEDERAL AID PROJECT No. NH-083-1(34)
AT KAPAKA, MAKAO, KOOLAULOA, OAHU, HAWAII
HONOLULU, HAWAII
DECEMBER 29, 1997
APPROVED:
CADASTRAL ENG
SHEET
DIVISION
NO. REVISION APPROVED DATE
TAX MAP KEY: 5-3-14, 5-3-15
P.H. 732

FIGURE 15


KAMEHAMEHA
HIGHWAY
MAKAO
LOTS
OCEAN
ADVANCE SHEET
SUBJECT TO CHANGE
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
RIGHT OF WAY MAP
KAMEHAMEHA HIGHWAY
HAUULA SHORELINE PROTECTION
FEDERAL AID PROJECT No. NH-083-1(34)
AT KAPAKA, MAKAO, KOOLAULOA, OAHU, HAWAII
HONOLULU, HAWAII
DECEMBER 29, 1997
APPROVED:
NOTE:
Origin of Azimuths: "Kaipapau"
Coordinates referred to: "Kaipapau"
1,611 Sq. Ft.
(Submerged)
1,357 Sq. Ft.
(Submerged)
4549 Sq. Ft. or 0.104 Ac.
891 Sq. Ft. (New Area)
Property Reserve, Inc. (Owner)
TAX MAP KEY: 5-3-14, 5-3-16
FIGURE 15B

Plan region. The shoreline at the Kaaawa site is designated "Preservation" on the DP Land Use Map, while the shorelines at the Punaluu and Hauula sites are designated "Residential". The DP Public Facilities Map identifies a water line system running along Kamehameha Highway in the vicinity of the three project sites programmed for commencement of land acquisition and/or construction within 6 years. Sewage Treatment Plants are designated beyond 6 years in the general area of the Kaaawa and Hauula project sites. Water wells (within 6 years) are designated in areas mauka of the three project areas.

COUNTY ZONING

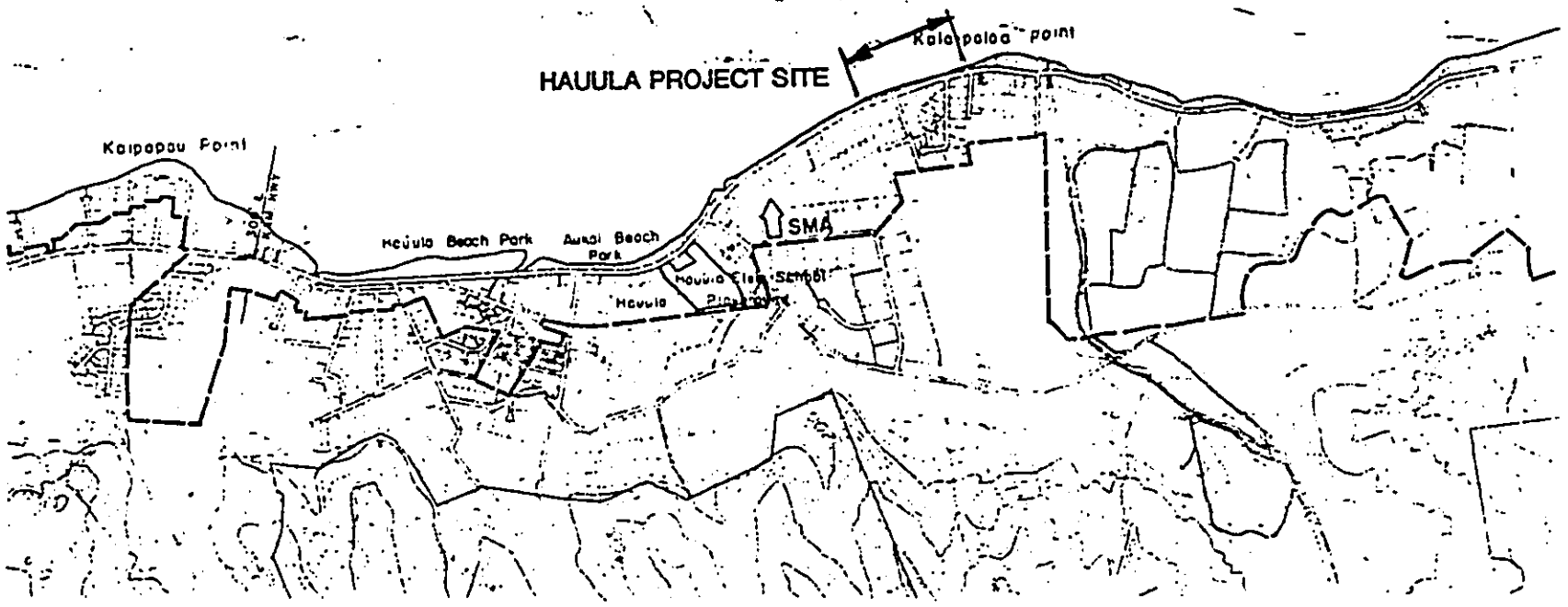
Zoning implements the purpose of the General Plan and the Development Plans and is required by statute to be in conformance with Development Plan designations. Zoning designations for the 3 sites are shown on Zoning Map No. 20 (Hauula-Punaluu-Kaaawa). For the Kaaawa project site, the shoreline on the seaward side of the highway is zoned "Preservation" (P-1), while the highway and mauka areas are zoned "Residential" (R-5). The Punaluu and Hauula project sites are zoned "Residential" (R-5).

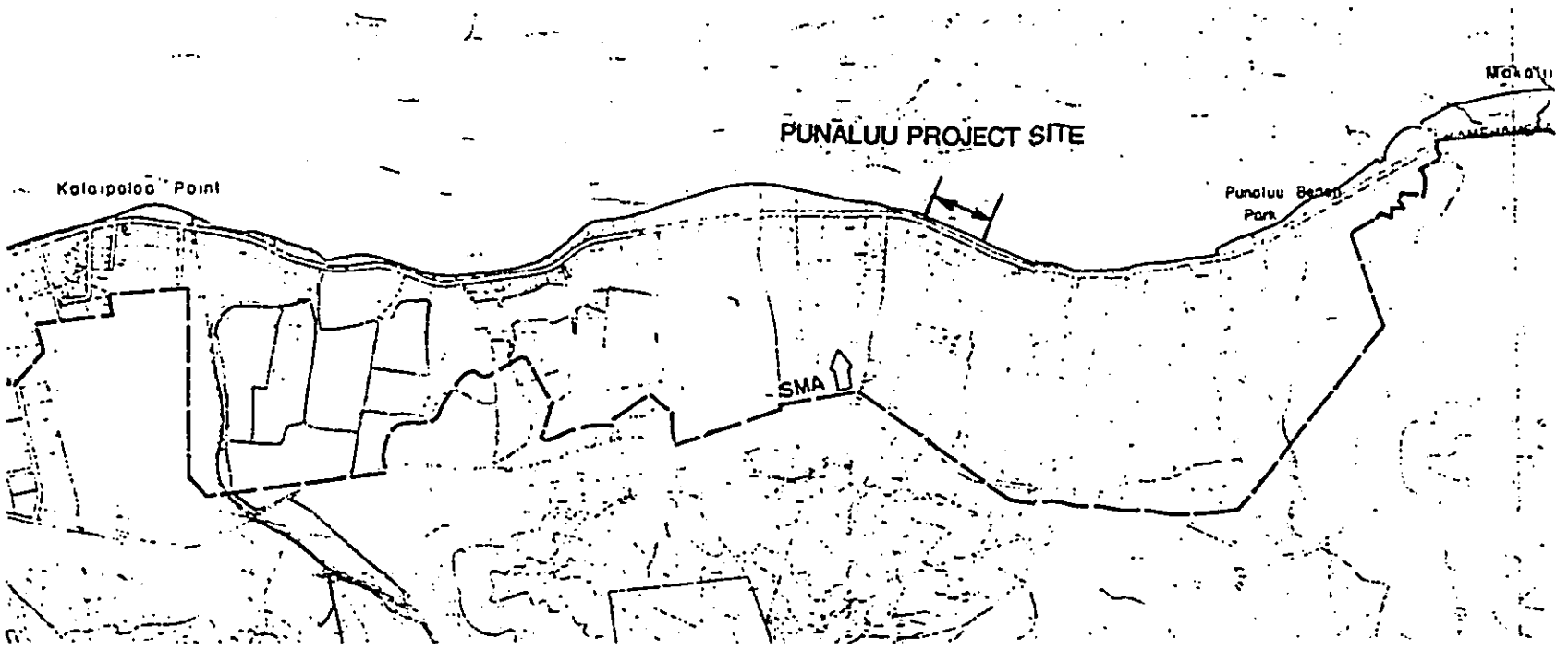
SPECIAL MANAGEMENT AREA

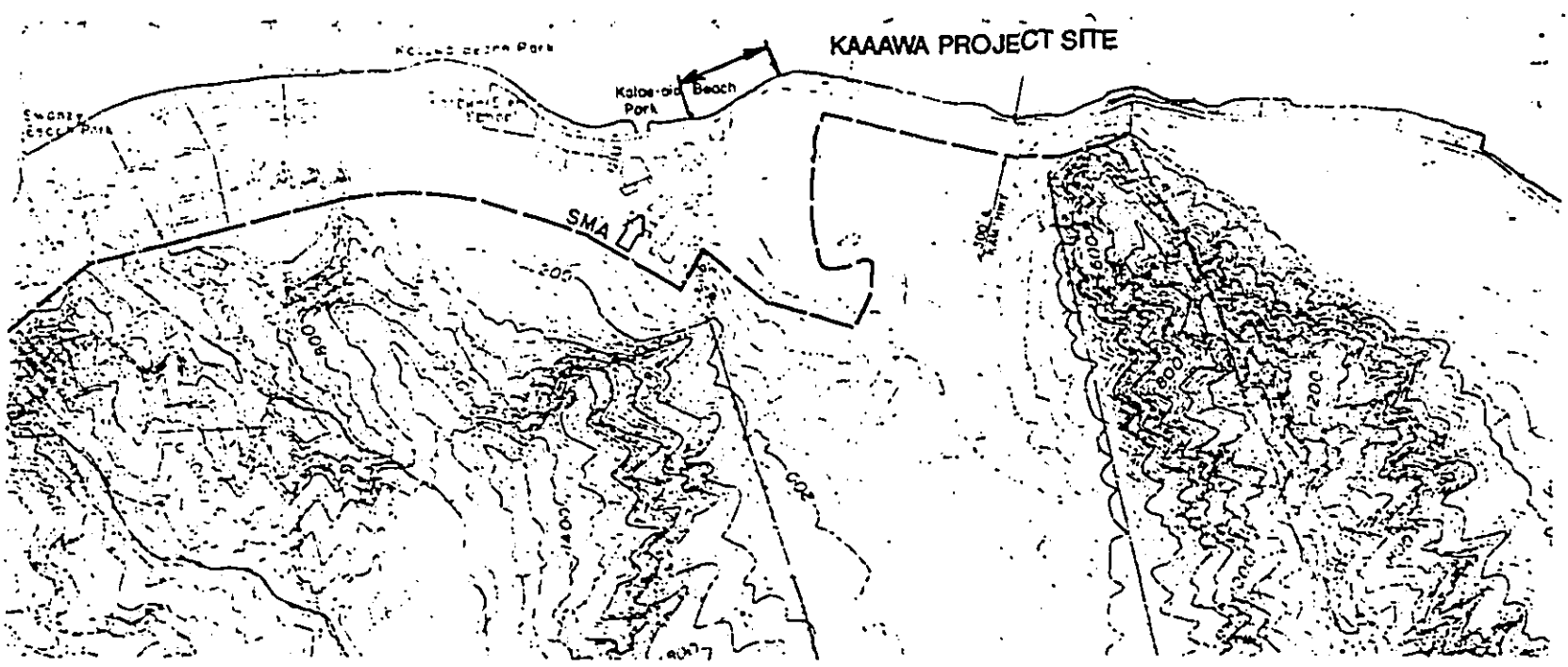
In accordance with the State Coastal Zone Management Program (Chapter 205A, H.R.S.), the City and County of Honolulu is charged with designating and administering Special Management Areas (SMAs) for the island of Oahu. Under Chapter 205A-21, any "development", as defined by law, determined to be within the SMA boundary requires a Special Management Area Use Permit (SMP) from the City and County Department of Land Utilization prior to commencing with the project. All three project sites are located within the Special Management Area (Figure 16).

SHORELINE SETBACK

Chapter 205A, H.R.S. establishes a shoreline setback area of 40 feet inland from the upper reaches of the wash of waves. All construction proposed within this setback area would require issuance of a Shoreline Setback Variance (SSV) from the City and County Department of Land Utilization. Processing of an SSV is concurrent with an SMP.







SCALE: 1" = 2000'

SMA BOUNDARY MAP – VICINITY OF KAAAWA, PUNALUU AND HAUULA

FIGURE 16

3.0 IMPACTS AND MITIGATIVE MEASURES

3.1 Physical Environment

AIR AND NOISE QUALITY

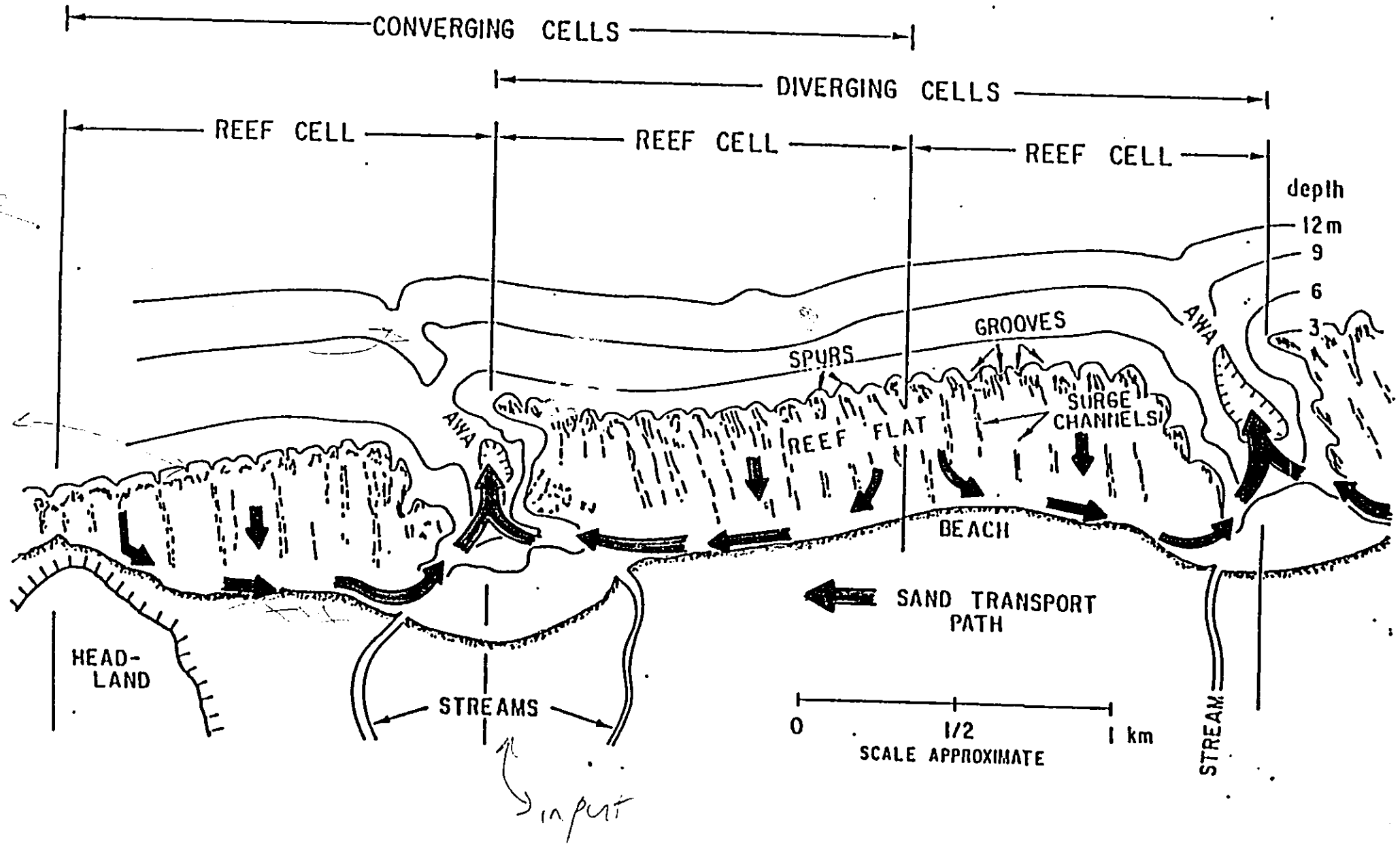
Construction activities may cause short-term impacts to air and noise quality. Construction equipment working on site will generate engine exhaust and noise. There may also be some temporary generation of dust resulting from transport and handling of construction materials. The construction contractor would be required to control emissions and dust, and these temporary effects are not expected to be significant.

In the long term, the proposed shoreline protection will result in beneficial impacts to air and noise quality by reducing the need for frequent highway repairs and maintenance and their attendant construction-related impacts.

COASTAL SETTING

The proposed shore protection would replace an eroding, dumped-rock scarp with a stable, sloping stone revetment designed to have a minimum footprint on the shoreline area due to its minimum thickness of rock layers (single layer of armor stones, underlayer, and filter fabric). The project would not alter the present location of the highway, and would effectively stabilize the highway shoulder to protect the highway from erosion damage.

The proposed revetment would not alter the existing littoral processes affecting the site. While the intertidal and nearshore reef areas have sand deposits interspersed with boulders and limestone outcrops, there is no significant dry sand beach fronting the three project sites. All three project sites are similar in that they are located between a headland or point (convex-shaped portion of coastline), and a channel cut through the reef at the mouth of a major stream (concave-shaped portion of coastline). As such, the three sites are in separate littoral cells, where each littoral cell consists of a fringing reef shoreline bounded by deepwater sand channels. The windward coastline between Laie and Kaaawa consists of a series of littoral cells delineated by the surge channels (termed "awa"). Sediment input to a littoral cell is primarily contributed by the streams and the fringing coral reefs, while sediment losses are primarily due to transport of the sediment into the awa. Sand is moved seaward through the awa into the deeper offshore areas where wave energy cannot transport the sediment back to shore. Figure 17 schematically shows the circulation within the littoral cell systems that are characteristic of the



Schematic diagram of littoral cells along a fringing reef coast (after Kapaa Reef, Inman et al., 1963). Depth contours of 3, 6, 9 and 12 m equal approximately 10, 20, 30 and 40 ft respectively, while 1 km equals 1,094 yards.

FIGURE 17

windward coastline at the vicinity of the project sites.[2] Transport of sediment primarily occurs during high wave conditions, when wave energy is sufficient to suspend sediments in the nearshore and shoreline areas. Longshore currents subsequently transport these suspended sediments into the awa, where seaward return flows transport the sediments to deep water.

The deficit between the supply and losses has resulted in net long-term erosion along much of this windward Oahu coastline, as documented by Hwang[3], Sam O. Hirota, Inc.[4], and Sea Engineering, Inc.[5]. According to analysis of historical aerial photographs, long term erosion near the headlands has been occurring over the past 30 to 40 years. While the average rate of erosion has been slow at the locations of the project sites, nevertheless, net long term erosion has occurred. Seawalls and emergency shore protection measures have been constructed over those years to protect residential properties and the highway. Unprotected residential properties that may have formerly existed seaward of the highway at the project sites have eroded and no longer exist. The major existing sand beaches are located between the headlands along the embayed (concave-shaped) segments of coastline, typically where streams enter the ocean. These segments of coastline, such as at Punaluu Beach Park and Kalae Oio Beach Park, have been relatively stable or accreting despite the armoring of adjacent headland reaches.

The proposed revetments will not alter the existing longshore or cross-shore sediment transport processes. The proposed revetments are intended to provide improved shore protection measures. However, because the sloping rock revetment will be more effective in dissipating wave energy compared to the existing, steep dumped-rock scarp, it may be more conducive to sand accretion. Accretion, if any, due to shoreward transport of sand from the nearshore reef areas, will not result in starvation or erosion of downdrift areas. In fact, any subsequent accretion fronting the project sites may help to stabilize downdrift beaches by providing additional storage or source of sand. There is no evidence that past armoring of shoreline areas along this windward coastal reach has caused any "downdrift" impacts to beaches. Any future changes to existing beach areas will be due to changes in sand supply and cross-shore transport processes - not due

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[2]Douglas L. Inman and Patricia M. Masters (1988), "Investigation of Windward Oahu Beach Erosion", prepared for Department of Parks and Recreation, City and County of Honolulu.

[3]Dennis Hwang (1981), "Beach Changes on Oahu as Revealed by Aerial Photographs", prepared for the State Dept. of Planning and Economic Development by the Urban and Regional Planning Program and the Hawaii Institute of Geophysics, University of Hawaii.

[4]Sam O. Hirota, Inc. (1988), "Beach Erosion Study, Various Parks - Windward Oahu", prepared for City and County of Honolulu Dept. of Parks and Recreation.

[5]Sea Engineering, Inc. (1988), "Oahu Shoreline Setback Study", prepared for City and County of Honolulu, Department of Land Utilization.

to improved shore protection structures. Protecting these sections of highway will not compromise sandy areas, what little exists, at the project sites. Any existing sand within the limits of the project will be excavated and replaced over the new improved revetment, resulting in no net loss of sand within the project area.

In the long term, the proposed shoreline protection would result in beneficial impacts to the coastal setting by providing a stabilized shoreline slope, and possibly additional sand beach frontage. The completed revetments would have no effect on the coastal flood hazard characteristics because the crest elevation will match the existing grade of the highway.

TERRESTRIAL RESOURCES

The small patches of strand vegetation in the project areas would be removed for construction. However, the vegetation at the project sites are common and widespread.

MARINE RESOURCES

Construction activities would create temporary resuspension of existing shoreline sediments. However, due to the relatively small amount of excavation required and the relatively good flushing of water over the reef flat, any turbidity produced is expected to be dispersed without significantly affecting marine resources. Because the project sites are presently subject to periods of turbid water conditions due to stream discharges, non-point source runoff, and resuspension of sediments due to active wave conditions, the marine organisms present are those most likely to be able to tolerate the type of temporary turbidity which would be generated by the project construction.

Construction would disturb the existing dumped-rock shoreline scarp and would destroy some shoreline snails and crabs. However, the new revetment would provide a stabilized rocky habitat suitable for colonization by these and other intertidal organisms. There would be no net loss of shoreline habitat or resources.

The toe of the revetment would extend only a short distance beyond the intertidal zone. Boulders and possibly small rock outcrops with algae and invertebrates may be removed. The construction easement would extend about 25 feet seaward of the revetment toe. Therefore, about 40 feet of nearshore reef (seaward of the MSL water line) would be affected by the construction activities along the project shoreline. However, the completed project would not result in the loss of any significant amount of reef flat habitat or resources.

Therefore, while the proposed shoreline protection would have some very localized short-term effects on marine resources during construction, there would

be no significant adverse long-term impacts on marine resources. The new revetment at the three sites would provide stabilized rocky shoreline habitat which would benefit intertidal organisms.

ENDANGERED SPECIES

No impacts are anticipated on any candidate, proposed or listed endangered species. The U.S. Fish and Wildlife Service and National Marine Fisheries Service have concurred with the USACE's determination of no effect for listed, proposed and candidate endangered and threatened species.

WATER QUALITY

Construction of the shoreline protection would involve the discharge of dredged or fill material into waters of the United States, and thus requires evaluation and determination of compliance or noncompliance with the Clean Water Act, Section 404(b)(1) guidelines. Materials to be discharged include backfill (consisting of on-site excavated or freshly quarried sands and gravels with no more than 15% passing the No. 200 sieve), geotextile filter cloth, and clean basaltic rock. None of the proposed construction materials is suspected of containing any contaminants. The effects of the proposed discharges have been evaluated by the USACE using the Clean Water Act Section 404(b)(1) guidelines. Their evaluation indicates that the proposed action would not likely violate any applicable state water quality criteria, with the exception of turbidity.

Construction of the proposed revetment at the three project sites would likely cause some localized and short-term (transient) increases in nearshore turbidity due to the excavation and setting of revetment rocks, including toe stones. Due to the adequate natural flushing of waters over the reef, no significant long-term effects on water quality are anticipated. The areas are presently impacted by silts and turbidity due to stream discharges, non-point source runoff, and resuspension of sediments due to active wave conditions.

The short-term construction impacts, although not expected to be significant, can be avoided or minimized by implementing suitable mitigation measures. Such measures could include deployment of silt containment devices, curtailing work in the waters during adverse sea conditions, and insuring careful handling of all construction materials (i.e. storing or stockpiling fill materials above the influence of tides, and assuring that the materials are free of pollutants). The construction contractor would be required to comply with the State of Hawaii Water Quality Standards, and coordination will be conducted between the USACE and the Department of Health for development of a Best Management Practices Plan to address construction practices, monitoring and mitigation measures to assure that the water quality standards are not violated. According to the USACE's

environmental assessments prepared for the proposed projects, the following summarizes the applicable measures:

- Effective silt-containment devices shall be deployed to isolate the construction activity, to minimize the transport of potential pollutants, and to avoid the potential degradation of receiving water quality as well as the marine ecosystem.

- Periodic monitoring will be conducted immediately outside the silt containment devices to verify that applicable state water quality criteria are not being exceeded as a result of project construction.

- Work in the water should be curtailed during adverse sea conditions.

- All construction-related materials should be stored or stockpiled above the influence of the tides.

- Construction materials should be free of pollutants.

- Care should be exercised to insure that no contamination of the marine environment results from construction activities. Actions taken to avoid water quality impacts should include assuring that debris, petroleum products, or other deleterious material not be allowed to fall, flow, leach or otherwise enter the water.

- Clean beach sand removed during excavation shall be placed on adjoining beaches, provided this is acceptable to regulatory agencies. Any excavated material which is not suitable for use as backfill for the new revetment shall be disposed of at an upland site.

In the long term, the proposed shore protection would result in beneficial impacts to local water quality by preventing continued erosion of the shoreline and damage to the highway.

3.2 Socio-Economic Environment

TRANSPORTATION

Construction activities may cause some temporary interference with traffic flow along the coastal highway. One lane of traffic adjacent to the work area will be closed during construction work hours. However, the contractor will be required to implement a traffic control plan (signage and flagmen) to safely direct the flow of traffic through the work areas. In the long term, the new shoreline protection

would reduce traffic disruptions by preventing erosion damages to the highway during high wave conditions, and thereby also reducing blockages of the highway necessary to effect repairs. Overtopping of the revetment by storm waves may still occur due to the low revetment crest elevation matching the existing highway grade. However, the revetment would be expected to reduce the amount of debris being washed onto the road.

In the long term, the proposed shore protection would result in beneficial impacts by reducing closure of the highway due to erosion damage. The completed shoreline protection projects would have no effect on the number of vehicles using the highway.

RECREATION USES

The present condition of the shoreline areas within the immediate limits of the project does not provide accessibility for shoreline fishing, and use of the offshore reef flat will not be affected during construction of the shoreline revetment. There is little, if any, recreational use of the shoreline areas within the limits of each shoreline protection project that would be impacted during construction. Any limited access to the shoreline areas within the limits of work would be temporary during the period of construction.

In the long term, the proposed shore protection would not prevent shoreline access to reef resources and would not significantly alter the present recreational uses in the near vicinity. The new revetment may have beneficial impacts by providing a greater potential for sand accretion fronting the project sites. The completed revetments would have no effect on nearby beach parks.

ARCHAEOLOGICAL/HISTORICAL RESOURCES

There are no sites listed or eligible for listing in the National and/or State Registers of Historic Places within the project areas. The State Historic Preservation Officer has concurred with the USACE's determination that the project will have "no effect" on historic sites. While it is not anticipated that any significant cultural deposits will be encountered during construction because of previous disturbance, an archaeological inspection of the areas after the existing dumped rocks have been removed will ensure that subsurface historic sites are identified in the unlikely event that they are present.

3.3 Land Use Plans/Policies/Controls

The proposed shoreline protection is consistent with existing State and County land use plans, policies, and controls. The following permits are required:

Conservation District Use Permit: All three project sites will require submittal of a Conservation District Use Application (CDUA) for construction in lands and state marine waters seaward of the upper reaches of the wash of waves. The proposed shoreline protection requires a permit approved by the Board of Land and Natural Resources. The CDUA submitted for the subject project sites discusses how the proposed use is consistent with the following criteria:

1. *The proposed land use is consistent with the purpose of the Conservation District.*

Regulation of land use in the conservation district is for the purpose of conserving, protecting, and preserving the important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare. The proposed shore protection serves to promote public health, safety, and welfare by protecting a major public transportation facility. The highway is a major transportation link on the northeast side of the island, and closure of the highway due to major storm wave damage would result in severe social and economic impacts to the communities served by this major transportation link. The completed shore protection will improve the environmental quality at the three sites by replacing the eroding, dumped-rock scarp with a stable, sloping stone revetment. The revetment would improve the roadside appearance and would permit the removal of temporary safety barriers.

2. *The proposed land use is consistent with the objectives of the subzone of the land on which the use will occur.*

The objective of the Resource subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas. According to Section 13-5-13(b)(5), HAR, the boundaries of the Resources subzone shall encompass, "Lands and state marine waters seaward of the upper reaches of the wash of waves, usually evidenced by the edge of vegetation or by the debris left by the wash of waves on shore to the extent of the State's jurisdiction, unless placed in a (P) or (L) subzone." According to Sections 13-5-23 and 13-5-24, HAR, identified land uses include "Seawalls, shoreline protection devices, and shoreline structures."

Therefore, the proposed shore protection is consistent with the objectives of the Resource subzone. The proposed revetment is designed to have a minimum footprint on the shoreline area due to its minimum thickness of rock layers, will not alter the existing sediment transport processes, and may be more conducive to sand accretion along the fronting shoreline compared to the existing shoreline scarp.

3. *The proposed land use complies with provisions and guidelines contained in Chapter 205A, Hawaii Revised Statutes (HRS), entitled "Coastal Zone Management", where applicable.*

The State of Hawaii, Office of State Planning, has concurred with the USACE's determination of federal consistency with Hawaii's Coastal Zone Management Program.

In accordance with the State Coastal Zone Management Program, the City and County of Honolulu is charged with designating and administering Special Management Areas (SMAs) for the island of Oahu. All three sites will require application for a Special Management Area Use Permit (SMP) from the City and County Department of Land Utilization. Because the estimated cost of construction for each project site exceeds $125,000, SMP approval from the City Council is required.

4. *The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region.*

The proposed shore protection projects will not result in significant adverse impacts on terrestrial or marine resources. The revetments will not impact shoreline access to reef resources and would not significantly alter the present recreational uses in the vicinity of the projects. The revetments would have no effect on the coastal flood hazard characteristics because the crest elevation will match the existing grade of the highway. The revetments will not alter the existing longshore or cross-shore sediment transport processes affecting the site, and therefore will not cause substantial adverse impact to adjacent shorelines. Impacts, if any, will likely be beneficial. Because the revetment will be more effective in dissipating wave energy than the existing, steep dumped-rock scarp, it may encourage sand accretion along the base of the slope. Any subsequent accretion fronting the project sites may help to stabilize downdrift beaches by providing additional storage or source of sand. The revetments may also have beneficial impacts to coastal water quality by preventing continued erosion of the shoreline.

5. *The proposed land use, including buildings, structures and facilities, shall be compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels.*

The shore protection projects will not alter the present location or condition of the highway, except to stabilize the highway shoulder and to protect it from erosion damage. The revetments would improve the roadside

appearance and would permit the removal of temporary safety barriers. The completed projects would not change the rural character of the communities.

6. *The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable.*

The revetments will not affect the view plane or alter the present open space characteristics. The revetments would improve the roadside appearance and would permit the removal of temporary safety barriers. The proposed revetment is designed to have a minimum footprint on the shoreline area due to its minimum thickness of rock layers, will not alter the existing sediment transport processes, and will be more conducive to sand accretion along the fronting shoreline compared to the existing shoreline scarp.

7. *Subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District.*

No subdivision of land is required.

8. *The proposed land use will not be materially detrimental to the public health, safety and welfare.*

The proposed shore protection serves to promote public health, safety, and welfare by protecting the highway from erosion damage. The completed projects would permit the removal of temporary safety barriers, and would improve access from the shoreline to the water because of the sloping rock face.

Special Management Area Use Permit: All three project sites will require application for a Special Management Area Use Permit (SMP) from the City and County Department of Land Utilization. Because the estimated cost of construction for each project site exceeds $125,000, SMP approval from the City Council is required. The proposed project conforms with the policies and objectives of the Special Management Area Chapter 25-3.1, Revised Ordinances of Honolulu (ROH), as contained in HRS Section 205A-2, Coastal Zone Management Program Objectives and Policies (Section 33-3.1, ROH, as amended). By letter dated February 25, 1994 (contained in Section 6.1 of this EA), the State of Hawaii, Office of State Planning, has concurred with the USACE's determination of federal consistency with Hawaii's Coastal Zone Management Program.

Shoreline Setback Variance: All three project sites will require submittal of a Shoreline Setback Variance (SSV) application to the City and County Department of Land Utilization. SSV approval is by the Director of Land Utilization.

4.0 ALTERNATIVES TO THE PROPOSED ACTION

4.1 "No-Action" Alternative

Under the "No-Action" alternative, the proposed revetments would not be implemented. Continued erosion damage would occur to the highway in the vicinity of Kaaawa, Punaluu and Hauula, necessitating continued repair and maintenance efforts by the State Department of Transportation. The existing dumped rocks will continue to be subject to dislocation by storm waves, possibly requiring emergency supplemental dumping of additional rocks in the event that major storm damage of the shoreline and highway occurs. This highway is a major transportation link on this northeast side of the island, and closure of the highway due to major storm wave damage would result in severe social and economic impacts to the communities served by this major transportation link. For these reasons, the No-Action alternative is not acceptable to the State of Hawaii.

4.2 Road Realignment

Under this alternative, Kamehameha Highway would be relocated inland of the shoreline in the vicinity of the three project sites. Relocation or realignment of Kamehameha Highway at the three project sites is not a viable alternative for the following reasons: (1) erosion would likely continue to result in loss of fastlands along these shoreline reaches, (2) there would be significant social and economic impacts associated with land acquisition/relocations and highway construction, and (3) the long reach of highway re-routing necessary to maintain sight and grade requirements would result in project reaches much longer than the immediate project reaches requiring shoreline protection. Because of the location of these sections of highway, building a new road farther inland would involve tremendous costs to the State for design/construction and land acquisition (condemnation), and social/economic impacts to the residents who will need to relocate.

4.3 Seawall Alternative

Seawalls are vertical or near-vertical impermeable structures, typically constructed of cast-in-place concrete or rock and masonry (CRM), although other types of materials can be used. Sheetpiles (either steel, concrete, or vinyl) can also be used for seawalls. The advantages of seawalls are that they are generally less costly to construct than revetments since they can be built using smaller rocks (CRM construction) and require much less total quantity of building materials, they occupy less space along the shore than sloping revetments, and their narrow footprint maximizes use of the backshore areas as well as minimizing encroachment into the public shorefront seaward of the structure. The primary disadvantage of seawalls is that they are highly reflective of wave energy because of their vertical, impermeable seaward face. This can cause scouring of sand in

front of the structure and lead to undermining at the base of the seawall if not built on a hard foundation material. The high reflectivity can also discourage sand accumulation fronting the structure. Therefore, for beach environments where the protective structure would be located near the waterline within the swash zone, seawalls are generally less desirable than sloping permeable revetments.

For the three project sites, there is little or no fronting dry sand beach. Therefore, while seawalls may be considered viable alternatives, they are less desirable than the proposed revetment construction for the following reasons: (1) a revetment would be more conducive to potential accretion of sand along the base of the structure from onshore transport processes due to the permeable sloping rock face, (2) the sloping revetment would enable easier access from the shoreline to the water, whereas a seawall would present a potential safety hazard due to the steep vertical face, (3) the vertical impermeable face of a seawall may allow greater wave overtopping and overwash of the shoreline and highway due to wave splash carried shoreward by strong onshore winds.

4.4 Beach Fill Alternative

The alternative of placing large quantities of sand fill to create a protective beach is a "non-structural" erosion control measure that does not provide permanent shore protection. The littoral processes affecting the sites will continue to result in erosion of the beach, and therefore periodic nourishment will be necessary to maintain sufficient quantity of beach sand to prevent future erosion damage to the highway. For the beach to provide adequate protection of the highway during storm wave events, it must have adequate beach width, elevation, and length along the entire shoreline reach within the defined littoral cells of each project site (i.e. extending much farther beyond the limits of the proposed project sites). Shore perpendicular structures (such as groins) can be built to contain the beach fill fronting the specific project reaches, but they may detrimentally affect the littoral processes and cause impacts to the nearby beach parks. It is probably not realistic to assume that wide stable beaches can be sustained near the headlands where these projects are located, without a large supply of sand being generated on the reefs or artificially supplied to offset the losses.

The most logical approach for implementing a beach nourishment alternative is to retrieve sand from the deep channels and offshore areas and replace the sand on the shoreline. However, this is not a practical cost-effective solution to protection of the highway. (Note that there is a distinction between *shoreline protection* for the highway and *mitigating erosion impacts* via sand replenishment.) The actual "cost" of implementing a beach nourishment alternative using offshore sand sources includes the regulatory (EIS/permits), design, initial construction, and periodic nourishment costs. All phases involve substantial commitment of resources, and while there have been numerous opportunities to undertake beach

replenishment projects using offshore sand resources, not one major project has been successfully implemented in Hawaii. Therefore, the high cost associated with beach fill and periodic nourishment precludes this as a viable alternative for protection of the highway. Beach fill and periodic nourishment are more appropriate for designated public recreation areas such as at the nearby beach parks.

4.5 Other Structural Alternatives

The USACE considered the alternative of constructing a dynamic revetment. The concept of a dynamic revetment is to build an extensive berm of loose stones which can deform in response to the action of waves and assume a shape (typically with a rampart) which will effectively absorb the energy of subsequent waves. Dynamic revetments have not been tested in the Pacific Ocean, although storm waves naturally form rampart structures of available coral rubble in a process of island formation at tropical Pacific atolls. Because the behavior of a dynamic revetment in the Pacific has not been tested and because such a revetment would have a large cross-sectional area, extending well into the nearshore waters beyond the shoreline, this alternative was rejected by the USACE.

Other types of materials can be used for shoreline protection, including "off-the-shelf" products manufactured and distributed by companies for application to erosion problems in low-energy wave environments. These include gabions (wire or synthetic baskets filled with small rock), grout-filled bags or mattresses, interlocking concrete blocks, articulated block mats (concrete blocks cabled together to form mats), etc. These products have the advantage of being more easily constructed than standard armor-stone revetments and are generally lower in cost. However, they are considered less durable than large armor rock and can require frequent maintenance. For the project sites, design wave heights at the shoreline are not extremely large because of the protection afforded by the shallow fringing reefs. Therefore, a lower-cost alternative may be technically viable. However, because the USACE is the federal sponsor of these projects, their design of shore protection must be proven and meet standards of care for functional design and durability. Federal funding is 65% of the project first cost, subject to an overall statutory limitation of $1 million. For the three project sites, the USACE will fund amounts between $0.6 million and almost $1 million. Estimated State share of the costs subject to apportionment are approximately $453,000 for Kaaawa, $334,000 for Punaluu, and $513,000 for Hauula. Therefore, considering that the costs to the State are only 35% of the total project cost for each site, and that lower-cost alternatives built without federal funding would probably result in higher construction and maintenance costs to the State, the USACE's preferred revetment alternative is the most cost-effective and viable for the three project sites.

5.0 DETERMINATION AND JUSTIFICATION

5.1 Determination of No Significant Effect

The proposed shore protection at the three sites would not have a significant effect on the environment and therefore preparation of an environmental impact statement is not required. This document constitutes a Notice of Negative Declaration/Finding of No Significant Impact for the proposed project. This determination was based on review and analysis of the "Significance Criteria", Section 12 of the Hawaii Administrative Rules Title 11, Chapter 200, "Environmental Impact Statement Rules," as documented below.

5.2 Justification Supporting the Determination

(1) *No irrevocable commitment to loss or destruction of any natural or cultural resources would result.* There are no sites listed or eligible for listing in the National and/or State Registers of Historic Places within the project area. No significant cultural deposits are expected to be found landward of the shoreline scarp since the area has been previously disturbed by construction and maintenance of the highway and shoulder area. No significant natural resources are present.

(2) *The proposed revetments would not curtail the range of beneficial uses of the environment.* There is little recreational use of the shoreline areas within the limits of the proposed shoreline protection projects, and any limited access during the period of construction would be temporary. In the long term, the revetments would not impact shoreline access to reef resources and would not significantly alter the present recreational uses in the vicinity of the projects.

(3) *The proposed revetments do not conflict with the state's long-term environmental policies or goals and guidelines.* The state's environmental policies and guidelines as set forth in Chapter 344, Hawaii Revised Statutes, "State Environmental Policy", encompass two broad policies: conservation of natural resources, and enhancement of the quality of life. The proposed revetments do not significantly affect natural resources, while improving the welfare of the local communities served by the highway and of Oahu in general by improving the efficiency of transportation. While construction activities may cause some temporary interference with traffic flow along the highway, in the long term the shore protection measures would reduce traffic disruptions by preventing erosion damages to the highway.

(4) *The proposed revetments would improve the economic and social welfare of the community and state.* Kamehameha Highway is a major transportation

link on this northeast side of the island, and closure of the highway due to major storm wave damage would result in severe social and economic impacts to the communities served by this major transportation link. The proposed shore protection would reduce traffic disruptions by preventing erosion damages to the highway. The completed projects would have no effect on the number of vehicles using the highway, and would not change the rural character of the communities.

(5) *The proposed revetments do not substantially affect public health.* There are no public health concerns relating to the proposed revetments. The completed project will facilitate provision of emergency and other public services by preventing erosion damage and subsequent closures of the highway.

(6) *No substantial secondary impacts, such as population changes or effects on public facilities, are expected.* The project will not alter the present location or condition of the highway, except to stabilize the highway shoulder and to protect it from erosion damage. There are no secondary impact concerns relating to the proposed revetments.

(7) *No substantial degradation of environmental quality is expected due to the proposed revetments.* Construction activities would have potential short-term impacts on ambient environmental quality. In the long term, the completed shore protection will improve the environmental quality at the three sites by replacing the eroding, dumped-rock scarp with a stable, sloping stone revetment. The revetment would improve the roadside appearance and would permit the removal of temporary safety barriers.

(8) *No cumulative effect on the environment or commitment to larger actions will be involved.* The proposed revetments are intended to provide shore protection to sections of Kamehameha Highway in which serious erosion damage is threatening the integrity of the highway. The completed projects will not affect existing littoral processes and therefore is not expected to contribute to erosion problems on adjacent shorelines (refer to Section 3.1).

(9) *No rare, threatened or endangered species or their habitats are affected.* No impacts are anticipated on any candidate, proposed or listed endangered species. The U.S. Fish and Wildlife Service and National Marine Fisheries Service have concurred with the USACE's determination of no effect.

(10) *The proposed revetments will not detrimentally affect air or water quality or ambient noise levels.* Construction activities may cause short-term impacts to air and noise quality. In the long term, the shore protection will result in beneficial impacts to air and noise quality by reducing the need for frequent

highway repairs and maintenance and their attendant construction-related impacts. Construction activities would likely cause some localized and short-term impacts to coastal water quality due to turbidity generated by the excavation and placement of revetment rocks. The short-term water quality impacts, although not expected to be significant, can be avoided or minimized by implementing suitable mitigation measures.

(11) *The proposed revetments will not detrimentally affect environmentally sensitive areas such as flood plains, tsunami zones, beaches, erosion-prone areas, geologically hazardous lands, estuaries, fresh waters or coastal waters.* The project sites are located in a coastal flood hazard zone designated Zone VE (base flood elevation 10 feet) on the Flood Insurance Rate Maps. The revetments would have no effect on the coastal flood hazard characteristics because the crest elevation will match the existing grade of the highway. The revetments will not alter the existing longshore or cross-shore sediment transport processes affecting the areas (refer to Section 3.1 of this EA). Because the revetment will be more effective in dissipating wave energy than the existing, steep dumped-rock scarp, it may encourage sand accretion along the base of the slope. Accretion, if any, due to shoreward transport of sand from the nearshore reef areas, will not result in starvation or erosion of downdrift areas. In fact, any subsequent accretion fronting the project sites may help to stabilize downdrift beaches by providing additional storage or source of sand. The completed projects will not result in adverse long-term impacts on marine resources or coastal waters, and may result in beneficial impacts to coastal water quality by preventing continued erosion of the shoreline.

(12) *The proposed revetments will not substantially affect scenic vistas and view planes identified in county or state plans or studies.* The revetment crest elevation will match the existing elevation of the highway. The revetments would improve the roadside appearance and would permit the removal of temporary safety barriers.

(13) *There will be no requirement for substantial energy consumption.* Construction and maintenance of the proposed revetments will not require substantial energy consumption.

6.0 CONSULTED PARTIES

6.1 Pre-Assessment Coordination

Prior coordination and consultation was accomplished by the USACE during the preparation of the Section 14 Reconnaissance Reports, Environmental Assessments and Findings of No Significant Impact (FONSI) for the three project sites. The following lists the agencies and organizations that were consulted and were sent the USACE's draft environmental assessment for review and comments. Pertinent correspondence from agencies indicated by an asterisk (*) are reproduced in Appendix B, including written responses.

U.S. Fish and Wildlife Service *
U.S. National Marine Fisheries Service *
U.S. Environmental Protection Agency *
State of Hawaii, Office of Hawaiian Affairs *
State of Hawaii, Department of Health *
State of Hawaii, Department of Land and Natural Resources *
State of Hawaii, Historic Preservation Office *
State of Hawaii, Office of State Planning, Coastal Zone Management Program *
City and County of Honolulu, Department of Land Utilization *
City and County of Honolulu, Department of Planning *
City and County of Honolulu, Department of Transportation Services *
University of Hawaii, Environmental Center *
Hauula Community Association *
Punaluu Community Association *
Koolauloa Neighborhood Board No. 28 (Kahuku, Laie, Punaluu, Kaaawa-Kahana)

6.2 Comments Received During Public Review Period

The following agencies were provided copies of the Draft Environmental Assessment for review and comment. Comment letters received (indicated by asterisk) and written responses are included In Appendix C.

Federal Highways Administration
Honorable Mike McCartney, Senate District 23
Honorable Colleen Meyer, House District 46
State of Hawaii, Department of Health
State of Hawaii, Department of Land and Natural Resources *
    Historic Preservation Office *
    Office of Conservation and Environmental Affairs
    Office of State Planning, Coastal Zone Management Program
State of Hawaii, Department of Business, Economic Development and Tourism
State of Hawaii, Department of Accounting and General Services
Office of Environmental Quality Control *
University of Hawaii, Environmental Center *
City and County of Honolulu, Department of Land Utilization *
City and County of Honolulu, Department of Parks and Recreation
City and County of Honolulu, Department of General Planning *
City and County of Honolulu, Department of Public Works *
City and County of Honolulu, Police Department *
Koolauloa Neighborhood Board No. 28 (Kahuku, Laie, Punaluu, Kaaawa-Kahana)

Other comment letters were received from the following individuals and are included in Appendix C together with written responses:

Charles Fletcher, Ph.D., Associate Professor, University of Hawaii
Mr. Philip Bogetto, Chair, Oahu Group Sierra Club, Hawaii Chapter
Mr. Creighton Mattoon, President, Punalu'u Community Association

APPENDIX A

U.S. Army Corps of Engineers
Public Notices for Proposed Projects
Pursuant to Section 404 of the Clean Water Act

0000 0002 0178

Public Notice

US Army Corps of Engineers
Honolulu District

Public Notice No. CW95-0005 Date: 8 July 1995

Reply to: District Engineer (CEPOD-ED-PV) Respond by: 8 August, 1995
US Army Corps of Engineers
Building 230
Ft. Shafter, HI 96858-5440

NOTICE OF U.S. ARMY CORPS OF ENGINEERS COMPLIANCE WITH SECTION 404, CLEAN WATER ACT REGULATORY REQUIREMENTS AND INTENT TO DISCHARGE DREDGED AND FILL MATERIAL INTO WATERS OF THE UNITED STATES FOR HIGHWAY EROSION PROTECTION AT KAAAWA, OAHU, HAWAII CORPS OF ENGINEERS CIVIL WORKS AUTHORIZATION NO. CW95-0005

1. APPLICANT: U.S. Army Corps of Engineers, Honolulu Engineer District, Building 230, Fort Shafter, Hawaii 96858-5440.

2. APPLICABLE STATUTORY AUTHORITIES: Section 404 of the Clean Water Act (33 U.S.C. 1344). The highway erosion protection study is authorized under Section 14 of the Flood Control Act of 1946, as amended.

3. LOCATION OF PROPOSED ACTIVITY: Kaaawa, Oahu, Hawaii (TMK 5-1-01: pors. 8, 9).

4. DESCRIPTION OF PROPOSED ACTIVITY: As described in the Environmental Assessment and Addendum No. 1 for Kaaawa Highway Erosion Protection, Oahu, Hawaii, the Honolulu Engineer District of the U. S. Army Corps of Engineers is proposing to construct a protective rock revetment along a 900-foot reach of shoreline fronting Kamehameha Highway at Kaaawa. The proposed action is needed to protect the public roadway from erosion caused by storm waves.

The proposed design for the project is for a rubblemound revetment, as shown in the attached figures. Construction of the revetment would require preparatory excavation of the existing dumped rock revetment at the project site. The excavated area would be graded, filled, and compacted as needed to provide a slope of 1-vertical on 2-horizontal for placement of the new revetment underlayer. The finished slope of the revetment face would also be 1-vertical on 2-horizontal.

Approximately 2,200 cubic yards of material would be excavated from the toe and scarp of the existing dumped-rock revetment. The materials to be used in construction of the new revetment would include approximately 320 square yards of geotextile (plastic filter fabric), 2,800 cubic yards of backfill (consisting of on-site or freshly quarried sands and gravels), and 3,200

cubic yards of clean basaltic rock. The basaltic rock would include approximately 300 cubic yards of 1-ton toe stones, 1,700 cubic yards of 50-100 pound underlayer stones, and 1,200 cubic yards of 1000-1400 pound armor stones. A portion of these materials (with a total volume of approximately 2,100 cubic yards) would be discharged below 0.0 feet MHW. The proposed discharge site is approximately 27,000 square feet (0.62 acres) in area, of which approximately 90 percent (0.56 acres) lies seaward of the mean high water (MHW) line and is therefore within the defined boundaries of the waters of the United States.

The completed project would reduce or eliminate wave damage to the road along the affected reach and would lessen the possibility of road closure due to wave action.

5. IMPACTS OF THE PROPOSED ACTION ON THE ENVIRONMENT:

The project area has been previously disturbed by construction of the existing coastal roadway and dumped-rock revetment. Where practicable and effective, the short-term effects of project construction would be avoided or minimized by implementation of appropriate mitigation measures. The proposed action is not expected to have any significant long-term environmental effects.

Excavation of the existing revetment and other construction activites would directly affect the shoreline area. Some shoreline organisms and habitat would likely be destroyed, but the new revetment would provide stable rocky habitat for colonization by similar organisms. A relatively small area of potential intertidal foraging habitat for shorebirds would be temporarily lost during construction, but similar habitat is likely to be created by accumulation of sand at the base of the new revetment. There would be no significant long-term loss of shoreline biota or habitats.

The discharge of basalt rock and geotextile into the nearshore waters at Kaaawa would not significantly degrade water quality or the aquatic environment. Evaluation of the proposed discharge of geotextile, basalt rock, and backfill using Clean Water Act Section 404(b)(1) guidelines has determined that the proposed action would not likely violate any applicable State water quality criteria, with the exception of turbidity. Nearshore turbidity would result primarily from resuspension of existing on-site sediments during construction and is not completely avoidable; however, the deployment of silt containment devices and inclusion of other appropriate and practicable conditions to control turbidity (see below) will minimize adverse effects to the affected aquatic ecosystem. The proposed discharge of clean basalt rock and geotextile would not have any significant effect on water chemistry, salinity, odor, taste, dissolved gas levels, temperature, nutrients, or eutrophication. None of the materials to be discharged are suspected of containing any contaminants. No adverse long-term effects on water quality or human use of the aquatic environment is expected to result from implementation of the proposed action. Some long-term improvement in nearshore water quality may occur due to stabilization of the shoreline.

Other environmental effects of the proposed action have been evaluated and are not expected to be significant. Construction activities will increase dust, vehicle exhaust emissions, and noise in the project area; however, these effects will be temporary and localized.

Construction activities may temporarily affect traffic flow along the coastal highway, but the completed project would reduce the possibility of future closure of the highway due to damage caused by wave action. The sloping revetment would not significantly affect human access to and use of marine resources. Social well-being would be enhanced because of the improved protection of the public roadway from waved-caused erosion.

The unavoidable environmental effects of the proposed discharge on water quality described above can be mitigated through implementation of best management practices and through monitoring of water quality at the project site.

During construction the construction contractor will be required to adhere to Federal, State of Hawaii, and City and County of Honolulu laws and regulations applicable to Federal projects. This is a standard requirement in all Corps construction contract specifications. The contractor will be required to develop an environmental protection plan, which will detail the measures to be used, based on the construction methods to be used, to comply with the regulations. This requirement for an environmental protection plan is standard in Corps construction contracts. The plan must be approved by the Corps Contracting Officer, who is responsible for insuring that the contractor's operations do not violate applicable Federal, State or local standards, including water quality standards. The construction contract specifications and the contractor's required environmental protection plan will incorporate the following mitigative measures:

a. In order to prevent excessive sediment transport into areas of living corals and other reef resources, construction-related turbidity will be confined to the immediate vicinity of construction through the use of effective silt containment devices.

b. In-water construction will be curtailed during sea conditions which are sufficently adverse to render silt containment devices ineffective.

c. All necessary temporary storage of construction-related materials will be above the influence of the tides.

d. Exposed surfaces will be protected from erosion with armor stone as soon after excavation as practicable.

e. All construction-related materials will be free of pollutants.

f. Wastes will not be permitted to fall, flow or leach into the ocean.

To evaluate the adequacy of the pollution control measures and to document compliance with State water quality criteria, the Corps will monitor water quality. Monitoring will be conducted prior to construction, during construction, and following construction. Construction activity will be temporarily suspended if monitoring indicates that adverse impacts to receiving water are occurring as a result of construction. The construction contractor will be required to

suspend the operation or operations causing the excessive turbidity levels until the condition is corrected.

6. IMPACTS ON CULTURAL RESOURCES: There are no sites listed or eligible for listing in the National and/or State Registers of Historic Places within the area of potential effect. A field reconnaissance revealed no evidence for historic sites. It is not anticipated that any significant cultural deposits will be encountered during construction since the area landward of the scarp has been previously disturbed during construction of the coastal roadway. An archaeological inspection of the project area after the existing dump-rock boulders have been removed will ensure that subsurface historic sites are identified in the unlikely event that they are present. By letter dated June 16, 1993, the State Historic Preservation Officer (SHPO) concurred with the Corps's determination that the project will have "no effect" on historic sites. The SHPO is being requested to concur with the Corps' determination that the revised project will have "no effect" on historic sites.

7. IMPACTS ON ENDANGERED SPECIES: The proposed action would not affect any species which is candidate, proposed or listed as threatened or endangered under the Endangered Species Act of 1973, as amended. No such terrestrial species or their critical habitats occur within the project area. Although endangered humpback whales are resident in Hawaiian waters during the winter breeding season (December thru May) and threatened green turtles are present in nearshore waters around Oahu, no blasting is anticipated for the proposed project and it is unlikely that either of these marine species would be affected by construction of the proposed shoreline revetment at Kaaawa.

By letters dated March 3, 1994 and June 14, 1993, respectively, the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) concurred with the Corps' determination of no effect from the project for listed, proposed and candidate endangered and threatened species. The USFWS and NMFS are being requested to concur with the Corps' determination of no effect from the revised project for these species.

8. COASTAL ZONE MANAGEMENT AND WATER QUALITY CERTIFICATIONS: The following paragraphs outline the status of the Coastal Zone Management assessment and the Section 401 Water Quality Certification.

a. Federal Coastal Zone Consistency Determination from the State of Hawaii, Office of State Planning (OSP), Coastal Zone Management (CZM) Office.

By letter dated February 25, 1994, the OSP concurred with the Federal determination of consistency with the Hawaii Coastal Zone Management Program for the project. The OSP is being requested to concur with the Federal determination of consistency for the revised project.

b. Section 401 Water Quality Certification (WQC) from the State of Hawaii Department of Health, Clean Water Branch (DOH).

A request for water quality certification or waiver is being submitted to the DOH. The Corps' best management practices plan and water quality monitoring plan are being submitted to the DOH for review.

9. OTHER GOVERNMENT AUTHORIZATIONS: The authorization to discharge fill does not obviate the need for the Government and local sponsor, respectively, to obtain other Federal, State or local authorizations required by Federal, State or local laws.

10. EVALUATION FACTORS: The decision whether or not to discharge fill will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof: among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people. The evaluation will apply the guidelines promulgated by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404 (b)(1) of the Clean Water Act (40 CFR Part 230).

11. COMMENTS AND INQUIRIES: The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; and other interested parties to consider and evaluate the impacts of the proposed activity on water quality and the pubic interest. The Corps will consider comments received to determine whether to discharge, or to modify or condition the discharge for the proposed project. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects and the other public interest factors listed above. Comments are used to determine the need for a public hearing and to determine the overall public interest in the proposed activity and the impacts on water quality. Interested parties may submit in writing any comments that they may have on the proposed activity. Comments should be submitted to the Honolulu District no later than 30 days from the date of this notice. Written comments should be mailed to the address indicated in the letterhead and should make reference to Public Notice No. CW95-0005. Additional information may be obtained from:

Mr. Peter C. Galloway, Ecologist
U.S. Army Engineer District, Honolulu
Building 230
Fort Shafter, Hawaii 96858-5440
Telephone (808)438-8876

12. REQUEST FOR PUBLIC HEARING: Within 30 days from the date of this notice, any person may request, in writing, that the U.S. Army Corps of Engineers, Honolulu District hold a

public hearing to consider the discharge effect on water quality or factor of public interest. Requests for public hearings shall state clearly and concisely, the reasons and rationale for such requests.

Attachment
Figures (4 sheets)

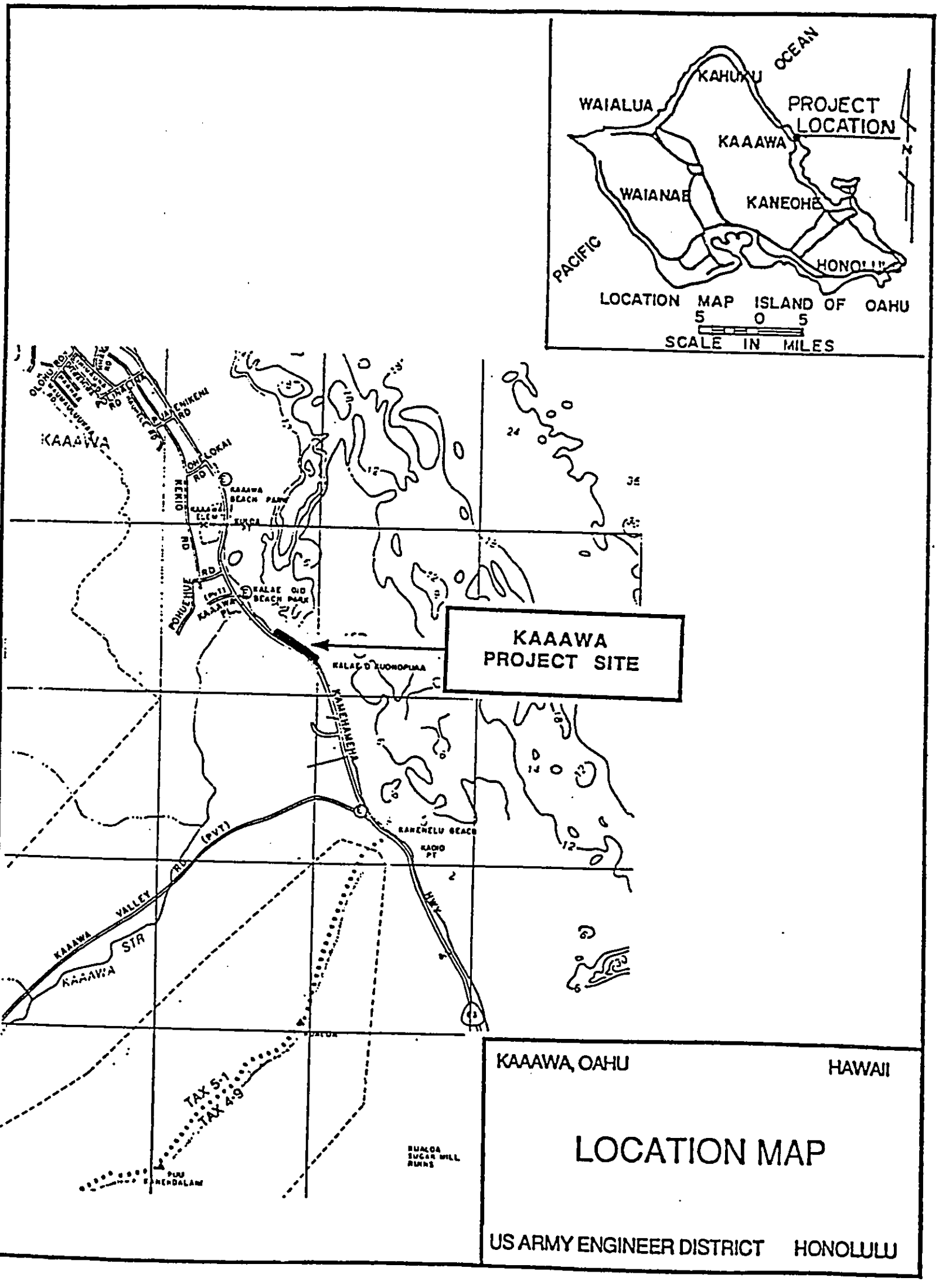
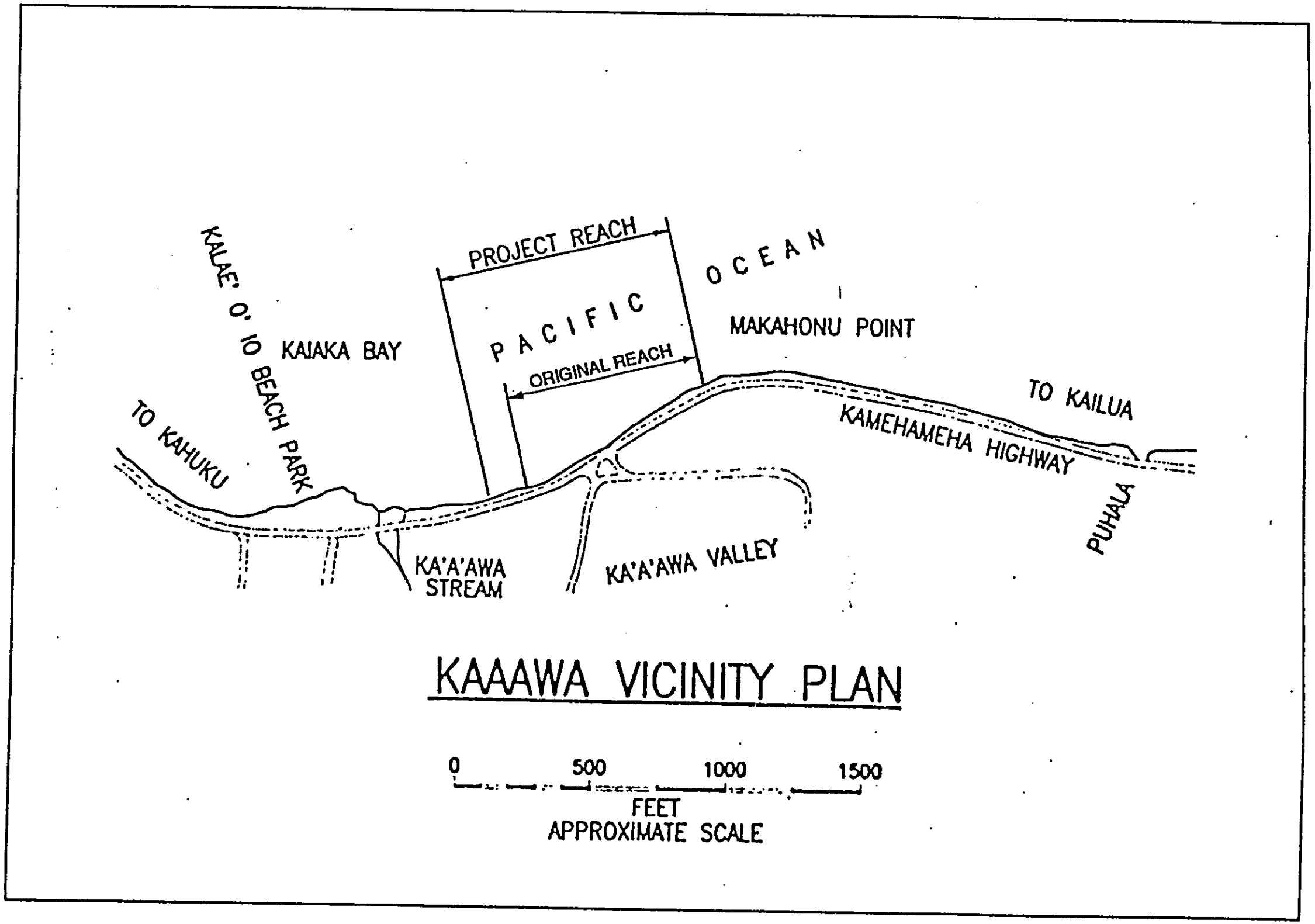
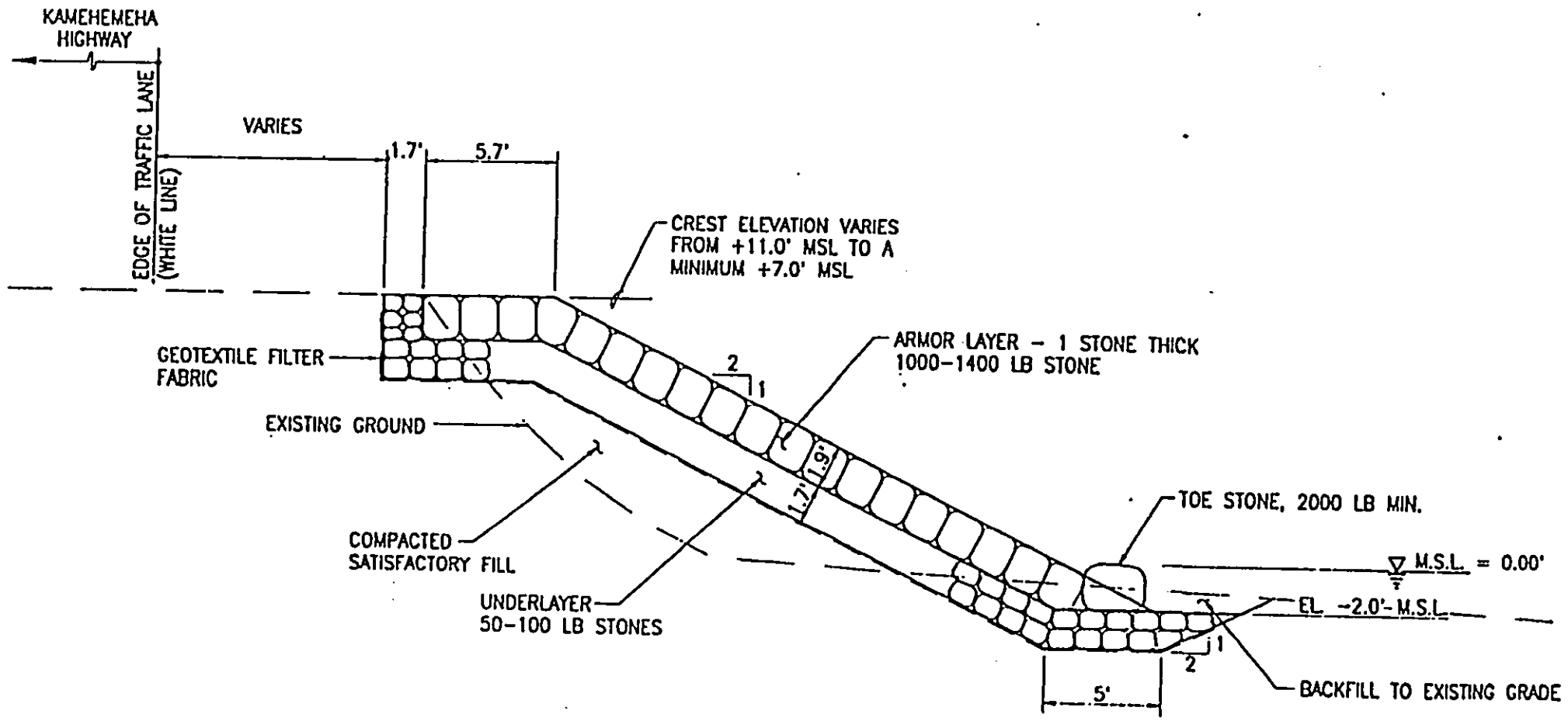


FIGURE 1



KAAAWA VICINITY PLAN

FIGURE 2

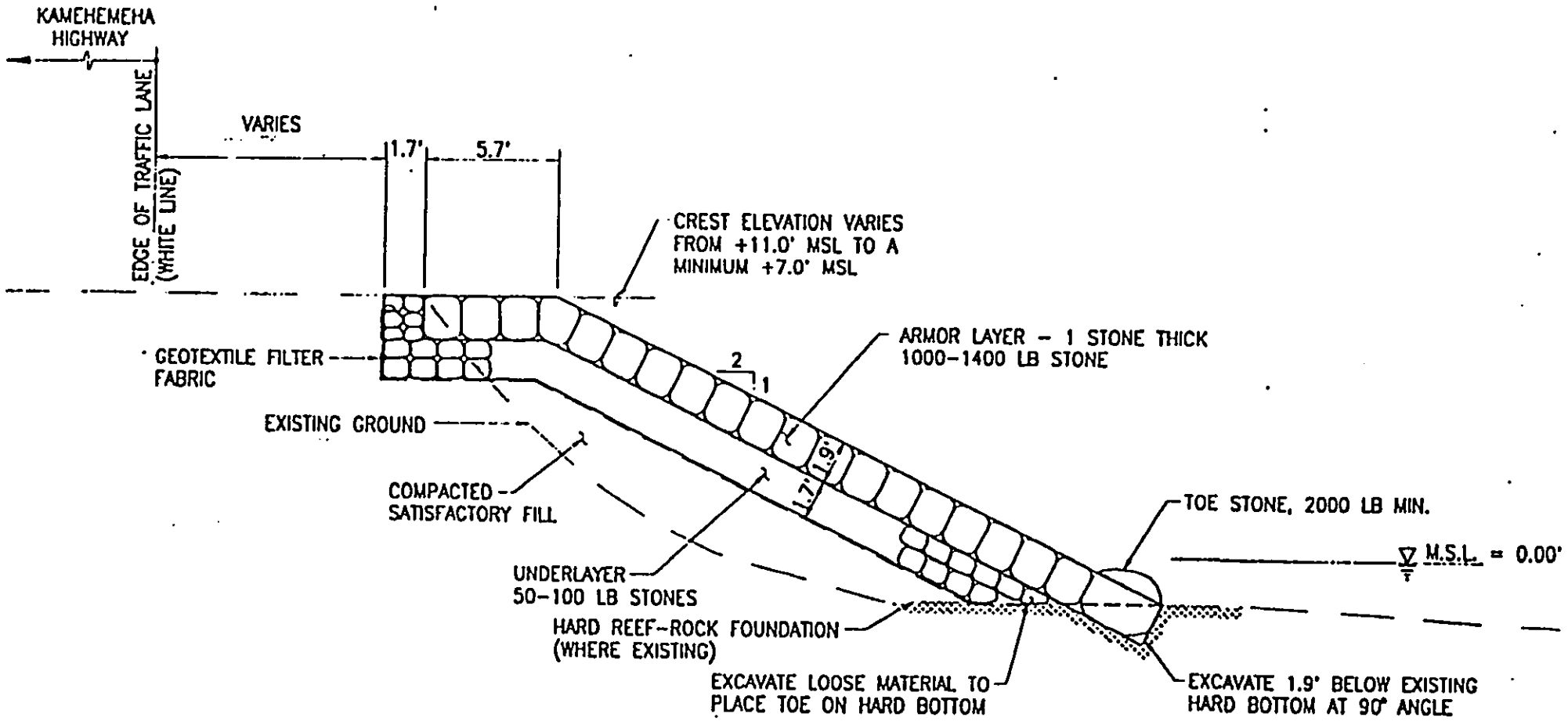


TYPICAL SECTION FOR TOE FOUNDATION
ON LOOSE SAND AND GRAVEL

GRAPHIC SCALE

5' 0 5' 10'

FIGURE 3



ALTERNATE TOE STONE SECTION FOR HARD REEF-ROCK FOUNDATION CONDITION

GRAPHIC SCALE

5' 0 5' 10'

FIGURE 4

0000 0002 .0 188

Public Notice

US Army Corps of Engineers
Honolulu District

Public Notice No. CW95-0003 Date: 8 July 1995

Reply to: District Engineer (CEPOD-ED-PV) Respond by: 8 August, 1995
US Army Corps of Engineers
Building 230
Ft. Shafter, HI 96858-5440

NOTICE OF U.S. ARMY CORPS OF ENGINEERS COMPLIANCE WITH SECTION 404, CLEAN WATER ACT REGULATORY REQUIREMENTS AND INTENT TO DISCHARGE DREDGED AND FILL MATERIAL INTO WATERS OF THE UNITED STATES FOR HIGHWAY EROSION PROTECTION AT PUNALUU, OAHU, HAWAII CORPS OF ENGINEERS CIVIL WORKS AUTHORIZATION NO. CW95-0003

1. APPLICANT: U.S. Army Corps of Engineers, Honolulu Engineer District, Building 230, Fort Shafter, Hawaii 96858-5440.

2. APPLICABLE STATUTORY AUTHORITIES: Section 404 of the Clean Water Act (33 U.S.C. 1344). The highway erosion protection study is authorized under Section 14 of the Flood Control Act of 1946, as amended.

3. LOCATION OF PROPOSED ACTIVITY: Punaluu, Oahu, Hawaii (TMK 5-3-06: por. 37).

4. DESCRIPTION OF PROPOSED ACTIVITY: As described in the Environmental Assessment and Addendum No. 1 for Punaluu Highway Erosion Protection, Oahu, Hawaii, the Honolulu Engineer District of the U. S. Army Corps of Engineers is proposing to construct a protective rock revetment along a 600-foot reach of shoreline fronting Kamehameha Highway at Punaluu. The proposed action is needed to protect the public roadway from erosion caused by storm waves.

The proposed design for the project is for a rubblemound revetment, as shown in the attached figures. Construction of the revetment would require preparatory excavation of the existing dumped rock revetment at the project site. The excavated area would be graded, filled, and compacted as needed to provide a slope of 1-vertical on 2-horizontal for placement of the new revetment underlayer. The finished slope of the revetment face would also be 1-vertical on 2-horizontal.

Approximately 1,540 cubic yards of material would be excavated from the toe and scarp of the existing dumped-rock revetment. The materials to be used in construction of the new revetment would include approximately 210 square yards of geotextile (plastic filter fabric), 1,960 cubic yards of backfill (consisting of on-site or freshly quarried sands and gravels), and 2,200

cubic yards of clean basaltic rock. The basaltic rock would include approximately 210 cubic yards of 1-ton toe stones, 1,200 cubic yards of 50-100 pound underlayer stones, and 790 cubic yards of 1000-1400 pound armor stones. A portion of these materials (with a total volume of approximately 1,360 cubic yards) would be discharged below 0.0 feet MHW. The proposed discharge site is approximately 18,000 square feet (0.41 acres) in area, of which approximately 90 percent (0.37 acres) lies seaward of the mean high water (MHW) line and is therefore within the defined boundaries of the waters of the United States.

The completed project would reduce or eliminate wave damage to the road along the affected reach and would lessen the possibility of road closure due to wave action.

5. IMPACTS OF THE PROPOSED ACTION ON THE ENVIRONMENT:

The project area has been previously disturbed by construction of the existing coastal roadway and dumped-rock revetment. Where practicable and effective, the short-term effects of project construction would be avoided or minimized by implementation of appropriate mitigation measures. The proposed action is not expected to have any significant long-term environmental effects.

Excavation of the existing revetment and other construction activites would directly affect the shoreline area. Some shoreline organisms and habitat would likely be destroyed, but the new revetment would provide stable rocky habitat for colonization by similar organisms. A relatively small area of potential intertidal foraging habitat for shorebirds would be temporarily lost during construction, but similar habitat is likely to be created by accumulation of sand at the base of the new revetment. There would be no significant long-term loss of shoreline biota or habitats.

The discharge of basalt rock and geotextile into the nearshore waters at Punaluu would not significantly degrade water quality or the aquatic environment. Evaluation of the proposed discharge of geotextile, basalt rock, and backfill using Clean Water Act Section 404(b)(1) guidelines has determined that the proposed action would not likely violate any applicable State water quality criteria, with the exception of turbidity. Nearshore turbidity would result primarily from resuspension of existing on-site sediments during construction and is not completely avoidable; however, the deployment of silt containment devices and inclusion of other appropriate and practicable conditions to control turbidity (see below) will minimize adverse effects to the affected aquatic ecosystem. The proposed discharge of clean basalt rock and geotextile would not have any significant effect on water chemistry, salinity, odor, taste, dissolved gas levels, temperature, nutrients, or eutrophication. None of the materials to be discharged are suspected of containing any contaminants. No adverse long-term effects on water quality or human use of the aquatic environment is expected to result from implementation of the proposed action. Some long-term improvement in nearshore water quality may occur due to stabilization of the shoreline.

Other environmental effects of the proposed action have been evaluated and are not expected to be significant. Construction activities will increase dust, vehicle exhaust emissions, and noise in the project area; however, these effects will be temporary and localized.

Construction activities may temporarily affect traffic flow along the coastal highway, but the completed project would reduce the possibility of future closure of the highway due to damage caused by wave action. The sloping revetment would not significantly affect human access to and use of marine resources. Social well-being would be enhanced because of the improved protection of the public roadway from waved-caused erosion.

The unavoidable environmental effects of the proposed discharge on water quality described above can be mitigated through implementation of best management practices and through monitoring of water quality at the project site.

During construction the construction contractor will be required to adhere to applicable Federal, State of Hawaii, and City and County of Honolulu laws and regulations applicable to Federal projects. This is a standard requirement in all Corps construction contract specifications. The contractor will be required to develop an environmental protection plan, which will detail the measures to be used, based on the construction methods to be used, to comply with the regulations. This requirement for an environmental protection plan is standard in Corps construction contracts. The plan must be approved by the Corps Contracting Officer, who is responsible for insuring that the contractor's operations do not violate applicable Federal, State or local standards, including water quality standards. The construction contract specifications and the contractor's required environmental protection plan will incorporate the following mitigative measures:

a. In order to prevent excessive sediment transport into areas of living corals and other reef resources, construction-related turbidity will be confined to the immediate vicinity of construction through the use of effective silt containment devices.

b. In-water construction will be curtailed during sea conditions which are sufficently adverse to render silt containment devices ineffective.

c. All necessary temporary storage of construction-related materials will be above the influence of the tides.

d. Exposed surfaces will be protected from erosion with armor stone as soon after excavation as practicable.

e. All construction-related materials will be free of pollutants.

f. Wastes will not be permitted to fall, flow or leach into the ocean.

To evaluate the adequacy of the pollution control measures and to document compliance with State water quality criteria, the Corps will monitor water quality. Monitoring will be conducted prior to construction, during construction, and following construction. Construction activity will be temporarily suspended if monitoring indicates that adverse impacts to receiving water are occurring as a result of construction. The construction contractor will be required to

suspend the operation or operations causing the excessive turbidity levels until the condition is corrected.

6. IMPACTS ON CULTURAL RESOURCES: There are no sites listed or eligible for listing in the National and/or State Registers of Historic Places within the area of potential effect. A field reconnaissance revealed no evidence for historic sites. It is not anticipated that any significant cultural deposits will be encountered during construction since the area landward of the scarp has been previously disturbed during construction of the coastal roadway. An archaeological inspection of the project area after the existing dump-rock boulders have been removed will ensure that subsurface historic sites are identified in the unlikely event that they are present. By letter (undated, log no. 9206, doc no. 9308td21) the State Historic Preservation Officer (SHPO) concurred with the Corps' determination that the project will have "no effect" on historic sites. The SHPO is being requested to concur with the Corps' determination that the revised project will have "no effect" on historic sites.

7. IMPACTS ON ENDANGERED SPECIES: The proposed action would not affect any species which is candidate, proposed or listed as threatened or endangered under the Endangered Species Act of 1973, as amended. No such terrestrial species or their critical habitats occur within the project area. Although endangered humpback whales are resident in Hawaiian waters during the winter breeding season (December thru May) and threatened green turtles are present in nearshore waters around Oahu, no blasting is anticipated for the proposed project and it is unlikely that either of these marine species would be affected by construction of the proposed shoreline revetment at Punaluu.

By letters dated March 3, 1994 and June 14, 1993, respectively, the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) concurred with the Corps' determination of no effect from the project for listed, proposed and candidate endangered and threatened species. The USFWS and NMFS are being requested to concur with the Corps' determination of no effect from the revised project for these species.

8. COASTAL ZONE MANAGEMENT AND WATER QUALITY CERTIFICATIONS: The following paragraphs outline the status of the Coastal Zone Management assessment and the Section 401 Water Quality Certification.

a. Federal Coastal Zone Consistency Determination from the State of Hawaii, Office of State Planning (OSP), Coastal Zone Management (CZM) Office.

By letter dated February 25, 1994, the OSP concurred with the Federal determination of consistency of the project with the Hawaii Coastal Zone Management Program. The OSP is being requested to concur with the Federal determination of consistency for the revised project.

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A request for water quality certification or waiver is being submitted to the DOH. The Corps' best management practices plan and water quality monitoring plan is being submitted to the DOH for review.

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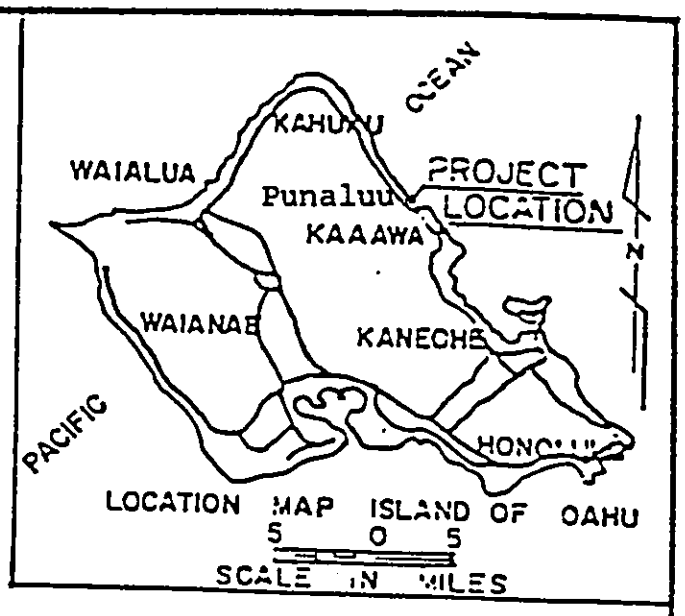
11. COMMENTS AND INQUIRIES: The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; and other interested parties to consider and evaluate the impacts of the proposed activity on water quality and the pubic interest. The Corps will consider comments received to determine whether to discharge, or to modify or condition the discharge for the proposed project. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects and the other public interest factors listed above. Comments are used to determine the need for a public hearing and to determine the overall public interest in the proposed activity and the impacts on water quality. Interested parties may submit in writing any comments that they may have on the proposed activity. Comments should be submitted to the Honolulu District no later than 30 days from the date of this notice. Written comments should be mailed to the address indicated in the letterhead and should make reference to Public Notice No. CW95-0003. Additional information may be obtained from:

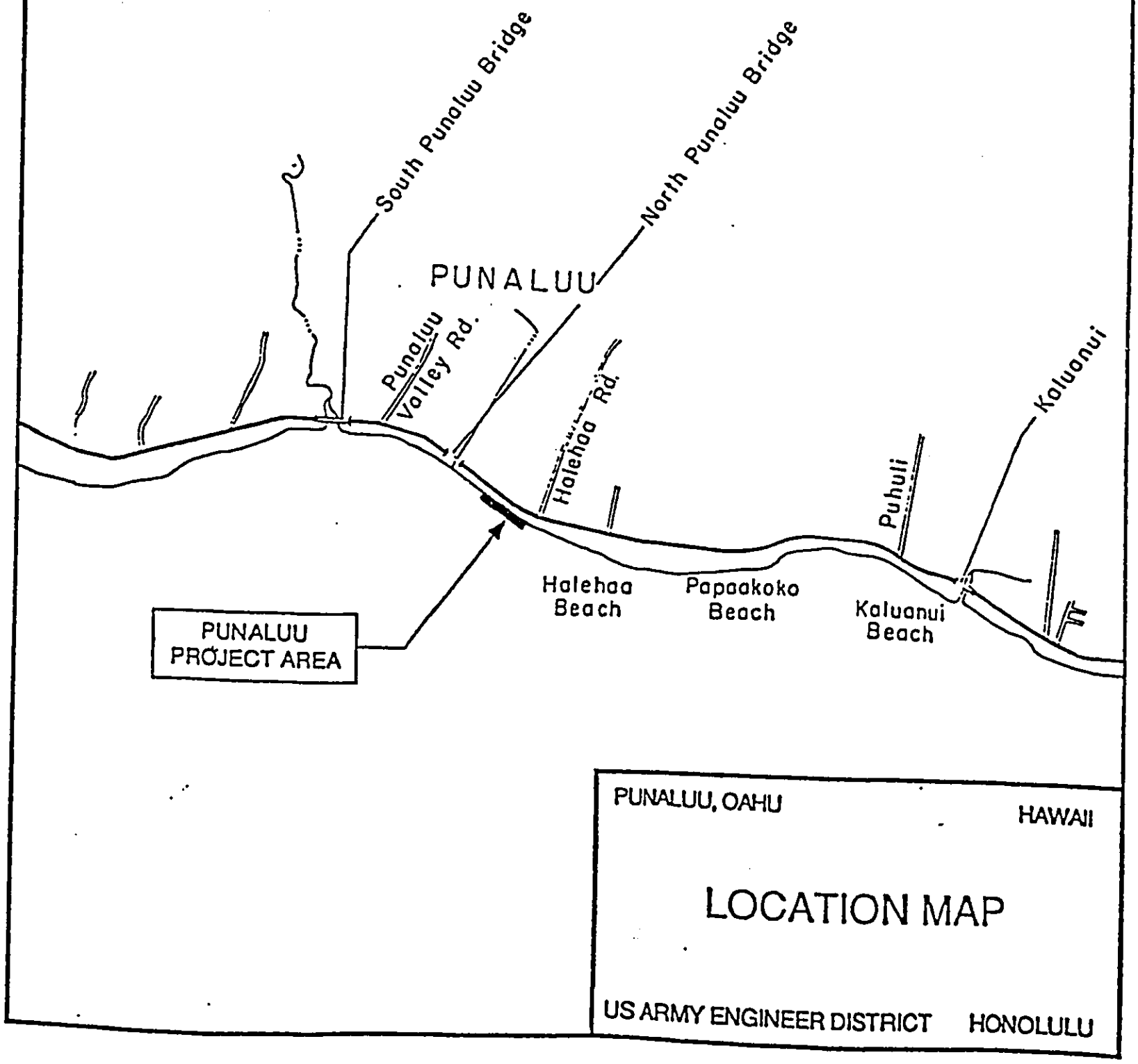
Mr. Peter C. Galloway, Ecologist
U.S. Army Engineer District, Honolulu
Building 230
Fort Shafter, Hawaii 96858-5440
Telephone (808)438-8876

12. REQUEST FOR PUBLIC HEARING: Within 30 days from the date of this notice, any person may request, in writing, that the U.S. Army Corps of Engineers, Honolulu District hold a

public hearing to consider the discharge effect on water quality or factor of public interest. Requests for public hearings shall state clearly and concisely, the reasons and rationale for such requests.

Attachment
Figures (4 sheets)



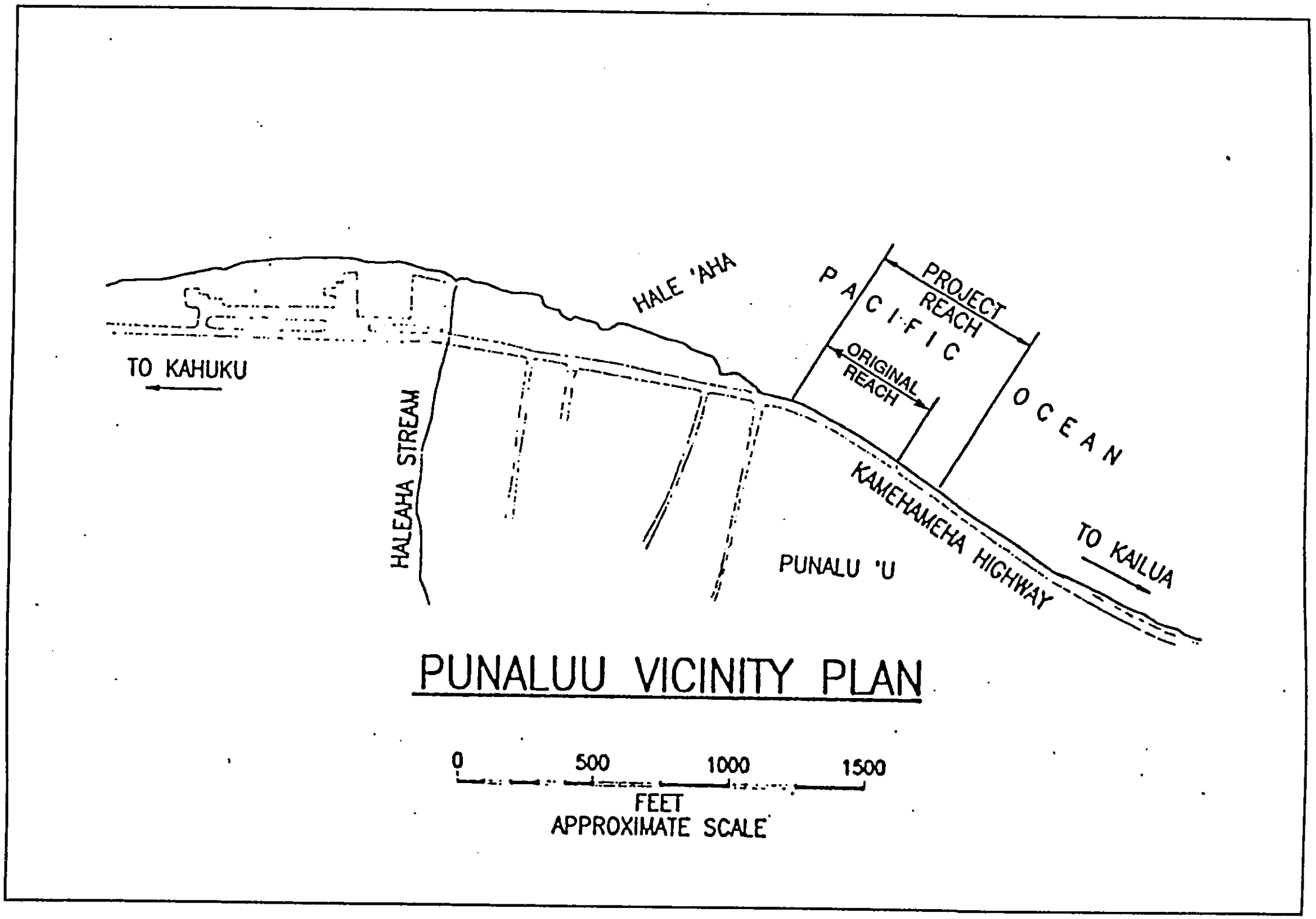


PUNALUU, OAHU HAWAII

LOCATION MAP

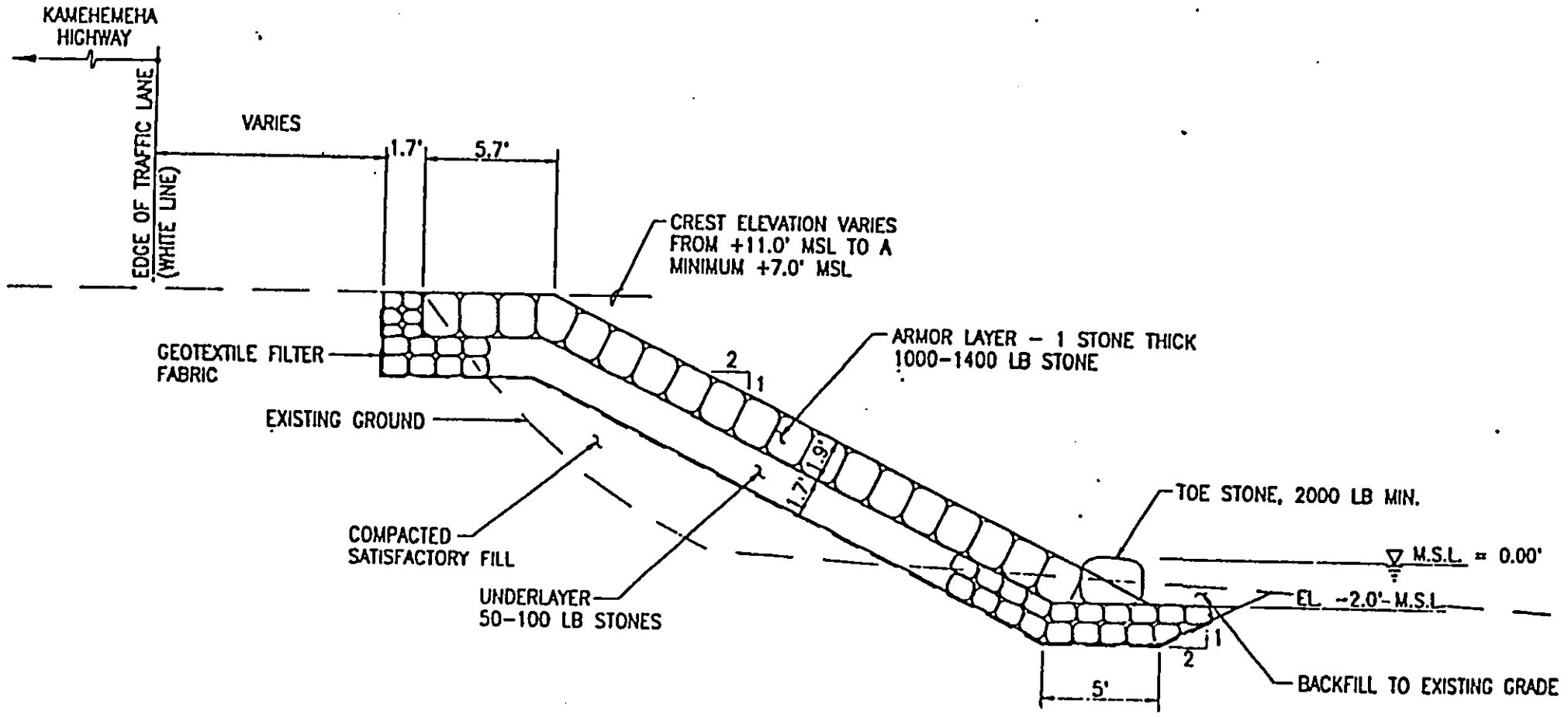
US ARMY ENGINEER DISTRICT HONOLULU

FIGURE 1



PUNALUU VICINITY PLAN

FIGURE 2

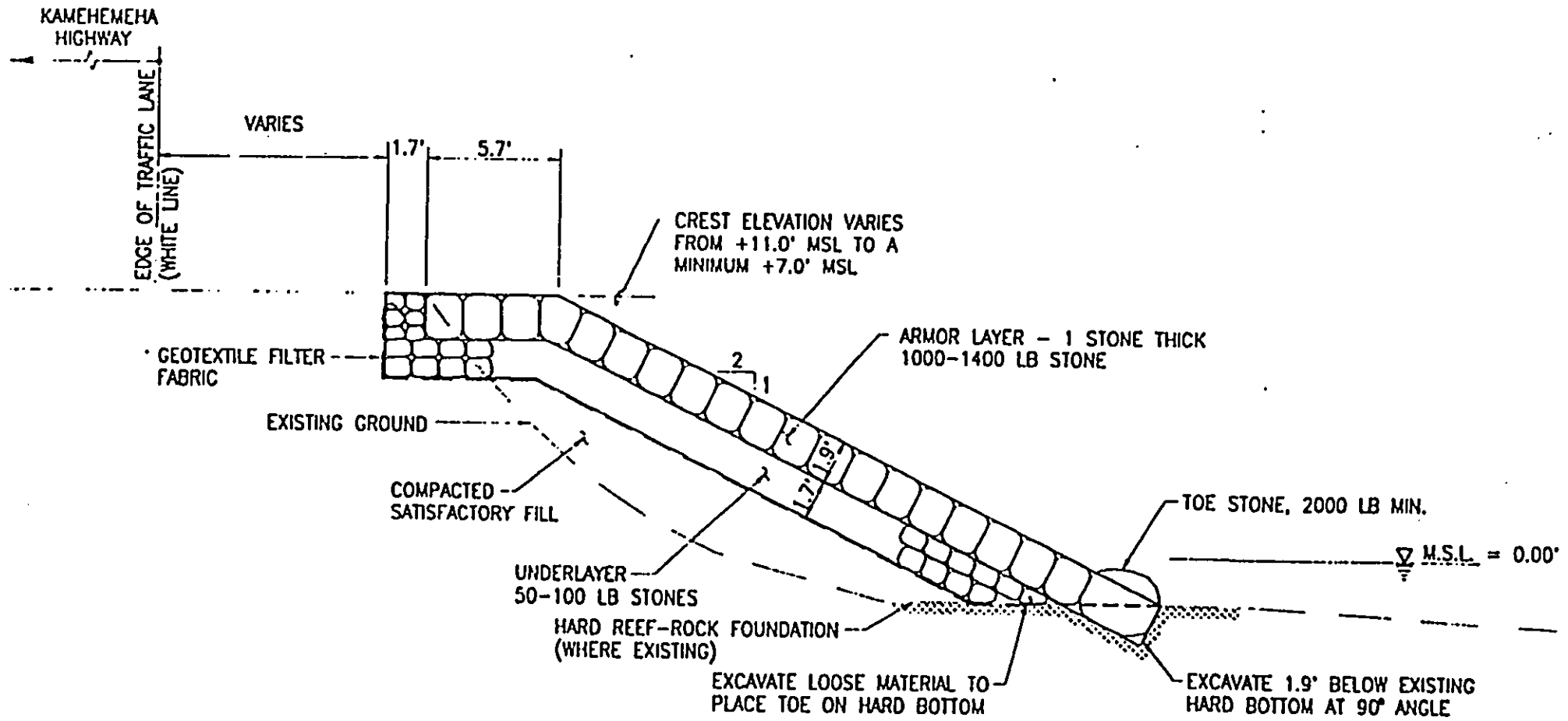


TYPICAL SECTION FOR TOE FOUNDATION
ON LOOSE SAND AND GRAVEL

GRAPHIC SCALE

5' 0 5' 10'

FIGURE 3



ALTERNATE TOE STONE SECTION FOR HARD REEF–ROCK FOUNDATION CONDITION

GRAPHIC SCALE

5' 0 5' 10'

FIGURE 4

0000 0002 0 198

Public Notice

US Army Corps of Engineers
Honolulu District

Public Notice No. CW95-0002 Date: 8 July 1995

Reply to: District Engineer (CEPOD-ED-PV) Respond by: 8 August, 1995
US Army Corps of Engineers
Building 230
Ft. Shafter, HI 96858-5440

NOTICE OF U.S. ARMY CORPS OF ENGINEERS COMPLIANCE WITH SECTION 404, CLEAN WATER ACT REGULATORY REQUIREMENTS AND INTENT TO DISCHARGE DREDGED AND FILL MATERIAL INTO WATERS OF THE UNITED STATES FOR HIGHWAY EROSION PROTECTION AT HAUULA, OAHU, HAWAII
CORPS OF ENGINEERS CIVIL WORKS AUTHORIZATION NO. CW95-0002

1. APPLICANT: U.S. Army Corps of Engineers, Honolulu Engineer District, Building 230, Fort Shafter, Hawaii 96858-5440.

2. APPLICABLE STATUTORY AUTHORITIES: Section 404 of the Clean Water Act (33 U.S.C. 1344). The highway erosion protection study is authorized under Section 14 of the Flood Control Act of 1946, as amended.

3. LOCATION OF PROPOSED ACTIVITY: Hauula, Oahu, Hawaii (TMK 5-3-14: pors. 9, 10, 13-16, 18).

4. DESCRIPTION OF PROPOSED ACTIVITY: The Honolulu Engineer District of the U. S. Army Corps of Engineers is proposing to construct a protective rock revetment along a 1,100-foot reach of shoreline fronting Kamehameha Highway at Hauula. The proposed action is needed to protect the public roadway from erosion caused by storm waves.

The proposed design for the project is for a rubblemound revetment, as shown in the attached figures. Construction of the revetment would require preparatory excavation of the existing dumped rock revetment at the project site. The excavated area would be graded, filled, and compacted as needed to provide a slope of 1-vertical on 2-horizontal for placement of the new revetment underlayer. The finished slope of the revetment face would also be 1-vertical on 2-horizontal.

Approximately 3,300 cubic yards of material would be excavated from the toe and scarp of the existing dumped-rock revetment. The materials to be used in construction of the new revetment would include approximately 380 square yards of geotextile (plastic filter fabric), 3,000 cubic yards of backfill (consisting of on-site or freshly quarried sands and gravels), and 3,770 cubic yards of clean basaltic rock. The basaltic rock would include approximately 350 cubic yards of 1-ton toe stones, 2,040 cubic yards of 50-100 pound underlayer stones, and 1,380 cubic yards

of 1000-1400 pound armor stones (stone sizes may be adjusted in final design). A portion of these materials (with a total volume of approximately 2,500 cubic yards) would be discharged below 0.0 feet MHW. The proposed discharge site is approximately 33,000 square feet (0.76 acres) in area, of which approximately 90 percent (0.68 acres) lies seaward of the mean high water (MHW) line and is therefore within the defined boundaries of the waters of the United States.

The completed project would reduce or eliminate wave damage to the road along the affected reach and would lessen the possibility of road closure due to wave action.

5. IMPACTS OF THE PROPOSED ACTION ON THE ENVIRONMENT:

The project area has been previously disturbed by construction of the existing coastal roadway and dumped-rock revetment. Where practicable and effective, the short-term effects of project construction would be avoided or minimized by implementation of appropriate mitigation measures. The proposed action is not expected to have any significant long-term environmental effects.

Excavation of the existing revetment and other construction activites would directly affect the shoreline area. Some shoreline organisms and habitat would likely be destroyed, but the new revetment would provide stable rocky habitat for colonization by similar organisms. A relatively small area of potential intertidal foraging habitat for shorebirds would be temporarily lost during construction, but similar habitat is likely to be created by accumulation of sand at the base of the new revetment. There would be no significant long-term loss of shoreline biota or habitats.

The discharge of basalt rock and geotextile into the nearshore waters at Hauula would not significantly degrade water quality or the aquatic environment. Evaluation of the proposed discharge of geotextile, basalt rock, and backfill using Clean Water Act Section 404(b)(1) guidelines (Appendix A of EA) has determined that the proposed action would not likely violate any applicable State water quality criteria, with the exception of turbidity. Nearshore turbidity would result primarily from resuspension of existing on-site sediments during construction and is not completely avoidable; however, the deployment of silt containment devices and inclusion of other appropriate and practicable conditions to control turbidity (see below) will minimize adverse effects to the affected aquatic ecosystem. The proposed discharge of clean basalt rock and geotextile would not have any significant effect on water chemistry, salinity, odor, taste, dissolved gas levels, temperature, nutrients, or eutrophication. None of the materials to be discharged are suspected of containing any contaminants. No adverse long-term effects on water quality or human use of the aquatic environment is expected to result from implementation of the proposed action. Some long-term improvement in nearshore water quality may occur due to stabilization of the shoreline.

Other environmental effects of the proposed action have been evaluated and are not expected to be significant. Construction activities will increase dust, vehicle exhaust emissions, and noise in the project area; however, these effects will be temporary and localized. Construction activities may temporarily affect traffic flow along the coastal highway, but the

completed project would reduce the possibility of future closure of the highway due to damage caused by wave action. The sloping revetment would not significantly affect human access to and use of marine resources. Social well-being would be enhanced because of the improved protection of the public roadway from waved-caused erosion.

The unavoidable environmental effects of the proposed discharge on water quality described above can be mitigated through implementation of best management practices and through monitoring of water quality at the project site.

During construction the construction contractor will be required to adhere to Federal, State of Hawaii,and City and County of Honolulu laws and regulations applicable to Federal projects. This is a standard requirement in all Corps construction contract specifications. The contractor will be required to develop an environmental protection plan, which will detail the measures to be used, based on the construction methods to be used, to comply with the regulations. This requirement for an environmental protection plan is standard in Corps construction contracts. The plan must be approved by the Corps Contracting Officer, who is responsible for insuring that the contractor's operations do not violate applicable Federal, State or local standards, including water quality standards. The construction contract specifications and the contractor's required environmental protection plan will incorporate the following mitigative measures:

a. In order to prevent excessive sediment transport into areas of living corals and other reef resources, construction-related turbidity will be confined to the immediate vicinity of construction through the use of effective silt containment devices.

b. In-water construction will be curtailed during sea conditions which are sufficently adverse to render silt containment devices ineffective.

c. All necessary temporary storage of construction-related materials will be above the influence of the tides.

d. Exposed surfaces will be protected from erosion with armor stone as soon after excavation as practicable.

e. All construction-related materials will be free of pollutants.

f. Wastes will not be permitted to fall, flow or leach into the ocean.

To evaluate the adequacy of the pollution control measures and to document compliance with State water quality criteria, the Corps will monitor water quality. Monitoring will be conducted prior to construction, during construction, and following construction. Construction activity will be temporarily suspended if monitoring indicates that adverse impacts to receiving water are occurring as a result of construction. The construction contractor will be required to suspend the operation or operations causing the excessive turbidity levels until the condition is corrected.

6. IMPACTS ON CULTURAL RESOURCES: There are no sites listed or eligible for listing in the National and/or State Registers of Historic Places within the area of potential effect. A field reconnaissance revealed no evidence for historic sites. It is not anticipated that any significant cultural deposits will be encountered during construction since the area landward of the scarp has been previously disturbed during construction of the coastal roadway. An archaeological inspection of the project area after the existing dump-rock boulders have been removed will ensure that subsurface historic sites are identified in the unlikely event that they are present. By letter dated June 16, 1993, the State Historic Preservation Officer has concurred with the Corps' determination that the project will have "no effect" on historic sites.

7. IMPACTS ON ENDANGERED SPECIES: The proposed action would not affect any species which is candidate, proposed or listed as threatened or endangered under the Endangered Species Act of 1973, as amended. No such terrestrial species or their critical habitats occur within the project area. Although endangered humpback whales are resident in Hawaiian waters during the winter breeding season (December thru May) and threatened green turtles are present in nearshore waters around Oahu, no blasting is anticipated for the proposed project and it is unlikely that either of these marine species would be affected by construction of the proposed shoreline revetment at Hauula.

By letters dated March 3, 1994 and June 14, 1993, respectively, the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) have concurred with the Corps' determination of no effect for listed, proposed and candidate endangered and threatened species.

8. COASTAL ZONE MANAGEMENT AND WATER QUALITY CERTIFICATIONS: The following paragraphs outline the status of the Coastal Zone Management assessment and the Section 401 Water Quality Certification.

a. Federal Coastal Zone Consistency Determination from the State of Hawaii, Office of State Planning, Coastal Zone Management (CZM) Office.

By letter dated February 25, 1994, the Office of State Planning concurred with the Federal determination of consistency with the Hawaii Coastal Zone Management Program for this project.

b. Section 401 Water Quality Certification (WQC) from the State of Hawaii Department of Health, Clean Water Branch (DOH).

A request for water quality certification or waiver has been submitted to the DOH. The Corps' best management practices plan and water quality monitoring plan have been submitted to the DOH for review.

9. OTHER GOVERNMENT AUTHORIZATIONS: The authorization to discharge fill does not obviate the need for the Government and local sponsor, respectively, to obtain other Federal, State or local authorizations required by Federal, State or local laws.

10. EVALUATION FACTORS: The decision whether or not to discharge fill will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof: among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people. The evaluation will apply the guidelines promulgated by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404 (b)(1) of the Clean Water Act (40 CFR Part 230).

11. COMMENTS AND INQUIRIES: The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; and other interested parties to consider and evaluate the impacts of the proposed activity on water quality and the pubic interest. The Corps will consider comments received to determine whether to discharge, or to modify or condition the discharge for the proposed project. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects and the other public interest factors listed above. Comments are used to determine the need for a public hearing and to determine the overall public interest in the proposed activity and the impacts on water quality. Interested parties may submit in writing any comments that they may have on the proposed activity. Comments should be submitted to the Honolulu District no later than 30 days from the date of this notice. Written comments should be mailed to the address indicated in the letterhead and should make reference to Public Notice No. CW95-0002. Additional information may be obtained from:

Mr. Peter C. Galloway, Ecologist
U.S. Army Engineer District, Honolulu
Building 230
Fort Shafter, Hawaii 96858-5440
Telephone (808)438-8876

12. REQUEST FOR PUBLIC HEARING: Within 30 days from the date of this notice, any person may request, in writing, that the U.S. Army Corps of Engineers, Honolulu District hold a public hearing to consider the discharge effect on water quality or factor of public interest. Requests for public hearings shall state clearly and concisely, the reasons and rationale for such requests.

Attachment
Figures (3 sheets)

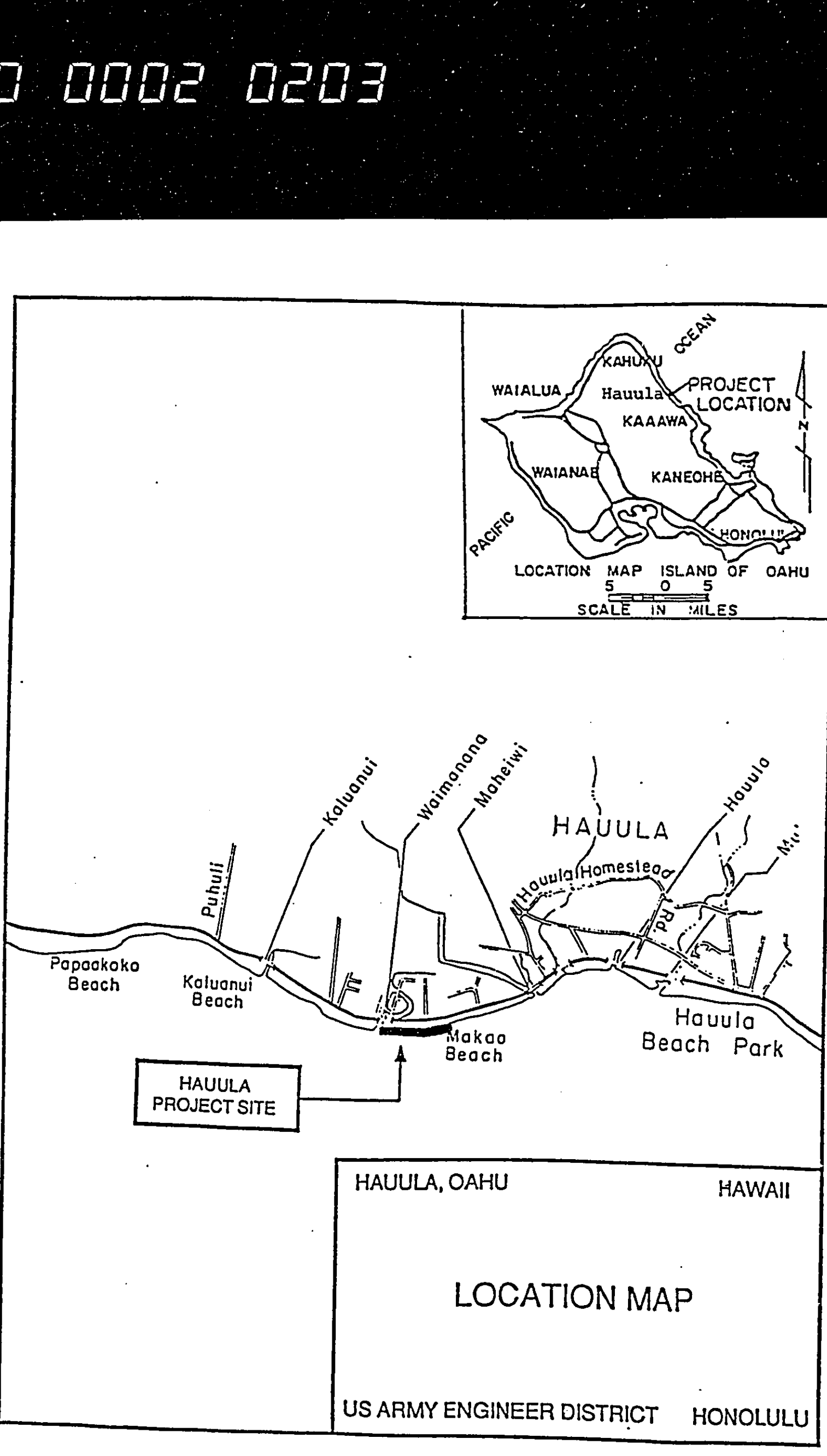


FIGURE 1

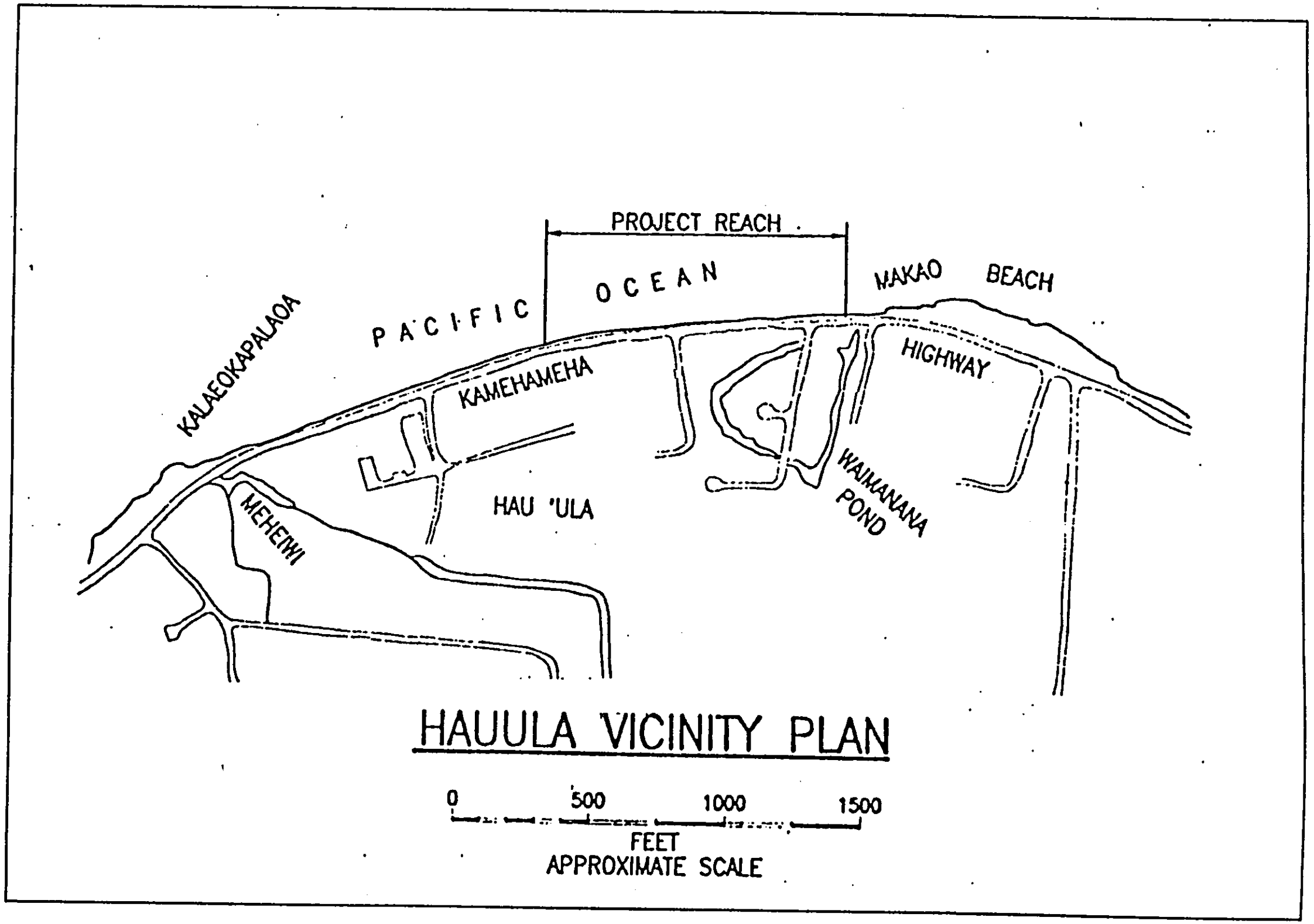
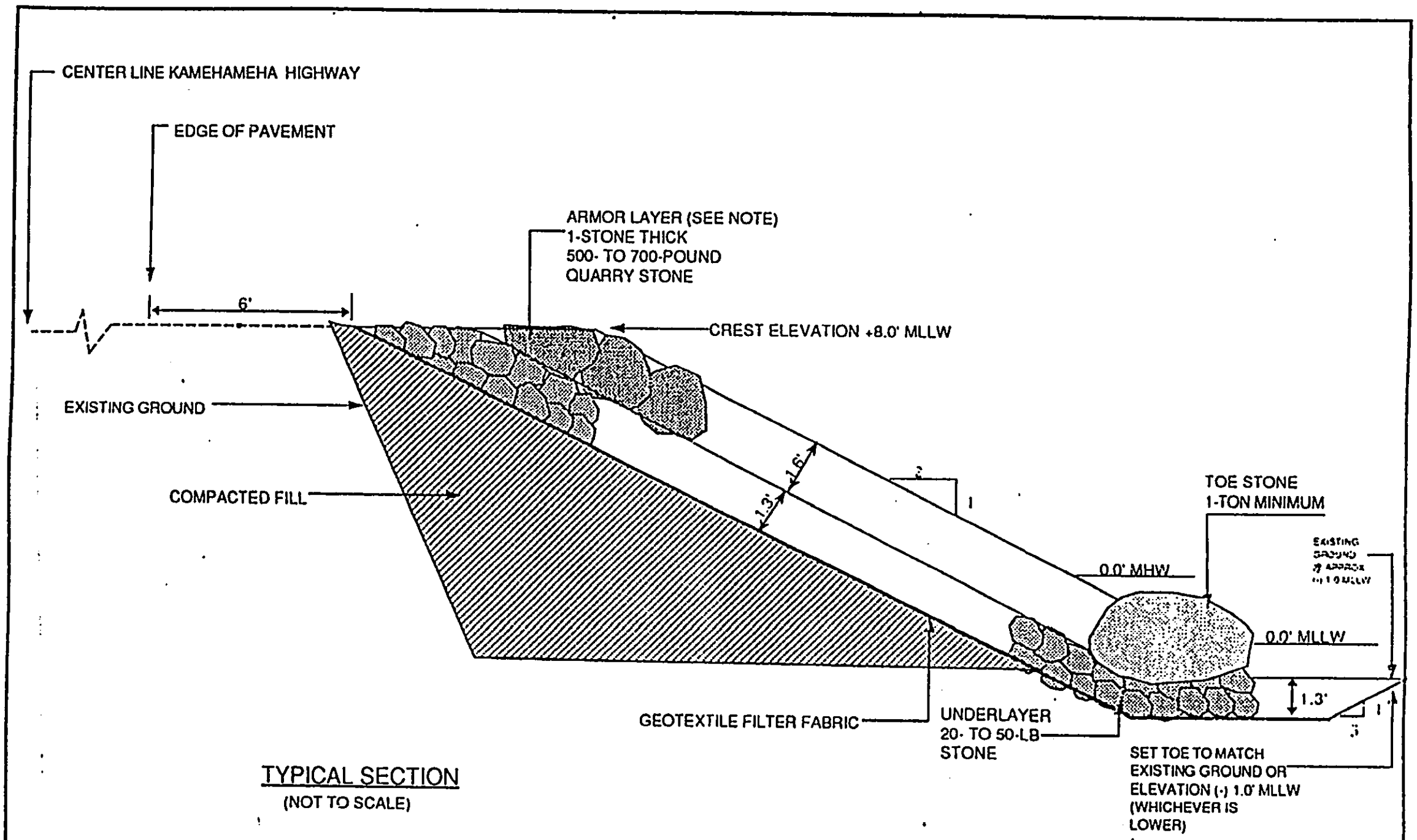

PROJECT REACH
PACIFIC
OCEAN
MAKAO BEACH
KALAEOKAPALAOA
KAMEHAMEHA
HIGHWAY
HAU 'ULA
MEHEMI
WAIKANANA
POND
HAUULA VICINITY PLAN
0
500
1000
1500
FEET
APPROXIMATE SCALE

FIGURE 2



TYPICAL SECTION
(NOT TO SCALE)

NOTE: ARMOR STONES SHALL BE KEYED, FITTED AND IN CONTACT WITH ADJACENT STONES.

HAUULA, OAHU HAWAII

HAUULA HIGHWAY
EROSION PROTECTION (1,100')
TYPICAL REVETMENT

APPENDIX B

Pertinent Correspondence during
Pre-Assessment Coordination by the
U.S. Army Corps of Engineers

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Office
P.O. Box 50167
Honolulu, Hawaii 96850

In Reply Refer To: MEM

MAR 03 1994

Mr. Kisuk Cheung
Director of Engineering
US Army Corps of Engineers
Building 230
Fort Shafter, Hawaii 96858-5440

Re: Draft Environmental Assessment and Finding of No Significant Impact for Construction of a shoreline protection structure at Kaaawa, Oahu, Hawaii

Dear Mr. Cheung:

The U.S. Fish and Wildlife Service (Service) has reviewed the Draft Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for the proposed construction of a shoreline protection structure at Kaaawa, Oahu, Hawaii. The project consists of constructing 229 meters (750 feet) of revetment along the shoreline adjacent to the Kamehameha Highway at Kaaawa. The following comments are provided for your consideration pursuant to the Fish and Wildlife Coordination Act of 1934 (16 U.S.C. 661-667e; 48 Stat. 401), as amended; the Endangered Species Act of 1973 (16 U.S.C. 1531-1544; 87 Stat. 884), as amended; the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347; 83 Stat. 852), as amended; the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712; 40 Stat. 755), as amended; and other authorities mandating Service concern for environmental values.

The only federally-listed, endangered and threatened species under Service jurisdiction known to occur in the general project area are the endangered hawksbill turtle (*Eretmochelys imbricata*) and the threatened green turtle (*Chelonia mydas*). Based on our knowledge of the project area and review of the project description in the EA, it appears that no dry sand beach areas representing potential sea turtle nesting habitat (i.e., areas exposed at high tide) exist at the project site. Therefore, we concur with your no effect determination for listed, proposed, and candidate endangered and threatened species and believe that requirements of section 7 of the Endangered Species Act have been satisfied. However, obligations under section 7 of the Act must be reconsidered if (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner which was not considered in this assessment, or (3) a new species is listed or critical habitat determined that may be affected by the identified action.

The Service recommends implementing the following conservation measures to prevent degradation of coastal water quality in the general project area and to minimize impacts to the adjacent sand beach, which provides foraging habitat for migratory shorebirds:

1. All construction-related materials should be stored or stock-piled above the influence of the tides;

2. All construction-related materials should be free of pollutants;

3. No contamination of the marine environment (trash or debris disposal etc.) should result from construction activities;

4. Turbidity and siltation should be minimized and contained to the immediate vicinity of construction through the use of effective silt containment devices and the curtailment of construction during adverse sea conditions.

Your concern for the protection of endangered and threatened species and other fish and wildlife resources is appreciated. If have you questions concerning the above recommendations, please contact staff biologist, Michael Molina, at 808-541-3441.

Sincerely,

Robert P. Smith
Field Supervisor
Pacific Islands Office

cc: NMFS-PAO, Honolulu
EPA-Region IX, San Francisco
DAR, Hawaii
CZMP, Hawaii
CWB, Hawaii

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Office
P.O. Box 50167
Honolulu, Hawaii 96850

TAKE PRIDE IN AMERICA

In Reply Refer To: MEM

MAR 03 1994

Mr. Kisuk Cheung
Director of Engineering
US Army Corps of Engineers
Building 230
Fort Shafter, Hawaii 96858-5440

Re: Draft Environmental Assessment and Finding of No Significant Impact for Construction of a shoreline protection structure at Punaluu, Oahu, Hawaii

Dear Mr. Cheung:

The U.S. Fish and Wildlife Service (Service) has reviewed the Draft Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for the proposed construction of a shoreline protection structure at Punaluu, Oahu, Hawaii. The project consists of constructing 131 meters (430 feet) of revetment along the shoreline adjacent to the Kamehameha Highway at Punaluu. The following comments are provided for your consideration pursuant to the Fish and Wildlife Coordination Act of 1934 (16 U.S.C. 661-667e; 48 Stat. 401), as amended; the Endangered Species Act of 1973 (16 U.S.C. 1531-1544; 87 Stat. 884), as amended; the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347; 83 Stat. 852), as amended; the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712; 40 Stat. 755), as amended; and other authorities mandating Service concern for environmental values.

The only federally-listed, endangered and threatened species under Service jurisdiction known to occur in the general project area are the endangered hawksbill turtle (*Eretmochelys imbricata*) and the threatened green turtle (*Chelonia mydas*). Based on our knowledge of the project area and review of the project site description in the EA, it appears that no dry sand beach areas representing potential sea turtle nesting habitat (i.e., areas exposed at high tide) exist at the project site. Therefore, we concur with your no effect determination for listed, proposed, and candidate endangered and threatened species and believe that requirements of section 7 of the Endangered Species Act have been satisfied. However, obligations under section 7 of the Act must be reconsidered if (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner which was not considered in this assessment, or (3) a new species is listed or critical habitat determined that may be affected by the identified action.

The Service recommends implementing the following conservation measures to prevent degradation of coastal water quality in the general project area and to minimize impacts to the adjacent sand beach, which provides foraging habitat for migratory shorebirds:

1. All construction-related materials should be stored or stock-piled above the influence of the tides;

2. All construction-related materials should be free of pollutants;

3. No contamination of the marine environment (trash or debris disposal etc.) should result from construction activities;

4. Turbidity and siltation should be minimized and contained to the immediate vicinity of construction through the use of effective silt containment devices and the curtailment of construction during adverse sea conditions.

Your concern for the protection of endangered and threatened species and other fish and wildlife resources is appreciated. If have you questions concerning the above recommendations, please contact staff biologist, Michael Molina, at 808-541-3441.

Sincerely,

Robert P. Smith

Robert P. Smith
Field Supervisor
Pacific Islands Office

cc: NMFS-PAO, Honolulu
EPA-Region IX, San Francisco
DAR, Hawaii
CZMP, Hawaii
CWB, Hawaii

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Office
P.O. Box 50167
Honolulu, Hawaii 96850

MAR 03 1994

In Reply Refer To: MEM

Mr. Kisuk Cheung
Director of Engineering
US Army Corps of Engineers
Building 230
Fort Shafter, Hawaii 96858-5440

Re: Draft Environmental Assessment and Finding of No Significant Impact for Construction of a shoreline protection structure at Hauula, Oahu, Hawaii

Dear Mr. Cheung:

The U.S. Fish and Wildlife Service (Service) has reviewed the Draft Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for the proposed construction of a shoreline protection structure at Hauula, Oahu, Hawaii. The project consists of constructing 335 meters (1100 feet) of revetment along the shoreline adjacent to the Kamehameha Highway at Hauula. The following comments are provided for your consideration pursuant to the Fish and Wildlife Coordination Act of 1934 (16 U.S.C. 661-667e; 48 Stat. 401), as amended; the Endangered Species Act of 1973 (16 U.S.C. 1531-1544; 87 Stat. 884), as amended; the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347; 83 Stat. 852), as amended; the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712; 40 Stat. 755), as amended; and other authorities mandating Service concern for environmental values.

The only federally-listed, endangered and threatened species under Service jurisdiction known to occur in the general project area are the endangered hawksbill turtle (*Eretmochelys imbricata*) and the threatened green turtle (*Chelonia mydas*). Based on our knowledge of the project area and review of the project site description in the EA, it appears that no dry sand beach areas representing potential sea turtle nesting habitat (i.e., areas exposed at high tide) exist at the project site. Therefore, we concur with your no effect determination for listed, proposed, and candidate endangered and threatened species and believe that requirements of section 7 of the Endangered Species Act have been satisfied. However, obligations under section 7 of the Act must be reconsidered if (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner which was not considered in this assessment, or (3) a new species is listed or critical habitat determined that may be affected by the identified action.

The Service recommends implementing the following conservation measures to prevent degradation of coastal water quality in the general project area and to minimize impacts to the adjacent sand beach, which provides foraging habitat for migratory shorebirds:

1. All construction-related materials should be stored or stock-piled above the influence of the tides;
2. All construction-related materials should be free of pollutants;
3. No contamination of the marine environment (trash or debris disposal etc.) should result from construction activities;
4. Turbidity and siltation should be minimized and contained to the immediate vicinity of construction through the use of effective silt containment devices and the curtailment of construction during adverse sea conditions.

Your concern for the protection of endangered and threatened species and other fish and wildlife resources is appreciated. If have you questions, concerning the above recommendations, please contact staff biologist, Michael Molina, at 808-541-3441.

Sincerely,

Robert P. Smith
Field Supervisor
Pacific Islands Office

cc: NMFS-PAO, Honolulu
EPA-Region IX, San Francisco
DAR, Hawaii
CZMP, Hawaii
CWB, Hawaii

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

REPLY TO ATTENTION OF

July 5, 1995.

Planning Division

Mr. Robert P. Smith
Field Supervisor, Pacific
Islands Office
U.S. Fish and Wildlife Service
P.O. Box 50167
Honolulu, Hawaii 96850

Dear Mr. Smith:

The project reaches for proposed U.S. Army Corps of Engineers' construction of shoreline revetments at Punaluu and Kaaawa, Oahu, are increased from 430 and 750 feet to 600 and 900 feet, respectively. The revised projects are described in the enclosed public notices, addenda to the environmental assessments, and revised Findings of No Significant Impact.

We believe that your concurrences and recommendations on the original projects (letters dated March 3, 1994) are applicable to the revised projects. We request your concurrence. Your response within 30 days of the date of this letter would be appreciated.

Should you have any questions concerning the revised projects, please feel free to contact Mr. Peter Galloway of my planning staff at 438-8876.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering

Enclosures

US FISH & WILDLIFE ID:808-5413470 DEC 17'96 11:40 No.009 P.01

Post-it Fax Note 7671	12-17-96
To PETER GALLOWAY	From M. MOLINA
Co./Dept. ACOE	Co. USFWS
Phone # 438-8876	Phone # 541-3441
Fax # 541-1581	Fax # 541-3470

United States Department of the Interior

FISH AND WILDLIFE SERVICE
PACIFIC ISLANDS OFFICE
500 ALA MOANA BLVD, SUITE 3-580
HONOLULU, HI 96813
tel:(808) 541-3441 fax:(808) 541-3470

TAKE PRIDE IN AMERICA

In Reply Refer To: CAW

AUG 2 5 1995

Ray H. Jyo, P.E.
Director of Engineering
Planning Division
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440

Re: Public Notice No. CW95-0003, Shoreline Revetments at Punaluu and Kaaawa, Oahu, Hawaii

Dear Mr. Jyo:

The U.S. Fish and Wildlife Service (Service) has reviewed the revised plan for the construction of shoreline revetments at Punaluu and Kaaawa, Oahu, Hawaii. The revised plan is to increase the amount of shoreline protection from 335 meters (1100 feet) to the new estimate of 457 meters (1500 feet). The following comments are provided for your consideration pursuant to the Fish and Wildlife Coordination Act of 1934 [16 U.S.C. 661 *et seq.*; 48 Stat. 401], as amended, the Endangered Species Act of 1973 [16 U.S.C. 1531 *et seq.*; 87 Stat. 884], as amended, and other authorities mandating Department of the Interior concern for environmental values. These comments are also consistent with the National Environmental Policy Act of 1969 [42 U.S.C. 4321 *et seq.*; 83 Stat. 852], as amended. Based on these authorities, the Service offers the following comments for your consideration.

The Service concurs that the revised project does not constitute a significant change in the original design of the project. Therefore, the comments provided in our letter dated March 3, 1994, on the original project are still applicable. Additionally, it was noted that our conservation recommendations were incorporated into the permit application.

The Service appreciates the opportunity to comment on the proposed project. If you have questions regarding these comments, please contact Fish and Wildlife Biologist Christine Willis at 808/541-3441.

Sincerely,

Brooks Harper

Brooks Harper
Field Supervisor
Ecological Services

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213
TEL (310) 980-4000; FAX (310) 980-4018

F/SW033:ETN/SW023:JJN

JUN 14 1993

Kisuk Cheung, P.E.
Director of Engineering
U.S. Army Engineer District, Honolulu
Building 230
Fort Shafter, Hawaii 96858-5440

Dear Mr. Cheung:

Please accept the following comments on the proposed construction of shore protection structures at Kaaawa, Punaluu, and Hauula, Oahu, Hawaii. These comments are being submitted pursuant to the Fish and Wildlife Coordination Act and the Endangered Species Act.

Based on available information, the proposed shore protection structures will not likely adversely affect living marine resources or listed species and their habitats, providing the following conditions are met:

1. Silt curtains shall be deployed around the seaward perimeter of the construction area during placement of construction materials.

2. All work seaward of the existing scarps shall be conducted during low tide conditions.

This concludes the informal Section 7 consultation process for this proposed project. Consultation must be reinitiated if new information becomes available revealing effects of the project on listed species that were not previously considered, the project is subsequently modified in a manner that causes an effect to listed species that was not considered, or if a new species or critical habitat is designated that may be affected by the project.

Please contact Mr. Eugene Nitta or Mr. John Naughton at (808) 955-8831 if you have any questions concerning these comments.

Sincerely,

Rodney R McInnis

for Gary Matlock, Ph.D.
Acting Regional Director

cc: FWS, Honolulu
EPA, Region 9 (E-4)
Hawaii DAR
Hawaii CZM

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

REPLY TO ATTENTION OF

Planning Division

June 30, 1994

Dr. Gary Matlock
Acting Regional Director
Southwest Region
National Marine Fisheries Service
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4018

Dear Dr. Matlock:

Thank you for your letter of concurrence (dated March 3, 1994) with our determination of no effect on listed, proposed, and candidate endangered and threatened species for proposed shore protection revetments at Hauula, Kaaawa, and Punaluu on the northeast coast of the island of Oahu.

The responses below follow the order of the numbered conditions specified in your letter:

a. Turbidity at the project site will be controlled so as to meet the State of Hawaii water quality criteria for the type and class of waters in which the project is located. Effective silt containment devices will be deployed to isolate the construction activity, to minimize the transport of potential pollutants and to avoid the potential degradation or receiving water quality as well as the marine ecosystem. Periodic monitoring will be conducted immediately outside the silt containment devices to verify that turbidity criteria are not being exceeded as a result of project construction.

b. Restricting work to low tide conditions as you have specified is too restrictive for our construction contractors; however, work in the water will be curtailed during adverse sea conditions.

Copies of the final environmental assessments and finding of not significant impacts for the three projects will be provided to your office.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering

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

REPLY TO ATTENTION OF

July 5, 1995

Planning Division

Mr. Eugene T. Nitta
Protected Species Program Coordinator
Pacific Area Office
National Marine Fisheries Service
2570 Dole Street
Honolulu, Hawaii 96822-2396

Dear Mr. Nitta:

The project reaches for proposed U.S. Army Corps of Engineers' construction of shoreline revetments at Punaluu and Kaaawa, Oahu, are increased from 430 and 750 feet to 600 and 900 feet, respectively. The revised projects are described in the enclosed public notices, addenda to the environmental assessments, and revised Findings of No Significant Impact.

We believe that your comments on the original projects (letter dated June 14, 1993) are applicable to the revised projects. We request your concurrence. Your response within 30 days of the date of this letter would be appreciated.

Should you have any questions concerning the revised projects, please feel free to contact Mr. Peter Galloway of my planning staff at 438-876.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering

Enclosures

Copy Furnished:

Mr. John Naughton
Pacific Area Office
National Marine Fisheries Service
2570 Dole Street
Honolulu, Hawaii 96822-2396

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213
TEL (310) 980-4000; FAX (310) 980-4018

December 8, 1995 F/SWO33:ETN

Mr. Ray H. Jyo, P.E.
Director of Engineering
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440

Dear Mr. Jyo:

Thank you for your letter regarding the construction of the shoreline revetments at Punaluu and Kaaawa, Oahu. The National Marine Fisheries Service determined in an informal section 7 consultation in 1993 that these projects were not likely to adversely affect listed species or their habitats provided that certain construction practices were followed. The Corps of Engineers is now proposing to modify the these projects by extending the reach of the revetments from 430 feet to 600 feet at Punaluu and 750 feet to 900 feet at Kaaawa. Based on the information provided with your letter I concur that the conclusions and conditions of the original consultation remain valid. No further conditions or requirements are necessary for this modification. I can be reached at (808) 973-2987 or FAX (808) 973-2941 should you have any further questions.

Sincerely,

Eugene T. Nitta
Protected Species Program
Manager

cc: F/SWO3 - Lecky
F/SWO23 - Naughton

2 Director

3

4 PPA

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

10 AUG 1995

Lieutenant Colonel Ralph H. Graves
District Engineer
U.S. Army Corps of Engineers
Honolulu District
Attn: Operations Division
Building 230
Ft. Shafter, HI 96858-5440

Re: Public Notice No. CW95-0002 (July 8, 1995), Protective Rock Revetment, Kamehameha Highway, Hauula, Oahu, Hawaii

Dear Lt. Colonel Graves:

This letter responds to the referenced Corps' Public Notice regarding the discharge of dredged or fill material into waters of the United States, under Section 404 of the Clean Water Act and Section 10 of the River and Harbor Act of 1899.

The Corps proposes to construct a protective rock revetment along a 1,100 foot reach of shoreline fronting Kamehameha Highway at Hauula, Oahu. Approximately 3,300 cubic yards of material would be excavated from the toe of the existing revetment and used in the construction of the new revetment along with 3,770 cubic yards of clean rock and armor stones. A total volume of 2,500 cubic yards would be discharged below mean water.

These comments have been reviewed for compliance with the requirements of Federal Guidelines (40 CFR 230), promulgated pursuant to Section 404(b)(1) of the Clean Water Act, and in accordance with the provisions of the National Environmental Policy Act (42 U.S.C. 4321 et seq.).

Based on the information contained in the referenced public notice, the Environmental Protection Agency (EPA) will not object to the issuance of the permit provided that the mitigative measures described in the PN will be implemented during construction.

Sincerely,

Jeff Rosenbloom
Chief, Wetlands and Sediment
Management Section

cc: USFWS, Honolulu
NMFS, Honolulu
DOH, Hawaii

Printed on Recycled Paper

AG
1 Aug 95

STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPIOLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813-5249
PHONE (808) 586-3777
FAX (808) 586-3799

July 26, 1995

Commander, Honolulu Engineer District
Attn: CEPOD-ED-PV/Mr. Galloway
Fort Shafter, Hawai'i 96858-5440

Dear Mr. Galloway:

Re: Punalu'u Highway Erosion Protection, O'ahu, Hawai'i, Addendum No. 1 Public Notice No. CW95-0003

Re: Ka'a'awa Highway Erosion Protection, O'ahu, Hawai'i, Addendum No. 1 Public Notice No. CW95-0005

Thank you for the opportunity to review the Revised Findings of No Significant Impact for each of the above referenced projects. At this time, the Office of Hawaiian Affairs has no concerns with the projects.

If you have any questions please contact Linda Delaney, Land and Natural Resources Officer or Lynn Lee, EIS Planner at 594-1888.

Sincerely,

Dante K. Carpenter
Administrator

cc: Clayton H.W. Hee, Chairperson
Board of Trustees

JOHN WAIHEE
GOVERNOR OF HAWAII

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

JOHN C. LEWIN, M.D.
DIRECTOR OF HEALTH

1. PV
2. CF PH/PJ
Pls explain how applies to K Marsh
In reply, please refer to:
File: EMD/CWB

July 1, 1993

C0702EC

Mr. Kisuk Cheung, P.E., Director
U.S. Army Engineer Division, Pacific Ocean
Corps of Engineers, Planning Division
Ft. Shafter, Hawaii 96858-5440

Dear Mr. Cheung:

Reference is made to your letters dated May 25 and June 4, 1993, respectively, requesting review and comments on the following Draft Environmental Assessment (DEA) projects:

a. Hauula Highway Erosion Protection, Oahu; and

b. Punaluu Highway Erosion Protection, Oahu.

The Department of Health realizes that both projects are COE's civil work projects. Both projects are subject to the Clean Water Act (CWA) §404(b)(1) guidelines and subject to CWA §401 review. Pursuant to §401(a) of the CWA, a Section 401 Water Quality Certification (WQC) will not be processed solely because the COE does not issue permit to itself, and there is no applicant to a federal permit or license. However, both projects are still subject to the compliance of CWA §§ 301, 302, 303, 306 and 307 requirements as if a Section 401 WQC is to be processed.

Based on these understandings and to be consistent with all other proposed civil work projects (i.e., Kawainui Marsh Flood Control Levee Modification Project), the Department recommends that following information must be incorporated into the DEA for all COE's civil work projects before sending out for review and comments:

1. Detailed Best Management Practices (BMPs) Plan, including but not be limited to a site specific water pollution control plan, to prevent, control and mitigate, the potential pollution of the State Waters;

2. Detailed effluent/receiving water quality, biological, monitoring and assessment plan. The plan shall at least include, but not be limited to, the following:

   a. Parameter to be monitored;

   b. Monitoring frequency;

   c. Method to be used;

   d. Sampling locations;

   e. Quality Assurance and Quality Control Procedures; and

   f. Reporting and assessment requirements.

Both BMPs and monitoring plan shall be submitted to the Department for review and comment.

Should you have any questions, please contact Mr. Edward Chen, Engineering Section of the Clean Water Branch, at 586-4309.

Sincerely,

THOMAS E. ARIZUMI, P.E., CHIEF
Environmental Management Division

EC/jm

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

REPLY TO ATTENTION OF

Planning Division

June 30, 1994

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

Dear Mr. Arizumi:

Thank you for your review comments (letter dated July 1, 1993) on the draft environmental assessments (EAs) and finding of no significant impact (FONSIs) for proposed highway erosion protection revetments at Hauula and Punaluu on the northeast coast of the island of Oahu. We understand (per telephone communication with Mr. Edward Chen on July 27, 1993) that your comments would be identical for a similar proposed project at Kaaawa (for which the draft environmental documents were transmitted to you on or about the same date as for the Hauula and Punaluu projects).

The responses below follow the order of your comments:

a. Detailed Best Management Practices (BMP) plans for the three proposed projects will be submitted to your Department for review and comment as you have requested.

b. Detailed monitoring and assessment plans will be submitted with the BMP plans and will include the items listed in paragraph 2 of your letter.

Copies of the final EAs and FONSIs for the three projects will be provided to your office.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering

JOHN WAIHEE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

KEITH AHUE, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCE

DEPUTIES
JOHN P. KEPPELER II
DONA L. HANAIKE

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION DIVISION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

REF:HP-BEK

JUN 16 1993

Mr. Kisuk Cheung, P.E.
Director of Engineering
Corps of Engineers
Fort Shafter, Hawaii 96858-5440

LOG NO: 8536
DOC NO: 9306TD32

Dear Mr. Cheung:

SUBJECT: Section 106 Review--Draft Environmental Assessment and Finding of No Significant Impact for Construction of Shore Protection Structure
Ka`a`awa, Ko`olauloa, O`ahu
TMK: 5-1-6: 17

Thank you for the opportunity to review this project. A review of our records shows that there are no known historic sites at the project location. The shore protection structure is proposed for a 750' long strip of land between Kamehameha Highway and the ocean. This strip of land is now between 5 and 15 feet wide and is faced with large boulders that are frequently subject to high energy waves. We agree with your assessment that historic sites are unlikely to be found in this situation and believe that your commitment to monitor the seaward scarp after the boulder face is removed will ensure that historic sites will be identified and documented in the unlikely event that they are present.

We concur with your determination that this project will have "no effect" on historic sites.

Very truly yours,

KEITH AHUE, Chairperson and
State Historic Preservation Officer

TD:bek

JOHN WAIHEE
GOVERNOR OF HAWAII

CEPOD-ED-P

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

KEITH AHUE, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES

JOHN P. KEPPELER II
DONA L. HANAIKE

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION DIVISION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

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REF:HP-JT

Kisuk Cheung, P.E.
Director of Engineering
Corps of Engineers
Fort Shafter, Hawaii 96858-5440

LOG NO: 9206
DOC NO: 9308td21

Dear Mr. Cheung:

SUBJECT: Section 106 Review--Punaluu Highway Erosion Protection
Puhe'emiki and Hale'aha, Ko'olauloa, O'ahu
TMK: 5-3-5, 5-3-6

Thank you for the opportunity to review this project, which was sent for our review on August 3, 1993. A review of our records shows that there are no known historic sites at this location, which is a narrow strip of dump-rock boulders between the road and the sea. In addition, your field reconnaissance revealed no evidence for historic sites. An archaeological inspection of the area after the dump-rock boulders have been removed will ensure that subsurface historic sites are identified in the unlikely event that they are present. Given these circumstances and the commitment to identify and properly record subsurface historic sites in the unlikely event that these are exposed during construction activities, we concur with your determination that this project will have "no effect" on historic sites.

Very truly yours,

KEITH AHUE, Chairperson and
State Historic Preservation Officer

TD:jt

JOHN WAIHEE
GOVERNOR OF HAWAII

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

JUN 15 1993

KEITH AHUE, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES

JOHN P. KEPPELER II
DONA L. HANAIKE

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION DIVISION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

REF:HP-BEK

Mr. Kisuk Cheung, P.E
Director of Engineering
Corps of Engineers
Fort Shafter, Hawaii 96858-5440

LOG NO: 8537
DOC NO: 9306TD33

Dear Mr. Cheung:

SUBJECT: Section 106 Review--Draft Environmental Assessment and Finding of No Significant Impact for Construction of Shore Protection Structure
Hau'ula, Ko'olauloa, O'ahu
TMK: 5-3-14: various

Thank you for the opportunity to review this project. A review of our records shows that there are no known historic sites at the project location. The shore protection structure is proposed for a 1,100' long strip of land between Kamehameha Highway and the ocean. This strip of land is very narrow and is faced with large boulders that are frequently subject to high energy waves. We agree with your assessment that historic sites are unlikely to be found in this situation and believe that your commitment to monitor the seaward scarp after the boulder face is removed will ensure that historic sites will be identified and documented in the unlikely event that they are present.

We concur with your determination that this project will have "no effect" on historic sites.

Very truly yours,

KEITH AHUE, Chairperson and
State Historic Preservation Officer

TD:bek

JOHN J. CAYETANO
GOVERNOR OF HAWAII

LAWRENCE MIKE
DIRECTOR OF HEALTH

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

In reply, please refer to

August 9, 1995 95-118/epo

Commander, Honolulu Engineer District
Attn: CEPOD-ED-PV/Mr. Galloway
Fort Shafter, Hawaii 96856-5440

Dear Mr. Galloway:

Subject: Finding of No Significant Impact

Punaluu Highway Erosion Protection Project
Punaluu, Oahu, Hawaii

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

Clean Water

1. Because there will be no Clean Water Act (CWA), Section 404 permit issued by the Department of the Army for this project, a Section 401 Water Quality Certification (WQC) will not be processed by the Department of Health (DOH). However, based on Section 404(t) of the CWA, the DOH's Clean Water Branch (CWB) staff is currently working closely with Corps of Engineers' Honolulu Engineer District (HED) staff to ensure that all HED's civil works projects will be constructed and operated in such a manner that State water quality standards will not be violated.

2. Comments Regarding "Addendum to Environmental Assessment"

   a. No justification is provided for the proposed increase in project magnitude.

      The length of the proposed rock revetment has been increased from 430 to 600 feet. However, there is no justification provided for such modification. For all construction projects, the applicant's primary consideration should be the avoidance of placing fill material or dredged spoils in State waters. If this is impracticable or impossible, then the alternative with the least environmental impact and the appropriate mitigative measures should be considered.

   b. Paragraph 3.2, line 20 states that "...The sloped face absorbs wave energy, yielding possible sand accumulation at the structure tow. Rubblemound revetments have been constructed at several sites in Hawaii and have functioned satisfactorily under extreme sea conditions..." There is no indication on how the sand would accumulate at the project site? Where would the sand come from? Would the proposed revetment cause or intensify shoreline erosion to areas adjacent to it? The revetment may be good for the portion of the highway to be protected, but is there any data to show that the revetment will not cause the adjacent areas to be eroded. Long term monitoring and technical studies in this area could yield very beneficial information to all concerned.

3. Comments Regarding the Evaluation of the Effects of the Discharge of Dredge or Fill Material Into the Waters of the United States using the U.S.Environmental Protection Agency Section 404 (h)(1) Guidelines.

   a. Paragraph 2.a.(1) on Page 3 states in part, "The present slope is highly variable and would be graded, filled, and compacted as needed to provide a slope of 0.5 for placement of revetment underlayer." However, there isn't a site specific erosion control plan proposed.

   b. On Page 7, paragraph 3.c states "...Coordination will be completed with the Hawaii State Department of Health to insure project compliance with the State water quality standards, ..."

      A proposed Best Management Practices (BMPs) plan was submitted to the CWB with HED's letter of July 5, 1995. In general, the BMPs plan requires the contractor to "develop an Environmental Protection Plan which will detail the mitigative measures to be used, based on the construction method used, to comply with applicable regulations and insure that secondary environmental effects of construction operations are minimized." Effective silt containment devices were mentioned in the BMPs plan, however, the plan is too generic and not site specific or project specific.

If you have any questions on this matter, please contact Mr. Ed Chen of the Clean Water Branch at 586-4309.

Sincerely,

LAWRENCE MIIKE
Director of Health

c: CWB

DEPARTMENT OF THE ARMY
PACIFIC OCEAN DIVISION, CORPS OF ENGINEERS
FORT SHAFTER, HAWAII 96858-5440

REPLY TO ATTENTION OF

July 23, 1996

Planning and Operations Division

Lawrence Miike, Ph.D.
Director of Health
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Dear Dr. Miike:

Thank you for the comments contained in your letter, dated August 9, 1995, on the revised Finding of No Significant Impact and Addendum No. 1 to the Environmental Assessment for the Punaluu Highway Erosion Protection Project, Punaluu, Oahu. We regret the delay in responding to your letter, but the delay was necessary to insure that our responses to your comments accurately reflect the ongoing development of plans and specifications for the project. Our responses follow the order of your comments:

a. Your comments concerning water quality certification and standards are noted.

b. The proposed increase in the length of the revetment from 430 to 600 feet is necessary to provide the best available tie-in with the shoreline. The modification extends the end of the originally proposed revetment to a more stable shoreline area. Also, the reef is wider and shallower at this point and affords more protection.

c. The text cited in your comment at paragraph 2.b describes how an engineered rubblemound revetment normally functions. The rough, porous structure absorbs wave energy and allows (i.e., does not prevent) sand accumulation at the toe, if any sand

JUL 24 1996

Galloway
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is present. Sand is already present at the Punaluu project site, the amount accumulated at the shoreline varying over time, depending upon wave and wind conditions.

d. The proposed action is not expected to cause or intensify shoreline erosion in areas adjacent to the project site. The proposed rubblemound revetment, like the dumped-rock revetment it is designed to replace, would consist of ungrouted rock. In addition, the face of the new structure would be sloped so as to effectively dissipate wave energy. Sand beaches have persisted adjacent to and within the project reach in spite of the proximity of the existing roadway revetment, and this pattern is expected to continue following project construction.

e. Long-term monitoring and technical studies are beyond the scope of the project authorization and are not planned.

f. No needed site-specific erosion control measures have been identified to date for the Punaluu project. Necessary control measures are expected to be related to the type of construction methods employed. The Corps does not specify the type of equipment a contractor must use, so it is not possible to develop equipment-specific Best Management Practices (BMPs) until after award of the contract. The contractor's environmental protection plan will be more specific in detailing protection measures applicable to the types of equipment to be used for specific parts of the job, and to any identified site-specific or project specific conditions which may be present. We will provide the Clean Water Branch (CWB) a copy of the environmental protection plan when the contractor provides it to us, before we approve it and before construction begins. The intent is that the environmental protection plan include those items usually found in a BMPs plan. The BMPs plan submitted to the CWB on July 5, 1995 incorporates measures to mitigate erosion during construction, including curtailment of in-water work during adverse sea conditions, storage of construction-related materials above the influence of the tides, and protection of exposed surfaces with armor stone as soon after excavation as practicable.

We hope our responses have addressed your concerns. Should you have any questions, please feel free to contact Mr. Peter Galloway of my Planning and Operations Division at 438-8876.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering
and Technical Services

WILLIAM J. CAYETANO
GOVERNOR OF HAWAII

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

LAWRENCE MIKE
DIRECTOR OF HEALTH

In reply, please refer to:
EMD/CWB

August 10, 1995

C0813EC

Mr. Ray H. Jyo, P.E.
Director of Engineering
Department of the Army
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440

Dear Mr. Jyo:

Subject: Highway Erosion Protection at Punaluu and Kaaawa, Oahu

Reference is made to your July 5, 1995 letter requesting review and comment on the Best Management Practice Practices (BMPs) Plan, Scope of Work for Marine Water Quality Monitoring Service for Hauula, Punaluu and Kaaawa Highway Erosion Protection Projects (dated May 22, 1995), and Environmental Assessment (including Section 404(b)(1) evaluation, determination of consistency with Hawaii Coastal Zone Management Program and Coordination). The Department of Health (Department) also received your July 8, 1995 Public Notices (PN, Nos. CW 95-0003 and CW 95-0005) for the subject projects.

missing 2nd page

The following are our comments:

1. Best Management Practices (BMPs) Plan

   a. "Shall" and "will" are used throughout the entire plan in different areas. Is there any difference between the two?

   b. "Effective silt containment devices" will be used to confine the construction related turbidity to the immediate vicinity of construction. We have no objections to the proposal that dimensional requirements be determined in the field. However, the typical section of the sandbags and sketch of "effective silt containment devices" shall be submitted to the Department's Clean Water Branch (CWB), prior to initiation of any construction activity for review and comment.

   c. Item 2.a indicated that "if water quality monitoring (see section 3 below) indicates that the turbidity standard is being exceeded in receiving waters due to construction activities, the contractor shall suspend the operation or operations causing the excessive turbidity levels until the condition is corrected."

Sample containers, preservation, and maximum holding time shall be as specified for all analysis in Table II of 40 CFR Part 136.

c. Sampling station(s), established to identify the adequacy of the implemented BMPs, located 25 feet seaward from the silt containment device(s) is not acceptable. As specified in our previous meeting, no zone of mixing is granted for these projects. State WQS shall be met immediately outside (< 1 meter) the silt containment device(s).

c. We request that coordinates (latitude and longitude) of all sampling stations be provided.

d. There is no schedule of reporting monitoring result to the Department.

e. The Department will accept the baseline geometric mean values (five (5) days) for this project. We recommend future projects baseline data be based on at least 10 representative samples collected monthly or quarterly before the construction activities begin.

f. Monitoring results as well as any other reports, submitted to the Department, will be treated and utilized as public record as specified by the applicable Federal and State requirements and to be used to comply with applicable requirements established by the U.S. Environmental Protection Agency.

The CWB staff will continue its effort in working closely with your Planning Division.

Should you have any questions or need additional information, please contact me, or have your staff contact Mr. Edward Chen, Engineering Section of the Clean Water Branch, at 586-4309.

Sincerely,

DENIS R. LAU, P.E., CHIEF
Clean Water Branch

EC/sl

17

November 30, 1995

Planning Division

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Mr. Denis R. Lau, P.E., Chief
Clean Water Branch
Department of Health
State of Hawaii
P.O. Box 3376
Honolulu, Hawaii.96801-3378

Dear Mr. Lau:

Thank you for the identical comments contained in your two letters, both dated August 10, 1995, subjects: Highway Erosion Protection at Punaluu and Kaaawa, Oahu; and Highway Erosion Protection at Hauula, Oahu. Our responses follow the numbering format of the Hauula project letter.

CPB/1.c
CEPOD-EC
(1of)

1. Best Management Practices (BMPs) Plan.

a. "Shall" and "will" mean the same thing; both are used to express a mandatory requirement.

b. We do not anticipate the use of "sandbags" for the subject projects. We will provide you with a sketch of the "effective silt containment devices" for review and comment prior to initiation of any construction activity.

c. The original Scope of Work (SOW) included in our BMPs plan which was submitted to your office on July 5, 1995 has been revised (copy enclosed). The revised SOW requires the contractor to make appropriate comparisons between monitoring and control data, and between monitoring and baseline data, in drawing conclusions about degree of compliance with the state water quality standards.

(1) To determine compliance with State water quality standards (WQS), the results of monitoring will be compared with the WQS for the parameters monitored. Individual samples from the monitoring stations which exceed any of the WQS and the baseline values for the parameters sampled will be investigated by the Corps on-site inspector to determine the cause of the

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monitoring contractor's QA/QC plan will be provided to your office when we receive it from the contractor, and before sampling is initiated. The minimum detection limits for turbidity, salinity, chlorophyll a, and total suspended solids which you specified have been included in section 4.d(1) of the revised SOW. Section 4.b of the SOW has been revised to require that sample containers, preservation and maximum holding times shall be as specified for all analysis in Table II of 40 CFR Part 136.

c. Section 4.c.(3) of the original SOW has been revised to reflect that water samples are to be collected within one meter of the silt containment devices.

d.[sic] Section 4.c.(3) of the original SOW has been amended to require that the location of each sampling station be determined and recorded to an accuracy of 0.5 seconds of latitude and longitude.

e. Copies of the contractor's reports will be provided to your office expeditiously after receipt.

f. Noted.

g. Noted.

We look forward to continued coordination and cooperation between our staff and yours. Please contact me or Paul Mizue (438-8880) of my staff if you have any questions.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering
and Technical Services

Enclosure

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BENJAMIN J. CAYETANO
Governor of Hawaii

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. Box 621
Honolulu, Hawaii 96809

Chairperson
MICHAEL D. WILSON
Board of Land and Natural Resources

Deputy Director
GILBERT COLOMA-AGARAN

Aquaculture Development
Aquatic Resources
Boating and Ocean Recreation
Bureau of Conveyances
Conservation and Environmental Affairs
Conservation and Resources Enforcement
Forestry and Wildlife
Historic Preservation
Land Management
State Parks
Water and Land Development

REF:OCEA:KRM

File No.: 96-018

District Engineer (CEPOD-ED-PV)
U.S. Army Corps of Engineers
Building 230
Fort Shafter, Hawaii 96858-5440

AUG 9 1995

Dear Engineer:

SUBJECT: Proposed Protective Rock Revetment Along a 1,100-foot Shoreline Fronting Kamehameha Highway (Public Notice No.: CW95-0002), Hauula, Oahu, TMKs: 5-3-14: pors. 9, 10, 13-16, 18

We have reviewed the public notice information for the subject project dated July 8, 1995, and offer the following:

Office of Conservation and Environmental Affairs

Our Office of Conservation and Environmental Affairs (OCEA) comments that permanent construction in areas seaward (makai) of the certified shoreline would be located within the Resource "R" subzone of the State's Conservation District. As such, this revetment project will require that a Conservation District Use Application (CDUA) is filed with this Department and approved by the Board of Land and Natural Resources pursuant to Section 13-5-23(c), L-5(D-1), Hawaii Administrative Rules.

Division of Aquatic Resources

Our Division of Aquatic Resources (DAR) comments that although some near-shore disturbance and turbidity may occur during excavation and revetmant construction, no significant long-term adverse aquatic resource impact is expected from the activities proposed.

The mitigation measures recommended for the project (Section 5 of Notice) are adequate and would limit or prevent excessive impact to aquatic resource values. DAR suggests that those mitigation measures be incorporated as conditions into the permit process.

Division of Historic Preservation

We reiterate our Historic Preservation Division's (HPD) comments which were previously sent to you by their letter dated July 20, 1995.

We will forward our Division of Land Management's comments as they become available.

We have no other comments to offer at this time. Thank you for the opportunity to comment on this matter.

Please feel free to contact Steve Tagawa at our Office of Conservation and Environmental Affairs at 587-0377, should you have any questions.

Aloha,

Gilbert S. Coloma-Agaran
for MICHAEL D. WILSON

July 23, 1996

Planning and Operations Division

Mr. Michael D. Wilson
Chairperson
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Wilson:

Thank you for the comments contained in your letters, dated August 9 and October 5, 1995, on Public Notice No. CW95-0002 for a proposed highway erosion protection project at Hauula, Koolaupoko, Oahu. We regret the delay in responding to your letters, but it was was necessary to insure that our responses to your comments accurately reflect the ongoing development of plans and specifications for the project. Our responses follow the order of your comments.

a. A Conservation District Use Application (CDUA) is being prepared by the project's local sponsor, the State of Hawaii Department of Transportation.

b. We concur with the comment of your Division of Aquatic Resources that, although some near-shore disturbance and turbidity may occur during excavation and revetment construction, no significant long-term adverse aquatic resource impact is expected from the activities.

c. Although as a policy the Corps does not issue itself a permit, the mitigation measures listed in Section 5 of the Public Notice will be incorporated into the project plans and specifications and the contractor's environmental protection plan.

JUL 24 1996

Galloway
lgj/8876

Young
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Mursoka
Acig
CEPOD-ET-P

Pelowski
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RETURN TO
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d. We acknowledge your reiteration of previous Historic Preservation Division comments, which have included concurrence with our determination of "no effect" on historic properties.

e. The proposed project is not expected to affect adjacent *shoreline areas. The proposed* rubblemound revetment, like the dumped-rock revetment it is designed to replace, would consist of *ungrouted rock. In addition,* the face of the new structure would be sloped so as to effectively dissipate wave energy. At its *northwest* end, the proposed revetment would be tied into an existing rock wall which is fronted by a sloping sandy beach. At its southeast end, the revetment would be tied into an existing highway bridge abutment, beyond which the rocky shoreline is fronted by a small sandy beach. At these adjacent areas the sandy beaches have persisted, with no erosion problems reported, in spite of their proximity to the ungrouted rock of the project reach, and this pattern is expected to continue following project construction.

We hope our responses have addressed your concerns. Should you have any questions, please feel free to contact Mr. Peter Galloway of my Planning and Operations Division at 438-8876.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering
and Technical Services

BENJAMIN J. CAYETANO
Governor of Hawaii

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

REF:OCEA:KRM

P. O. Box 621
Honolulu, Hawaii 96809

File No.: 96-017

Chairperson
MICHAEL D. WILSON
Board of Land and Natural Resources

Deputy Director
GILBERT COLOMA-AGARAN

Aquaculture Development
Aquatic Resources
Boating and Ocean Recreation
Bureau of Conveyances
Conservation and Environmental Affairs
Conservation and Resources Enforcement
Forestry and Wildlife
Historic Preservation
Land Management
State Parks
Water and Land Development

Commander, Honolulu Engineer District
ATTN: CEPOD-ED-PV/Mr. Peter Galloway
Fort Shafter, Hawaii 96858-5440

AUG 9 1995

Dear Mr. Galloway:

SUBJECT: Environmental Assessment (EA) for a Proposed Shoreline Protection Revetment (Public Notice No.: CW95-0005), Kaaawa, Koolaupoko, Oahu

We have reviewed the EA information for the subject project transmitted by your letter dated July 7, 1995, and offer the following:

Office of Conservation and Environmental Affairs

Our Office of Conservation and Environmental Affairs (OCEA) comments that permanent construction in areas seaward (makai) of the certified shoreline would be located within the General "G" subzone of the State's Conservation District. As such, this revetment project will require that a Conservation District Use Application (CDUA) is filed with this Department and approved by the Board of Land and Natural Resources pursuant to Section 13-5-23(c), L-5(D-1), Hawaii Administrative Rules.

Division of Aquatic Resources

Our Division of Aquatic Resources (DAR) comments that although some near-shore disturbance and turbidity may occur during excavation and revetment construction, no significant long-term adverse aquatic resource impact is expected from the activities proposed.

The mitigation measures recommended for the project (Section 5 of Notice) are adequate and would limit or prevent excessive impact to aquatic resource values. DAR suggests that those mitigation measures be incorporated as conditions into the permit process.

Division of Historic Preservation

We reiterate our Historic Preservation Division's (HPD) comments which were previously sent to you by their letter dated July 20, 1995.

We will forward our Division of Land Management's comments as they become available.

We have no other comments to offer at this time. Thank you for the opportunity to comment on this matter.

Please feel free to contact Steve Tagawa at our Office of Conservation and Environmental Affairs at 587-0377, should you have any questions.

Aloha,

for MICHAEL D. WILSON

...J. CAYETANO
...rnor of Hawaii

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

REF:OCEA:TES

P. O. Box 621
Honolulu, Hawaii 96809

File No.: 96-017a

Chairperson
MICHAEL D. WILSON
Board of Land and Natural Resources

Deputy Director
GILBERT COLOMA-AGARAN

Aquaculture Development
Aquatic Resources
Boating and Ocean Recreation
Bureau of Conveyances
Conservation and Environmental Affairs
Conservation and Resources Enforcement
Forestry and Wildlife
Historic Preservation
Land Management
State Parks
Water and Land Development

PG

Commander, Honolulu Engineer District
ATTN: CEPOD-ED-PV/Mr. Peter Galloway
Fort Shafter, Hawaii 96858-5440

001 5 1995

Dear Mr. Galloway:

SUBJECT: Environmental Assessment (EA) for a Proposed Shoreline Protection Revetment (Public Notice No.: CW95-0005), Kaaawa, Koolaupoko, Oahu

The following are our additional comments on the subject project which supplement those previously forwarded by our letter of August 8, 1995:

Division of Water and Land Development

The proposed revetment should protect the shore from further erosion. However, impact on the adjacent areas at both ends of the revetment should also be examined. The effect of wave action on the shore adjacent to both ends would differ, depending whether it is a seawall or gradually sloping sandy beach. In addition, the shoreline from the northwest end of the revetment to the mouth of Kaaawa Stream should be examined to determine whether more erosion would occur due to the concavity of the shoreline.

We have no further comment to offer at this time. We will forward our Land Management Division's comments as they become available.

Thank you for the opportunity to comment on this matter. Please feel free to contact Steve Tagawa at our Office of Conservation and Environmental Affairs at 587-0377, should you have any questions.

Aloha,

Gilbert A. Coloma-Agaran
MICHAEL D. WILSON

July 23, 1996

Planning and Operations Division

Mr. Michael D. Wilson
Chairperson
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Wilson:

Thank you for the comments contained in your letters, dated August 9 and October 5, 1995, on the revised Finding of No Significant Impact, Addendum No. 1 to the Environmental Assessment, and Public Notice No. CW95-0005 for a proposed highway erosion protection project at Kaaawa, Koolaupoko, Oahu. We regret the delay in responding to your letters, but it was necessary to insure that our responses to your comments accurately reflect the ongoing development of plans and specifications for the project. Our responses follow the order of your comments:

a. A Conservation District Use Application (CDUA) is being prepared by the project's local sponsor, the State of Hawaii Department of Transportation.

b. We concur with the comment of your Division of Aquatic Resources that, although some near-shore disturbance and turbidity may occur during excavation and revetment construction, no significant long-term adverse aquatic resource impact is expected from the activities.

c. Although as a policy the Corps does not issue itself a permit, the mitigation measures listed in Section 5 of the Public Notice will be incorporated into the project plans and specifications and the contractor's environmental protection plan.

JUL 24 1996

Galloway
lg/2876

Young
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Muraoka
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d. We acknowledge your reiteration of previous Historic Preservation Division comments, which have included concurrence with our determination of "no effect" on historic properties.

e. The proposed project is not expected to affect adjacent shoreline areas. The proposed rubblemound revetment, like the dumped-rock revetment it is designed to replace, would consist of ungrouted rock. In addition, the face of the new structure would be sloped so as to effectively dissipate wave energy. At its southeast end, the revetment would be tied into the existing rocky point, which is fronted by a small sandy beach. At its northwest end, the revetment would be tied into a stable sandy beach. At both of these adjacent areas the sandy beaches have persisted, with no erosion problems reported, in spite of their proximity to the abundant ungrouted rock of the project reach, and this pattern is expected to continue following project construction.

f. Due to the low reflectivity of the proposed revetment, the along-shore "concave" form of the shoreline would not contribute to any future erosion of the shoreline from the northwest end of the revetment to the mouth of Kaaawa Stream.

We hope our responses have addressed your concerns. Should you have any questions, please feel free to contact Mr. Peter Galloway of my Planning and Operations Division at 438-8876.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering
and Technical Services

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

REPLY TO ATTENTION OF

July 5, 1995

Planning Division

Mr. Keith W. Ahue
State Historic Preservation Officer
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ahue:

The project reaches for the proposed U.S. Army Corps of Engineers' construction of shoreline revetments at Punaluu and Kaaawa, Oahu, are increased from 430 and 750 feet to 600 and 900 feet, respectively. Amended project descriptions are provided in the enclosed public notices, addenda to the environmental assessments, and revised Findings of No Significant Impact.

Your agency concurred (letter dated June 16, 1993; and letter undated - log no. 9206 and doc no. 9308td21) with our determination that the original projects will have "no effect" on historic sites.

Our existing commitment to monitor the projects will be extended to the additional project reaches. Based on this, we have determined that the revised projects will have no effect on any historic properties. We request your concurrence with our determination. Your response within 30 days of the date of this letter would be appreciated.

Should you have any questions concerning the revised projects, please feel free to contact Mr. Peter Galloway of my planning staff at 438-8876.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering

Enclosures

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

MICHAEL D. WILSON, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY
GILBERT COLOMA-AGARAN

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION DIVISION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

July 20, 1995

Ray H. Jyo, P. E.
Director of Engineering
Environmental Division
Department of the Army
Fort Shafter, Hawaii 96858-5440

LOG NO: 14943
DOC NO: 9507EJ17

Dear Mr. Jyo:

SUBJECT: Section 106 Review -- Increase in Size of Shoreline Revetments at
Punaluu and Ka'a'awa, O'ahu
Puh'emiki and Hale'aha, Ko'olauloa, O'ahu
TMK: 5-3-5,5-3-6
Ka'a'awa, Ko'olauloa, O'ahu
TMK: 5-1-6:17

Thank you for the opportunity to review this project which proposes an increase in shoreline revetments from 430 feet to 600 feet at Punalu'u and from 750 feet to 900 feet at Ka'a'awa. We concurred with a "no effect" determination on the original scope of the project because historic sites are unlikely to be found in this situation. We believe that the extension of the shoreline revetment will still have "no effect" on historic sites. Given these circumstances and the original commitment to identify and properly record subsurface historic sites in the unlikely event that they are exposed during construction activities, we concur with your determination that this project will have "no effect" on historic sites.

Aloha,

DON HIBBARD, Deputy
State Historic Preservation Officer

EJ:jk

OFFICE OF STATE PLANNING
Office of the Governor
MAILING ADDRESS: P.O. BOX 3540 HONOLULU, HAWAII 96811-3540
STREET ADDRESS: 250 SOUTH HOTEL STREET, 4TH FLOOR
TELEPHONE: (808)587-2846, 587-2800
FAX Director's Office 587-2848
Planning Division 587-2824

Ref. No. C-528

February 25, 1994

Mr. Kisuk Cheung, P.E.
Director of Engineering
Department of the Army
U.S. Army Engineer District, Honolulu
Building 230
Ft. Shafter, Hawaii 96858-5440

Dear Mr. Cheung:

Subject: Hawaii Coastal Zone Management (CZM) Program Federal Consistency for Shore Protection Revetments at Hauula, Kaaawa and Punaluu, Oahu (FC/93-026, 027, 031)

Your proposal to construct shore protection revetments at Hauula, Kaaawa and Punaluu on Oahu to prevent undermining of Kamehameha Highway has been reviewed for consistency with Hawaii's CZM Program. The design proposal that was reviewed is an ungrouted rubblemound revetment with a slope of 1 vertical to 2 horizontal, to be built at each site to replace existing shore protection rock scarps. The revetments will be 1,100 feet long at Hauula, 750 feet at Kaaawa and 430 feet at Punaluu. This review was based on the Draft Environmental Assessments (EA) and Draft Findings of No Significant Impact (FONSI) for the three sites because Final EA's and Final FONSI's have not been completed yet.

We concur with your CZM assessment and finding that the activity is consistent to the maximum extent practicable on the basis of the following conditions:

1. This CZM consistency approval is based on the Draft EA's and Draft FONSI's for the three sites. Any changes resulting from the Final EA's or Final FONSI's require CZM approval.

2. The three revetments shall be constructed according to plans submitted to OSP for CZM Federal consistency. The seaward facing finished slope shall not be steeper than 1 vertical to 2 horizontal. Any changes to the design of the revetments require CZM approval.

3. Silt containment devices shall be used during all work to minimize turbidity.

4. The existing rock scarp shore protection shall be disposed of at an upland site and not on the shore or in the ocean. If clean beach sand is excavated during construction, the sand shall be placed on adjoining beaches.

5. A water quality monitoring plan shall be developed and submitted to OSP.

6. Compliance with State of Hawaii water quality standards is required. Also, it is our understanding from the EA (p. 12) that water quality compliance will be coordinated with the State Department of Health.

7. A Special Management Area Use Permit (SMP) and Shoreline Variance (SV) are required for the State Department of Transportation (DOT), the State sponsor of the projects. Compliance with Hawaii's CZM Program is required for all State agencies by Chapter 205A, Hawaii Revised Statutes. We also understand that DOT has agreed with the City Department of Land Utilization (DLU letter dated 1/31/94) to comply with SMP and SV requirements.

CZM consistency approval is not an endorsement of the project nor does it convey approval with any other regulations administered by any State or County agencies. Thank you for your cooperation in complying with Hawaii's CZM Program. If you have any questions, please call our CZM office at 587-2878.

Sincerely,

Harold S. Masumoto
Director

cc: Department of Transportation
Department of Health, Clean Water Branch
Department of Land and Natural Resources, OCEA
Department of Land Utilization, City & County of Honolulu
U.S. National Marine Fisheries Service, Pacific Area Office

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

REPLY TO ATTENTION OF

Planning Division

June 30, 1994

Mr. Harold S. Masumoto
Director
Office of State Planning
P.O. Box 3540
Honolulu, Hawaii 96811-3540

Dear Mr. Masumoto:

Thank you for your concurrence (letter dated February 25, 1994) with our determination of consistency with Hawaii's Coastal Zone Management Program for proposed shore protection revetments at Hauula, Kaaawa, and Punaluu on the northeast coast of the island of Oahu.

The responses below follow the order of the numbered conditions specified in your letter:

a. The final environmental assessments (EA) and finding of no significant impacts (FONSI) for the three proposed projects will incorporate comments and recommended mitigation measures received from review agencies. The project descriptions provided in the draft EAs and FONSIs are current.

b. The designs of the three revetments remain unchanged, with seaward-facing finished slopes of 1 vertical to 2 horizontal.

c. Silt containment devices will be deployed to control turbidity caused by construction activities.

d. Clean beach sand removed during excavation will be placed on adjoining beaches as you have specified, provided this is acceptable to regulatory agencies. Any excavated material which is not suitable for use as backfill for the new revetments will be disposed of at an upland site.

e. A water quality monitoring plan (or plans) will be developed for the projects in coordination with the State of Hawaii Department of Health. A copy of the plan(s) will be provided to your office as requested in your letter.

f. We concur with the need to comply with State of Hawaii water quality standards.

g. The EAs are intended to satisfy requirements of the National Environmental Policy Act for the three proposed federal actions. The local sponsor (the State of Hawaii Department of Transportation) will obtain any required local permits for the federal actions and will be responsible for compliance with Chapter 343 of the Hawaii Revised Statutes.

Copies of the final EAs and FONSIs for the three projects will be provided to your office.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering

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

REPLY TO ATTENTION OF

July 5, 1995

Planning Division

Mr. Douglas Tom, Manager
Hawaii Coastal Zone Management Program
Office of State Planning
P.O. Box 3540
Honolulu, Hawaii 96811-3540

Dear Mr. Tom:

The project reaches for proposed U.S. Army Corps of Engineers' construction of shoreline revetments at Punaluu and Kaaawa, Oahu are increased from 430 and 750 feet to 600 and 900 feet, respectively. The revised projects are described in the enclosed public notices, addenda to the environmental assessments, and revised Findings of No Significant Impact.

Your agency concurred (via letter dated February 25, 1994) with our consistency determination for the original projects.

We have determined that the revised projects are consistent with, and will be conducted in a manner which is consistent to the maximum extent practicable with, the Hawaii Coastal Zone Management Program. We request your concurrence with our determination. Your response within 30 days of the date of this letter would be appreciated.

Should you have questions concerning the revised projects, please feel free to contact Mr. Peter Galloway of my planning staff at 438-8876.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering

Enclosures

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

BENJAMIN J. CAYETANO
GOVERNOR
SEIJI F. NAYA
DIRECTOR
RICK EGGED
DIRECTOR, OFFICE OF PLANNING

OFFICE OF PLANNING
235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824

Ref. No. P-6407

December 5, 1996

Mr. Ray H. Jyo, P.E.
Director of Engineering
Department of the Army
Pacific Ocean Division, Corps of Engineers
Ft. Shafter, Hawaii 96858-5440

Dear Mr. Jyo:

Subject: Hawaii Coastal Zone Management (CZM) Program Federal Consistency to Construct Shore Protection Revetments at Kaaawa and Punaluu, Oahu (FC/93-027, 031)

Your proposal to increase the length of the proposed shore protection revetments at Kaaawa, from 750 feet to 900 feet, and at Punaluu, from 430 feet to 600 feet, to prevent undermining of Kamehameha Highway, is covered by our CZM consistency approval dated February 25, 1994, for the original project design. It is our understanding that the basic design of the revetments remain the same. The design that was previously approved was an ungrouted rubblemound revetment with a slope of 1 vertical to 2 horizontal, to absorb wave energy and entrap sand. Also, the seven conditions prescribed in our previous CZM approval (copy attached) are still applicable to the projects.

CZM consistency approval is not an endorsement of the project nor does it convey approval with any other regulations administered by any State or County agencies. Thank you for your cooperation in complying with Hawaii's CZM Program. If you have any questions, please call John Nakagawa of our CZM Program at 587-2878.

Sincerely,

Rick Egged
Director
Office of Planning

Attachment

OFFICE	ACTION	INIT
Dir. Engr.		
Deputy		
Secretary		
Cost		
Eng		
Proj		
Spec		
Tech		

DEC 20 2000 00000

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4432

FRANK F. FASI
MAYOR

DONALD A. CLEGG
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

93-08904 (ASK)

November 19, 1993

Commander
U. S. Army Engineer District, Honolulu
Building 230, CEPOD-ED-PV
Fort Shafter, Hawaii 96858-5440

Attention: Mr. Kisuk Cheung, P.E.
Director of Engineering

Gentlemen:

Draft Environmental Assessments For Proposed Highway Erosion Protection at Hauula, Punaluu, and Kaaawa

This responds to your November 4, 1993 request for comments on the Draft Environmental Assessments (DEA) for proposed erosion control project at three sites on the northeast coast of the island of Oahu. We have reviewed the DEA and offer the following comments:

- Portions of the project appear to be within both the Shoreline Setback Area and the Special Management Area, and are subject to permit requirements of Chapters 23 and 25 Revised Ordinances of Honolulu, respectively. The Department of Land Utilization (DLU) should be contacted regarding application requirements. It is not obvious from the information presented in the DEA that the proposal meets the criteria needed for approval of permits required by these Chapters.

- It is not clear what requirements the DEA is directed at satisfying. This information should be disclosed. If the DEA is intended to meet the requirements of Chapter 343, Hawaii Revised Statutes, it should contain all of the items required by Chapter 200, Title 11, State Administrative Rules.

- The DEA indicates that the "dumped rock" on the beach scarp discourages beach use. In effect, the natural sandy beach has been buried under rocks which were placed without the required Shoreline Setback Variance and Special Management Area Use Permit. In the future, we recommend that required permits be obtained prior to construction.

- The DEA should address impacts to littoral processes. We note that erosion of the sand in the project area logically results in nourishment at another site. The proposed revetments, which will halt erosion, will then not only diminish the marginal beaches which may currently exist, but may result in starvation and possible erosion of down drift areas.

- The DEA states that the alternative to relocate Kamehameha Highway further inland was rejected, in part because of its relative high cost (presumably for land acquisition). The DEA should recognize permanent loss of the public beach and the potential need to construct additional shoreline protection for starved coastal areas as a cost of building the selected alternative. We suggest that alternatives be evaluated in light of these costs.

- The State Department of Land and Natural Resources and the State Department of Health should be consulted regarding their permit requirements for the project.

Should you have questions regarding the above, you may contact Ardis Shaw-Kim of our staff at 527-5349.

Very truly yours,

Donald Clegg

DONALD A. CLEGG
Director of Land Utilization

DAC:ak
G:hauula2.ask

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

REPLY TO ATTENTION OF

June 30, 1994

Planning Division

Mr. Donald A. Clegg
Director of Land Utilization
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Clegg:

Thank you for your comments (letter dated November 19, 1993) on the draft environmental assessments (EAs) for proposed erosion control projects at Hauula, Punaluu, and Kaaawa on the northeast coast of the island of Oahu.

The following responses follow the order of your comments:

a. The EAs are intended to satisfy federal requirements of the National Environmental Policy Act for the three proposed federal actions. The local sponsor (the Hawaii State Department of Transportation) will obtain any required local permits for the federal actions and will be responsible for compliance with Chapter 343 of the Hawaii Revised Statutes.

b. To the best of our knowledge, the existing dumped rock at the proposed project sites has been placed there through non-federal actions.

c. The proposed project sites are not substantial sources of sand for downdrift nourishment of beaches. In addition, littoral processes at the three reaches are not expected to be adversely affected by the proposed replacement of the existing dumped-rock revetments by rubblemound revetments. Both types of revetment consist of ungrouted basaltic rock, which absorbs wave energy. However, a rubblemound revetment can be more efficient in absorbing wave energy due to its designed, more gentle slope. Also, a rubblemound revetment's internal structure is much more stable due to its keyed and fitted stones (including toe stones). Thus, the proposed rubblemound revetments would better

protect inland areas from erosion while still allowing nearshore littoral processes (e.g., accretion and periodic movement of sand) to continue uninterrupted. No long-term loss of beaches is expected, nor is any starvation or erosion of downdrift areas.

d. For each of the three proposed actions, the possible alternative of moving Kamehameha Highway further inland was rejected in part due to the expected high costs, which would include the cost of land acquisition as well as the cost of construction. Under the proposed alternative, no net loss of public beach is anticipated since sand is expected to periodically accrete and move in a manner similar to that which presently occurs at the existing revetments. Implementation of the proposed actions is not expected to result in any need for additional shoreline protection.

e. Coordination has been initiated with the Hawaii State Department of Health concerning compliance with state water quality standards, as required by federal laws and regulations. Copies of the EAs and FONSIs will be sent to the Hawaii State Department of Land and Natural Resources for their review and comment.

Copies of the final EAs and FONSIs for the three projects will be provided to your office.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering

PLANNING DEPARTMENT
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

JEREMY HARRIS
MAYOR

ROBIN FOSTER
CHIEF PLANNING OFFICER

ROLAND D. LIBBY, JR.
DEPUTY CHIEF PLANNING OFFICER

MH 8/94-4297

September 19, 1994

Commander, Honolulu Engineer District
ATTN: CEPOD-ED-PV
Fort Shafter, Hawaii 96858-5440

Dear Commander:

Section 14 Reconnaissance Report for
Hauula, Punaluu and Kaaawa Highway Erosion
Protection, Island of Oahu, State of Hawaii

In response to your request which we received on August 30, 1994, we have reviewed the subject reports and have the following comments to offer.

1. The Hauula, Punaluu and Kaaawa sites are designated for Preservation use on the Koolauloa Development Plan Land Use Map.

2. The Koolauloa Development Plan Public Facilities Map (DPPFM) shows a symbol for a publicly funded water system (Kamehameha Highway 16" Main - Hauula to Kaipapau), site determined, within six years, adjacent to the Hauula site. The Koolauloa DPPFM also shows a symbol for a publicly funded water system (Kamehameha Highway 30" and 20" Main - Kaaawa to Punaluu), site determined, within six years, adjacent to the Kaaawa and Punaluu sites. In light of the information above, we recommend that the proposed project be coordinated with the Board of Water Supply.

3. We also recommend that your agency consult with the City's Department of Land Utilization and the Office of Conservation and Environmental Affairs within the State Department of Land and Natural Resources regarding Special Management Area/Shoreline Setback

Area and Conservation District Use Applications/ Permits, respectively, that may be required for the subject projects.

Should there be any questions, please contact Matthew Higashida of our staff at 527-6056.

Sincerely,

ROBIN FOSTER
Planning Officer

RF:ft

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

REPLY TO
ATTENTION OF

June 23, 1995

Planning Division

Mr. Robin Foster
Planning Officer
Planning Department
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Foster:

This is in response to your letter dated September 21, 1994 regarding the Section 14 Reconnaissance Reports for Hauula, Punaluu, and Kaaawa Erosion Protection, Island of Oahu, State of Hawaii. We regret the delay in responding to your letter, but it was necessary to insure that our responses to your comments accurately reflect the ongoing development of plans and specifications for the projects.

The following responses follow the order of your comments:

a. Designation for Preservation use on the Koolauloa Development Plan Land Use Map applies only to portions of the project sites which are above the high water mark. The proposed actions will maintain these areas in their present use.

b. The project will be coordinated with the Board of Water Supply regarding any planned water system improvements.

c. Our local project sponsor, the State of Hawaii Department of Transportation, will consult with the City and County of Honolulu's Department of Land Utilization and the State of Hawaii's Office of Conservation and Environmental Affairs regarding Special Management Area, Shoreline Setback Area, and Conservation District Use Applications/Permits.

We hope this has addressed your concerns. Should you have further questions, please feel free to contact Mr. Peter Galloway of my planning staff at (808) 438-8876.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA
711 KAPIOLANI BOULEVARD, SUITE 1200
HONOLULU, HAWAII 96813

JEREMY HARRIS
MAYOR

CHARLES O. SWANSON
DIRECTOR

August 30, 1995

PL95.1.214
(TE-3372)

Commander, Honolulu Engineer District
ATTN: CEPOD-ED-PV/Mr. Galloway
Fort Shafter, Hawaii 96858-5440

Dear Sir:

Subject: Kamehameha Highway-Kaaawa Highway Erosion Project TMK: 5-1-06

This is in response to your letter dated July 7, 1995 requesting our comments on the subject project.

Kamehameha Highway in this area is a State Department of Transportation Facility. We, therefore, have no objections or comments to offer at this time.

Should you have any questions, please contact Wayne Nakamoto of my staff at 523-4190.

Respectfully,

MARVIN CHAR
Acting Director

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

PACIFIC PARK PLAZA
711 KAPIOLANI BOULEVARD, SUITE 1200
HONOLULU, HAWAII 96813

JEREMY HARRIS
MAYOR

CHARLES O. SWANSON
DIRECTOR

August 30, 1995

PL95.1.219
(TE-3408)

Commander, Honolulu Engineer District
ATTN: CEPOD-ED-PV/Mr. Galloway
Fort Shafter, Hawaii 96858-5440

Dear Sir:

Subject: Kamehameha Highway-Punaluu
Highway Erosion Project
TMK: 5-3-06

This is in response to your letter dated July 7, 1995 requesting our comments on the subject project.

Kamehameha Highway in this area is a State Department of Transportation facility. We, therefore, have no objections or comments to offer at this time.

Should you have any questions, please contact Wayne Nakamoto of my staff at 523-4190.

Respectfully,

MARVIN CHAR
Acting Director

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

PACIFIC PARK PLAZA
711 KAPIOLANI BOULEVARD SUITE 1200
HONOLULU HAWAII 96813

JEREMY HARRIS
MAYOR

JOSEPH M. MAGALDI, JR.
DIRECTOR

AMAR SAPPAL
DEPUTY DIRECTOR

C, PH 5

September 23, 1994

Mr. Ray Jyo, P.E.
Director of Engineering
Department of the Army
U.S. Army Engineer District, Honolulu
Building 230
Ft. Shafter, Hawaii 96858-5440

Dear Mr. Jyo:

Subject: Kamehameha Highway - Hauula, Punaluu and Kaaawa
Highway Erosion Protection Projects
TMK: 5-1-06, 5-3-06 and 5-3-14

This is in response to your request for our comments on the subject projects.

It appears that these projects will be constructed entirely along Kamehameha Highway which is a State of Hawaii, Department of Transportation facility. We, therefore, have no objections or comments to offer at this time.

Should you have any questions, please contact Wayne Nakamoto of my staff at 523-4190.

Sincerely,

JOSEPH M. MAGALDI, JR.
Director

University of Hawai'i at Mānoa

Environmental Center
A Unit of Water Resources Research Center
Crawford 317 • 2550 Campus Road • Honolulu, Hawai'i 96822
Telephone: (808) 956-7361 • Facsimile: (808) 956-3980

September 21, 1994
EA:0086

Mr. Peter Galloway
Honolulu District Engineer
U.S. Army Corps of Engineers
Building 230
Fort Shafter, Hawaii 96858-5440

Dear Mr. Galloway:

Notice of availability of Environmental Assessment and
Finding of No Significant Impact
Hauula Highway Erosion Protection,
Kaaawa Highway Erosion Protection, and
Punaluu Highway Erosion Protection
Koolauloa, Oahu

The above documents are proposals to build rubblemound revetments along sections of the Kamehameha Highway in the Hauula, Kaaawa, and Punaluu areas. The highway along these areas is built within 10 feet of the shoreline. Its proximity to the ocean has made it subject to erosion by storm waves; the proposed revetments are intended to resolve this problem. The proposed revetments will span 1,100 feet along the shoreline in Hauula, 750 feet in Kaaawa, and 430 feet in Punaluu.

We have reviewed these documents with the assistance of Charles Fletcher, Geology and Geophysics, and Malia Akutagawa of the Environmental Center.

Project Segmentation

These three separate documents are nearly identical and only differ slightly as to the description of marine life present at these sites and certain physical characteristics of the shoreline. All 3 documents propose the construction of rubblemound revetments along Kamehameha Highway. In the interest of reducing paperwork (Appendix 2, Council On Environmental Quality NEPA Regulations, 40 CFR Part 1500.4) the U.S. Army Corps of

Engineers could have consolidated these actions into one project. Further justification for incorporating these documents together as one project may be found in Appendix 2, Council On Environmental Quality NEPA Regulations, 40 CFR Part 1508.25(a)(3) which states:

> *Similar actions, which when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography. An agency may which to analyze these actions in the same impact statement. It should do so when the best way to assess adequately the combined impacts of similar actions or reasonable alternatives to such actions is to treat them in a single impact statement.*

Alternatives to Action

One alternative to the proposed action which was rejected was to relocate the highway. Such a measure was deemed "economically nonfeasible due to the long reach of highway re-routing necessary to maintain sight and grade requirements." (p. 3, Draft EA) While this alternative may be nonfeasible from an economic standpoint, it probably constitutes the best proposal from a practical and environmental standpoint.

It has been the policy of the State to issue permits to construct highways and buildings too close to the shoreline without compensating for natural erosion and accretion of beaches. The taxpayers have been faced with the costs of protecting these structures; e.g., in this case, by paying for highway revetments. In the short term, construction of revetments as a quick-fix is economically feasible; in the long term, revetments may prove to be more costly in tangible (increased funding to build more revetments) and intangible (loss of the beach as an aesthetic, natural, cultural resource) ways.

No matter what protective structure is used, beach loss is inevitable. These protective structures preserve the integrity of man-made commodities at the expense of a cultural, recreational, and natural resource such as Hawaii's beaches. The best alternative is to reroute the highway to the mauka area.

1V On 2H Slope

The proposed 1V on 2H finished seaward face slope is nearly identical functionally to a typical seawall. We suggest that the rubblemound revetments be designed to be more gently sloping. A 1V on 3H or even 1V on 4H slope is adequate to allow sand deposition and reduce wave energy.

Marine Site Visits

It was mentioned that "no turtles were observed during a June 1992 site visit." (p. 7, Draft EA) How long in duration was this site visit, did it occur over a period of a few days, or was it a single, isolated visit? Although turtles may not have been observed at the time, it does not mean that these endangered species are never present in the area. Have studies been conducted as to whether the project areas are used as turtle nesting grounds? How will this project take into consideration the possible presence of turtles in the vicinity of the worksite?

Conclusion

Degradation of roadways built too close to the shoreline and attendant beach erosion is a problem that will not go away if the State continues to engage in reactive measures instead of proactive planning. We submit that the best alternative in the long run is to reroute the highway away from the shoreline.

If the agency decides to approve the construction of rubblemound revetments along the shoreline, then we suggest that they be designed to have a more gentle slope to facilitate sand accumulation.

Finally, we are of the opinion that these three separate documents actually comprise one project; and thus, the agency has violated Appendix 2, Council On Environmental Quality NEPA Regulations, 40 CFR Part 1508.25(a)(3).

Thank you for the opportunity to review these documents.

Sincerely,

John T. Harrison
Environmental Coordinator

cc: OEQC
Roger Fujioka
Charles Fletcher
Malia Akutagawa

GALLOWAY
lgj/8876

June 6, 1995

LENNAN
CEPOD-ED-PV

Planning Division

MIZUE
Actg
CEPOD-ED-P

Mr. John Harrison
Environmental Coordinator
Environmental Center
University of Hawaii at Manoa
Crawford 317
2550 Campus Road
Honolulu, Hawaii 96822

PELOWSKI
Actg
CEPOD-ED-Z

Dear Mr. Harrison:

JYO
CEPOD-ED

This is in response to your letter dated September 21, 1994 regarding the notices of availability of environmental assessments (EAs) and findings of no significant impact for proposed erosion control projects at Hauula, Punaluu, and Kaaawa, Koolauloa, Oahu. We regret the delay in responding to your letter. The delay was necessary to insure that our responses to your comments accurately reflect the ongoing development of plans and specifications for the projects.

CEPOD-ED-PV
M & R

The following responses follow the order of your comments, which are assumed to apply equally to the environmental documents for all three projects:

CEPOD-ED-P
files
PV/GALLOWAY
SEC14UH.DOC

a. As indicated in your first comment, NEPA regulations defining scoping provide that an agency may consolidate similar projects under one EIS. However, in the present instance the three study areas were judged to be sufficiently distinct and separated geographically such that the three proposed actions would not be expected to have combined impacts and would not constitute a single project. In addition, the funding and feasibility determinations for the three projects are independent. Thus, in undertaking assessment of environmental impacts, preparation of separate EAs was selected as the most appropriate action.

b. Your comment that the best proposal from a practical and environmental standpoint is to reroute the highway to the mauka area is noted. However, as indicated in the EAs, this alternative was considered but was rejected because it would not prevent future erosion and because its expected high costs, which would in each case include the cost of taking various privately owned lands as well as the cost of construction, render it economically infeasible.

c. Construction of the revetments is not being proposed as a "quick-fix" as suggested in your letter; rather, in each case the proposed rubblemound revetment is designed to be a stable structure which will provide a long-term solution to erosion at a specific site where dumping of rock has not proved sufficient.

d. Construction of the three revetments would not lead to increased funding to build more revetments. The proposed rubblemound revetments would replace existing dumped rock revetments at specific problem sites and, following completion, would allow an equivalent or greater opportunity than now exists for sand to accumulate. There would be no net long-term loss of beach due to implementation of the three projects.

e. We do not concur with your statement that beach loss is inevitable. The energy-dissipating design of each completed revetment would allow sand accumulation at the base of the seaward face.

f. We do not concur with your comment that the proposed 1V on *2H finished seaward face slope is nearly identical functionally* to a typical seawall. The proposed rubblemound revetments would be *ungrouted structures designed to dissipate wave energy, unlike* seawalls which are typically grouted and tend to reflect wave energy. The planned 1V on 2H design is believed to be of sufficiently gentle slope to allow sand deposition. The 1V on 3H or 4H designs which you suggest would provide some additional marginal energy dissipating capacity but would also substantially increase the footprints of the revetments, extending them out onto the adjacent nearshore marine resource areas described in the EAs. The proposed 1V on 2H design avoids this potentially significant intrusion on inshore reef resources while providing the necessary dissipation of wave energy.

g. Consultations with the USFWS and NMFS concerning sea turtles are cited in section 5.5 of the EAs, and letters of concurrence are included in Appendix C of the EAs. Although no turtles were observed during the 1-day marine surveys, turtles are known to occur in the nearshore waters of Oahu and it is assumed that turtles are occasionally present on the reef flats seaward of the project sites. However, due to the shoreline location of the proposed work and the absence of any blasting, no effects on turtles are expected. None of the sites is known to be a nesting site and none appears suitable to support this activity. The Kaaawa and Hauula sites are steep, rocky scarps which are completely unsuitable for turtle nesting, while the Punaluu site is dumped rock with loose coralline sand varying naturally in

amount over time, depending upon sea and wind conditions. None of the sites is expected to experience any significant long-term reduction in present levels of sand accumulation following project completion. Construction plans and specifications will require the contractor to avoid harming sea turtles. In the unexpected event that a turtle nest or nesting activity is encountered, the contractor will be required to immediately notify the Corps so that appropriate action may be initiated to fulfill federal responsibilities under the Endangered Species Act of 1978, as amended.

h. Your first conclusion favors an alternative which is laudable but not feasible, as explained in the EAs and above at paragraph b.

i. Your second conclusion, favoring a more gentle slope to facilitate sand accumulation, does not take into account the *increased footprint and corresponding intrusion* into the nearshore reef environment which would result from this design, as noted above at *paragraph f.*

j. For the reasons stated above at paragraph a, we do not concur with your third conclusion that "... these three separate documents actually comprise one project."

We hope this has addressed your concerns. Should you have further questions, please feel free to contact Mr. Peter Galloway of my planning staff at 438-8876.

Sincerely,

BPilmski

Ray H. Jyo, P.E.
Director of Engineering

HAUULA COMMUNITY ASSOCIATION
P.O. Box 264
Hauula, HI 96717
293-1263/293-7554

September 22, 1994

Mr. Ray Jyo, P.E.
Director of Engineering
Commander, Honolulu Engineer District
ATTN: CEPOD-ED-PV
Fort Shafter, HI 96858-5440

Dear Mr. Jyo:

Subject: Rubblemound Revetment for Hauula

The Hauula Community Association has reviewed the Environmental Assessment and other related documents pertaining to the construction of a rubblemound revetment along a portion of the Kamehameha Highway in Hauula. We realize the need for some type of remediation to our eroding highway but are concerned about the long-range effects that may be caused by the downdrift of sands.

We echo the comments made by Mr. Donald A. Clegg, Director of the Department of Land Utilization for the City and County of Honolulu. We, too, are concerned that the required permits be obtained, especially if significant work is to be done in the Shoreline Management Area.

Has a thorough investigation been made of the effects of work done in somewhat the same area during the 1960's? If, as your response to Mr. Clegg states, that the earlier work was done by "non-federal actions," who did do the work and by what authority?

Another concern is that disruption to traffic during construction be kept at a minimum. The community would like to be kept informed as progress nears the construction stage so that residents can be given ample notice before disruption starts.

The community is pleased that the U.S. Army Engineer Division has begun planning this much-needed project and looks forward to hearing from you in response to our concerns.

Sincerely yours,

Mary Ellen Ulii
HCA President

MEU:mal

cc: Ko'olauloa Neighborhood Board

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

REPLY TO ATTENTION OF

June 23, 1995

Planning Division

Ms. Mary Ellen Ulii, President
Hauula Community Association
P.O. Box 264
Hauula, Hawaii 96717

Dear Ms. Ulii:

This is in response to your letter dated September 21, 1994 regarding the Section 14 Reconnaissance Report for Hauula Highway Erosion Protection, Island of Oahu, State of Hawaii. We regret the delay in responding to your letter, but it was necessary to insure that our responses to your comments accurately reflect the ongoing development of plans and specifications for the Hauula project.

The following responses follow the order of your comments:

a. The project is not expected to have any long-range effects caused by the "downdrift" of sands. The revetment will be constructed parallel to the shoreline and will not impede the longshore transport of sand.

b. All required local permits will be obtained for the project by the local sponsor, the State of Hawaii Department of Transportation.

c. We are not aware of any previous construction of an engineered rubblemound revetment in the project area. Previous shore protection work at the project site has consisted primarily of the dumping of rock by highway maintenance crews.

d. Your association will be notified of the expected start of construction so that residents can be given ample notice about any potential disruption of traffic which may occur. The contractor will be required to prepare a traffic control plan to minimize disruption of traffic.

We hope this has addressed your concerns. Should you have further questions, please feel free to contact Mr. Peter Galloway of my planning staff at (808) 438-8876.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering

PUNALUU COMMUNITY ASSOCIATION, INC.
P. O. Box 239 Hauula, Hawaii 96717

September 21, 1994

Ray Jyo, P.E.
Director of Engineering
Commander, Honolulu Engineer District
Att: CEPOD-ED-PV
Ft. Shafter, Hawaii 96858-5440

Subj: CEPOD-ED-PH (1105-20-10b) Punaluu Hwy. Erosion Proj.

Dear Sir:

At the September 13 meeting of the Punaluu Community Association the above noted report was discussed. The following concerns were noted:

1. There is no mention of possible impact on the property immediately north of this project. Historically, in Punaluu shoreline improvements (hardening of the shoreline) has caused erosion of adjoining properties. Can this property owner be assured this will not happen?

2. The project goal is to prevent highway erosion. Can a low wall also be considered to keep seawater, sand and debris from blocking the highway and flooding residences mauka of the highway?

3. Location Map, Figure 1, page 18 incorrectly identifies Haleaha Road also as Sacred Falls Road. Sacred Falls Road is in Kaluanui north of Haleaha.

Thank you for allowing us to comment on this project.

Sincerely,

PUNALUU COMMUNITY ASSOCIATION

Cathleen J. Mattoon
Community Betterment Committee

cc: Koolauloa Neighborhood Board No. 28
Senator Mike McCartney

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

REPLY TO ATTENTION OF

Planning Division

June 6, 1995

Ms. Cathleen J. Mattoon
Community Betterment Committee
Punaluu Community Association
P.O. Box 239
Hauula, Hawaii 96717

Dear Ms. Mattoon:

This is in response to your letter dated September 21, 1994 regarding the Section 14 Reconnaissance Report for Punaluu Highway Erosion Protection, Island of Oahu, State of Hawaii. We regret the delay in responding to your letter. The delay was necessary to insure that our responses to your comments accurately reflect the ongoing development of plans and specifications for the Punaluu project.

The following responses follow the order of your comments.

a. The history of beach changes in the Punaluu area suggests that erosion events may occur at any time, especially during major storms. Therefore, no assurance can be given to the adjacent property owner that erosion will not occur in front of his/her property, regardless of whether the proposed revetment is constructed. The proposed rubblemound revetment is designed to effectively dissipate wave energy, not strongly reflect it as would be the case with a typical seawall. Thus the proposed project is not expected to contribute significantly to any erosion problems which independently develop on adjacent properties.

b. Although the proposed revetment is designed to dissipate wave energy and thereby prevent erosion of the roadway, it is not designed to block overtopping of the structure by large storm waves which may still carry seawater and associated sand and debris across the road. Construction of a low wall as your letter suggests would reflect wave energy and might contribute to erosion problems at the site or on adjacent properties during storms. Because of this potential problem, such a wall is not included in the proposed design.

c. Your correction of the mislabeling of Haleaha Road as Sacred Falls Road on the project location map is appreciated.

We hope this has addressed your concerns. Should you have further questions, please feel free to contact Mr. Peter Galloway of my planning staff at 438-8876.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering

APPENDIX C

Comments Received During Public Review Period, and Responses

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

MICHAEL D. WILSON
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY
GILBERT S. COLOMA-AGARAN

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

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

Ref.:PB:SL

OCT 30 1996

Ms. Elaine E. Tamaye
Vice President
Edward K. Noda
and Associates
615 Piikoi Street, Suite 300
Honolulu, Hawaii 96814-3116

Dear Ms. Tamaye:

Subject: Draft Environmental Assessment for the Kamehameha Highway Shoreline Protection at Kaaawa, Punaluu and Hauula, Oahu

Thank you for giving our Department the opportunity to comment on this matter. We have reviewed the Draft Environmental Assessment (DEA) for the project and have the following comments.

Oahu District:

The Oahu District office is in favor of measures taken to protect Kamehameha Highway from storm surge and shoreline erosion. We note that Kamehameha Highway the only artery linking the communities of Kaaawa, Haaula, Punaluu, Laie and Kahuku, with the rest of the island. The general, health, welfare and safety of the residents in these communities depends on the use of Kamehameha Highway.

Historic Preservation Division:

A review of our records shows that there are no known historic sites at the three project locations. Shoreline protection is proposed for three strips of land between Kamehameha Highway and the ocean in the vicinity of Kaaawa, Punaluu and Hauula. Previous road maintenance has occurred in the past including dumping of rock to temporarily protect the shoreline. These strips of land are now faced with large boulders that are frequently subject to high energy waves. We agree with the assessment that historic sites are unlikely to be found in this situation and believe that archaeological inspection of the seaward scarp after the boulder face is removed will ensure that historic sites will be identified and documented in the unlikely event that they are present. Therefore, we concur with the determination that this project will have "no effect" on historic sites.

Planning and Technical Services Branch:

Section 2.3 of the subject document discusses the State land use district, more specifically, the zoning. We confirm that the tidal and submerged lands seaward of the upper reaches of the wash of waves are in the Conservation District.

In addition, we have the following comments on the Draft Environmental Assessment (DEA):

1. As a point of clarification, shoreline protection devises, and shoreline structures are an IDENTIFIED land use; as a matter of policy, reference is no longer made to the word PERMITTED although it appears in Section 13-5-10, 11, 12, and 13 of the Administrative Rules.

2. Under Section 3.0 of the DEA, COASTAL SETTING, the information is inadequate. The Kaaawa shoreline has been subject to long-term chronic erosion. This erosion is probably due to several interrelated factors, but the DEA only mentions one of those factors related to the transport of sediment off-shore and on-shore.

   While the DEA reports that sand loss within the project area is a consequence of a deficit between the supply and loss of sand, due to the fact that wave energy cannot transport sand that has moved seaward back to shore, it avoids a discussion concerning historical shoreline armoring and groin construction along these coastal cells. This has probably precipitated the shoreline erosion and net sand loss reported along this part of the coast.

   It is also mentioned that sediment input to a littoral cell is primarily contributed by the streams and fringing coral reefs. This is probably because other sources of beach replenishment have been obstructed due to coastal armoring. Long-term erosion, caused by repeated episodes of wave attack, takes place along the upland immediately behind the beach. This releases upland sands that move onto the beach allowing them to remain healthy and wide as they retreat landward. Coastal armoring halts this process.

2. The DEA lacks and overall discussion of the long-term history of erosion and accretion along and adjacent to these coastal segments and how the proposed revetment would affect these long-term coastal processes, yet it asserts that the proposed revetment would result in a beneficial impact to the coastal setting, possibly adding sand beach frontage. Please include evidence to support the presumption that this project would possibly be more conducive to sand accretion.

3. Page 12 of the DEA states that there is no dry sand beach fronting the tree project sites. Although this is true for most of the project area, it appears that there is a small beach at the northwest end on the project. Based on the photos included in the DEA, it appears that the revetment would change this situation, possibly degrading what is already there.

4. Under the alternatives discussion, sand replenishment appears to have been dismissed as a viable alternative. However, the benefits and cost of this alternative have not been discussed. If sand has been accumulating in the offshore channel, as the DEA mentions, this sand should be retrieved and placed back on the beach. The cost of this alternative cannot be as much as the cost of the proposed revetment. In addition, the public benefits would be immense as new beach areas would be created along this shoreline region.

While we understand the need for the project as well as chronic and degraded condition of the shoreline resources along this coastline, we would like to see more rigor in the environmental reporting for projects of this nature.

Thank you for your cooperation in this matter. Please feel free to contact Sam Lemmo of the Land Division's, Planning and Technical Services Branch, at 587-0386.

Aloha,

for MICHAEL D. WILSON

cc: Oahu Board Member
Oahu District Land Agent
City and County of Honolulu
Planning Department
Department of Land Utilization
Department of Transportation
Highways Division
OEQC

RECEIVED
OCT 31 1996
EDWARD K. NODA & ASSOCIATES

CN 1760

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 96813-5

IN REPLY REFER TO:
HWY-DS
2.9704

AUG 20 1998

RECEIVED
AUG 25 1998
EDWARD K. NODA & ASSOCIATES

TO: MICHAEL D. WILSON, CHAIR
DEPARTMENT OF LAND AND NATURAL RESOURCES

FROM: KAZU HAYASHIDA
DIRECTOR OF TRANSPORTATION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT, KAMEHAMEHA HIGHWAY SHORELINE PROTECTION, VICINITY OF KAAAWA, PUNALUU AND HAUULA

This letter is written in response to your comments addressed to Ms. Elaine Tamaye of Edward K. Noda and Associates regarding the draft Environmental Assessment (EA) for shore protection of three (3) sections of Kamehameha Highway in the vicinity of Kaaawa, Punaluu and Hauula. We apologize for the delay in responding to your letter, but the ongoing coordination with the U.S. Army Corps of Engineers (Corps) necessitated this delay. We note your support of the proposed project and your concurrence with the determination that the project will have "no effect" on historic sites. The following responds to the comments by your Planning and Technical Services Branch.

Your clarification regarding the reference to shoreline protection structures as an *Identified* land use instead of *Permitted* is noted.

Long-term erosion near the headlands (such as the project site locations) and along much of the windward coastline has been occurring over the past 30 to 40 years. For the project site locations, sand supply to the individual littoral cells comes primarily from offshore reefs and not from the erosion of shoreline areas in need of protection and not from "updrift" shorelines since these road sections are located near the headland boundaries of individual littoral cells.

Shoreline armoring is the consequence or response to long-term shoreline erosion, as has been documented by analysis of historical aerial photographs (Hwang[1] and Sea Engineering, Inc.[2]).

Seawalls and emergency shore protection measures have been constructed over the past 30 years to protect residential properties and the highway from the net long-term erosion processes. The geology of this segment of the windward coastline is such that erosion of fastlands does not contribute significantly to sand supply of its beaches. The scenario where beaches can be sustained by allowing landward retreat of the eroding shoreline is more applicable to coastal areas such as barrier beaches, drowned river valleys and coastal plains or embayments between volcanoes where sands deposited during higher sea levels stands now comprise the shoreline.

The major sand beaches in the vicinity of the project are located between the headlands along the embayed (concave-shaped) segments of coastline, typically where streams enter the ocean. These segments of coastline, such as at Punaluu Beach Park and Kalae Oio Beach Park, have been relatively stable or accreting despite the armoring of adjacent headland reaches. For example, armoring in the vicinity of the Punaluu project site had been initiated over 40 years ago, and much of the armoring in the Kaaawa area had been initiated over 30 years ago. For segments of coastline near headlands, sandy beaches which may have historically existed were narrow beaches. It is probably not realistic to assume that wide stable beaches can be sustained near the headlands without a large supply of sand being generated on the reefs or artificially supplied to offset the losses.

The proposed revetments are improved shore protection structures. Armoring of these three (3) segments of shoreline has already been undertaken, except that protective structures were not effectively designed and constructed, but rather were dumped boulders intended to allow emergency highway maintenance/repair after period of storm wave damage. There is no evidence that past armoring of shoreline areas in the vicinity of the proposed project has caused any "downdrift" impacts to beaches.

Protecting these sections of highway will not compromise sandy areas, what little exists, at the project sites. Any existing sand within the limits of the project will be excavated and replaced over the new improved revetment, resulting in no net loss of sand within the project area. The improved shore protection will also provide benefits in the form of improved shoreline access, aesthetics, and public safety. The EA did not "presume" the project would be more conductive to sand accretion.

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[1]Dennis Hwang (1981), "Beach Changes on Oahu as Revealed by Aerial Photographs", prepared for the State Dept. Of Planning and Economic Development by the Urban and Regional Planning Program and the Hawaii Institute of Geophysics, University of Hawaii.

[2]Sea Engineering, Inc. (1988), " Oahu Shoreline Setback Study", prepared for City and County of Honolulu, Dept. Of Land Utilization.

The statement was that the proposed revetments will not alter the existing longshore or cross-shore sediment processes. However, because the sloping rock revetment will be more effective in dissipating wave energy compared to the existing, steep dumped-rock scarp, it may be more conducive to sand accretion, recognizing that the sand supply along this project shoreline is due largely to onshore transport from the fringing reefs.

Sand replenishment, as a shore protection alternative, would be difficult to design and maintain at the three (3) proposed shore protection improvement sites. As stated in the EA, for the beach to provide adequate protection of the highway during storm wave events, it must have adequate beach width, elevation and length along the entire shoreline reach within the defined littorial cells of each project site. While it may sound simple enough to retrieve sand from the deep channels and replace the sand on the shoreline, unfortunately it is not a practical cost-effective solution to protection of the highway. It is important to recognize the difference between shoreline protection and beach restoration. For a beach to function as shoreline protection, it must be maintained (restored) to the design width and elevation prior to every winter storm season. Beach restoration, as a shore protection measure, can be expensive, and there are no guarantees that the newly-restored beach will exist long enough to justify the cost.

The concept of restoring beaches by retrieving sand from offshore sources or "sinks" is certainly not new, the U.S. Army Corps of Engineers was probably the first to coming closest to implementing this in the late 1970's to early 1980's at Kualoa Beach Park. This alternative, although the most logical alternative for maintaining the beach at Kualoa, will probably never be implemented under the current regulatory, environmental and economic climate. The actual "cost" of implementing such an alternative includes the regulatory (EIS/permits), design, initial construction, and periodic nourishment costs. All phases involve substantial commitment of resources and while there have been numerous opportunities to undertake such beach replenishment projects using offshore sand resources, not one has been successfully implemented in Hawaii. Because your agency has jurisdiction over the beaches, tidal and submerged lands in this state, we welcome any support the DLNR can provide in helping to overcome the present obstacles towards using offshore sand resources for beach restoration purposes.

If you have any further questions, please contact Mr. Craig Watanabe, Highways Division, Technical Design Section at 587-2124.

c: Edward K. Noda and Associates

1760

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

OCT 8 1996

MICHAEL D. WILSON, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

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GILBERT COLOMA-AGARAN

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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION DIVISION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

REF:HP-AMK

LOG NO: 18147
DOC NO: 9609TD30

Mr. Herbert Tao
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Tao:

SUBJECT: **National Historic Preservation Act, Section 106 Review—**
Draft Environmental Assessment (DEA),
Kamehameha Highway Shoreline Protection
Vicinity of Ka`a`awa, Punalu`u and Hau`ula
Ka`a`awa, Punalu`u, and Hau`ula, Ko`olauloa, O`ahu
TMK: 5-1-1, 5-3-6, 5-3-14

Thank you for the opportunity to review this DEA, which correctly notes our earlier determinations that these projects will have "no effect" on historic sites. A review of our records indicates that we have received no new information about historic sites in the vicinity of the three project areas in the years since those determinations were made. Thus, we believe these projects will have "no effect" on historic sites.

If you have any questions please call Tom Dye at 587-0014.

Aloha,

for MICHAEL D. WILSON, Chairperson and
State Historic Preservation Officer

c: Elaine E. Tamaye, Vice President

RECEIVED
OCT 11 1996
EDWARD K. NODA & ASSOCIATES

1760

(P)1617.6

OCT 16 1996

RECEIVED
OCT 17 1996
EDWARD K. NODA & ASSOCIATES

Department of Transportation
Highways Division
State of Hawaii
Honolulu, Hawaii

Attention: Mr. Herbert Tao

Gentlemen:

Subject: Kamehameha Highway Shoreline Protection
Vicinity of Kaaawa, Punaluu and Hauula
Oahu, Hawaii
Draft Environmental Assessment

Thank you for the opportunity to review the subject document. The proposed project will not impact any of our facilities. Therefore, we have no objections to the project.

If there are any questions, please call Mr. Ralph Yukumoto of the Planning Branch at 586-0488.

Very truly yours,

GORDON MATSUOKA
State Public Works Engineer

RY:jy
cc: Edward K. Noda and Associates, Inc.

1760

BENJAMIN J. CAYETANO
GOVERNOR

GARY GILL
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

220 SOUTH KING STREET
FOURTH FLOOR
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

October 22, 1996

RECEIVED
OCT 24 1996
EDWARD K. NODA & ASSOCIATES

Mr. Kazu Hayashida, Director
State Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Subject: 1) Need for Comprehensive Plan for Statewide Shoreline Highway Management and 2) Draft Environmental Assessment for the Kamehameha Highway Shoreline Protection Project, Windward, Oahu

This is in response to the review of the draft environmental assessment for the Kamehameha Highway Shoreline Protection Project, Windward, Oahu.

Background

The State Department of Transportation proposes to construct rock revetments to protect three sections of Kamehameha Highway from coastal erosion damage. The three sections are in Kaaawa, Punaluu, and Hauula on the windward coast of Oahu. The following comments focus on the draft environmental assessment for the above project and the overall situation concerning coastal highways and shoreline hardening in Hawaii.

Shoreline Hardening Policy

It is the policy of the State of Hawaii under HRS Chapter 205A to discourage all shoreline hardening that may affect access to, or the configuration of, our island beaches.

This policy is articulated further in the attached "Draft Shoreline Hardening Policy" formulated in cooperation with affected state and county agencies with the advice of experts from the University of Hawaii. According to the policy, hardening the shoreline with seawalls, revetments and other development should be avoided. Another goal of the policy is to reduce the threat to homes and public facilities (such as shoreline highways) from coastal hazards therefore avoiding costly government actions to repair damage by storms and hurricanes.

Need for Comprehensive Plan

In addition to the three sections discussed in this draft environmental assessment, there are many other shoreline highway segments that are subject to coastal erosion. These highway sections are typically within 40 feet of the shoreline. During periods of large waves and high water levels, substantial wave energy can reach the shore causing severe shoreline erosion and damage to the highway.

In reaction to shoreline erosion situations, the State Department of Transportation's actions include dumping rock to temporarily protect the highway. The temporary rock dumping is sometimes followed by permanent rock revetments. This shoreline hardening solution could negatively affect access to and the configuration of our beaches. In many cases, shoreline hardening eventually leads to beach loss.

Instead of reacting to episodic shoreline erosion situations and preparing segmented environmental assessments that deal with only limited highway sections, the Office of Environmental Quality Control recommends that a comprehensive environmental impact statement be prepared to address the statewide shoreline highway management issue.

Only a comprehensive study will enable the State Department of Transportation to fully evaluate alternatives that would both protect shoreline highways and enhance our coastal resources.

Shoreline Hardening Questions

Any environmental study prepared in conjunction with an application to construct a seawall, revetment or similar structure should be accompanied by appropriate justification and detailed studies including, but not limited to, the following:

1. A Historical Shoreline Analysis of coastal erosion and accretion rates. This should include a description of all movements of the neighboring shoreline over at least the past 30 years. This analysis should be based, at least in part, on aerial photographs available through government agencies and private vendors. The analysis should provide a detailed history of erosion and accretion patterns using all available evidence.

2. A description of the nature of the affected shoreline, whether sandy, rocky, mud flats or any other configuration. The history and characteristics of adjoining sand dunes and reefs should be included.

3. Site maps that clearly show the current certified shoreline, previous certified shorelines, the private property line and the location of the proposed structure. Any nearby public access right-of-way should also be depicted.

4. Beach profiles that extend off shore at appropriate intervals along the beach indicating the width and slope of both the submerged and dry portions of the beach.

5. An analysis of any existing nearby walls or revetments and their cumulative impacts on the shoreline.

6. A description of structures and improvements on the subject property, their distance from the property line and shoreline, and how they may be affected by the construction of the proposed hardening project.

7. A wave and storm frequency analysis for the area in question. This should include any relevant coastal processes such as longshore currents and seasonal wave patterns.

8. An analysis that predicts the location of future shorelines with and without the proposed wall at least 30 years into the future or over the expected life of the hardening project.

9. Photos of the site that illustrate past and present conditions and locate the proposed structure.

10. All alternatives to shoreline hardening should be thoroughly researched and analyzed. These alternatives should include beach replenishment, dune-scaping, retreat from the shoreline by moving existing structures inland, and a no action alternative.

The inclusion of this information will help make an environmental study complete and meet the requirements of Chapter 343, HRS. Only after thorough study and analysis should any permit for shoreline hardening be considered.

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

Sincerely,

Gary Gill
Director

c: Edward Noda and Associates

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:
HWY-DS
2.9700

AUG 20 1998

TO: GARY L. GILL, DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
DEPARTMENT OF HEALTH

FROM: KAZU HAYASHIDA
DIRECTOR OF TRANSPORTATION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT, KAMEHAMEHA HIGHWAY SHORELINE PROTECTION, VICINITY OF KAAAWA, PUNALUU AND HAUULA

This is in response to your letter dated October 22, 1996, regarding the draft Environmental Assessment (EA) for shore protection of three (3) sections of Kamehameha Highway in the vicinity of Kaaawa, Punaluu and Hauula. We apologize for the delay in responding to your letter, but the ongoing coordination with the U.S. Army Corps of Engineers (Corps) necessitated this delay. Your letter provides general comments relating to overall concerns of shoreline hardening in response to coastal erosion affecting highways, rather than specific comments on the proposed project. However, we offer the following responses to the issues raised.

While HRS Chapter 205A discourages shoreline hardening that may affect access to, or adverse effects on, recreational beach areas, it also recognizes the need for providing public facilities and reducing hazard to life and property from storm wave erosion. Recognizing that the highway is an existing public facility, that relocation of the highway as an alternative to the proposed shoreline protection improvements is neither reasonable nor practical and that implementation of the proposed project will not cause adverse impacts to adjacent public beaches and parks, we believe that the subject shore protection improvements are consistent with the state's policy under HRS Chapter 205A.

The, "Draft Shoreline Hardening Policy," formulated by your Office, as we understand, is intended to be a guide for regulatory and other decision-makers. While it is represented as the state's policy with respect to shoreline hardening, it is currently not embodied per se in statutes or rules governing shoreline protection. In fact, the Department of Transportation did express concerns during the formulation of the draft policy regarding the wholesale application of certain assumptions to the issue of shoreline hardening. Current statutes/rules do not prohibit shoreline hardening, however, they do require that each proposed shoreline hardening action be evaluated in terms of need and impact.

The proposed shore protection improvements are designed to protect an existing public facility, will not degrade or eliminate public beaches, and are therefore consistent with existing state and county land use plans, policies and controls.

The suggestion that future shoreline protection requirements for the state's highways system should be addressed in a single Environmental Impact Statement (EIS) is neither reasonable nor practical. While it is true that other segments of Kamehameha Highway may require shoreline protection improvements in the future, each proposed project must be evaluated in terms of the specific site conditions and reasonable alternatives at the time. Any future shore protection needs must be perceived as part of the necessary and ongoing maintenance of public highways, and it is not possible to predict a-priori when and what segments of coastal highways may be in need of shore protection improvements. As your letter points out, highway erosion damage is often due to episodic events and these events are neither predictable nor can site-specific erosion effects due to these events be predicted with any certainty.

With respect to the items 1-10 listed in your letter, we believe that the EA provides sufficient information to address each of the questions. We offer further comment on a few of the items below:

Item 1: Factual information on shoreline movement over at least 30 years is not always available to enable detailed documentation of erosion/accretion patterns. For the windward Oahu coastline, however, analysis of historical aerial photographs (Hwang[1] and Sea Engineering, Inc.[2]) has documented long-term erosion near the headlands and along much of this windward coastline occurring over the past 30 to 40 years.

[1]Dennis Hwang (1981), "Beach Changes on Oahu as Revealed by Aerial Photographs", prepared for the State Dept. Of Planning and Economic Development by the Urban and Regional Planning Program and the Hawaii Institute of Geophysics, University of Hawaii.

[2]Sea Engineering, Inc. (1988), "Oahu Shoreline Setback Study", prepared for City and County of Honolulu, Dept. Of Land Utilization.

Seawalls and emergency shore protection measures have been constructed over those years to protect residential properties and the highway. The major sand beaches are located between the headlands along the embayed (concave-shaped) segments of coastline, typically where streams enter the ocean. These segments of coastline, such as at Punaluu Beach Park and Kalae Oio Beach Park, have been relatively stable or accreting despite the armoring of adjacent headland reaches. For example, armoring in the vicinity of the Punaluu project site had been initiated over 40 years ago, and much of the armoring in the Kaaawa area had been initiated over 30 years ago. The proposed projects are intended to provide improved shore protection.

Item 8: Estimates of future erosion can be made based on historic changes, but future predictions of shoreline erosion, especially 30 years into the future, are speculative at best. Any future prediction of shoreline changes will only be as accurate as future predictions of weather and climate (erosional forces), biological activity on reefs (sand supply), and the susceptibility of the exposed shoreline to erosion. Related to the proposed project sites, there is no evidence that future erosion to nearby beaches will occur due to the proposed shore protection improvements, based on analysis of historic shoreline changes in the vicinity of the three (3) project sites. Any future changes to existing beach areas will be due to changes in sand supply and cross-shore transport processes and not due to improved shore protection structures.

In summary, we believe that the need for, and impacts of, shoreline protection improvements have been adequately assessed for the three (3) sections of Kamehameha Highway at Kaaawa, Punaluu and Hauula. If you have any further questions, please contact Mr. Craig Watanabe, Highways Division, Technical Design Section at 587-2124.

c: Edward K. Noda and Associates

University of Hawai'i at Mānoa

Environmental Center
A Unit of Water Resources Research Center
2550 Campus Road • Crawford 317 • Honolulu, Hawai'i 96822
Telephone: (808) 956-7361 • Facsimile: (808) 956-2980

October 23, 1996
EA:0149

Mr. Herbert Tao
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Tao:

Draft Environmental Assessment
Kamehameha Highway Shoreline Protection
Vicinity of Kaaawa, Punaluu, and Hauula, Oahu

The State Department of Transportation (DOT) intends to have the U.S. Army Corps of Engineers (USACE) construct three revetments on the windward side of Oahu. The locations of the proposed shoreline protection projects include Kaaawa (880 linear feet), Punaluu (630 linear feet), and Hauula (1,150 feet). The revetments, which will have a slope of 1V:2H, are intended to protect the highway from further erosion damage. Currently these three segments of shoreline have rip-rap protection along the highway's edge and some narrow patches of beach.

We reviewed this draft Environmental Assessment (EA) with the assistance of Rob Mullane, Geology and Geophysics; and Paul Berkowitz of the Environmental Center.

General Comments

Our reviewers' overwelming preference would be for the road to be moved inland and the original beaches restored. While we recognize the difficulties involved we strongly urge the DOT to adopt long range strategies to effect such a goal. By combining plans for expanded capacity, utility corridor establishment, and inland relocation, stopgap measures such as the proposed revetments, which have clear coastal impacts, may be avoided. For the present, our main concern with the proposed revetments is that they may have a slightly greater impact on the adjacent and fronting beaches than the existing rip-rap.

Fronting Beaches

Currently patches of beach (albeit not always dry) exist at the north end of the Kaaawa site, both ends of the Punaluu site, and on a short segment near the middle of the Hauula site.

The construction of a new larger revetment may compromise or eliminate these sandy areas. We question the consultant's claim that the revetments "may have beneficial impacts by providing a greater potential for sand accretion in front of the project sites (p. 17)." This claim is based on the idea that revetments are more dissipative of incoming wave energy than either vertical seawalls or the existing rip-rap. However a recent study concludes that "the concept of using sloping seawalls to reduce wave reflection and scour ... is now in doubt" (Kraus and McDougal, 1996, see full reference below).

Adjacent Beaches

Of greater concern, the proposed project may have an effect on downdrift beaches such as Punaluu Beach Park south of the Punaluu project and Kalae Oio Beach Park north of the Kaaawa site. In spite of the fact that both coastal geologists and engineers agree that armoring structures often have downdrift impacts on nonarmored beaches (especially along shorelines undergoing long-term retreat), this draft EA dismisses potential downdrift impacts without supporting evidence (p. 17). Evidence of downdrift impact in Hawaii can be seen at several sites such as Halama Beach on Maui which appears to have undergone accelerated erosion due an adjacent revetment at Kalama Beach Park. Further evidence can be found in the literature including the following citations:

(1) Komar, P.D. and McDougal, W.G. 1988. Coastal erosion and engineering structures: the Oregon experience. *Journal of Coastal Research*, Special Issue 4:77-92.

(2) Kraus, N.C. and McDougal, W.G. 1996. The effects of seawalls on the beach: part I, an updated literature review. *Journal of Coastal Research* 12(3):691-701.

Mitigation

In light of the potential downdrift effects, the USACE should be required to carefully monitor the effects of the proposed project if it is permitted. In order to demonstrate that the new revetments do not adversely affect downdrift beaches, the USACE or another group of qualified surveyors should monitor the adjacent beach profiles according to the following guidelines:

(1) A series of shore-perpendicular transects should be established at 100-foot intervals along adjacent sandy beaches to a distance of no less than half the length of the abutting revetment.

(2) These transects should be anchored to stable reference marks (such as a P-K nail on the makai side of the road) and mean sea-level should be assessed.

(3) Transects should be monitored quarterly for at least five years, and thereafter annually for an additional five years.

University of Hawai'i at Mānoa

Environmental Center
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2550 Campus Road • Crawford 317 • Honolulu, Hawai'i 96822
Telephone: (808) 956-7361 • Facsimile: (808) 956-3980

October 23, 1996
EA:0149

Mr. Herbert Tao
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Tao:

Draft Environmental Assessment
Kamehameha Highway Shoreline Protection
Vicinity of Kaaawa, Punaluu, and Hauula, Oahu

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We reviewed this draft Environmental Assessment (EA) with the assistance of Rob Mullane, Geology and Geophysics; and Paul Berkowitz of the Environmental Center.

General Comments

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Fronting Beaches

Currently patches of beach (albeit not always dry) exist at the north end of the Kaaawa site, both ends of the Punaluu site, and on a short segment near the middle of the Hauula site.

The construction of a new larger revetment may compromise or eliminate these sandy areas. We question the consultant's claim that the revetments "may have beneficial impacts by providing a greater potential for sand accretion in front of the project sites (p. 17)." This claim is based on the idea that revetments are more dissipative of incoming wave energy than either vertical seawalls or the existing rip-rap. However a recent study concludes that "the concept of using sloping seawalls to reduce wave reflection and scour ... is now in doubt" (Kraus and McDougal, 1996, see full reference below).

Adjacent Beaches

Of greater concern, the proposed project may have an effect on downdrift beaches such as Punaluu Beach Park south of the Punaluu project and Kalae Oio Beach Park north of the Kaaawa site. In spite of the fact that both coastal geologists and engineers agree that armoring structures often have downdrift impacts on nonarmored beaches (especially along shorelines undergoing long-term retreat), this draft EA dismisses potential downdrift impacts without supporting evidence (p. 17). Evidence of downdrift impact in Hawaii can be seen at several sites such as Halama Beach on Maui which appears to have undergone accelerated erosion due an adjacent revetment at Kalama Beach Park. Further evidence can be found in the literature including the following citations:

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Mitigation

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(1) A series of shore-perpendicular transects should be established at 100-foot intervals along adjacent sandy beaches to a distance of no less than half the length of the abutting revetment.

(2) These transects should be anchored to stable reference marks (such as a P-K nail on the makai side of the road) and mean sea-level should be assessed.

(3) Transects should be monitored quarterly for at least five years, and thereafter annually for an additional five years.

Finally, one of our reviewers suggested that the USACE should be responsible for mitigating demonstrated impacts on the adjacent sandy beaches through beach nourishment. Another reviewer suggested that liability be divided between the DOT and the Corps. In either case, a detailed plan should be presented to mitigate any observed impacts to adjacent beaches.

Vegetation Monitoring

The vegetation description in Section 3.1 is sparse. However, just as adjacent beach profiles require monitoring, the terrestrial vegetation may require monitoring to ensure that certain species recover fully. If the removed species are native and do not re-establish themselves, then they should be replanted.

Consistency with State Policy

The State Office of Environmental Quality Control (OEQC) has recently published a series of guidelines for shoreline hardening. In general, these rules articulate a policy of oppostion to shoreline hardening due to the loss of public beaches. The proposed project which has the potential to degrade or eliminate public beaches seems inconsistent with the State's policy. Thus we question the claim that "...the proposed shoreline protection is consistent with existing State and County land use plans, policies, and controls (p.17)."

Segmentation

The proposed action is undoubtedly neither the first nor the last DOT shoreline hardening project on the windward side of Oahu. As specified in Section 11-200-7 (HAR), "a group of actions proposed by an agency or an applicant shall be treated as a single action when :

(1) The component actions are phases or increments of a larger undertaking;

(2) An individual project is a necessary precedent for a larger project;

(3) An individual project represents a commitment to a larger project; or

(4) The actions in question are essentially identical and a single statement will adequately address the impacts of each individual action ..."

According to these regulations, the shoreline fortification projects along the Kamehameha Highway can be considered "increments of a larger undertaking", with each project representing a necessary component for a functional highway. In light of this classification, the DOT seems obligated by law to present their long-term shoreline protection plan to the public in the form of a single Environmental Impact Statement (EIS). The geologic processes which make shoreline protection necessary have been occurring and will continue to occur in a reasonably predictable way. Thus it should be possible for the DOT to anticipate which segments of highway will

require protection and approximately when this will occur. In accordance with the law, the public has the right to know DOT's comprehensive shoreline protection plan, especially since nearly one-quarter of Oahu's beaches have been lost or degraded due to previous shoreline hardening projects. Consolidation of planning initiatives offers the ancillary benefit of instituting long range objectives to expand capacity while relocating the transportation corridor, as noted earlier.

Conclusion

In summary, we are concerned that the proposed project may have significant environmental effects, as stipulated in Section 11-200-12, Hawaii Administrative Rules (HAR). According to our reviewers the proposed project has the potential to (1) affect "... an environmentally sensitive area such as a flood plain, tsunami zone, beach, [or] erosion-prone area" and (2) "...[curtail] the range of beneficial uses of the environment. The final EA should provide evidence for the claim that erosion will not occur on adjacent beaches. Without such evidence, it may be more appropriate to handle the proposed action in an EIS since it has the potential to be significant in at least two areas of the significance criteria. Finally we recommend that the DOT disclose all future shoreline protection projects in the form of a single EIS. Such a document is necessary in order to give the public an overall understanding of the island-wide impacts of shoreline hardening. In light of the beach losses and degradation already suffered on Oahu, such a document seems long overdue.

Thank you for the opportunity to comment on this draft EA.

Sincerely,

John T. Harrison
Environmental Coordinator

cc: OEQC
Roger Fujioka
Elaine Tamaye
Rob Mullane
Paul Berkowitz

BENJAMIN J. CAYETANO
GOVERNOR

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
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GLENN M. OKIMOTO

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DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
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IN REPLY REFER TO:
HWY-DS
2.9698

AUG 2 0 1996

Mr. John T. Harrison
Environmental Center
University of Hawaii
2550 Campus Road, Crawford 317
Honolulu, Hawaii 96822

Dear Mr. Harrison:

Subject: Draft Environmental Assessment, Kamehameha Highway Shoreline Protection Vicinity of Kaaawa, Punaluu, and Hauula, Project No. 83CD-01-90

This is in response to your letter dated October 23, 1996, regarding the draft Environmental Assessment (EA) for shore protection of three sections of Kamehameha Highway in the vicinity of Kaaawa, Punaluu and Hauula. We apologize for the delay in responding to your letter, but the ongoing coordination with the U.S. Army Corps of Engineers (Corps) necessitated this delay. The following addresses your concerns and comments in the general order presented in your letter.

Relocating the road inland would be a suitable alternative provided that it was cost-effective and reasonable. However, as stated in the EA, this alternative is simply not a practical alternative. Because of the location of these sections of highway, building a new road farther inland would involve tremendous costs to the State for design/ construction and land acquisition (condemnation), as well as social/economic impacts to the residents who will need to relocate. Relocating the road will not arrest the ongoing shoreline erosion near the headlands where these road sections are in need of protection nor will any attempts to restore the beaches prevent future storm wave damage to the shoreline.

Protecting these sections of highway will not compromise sandy areas, what little exists, at the project sites. Sand supply to the individual littoral cells comes from the offshore reefs *and not from the erosion of shoreline areas in need of protection and not from "updrift"* shorelines since these road sections are located near the headland boundaries of individual littoral cells. Therefore, simply leaving the shoreline in its existing condition will have no positive effects, while providing improved shore protection provides benefits in the form of improved shoreline access, aesthetics, and public safety. Any existing sand within the limits of the project will be excavated and replaced over the new revetment, resulting in no net loss of sand within the project area.

Adjacent downdrift beaches will not be affected by the new revetments. According to analysis of historical aerial photographs (Hwang[1] and Sea Engineering, Inc.[2]), long-term erosion near the headlands and along much of this windward coastline has been occurring over the past 30 to 40 years. Seawalls and emergency shore protection measures have been constructed over those years to protect residential properties and the highway. The major sand beaches are located between the headlands along the embayed (concave-shaped) segments of coastline, typically where streams enter the ocean. These segments of coastline, such as at Punaluu Beach Park and Kalae Oio Beach Park, have been relatively stable or accreting despite the armoring of adjacent headland reaches. For example, armoring in the vicinity of the Punaluu project site had been initiated over 40 years ago, and much of the armoring in the Kaaawa area had been initiated over 30 years ago.

The proposed revetments are improved shore protection structures. Armoring of these three segments of shoreline has already been undertaken, except that the protective structures were not effectively designed and constructed, but rather were dumped boulders intended to provide emergency highway maintenance/repair after periods of storm wave damage. There is no evidence that past armoring of shoreline areas along this windward coastal reach has caused any "downdrift" impacts to beaches. Any future changes to existing beach areas will be due to changes in sand supply and cross-shore transport processes and not due to improved shore protection structures. While monitoring of existing sand beaches adjacent to the project sites would provide useful information on long-term changes to these beach areas, the assumption that any future erosion that may occur can only be the direct result of the improved shore protection structures is simply not correct.

The vegetation description in Section 3.1 is sparse because there is simply very little terrestrial vegetation within the limits of the project areas as described in Section 2.1.

---

[1]Dennis Hwang (1981), "Beach Changes on Oahu as Revealed by Aerial Photographs", prepared for the State Dept. of Planning and Economic Development by the Urban and Regional Planning Program and the Hawaii Institute of Geophysics, University of Hawaii.

[2]Sea Engineering, Inc. (1988), "Oahu Shoreline Setback Study", prepared for City and County of Honolulu, Dept. of Land Utilization.

The, "Draft Shoreline Hardening Policy," formulated by the Office of Environmental Quality Control (OEQC) is intended to be a guide for regulatory and other decision-makers. While it is represented as the State's policy with respect to shoreline hardening, it is currently not embodied per se in statutes or rules governing shoreline protection. Current statutes/rules do not prohibit shoreline hardening, however, they do require that each proposed shoreline hardening action be evaluated in terms of need and impact. The proposed shore protection improvements are designed to protect an existing public facility, will not degrade or eliminate public beaches, and are therefore consistent with existing State and County land use plans, policies and controls.

The suggestion that future shoreline protection requirements for the State's highways system should be addressed in a single Environmental Impact Statement (EIS) is neither reasonable nor practical. This rationale would suggest that all public facilities (and private facilities) located in erosion-prone shoreline areas should be addressed in a single EIS because the geologic processes which make shoreline protection necessary have been occurring and will continue to occur. While it is true that other segments of Kamehameha Highway may require shoreline protection improvements in the future, each proposed project must be evaluated in terms of the specific site conditions and reasonable alternatives at the time. Each segment of highway that may require shore protection is not a precedent for or commitment to a larger project - they are simply individual actions that are part of the necessary and ongoing maintenance of public highways.

Also, while shoreline erosion is predictable in a geologic time frame, site-specific erosion is not predictable. Estimates of future erosion can be made based on historic changes, but future predictions of shoreline erosion will only be as accurate as future predictions of weather and climate (erosional forces), biological activity on reefs (sand supply), and the susceptibility of the exposed shoreline to erosion. Based on analysis of historic shoreline changes in the vicinity of the three project sites, there is no evidence that future erosion to nearby beaches will occur due to the proposed shore protection improvements.

In summary, we believe that the need for, and impacts of, shoreline protection improvements have been adequately assessed for the three sections of Kamehameha Highway at Kaaawa, Punaluu and Hauula. We recognize the importance of our sandy beach resources. However, we must realistically weigh the costs versus benefits in order to exercise fiscal responsibility in maintaining public facilities and services.

If you have any further questions, please contact Mr. Craig Watanabe, Highways Division, Technical Design Section, at 587-2124.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

RECEIVED
AUG 21 1998
EDWARD K. NODA & ASSOCIATES

c: Edward K. Noda and Associates

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU HAWAII 96813 • (808) 523-4432

JEREMY HARRIS
MAYOR

PATRICK T. ONISHI
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

96-05983(ST)

October 31, 1996

The Honorable Kazu Hayashida, Director
Department of Transportation
State of Hawaii
Aliiaimoku Hale
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Draft Environmental Assessment (DEA) For Kamehameha Highway Shoreline Protection at Kaaawa, Punaluu and Hauula

We have reviewed the DEA for the subject project transmitted by the Department of Transportation's letter dated September 9, 1996, and have the following comments:

General Description

* The first portion of the DEA should be revised to include a general information section which clearly itemizes the following:

  Applicant: Name, Mailing Address, Phone Number.
  Accepting Authority: Name, Mailing Address, Phone Number.
  Recorded Fee Owner(s): Name, Mailing Address, Phone Number.
  Agent: Name, Mailing Address, Phone Number.
  Tax Map Key(s): Zone, Section, Plat and Parcel(s).
  Lot Area(s): Acreage or square footage.

Section 1.0 - Project Description

* The DEA should indicate the statutory condition(s), pursuant to Section 343-5(a), Hawaii Revised Statutes (HRS), which requires its preparation. This section should also list the permits and approvals which the document is intended to support (as listed in Section 3.3).

* The DEA should illustrate land ownership in each of the project areas. Although figures 13 through 15 (Shoreline Certification Maps) indicate lot configurations, tax map key (TMK) information would be more useful. The DEA should also illustrate the SMA boundaries relative to each project area.

Technical Characteristics

* Additional detail on the construction process at each site is necessary. Although the general notes on the reduced U.S. Army Corps of Engineer's (Corps) plans contain some construction detail, information such as estimates on the amount (cu./yds.) of material to be excavated, construction materials to be utilized, and the amount and type of backfill required is not discussed.

  Note: This type of information was disclosed in the Corps' Public Notice (pursuant to the Section 404 compliance) back in July of 1995. If current plans remain unchanged, that information could be incorporated into this document.

  Additional construction information should also describe how the excavation/construction is to be accomplished, the type of equipment to be used (in general) such as backhoes, cranes, etc. The DEA should also define/discuss the construction easement that is required (how far seaward would it extend).

* The DEA should disclose where construction equipment is to be stored and if off-site storage is planned, whether any clearing and/or permits will be required. The DEA should also indicate if any night-time construction is anticipated.

* Figure 3 indicates that some of the stones of the existing scarp will be incorporated into the new revetment. Therefore, an estimate of the amount of the remaining non-reusable material which must be removed should be provided. The DEA should also disclose where and in what manner these materials are to be disposed (i.e., stockpiling, burial, submerging, etc.) and what, if any, permit and environmental considerations are relevant.

* This section of the DEA should provide cost estimates of the project as well as a construction time table (i.e., are all three revetments to be constructed simultaneously?).

Section 3.2 - Socio-Economic Environment

Transportation

* The DEA should elaborate on what is meant by "temporary interference" of traffic. Is lane closure, intermittent traffic stoppage, or a temporary by-pass lane(s) being proposed during construction?

Section 3.3 - Land Use Plans/Policies/Controls

* This section of the DEA should be expanded to discuss how the proposed project conforms with the policies and objectives of the Coastal Zone Management Act, Chapter 205A, Hawaii Revised Statutes (HRS) and Special Management Area (SMA), Chapter 25, Revised Ordinances of Honolulu (ROH).

Section 5.2 - Justification Supporting the Determination

* The DEA should discuss how the assessment that the proposed revetments "will not alter the existing longshore or cross-shore sediment transport processes" at each of the three (3) project sites was made. It should disclose whether any modeling or computer analysis of these proposed structures in these specific locations were conducted.

Should you have any questions regarding the above, please contact Steve Tagawa of our staff at 523-4817.

Very truly yours,

PATRICK T. ONISHI
Director of Land Utilization

PTO:am

cc: Elaine Tamaye, Edward K. Noda and
Associates, Inc.
Office of Environmental Quality Control

g:kssawa.ebt

BENJAMIN J. CAYETANO
GOVERNOR

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

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
GLENN M. OKIMOTO
BRIAN MINAAI

IN REPLY REFER TO:
HWY-DS 2.9703

AUG 2 0 1998

Ms. Jan Sullivan
Director of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment
Kamehameha Highway Shoreline Protection
Vicinity of Kaaawa, Punaluu and Hauula

Dear Ms. Sullivan:

This is in response to the letter from Mr. Patrick Onishi dated October 31, 1996, regarding the draft Environmental Assessment (EA) for shore protection of three sections of Kamehameha Highway in the vicinity of Kaaawa, Punaluu and Hauula. We apologize for the delay in responding to your department's letter, but the ongoing coordination with the U.S. Army Corps of Engineers (Corps) necessitated this delay.

The final Environmental Assessment will be revised to include additional information and clarification as requested in your letter. The plans for the three shoreline protection structures, as described in the Corps' July 1995 Public Notice for each project site (pursuant to the Section 404 compliance) remain unchanged. The public notices will be included in the final Environmental Assessment for completeness.

Regarding the question of land ownership in each of the project areas, the matter is being researched by the State Office of the Attorney General. There are parcels identified by the tax map key which exist seaward of the highway right-of-way. However, the areas of these parcels affected by the proposed shoreline protection improvements no longer exist as fast lands because of erosion, and are currently within the Conservation District under the jurisdiction of the Department of Land and Natural Resources. This matter will be resolved prior to start of construction.

With respect to the request for additional construction information, the Corps does not intend to direct the Contractor's methodology or specify the types of equipment he must use. The Corps will require the Contractor to comply with Best Management Practices (BMPs) plans, as approved by the Department of Health. The Contractor will be required to develop a site-specific environmental protection plan, and comply with all local laws, statutes, and requirements related to the construction activities. Information describing the construction easement, Contractor's work/storage area, updated construction cost estimate and estimated construction time table will be provided in the final Environmental Assessment. Please note that the final construction costs and time table will be dependent on the construction bids received by the Corps and the Contractor's work schedule to be submitted after award of the contract. Final cost sharing between the Corps and the state will be determined after completion of the construction. It is currently anticipated that construction will be initiated sometime in early 1999.

Traffic control measures to be implemented during construction will consist of signage and flagmen to maintain the flow of traffic through at least one open lane. The impacts will be no different than currently occurs after severe storm wave damages and subsequent maintenance work on the highway.

Additional discussion will be included in the Environmental Assessment to address consistency with the policies and objectives of the Coastal Zone Management Act, Chapter 205A, HRS, and Special Management Area, Chapter 25, ROH. Please note that the State Office of Planning has concurred with the Corps' determination of federal consistency with Hawaii's Coastal Zone Management Program.

If you have any further questions, please contact Mr. Craig Watanabe, Highways Division, Technical Design Section, at 587-2124.

Very truly yours,

Kazu Hayashida
KAZU HAYASHIDA
Director of Transportation

c: Edward K. Noda and Associates

RECEIVED
AUG 2 1 1998
EDWARD K. NODA & ASSOCIATES

PLANNING DEPARTMENT
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET 8TH FLOOR • HONOLULU, HAWAII 96813-3017
PHONE: (808) 523-4131 • FAX (808) 523-4950

JEREMY HARRIS
MAYOR

CHERYL D. SOON
CHIEF PLANNING OFFICER

CAROLL TAKAHASHI
DEPUTY CHIEF PLANNING OFFICER

MH 9/96-1888

October 22, 1996

Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Attention: Mr. Herbert Tao

Gentlemen:

Draft Environmental Assessment (DEA) for
Kamehameha Highway Shoreline Protection,
Vicinity of Kaaawa, Punaluu and Hauula

In response to Edward K. Noda and Associates, Inc.'s request of September 12, 1996, we have reviewed the subject DEA and have the following comments to offer:

1. The U.S. Army Corps of Engineers (USACE) consulted with the Planning Department in August of 1994. The attached Planning Department's comments dated September 19, 1994, and subsequent response by the USACE dated June 23, 1995, should be included in section 6.0 CONSULTED PARTIES of the Final Environmental Assessment.

2. RECREATION USES, page 16, of the DEA, states "Because there is little recreational use of the shoreline areas within the limits of the proposed shoreline protection projects, there would be no significant short-term impacts during construction." The Planning Department notes that these areas are used by nearshore fishermen and divers. Therefore, this section should disclose the potential short-term impact to nearshore fishermen and divers.

Should you have any questions, please contact Matthew Higashida of our staff at 527-6056.

Sincerely,

CHERYL D. SOON
Chief Planning Officer

CDS:ft

Attachments

cc: Edward K. Noda & Associates, Inc.
Department of Land Utilization
Division of Aquatic Resources, Department of Land and Natural Resources
Office of Environmental Quality Control

0000 0002 .0260

CORRECTION

THE PRECEDING DOCUMENT(S) HAS BEEN REPHOTOGRAPHED TO ASSURE LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

PLANNING DEPARTMENT
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET 7TH FLOOR • HONOLULU, HAWAII 96813-3017
PHONE: (808) 523-4711 • FAX (808) 523-4950

JEREMY HARRIS
MAYOR

CHERYL D. SOON
CHIEF PLANNING OFFICER

CAROLL TAKAHASHI
DEPUTY CHIEF PLANNING OFFICER

MH 9/96-1888

October 22, 1996

Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Attention: Mr. Herbert Tao

Gentlemen:

Draft Environmental Assessment (DEA) for
Kamehameha Highway Shoreline Protection,
Vicinity of Kaaawa, Punaluu and Hauula

In response to Edward K. Noda and Associates, Inc.'s request of September 12, 1996, we have reviewed the subject DEA and have the following comments to offer:

1. The U.S. Army Corps of Engineers (USACE) consulted with the Planning Department in August of 1994. The attached Planning Department's comments dated September 19, 1994, and subsequent response by the USACE dated June 23, 1995, should be included in section 6.0 CONSULTED PARTIES of the Final Environmental Assessment.

2. RECREATION USES, page 16, of the DEA, states "Because there is little recreational use of the shoreline areas within the limits of the proposed shoreline protection projects, there would be no significant short-term impacts during construction." The Planning Department notes that these areas are used by nearshore fishermen and divers. Therefore, this section should disclose the potential short-term impact to nearshore fishermen and divers.

Should you have any questions, please contact Matthew Higashida of our staff at 527-6056.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Chief Planning Officer

CDS:ft

Attachments

cc: Edward K. Noda & Associates, Inc.
Department of Land Utilization
Division of Aquatic Resources, Department of Land and Natural Resources
Office of Environmental Quality Control

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

JEREMY HARRIS
MAYOR

ROBIN FOSTER
CHIEF PLANNING OFFICER

ROLAND D. LIBBY, JR.
DEPUTY CHIEF PLANNING OFFICER

MH 8/94-4297

September 19, 1994

Commander, Honolulu Engineer District
ATTN: CEPOD-ED-PV
Fort Shafter, Hawaii 96858-5440

Dear Commander:

Section 14 Reconnaissance Report for
Hauula, Punaluu and Kaaawa Highway Erosion
Protection, Island of Oahu, State of Hawaii

In response to your request which we received on August 30, 1994, we have reviewed the subject reports and have the following comments to offer.

1. The Hauula, Punaluu and Kaaawa sites are designated for Preservation use on the Koolauloa Development Plan Land Use Map.

2. The Koolauloa Development Plan Public Facilities Map (DPPFM) shows a symbol for a publicly funded water system (Kamehameha Highway 16" Main - Hauula to Kaipapau), site determined, within six years, adjacent to the Hauula site. The Koolauloa DPPFM also shows a symbol for a publicly funded water system (Kamehameha Highway 30" and 20" Main - Kaaawa to Punaluu), site determined, within six years, adjacent to the Kaaawa and Punaluu sites. In light of the information above, we recommend that the proposed project be coordinated with the Board of Water Supply.

3. We also recommend that your agency consult with the City's Department of Land Utilization and the Office of Conservation and Environmental Affairs within the State Department of Land and Natural Resources regarding Special Management Area/Shoreline Setback

Area and Conservation District Use Applications/ Permits, respectively, that may be required for the subject projects.

Should there be any questions, please contact Matthew Higashida of our staff at 527-6056.

Sincerely,

ROBIN FOSTER
Planning Officer

RF:ft

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

REPLY TO
ATTENTION OF

June 23, 1995

Planning Division

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C&C HONOLULU

Mr. Robin Foster
Planning Officer
Planning Department
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Foster:

This is in response to your letter dated September 21, 1994 regarding the Section 14 Reconnaissance Reports for Hauula, Punaluu, and Kaaawa Erosion Protection, Island of Oahu, State of Hawaii. We regret the delay in responding to your letter, but it was necessary to insure that our responses to your comments accurately reflect the ongoing development of plans and specifications for the projects.

The following responses follow the order of your comments:

a. Designation for Preservation use on the Koolauloa Development Plan Land Use Map applies only to portions of the project sites which are above the high water mark. The proposed actions will maintain these areas in their present use.

b. The project will be coordinated with the Board of Water Supply regarding any planned water system improvements.

c. Our local project sponsor, the State of Hawaii Department of Transportation, will consult with the City and County of Honolulu's Department of Land Utilization and the State of Hawaii's Office of Conservation and Environmental Affairs regarding Special Management Area, Shoreline Setback Area, and Conservation District Use Applications/Permits.

We hope this has addressed your concerns. Should you have further questions, please feel free to contact Mr. Peter Galloway of my planning staff at (808) 438-8876.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering

BENJAMIN J. CAYETANO
GOVERNOR

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

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
GLENN M. OKIMOTO
BRIAN MINAAI

IN REPLY REFER TO:

HWY-DS 2.9702

AUG 20 1998

Mr. Patrick Onishi
Chief Planning Officer
City and County of Honolulu
650 South King Street, Eighth Floor
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment
Kamehameha Highway Shoreline Protection
Vicinity of Kaaawa, Punaluu, and Hauula

Dear Mr. Onishi,

This is in response to the letter from Ms. Cheryl Soon dated October 22, 1996, regarding the subject draft Environmental Assessment (EA) for shore protection of three sections of Kamehameha Highway in the vicinity of Kaaawa, Punaluu and Hauula. We apologize for the delay in responding to your department's letter, but the ongoing coordination with the U.S. Army Corps of Engineers (Corps) necessitated this delay.

The Planning Department's previous letter to the Corps dated September 19, 1994, with subsequent response by the Corps dated June 23, 1995, will be included in the Final EA. Your department's previous correspondence with the Corps was not initially provided to us at the time our draft EA was prepared.

With respect to recreation uses, page 9 of the EA describes the use of the outer portion of the reef flat by divers, and the use of adjacent accessible shoreline areas by fishermen. The present condition of the shoreline within the <u>immediate project area</u> provides very limited accessibility for shoreline fishing, and use of the offshore reef flat will not be affected during construction of the shoreline revetment. Therefore, there is little, if any, recreational use of the shoreline area within the limits of each project site that would be impacted during construction.

If you have any further questions, please contact Mr. Craig Watanabe, Highways Division, Technical Design Section, at 587-2124.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Director of Transportation

c: Edward K. Noda and Associates

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111

JEREMY HARRIS
MAYOR

MICHAEL S. NAKAMURA
CHIEF

HAROLD M. KAWASAKI
LEE DONOHUE
DEPUTY CHIEFS

OUR REFERENCE BS-DL

September 16, 1996

Mr. Herbert Tao
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Tao:

This is in response to Ms. Elaine Tamaye's letter of September 12, 1996, requesting comments on the Draft Environmental Assessment for the Kamehameha Highway Shoreline Protection (Vicinity of Kaaawa, Punaluu, and Hauula).

This project should have no significant impact on the operations of the Honolulu Police Department.

Thank you for the opportunity to comment.

Sincerely,

MICHAEL S. NAKAMURA
Chief of Police

By Eugene Uemura
EUGENE UEMURA, Assistant Chief
Administrative Bureau

cc: Ms. Elaine E. Tamaye
Vice President
Edward K. Noda and Associates, Inc.

RECEIVED
SEP 19 1996
EDWARD K. NODA & ASSOCIATES

1760

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

JEREMY HARRIS
MAYOR

KENNETH E. SPRAGUE
DIRECTOR AND CHIEF ENGINEER

DARWIN J. HAMAMOTO
DEPUTY DIRECTOR

ENV 96-239

October 2, 1996

Mr. Kazu Hayashida, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Attention: Herbert Tao

Dear Mr. Hayashida:

Subject: Draft Environmental Assessment (DEA)
Kamehameha Highway Shoreline Protection
TMK: 5-1-01; 5-3-06 & 14

We have reviewed the subject DEA and have no comments to offer at this time.

Should you have any questions, please contact Mr. Alex Ho, Environmental Engineer, at 523-4150.

Very truly yours,

for KENNETH E. SPRAGUE
Director and Chief Engineer

cc: Edward K. Noda & Assoc.

RECEIVED
OCT 03 1996
EDWARD K. NODA & ASSOCIATES

Charles Fletcher, Associate Professor
University of Hawai'i
School of Ocean and Earth Science and Technology
Department of Geology and Geophysics
2525 Correa Road, Honolulu, HI 96822
T 808.956.2582 F 808.956.2538
fletcher@kiawe.soest.hawaii.edu
http://www.soest.hawaii.edu/coasts/cfg.html

Mr. Herbert Tao, Dept. of Transportation (587-2342) October 28, 1996

Sir,
I have reviewed the EA for the windward shore revetments and I find that the EA is flawed, or incomplete, in several aspects. There are detailed below.

- There is no assessment of highway relocation as an option for mitigating the impacts of erosion. By "no assessment" I mean that there is not a serious and statistically valid investigation of the economic balance between armoring (revetment construction) and relocation of the threatened infrastructure.
- There is no scientifically valid assessment of sand replenishment as an option for mitigating the impacts of erosion. Sand replenishment has become the standard engineering procedure by which coastal infrastructure is protected in environmentally sensitive areas; the consultants do not appear to be aware of this. It can also be demonstrated that there are candidate sand fields in the offshore area proximal to the site that would justify further investigation as potential resources for sand replenishment.
- Statements in the EA regarding erosion history are superficial and do not provide important information regarding shoreline change history. This information forms a fundamental and basic coastal engineering baseline for a project of this nature. There are a number of documents available for this research if the consultants are not capable of performing it themselves.
- The consultants also fail to provide a valid assessment of sand transport patterns in a 2-dimensional frame. Without this it is not possible to adequately judge the potential impacts of the armor units on adjacent coastal segments.
- Statements to the effect that the revetment will provide for sand accumulation because of low reflectivity, lack credibility in light of recent published findings by the engineering community to the contrary (Kraus and McDougal, 1996: Journal of Coastal Research, v.12.3, p. 691-701).
- Because these statements constitute an important component of assessing any potential for an environmental impact resulting from the revetments, the consultants should be asked to provide scientific-statistical documentation in support of the assertion that these revetments may be more conducive to sand accretion than the existing configuration of the shoreface.
- If the shoreline in these regions is shown by the consultants to experience long-term recession, how can the beach be protected from negative impacts when it is known (Kraus, 1988: Journal of Coastal Research, SI 4, p.1-29) that armoring a receeding coast will have a negative impact on available sediment and therefore lead to beach erosion where formerly there was coastal erosion.

I have purposely kept these commments brief. I am available if you wish additional clarification.

Sincerely,

Charles H. Fletcher, Ph.D.

10/28/96 11:50 FAX

BENJAMIN J. CAYETANO
GOVERNOR

KAZU HAYASHIDA
DIRECTOR
DEPUTY [illegible]
GLENN M. OKIMOTO
BRIAN MINAAI

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

IN REPLY REFER TO:
HWY-DS 2.9701

AUG 2 0 1998

Charles H. Fletcher, Ph.D.
Associate Professor, University of Hawaii
School of Ocean and Earth Science and Technology
Department of Geology and Geophysics
2525 Correa Road
Honolulu, Hawaii 96822

Subject: Draft Environmental Assessment
Kamehameha Highway Shoreline Protection
Vicinity of Kaaawa, Punaluu and Hauula

Dear Dr. Fletcher:

This is in response to your letter dated October 28, 1996, regarding the draft Environmental Assessment (EA) for shore protection of three sections of Kamehameha Highway in the vicinity of Kaaawa, Punaluu and Hauula. We apologize for the delay in responding to your letter, but the ongoing coordination with the U.S. Army Corps of Engineers (Corps) necessitated this delay. The following addresses your concerns and comments in the general order presented in your letter.

As discussed in the EA, relocating the road inland is simply not a practical alternative. Because of the location of these sections of highway, building a new road farther inland would involve tremendous costs to the State for design/construction and land acquisition (condemnation), as well as socio/economic impacts to the residents who will need to relocate. Relocating the road will not arrest the ongoing shoreline erosion near the headlands where these road sections are in need of protection.

Sand replenishment, as a shore protection alternative, is difficult to design and maintain at the three proposed shore protection improvement sites. As stated in the EA, for the beach to provide adequate protection of the highway during storm wave events, it must have adequate beach width, elevation, and length along the entire shoreline reach within the defined littoral cells of each project site. It is probably not realistic to assume that wide stable beaches can be sustained near the headlands where these projects are located, without a large supply of sand being generated on the reefs or artificially supplied to offset the losses. While it may sound simple enough to retrieve sand from the deep channels and replace the sand on the shoreline, unfortunately it is not a practical cost-effective solution to protection of the highway.

There is a distinction between *shoreline protection* for the highway and *mitigating erosion impacts* via sand replenishment. For a beach to function as shoreline protection, it must be maintained (restored) to the design width and elevation prior to every winter storm season. For environmentally-sensitive shoreline reaches that are fronted by shallow reefs, there is a real potential for harming the reef areas by frequent replenishment of sand along the eroding shorelines. There are also potential environmental impacts of sand removal from offshore or onshore sources to be used for beach nourishment.

The actual "cost" of implementing such an alternative includes the regulatory (EIS/permits), design, initial construction, and periodic nourishment costs. All phases involve substantial commitment of resources, and while there have been numerous opportunities to undertake beach replenishment projects using offshore sand resources, not one has been successfully implemented in Hawaii. As you point out in your June 1992 report[1], beach restoration can be expensive, and there are no guarantees that the newly restored beach will exist long enough to justify the cost.

The discussion of the shoreline changes and sand transport processes in the EA are brief for several reasons:

(1) The proposed revetments are improved shore protection structures. Armoring of these three segments of shoreline has already been undertaken, except that protective structures were not effectively designed and constructed, but rather were dumped boulders intended to allow emergency highway maintenance/repair after periods of storm wave damage.

(2) Protecting these sections of highway will not compromise sandy areas, what little exists, at the project sites. Any existing sand within the limits of the project will be excavated and replaced over the new improved revetment, resulting in no net loss of sand within the project area.

(3) The improved shore protection structures will not alter the existing littoral processes affecting the site. Any future changes to existing beach areas will be due primarily to changes in sand supply from the reefs and cross-shore transport processes.

(4) There is no evidence that past armoring of these shoreline areas has caused any downdrift impacts to beaches such as at Punaluu Beach Park and Kalae Oio Beach Park.

[1]Dennis Hwang and Dr. Charles Fletcher, "Beach Management Plan with Beach Management Districts", prepared for Hawaii Coastal Zone Management Program, Office of State Planning, June 1992.

Regarding the potential for sand accretion, the EA does not claim that the proposed revetment will result in sand accumulation. The EA states that the proposed revetment will not alter the existing longshore or cross-shore sediment transport processes. However, because the sloping rock revetment will be more effective in dissipating wave energy compared to the existing dumped-rock scarp, it may be more conducive to sand accretion, recognizing that the sand supply along this project shoreline is due largely to onshore transport from the fringing reefs. This is not the same issue as that pertaining to whether the reflectivity of a structure adversely affects the littoral processes along a shoreline by discouraging sand accumulation fronting the structure. In fact, long-term field studies by the University of California at Santa Cruz[2], sponsored by the U.S. Army Corps of Engineers, found no significant difference in impact to the beach fronting a sloping riprap revetment and an adjacent vertical concrete seawall. Therefore, while it can be said that a vertical structure may not necessarily adversely impact a beach any differently than a sloping structure, this does not preclude the possibility that a structure which is more dissipative of wave energy may be more conducive to sand accumulation.

Regardless of whether or not the proposed revetment results in sand accumulation, the important point to be made is that the improved shore protection structure will provide benefits in the form of improved shoreline access, aesthetics, and public safety compared to the existing condition of the shoreline.

Long-term erosion near the headlands (such as the project site locations) and along much of the windward coastline has been occurring over the past 30 to 40 years. While the average rate of erosion has been slow at the locations of the project sites, nevertheless, net long-term erosion has occurred. For the project site locations, sand supply to the individual littoral cells comes primarily from the offshore reefs and not from the erosion of shoreline areas in need of protection and not from updrift shorelines since these road sections are located near the headland boundaries of individual littoral cells.[3] The geology of these segments of the windward coastline is such that erosion of fastlands does not contribute significantly to sand supply of their beaches.

Your June 1992 report recognizes the long-term beach erosion problem and proposes strategies for addressing the problem. However, the regulatory, funding, and implementation problems

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

[3]Douglas L. Inman and Patricia M. Masters, "Investigation of Windward Oahu Beach Erosion", contained in report "Beach Erosion Study, Various Parks - Windward Oahu", prepared by Sam O. Hirota, Inc. for City and County of Honolulu, Dept. of Parks and Recreation, 1988.

HWY-DS 2.9701

as discussed in your report must be addressed before beaches along developed coastlines can be successfully maintained.

We believe that the need for, and impacts of, shoreline protection improvements have been adequately assessed for the three sections of Kamehameha Highway at Kaaawa, Punaluu and Hauula. We recognize the importance of our sandy beach resources, however, we must realistically weigh the costs versus benefits in order to exercise fiscal responsibility in maintaining public facilities and services. May I point out that the planning and public involvement actions for this project were initiated by the Corps in 1994. Since then, these sections of Kamehameha Highway have suffered additional storm wave damages necessitating emergency repairs. The Department of Transportation continues to fully support the Corps' design approach for these shoreline improvement projects.

If you have any further questions, please contact Mr. Craig Watanabe, Highways Division, Technical Design Section, at 587-2124.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

c: Edward K. Noda and Associates

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

October 22, 1996

Kazu Hayashida
Department of Transportation
869 Punchbowl St
Honolulu, HI 96813

Attention: Herbert Tao

Dear Mr. Hayashida,

RE: SHORELINE HARDENING PROJECT ON KAMEHAMEHA HWY

The O'ahu Group of the Sierra Club objects to the proposed draft environmental assessment for the hardening of the shoreline along three sections of Kamehameha Highway. We urge the Department of Transportation and its consultant to read through the bibliography of sources printed in the December 8 issue of the Environmental Notice. These scientific studies prove that structures such as the ones proposed here lead to the long-term loss of beach. Please refer to these specific studies in your response to our comments.

Because of the impact to the beaches and need for a full assessment of alternatives, we call on DOT to prepare a complete environmental impact statement. We remind DOT of its legal obligations under OEQC's revised rules. Hawaii Administrative Rules 11-200-12(b) read, in relevant part:

> In most instances, an action shall be determined to have a significant effect on the environment if it:
> (1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;
> (2) Curtails the range of beneficial uses of the environment; . .
> (11) Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.

Because this project will cause the irrevocable loss of our beaches, thereby curtailing their beneficial uses, a complete environmental impact statement is warranted.

Sincerely,

Philip Bogetto
Chair

100% Recycled Paper

BENJAMIN J. CAYETANO
GOVERNOR

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

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
GLENN M. OKIMOTO
BRIAN MINAAI

IN REPLY REFER TO:
HWY-DS 2.9599

AUG 20 1998

Mr. Philip Bogetto
Chair, Oahu Group
Sierra Club, Hawaii Chapter
P.O. Box 2577
Honolulu, Hawaii 96803

Subject: Draft Environmental Assessment
Kamehameha Highway Shoreline Protection
Vicinity of Kaaawa, Punaluu, and Hauula

Dear Mr. Bogetto:

This is in response to your letter dated October 22, 1996, regarding the draft Environmental Assessment (EA) for shore protection of three sections of Kamehameha Highway in the vicinity of Kaaawa, Punaluu and Hauula. We apologize for the delay in responding to your letter, but the ongoing coordination with the U.S. Army Corps of Engineers (Corps) necessitated this delay.

Your comment that revetment structures, such as proposed for the three sections of Kamehameha Highway, are proven to lead to the long-term loss of beach, is an over-generalization that does not apply to this project. According to analysis of historical aerial photographs (Hwang[1] and Sea Engineering, Inc.[2]), long-term erosion near the headlands and along much of this windward coastline has been occurring over the past 30 to 40 years. Seawalls and emergency shore protection measures have been constructed over those years to protect residential properties and the highway.

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[1]Dennis Hwang (1981), "Beach Changes on Oahu as Revealed by Aerial Photographs", prepared for the State Dept. of Planning and Economic Development by the Urban and Regional Planning Program and the Hawaii Institute of Geophysics, University of Hawaii.

[2]Sea Engineering, Inc. (1988), "Oahu Shoreline Setback Study", prepared for City and County of Honolulu, Dept. of Land Utilization.

HWY-DS 2.9699

The major sand beaches are located between the headlands along the embayed (concave-shaped) segments of coastline, typically where streams enter the ocean. These segments of coastline, such as at Punaluu Beach Park and Kalae Oio Beach Park, have been relatively stable or accreting despite the armoring of adjacent headland reaches. For example, armoring in the vicinity of the Punaluu project site had been initiated over 40 years ago, and much of the armoring in the Kaaawa area had been initiated over 20 years ago. The proposed projects are intended to provide improved shore protection. There is no evidence that past armoring of shoreline areas in the vicinity of the proposed projects has caused any downdrift impacts to beaches.

Protecting these sections of highway will not compromise sandy areas, what little exists, at the project sites. Sand supply to the individual littoral cells comes from the offshore reefs and not from the erosion of shoreline areas in need of protection and not from updrift shorelines since these road sections are located near the headland boundaries of individual littoral cells. Any existing sand within the limits of the project will be excavated and replaced over the new revetment, resulting in no net loss of sand within the project area. The improved shore protection will also provide benefits in the form of improved shoreline access, aesthetics and public safety.

In summary, we believe that the impacts of the proposed shoreline protection improvements have been adequately assessed for the three sections of Kamehameha Highway at Kaaawa, Punaluu and Hauula. Justification supporting our determination that the proposed project would not have a significant effect on the environment is contained in the EA.

May I remind you that the planning and public involvement actions for this project were initiated by the Corps in 1994. The Department of Transportation continues to fully support the Corps' design approach for these shoreline improvement projects.

If you have any further questions, please contact Mr. Craig Watanabe, Highways Division, Technical Design Section, at 587-2124.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

RECEIVED
APR 21 1998
EDWARD K. NODA & ASSOCIATES

c: Edward K. Noda and Associates

PUNALU'U COMMUNITY ASSOCIATION, INC
P. O. Box 239 Hauula, Hawaii 96717

October 22, 1996

State of Hawai'i
Department of Transportation
869 Punchbowl Street
Honolulu, Hawai'i 96813

Attn: Mr. Herbert Tao

Draft Environmental Assessment
Kamehameha Highway Shoreline Protection
Vicinity of Ka'a'awa, Punalu'u, and Hau'ula

On September 21, 1994 the Punalu'u Community Association submitted comments to USACE on its EA of June 1994. See attached copy of letter. of the three items of concern only one has been addressed to our satisfaction, ie., item 3 where roads are now properly identified (July 7 1995 FONSI).

Item 1. of our September 21, 1994 comments expressed concern about the impact of the Punalu'u project on adjoining private properties north of the site. We feel that the August 1996 DOT DEA still does not adequately address this issue. Section 3.2 Recreation Uses, para 2, page 17 concludes that "The new revetment may have benaficial impacts. . ." However, there is no documented support for this conclusion. Community experience would tend to reach a contrary conclusion. There must be a guarantee that there will be no adverse impact to properties north of the Punalu'u project site.

Item 2. of our September 21, 1994 comments addressed our concern over the numerous incidents of sand and debris washing over the highway during high surf and high tide. The community had requested that a low wall be added to the revetment to mitigate this effect. In the August 1996 EA, Section 1.2 Proposed Action and Purpose, last para, page 2 it is predicted that there will be "minor wave overtopping. . ." Community experience has indicated that each time there is wave overtopping a traffic hazard is created. Since Kamehameha Highway is the only highway and not merely a "a major transportation link", as the EA would indicate, we again urge that a low wall be added in order to prevent overtopping at the Punalu'u site.

Other comments

- We support the increase from 430 to 630 feet at the Punalu'u site.
- On page 4 of the 1996 DEA the observation regarding Punalu'u's beach is incorrect. South of the project site the beach is wide and ends at Punalu'u Stream.
- Endangered Species (page 8 of DEA). Contrary to the conclusion drawn from one site visit, numerous sightings of turtles occur

almost daily in the near shore waters at the Punalu'u site. The beach in this area is also frequented by monk seals.

- We question the R-5 zoning which is listed in the DEA.
- Section 3.1 Sand Accretion. Property owners need guarantees, not unsubstantiated statements.
- Socio-Economic Environment, Transportation (page 16). Residents along the Punalu'u project site would a like guarantee that overtopping will not flood their properties mauka of the highway after completion of the revetment. Motorists would like a guarantee that sand and debris on the highway will no longer delay passage on the only highway in the area after the project is completed.

Sincerely,

Creighton U. Mattoon
President

PUNALUU COMMUNITY ASSOCIATION, INC.
P. O. Box 239 Hauula, Hawaii 96717

September 21, 1994

Ray Jyo, P.E.
Director of Engineering
Commander, Honolulu Engineer District
Att: CEPOD-ED-PV
Ft. Shafter, Hawaii 96858-5440

Subj: CEPOD-ED-PH (1105-20-10b) Punaluu Hwy. Erosion Proj.

Dear Sir:

At the September 13 meeting of the Punaluu Community Association the above noted report was discussed. The following concerns were noted:

1. There is no mention of possible impact on the property immediately north of this project. Historically, in Punaluu shoreline improvements (hardening of the shoreline) has caused erosion of adjoining properties. Can this property owner be assured this will not happen?

2. The project goal is to prevent highway erosion. Can a low wall also be considered to keep seawater, sand and debris from blocking the highway and flooding residences mauka of the highway?

3. Location Map, Figure 1, page 18 incorrectly identifies Haleaha Road also as Sacred Falls Road. Sacred Falls Road is in Kaluanui north of Haleaha.

Thank you for allowing us to comment on this project.

Sincerely,

PUNALUU COMMUNITY ASSOCIATION

Cathleen S. Mattoon
Community Betterment Committee

cc: Koolauloa Neighborhood Board No. 28
Senator Mike McCartney

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
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869 PUNCHBOWL STREET
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KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
GLENN M. OKIMOTO
BRIAN MINAAI

IN REPLY REFER TO

HWY-DS 2.9697

AUG 20 1998

Mr. Creighton U. Mattoon, President
Punaluu Community Association
P.O. Box 239
Hauula, Hawaii 96717

Subject: Draft Environmental Assessment
Kamehameha Highway Shoreline Protection
Vicinity of Kaaawa, Punaluu and Hauula

Dear Mr. Mattoon:

This is in response to your letter dated October 22, 1996, regarding the subject draft state Environmental Assessment (EA), and the Association's previous comments to the U.S. Army Corps of Engineers (Corps) dated September 21, 1994 regarding the federal EA. We apologize for the delay in responding to your letter, but the ongoing coordination with the Corps necessitated this delay. We note your support of the proposed revetment at the Punaluu site, and offer the following responses to your comments.

With respect to item 1 in your letter to the Corps, it is difficult to provide any guarantees that erosion will not continue to occur to adjacent properties. After all, long-term erosion along much of this windward coastline has been occurring over the past 30 to 40 years, necessitating construction of seawalls and emergency shore protection measures to protect residential properties and the highway. Analysis of historical aerial photos[1] indicate that armoring in the vicinity of the Punaluu project site had been initiated over 30 years ago. Remnants of existing shore protection can be seen in the site photographs contained in the EA.

[1]Sea Engineering, Inc. (1988), "Oahu Shoreline Setback Study", prepared for City and County of Honolulu, Dept. of Land Utilization.

Past armoring consisted of dumped boulders intended to allow emergency highway maintenance and repair after periods of storm wave damage, and were not effectively designed and constructed. The proposed revetment at Punaluu (as well as at the other project sites) will be an improved shore protection measure. If erosion of adjacent properties to the north of the project continues in the future, it is unlikely that the improved shore protection structure will have "caused" the erosion. Any future changes to existing beach areas will be due to changes in sand supply and cross-shore sand transport processes and not due to the improved shore protection structure. Any existing sand within the limits of the project will be excavated and replaced over the new revetment, resulting in no net loss of sand within the project area.

With respect to item 2 in your letter to the Corps, we have asked the Corps to re-evaluate their design in consideration of your concern about wave overtopping. A properly designed revetment, as proposed by the Corps, will alleviate the wave overtopping that presently occurs. However, the revetment crest elevation, as presently designed, matches the existing shoreline grade at +7' MSL in order to minimize visual obtrusiveness, and therefore may still sustain overtopping during storm wave conditions. The federal authority under which this project is being funded places limitations on funding, and therefore the Corp's primary design goal is to prevent erosion of the roadway.

In responding to your request that the community would like a guarantee that wave overtopping will not occur after completion of the proposed project, the only option would be to build a wall high enough along the project shoreline to protect against any future extreme storm wave conditions. The question then is, "how high a wall will the community accept?" If it is determined that a four-foot high wall is the solution to preventing any future wave overtopping, we would question whether it is justifiable in terms of benefit/costs and aesthetic impacts. We must stress that the primary purpose of the proposed shore protection improvements is to protect the highway from erosion damage.

With respect to the present revetment design, we note your support of the 630 linear feet design length. We also note your comment concerning the beach south of the project site, and will revise the description in the EA accordingly.

We will incorporate your comments concerning sightings of turtles and monk seals in the vicinity of the project site. However, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service have concurred with the Corps' determination of no effect for listed, proposed and candidate endangered and threatened species. We will defer to the Corps and the responsible federal resource agencies for resolution of this issue.

The current County Zoning Map designates the shoreline areas as Residential (R-5).

Regarding the potential for sand accretion, the EA states that the proposed revetment will not alter the existing longshore or cross-shore sediment transport processes. However, because the sloping rock revetment will be more effective in dissipating wave energy compared to the existing dumped-rock scarp, it may be more conducive to sand accretion, recognizing that the sand supply along this project shoreline is due largely to onshore transport from the fringing reefs. The reality of owning shoreline property is that there can never be guarantees with respect to future potential for erosion or accretion.

If you have any further questions, please contact Mr. Craig Watanabe, Highways Division, Technical Design Section at 587-2124.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

c: Edward K. Noda and Associates