1990-06-08-OA-FRA
Kamehameha Hwy. 20 inch main from Puraleu t. Hauula

February 1983

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

FOR DLNR USE ONLY
Reviewed by
Date
Accepted by
Date
Docket/File No.
180-Day Exp.
EIS Required
PH Required
Board Approved
Disapproved
Well No.

DEPARTMENT MASTER APPLICATION FORM

(Print or Type)

I. LANDOWNER/WATER SOURCE OWNER (If State land, to be filled in by Government Agency in control of property)

Name State of Hawaii

Address Dept. Of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Telephone No. 548-3205

SIGNATURE Edward Hirata
DIRECTOR

Date MAY 3 1988

II. APPLICANT (Water Use, omit if applicant is landowner)

Name Board of Water Supply

Address City & County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Telephone No. 527-6138 (L. Whang)

Interest in Property 20-Inch Water Main at Kaluanui Stream
(Indicate interest in property; submit written evidence of this interest)

*SIGNATURE

Date APR 1 5 1988

III. TYPE OF PERMIT(S) APPLYING FOR

( ) A. State Lands
( ) B. Conservation District Use
( ) C. Withdraw Water From A Ground Water Control Area
( ) D. Supply Water From A Ground Water Control Area
( ) E. Well Drilling/Modification

*If for a Corporation, Partnership, Agency or Organization, must be signed by an authorized officer.

IV. WELL OR LAND PARCEL LOCATION REQUESTED

District Hauula

Island Oahu

County Honolulu

Tax Map Key 5-3-09:47

Area of Parcel 7496 Sq. ft.
(Indicate in acres or sq. ft.)

Term (if lease)

V. Environmental Requirements

Pursuant to Chapter 343, Hawaii Revised Statutes, and in accordance with Title 11; Chapter 200, Environmental Impact Statement Rules for applicant actions, an Environmental assessment of the proposed use must be attached. the Environmental assessment shall include, but not be limited to the following:

(1) Identification of applicant or proposing agency;

(2) Identification of approving agency, if applicable;

(3) Identification of agencies consulted in making assessment;

(4) General description of the action's technical, economic, social, and environmental characteristics;

(5) Summary description of the affected environment, including suitable and adequate location and site maps;

(6) Identification and summary of major impacts and alternatives considered, if any;

(7) Proposed mitigation measures, if any;

(8) Determination;

(9) Findings and reasons supporting determination; and

(10) Agencies to be consulted in the preparation of the EIS, if applicable.

VI. Summary of Proposed Use (what is proposed)

DESCRIPTION OF PARCEL

A. Existing Structures/Use:

The existing structures in the vicinity of the proposed project are the two-lane Kamehameha Highway bridge structure over Kaluanui Stream and a single-family residence on each bank at the stream outlet.

B. Existing Utilities:

Overhead utility lines for telephone and electricity exist along the mauka side of the Kamehameha Highway. The existing 12-inch waterline is located along the mauka edge of the Kaluanui bridge structure.

C. Existing Access:

The project site is located within the Kamehameha Highway right-of-way along the makai side of the Kaluanui bridge structure.

D. Vegetation:

Mainly, Hau trees and Naupaka Kahakai plants line the banks of Kaluanui Stream.

E. Topography:

Kaluanui Stream at the proposed pipeline crossing is sandy and level. Most of the flow infiltrate into the stream bed, and the depth of the stream at the project site is about 1 to 3 feet.

F. Shoreline Area:

The proposed pipeline will be located about 100 feet from the shoreline. The shoreline at the mouth of the stream is sandy.

G. Existing Covenants, Easements, Restrictions:

The proposed pipeline will be located within the State highway right-of-way.

H. Historic Sites Affected:

There are no known historic sites within the proximity of the proposed work.

INFORMATION REQUIRED FOR ALL USES

I. Description of Parcel

A. Existing structures/Use. (Attach description or map).

B. Existing utilities. (If available, indicate size and location on map. Include electricity, water, telephone, drainage, and sewarage).

C. Existing access. (Provide map showing roadways, trails, if any. Give street name. Indicate width, type of paving and ownership).

D. Vegetation. (Describe or provide map showing location and types of vegetation. Indicate if rare native plants are present).

E. Topography; if ocean area, give depths. (Submit contour maps for ocean areas and areas where slopes are 40% or more. Contour maps will also be required for uses involving tall structures, gravity flow and other special cases).

F. If shoreline area, describe shoreline. (Indicate if shoreline is sandy, muddy, rocky, etc. Indicate cliffs, reefs, or other features such as access to shoreline).

G. Existing covenants, easements, restrictions. (If State lands, indicate present encumberances).

H. Historic sites affected. (If applicable, attach map and descriptions).

II. Description: Describe the activity proposed, its purpose and all operations to be conducted. (Use additional sheets as necessary). SEE ATTACHED DRAWINGS

III. Commencement Date: Upon approval of CDUA.

Completion Date: 12 months after initial construction.

IV. TYPE OF USE REQUESTED (Mark where appropriate)

1. Permitted Use (exception occasional use);
DLNR Title 13, Chapter 2, Section _____; Subzone _____.

2. Accessory Use (accessory to a permitted use):
DLNR Title 13, Chapter 2, Section _____; Subzone _____.

3. Occasional Use: Subzone _____.

4. Temporary Variance: Subzone _____.

5. Conditional Use: Subzone R.

Area of Proposed Use 7,496 sq. ft.
(Indicate in acres or sq. ft.)

Name & Distance of Nearest Town or Landmark
Kaluanui Stream at Kamehameha Highway.

Boundary Interpretation (If the area is within 40 feet of the boundary of the Conservation District, include map showing interpretation of the boundary by the State Land Use Commission).

Conservation District Subzone Resource (R)
County General Plan Designation Agriculture

V. FILING FEE

1. Enclose $50.00. All fees shall be in the form of cash, certified or cashier's check, and payable to the State of Hawaii.

2. If use is commercial, a defined, submit additional public hearing fee of $50.00.

INFORMATION REQUIRED FOR CONDITIONAL USE ONLY

I. Plans: (All plans should include north arrow and graphic scale).

A. Area Plan: Area plan should include but not be limited to relationship of proposed uses to existing and future uses in abutting parcels; identification of major existing facilities; names and addresses of adjacent property owners.

B. Site Plan: Site plan (maps) should include, but not be limited to, dimensions and shape of lot; metes and bounds, including easements and their use; existing features, including vegetation, water area, roads, and utilities.

C. Construction Plan: Construction plans should include, but not be limited to, existing and proposed changes in contours; all buildings and structures with indicated use and critical dimensions (including floor plans); open space and recreation areas; landscaping, including buffers; roadways, including widths; offstreet parking area; existing and proposed drainage; proposed utilities and other improvements; revegetation plans; drainage plans including erosion sedimentation controls; and grading, trenching, filling, dredging or soil disposal.

D. Maintenance Plans: For all uses involving power transmission, fuel lines, drainage systems, unmanned communication facilities and roadways not maintained by a public agency, plans for maintenance shall be included.

E. Management Plans: For any appropriate use of animal, plant, or mineral resources, management plans are required.

F. Historic or Archaeological Site Plan: Where there exists historic or archaeological sites on the State or Federal Register, a plan must be submitted including a survey of the site(s); significant features; protection, salvage, or restoration plans.

II. Subzone Objective: Demonstrate that the intended use is consistent with the objective of the subject Conservation District Subzone (as stated in Title 13, Chapter 2).

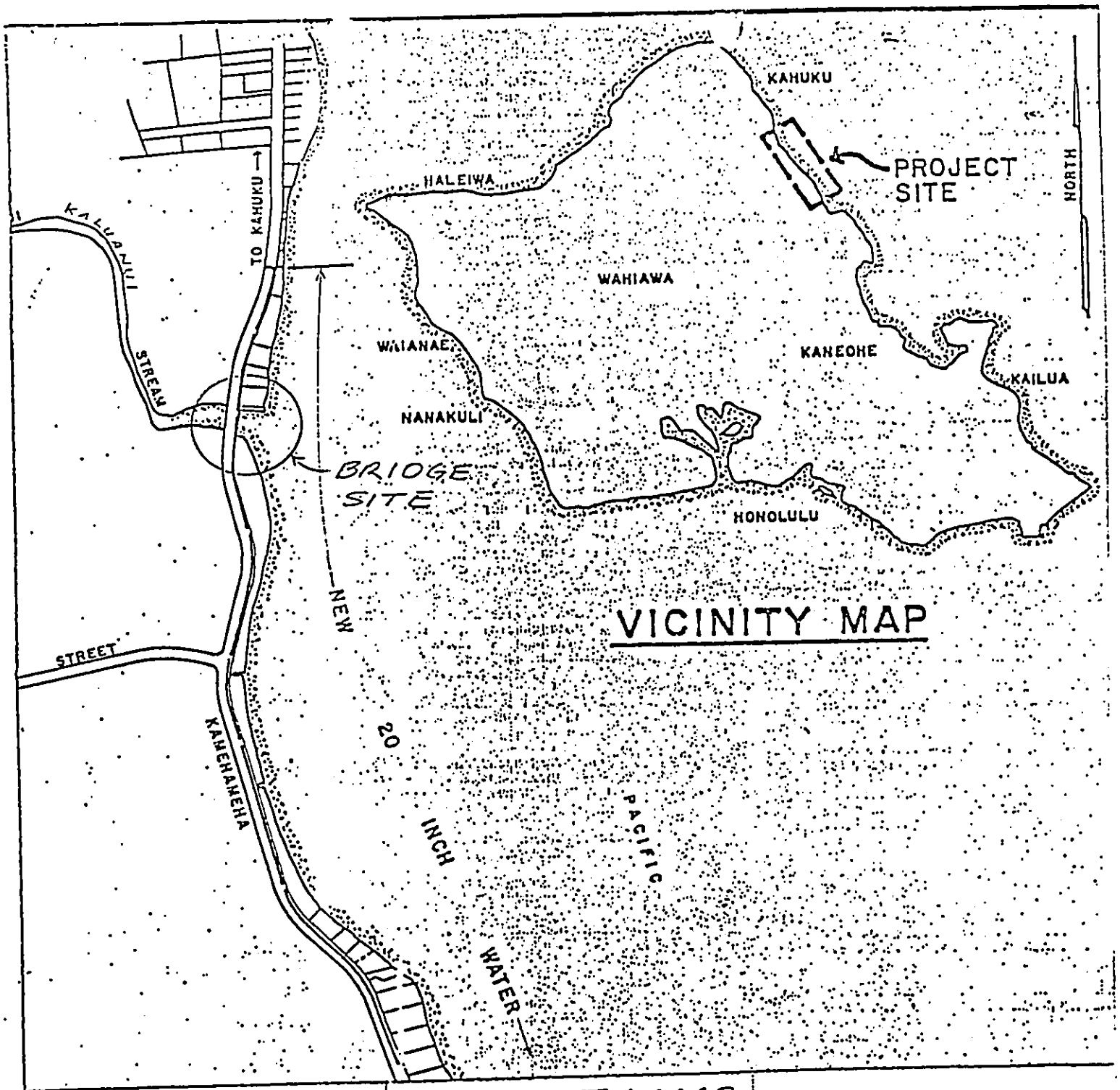
INFORMATION REQUIRED FOR CONDITIONAL USE ONLY

I. Plans:

A. Area Plan (attached)
B. Site Plan (see attached Environmental Assessment)
C. Construction Plans (attached)
D. Maintenance Plans (none required)
E. Management Plans (none)
F. Historic or Archaeological Site Plan: (see attached Environmental Assessment)

II. Subzone Objective:

Development of water collection, pumping, storage, control and transmission is consistent with the subject Conservation District Subzone.



VICINITY MAP

PURPOSE: PROVIDE BETTER WATER SERVICE

DATUM: MSL = 0.00

ADJACENT PROPERTY OWNER:
BERNICE P. BISHOP ESTATE

VICINITY MAP
NOT TO SCALE

BOARD OF WATER SUPPLY
650 So. Beretania Street
Honolulu, Hawaii 96843

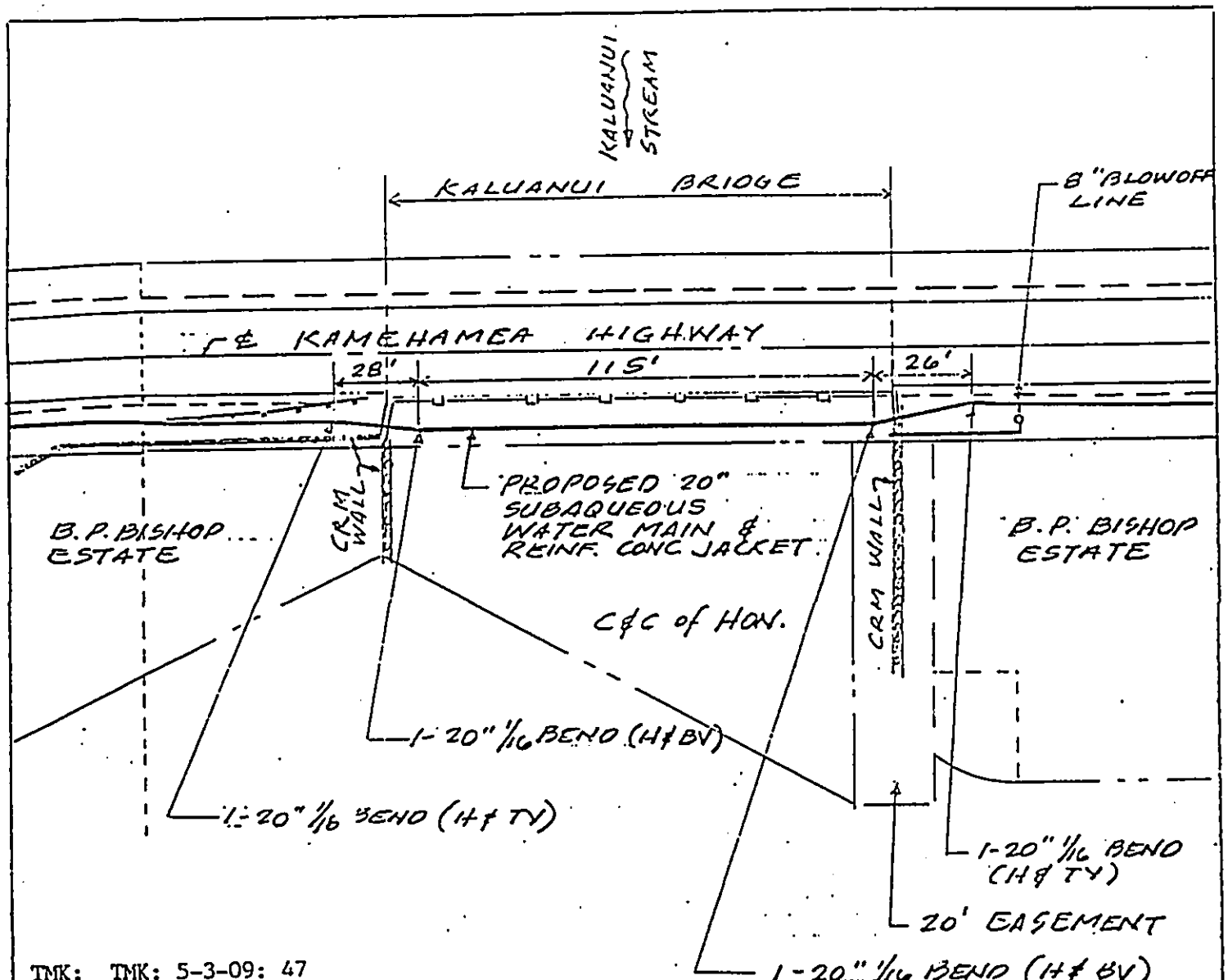
PROPOSED 20 INCH
SUBAQUEOUS WATER MAIN

IN: KALUANUI STREAM

AT: HAUULA
CITY & COUNTY OF HONOLULU

APPLICATION BY: BOARD OF WATER SUPPLY

SHEET 1 OF 4 DATE 10/7/87



TMK: TMK: 5-3-09: 47
5-3-10: 30

PLAN
Scale: 1"=40'

1. TRENCH EXCAVATION = 3300 Cu. Yd.
2. UNSUITABLE MATERIAL FOR TRENCH BACKFILL WILL BE DISPOSED OF BY THE CONTRACTOR AT AN APPROVED DISPOSAL SITE.
3. EXCAVATED MATERIAL -- WHITE - BLACK - GRAY SAND, LOOSE/SATURATED

PURPOSE: PROVIDE BETTER WATER SERVICE

DATUM: MSL = 0.00

ADJACENT PROPERTY OWNER:

BERNICE P. BISHOP ESTATE

PLAN

20 0 50

Scale: 1"=40'

BOARD OF WATER SUPPLY
630 So. Beretania Street
Honolulu, Hawaii 96843

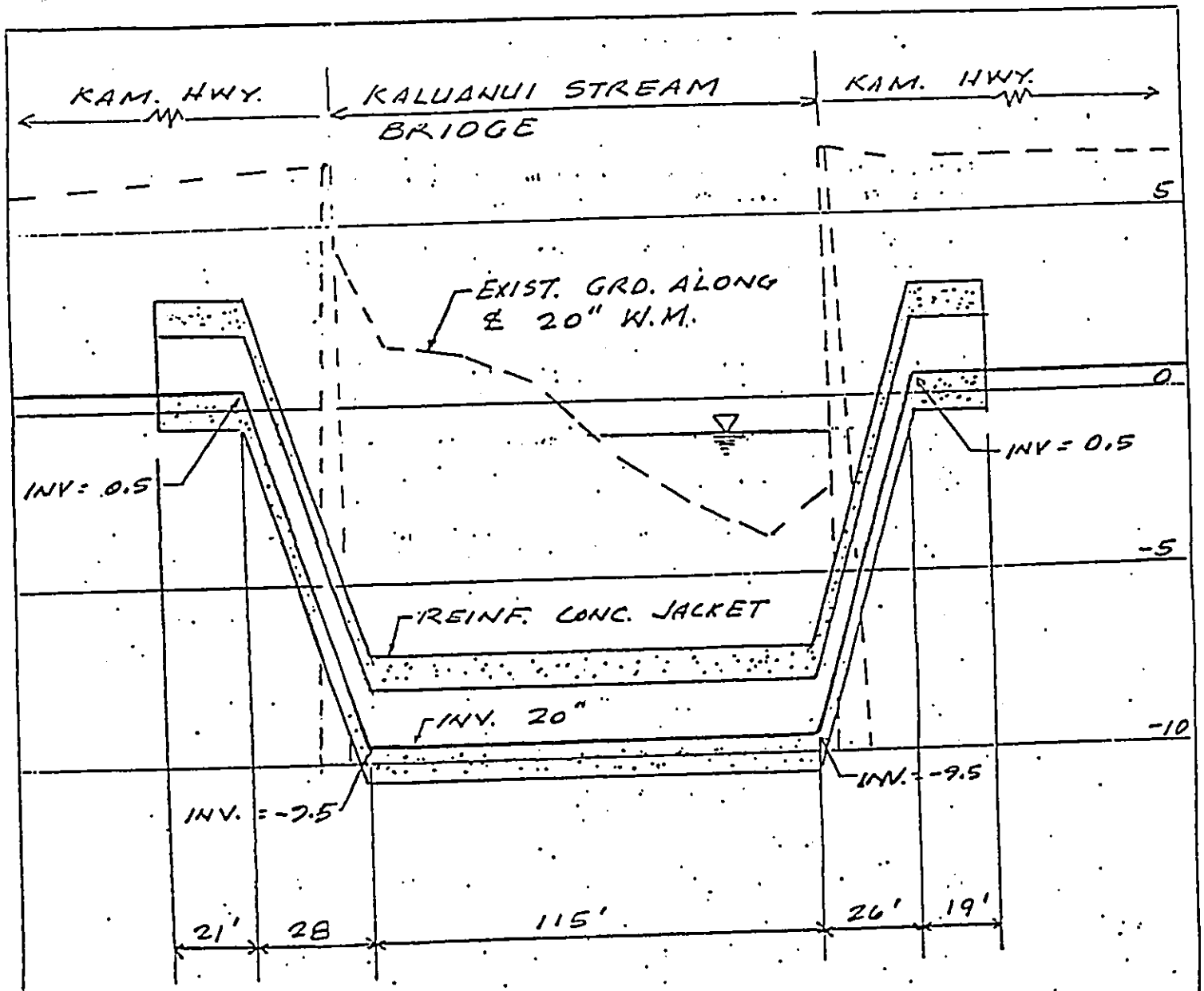
PROPOSED 20 INCH SUBAQUEOUS WATER MAIN

IN: KALUANUI STREAM

AT: HAUULA
CITY & COUNTY OF HONOLULU

APPLICATION BY: BOARD OF WATER SUPPLY

SHEET 2 OF 4 DATE 10/7/87



ELEV. DATUM: MSL = 0.0

PROFILE

Scales: Horiz: 1" = 40'
Vert. 1" = 8'

PURPOSE: PROVIDE BETTER WATER SERVICE

DATUM: MSL = 0.00

ADJACENT PROPERTY OWNER

1. BERNICE P. BISHOP ESTATE

PROFILE

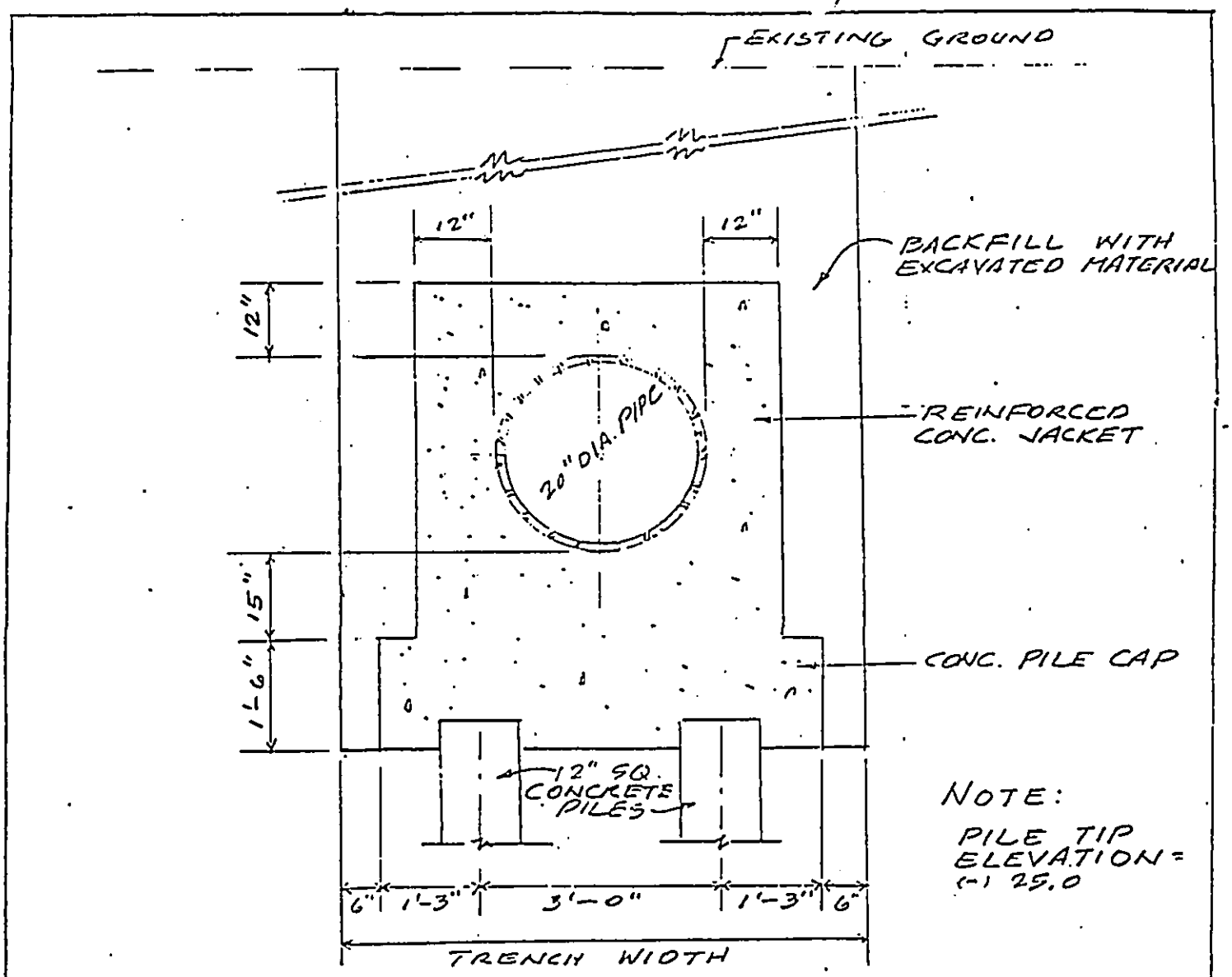
BOARD OF WATER SUPPLY
630. So. Beretamoa Street
Honolulu, Hawaii 96843

PROPOSED 20-INCH SUBAQUEOUS WATER MAIN

IN: KALUANUI STREAM
AT: HAUULA
CITY & COUNTY OF HONOLULU

APPLICATION BY: BOARD OF WATER SUPPLY

SHEET 3 OF 4 DATE: 10/7/67



TYPICAL TRENCH DETAIL

NOT TO SCALE

PURPOSE: PROVIDE BETTER WATER SERVICE DATUM: MSL = 0.00 ADJACENT PROPERTY OWNER: BERNICE P. BISHOP ESTATE	TYPICAL TRENCH DETAIL BOARD OF WATER SUPPLY 650 So. Beretania Street Honolulu, Hawaii 96843	PROPOSED 20 INCH SUBAQUEOUS WATER MAIN IN: KALUANUI STREAM AT: HAUULA CITY & COUNTY OF HONOLULU APPLICATION BY: BOARD OF WATER SUPPLY SHEET 4 OF 4 DATE 10/7/87

CITY AND COUNTY OF HONOLULU
BOARD OF WATER SUPPLY

ENVIRONMENTAL IMPACT ASSESSMENT

FOR

KAMEHAMEHA HIGHWAY 20-INCH MAIN FROM PUNALUU TO HAUULA

OAHU, HAWAII

TMK: 5-3-06, 5-3-09

This environmental document is submitted pursuant to Chapter 343, HRS

Proposing Agency: Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Contact Person: Lawrence Whang, Phone: 527-6138

Board Members:

Donna B. Goth, Chairman
Ernest A. Watari, Vice Chairman
Milton J. Agader
Sister M. Davilyn Ah Chick, O.S.F.
Edward Y. Hirata
Alfred J. Thiede
John K. Tsui

12/30/87

FOR KAZU HAYASHIDA Date
Manager and Chief Engineer

Prepared by: Board of Water Supply
December 1987

TABLE OF CONTENTS

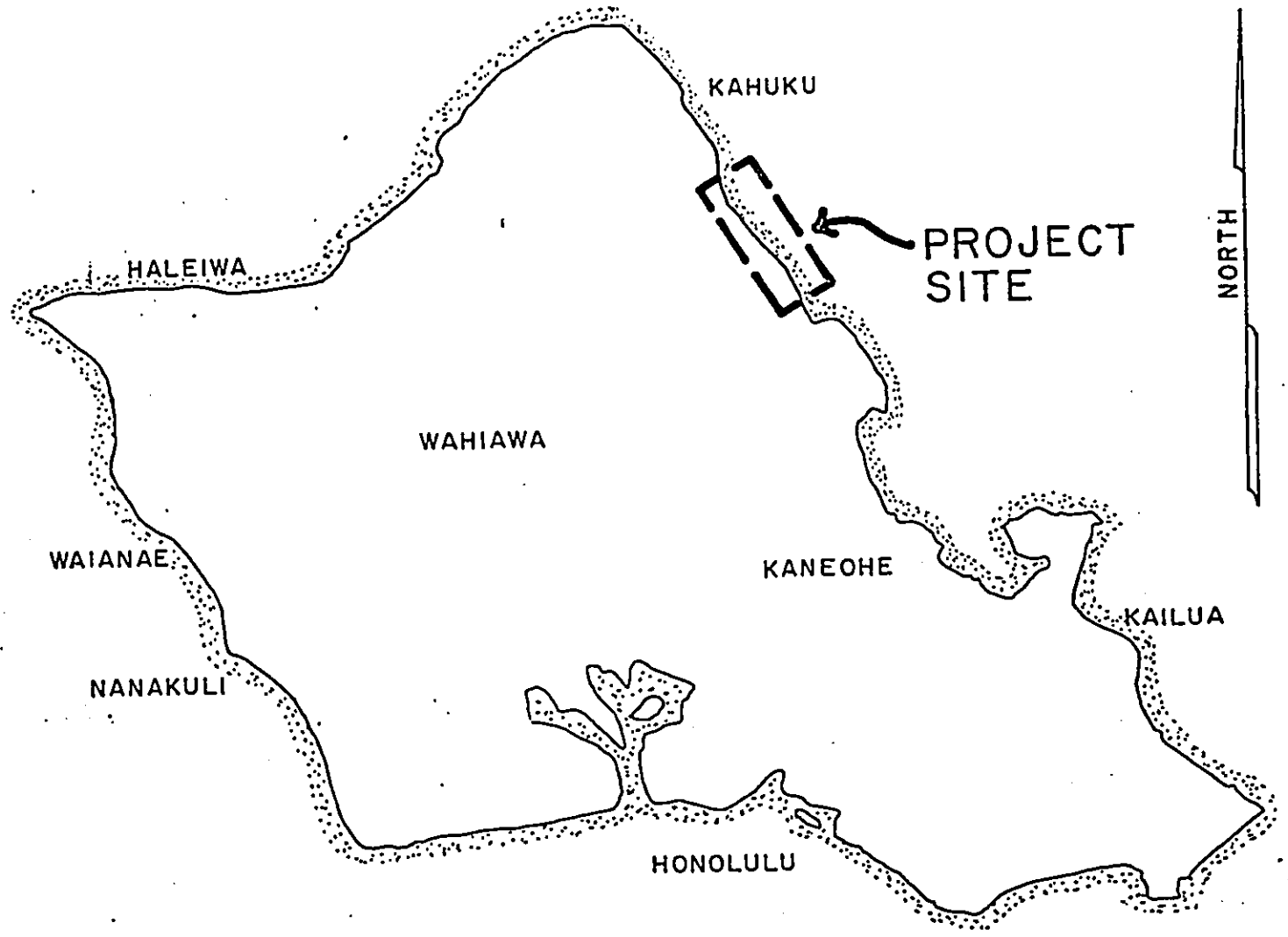
I. OBJECTIVE AND DESCRIPTION OF THE PROPOSED PROJECT

A. Project Objective

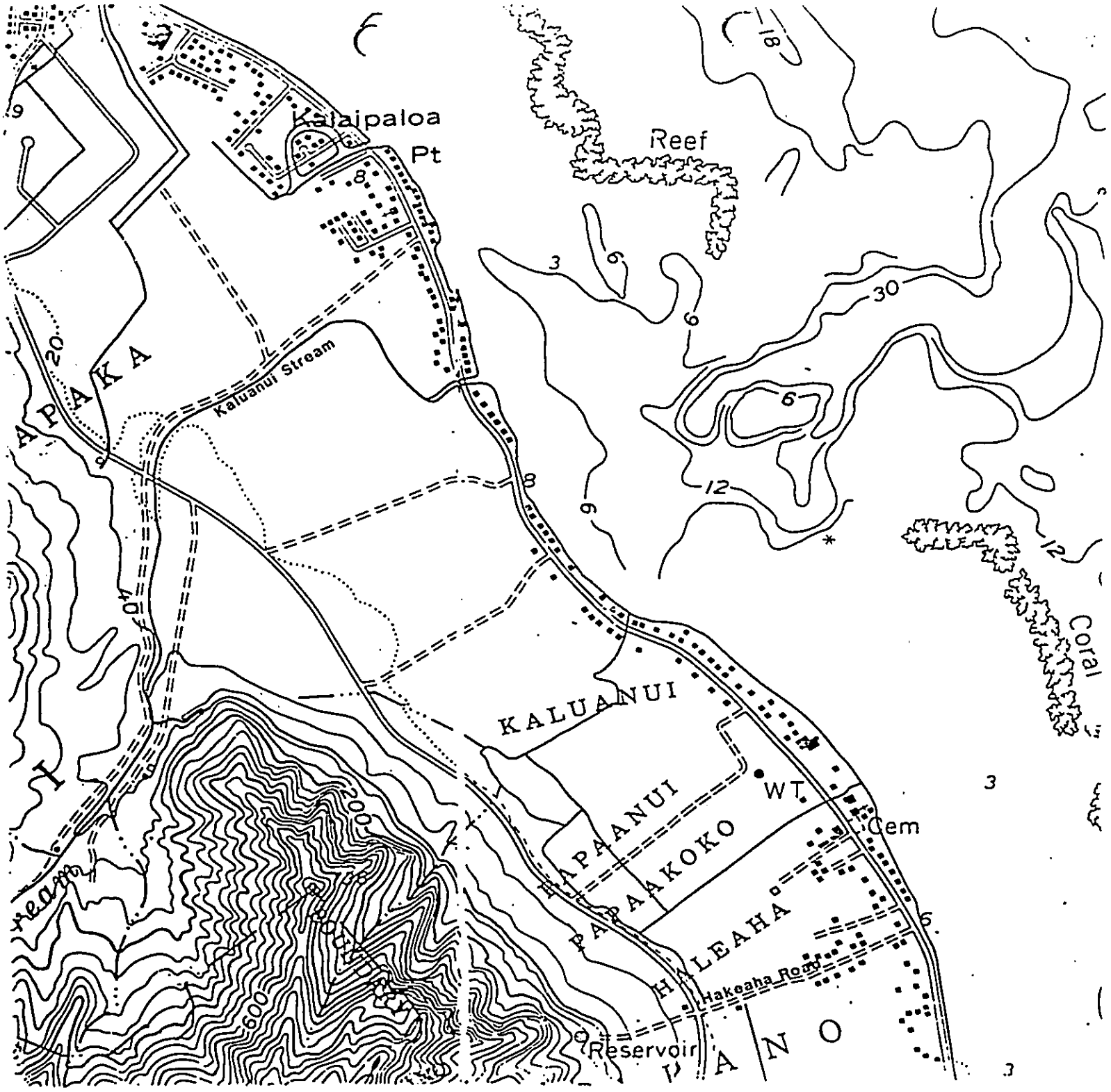
The project objective is to increase the carrying capacity of the Windward Water Distribution System to allow the assimilation of new wells being developed at Kaluanui into the existing water system. The main is being oversized to allow the assimilation of other future water sources being planned for development north of Kaluanui.

B. Project Description

About 6,500 feet of 20-inch transmission main is proposed to be installed along Kamehameha Highway from Haleaha Road in Punaluu to Sacred Falls Trail Road in Hauula. The main will be buried along the seaward side of the road right-of-way and have a minimum cover of three (3) feet.



VICINITY MAP



LOCATION MAP

The main will be installed under four box culverts and one stream. At all of these crossings, the main will be concrete-jacketed with a minimum thickness of twelve (12) inches.

Alignment of the main was adjusted to avoid the removal or damage to trees along the pipeline route.

Construction work for the 20-inch main is tentatively scheduled to begin in mid-1988, and the duration of work will be about one year.

Estimated cost of the project is $1,240,000. Funding for the project would be from the Board's Fiscal Year 1988 Capital Improvement Program Budget.

C. Background

The proposed transmission main is a portion of a major transmission network being planned to convey water from future drinking water sources in Windward Oahu with excess water exported to Honolulu. Pipeline sizes will range from 12-inches at Laie to 42-inches at Kaneohe.

II. ENVIRONMENTAL SETTING

A. Climate

Temperatures along the Windward Coast is equable throughout the year. The variation between the coldest and warmest months averages about 7°F.

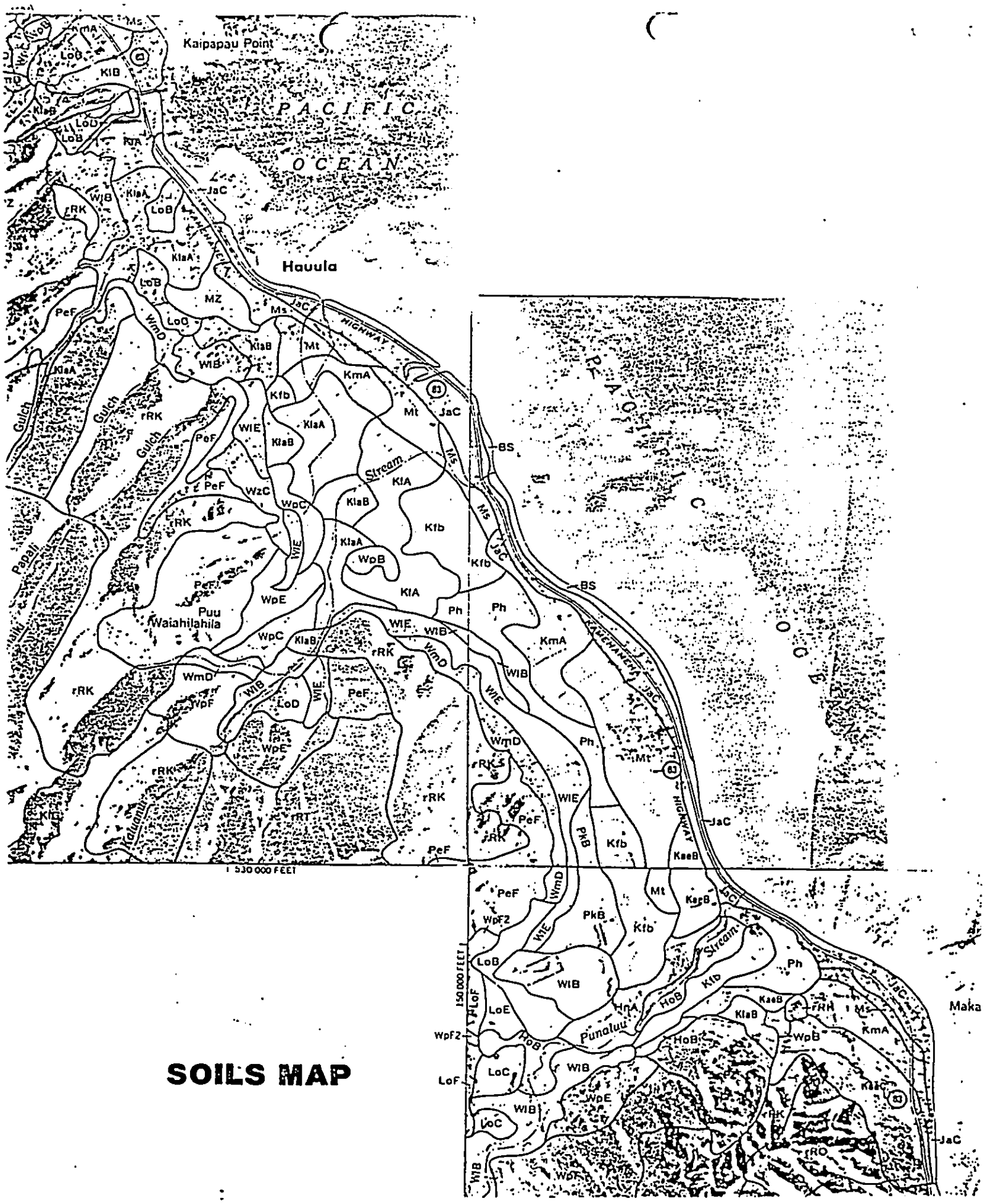
Average annual temperatures range from 72°F to 79°F with extreme temperatures of 49°F and 95°F.

Rainfall occurs sporadically throughout the year with most of the rainfall occurring during the winter months. Median rainfall along the coastal areas is about 60 inches and increases to over 200 inches at the crest of the Koolau Range.

B. Soils

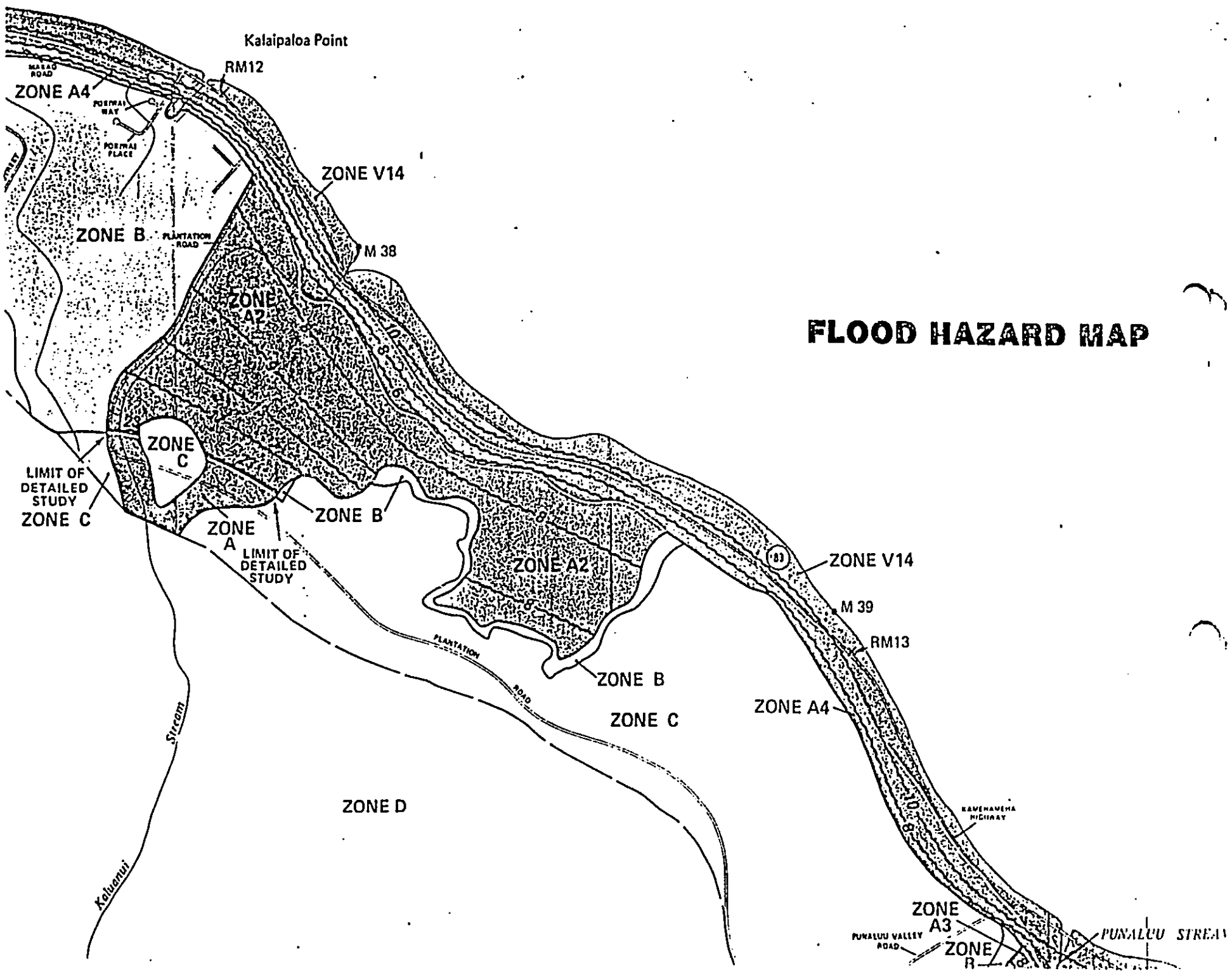
The soil along the transmission main alignment is described as Jaucas Sand (JaC) by the U.S. Soil Conservation Service. This type of soil consists of excessively drained, calcareous soils that occur as narrow strips on coastal plains, adjacent to the ocean.

Jaucas Sand (JaC) has slopes ranging from 0 to 15 percent, but usually does not exceed 7 percent. The soil is pale brown to very pale brown, sandy, more than 60 inches deep, and is neutral to moderately alkaline throughout its profile.


Kaipapau Point
PACIFIC
OCEAN
Hauula
KAMEHAMEHA HIGHWAY
Gulch
Stream
Puu
Waiahilahila
Punaluu
Maka
1 530 000 FEET
150 000 FEET

SOILS MAP

FLOOD HAZARD MAP



C. Flood Hazard

According to the Flood Insurance Rate Map prepared by the U.S. Department of Housing and Urban Development, the project site is located in a Special flood hazard area inundated by the one-hundred year flood and is designated as Zone V14 with a base flood elevation of 10 feet above mean sea level.

There are several concrete box culverts crossing the proposed pipeline alignment.

D. Streams

The only major stream crossing the proposed pipeline is Kaluanui Stream. Kaluanui Stream is perennial at its upper reaches, but only intermittent at its lower reaches. Most of the dry weather flow infiltrates into the streambed.

A U.S. Geological Survey gaging station is located along Kaluanui Stream at an altitude of 110 feet. Mean discharge recorded at this station was 2.78 mgd, although there were periods where no flow was recorded. The computed Q_{90} at this station was 0.19 mgd and Q_{95} is 0.06 mgd.

At the present time, no streamflow diversions exist.

E. Archaeology

There are no recorded archaeological or historical sites within the project area.

F. Fauna

There are no rare or endangered animal habitats within the road right-of-way.

Animals that may be seen include dogs, cats, mongoose, mynahs, sparrows, ring-necked doves, cardinals, and bulbuls.

G. Vegetation

Introduced species of plants are found along the pipeline alignment. Typical plants include the kamani tree, ironwood tree, norfolk pine tree, coconut tree, spider lily, panax, croton, hibiscus, fern, hao, plumeria, aloe, wedelia, octopus tree, palm tree, taro vine, and other various exotic plants. No rare or endangered plant species were seen along the road right-of-way.

H. Traffic

Kamehameha Highway is a two-lane asphaltic concrete roadway under the jurisdiction of the Department of Transportation, State of Hawaii. The width of the right-of-way is about 50 feet of which 30 feet is the paved roadway.

Various improvements by abutting landowners have encroached into the right-of-way. Some of these improvements include a concrete rubble masonry (CRM) wall, hedges, a chain link fence, and other fences and walls.

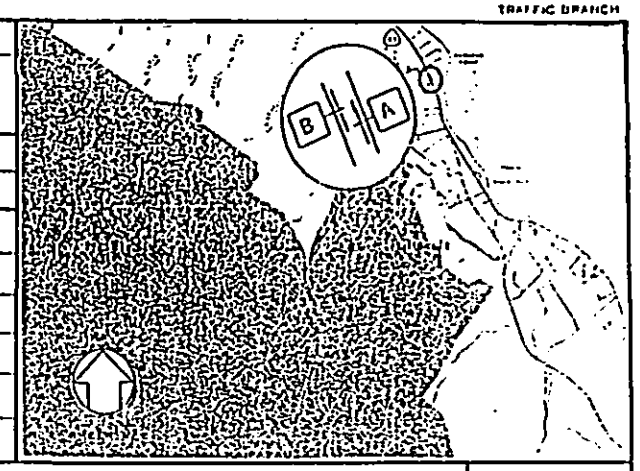
HAWAII STATE DOT, HIGHWAYS DIVISION

24-HOUR TRAFFIC COUNT-STATION SUMMARY

TRAFFIC BRANCH

Station No: C-27-A Count Type:_____ Group:_____ Old No:_____

Location: Kamehameha Highway at Kaipapau Bridge



STATION CHARACTERISTICS	ROAD SECTION				
	D-1		D-2		
Number of Lanes					
Lane Width (Ft)					
Lateral Clearance (Ft) Left/Right					
Detection Method (Loops/Hose)					

Special Conditions:

Hwy Divided: No__ Yes__ Type:

	24-HOUR TRAFFIC VOLUMES															
Col. I.D.	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	
Traffic I.D	D-1	D-2	TOTAL													
DATE																
01/76	4152	4072	8224													
06/77	4659	5187	9846													
03/78	4996	5484	10480													
07/79	4649	4416	9065													
10/80	3874	3894	7768													
07/82	4618	4605	9223													
06/29-30/83	5462	5105	10567													
09/04-05/84	4966	4848	9814													
01/30-31/85	5054	4911	9965													
02/03-04/86	5231	4996	10227													

24-HOUR TRAFFIC COUNT-STATION SUMMARY

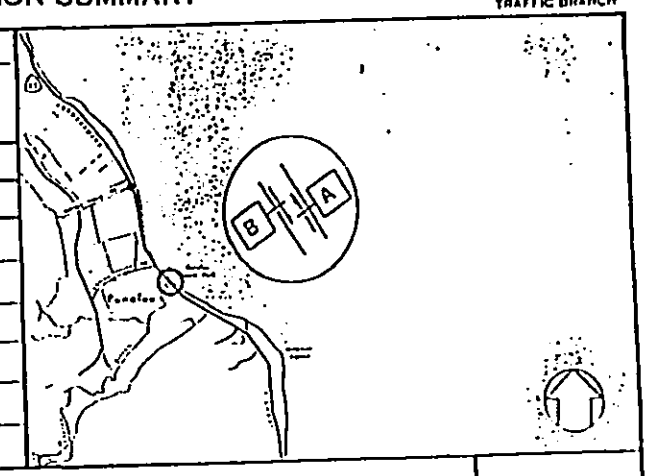
HAWAII STATE DOT, HIGHWAYS DIVISION

TRAFFIC BRANCH

Station No: C-28-A Count Type:_____ Group:_____ Old No:_____

Location: Kamehameha Highway at Punaluu Bridge

STATION CHARACTERISTICS	ROAD SECTION				
	D-1		D-2		
Number of Lanes					
Lane Width (Ft)					
Lateral Clearance (Ft) Left/Right					
Detection Method (Loops/Hose)					
Special Conditions:					
Hwy Divided: No__Yes__Type:					



24-HOUR TRAFFIC VOLUMES

Col. I.D.	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P
Traffic I.D	D-1	D-2	TOTAL												
DATE															
01/76	3075	2503	5578												
12/13-14/83	3837	3694	7531												
09/05-06/84	3821	3633	7454												
02/03-04/86	3942	3757	7699												

STATION NO.:C-28-A STATION DESCRIPTION: KAMEHAMEHA HIGHWAY AT PUNALUU BRIDGE
POLLING DATE FEBRUARY 3-4, 1986 (MON-TUE)
CHANNEL A: ON KAMEHAMEHA HWY NW BD TO KAHUKU - MR #5633
CHANNEL B: ON KAMEHAMEHA HWY SE BD TO KANEOHE - MR #5678

TIME-AM	CH-A	CH-B	TOTAL
12:00-12:15	9	4	13
12:15-12:30	5	2	7
12:30-12:45	13	5	18
12:45- 1:00	5	5	10
1:00- 1:15	7	3	10
1:15- 1:30	4	3	7
1:30- 1:45	4	0	4
1:45- 2:00	5	1	6
2:00- 2:15	1	2	3
2:15- 2:30	4	2	6
2:30- 2:45	2	1	3
2:45- 3:00	5	5	10
3:00- 3:15	3	1	4
3:15- 3:30	1	1	2
3:30- 3:45	2	3	5
3:45- 4:00	0	6	6
4:00- 4:15	1	8	9
4:15- 4:30	0	18	18
4:30- 4:45	2	27	29
4:45- 5:00	3	36	39
5:00- 5:15	3	71	74
5:15- 5:30	6	61	67
5:30- 5:45	2	35	37
5:45- 6:00	7	49	56

TIME-AM	CH-A	CH-B	TOTAL
6:00- 6:15	16	41	57
6:15- 6:30	25	44	69
6:30- 6:45	29	43	72
6:45- 7:00	24	43	67
7:00- 7:15	44	43	87
7:15- 7:30	52	48	100
7:30- 7:45	49	53	102
7:45- 8:00	35	46	81
8:00- 8:15	26	52	78
8:15- 8:30	50	54	104
8:30- 8:45	46	51	97
8:45- 9:00	29	42	71
9:00- 9:15	47	56	103
9:15- 9:30	32	55	87
9:30- 9:45	33	50	83
9:45-10:00	63	35	98
S 10:00-10:15	50	51	101
10:15-10:30	59	49	108
*10:30-10:45	96	55	151
*10:45-11:00	73	42	115
*11:00-11:15	73	40	113
*11:15-11:30	79	56	135
11:30-11:45	71	54	125
11:45-12:00	78	43	121

TIME-PM	CH-A	CH-B	TOTAL
12:00-12:15	69	74	143
12:15-12:30	79	57	136
12:30-12:45	89	48	137
12:45- 1:00	78	55	133
1:00- 1:15	93	55	148
1:15- 1:30	79	56	135
1:30- 1:45	87	81	168
1:45- 2:00	74	53	127
2:00- 2:15	81	75	156
2:15- 2:30	99	59	158
2:30- 2:45	109	81	190
2:45- 3:00	76	67	143
3:00- 3:15	84	77	161
* 3:15- 3:30	87	83	170
* 3:30- 3:45	71	84	155
* 3:45- 4:00	85	89	174
* 4:00- 4:15	92	80	172
4:15- 4:30	71	58	129
4:30- 4:45	81	70	151
4:45- 5:00	77	66	143
5:00- 5:15	94	70	164
5:15- 5:30	66	80	146
5:30- 5:45	79	48	127
5:45- 6:00	55	58	113

TIME-PM	CH-A	CH-B	TOTAL
6:00- 6:15	68	59	127
6:15- 6:30	71	48	119
6:30- 6:45	53	38	91
6:45- 7:00	36	46	82
7:00- 7:15	39	25	64
7:15- 7:30	39	30	69
7:30- 7:45	33	22	55
7:45- 8:00	39	14	53
8:00- 8:15	37	18	55
8:15- 8:30	23	19	42
8:30- 8:45	31	15	46
8:45- 9:00	22	17	39
9:00- 9:15	25	118	143
9:15- 9:30	23	98	121
9:30- 9:45	24	15	39
9:45-10:00	21	13	34
10:00-10:15	23	13	36
10:15-10:30	21	15	36
10:30-10:45	20	4	24
10:45-11:00	15	5	20
11:00-11:15	25	2	27
11:15-11:30	12	9	21
11:30-11:45	5	5	10
11:45-12:00	12	6	18

	CH-A	CH-B	TOTAL
AM-TOTAL	1273.	1495.	2768.
6:00-12:00 TOT	1179.	1146.	2325.
AM-PEAK HR TIME	10:30-11:30		
*PEAK-HR TOTAL	321.	193.	514.
AM D-Z (PEAK-HR)	62.5	37.5	100.0
AM D-Z (MN-12N)	46.0	54.0	100.0
AM K FACTOR			6.7

	CH-A	CH-B	TOTAL
PM-TOTAL	2669.	2262.	4931.
12:00-6:00 TOT	1955.	1624.	3579.
PM-PEAK HR TIME	3:15- 4:15		
*PEAK-HR TOTAL	335.	336.	671.
PM D-Z (PEAK-HR)	49.9	50.1	100.0
PM D-Z (12N-MN)	54.1	45.9	100.0
PM K FACTOR			8.7
24 HOUR TOTAL	3942.	3758.	7699.

STATION NO.:C-27-A STATION DESCRIPTION: KAMEHAMEHA HIGHWAY AT KAIPAPAU BRIDGE
POLLING DATE FEBRUARY 3-4, 1986 (MON-TUE)
CHANNEL A: ON KAMEHAMEHA HWY NW BD TO KAHUKU - HR #5687
CHANNEL B: ON KAMEHAMEHA HWY SE BD TO KAAWA - HR #5665

TIME-AM	CH-A	CH-B	TOTAL
12:00-12:15	14	12	26
12:15-12:30	5	2	7
12:30-12:45	7	6	13
12:45- 1:00	4	0	4
1:00- 1:15	10	3	13
1:15- 1:30	2	3	5
1:30- 1:45	2	1	3
1:45- 2:00	3	1	4
2:00- 2:15	5	0	5
2:15- 2:30	4	3	7
2:30- 2:45	2	2	4
2:45- 3:00	2	1	3
3:00- 3:15	3	0	3
3:15- 3:30	4	1	5
3:30- 3:45	2	1	3
3:45- 4:00	1	4	5
4:00- 4:15	3	11	14
4:15- 4:30	1	10	11
4:30- 4:45	2	20	22
4:45- 5:00	12	34	46
5:00- 5:15	6	38	44
5:15- 5:30	11	25	36
5:30- 5:45	14	31	45
5:45- 6:00	26	45	71

TIME-AM	CH-A	CH-B	TOTAL
6:00- 6:15	29	36	65
6:15- 6:30	36	30	66
6:30- 6:45	53	32	85
6:45- 7:00	44	34	78
7:00- 7:15	70	55	125
7:15- 7:30	85	69	154
7:30- 7:45	109	83	192
7:45- 8:00	99	77	176
8:00- 8:15	60	79	139
8:15- 8:30	73	64	137
8:30- 8:45	54	49	103
8:45- 9:00	67	59	126
9:00- 9:15	51	52	103
9:15- 9:30	51	74	125
9:30- 9:45	57	56	113
9:45-10:00	76	59	135
S 10:00-10:15	79	66	145
10:15-10:30	71	91	162
10:30-10:45	90	68	158
10:45-11:00	113	58	171
*11:00-11:15	103	65	168
*11:15-11:30	97	67	164
*11:30-11:45	93	69	162
*11:45-12:00	91	94	185

TIME-PM	CH-A	CH-B	TOTAL
12:00-12:15	108	73	181
12:15-12:30	118	74	192
12:30-12:45	104	73	177
12:45- 1:00	109	77	186
1:00- 1:15	99	87	186
1:15- 1:30	116	79	195
1:30- 1:45	111	81	192
1:45- 2:00	112	86	198
# 2:00- 2:15	118	102	220
# 2:15- 2:30	123	98	221
# 2:30- 2:45	117	104	221
# 2:45- 3:00	123	81	204
3:00- 3:15	105	114	219
3:15- 3:30	106	100	206
3:30- 3:45	83	133	216
3:45- 4:00	90	107	197
4:00- 4:15	121	101	222
4:15- 4:30	82	99	181
4:30- 4:45	79	95	174
4:45- 5:00	95	95	190
5:00- 5:15	94	109	203
5:15- 5:30	88	93	181
5:30- 5:45	81	93	174
5:45- 6:00	79	93	172

TIME-PM	CH-A	CH-B	TOTAL
6:00- 6:15	74	81	155
6:15- 6:30	86	80	166
6:30- 6:45	64	65	129
6:45- 7:00	65	77	142
7:00- 7:15	60	51	111
7:15- 7:30	45	60	105
7:30- 7:45	42	47	89
7:45- 8:00	44	31	75
8:00- 8:15	32	32	64
8:15- 8:30	48	30	78
8:30- 8:45	25	25	50
8:45- 9:00	37	28	65
9:00- 9:15	29	199	228
9:15- 9:30	38	42	80
9:30- 9:45	41	20	61
9:45-10:00	23	22	45
10:00-10:15	25	15	40
10:15-10:30	19	22	41
10:30-10:45	17	11	28
10:45-11:00	18	17	35
11:00-11:15	17	9	26
11:15-11:30	14	17	31
11:30-11:45	10	12	22
11:45-12:00	8	13	21

AM-TOTAL	CH-A	CH-B	TOTAL
	1896.	1740.	3636.
6:00-12:00 TOT	1751.	1486.	3237.
AM-PEAK HR TIME	11:00-12:00		
*PEAK-HR TOTAL	384.	295.	679.
AM D-Z (PEAK-HR)	56.6	43.4	100.0
AM D-Z (MN-12N)	52.1	47.9	100.0
AM K FACTOR			6.6

PM-TOTAL	CH-A	CH-B	TOTAL
	3335.	3256.	6591.
12:00-6:00 TOT	2461.	2247.	4708.
PM-PEAK HR TIME	2:00- 3:00		
#PEAK-HR TOTAL	481.	385.	866.
PM D-Z (PEAK-HR)	55.5	44.5	100.0
PM D-Z (12N-MN)	50.6	49.4	100.0
PM K FACTOR			8.5

DIRECTIONAL TOTALS CHAN-A = 5231. CH-A DZ = 51.1 CHAN-B = 4996. CH-B DZ = 48.9 24-HOUR TOTAL = 10227.

HAWAII STATE DOT, HIGHWAYS DIVISION

24-HOUR TRAFFIC COUNT-STATION SUMMARY

TRAFFIC BRANCH

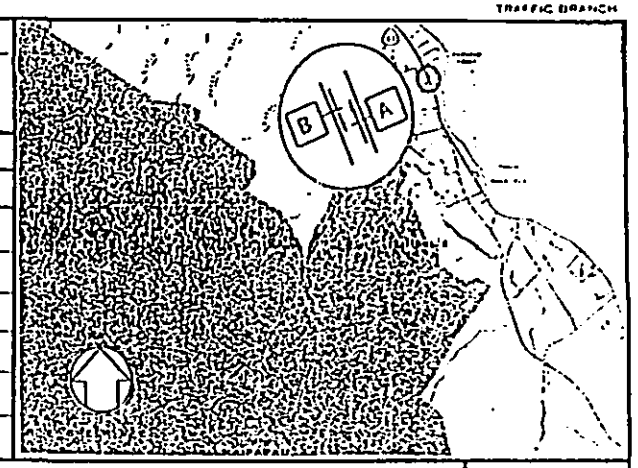
Station No: C-27-A Count Type:_____ Group:_____ Old No:_____

Location: Kamehameha Highway at Kaipapau Bridge

STATION CHARACTERISTICS	ROAD SECTION				
	D-1		D-2		
Number of Lanes					
Lane Width (Ft)					
Lateral Clearance (Ft) Left/Right					
Detection Method (Loops/Hose)					

Special Conditions:

Hwy Divided: No__ Yes__ Type:



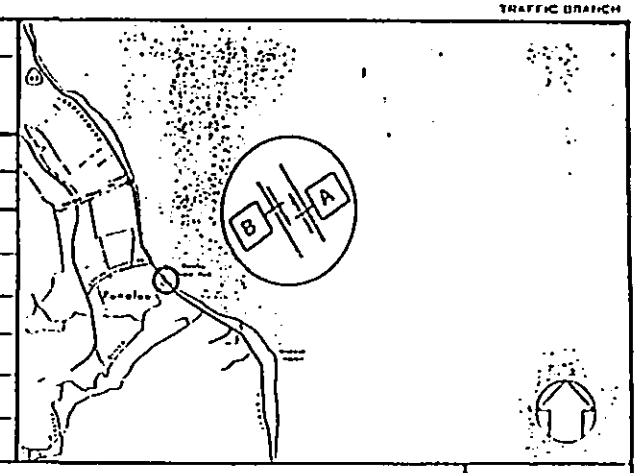
	24-HOUR TRAFFIC VOLUMES															
Col. I.D.	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	
Traffic I.D	D-1	D-2	TOTAL													
DATE																
01/76	4152	4072	8224													
06/77	4659	5187	9846													
03/78	4996	5484	10480													
07/79	4649	4416	9065													
10/80	3874	3894	7768													
07/82	4618	4605	9223													
06/29-30/83	5462	5105	10567													
09/04-05/84	4966	4848	9814													
01/30-31/85	5054	4911	9965													
02/03-04/86	5231	4996	10227													

24-HOUR TRAFFIC COUNT-STATION SUMMARY

HAWAII STATE DOT, HIGHWAYS DIVISION — TRAFFIC BRANCH

Station No: C-28-A Count Type:_____ Group:_____ Old No:_____

Location: Kamehameha Highway at Punaluu Bridge



STATION CHARACTERISTICS	ROAD SECTION D-1		D-2		
Number of Lanes					
Lane Width (Ft)					
Lateral Clearance (Ft) Left/Right					
Detection Method (Loops/Hose)					

Special Conditions:

Hwy Divided: No___ Yes___ Type:

	24-HOUR TRAFFIC VOLUMES															
Col. I.D.	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	
Traffic I.D	D-1	D-2	TOTAL													
DATE																
01/76	3075	2503	5578													
12/13-14/83	3837	3694	7531													
09/05-06/84	3821	3633	7454													
02/03-04/86	3942	3757	7699													

STATION NO.:C-2B-A STATION DESCRIPTION: KAMEHAMEHA HIGHWAY AT PUNALUU BRIDGE
POLLING DATE FEBRUARY 3-4, 1986 (MON-TUE)
CHANNEL A: ON KAMEHAMEHA HWY NW BD TO KAHUKU - MR 15633
CHANNEL B: ON KAMEHAMEHA HWY SE BD TO KANEOHE - MR 15678

TIME-AM	CH-A	CH-B	TOTAL	TIME-AM	CH-A	CH-B	TOTAL	TIME-PM	CH-A	CH-B	TOTAL	TIME-PM	CH-A	CH-B	TOTAL
12:00-12:15	9	4	13	6:00- 6:15	16	41	57	12:00-12:15	69	74	143	6:00- 6:15	68	55	123
12:15-12:30	5	2	7	6:15- 6:30	25	44	69	12:15-12:30	79	57	136	6:15- 6:30	71	44	115
12:30-12:45	13	5	18	6:30- 6:45	29	43	72	12:30-12:45	89	48	137	6:30- 6:45	53	36	89
12:45- 1:00	5	5	10	6:45- 7:00	24	43	67	12:45- 1:00	78	55	133	6:45- 7:00	38	28	66
1:00- 1:15	7	3	10	7:00- 7:15	44	43	87	1:00- 1:15	93	55	148	7:00- 7:15	39	25	64
1:15- 1:30	4	3	7	7:15- 7:30	52	48	100	1:15- 1:30	79	56	135	7:15- 7:30	39	30	69
1:30- 1:45	4	0	4	7:30- 7:45	49	53	102	1:30- 1:45	87	81	168	7:30- 7:45	35	22	57
1:45- 2:00	5	1	6	7:45- 8:00	35	46	81	1:45- 2:00	74	53	127	7:45- 8:00	30	14	44
2:00- 2:15	1	2	3	8:00- 8:15	26	52	78	2:00- 2:15	81	75	156	8:00- 8:15	37	18	55
2:15- 2:30	4	2	6	8:15- 8:30	50	54	104	2:15- 2:30	99	59	158	8:15- 8:30	23	16	39
2:30- 2:45	2	1	3	8:30- 8:45	46	51	97	2:30- 2:45	109	81	190	8:30- 8:45	31	12	43
2:45- 3:00	5	5	10	8:45- 9:00	29	42	71	2:45- 3:00	76	67	143	8:45- 9:00	22	17	39
3:00- 3:15	3	1	4	9:00- 9:15	47	56	103	3:00- 3:15	84	77	161	9:00- 9:15	25	118	143
3:15- 3:30	1	1	2	9:15- 9:30	32	55	87	* 3:15- 3:30	87	83	170	9:15- 9:30	23	98	121
3:30- 3:45	2	3	5	9:30- 9:45	33	50	83	* 3:30- 3:45	71	84	155	9:30- 9:45	24	15	39
3:45- 4:00	0	6	6	9:45-10:00	63	35	98	* 3:45- 4:00	85	89	174	9:45-10:00	21	13	34
4:00- 4:15	1	8	9	* 10:00-10:15	50	51	101	* 4:00- 4:15	92	80	172	10:00-10:15	23	12	35
4:15- 4:30	0	18	18	10:15-10:30	59	49	108	4:15- 4:30	71	58	129	10:15-10:30	21	13	34
4:30- 4:45	2	27	29	*10:30-10:45	96	55	151	4:30- 4:45	81	70	151	10:30-10:45	20	4	24
4:45- 5:00	3	36	39	*10:45-11:00	73	42	115	4:45- 5:00	77	66	143	10:45-11:00	15	5	20
5:00- 5:15	3	71	74	*11:00-11:15	73	40	113	5:00- 5:15	94	70	164	11:00-11:15	25	2	27
5:15- 5:30	6	61	67	*11:15-11:30	79	56	135	5:15- 5:30	66	80	146	11:15-11:30	12	9	21
5:30- 5:45	2	35	37	11:30-11:45	71	54	125	5:30- 5:45	79	48	127	11:30-11:45	5	5	10
5:45- 6:00	7	49	56	11:45-12:00	78	43	121	5:45- 6:00	55	58	113	11:45-12:00	12	6	18

	CH-A	CH-B	TOTAL
AM-TOTAL	1273.	1495.	2768.
6:00-12:00 TOT	1179.	1146.	2325.
AM-PEAK HR TIME	10:30-11:30		
*PEAK-HR TOTAL	321.	193.	514.
AM D-% (PEAK-HR)	62.5	37.5	100.0
AM D-% (HR-12N)	46.0	54.0	100.0
AM K FACTOR			6.7

	CH-A	CH-B	TOTAL
PM-TOTAL	2669.	2262.	4931.
12:00-6:00 TOT	1955.	1624.	3579.
PM-PEAK HR TIME	3:15- 4:15		
*PEAK-HR TOTAL	335.	336.	671.
PM D-% (PEAK-HR)	49.9	50.1	100.0
PM D-% (12N-MN)	54.1	45.9	100.0
PM K FACTOR			8.7

STATION NO.:C-27-A STATION DESCRIPTION: KAMEHAMEHA HIGHWAY AT KAIPAPAU BRIDGE
POLLING DATE FEBRUARY 3-4, 1986 (MON-TUE)
CHANNEL A: ON KAMEHAMEHA HWY NW BD TO KAHUKU - MR #5607
CHANNEL B: ON KAMEHAMEHA HWY SE BD TO KAAWA - MR #5665

TIME-AM	CH-A	CH-B	TOTAL
12:00-12:15	14	12	26
12:15-12:30	5	2	7
12:30-12:45	7	6	13
12:45- 1:00	4	0	4
1:00- 1:15	10	3	13
1:15- 1:30	2	3	5
1:30- 1:45	2	1	3
1:45- 2:00	3	1	4
2:00- 2:15	5	0	5
2:15- 2:30	4	3	7
2:30- 2:45	2	2	4
2:45- 3:00	2	1	3
3:00- 3:15	3	0	3
3:15- 3:30	4	1	5
3:30- 3:45	2	1	3
3:45- 4:00	1	4	5
4:00- 4:15	3	11	14
4:15- 4:30	1	10	11
4:30- 4:45	2	20	22
4:45- 5:00	12	34	46
5:00- 5:15	6	38	44
5:15- 5:30	11	25	36
5:30- 5:45	14	31	45
5:45- 6:00	26	45	71

TIME-AM	CH-A	CH-B	TOTAL
6:00- 6:15	29	36	65
6:15- 6:30	36	30	66
6:30- 6:45	53	32	85
6:45- 7:00	44	34	78
7:00- 7:15	70	55	125
7:15- 7:30	85	69	154
7:30- 7:45	109	83	192
7:45- 8:00	99	77	176
8:00- 8:15	60	79	139
8:15- 8:30	73	64	137
8:30- 8:45	54	49	103
8:45- 9:00	67	59	126
9:00- 9:15	51	52	103
9:15- 9:30	51	74	125
9:30- 9:45	57	56	113
9:45-10:00	76	59	135
S 10:00-10:15	79	66	145
10:15-10:30	71	91	162
10:30-10:45	90	68	158
10:45-11:00	113	58	171
*11:00-11:15	103	65	168
*11:15-11:30	97	67	164
*11:30-11:45	93	69	162
*11:45-12:00	91	94	185

AM-TOTAL	CH-A	CH-B	TOTAL
	1876.	1760.	3636.
6:00-12:00 TOT	1751.	1486.	3237.
AM-PEAK HR TIME	11:00-12:00		
*PEAK-HR TOTAL	384.	295.	679.
AM D-Z (PEAK-HR)	56.6	43.4	100.0
AM D-Z (HR-12N)	52.1	47.9	100.0
AM K FACTOR			6.6

DIRECTIONAL TOTALS CHAN-A = 5231. CH-A DZ = 51.1 CHAN-B = 4996. CH-B DZ = 48.9

TIME-PM	CH-A	CH-B	TOTAL
12:00-12:15	108	73	181
12:15-12:30	118	74	192
12:30-12:45	104	73	177
12:45- 1:00	109	77	186
1:00- 1:15	99	87	186
1:15- 1:30	116	79	195
1:30- 1:45	111	81	192
1:45- 2:00	112	86	198
* 2:00- 2:15	118	102	220
* 2:15- 2:30	123	98	221
* 2:30- 2:45	117	104	221
* 2:45- 3:00	123	81	204
3:00- 3:15	105	114	219
3:15- 3:30	106	100	206
3:30- 3:45	83	133	216
3:45- 4:00	90	107	197
4:00- 4:15	121	101	222
4:15- 4:30	82	99	181
4:30- 4:45	79	95	174
4:45- 5:00	95	95	190
5:00- 5:15	94	109	203
5:15- 5:30	88	93	181
5:30- 5:45	81	93	174
5:45- 6:00	79	93	172

TIME-PM	CH-A	CH-B	TOTAL
6:00- 6:15	74	81	155
6:15- 6:30	86	80	166
6:30- 6:45	64	66	130
6:45- 7:00	65	77	142
7:00- 7:15	60	51	111
7:15- 7:30	45	60	105
7:30- 7:45	42	47	89
7:45- 8:00	44	31	75
8:00- 8:15	32	32	64
8:15- 8:30	46	30	76
8:30- 8:45	25	25	50
8:45- 9:00	37	28	65
9:00- 9:15	58	157	215
9:15- 9:30	31	42	73
9:30- 9:45	41	20	61
9:45-10:00	23	22	45
10:00-10:15	25	15	40
10:15-10:30	19	22	41
10:30-10:45	17	11	28
10:45-11:00	18	17	35
11:00-11:15	17	9	26
11:15-11:30	14	17	31
11:30-11:45	10	12	22
11:45-12:00	8	13	21

PM-TOTAL	CH-A	CH-B	TOTAL
	3335.	3256.	6591.
12:00-6:00 TOT	2461.	2247.	4708.
PM-PEAK HR TIME	3:00- 4:00		
*PEAK-HR TOTAL	481.	385.	866.
PM D-Z (PEAK-HR)	55.5	44.5	100.0
PM D-Z (12N-HR)	50.6	49.4	100.0
PM K FACTOR			8.5

24-HOUR TOTAL = 10227.

Traffic on the highway is a mixture of automobiles, trucks, and buses. The Bus, operated by the City, has a regular schedule along this route. Private tour companies also use this route to transport tourists to the Polynesian Cultural Center and other scenic attractions along the North Shore area.

The speed limit between Punaluu and Hauula is 35 miles per hour.

A 24-hour traffic count conducted in February 1986 showed a total of 10,227 vehicles crossing the Kaipapau Bridge with 5,231 vehicles in the Kahuku-bound direction. On the same day, 7,699 vehicles crossed the Punaluu Bridge with 3,942 vehicles traveling in the Kahuku direction.

Peak morning traffic occurred between 11:00 to 12:00 p.m. while peak traffic in the afternoon occurred between 2:00 to 3:00 p.m. at the Kaipapau Bridge. At the Punaluu Bridge, peak traffic occurred between 10:30 to 11:30 in the morning and 3:15 to 4:15 in the afternoon.

I. Air Quality and Noise

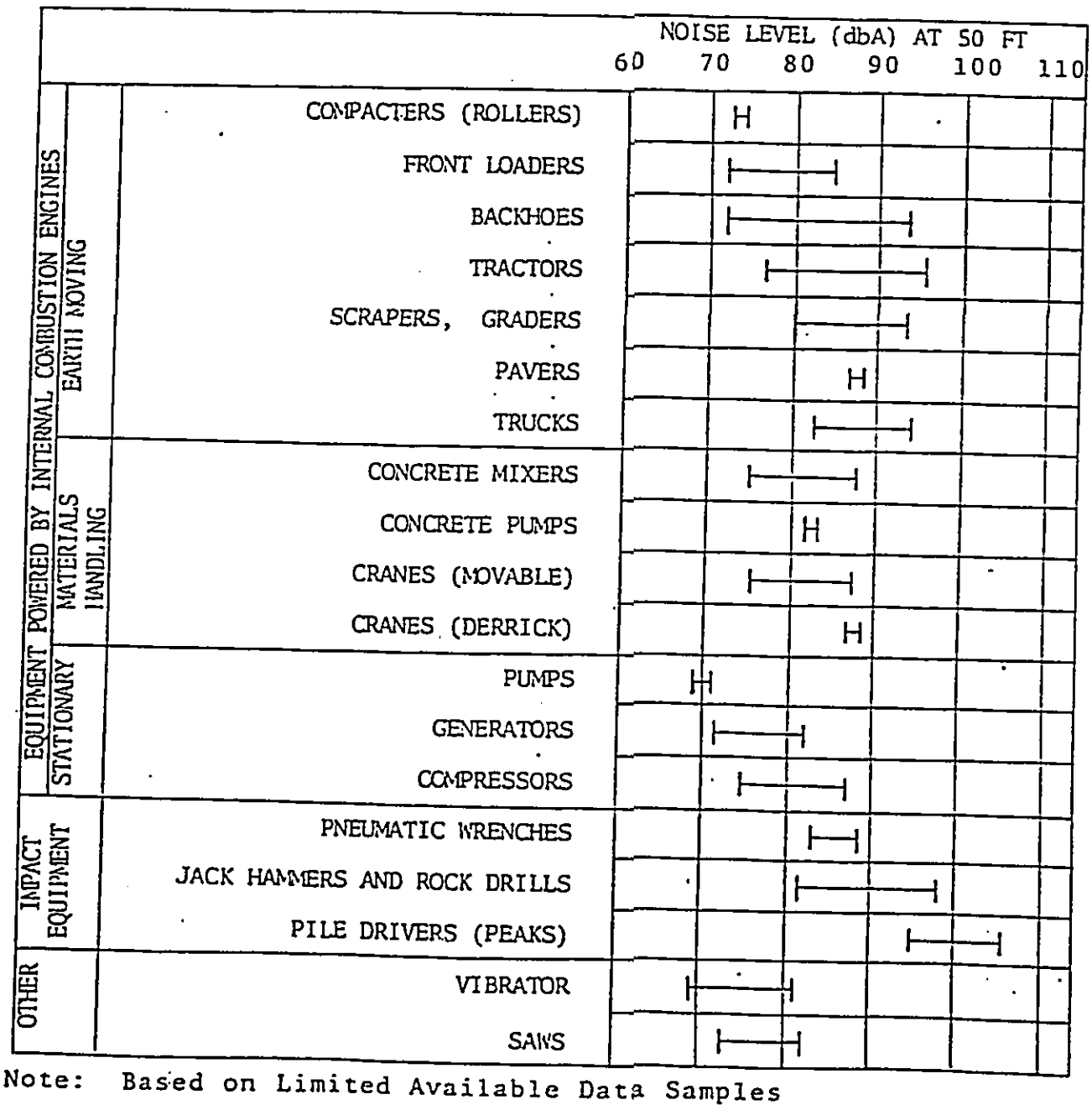
There are no significant sources of air pollution or noise in the project area. Ambient sound levels in rural areas are typically in the range of 40-45 DBA.

J. Utilities

Overhead utility lines for telephone and electrical service exist in the project area.

There are no municipal sewers or GASCO lines in the area. However, there is an existing 12-inch waterline located on the inland side of the State highway right-of-way. This existing waterline serves the Hauula to Punaluu "180" system.

CONSTRUCTION EQUIPMENT NOISE RANGES



Note: Based on Limited Available Data Samples

Source: Noise From Construction Equipment and Operations Building Equipment, and Home Appliances, EPA, 1971

K. Land Use

Lands adjacent to Kamehameha Highway are predominantly used for single-family dwellings. In addition to the single-family dwelling units, there is a Catholic church, a commercial establishment (Pat's at Punaluu), and a condominium (Hanohano Hale) within the project area.

III. LAND USE CONTROLS

A. Hawaii Coastal Zone Management Program

The Hawaii Coastal Zone Management Law (Section 205A, Hawaii Revised Statutes) requires all public agencies to protect coastal ecosystems, such as the habitats of waterbirds and diadromous stream fauna.

Under Part II of Section 205A, HRS, the City and County of Honolulu established a "Special Management Area" around the perimeter of Oahu to regulate above ground development. All

development in the "Special Management Area" requires a permit that must be approved by the City Council in consideration of the Hawaii Coastal Zone Management Program objectives and policies. However, the installation of underground utilities and appurtenant above ground features less than four feet in height are exempt from the Special Management Area permit requirements (Ordinance No. 84-4, as amended).

B. Department of the Army Permit

The Department of the Army Permit is administered by the U.S. Army Corps of Engineers, Honolulu District, under Section 10 of the Rivers and Harbor's Act (33 USC 403); Section 404 of the Clean Water Act (33 USC 1344); and Section 103 of the Marine Protection, Research and Sanitation Act of 1972 (33USC 1413). The permit is required for all work within waters of the United States, including ocean and coastal waters, inland and tidal waters, tidal ponds, fishponds, rivers, streams and adjacent wetlands, perched wetlands, and intermittent streams.

A Department of the Army permit will be required for the waterline crossing over the tidal waters of Kaluanui Stream.

C. Development Plans - City and County of Honolulu

Development within the City and County of Honolulu is guided by the City's General Plan, which is adopted by resolution and consists of eight (8) Development Plans which are enacted by ordinance.

The General Plan specifies long-range objectives reflecting desired conditions for the people of Oahu and policies which will facilitate the attainment of these objectives. The framework provided by the General Plan addresses all aspects of public health, safety, and welfare.

The Development Plans present relatively detailed schemes to implement and accomplish the objectives and policies of the General Plan with respect to development. Planned land uses and public facilities are shown on maps with an indication of the sequence in which public facilities will be developed.

Prior to construction, all proposed public facilities must be designated on the appropriate Development Plan Public Facilities Map (DPPFM). The eight DPPFMs designate proposed facilities which are intended to meet the growth objectives of the Development Plans by providing adequate facilities to accommodate existing and projected needs.

IV. ENVIRONMENTAL IMPACTS AND MITIGATIVE MEASURES

A. Traffic

Traffic congestion is anticipated once construction work begins. To minimize traffic impacts, the contractor will schedule his work between the hours of 8:30 a.m. to 3:00 p.m., Monday to Friday, excluding any State holidays.

One lane of traffic shall be open at all times.

All work shall conform with the "Administrative Rules of Hawaii Governing the Use of Traffic Control Devices at Work Sites on or Adjacent to Public Streets and Highways" and the "Manual of Uniform Traffic Control Devices for Streets Maintenance Operations."

Trenches shall be covered with safe, non-skid bridging material to handle all types of vehicular traffic. No more than 150 feet of trenching shall be exposed at any one time.

The contractor shall provide access to and from driveways and public streets at all times.

Should conditions warrant, the contractor may hire off-duty police officers to control the flow of traffic around the construction area.

Kamehameha Highway may be widened to four lanes by the State Department of Transportation which may require relocation of the main in the future.

B. Air Quality and Noise

There will be some deterioration of air quality from dust and exhaust fumes. Periodic water sprinkling or other approved methods will be implemented to control dust generation.

The contractor will be required to maintain his internal combustion equipment in excellent working condition to minimize the emission of exhaust fumes.

Ambient noise levels will increase temporarily for the duration of the construction work. To minimize adverse noise levels from the construction equipment, the contractor will be required to install or maintain sound attenuating devices on his equipment where it is applicable.

The contractor shall conform to the various Public Health Regulations of the Department of Health, State of Hawaii, relating to noise control (Chapters 11-42 and 11-43) and air quality (Chapters 11-59 and 11-60) in the performance of his work.

C. Archaeology

There are no known historical or archaeological sites within the construction area. However, should any subsurface archaeological resources be encountered, the contractor will be required to stop work and immediately notify the BWS inspector who will then notify the State Historic Preservation Office. No work will recommence until mitigative measures acceptable to the State can be implemented.

D. Water Quality

The proposed pipeline work is not anticipated to adversely affect streamflow. However, the pipeline will cross one stream, Kaluanui Stream. Kaluanui Stream is perennial in its upper reaches and intermittent at its lower reaches. Adequate precautions will be taken to accommodate unforeseen flood flows and intermittent flows during the installation of the pipeline across the stream.

A stream alteration permit will be required from the State's Division of Water and Land Development.

E. Main Disinfection

As the main is installed, it will be hydrostatically tested and disinfected. All new mains will be subjected to a hydrostatic test pressure of 250 psi by the contractor.

After the main is hydrostatically tested and all leaks are repaired, the main is disinfected, usually with chlorine at a concentration of 50 mg/L. This chlorinated water would be retained in the pipeline overnight and discharged into existing drainageways or waterways in accordance with applicable Federal, State, and City requirements.

The tentative discharge location of the chlorinated water used in the pipeline disinfection would be at Kaluanui Stream where it crosses Kamehameha Highway. If possible, another discharge point may be selected to avoid potential harm to aqua fauna in Kaluanui Stream and at the beach discharge area. Diluting the highly chlorinated water before discharging into the stream and/or aerating the water may be implemented to minimize adverse impacts to the receiving environment.

V. ALTERNATIVES

A. No Action

Without a new parallel main, water from new sources would be pumped into the existing main. However, this would require higher operating pressures which can result in fluctuating pressures, water hammer, and a greater potential for main breaks. All of these potential problems would inconvenience consumers served from the system.

B. Delay Action

The advantage to this action, depending upon the duration of the delay, would allow the Board to size the main to the amount of water actually developed from the new sources. The main is presently sized to carry the maximum estimated flow from all the new sources between Punaluu and Malaekahana.

The only obvious disadvantage is that costs for construction will be much higher, if the pipeline is installed later.

C. Alignment

No consideration was given to install the pipeline outside of the highway right-of-way as it would require the displacement of residents and remove land from the tax base.

Installation of the pipeline on the inland side of the right-of-way would require encroachment into private property and was therefore also determined unfeasible.

The other alternative alignment is to install the main in the center of Kamehameha Highway. However, this would affect both lanes and may also require constructing a temporary bypass roadway for non-local traffic.

D. Smaller/Larger Main

The proposed main size is based on the estimated optimum yield from all new sources planned between Punaluu and Malaekahana.

There will be no advantage in installing a larger pipe. It will involve a higher construction cost, may have low pressure problems and may also have water quality problems such as air entrainment.

A smaller pipe may result in a higher than normal line pressures, a lower construction cost and may require an additional pipeline if the yield from the proposed sources is much greater than the designed capacity of the pipe.

E. Main Disinfection

As the main is installed, it will be hydrostatically tested and disinfected. All new mains will be subjected to a hydrostatic test pressure of 250 psi by the contractor.

After the main is hydrostatically tested and all leaks are repaired, the main is disinfected, usually with chlorine at 50 mg/L. This chlorinated water would be retained in the pipeline overnight and discharged into existing drainageways or waterways in accordance with applicable Federal, State, and City requirements.

The tentative discharge location of the chlorinated water used in the pipeline disinfection would be at Kaluanui Stream where it crosses Kamehameha Highway.

VI. DETERMINATION

The proposed pipeline project is not anticipated to have a significant impact to archaeological, water quality, air quality, noise, existing utilities, or wildlife habitat. However, there will be moderate impacts to traffic for the duration of the project, but mitigative measures will be implemented to minimize traffic congestion.

Also, preventive measures will be implemented in the discharge of chlorinated water used in the main disinfection process to minimize impacts to the receiving environment.

All anticipated impacts will be temporary and the environmental quality of the area will return to preconstruction conditions.

VII. PARTIES CONSULTED

A. Federal

1. U.S. Army Corps of Engineers

B. State

1. Department of Land and Natural Resources
2. Department of Transportation
3. Department of Health

C. City

1. Department of Public Works
2. Department of Land Utilization
3. Department of General Planning
4. Department of Transportation Services

D. Other

1. Koolauloa Neighborhood Board No. 28
2. Punaluu Community Association

VII. COMMENTS ON ASSESSMENT

87-1842

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 230
FT. SHAFTER, HAWAII 96858-5440

REPLY TO ATTENTION OF:

AUG 24 9 45 AM '87

August 19, 1987

Mr. Kazu Hayashida, Director
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, HI 96843

Dear Mr. Hayashida:

Thank you for the opportunity to review and comment on the environmental assessment for Kamehameha Highway 20-Inch Main from Punaluu to Hauula. The following comments are offered:

a. A Department of the Army permit is required for the waterline crossing over tidal waters of the Punaluu and Kaluanui Streams.

b. The parcels identified by tax map keys 5-3-06 and 5-3-09 are shown on the enclosed tax maps and FIRMS for Kaluanui area.

According to the Flood Insurance Study for the City and County of Honolulu, the project is located in a Special flood hazard area inundated by the 100-year flood and is designated as Zone V14 with a base flood elevation of 10 feet above mean sea level.

Sincerely,

Kisuk Cheung
Chief, Engineering Division

Enclosures

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

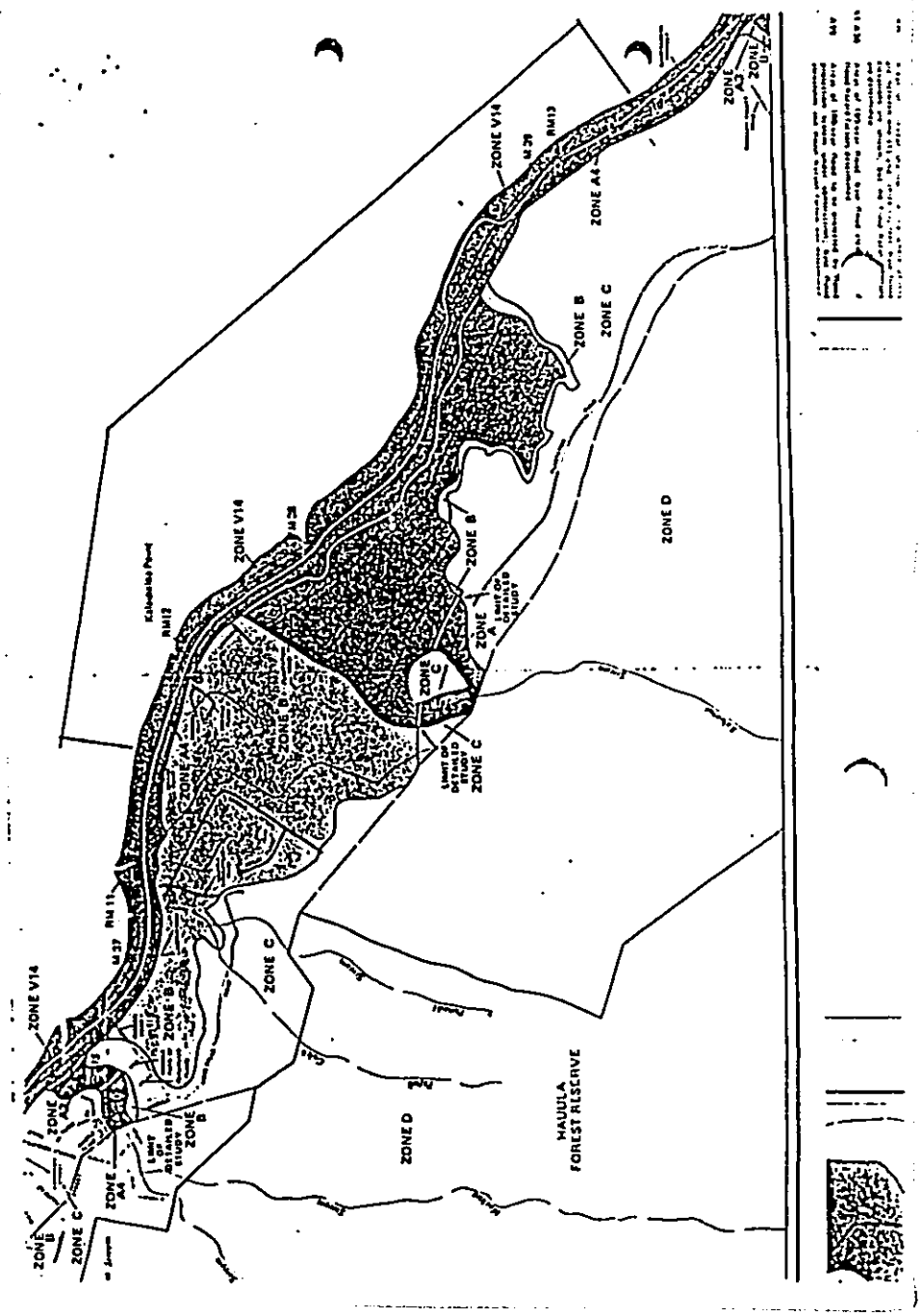
CITY AND COUNTY OF
HONOLULU, HAWAII

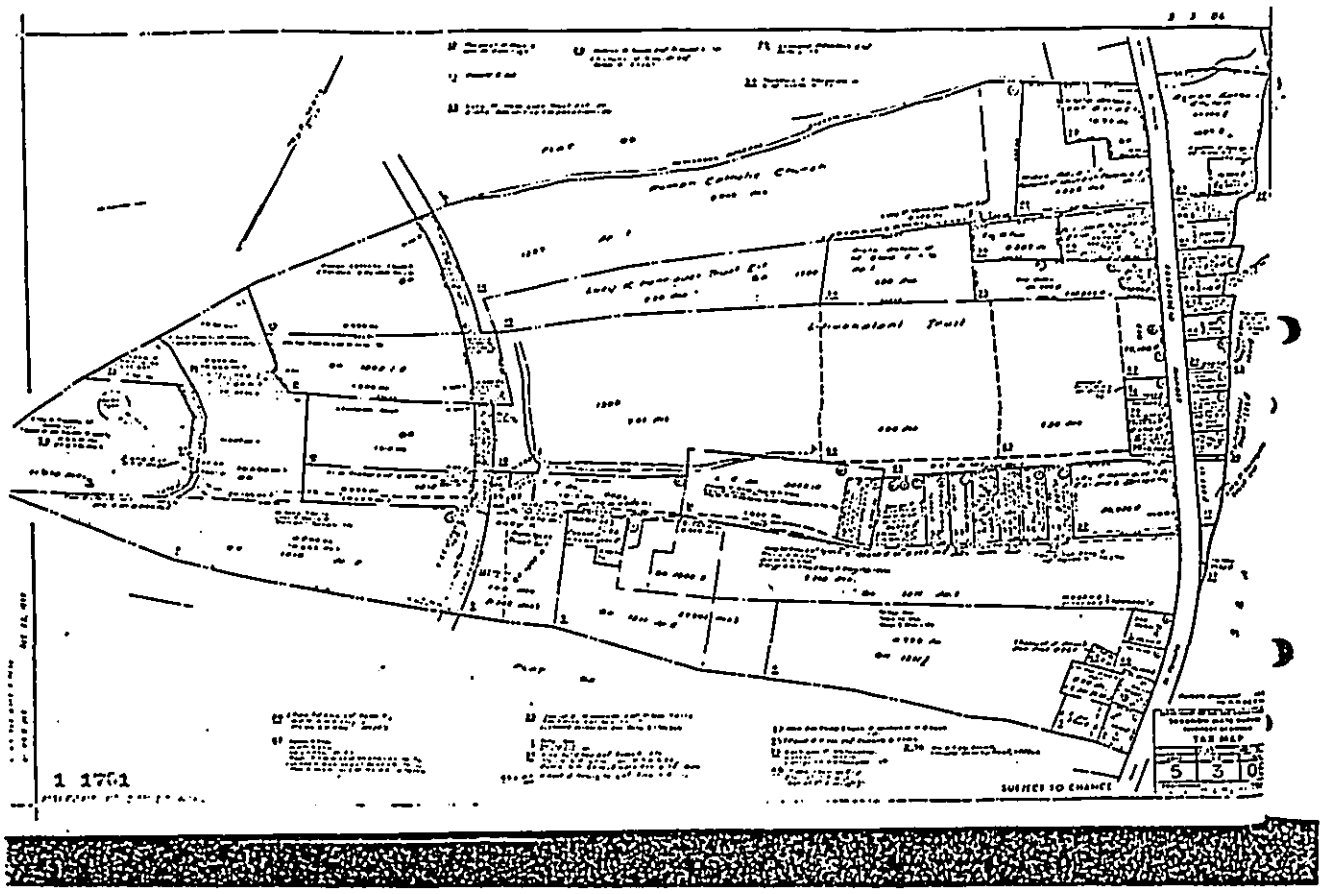
PANEL 15 OF 135
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
150001 0015 A

EFFECTIVE DATE:
SEPTEMBER 3, 1980

U.S. DEPARTMENT OF HOUSING
AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION

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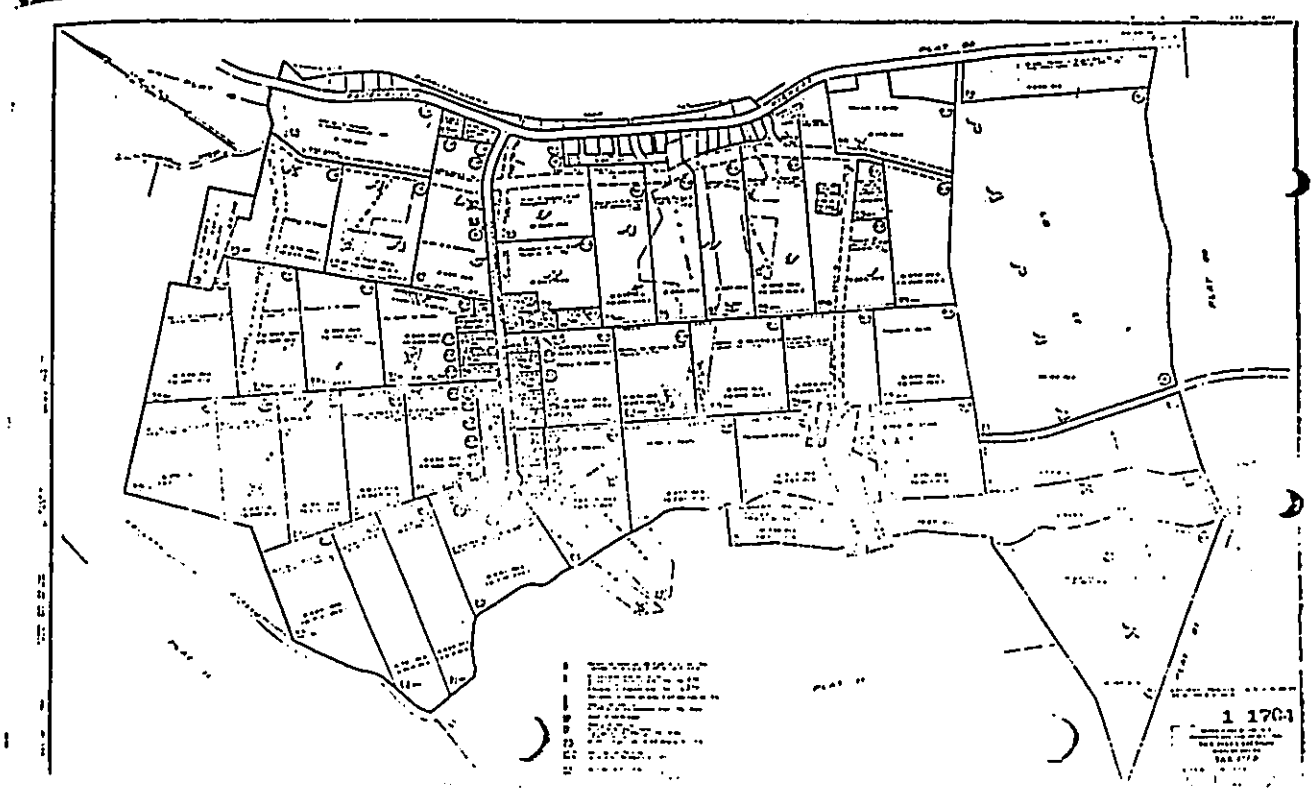
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JOHN WAIHEE
GOVERNOR OF HAWAII

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

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

In reply, please refer to:
EPHSD

August 31, 1987

MEMORANDUM

To: Mr. Kazu Hayashida, Manager and Chief Engineer
Board of Water Supply, City & County of Honolulu

From: Deputy Director for Environmental Health

Subject: Environmental Impact Assessment for Kamehameha Highway 20-Inch Main from Punaluu to Hauula

Thank you for allowing us to review and comment on the subject environmental assessment. We provide the following comments:

1. Construction activities must comply with the provisions of Title 11, Administrative Rules Chapter 43, Community Noise Control for Oahu.

   a. The contractor must obtain a noise permit since the noise levels from the construction are expected to exceed the allowable levels of the rules.

   b. The contractor must comply with the conditional use of the permit as specified in the rules and conditions issued with the permit.

2. Since construction noise can have a disruptive effect on classroom activity, noisy construction work near Hauula Elementary School should be scheduled during nonschool hours.

3. Heavy vehicles travelling to and from the project site must be minimized near existing residential areas and Hauula Elementary School and must comply with the provisions of Title 11, Administrative Rules Chapter 42, Vehicular Noise Control for Oahu.

4. Should there be a baseyard or stockpile area located adjacent to residences or the school, mitigative measures, such as barriers or berms, must be constructed to reduce the noise from such areas. Contingency plans must be developed in the event that complaints are received regarding noise emanating from these areas.

BRUCE S. ANDERSON, Ph.D.

September 15, 1987

Dr. John C. Lewin, Director
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801

Attention: Dr. Bruce S. Anderson

Dear Dr. Lewin:

Subject: Your Memorandum of August 31, 1987 on the Environmental Impact Assessment for Kamehameha Highway 20-Inch Main from Punaluu to Hauula

Thank you for your comments on the environmental assessment for our proposed waterline project.

Construction activities will comply with Chapter 43 of Title 11, Community Noise Control for Oahu, and Chapter 42 of Title 11, Vehicular Noise Control for Oahu.

No work is planned near Hauula Elementary School. The pipeline ends near Kaluanui Stream which is about one mile from the elementary school. Should future work be planned in the vicinity of the school, we will implement the mitigative measures that are mentioned in your memorandum.

If you have any questions, please contact Lawrence Whang at 527-6130.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:jj
cc: K. Hayashida
Engineering
L. Whang

87-1988

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

FRANK F. FASI
MAYOR

JOHN P. WHALEN
DIRECTOR

LU8/87-4199(AC)

August 18, 1987

MEMORANDUM

TO: KAZU HAYASHIDA, MANAGER & CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: JOHN P. WHALEN, DIRECTOR

SUBJECT: ENVIRONMENTAL IMPACT ASSESSMENT FOR KAMEHAMEHA HIGHWAY 20-INCH MAIN FROM PUNALUU TO HAUULA

Thank you for the opportunity to review the above referenced environmental impact assessment for installation of a 20-inch main from Punaluu to Hauula. Your evaluation of the project's status with regard to the Special Management Area (SMA) permit requirements (Chapter 33, ROH) is accurate in that the installation of underground utilities are exempt from having to obtain a permit.

The Department of Land Utilization (DLU) is pleased to note in the assessment that the main alignment was adjusted to avoid the removal or damage to trees along the pipeline route. This effort will ensure and maintain the aesthetic value of coastal view planes along Kamehameha Highway. We request that the final plans showing existing trees and those to be removed, if any, be submitted to our Department for review.

If you have any questions, please contact Art Challacombe of our staff at 523-4648.

JOHN P. WHALEN
Director of Land Utilization

JPW:sl
12038

September 4, 1987

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: YOUR MEMORANDUM ON THE ENVIRONMENTAL IMPACT ASSESSMENT FOR KAMEHAMEHA HIGHWAY 20-INCH MAIN FROM PUNALUU TO HAUULA

Thank you for commenting on the environmental assessment for our proposed waterline project.

The final construction plans will be submitted for your department's review. Existing trees and those to be removed, if any, will be shown in the final plans.

If you have any questions, please contact Lawrence Whang at 527-6138.

For KAZU HAYASHIDA

MHS:jj

cc: K. Hayashida
Engineering
L. Whang

87-1806

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

FRANK F. FASI
MAYOR

DONALD A. CLEGG
CHIEF PLANNING OFFICER

GENE CONNELL
DEPUTY CHIEF PLANNING OFFICER

WH/DGP 8/87-2714

September 1, 1987

MEMORANDUM

TO: KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: DONALD A. CLEGG, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

SUBJECT: ENVIRONMENTAL IMPACT ASSESSMENT FOR KAMEHAMEHA HIGHWAY 20-INCH MAIN FROM PUNALUU TO HAUULA

The Department of General Planning has reviewed the above referenced Environmental Assessment and offers the following comments:

1. The Environmental Assessment addresses anticipated adverse impacts relative to the construction of this project and further suggests appropriate measures which would serve to mitigate these impacts.

2. The proposed project is currently shown on the Development Plan Public Facilities Map for Koolauloa.

3. The department finds that the project is consistent with the requirements of the Koolauloa Development Plan and offers no objections to this project.

Thank you for the opportunity to review this document. Should you have any questions, please contact Bill Medeiros at extension 4485.

DONALD A. CLEGG
Chief Planning Officer

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

JOHN E. HIRTEN
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

RECEIVED
BOARD OF WATER SUPPLY
Aug 27 11 04 AM '87

TR-7202
PL1.0759

August 27, 1987

MEMORANDUM

TO: KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: JOHN E. HIRTEN, DIRECTOR

SUBJECT: ENVIRONMENTAL IMPACT ASSESSMENT FOR KAMEHAMEHA HIGHWAY 20-INCH MAIN FROM PUNALUU TO HAUULA

This is in response to your memorandum of August 4, 1987.

We have no comments to offer regarding the subject environmental assessment.

for JOHN E. HIRTEN

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

FRANK F. FASI
MAYOR

ALFRED J. THIEDE
DIRECTOR AND CHIEF ENGINEER

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August 11, 1987

MEMORANDUM

TO: KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: ALFRED J. THIEDE, DIRECTOR AND CHIEF ENGINEER

SUBJECT: ENVIRONMENTAL IMPACT ASSESSMENT FOR KAMEHAMEHA HIGHWAY 20-INCH MAIN FROM PUNALUU TO HAUULA

The subject project will have no impact on public works facilities in the area. We have no objection to the implementation of the project.

ALFRED J. THIEDE
Director and Chief Engineer

JOHN WAIHEE
GOVERNOR OF HAWAII

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

WILLIAM W. PATY, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

LIBERT K. LANDGRAF
DEPUTY

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

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SEP 8 1987

87-2011

Dep. S/I
PIE

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
City & County of Honolulu
630 S. Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Hayashida:

Environmental Assessment for 20-inch Main along Kamehameha Highway, Punaluu to Hauula

Thank you for the opportunity to review this assessment. We have no adverse comments to offer, however we note that the project includes trenching and burial of the water main beneath Kaluanui Stream.

It is our understanding that the main will be buried within the stream at a depth of three feet, encased in concrete, and covered by approximately 2 feet of fill material. Installation is expected to take from two to four weeks to complete and is planned for a dry period when little or no streamflow is present.

Although there will be no visible structures in the channel once installation is complete, the proposed work is considered to be a channel alteration since the work will result in the disturbance of normal stream conditions and possibly impact instream fauna and their habitat. Two copies of the application form for a stream channel alteration permit are provided for your use.

Should you have any questions regarding permit requirements or the application, please feel free to call Mr. Manabu Tagomori, Manager-Chief Engineer of the Division of Water and Land Development, at 548-7533.

Very truly yours,

WILLIAM W. PATY
Chairperson of the Board

Attach.

Sep 14 8 36 AM '87

September 17, 1987

Mr. William W. Paty,
Chairperson
Board of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Paty:

Subject: Your Letter of September 8, 1987 on the Environmental Assessment for the 20-Inch Main Along Kamehameha Highway, Punaluu to Hauula

Thank you for reviewing the environmental assessment for our proposed waterline project.

We will apply for a stream channel alteration permit with your Division of Water and Land Management.

If you have any questions, please contact Lawrence Whang at 527-6138.

Very truly yours,

KAZU HAYASHIDA
for Manager and Chief Engineer

MHS:jj
cc: K. Hayashida
Engineering (with incoming letter)
L. Whang

87-2011

JOHN WAIHEE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU HAWAII 96813

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EDWARD Y. HIRATA

DEPUTY DIRECTORS
JOHN K. UCHIMA
RONALD N. HIRANO
DAN T. KOCHI

IN REPLY REFER TO
STP 8.2344

September 15, 1987

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Environmental Impact Assessment for
Kamehameha Highway 20-Inch Main from
Punaluu to Hauula, Oahu

We wish to inform you that Kamehameha Highway may be widened to four lanes in the future and, therefore, may necessitate relocation of the subject water main.

Thank you for this opportunity to provide comments.

Very truly yours,

Edward Y. Hirata
Director of Transportation

September 29, 1987

Mr. Edward Y. Hirata, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

Subject: Your Letter of September 15, 1987 on the Environmental Assessment for Kamehameha Highway 20-Inch Main, Punaluu to Hauula

Thank you for your comments on the environmental assessment.

We will note in the revised assessment that Kamehameha Highway may be widened to four lanes which may require relocation of the main in the future.

If you have any questions, please contact Lawrence Whang at 527-6138.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:jj

cc: K. Hayashida
Engineering
L. Whang

87-2128

KOOLAULOA NEIGHBORHOOD BOARD NO. 28
(...uku, Laie, Hauula, Punaluu, Kaaawa Kahana)
c/o HAUULA SATELLITE CITY HALL
54-010 KUKUNA ROAD
HAUULA, HAWAII 96717

872152

RECEIVED
DEPT OF WATER SUPPLY
SEP 28 9 43 AM '87

September 14, 1987

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, HI 96813

Subject: Environmental Impact Assessment (EIA) for Kamehameha Highway 20-Inch Main from Punaluu to Hauula

Dear Mr. Hayashida:

The following are Neighborhood Board #28's comments on the environmental assessment.

Page 2, C. Background

The community has some concern about the continued development of windward water sources to serve Honolulu's needs. This concern comes to the forefront especially since the windward communities in question are inadequately serviced as far as their own water needs. Many of these communities have inadequate transmission line sizes for minimum fire flow. We understand that 8" lines are standard and that several of our communities have 2" lines. Many of the communities lack fire hydrants. If the Board of Water Supply is going to continue to develop windward water for transmission to Honolulu, the N.B. would like to suggest that the BWS budget to provide basic service to the windward coastline. The problem of insufficient service has resulted in residents being turned down for building permits and denied for subdivisions even though they possess the proper zoning. The N.B. requests that BWS begin to address the needs of the windward coastline as they continue to develop the water resources found there.

Page 4, 4. Streams

The N.B. would like to point out that Kaluanui Stream is a perennial stream and flows in all reaches year round.

Page 8, Cont. of 10. Utilities

The existing waterline described here is it to remain in place or be replaced?

Pages 10 and 11, C. Development Plans - City and County of Honolulu

Is this line currently shown on the development plan public facilities map? If not, where is it in the process?

Page 11, A. Traffic

The N.B. does not understand how it will minimize traffic impacts to work through our identified peak hours (see page 7). However, we are pleased that you will be doing no weekend work as these are our worst traffic times.

General

We understand that the pipe will be a minimum of 3 feet below the ground; this is especially important at the culvert and stream crossings. We do not want the pipe uncovered during a storm and acting as a dam to impede drainage of the flood plain. We also would like to request that you inform us of the length of duration of the construction and when we can anticipate the start.

If you have any questions about these comments, feel free to contact me at 526-2817.

Sincerely,

Dee Dee Letts

Dee Dee Letts
Chair, Water and
Transportation

DDL:chk

cc: Senator Jimmy Wong
Representative Reb Bellinger
Councilmember Dave Kahanu

October 7, 1987

Ms. Dee Dee Letts
Chair, Water and Transportation
Koolauloa Neighborhood Board No. 28
c/o Hauula Satellite City Hall
54-010 Kukuna Road
Hauula, Hawaii 96717

Dear Ms. Letts:

Subject: Your Letter Dated September 14, 1987 on Environmental Impact Assessment (EIA) for Kamehameha Highway 20-Inch Main from Punaluu to Hauula

Thank you for reviewing and commenting on the EIA.

We have the following response to your comments:

1. Page 2, C. Background

   There are many older communities whose water systems met the standards of their time, but do not meet the current water system standards. The Board of Water Supply has an ongoing program to upgrade these substandard areas and has appropriated funds annually for this specific purpose. The program is being carried out incrementally. This current fiscal year's program includes projects for the replacement of about 8,545 feet of 2-inch pipe along various streets in Waimanalo, about 7,260 feet of pipeline along various streets in Lanikai, and about 4,300 feet of pipeline along Lilipuna Street in Kaneohe. This substandard pipeline problem exists throughout the island and communities may expedite the improvements by petitioning the City Council to initiate an improvement district in their area.

2. Page 4, 4. Streams

   The flow in Kaluanui Stream is perennial in its upper reaches and at Kaluanui Bridge. The attached map shows the stretch of stream between the two red marks where the stream occasionally disappears into the alluvium during dry weather. It reappears again at the lower red marked area. The pump station will be located below springs discharging into the stream and, therefore, should have no effect on the stream. However, we will monitor the stream flows when the station is put into operation to verify this.

3. Page 3, Cont. of 10. Utilities

   The existing 12-inch waterline serving the Hauula to Punaluu "180" system will remain in service. This 12-inch waterline is a distribution main where water services lead off to our consumers. The proposed 20-inch waterline is a transmission main which is specifically intended to carry water from our sources to the distribution mains. Consumers are usually served from a transmission main only in areas where local distribution mains are non-existent.

4. Pages 10 and 11, C. Development Plans - City and County of Honolulu

   The proposed 20-inch transmission main is on the Development Plan Public Facilities Map.

5. Page 11, A. Traffic

   The scheduling of construction work between the hours of 8:30 a.m. to 3:00 p.m., Monday to Friday, excluding any State holidays, should minimize traffic impacts since work will not be performed in general during peak hour traffic along State highways.

6. General

   Construction work for the 20-inch pipeline is tentatively scheduled to begin in mid-1988, and the duration of work will be about a year.

If you have any questions, please contact Lawrence Whang at 527-6138.

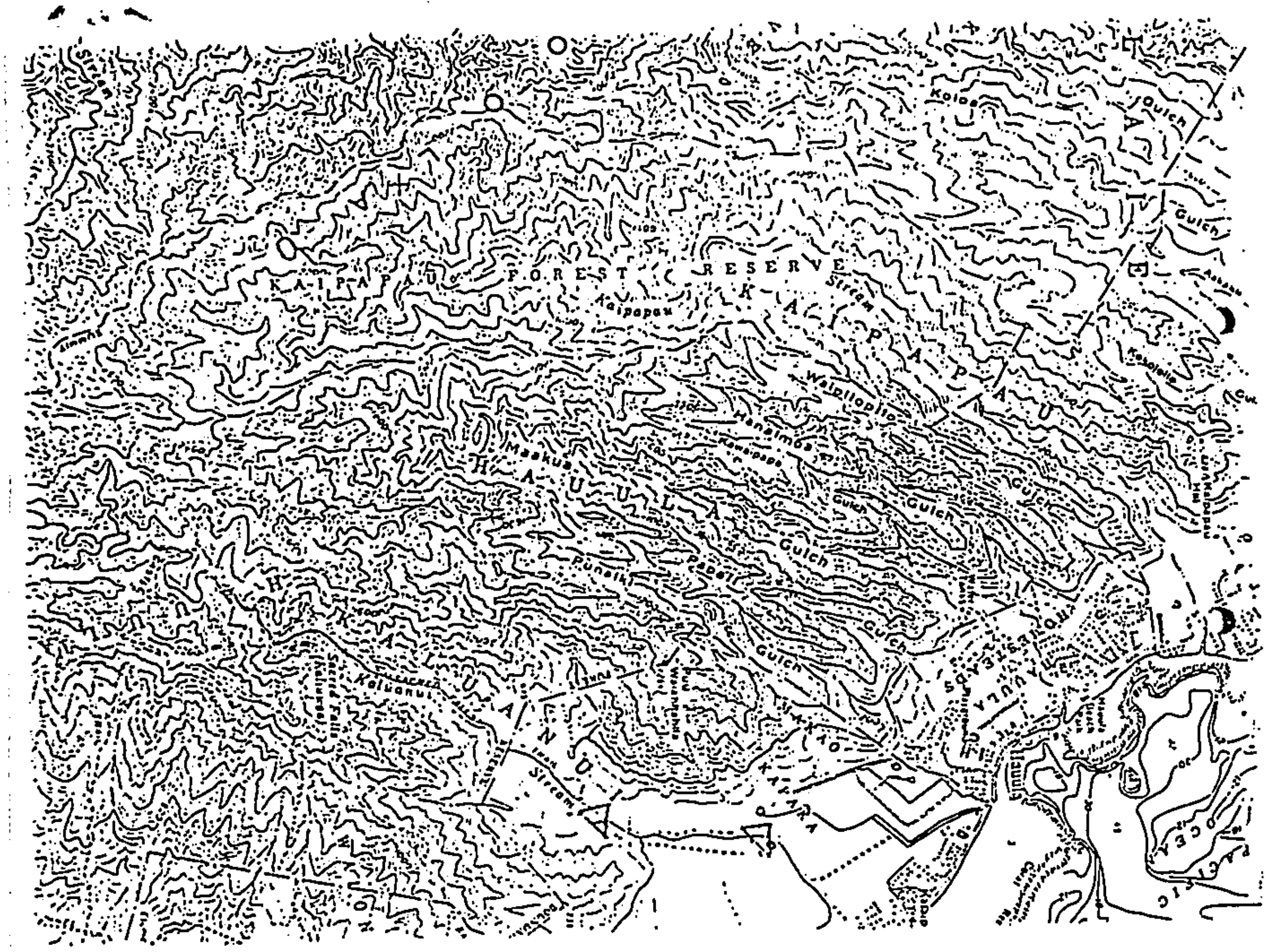
Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

Attachment

LHYW/HHM:do
cc: K. Hayashida, Engineering, L. Whang

87-2057


KAIPAPAU FOREST RESERVE
Kaipapau
Stream
Koloa
Gulch
Waipilopilo
Hanaimoa
Maakua
HAUULA
Punaiki
Papali
Kaluanui
Stream
OCEAN
PACIFIC