BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

July 25, 2001

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

Dear Ms. Salmonson:

Subject: Finding of No Significant Impact for the Board of Water Supply's Proposed Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu

The Board of Water Supply has reviewed the comments received during the public comment period which began on May 23, 2000. We have determined that the environmental impacts of this project have been adequately addressed as discussed in the Final Environmental Assessment (EA) and are therefore issuing a Finding of No Significant Impact. We request that the proposed Honolulu 42-inch and 24-inch transmission mains project be published as a Finding of No Significant Impact in the next Office of Environmental Quality Control (OEQC) Bulletin.

Attached are the completed OEQC Bulletin Publication Form and four copies of the Final EA for your review.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

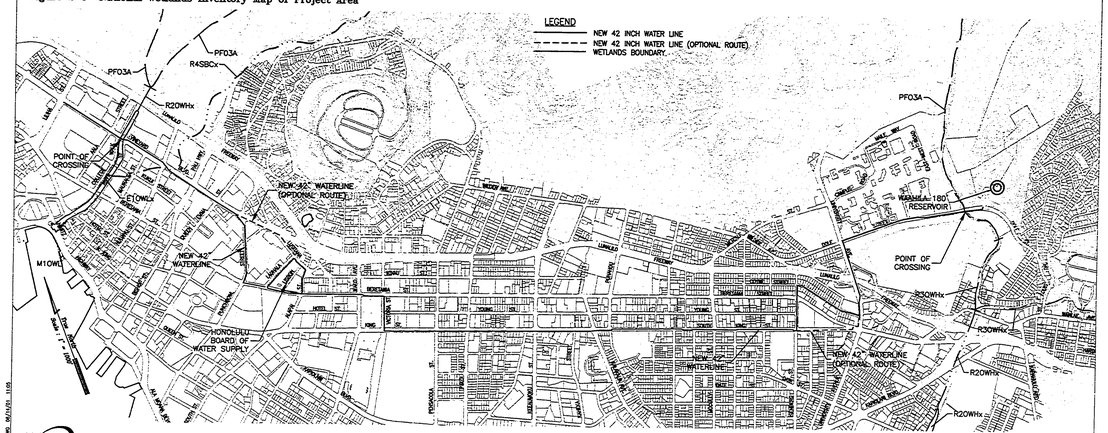
Barry Usagawa

for CLIFFORD S. JAMILE
Manager and Chief Engineer

Attachments

98

Figure 2-9 National Wetlands Inventory Map of Project Area



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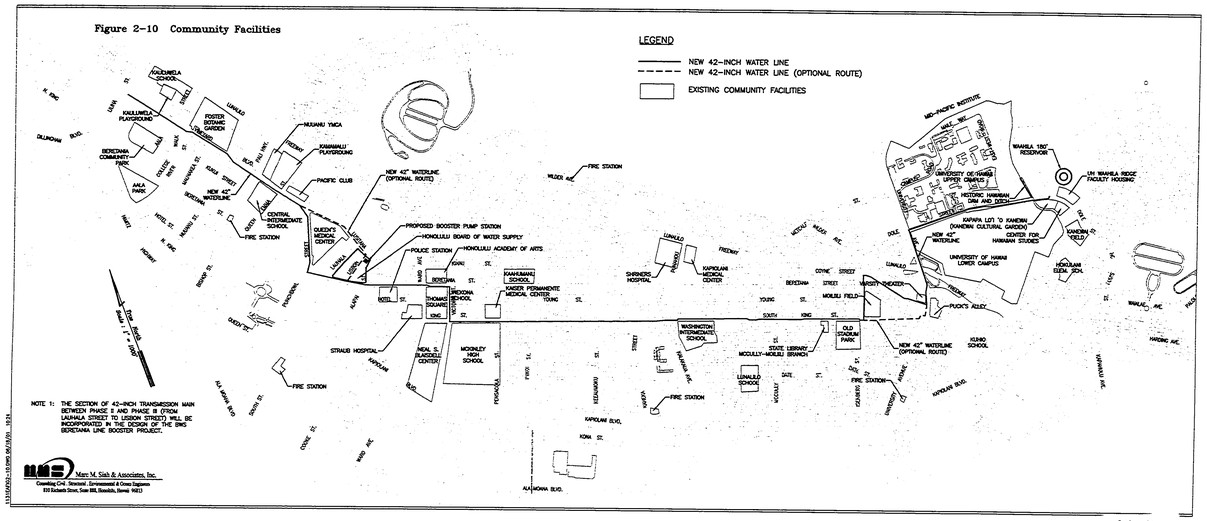
Consulting Civil, Structural, Environmental & Ocean Engineers
910 Richards Street, Suite 103, Honolulu, Hawaii 96813

102-C

Figure 2-10 Community Facilities



LEGEND

——— NEW 42-INCH WATER LINE
– – – – NEW 42-INCH WATER LINE (OPTIONAL ROUTE)
☐ EXISTING COMMUNITY FACILITIES

NOTE 1: THE SECTION OF 42-INCH TRANSMISSION MAIN BETWEEN PHASE II AND PHASE III (FROM LAUHALA STREET TO LISBON STREET) WILL BE INCORPORATED IN THE DESIGN OF THE BWS BERETANIA LINE BOOSTER PROJECT.

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Consulting Civil . Structural . Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

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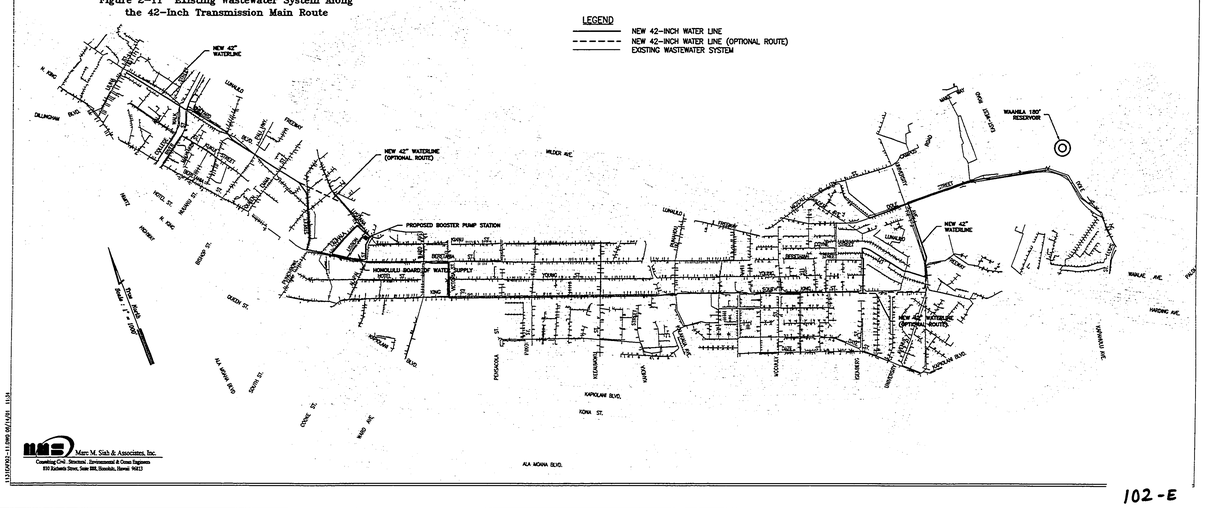
102-D

Figure 2-11 Existing Wastewater System Along the 42-Inch Transmission Main Route



102-E

Figure 2-13 City and County of Honolulu Zoning Map

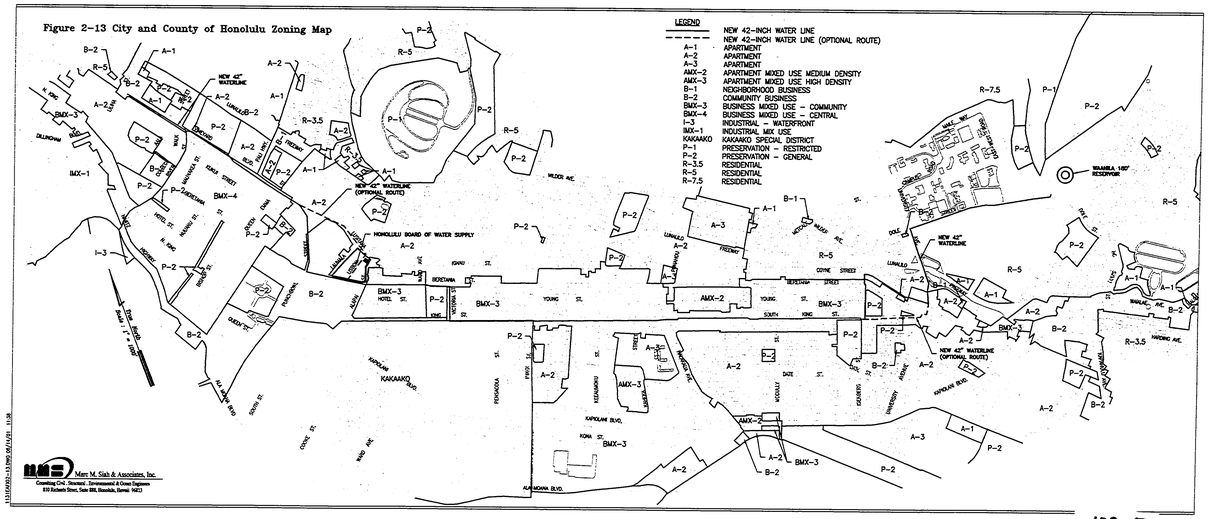


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Figure 1-1 Proposed Transmission Main Alignment for the Honolulu 42-inch and 24-inch Transmission Mains Project

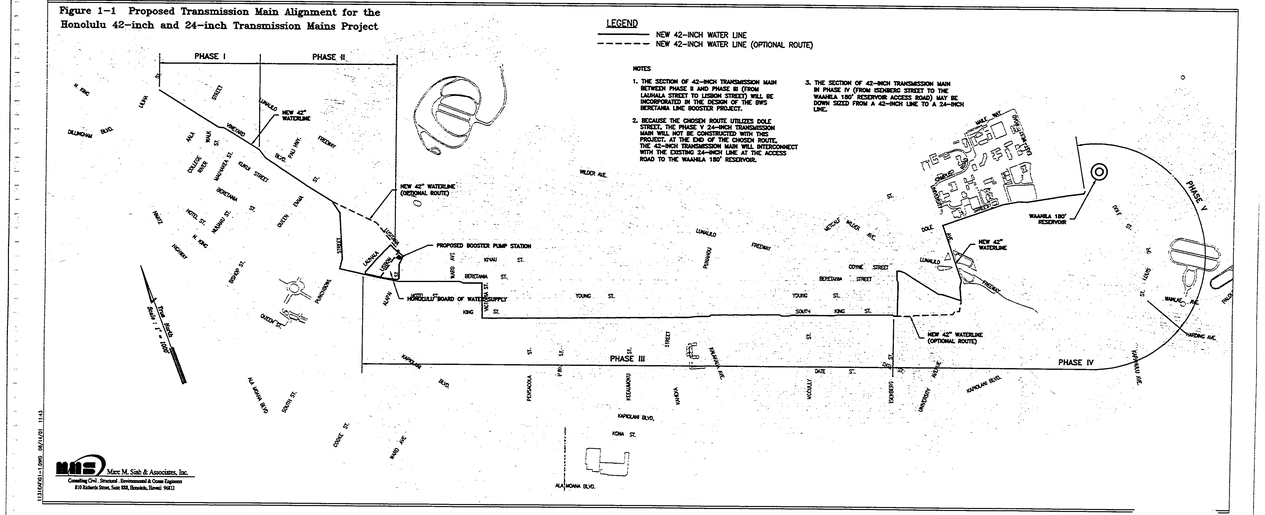

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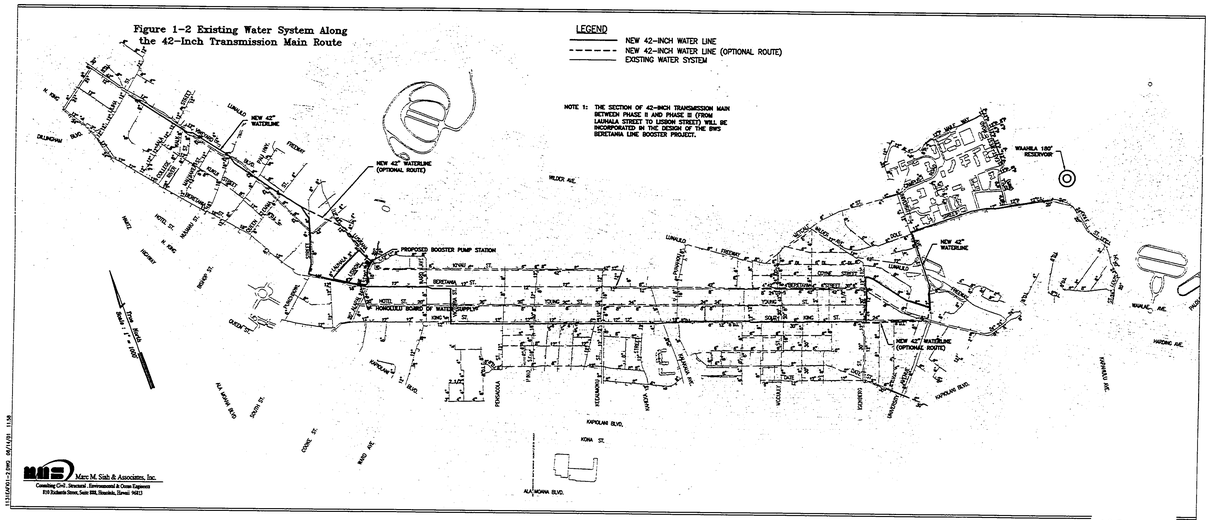
Figure 1-2 Existing Water System Along the 42-Inch Transmission Main Route



102 A

2001-08-08-OA-FEA-

FINAL ENVIRONMENTAL ASSESSMENT/ FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR THE HONOLULU 42-INCH AND 24-INCH TRANSMISSION MAINS HONOLULU, OAHU, HAWAII

Prepared for:

Board of Water Supply
City and County of Honolulu

Prepared By:
Marc M. Siah & Associates, Inc.

July 2001

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Consulting Civil • Structural • Environmental & Ocean Engineers
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FINAL ENVIRONMENTAL ASSESSMENT/

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

FOR THE

HONOLULU 42-INCH AND 24-INCH

TRANSMISSION MAINS

HONOLULU, OAHU, HAWAII

Prepared for:

Board of Water Supply
City and County of Honolulu

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Marc M. Siah & Associates, Inc.

July 2001

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FINAL ENVIRONMENTAL ASSESSMENT
FOR
THE HONOLULU 42-INCH AND 24-INCH TRANSMISSION MAINS
HONOLULU, OAHU

This environmental document is prepared pursuant to Chapter 200 of Title 11, Department of Health Administrative Rules, "Environmental Impact Statement Rules"

PROPOSING AGENCY

Board of Water Supply
City and County of Honolulu

ACCEPTING AUTHORITY

Board of Water Supply
City and County of Honolulu

PREPARED BY:

Marc M. Siah & Associates, Inc.
810 Richards Street
City Center Building, Suite 888
Honolulu, HI 96813
(808) 538-7180

June 2001

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PREFACE

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PREFACE

This Final Environmental Assessment is prepared pursuant to the requirements of Chapter 343, *Hawaii Revised Statutes*, Act 241, Session Laws of Hawaii 1992, and Chapter 200 of Title 11, Department of Health Hawaii Administrative Rules, "Environmental Impact Statement Rules".

This assessment documents the technical characteristics and environmental impacts of the proposed Honolulu 42-Inch and 24-Inch Transmission Mains project and presents the findings, determination, and reasons supporting the determination associated with the significance of the project.

SUMMARY OF THE FINAL ENVIRONMENTAL ASSESSMENT FOR THE HONOLULU 42-INCH AND 24-INCH TRANSMISSION MAINS

A. Proposing Agency

Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843
Contact: Ms. Iris Oda, P.E.

B. Approving Authority

Mr. Clifford S. Jamile, P.E.
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

C. Name of Action

Environmental Assessment for the Honolulu 42-inch and 24-inch Transmission Mains.

D. Description of Proposed Action

The proposed action by the Honolulu Board of Water Supply (BWS) is to install approximately 23,000 linear feet of 42-inch water line from the intersection of Liliha Street and Vineyard Boulevard to the Waahila 180' Reservoir, with the possibility of downsizing the section approaching the Waahila 180' Reservoir to a 24-inch line. As an additional part of this project, the BWS plans to include the construction of a 60 million gallon per day pump station adjacent to the existing BWS facilities near the intersection of Beretania Street and Alapai Street. Currently, during high demand periods, the hydraulic grade line decreases in the Makiki to Kaimuki area of the existing 42-inch transmission main. BWS flow measurements in the west side of the system have indicated velocities exceeding desired rates, which indicate the existing main is exceeding its carrying capacity from Kalihi to Downtown Honolulu. The installation of the new water line and booster station will increase the transmission capacity and flow across the Honolulu Low West Water System (HLWWS). This action would also create redundancy and increase reliability in the HLWWS to the Honolulu East System and the planned and approved

redevelopment of the waterfront, Kakaako and Waikiki. Another benefit of the new 42-inch transmission main would be an increase in the hydraulic grade line throughout the system, resulting in increased efficiency, lower pumping costs and decreased maintenance requirements.

E. Project Setting

The project site is located throughout urban Honolulu, Hawaii. The existing water system is comprised of a single 42-inch transmission main extending from Kalihi Street in Kalihi to Griffiths Street in McCully which is the only means for transmission of water from the west to the east side of the water system. This transmission main has been in use for more than 50 years. The distribution network built around the 42-inch artery is comprised of a network of water mains and service laterals that feed off of the 42-inch transmission main. According to billing records, the average billed consumption in the HLWWS between 1990 and 1997 was 45.7 million gallons per day. This amounts to approximately 36% of the island-wide water demand.

F. Project Cost

The revised estimated cost of installing the 42-inch transmission main from the intersection of Liliha Street and Vineyard Boulevard to the Waahila 180' access road is $41.8 million. The revised construction cost of the new booster pump station is estimated to be $2,000,000.

G. Relationship to Plans, Policies and Controls

Plan, policies, and controls considered in the evaluation of the project are as follows:

State Land Use Districts
Honolulu City and County General Plan
Primary Urban Center Development Plan
Oahu Integrated Resource Plan

H. Probable Impacts

Impacts associated with the proposed project can be classified as having short-term and long-term effects. Short-term impacts are those related to construction activities, namely noise, air quality, water quality, erosion, and public health and safety and traffic. Long-term impacts are those associated with operation of the water system improvements. These include impacts on flora, fauna, society, public health and safety and infrastructure.

Short-term Impacts

The impacts generated from the construction activities are not expected to be significant. The BWS will coordinate the design and construction of the project with the city, state and affected utilities in order to consolidate projects, reduce traffic impacts and minimize service interruptions. During construction, soil erosion control measures and relevant Best Management Practices (BMPs) will be implemented. Potential soil loss is anticipated to be minimal and within an acceptable range. There are no expected significant impacts on water quality, historical sites or archaeological features. The BWS will mitigate any possible impacts by hiring an archaeologist for both on-site and on-call monitoring. There are no known rare or threatened species of flora or fauna in the project area. Traffic congestion may increase during construction because up to two lanes of traffic will be closed at a time during construction, unless partial shoulder area is available. Mitigative traffic monitoring and coordination will be implemented to minimize inconvenience to the public. Noise control measures such as muffling devices will be employed on construction equipment during construction. Dust control measures such as sprinkling and watering will be implemented to minimize emissions.

Long-term Impacts

In the long-term, the project will not have adverse environmental impacts. In fact, it will benefit both residents and businesses in the area. In addition, the proposed project is not expected to adversely affect the existing water quality or biota within the project area. The project will improve public facilities in the area which will promote long-term community gains.

I. Alternatives Considered

No Action

The "No Action" alternative means that no water system improvement will be constructed. Currently, the hydraulic grade line (HGL) decreases during high demand periods and higher than desired velocities occur which indicate that the existing main is exceeding its carrying capacity. Also, as the existing system ages and the population in the area increases, the water system may become inadequate. This alternative is unacceptable to the community, since water supply issues will remain unresolved.

Delayed Action

The "Delayed Action" alternative means that the water system improvement takes place at some time in the future. This alternative will postpone the resolution of water supply concerns in the area, causing potential water supply shortages due to inadequate infrastructure. Furthermore, the delay of the water system improvement will also result in higher construction costs in the future due to inflation.

Alternative Transmission Main Routes and Pump Station Sites

The "Alternative Transmission Main Routes and Pump Station Sites" alternative means that the water system improvement will utilize thoroughfares and sites other than those proposed. A separate feasibility study prepared for the Honolulu Board of Water Supply entitled *"Peer Review and Expansion of the Route Feasibility Study for the Honolulu 42-inch and 24-inch Transmission Mains" (Reference No. 9)* evaluated more than seven alternative routes for the transmission main. All of these alternatives were concluded to be less feasible than the proposed transmission main route. In general, an alternative solution would lead to higher construction costs, higher maintenance requirements, more disruption to the public and increased impacts to archaeological sites and Historical Districts.

Additionally, three alternate sites were evaluated by the BWS for construction of the booster pump station. These three sites proved to be less feasible based on their hydraulic characteristics, proximity to transmission mains and location relative to public facilities.

J. Irreversible and Irretrievable Commitments of Resources

The proposed water system improvement project involves irreversible and irretrievable uses of energy, labor, materials, and capital funds by the City and County of Honolulu's Board of Water Supply. Construction of the proposed water system improvements will resolve water supply concerns throughout the urban Honolulu area.

K. List of Necessary Permits and Approvals

Permits required in order to produce the water system improvements are listed as follows:

Permit	Approving Agencies	Approximate Processing Time
Army Corps of Engineers (404) Permit	Army Corps of Engineers U.S. Government Regulatory Section Job File No.: 200000230	90 - 180 days
Stream Channel Alteration Permit	Department of Land and Natural Resources State of Hawaii	60 -90 days
Water Quality (401) Certification	Department of Health State of Hawaii Clean Water Branch	60 - 90 days
National Pollutant Discharge Elimination System (NPDES): Dewatering Permit	Department of Health State of Hawaii Clean Water Branch	60 - 90 days
NPDES: Hydrotesting Permit	Department of Health State of Hawaii Clean Water Branch	60 - 90 days
NPDES: Storm Water Runoff Permit	Department of Health State of Hawaii Clean Water Branch	60 - 90 days
State Right-of-Way Permit	Department of Transportation Highways Division State of Hawaii	30 - 60 days
City and County Right-of-Way Permit	Department of Transportation Services City and County of Honolulu	30 - 60 days

Permit	Approving Agencies	Approximate Processing Time
Building Permit	Department of Planning and Permitting City and County of Honolulu	30 - 45 days
Grading Permit	Department of Planning and Permitting City and County of Honolulu	15 - 30 days
State Trenching Permit	Department of Transportation Highways Division State of Hawaii	15-30 days
City Trenching Permit	Department of Planning and Permitting City and County of Honolulu	15 - 30 days
Noise Variance Permit (as needed)	Department of Health State of Hawaii	7 - 14 days
State Traffic Control Plans	Department of Transportation Highways Division State of Hawaii	15-30 days
State Lane Closure Permit (as needed)	Department of Transportation Highways Division State of Hawaii	15-30 days
City and County Traffic Control Plans	Department of Transportation Services City and County of Honolulu	15 - 30 days
City and County Street Usage Permit (as needed)	Department of Transportation Services City and County of Honolulu	15 - 30 days
Construction Plans and Specifications	Department of Planning and Permitting City and County of Honolulu	30 - 60 days
	and	
	Board of Water Supply City and County of Honolulu	30 - 60 days

SUMMARY

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SECTION 1

INTRODUCTION

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SECTION 1

INTRODUCTION

1.1 Study Purpose

The purpose of this study is to assess the environmental impacts of installing new 42-inch and 24-inch transmission water mains in urban Honolulu as proposed by the City and County of Honolulu's Board of Water Supply. Installation of these transmission mains will greatly increase the capacity and hydraulic performance of the Honolulu Low West Water System and will enhance the Honolulu Board of Water Supply's capability to provide reliable potable water service to urban Honolulu. The proposed alignment for the 42-inch transmission main is illustrated in Figure 1-1.

1.2 Existing Water System

Urban Honolulu, which includes the Downtown Honolulu and Waikiki areas, is serviced by the Honolulu Low West Water System (HLWWS). At the present time, a single 42-inch transmission main extending from Kalihi Street in Kalihi to Griffiths Street in McCully is the only means for transmission of water from the west to the east side of the water system. This transmission main has been in use for more than 50 years. Currently, during high demand periods, the hydraulic grade line decreases in certain sections of the existing 42-inch transmission main. The decrease in hydraulic grade line and flow measurements of velocities exceeding desired rates indicate that the existing main has reached its carrying capacity.

The distribution network built around the 42-inch artery is comprised of a network of water mains and service laterals that feed off of the 42-inch transmission main. The existing water system along the project route includes approximately 5,500 linear feet of 42-inch line, 400 linear feet of 30-inch line, 1,800 linear feet of 24-inch line, 800 linear feet of 20-inch line, 500 linear feet of 18-inch line, 13,800 linear feet of 12-inch line and 7,800 linear feet of 8-inch line. According to billing records, the average billed consumption in the HLWWS between 1990 and 1997 was 45.7 million gallons per day. This amounts to approximately 36% of the island-wide water demand. The existing water system in the area of the proposed transmission main is shown in Figure 1-2.

1.3 Proposed Action

The action proposed by the Honolulu Board of Water Supply is to install approximately 23,000 linear feet of 42-inch water line from the intersection of Liliha Street and Vineyard Boulevard to the Waahila 180' Reservoir. Also as part of this project, the BWS plans to include the construction of a sixty million gallon per day pump station adjacent to the existing BWS facilities near the intersection of Beretania Street and Alapai Street. The installation of the new water

MAP/DRAWING#

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MAP/DRAWING#

102-A

line and booster pump station will increase the transmission capacity and flow across the HLWWS. This action would also create redundancy and increase reliability in the HLWWS. Another benefit of the new 42-inch transmission main would be an increase in the hydraulic grade line throughout the system, resulting in increased efficiency, lower pumping costs and decreased maintenance requirements.

1.3.1 Proposed Transmission Main

The proposed revised alignment for the new 42-inch transmission main, as illustrated in Figure 1-1, starts from the Liliha Street/Vineyard Boulevard intersection and proceeds southeast along Vineyard Boulevard to Punchbowl Street. It would then continue south on Punchbowl Street to Beretania Street. From here it runs southeast on Beretania Street to Victoria Street, then south to King Street. It then proceeds southeast along King Street to Isenberg Street. The line would then go north on Isenberg Street and west on Coyne Street to University Avenue. The line then goes northeast on University Avenue to Dole Street and continues east along Dole Street to the access road to the Waahila 180' Reservoir. At this point, the 42-inch transmission main will connect to the existing influent-effluent main that runs along the Waahila 180' Reservoir access road. During the final stages of design, the Board may exercise an option vary the proposed route in two areas. One area is at the intersection of Vineyard Boulevard and Punchbowl Street. From here, the BWS may choose to continue on Vineyard Boulevard to Lusitana Street. It would then continue south on Lusitana Street to Lauhala Street. The line would the continue siuth on Lauhala Street to continue on Beretania Street. The other area where the routing of the pipeline may change is at the intersection of King Street and Isenberg Street. At this point, the line may continue on King Street to University Avenues, then northeast on University Avenue to Dole Street. Both of these optional routes are shown in Figure 1-1. Finally, the BWS may choose to downsize the section of transmission main from the intersection of Isenberg Street and King Street to the Waahila 180' Reservoir access road point of connection. If the BWS decides to downsize this section of the transmission main, a 24-inch line will be used and the BWS may supplement the water system in the future with a 24-inch line from the Waahila 180' Reservoir access road to Waialae Avenue via Dole Street and St. Louis Drive. As proposed, the construction cost of the 42-inch and 24-inch transmission mains is approximately $41.8 million (see Appendix A for earlier cost estimates). To date, the transmission main design has not been completed.

1.3.2 Proposed Booster Pump Station

The preferred location for the proposed booster pump station is within the existing BWS Beretania Street complex, as shown in Figure 1-1. The new pump station will be designed to pump 60 million gallons of water per day. It is anticipated that the pumping will be done using five pumps, each with a 15 million gallon per day pumping capacity.

Work associated with the construction of the booster pump station will include the installation of transmission lines to connect to the Honolulu Low West Water System, motors, pumps, valves and pipe connections. The control building itself will be constructed of acoustically dampened, concrete walls. Construction of the booster pump station has a revised estimated cost of $2,000,000. To date, the booster pump station has not been designed and the final location of the booster pump station within the BWS Beretania Street complex will be identified in the Beretania Complex Facility Master Plan, which is still being developed. Figures 1-3 and 1-4 illustrate the typical layout of a pump station of this type. Alternative locations within the site are shown in Figures 1-5 and 1-6.

1.3.3 Pipeline Construction Methods

The BWS will coordinate the design and construction of the project with the city, state and affected utilities in order to consolidate projects, reduce traffic impacts and minimize service interruptions. The 42-inch and 24-inch transmission mains will be installed using methods that will minimize the impacts to the community and environment to the greatest extent possible.

1.3.3.1 Existing Right-of-Ways

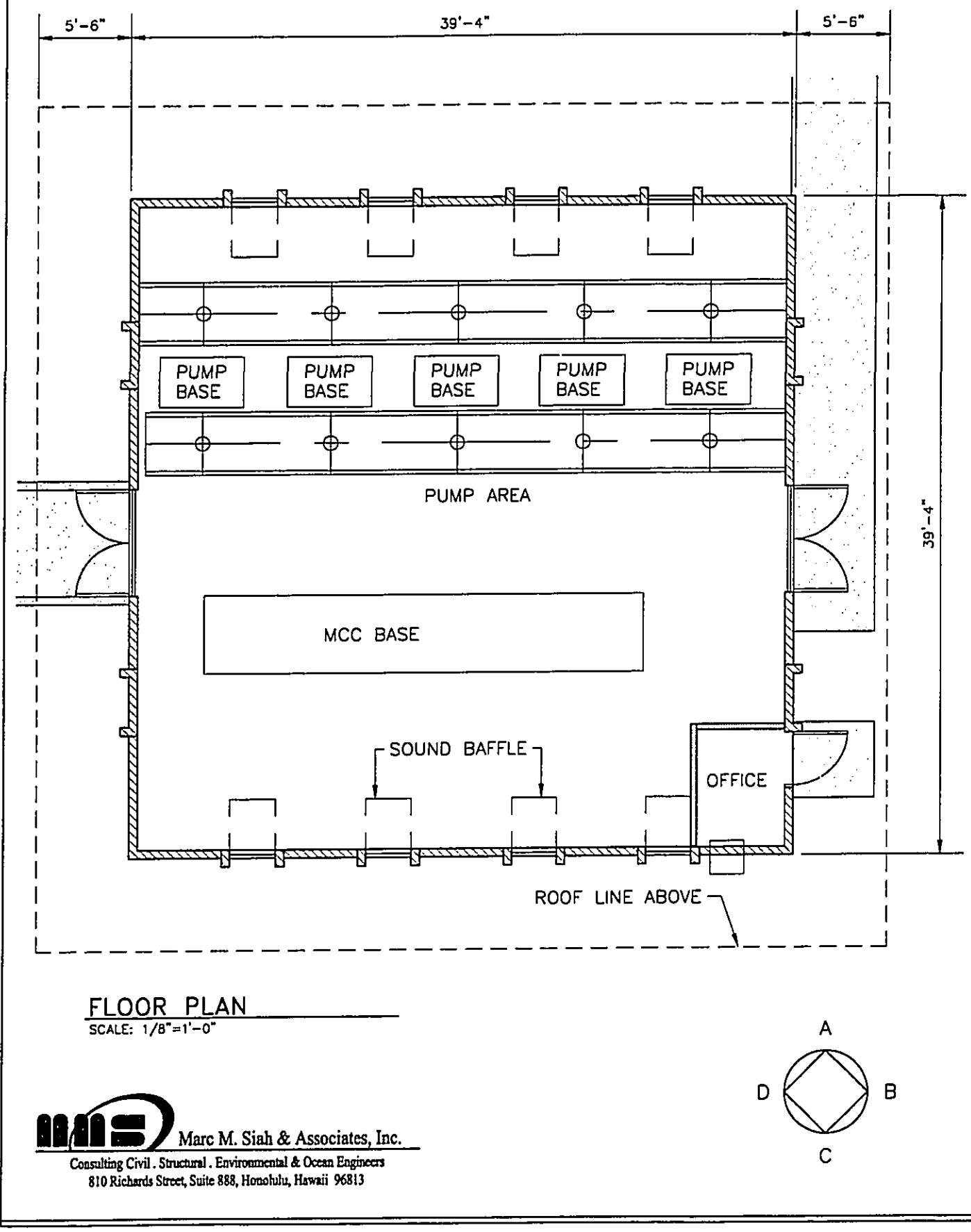
In general, transmission main installation will be accomplished using a common trenching method. Micro-tunneling and directional drilling are two other methods of pipe installation that may be considered, however due to the number of existing underground utilities in the area, these methods may not be feasible.

Construction will proceed along the alignment with a backhoe excavating a trench. The pipe will then be installed on the required pipe cushion and backfilling, compacting and repaving will be done. The pipe trench will be compacted and repaved as construction moves along the roadway in order to minimize inconvenience to the public. The construction trench will be approximately 4 feet 8 inches wide in order to accommodate the pipe width and necessary pipe cushioning. The trench depth will be a minimum of 7 feet 2 inches deep in order to accommodate the pipe height, pipe cushioning and minimum cover requirements. At the completion of the project, all disturbed areas will be restored to their original condition, including repaving.

1.3.3.2 Stream Crossings

There are four options available for pipeline installation at stream crossings. The options are hanging the pipe from the existing bridge, supporting the pipe on a new support structure adjacent to the existing bridge, micro tunneling under the

Figure 1-3 Typical Booster Pump Station Plan



FLOOR PLAN
SCALE: 1/8"=1'-0"

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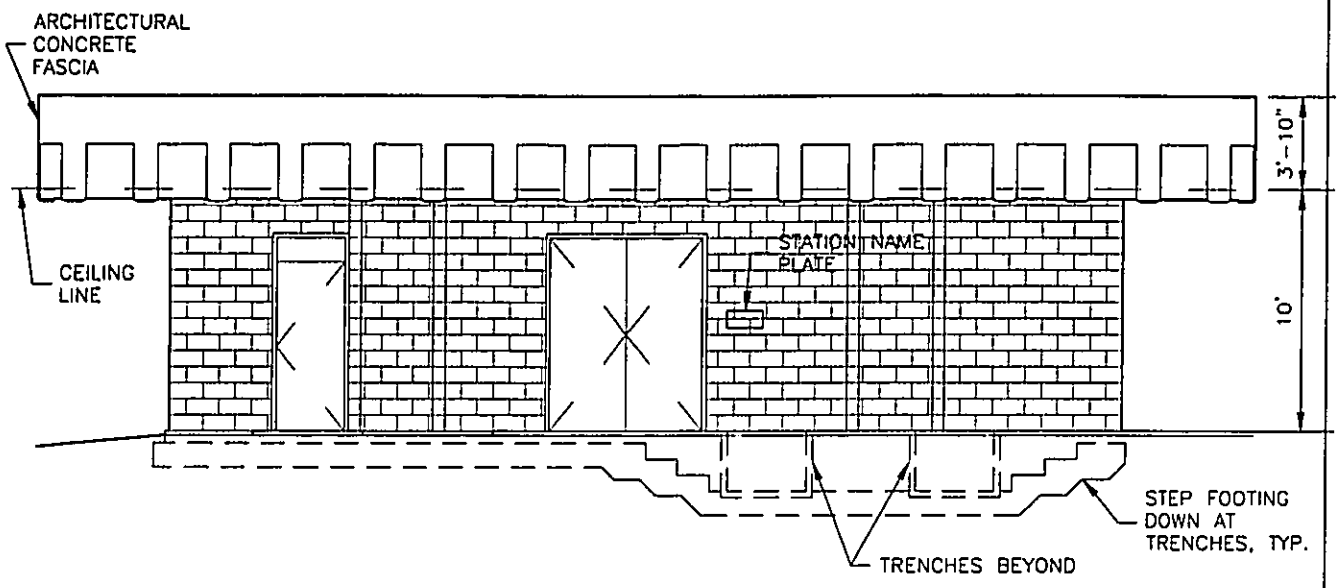
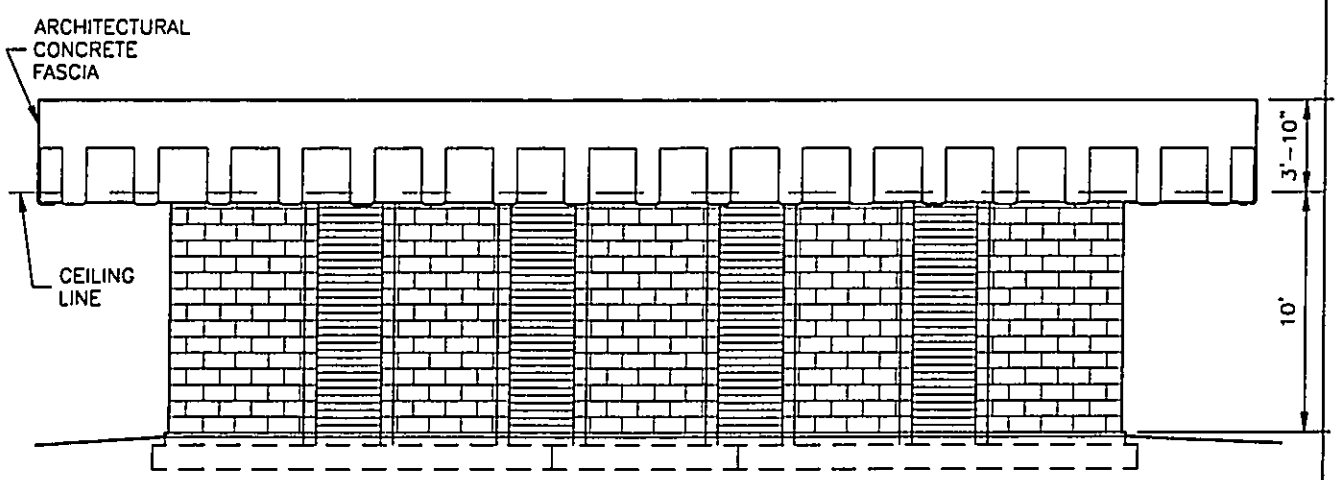
Figure 1-4 Typical Booster Pump Station Elevations



A FRONT ELEVATION
SCALE: 1/8"=1'-0"



B SIDE ELEVATION
SCALE: 1/8"=1'-0"

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Figure 1–5 Proposed Beretania Booster Pump Station Location (Alternative 1)

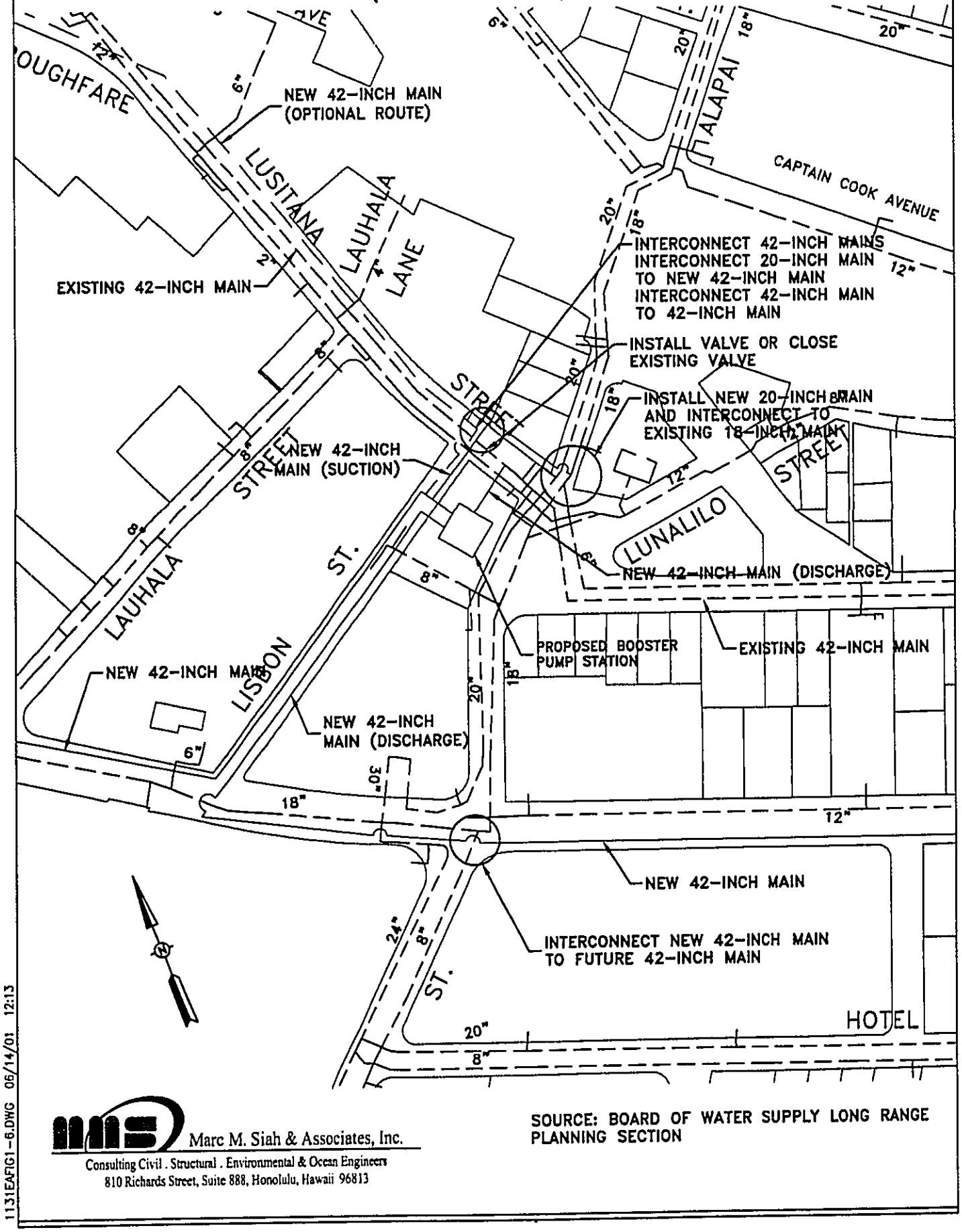

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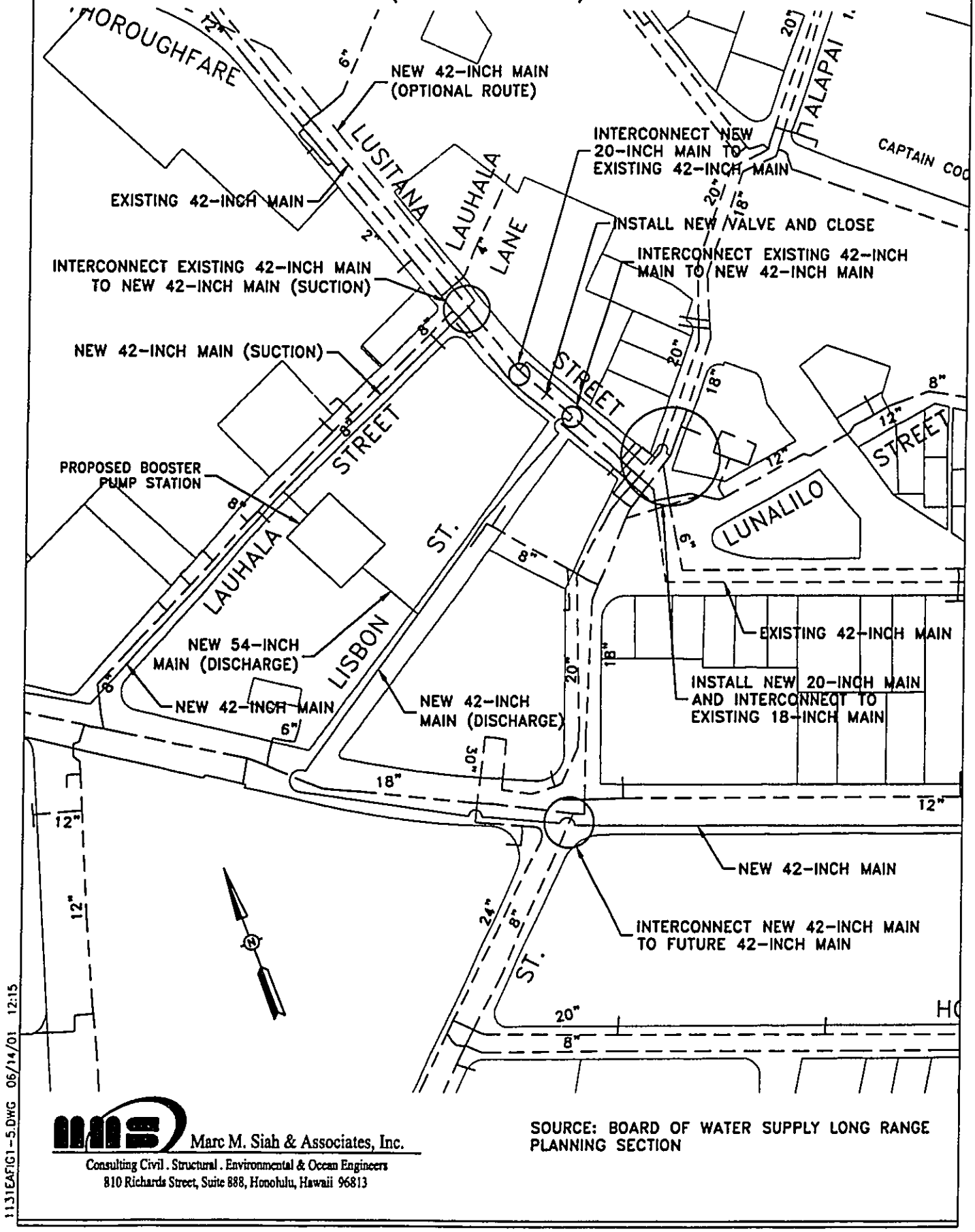
Figure 1-6 Proposed Beretania Booster Pump Station Location (Alternative 2)



1131EAFIG1-5.DWG 06/14/01 12:15

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SOURCE: BOARD OF WATER SUPPLY LONG RANGE PLANNING SECTION

stream bed and the trenching method as used in the roadways. Regardless of construction method chosen, Best Management Practices (BMPs) will be implemented in order to prevent damage to the stream. Typical BMPs at all stream crossings may include silt fences and sand bags in order to minimize soil erosion into the streams. The final decision regarding the method of construction will be done on a stream by stream basis by the designer during the design stage of the project.

One option is to hang the 42-inch pipe from the existing bridge. If the existing structure can adequately support the additional loads, this option would eliminate the need for any special permits as long as there is no reduction in the cross sectional area of flow under the bridge. This method of construction at stream crossings allows ease of maintenance and no alteration to the stream.

The second option would involve constructing a new structure adjacent to the existing bridge. This structure would support the pipe at bridge level at the stream crossing. This option would require a Stream Channel Alteration Permit (SCAP), an Army Corps of Engineers (ACOE) Permit and a Water Quality Certification (WQC). This method would allow the pipe to be maintained easily and would have a minimal impact on the streams.

The third option, micro tunneling, involves tunneling under the stream bed from a 16-foot square pit at the to of the stream bank. This method of construction requires no special permits, however, maintaining and accessing the pipe will be extremely difficult and costly and requires a large staging area for feeding the pipe segments into the pit.

The fourth option would be the conventional trenching method. If the canal bed is impacted, then one half of the crossing at a time will be temporarily dammed during construction to maintain drainage capacity and allow aquatic biota unobstructed passage. This will allow construction while preventing unnecessary soil erosion from the project into waterways. This method would be the most disruptive to the stream bed and, like the micro tunneling method, maintaining and accessing the pipe will be extremely difficult. This method of construction would also require a SCAP, ACOE Permit and WQC.

1.3.4 Project Phasing

The proposed 42-inch transmission main is divided into five phases as shown in Figure 1-1. Phase I will involve routing the 42-inch main from Dillingham Boulevard/Liliha Street to the interconnection point on Nuuanu Avenue. Phase II will route the 42-inch

main from the interconnection point on Nuuanu Avenue to the BWS Beretania Street Complex area. Phase III will continue the 42-inch main from the BWS Beretania Street Complex area to the interconnection at the intersection of King Street and Isenberg Street. Phase IV will extend from King Street/Isenberg Street to the Waahila 180' Reservoir. Because Phase IV will route the transmission main directly to the Waahila 180' reservoir access road interconnection point, the 24-inch transmission main in Phase V from Waialae Avenue/St. Louis Drive to the Waahila 180' Reservoir will not be constructed at this time. The construction of the booster pump station will be treated as a separate phase. This phase will include connecting the 42-inch transmission main from Lauhala Street to Lisbon Street (between Phases II and III) and construction of the booster pump station building.

1.3.5 Construction Schedule

Construction of the proposed water system improvement is scheduled to begin with Phases I and II in January, 2002. Construction cannot begin prior to 2002 due to a moratorium on permit approvals in state right-of-ways in the urban Honolulu area. The project's construction schedule will be coordinated with the Roadwork Coordinating Committee which is composed of State, City and private utilities. Each phase of transmission main installation is scheduled to take between one and two years, and if done successively, construction will be completed in about 10 years. Phases may be separated, combined or done concurrently from opposite ends of the project to reduce overall construction time and impact to the public. Construction of the booster pump station may be done at the same time as the transmission main installation. The current estimated construction schedule is as follows:

Phase	Estimated Construction Schedule		Project Limits
	Start	End	
I	January 2002	January 2004	Along Vineyard Boulevard from Liliha Street to Nuuanu Avenue
II	January 2002	January 2004	Along Vineyard Boulevard from Nuuanu Avenue to Punchbowl Street
III	Beyond 2006		Along Punchbowl Street and Beretania Street to Victoria Street. Then along Victoria Street and King Street to Keeaumoku Street.

Phase	Estimated Construction Schedule		Project Limits
	Start	End	
IV	Beyond 2006		Along King Street from Keeaumoku Street to Wiliwili Street
V	Beyond 2006		Along Vineyard Boulevard from Wiliwili Street to Isenberg Street
VI	Beyond 2006		Along Isenberg Street from King Street to Coyne Street, along Coyne Street to University Avenue then along University Avenue to Dole Street. Finally along Dole Street to the Waahila 180' Reservoir.
Booster Station	December 2003	December 2005	Beretania Booster Station within the BWS Beretania Complex

SECTION 2

DESCRIPTION OF THE EXISTING ENVIRONMENT

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SECTION 2

DESCRIPTION OF THE EXISTING ENVIRONMENT

2.1 Physical Setting

2.1.1 Climate

The alignment of the proposed 42-inch transmission main entirely falls within the primary urban corridor in Honolulu. With the exception of few months in the winter, like most areas on Oahu, the climate in the project area is characterized by prevailing trade winds. The general climate is sunny and relatively uniform year-around. Day time temperatures range between 70 -75 F, whereas at night, the temperatures dip into the 60's.

The rainfall map of Oahu as shown in Figure 2-1, depicts the mean annual precipitation in urban Honolulu to be approximately 30 inches. Most of this rainfall occurs during winter months from December through March.

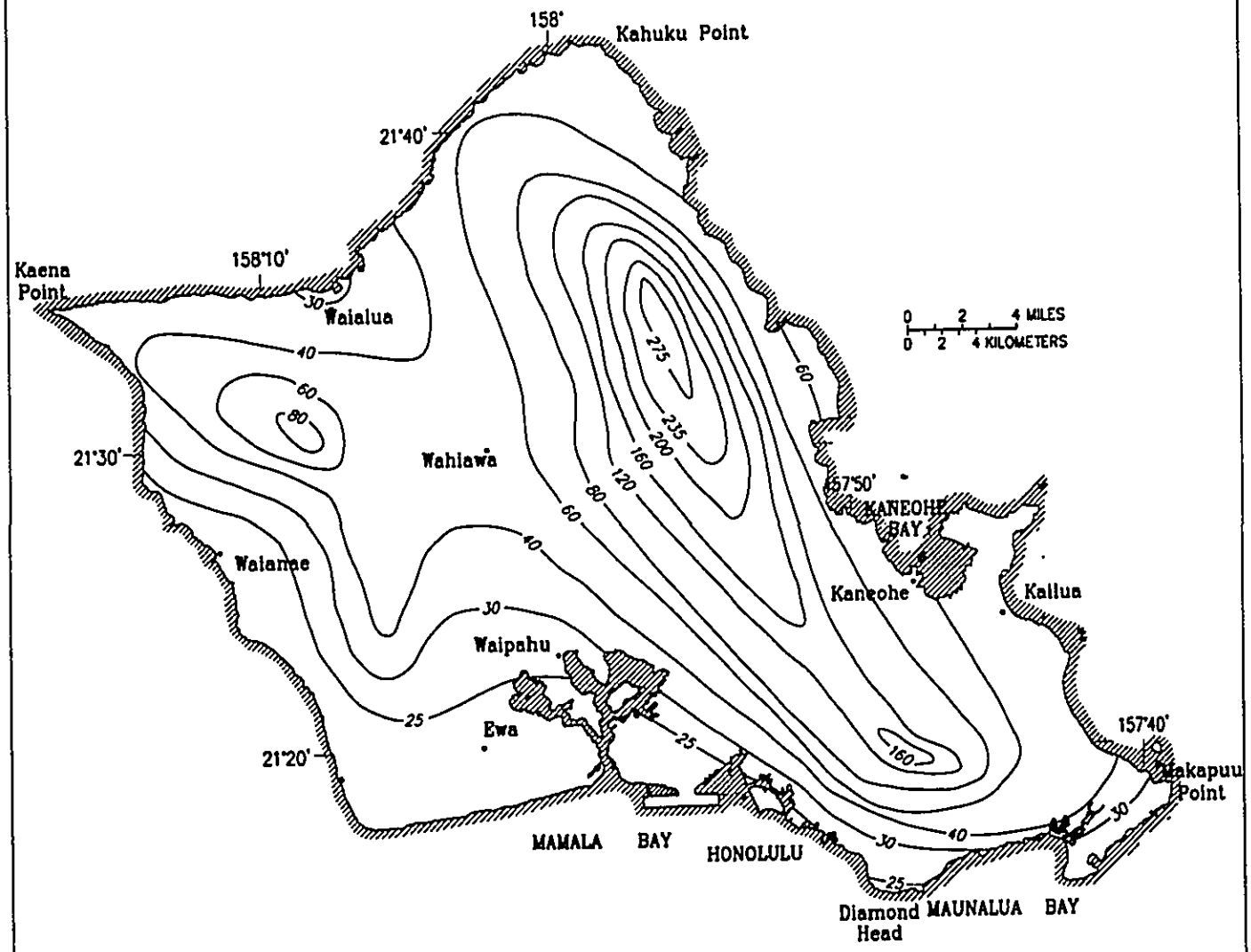
2.1.2 Geology

Oahu, the third largest island in the State, covers an area 44 miles long and 30 miles wide. The total land area of Oahu is 604 square miles. The Honolulu area is bordered by Diamond Head volcanic dome on the east and Koolau range in the north. The geology of the Honolulu area was formed after volcanic activity resumed along the Koolau volcanic rift at which time a series of lava flows, cinder cones and tuff cones were formed. These volcanic formations, which are very different in composition from the older Koolau rocks, are known as the Honolulu Volcanic Series. The Honolulu plain is underlain by a broad elevated coral reef, partly covered by alluvium carried out from the mountains by streams. Figure 2-2 shows the geological features of Oahu.

2.1.3 Topography

The existing topography along the route of the proposed 42-inch and 24-inch transmission mains is defined by disturbed paved roadways with elevations ranging from 20 feet above Mean Sea Level (MSL) to 130 feet above MSL. Specifically, the ground elevations along the proposed transmission route start at an approximate elevation of 20 feet above MSL at its beginning at the intersection of Liliha Street and Vineyard Boulevard. From here, the ground elevation gradually increases as it runs through urban Honolulu via Vineyard Boulevard, Lusitana Street, Beretania Street, Victoria Street, King Street, University Avenue and Dole Street until it terminates at the access road to the Waahila 180' Reservoir at an approximate elevation of 130 feet above MSL. Ground slopes throughout the alignment are generally less than 10 percent. The finished grade

Figure 2-1 Mean Annual Precipitation for Oahu



LEGEND

—40— LINE OF EQUAL MEAN ANNUAL PRECIPITATION – Interval in inches, is variable

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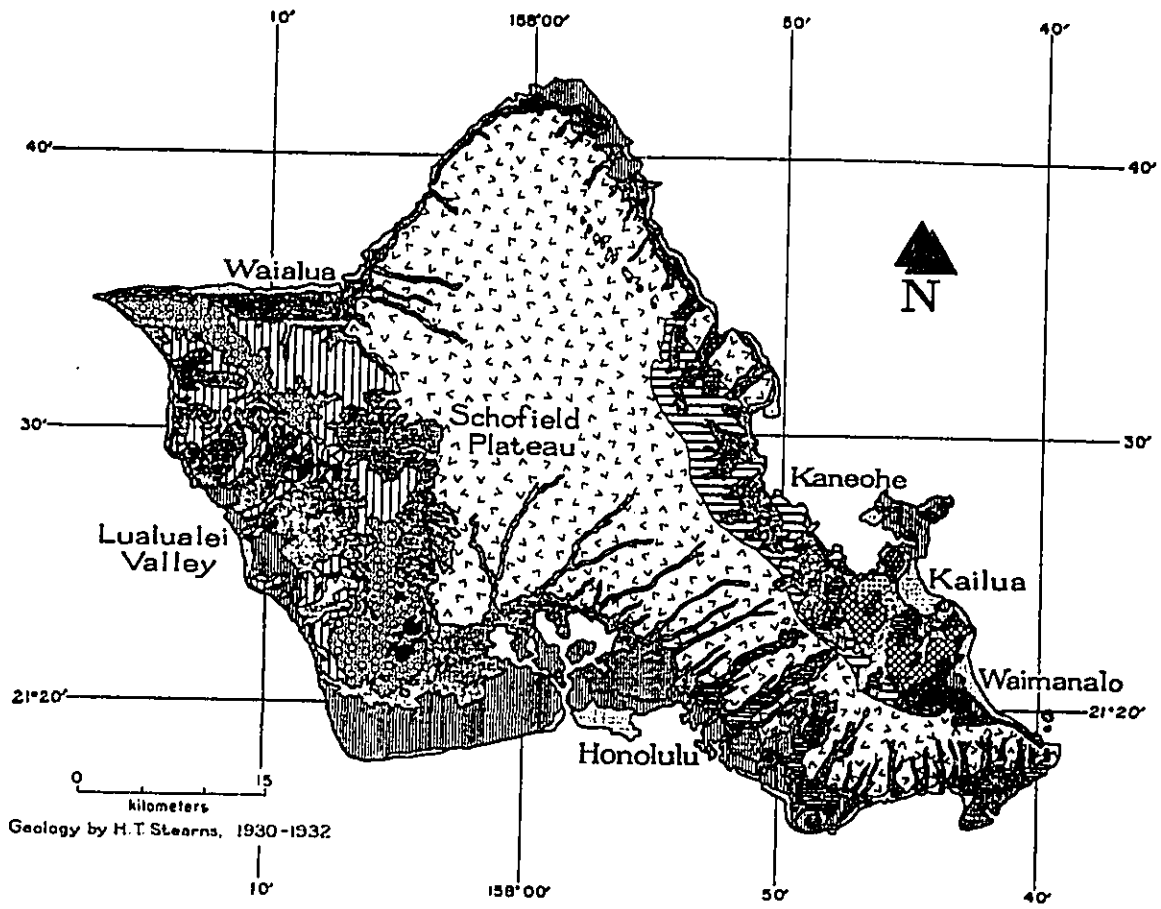
Figure 2-2 Geological Features of Oahu



SEDIMENTARY ROCKS

RECENT — PLEISTOCENE

Beach and dune sand

Alluvium

Limestone (Reefs and dunes)

VOLCANIC ROCKS

KOOLAU RANGE — WAIANAE RANGE

QUATERNARY

Lavas — Pyroclastics

Honolulu volcanic series

Kolekole volcanics

EROSIONAL UNCONFORMITY

TERTIARY

Flows — Dike complex

Caldera complex: Lava flows; Vent breccia; Dike complex

Koolau volcanic series

Upper member: Cone

Lower and middle members: Vent breccia

Waianae volcanic series

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elevations of the project will be the same as the existing grade. Figure 2-3 presents the general slope of the terrain in the area as delineated by U. S. Geological Survey.

2.1.4 Soils

According to the United States Department of Agriculture Natural Resources Conservation Service (NRCS), eight broad classes of soil types are found along the proposed 42-inch transmission line. They include Ewa Silty Clay Loam (EmA), Fill Land, Mixed (FL), Kaena Very Stony Clay (KanE), Kaena Clay (KaB), Makiki Clay Loam (MkA), Makiki Clay Loam (MlA), Rock Land (rRK) and Tantalus Silty Clay Loam (TCC). Figure 2-4 shows the general locations of various soils along the proposed transmission main route.

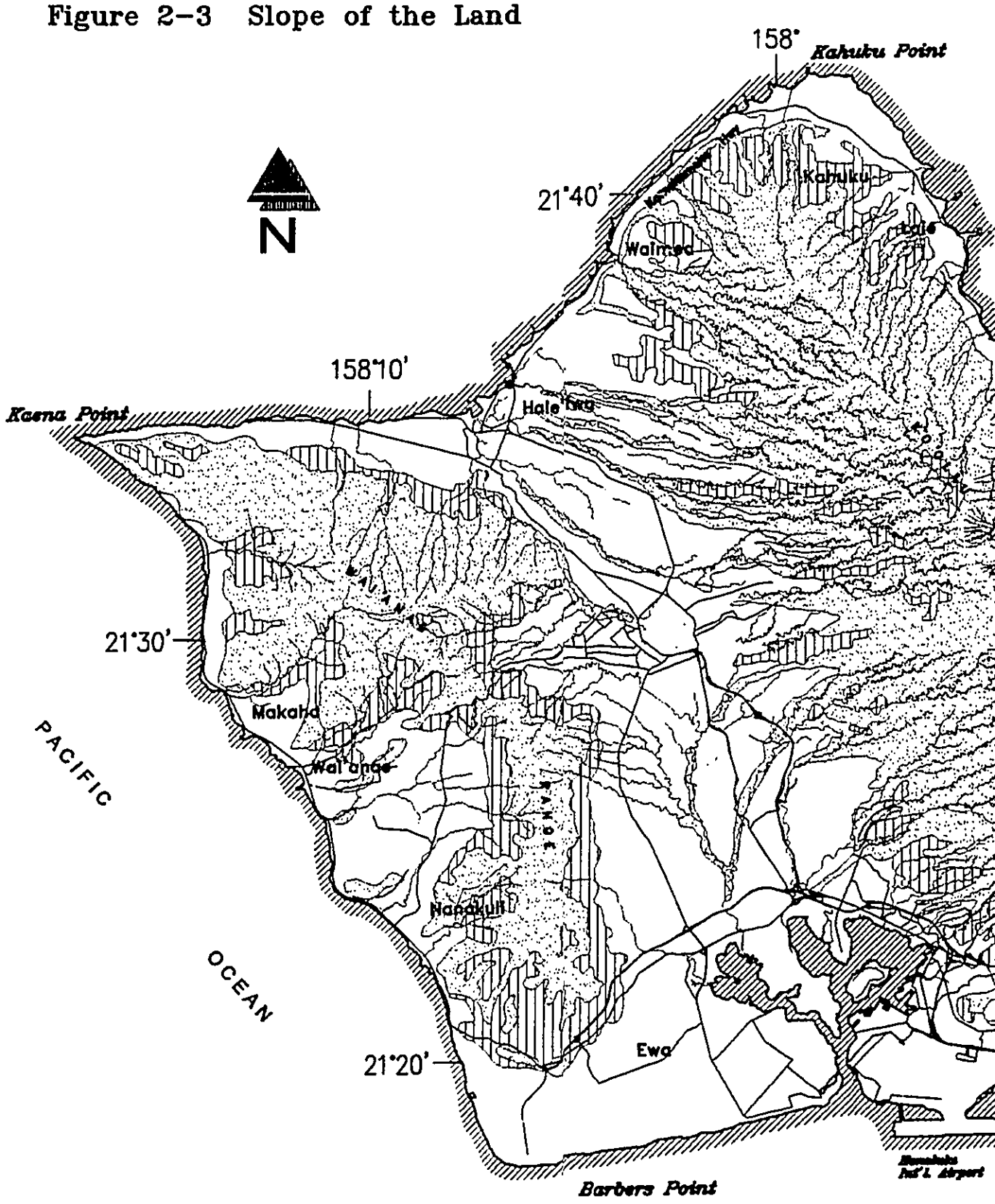
The Ewa Silty Clay Loam (EmA) type soil occurs along the proposed route between Wiliwili Street and University Avenue. Typical slopes for Ewa Silty Clay Loam (EmA) range from 0 to 2 percent. This is a shallow, well drained soil in basins on alluvial fans on the islands of Maui and Oahu. The surface layer is dark reddish-brown silty clay loam. The subsoil is dark reddish-brown and dark-red silty clay loam that has subangular blocky structure. The substratum is coral limestone, sand or gravelly alluvium. The depth to coral limestone is 20 to 50 inches. The soil is neutral in the surface layer and subsoil. Runoff is very slow and the erosion hazard is no more than slight.

In general, Fill Land, Mixed (FL) occurs mostly near Pearl Harbor and in Honolulu, adjacent to the ocean. Along the proposed route, it occurs from Hauoli Street in the McCully area to Wiliwili Street. It consists of areas filled with material dredged from the ocean or hauled from nearby areas, garbage and general material from other sources.

The Kaena Very Stony Clay (KanE) type soil occurs at the end of the proposed route near the Waahila 180' Reservoir. Typical slopes for Kaena Very Stony Clay (KanE) range from 10 to 35 percent. This soil occurs on talus slopes and alluvial fans. The surface layer is very dark gray clay with many stones. The next layer is dark-gray and dark grayish-brown clay that has prismatic structure. It is underlain by highly weathered gravel. The soil is very sticky and very plastic, and it is mottled. The soil is slightly acid to neutral. Runoff is medium to rapid and the erosion hazard is moderate to severe.

The Kaena Clay (KaB) type soil occurs at the beginning of the proposed route from Liliha Street to Maunakea Street in the Downtown Honolulu area. Slopes for Kaena Clay (KaB) range from 2 to 6 percent. This soil occurs on talus slopes and alluvial fans. The surface layer is very dark gray clay with few or no stones. The next layer is dark-gray and dark grayish-brown clay that has prismatic structure. It is underlain by highly

Figure 2-3 Slope of the Land



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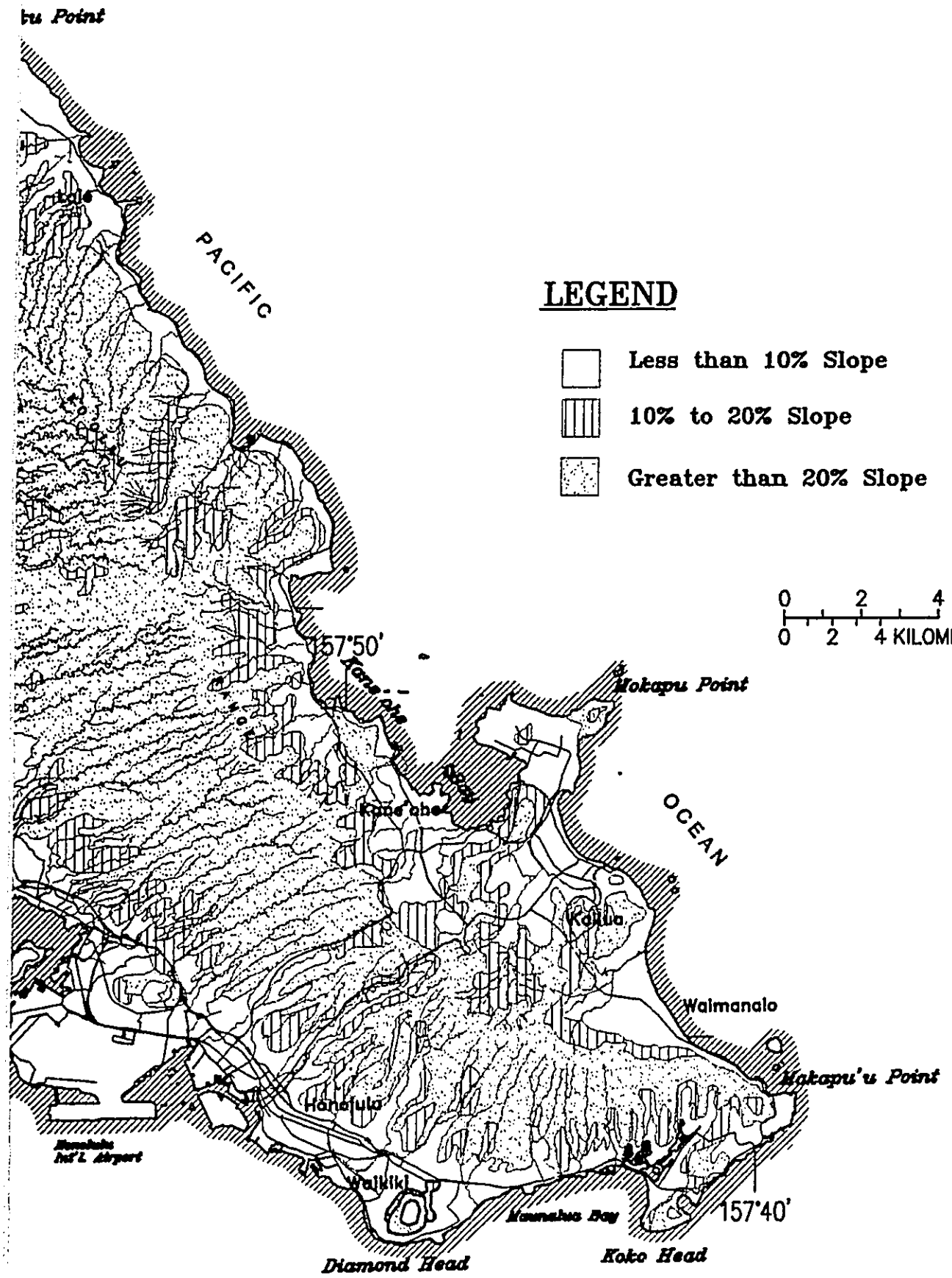
Ka'ena Point
PACIFIC
OCEAN
LEGEND
Less than 10% Slope
10% to 20% Slope
Greater than 20% Slope
0 2 4 MILES
0 2 4 KILOMETERS
157°50'
Kane'ohe Bay
Mokapu Point
Kane'ohe
Kailua
Waimanalo
Makapu'u Point
Honolulu
Honolulu Int'l. Airport
Waikiki
Manana Bay
157°40'
Diamond Head
Koko Head

MAP/DRAWING#

102-B

weathered gravel. The soil is very sticky and very plastic, and is mottled. The soil is slightly acid to neutral. Runoff is slow and the erosion hazard is slight.

The Makiki Clay Loam (MkA) soil type occurs in three areas along the proposed route. It first occurs between Maunakea Street and Punchbowl Street. Later, it occurs from the Honolulu Board of Water Supply main headquarters to Hauoli Street. The last time it occurs is from University Avenue to the Lunalilo Freeway. Slopes for Makiki Clay Loam (MkA) range from 0 to 2 percent. This soil is on smooth fans and terraces. The surface layer is dark-brown clay loam. The subsoil is dark-brown clay loam that has subangular blocky structure. It contains cinders and rock fragments. The subsoil is underlain by similar material. Below this are volcanic cinders. The soil is strongly acid to medium acid. Runoff is slow and the erosion hazard is no more than slight.

The Makiki Clay Loam (MlA) soil type occurs along the proposed route from the Lunalilo Freeway to the Manoa Stream. Slopes for Makiki Clay Loam (MlA) range from 0 to 3 percent. This soil is on smooth fans and terraces. The surface layer is dark-brown clay loam. The subsoil is dark-brown clay loam that has subangular blocky structure. It contains cinders and rock fragments. The subsoil is underlain by similar material. Below this are volcanic cinders. This soil type contains enough stones to hinder cultivation. The stones are angular and make up about 15 percent of the soil by volume. The soil is neutral to slightly acid. Runoff is slow and the erosion hazard is no more than slight.

Relative to the proposed transmission main route, the Rock Land (rRK) soil type is found in the area between the Manoa Stream and the Waahila 180' Reservoir access road. Rock Land (rRK) is made up of areas where exposed rock covers 25 to 90 percent of the surface. The rock outcrops and very shallow soils are the main characteristics. The rock outcrops are mainly basalt and andesite. This land type is nearly level to very steep.

Lastly, the Tantalus Silty Clay Loam (TCC) soil type occurs along the proposed route from Punchbowl Street to the Honolulu Board of Water Supply headquarters. Typical slopes for Tantalus Silty Clay Loam (TCC) range from 8 to 15 percent. The surface layer is very dark brown silt loam that has subangular blocky structure. The subsoil is dark reddish-brown, massive very fine sandy loam. The substratum is black, unweathered, gravel-size cinders. The soil is neutral to the surface layer and subsoil. Runoff is slow and the erosion hazard is slight.

Soil conditions along the proposed transmission main route and at the booster pump station site will not adversely effect the design of these improvements. In general, the various soils are structurally stable and non-corrosive in nature.

2.1.5 Flood and Tsunami Hazard

The lowest ground elevation in the project area is approximately 9 feet above MSL where Vineyard Boulevard crosses the Nuuanu Stream. According to tsunami inundation maps, the entire alignment of the proposed water line is outside of inundation areas. The majority of the project area is designated as Flood Zone X in the Federal Flood Insurance Rate Map (FIRM). Zone X refers to an area outside the 500 year flood inundation zone. Only at points where the transmission main crosses the Makiki Stream (Flood Zone AO) and the Manoa Stream (Flood Zone AE) will the alignment be in a floodway area.

2.1.6 Flora and Fauna

There are no known rare, threatened or endangered species (TES) of flora or fauna existing in the immediate project area. Because the proposed transmission line will be installed entirely within the previously disturbed paved right-of-way throughout urban Honolulu, it is not anticipated that any TES of plant and/or wildlife will be affected by the project. There are three stream crossings along the proposed route. They are Nuuanu Stream, Makiki Stream and Manoa Stream. Depending on the design of the transmission main and method of construction used (as detailed in Section 1.3.3.2), the new waterline may come into contact with the stream bed. After construction is completed however, cross-sectional flow areas at these streams will not be changed.

Nuuanu Stream is a perennial stream that originates in Nuuanu Valley and flows into Honolulu Harbor. At the proposed 42-inch transmission main crossing on Vineyard Boulevard, Nuuanu Stream is a concrete lined, triple box culvert with no vegetation in the active channel, as shown in Figures 2-5a and 2-5b. The stream leading both up to and away from the Vineyard Boulevard crossing is concrete rubble masonry (CRM) lined. According to the State's Hawaii Stream Assessment, areas of Nuuanu Stream away from the proposed water line crossing have limited aquatic resources. Four native species and four introduced species of aquatic life have been observed in this stream. In regards to riparian resources, some introduced animals and plants have a negative influence on streams. Feral animals like pigs, goats and sheep, none of which are native to Hawaii, destroy vegetation, accelerate soil erosion, open up forests and contaminate the water with fecal material. Pigs are the only detrimental animals found near Nuuanu Stream. Furthermore, weedy plants can dramatically alter the nature of a stream, generally by impeding water flow. California grass, hau and red mangrove are three species considered to have the greatest influence. Of these species, the red mangrove is the only detrimental plant found at Nuuanu Stream. Additionally, zero percent of the Nuuanu Stream is surrounded by native forest. In the upper portions of the stream, away from the project area, two recovery habitats and one species of endangered bird have been identified.

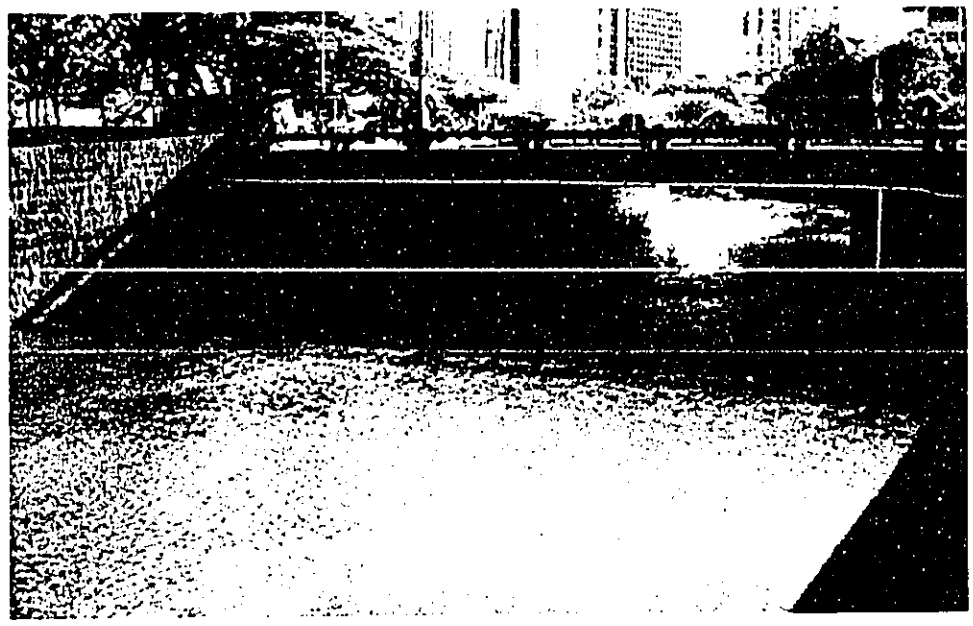

Figure 2-5a Nuuanu Stream: Downstream View at the Vineyard Boulevard Crossing

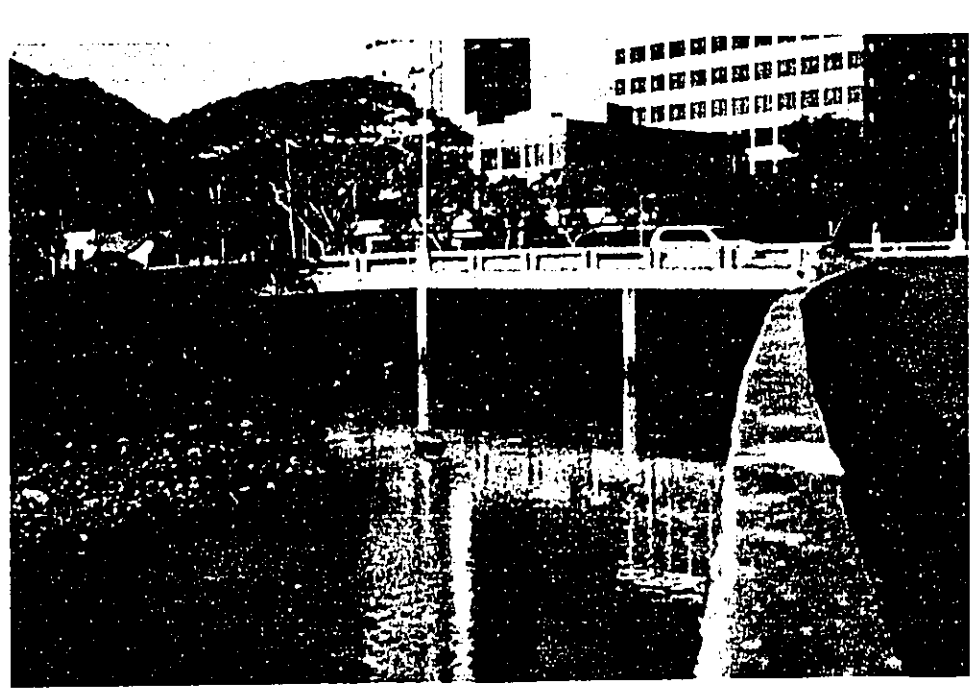

Figure 2-5b Nuuanu Stream: Upstream View at the Vineyard Boulevard Crossing

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Both Makiki and Manoa Stream are tributaries of the Ala Wai Canal System. The Ala Wai Canal System is a perennial system that flows into the Ala Wai Boat Harbor and Mamala Bay. Makiki Stream is a tributary that originates in upper Makiki and flows directly into the Ala Wai Canal. At the proposed 42-inch transmission main crossing on King Street, Makiki Stream is a concrete lined box culvert with no vegetation, as shown in Figures 2-6a and 2-6b. Upstream from King Street, Makiki Stream is an underground culvert. Downstream from the King Street crossing, the stream is CRM lined.

Manoa Stream originates in Manoa Valley and flows into the Manoa-Palolo Drainage Canal, which in turn flows into the Ala Wai Canal. At the proposed 42-inch transmission main crossing on Dole Street, Manoa Stream is unlined, with some vegetation, as shown in Figures 2-7a and 2-7b. The proposed transmission main will be installed across the Dole Street bridge in a similar manner to the existing water line hanging from the bridge as shown in Figure 2-7b.

According to the State of Hawaii's Stream Assessment Report, the Ala Wai Canal System has moderate aquatic resources with the presence of 'o'opu nakea (Awaous stamineus) in addition to seven native and six introduced species of aquatic life. Within the Ala Wai Canal System and away from the proposed water line crossings, two detrimental plants found are the mangrove and the hau. The only detrimental animal observed near areas of the Ala Wai Canal System is the pig. Along the entire course of the Ala Wai Canal System, ten percent of the vegetation is comprised of native forest. In the upper portions of the System, and away from the project area, one species of endangered bird exists.

Most of the flora and fauna associated with these three streams are present both upstream and downstream from the project site. In the vicinity of the project site, the flora and fauna have been previously disturbed due to stream modifications at road and bridge crossings. Figures 2-5a and 2-5b, 2-6a and 2-6b and 2-7a and 2-7b illustrate the existing stream conditions where the proposed transmission main will cross these streams.

2.1.7 Historic/Archaeological Features

An archaeological inventory survey and literature search conducted by Archaeological Consultants of the Pacific, Inc. (ACPI) discovered three types of archaeologically significant features present in the general project area, a map of which can be found in Appendix B (please note that Option 1 and Option 2 as referenced in the "Revised Archaeological Monitoring Plan" are now on the preferred route). These features include Historical Districts, traditional sites (that may include human burials, historic habitats or cultural relics) and ancient fishponds. There are three Historical Districts in the general

Figure 2-6a Makiki Stream: Upstream View #1 at the King Street Crossing

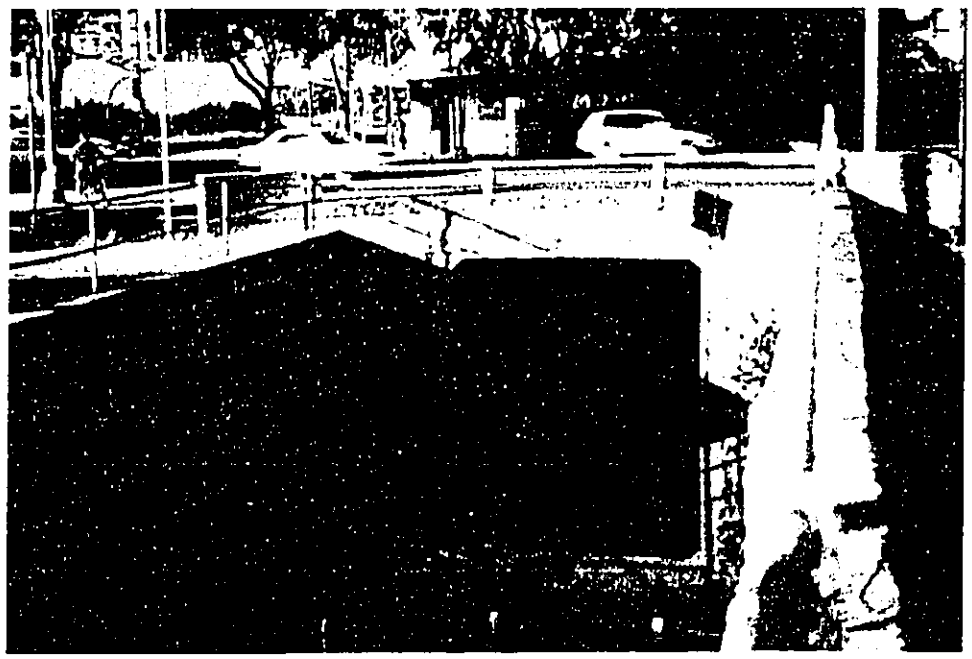

Figure 2-6b Makiki Stream: Upstream View #2 at the King Street Crossing

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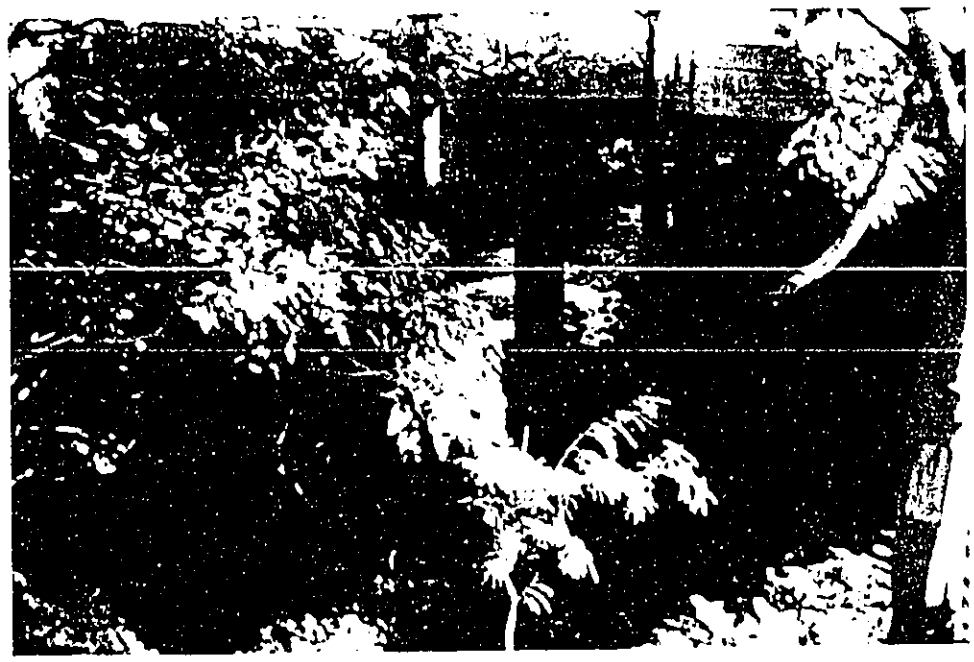

Figure 2-7a Manoa Stream: Downstream View at the Dole Street Crossing

Figure 2-7b Manoa Stream: Upstream View at the Dole Street Crossing

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project area. The first Historic District is the Chinatown Historic District. This district is in the downtown Honolulu area and is bordered by Beretania Street on the north, Nuuanu Stream on the west, Queen Street on the south and Nuuanu Avenue to the east. Adjacent to the Chinatown Historic District is the Merchant Street Historic District. This district is bordered on the north by King Street, on the west by Nuuanu Avenue, on the south by Queen Street and on the east by Fort Street. The last Historical District is the Capital Historic District. This district is bordered to the north by Beretania Street, to the west by Bishop Street, to the south by Queen Street and to the east by the west property line of the City and County of Honolulu Municipal Building. Traditional sites and fishponds are distributed throughout the project area.

The proposed routing of the new transmission main will encroach on the northeast corner of the Capitol Historic District as shown in Appendix C. There are no traditional sites adjacent to the project. Besides the Capitol Historic District, the only other known archaeological features that are directly adjacent to the proposed transmission main routing are ancient fishponds located on University Avenue, mauka of King Street and at the intersection of Isenberg and Date Streets as shown in Appendix C. The first fishpond may affect up to 150 linear feet of the transmission main. The second fishpond is affected by a lateral that interconnects to the existing water system at the Isenberg Street and Date Street intersection. In anticipation of potential impacts to these fishponds, an archaeological monitoring plan has been developed to ensure preservation of culturally sensitive and important artifacts. According to the monitoring plan developed by ACPI and enclosed in Appendix B, an archaeological investigation, in the form of an inventory survey, should be conducted during the trenching of the water main. These investigations should consist of core samples, wherein an analysis of the stratigraphy may be made in addition to analyses of faunal and polynological remains as well as diatom and radiocarbon samples. These investigations will be done when construction reaches the area in question and will be monitored by an archaeologist as contracted by the BWS. A copy of the results acquired from these investigations will be given to the Office of Hawaiian Affairs (OHA) for review.

Previous construction activities in other areas adjacent to the proposed water main routing have uncovered various archaeological finds that may be encountered during construction. In the past, two inadvertent burials were encountered at the corner of Queen Emma Street and Old Vineyard Street. Also, an historic bottle dump (associated with the old soda works) was encountered on Vineyard Boulevard between Queen Emma and Punchbowl Streets. A last site is adjacent to the Kapapa Lo'i 'O Kanewai Cultural Garden and the Center for Hawaiian Studies on Dole Street in the vicinity of the Manoa Stream and Kanewai Field. Cultural finds and inadvertent burials have previously been encountered in this area.

2.1.8 Wetlands

The Office of State Planning's Wetlands and Waterbird Recovery Habit map shows no wetlands in the project area as presented in Figure 2-8. The only wetland and sensitive riparian habitats along the transmission main route are confined to the immediate areas surrounding Nuuanu and Manoa Streams. U. S. Fish and Wildlife Service's National Wetland Inventory Map identifies Nuuanu Stream as an E1OWLx habitat or *Estuarine, Subtidal, Open Water, Subtidal, Excavated ecosystem.* Manoa Stream is identified as PFO3A habitat or *Palustrine, Forested, Broad-leaved Evergreen, Temporary ecosystem.* Figure 2-9 details these wetland designations and Table 2-1 provides a map legend. The proposed project will not impact the existing wetland ecosystem.

2.1.9 Air Quality

The urban Honolulu area is considered a mixed business and residential area which is not exposed to adverse air quality conditions. There are no point sources of airborne emissions in the immediate vicinity of the project site. The vehicular traffic on the main streets and boulevards is the primary source of indirect emissions in the project area. The air quality along the project alignment is generally considered good and well within the State and Federal Ambient Air Quality Standards.

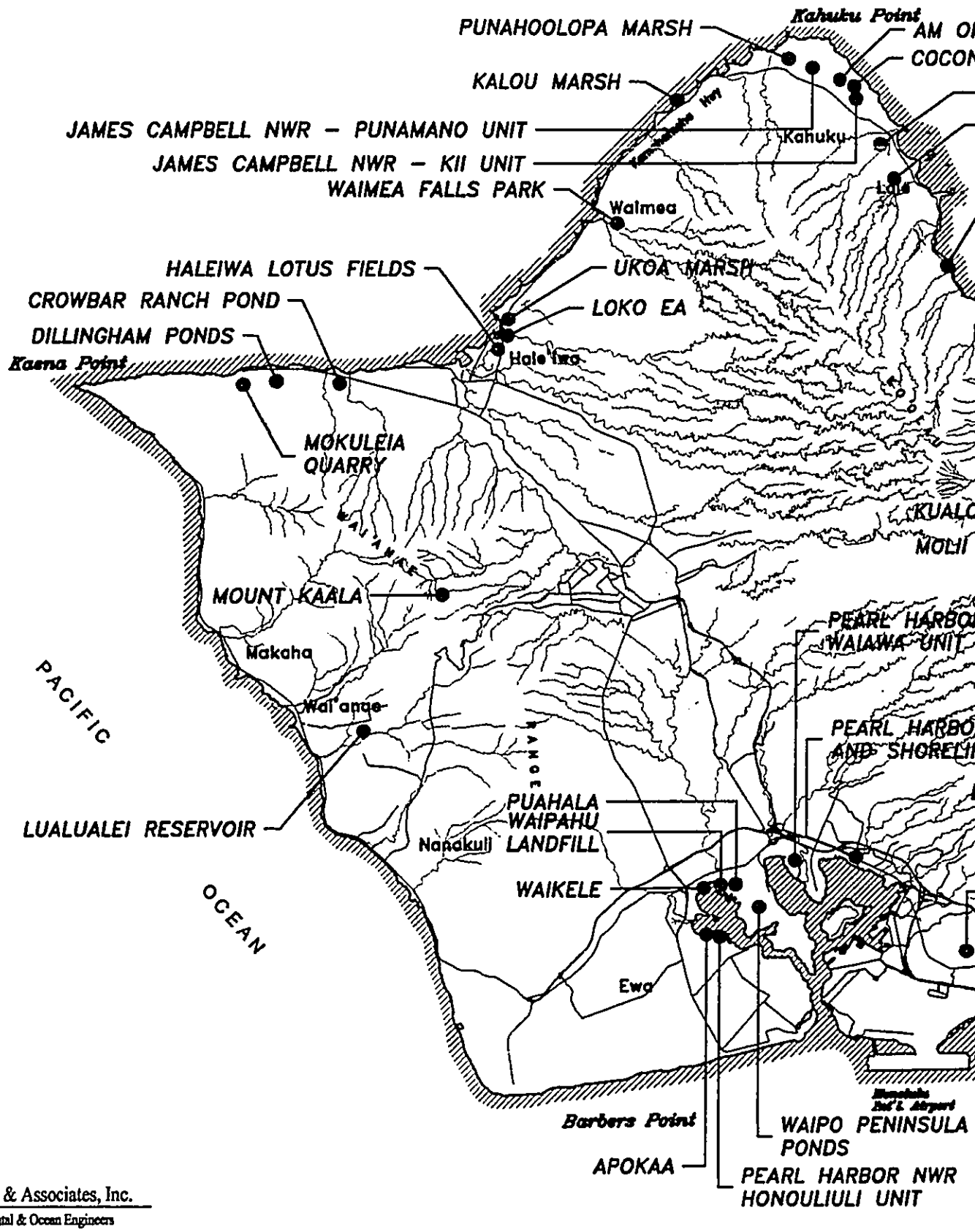
2.1.10 Noise Characteristics

Since the project avoids industrial areas and is primarily in business and residential areas, there are no significant fixed noise generators in the vicinity of the project. Background noise in the area can be attributed to vehicular traffic along the project route. The ambient noise level in the project area is in the range of 25 to 30 decibels (dB) and is considered normal and acceptable. The average posted speed limit along the pipeline alignment is 35 miles per hour.

2.1.11 Water Quality

The alignment of the transmission main project is within two miles of the ocean. There is one perennial stream along the transmission main route, namely, Nuuanu Stream. Nuuanu Stream drains into Honolulu Harbor. Two other streams, Makiki Stream and Manoa Stream, are along the transmission main route and are tributaries of the Ala Wai Canal. According to the Hawaii Department of Health Water Quality Standards Map, all three streams within the project area are designated as Class 2 inland water.

Figure 2-8 Wetlands and Waterbird Recovery Habitat Map



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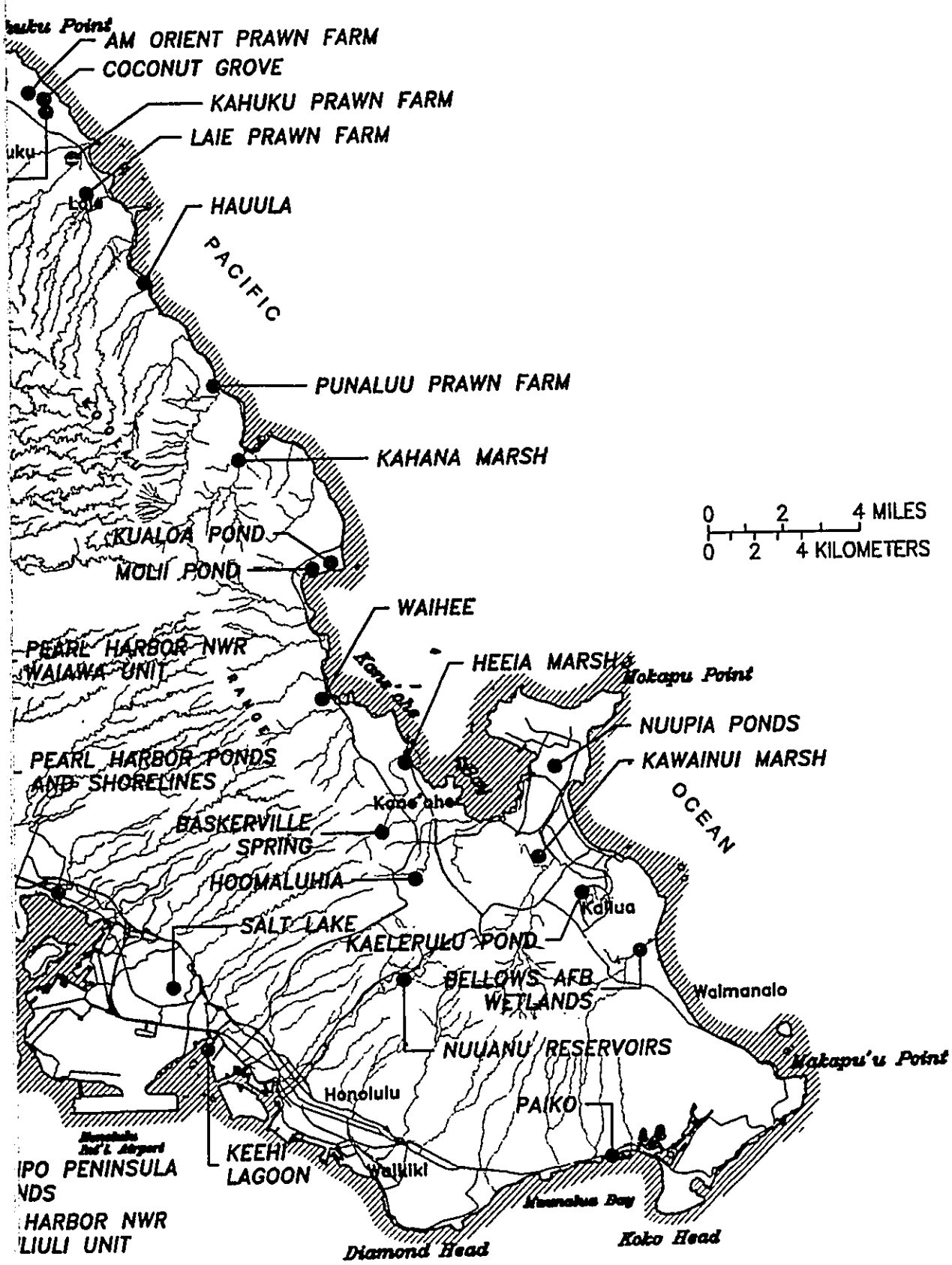
AM ORIENT PRAWN FARM
COCONUT GROVE
KAHUKU PRAWN FARM
LAIE PRAWN FARM
HAUULA
PACIFIC
PUNALUU PRAWN FARM
KAHANA MARSH
KUALOA POND
MOLII POND
WAIHEE
HEEIA MARSH
NUUPIA PONDS
KAWAINUI MARSH
OCEAN
PEARL HARBOR NWR
WAIAWA UNIT
PEARL HARBOR PONDS
AND SHORELINES
BASKERVILLE
SPRING
HOOMALUHIA
SALT LAKE
KAELEPULU POND
BELLOWS AFB
WETLANDS
NUUANU RESERVOIRS
PAIKO
KEEHI
LAGOON
HARBOR NWR
LIULI UNIT
Diamond Head
Koko Head
Waimanalo
Honolulu
Waikiki
Kailua
0 2 4 MILES
0 2 4 KILOMETERS

MAP/DRAWING#

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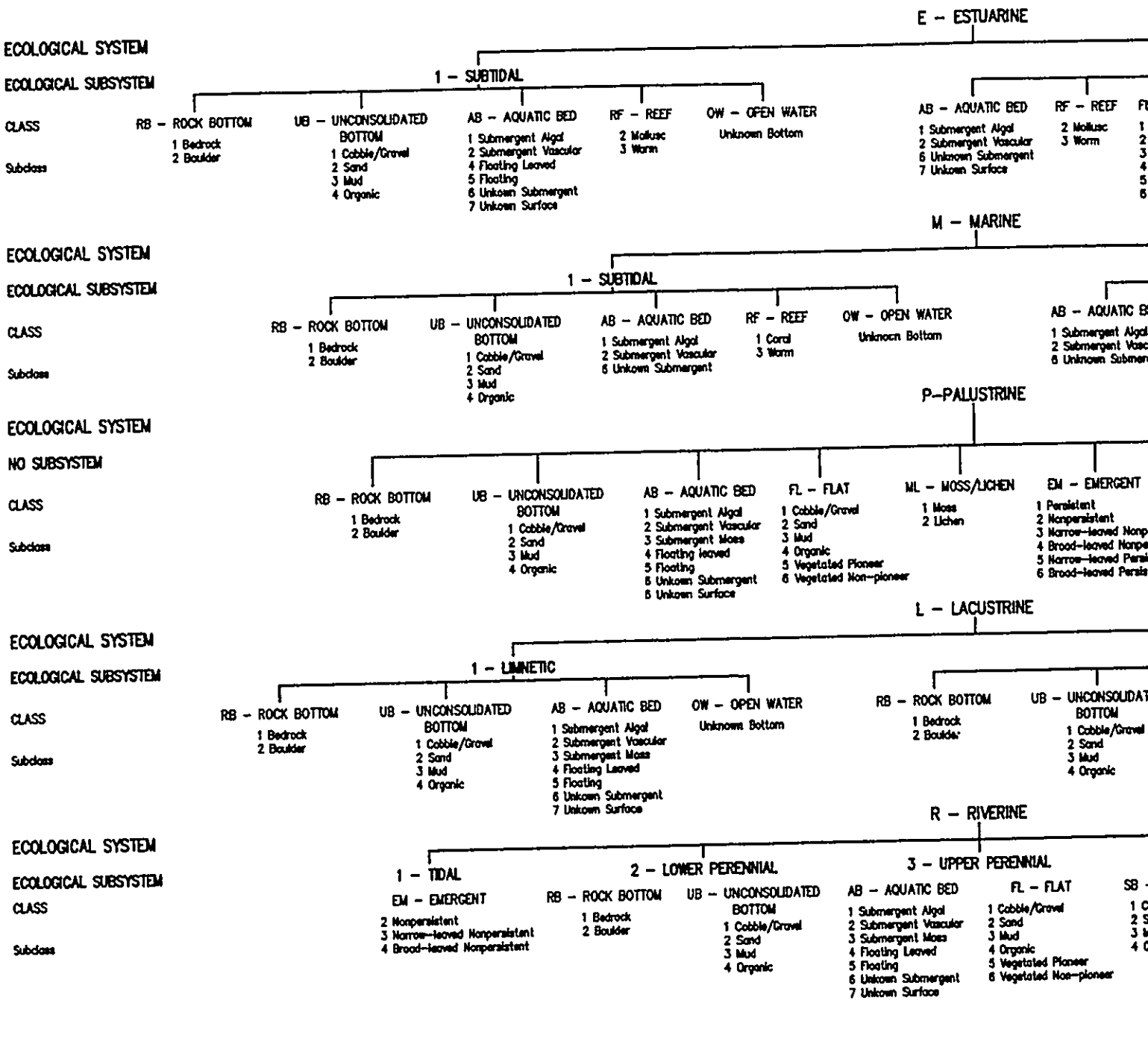
Table 2-1 National Wetlands Inventory Map Legend



In order to more adequately describe wetla
may be applied at the class or lo

WATER REGIMEN			
Non–Tidal		Tidal	
A Temporary	H Permanent	K Artificial	R Seasonal Ti
B Saturated	J Intermittently Flooded	L Subtidal	S Temporary T
C Seasonal	K Artificial	M Irregularly Exposed	T Semiperman
D Seasonal Well–drained	Z Intermittently Exposed/Permanent	N Regular	V Permanent
E Seasonal Saturated	W Intermittently Flooded/Temporary	P Irregular	U Unkown
F Semipermanent	Y Saturated/Semipermanent/Seasonal		
G Intermittently Exposed	U Unknown		

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JARINE

2 – INTERTIDAL

TIC BED	RF – REEF	FL – FLAT	SB – STREAM BED	RS – ROCKY SHORE	BB – BEACH/BAR	EM – EMERGENT	SS – SCRUB/SHRUB	FO – FORESTED
1 Algal 2 Vascular Submergent rface	2 Mollusc 3 Worm	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated Pioneer 6 Vegetated Non-pioneer	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Boulder 6 Vegetated Non-pioneer	1 Cobble/Gravel 2 Sand	1 Persistent 2 Nonpersistent 3 Narrow-leaved Nonpersistent 4 Broad-leaved Nonpersistent 5 Narrow-leaved Persistent 6 Broad-leaved Persistent	1 Broad-leaved Deciduous 3 Broad-leaved Evergreen 4 Needle-leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad-leaved Deciduous 3 Broad-leaved Evergreen 4 Needle-leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

ARINE

2 – INTERTIDAL

AB – AQUATIC BED	RF – REEF	FL – FLAT	RS – ROCKY SHORE	BB – BEACH/BAR
1 Submergent Algal 2 Submergent Vascular 6 Unknown Submergent	1 Coral 3 Worm	1 Cobble/Gravel 2 Sand 3 Mud 6 Vegetated Non-pioneer	1 Bedrock 2 Boulder 6 Vegetated Non-pioneer	1 Cobble/Gravel 2 Sand

TRINE

CHEN	EM – EMERGENT	SS – SCRUB/SHRUB	FO – FORESTED	OW – OPEN WATER
	1 Persistent 2 Nonpersistent 3 Narrow-leaved Nonpersistent 4 Broad-leaved Nonpersistent 5 Narrow-leaved Persistent 6 Broad-leaved Persistent	1 Broad-leaved Deciduous 3 Broad-leaved Evergreen 4 Needle-leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad-leaved Deciduous 3 Broad-leaved Evergreen 4 Needle-leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	Unknown Bottom

STRINE

2 – LITTORAL

UB – UNCONSOLIDATED BOTTOM	AB – AQUATIC BED	FL – FLAT	RS – ROCKY SHORE	BB – BEACH/BAR	EM – EMERGENT	OW – OPEN WATER
1 Cobble/Gravel 2 Sand 3 Mud 4 Organic	1 Submergent Algal 2 Submergent Vascular 3 Submergent Moss 4 Floating Leaved 5 Floating 6 Unkown Submergent 7 Unkown Surface	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated Pioneer 6 Vegetated Non-pioneer	1 Bedrock 2 Boulder	1 Cobble/Gravel 2 Sand	2 Nonpersistent 3 Narrow-leaved Nonpersistent 4 Broad-leaved Nonpersistent	Unknown Bottom

ERINE

ERENNIAL

FL – FLAT

Cobble/Gravel
Sand
Mud
Organic
Vegetated Pioneer
Vegetated Non-pioneer

4 – INTERMITTENT

SB – STREAM BED	RS – ROCKY SHORE
1 Cobble/Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Boulder

5 – UNKNOWN PERENNIAL

BB – BEACH/BAR	OW – OPEN WATER
1 Cobble/Gravel 2 Sand	Unknown Bottom

MODIFYING TERMS

e adequately describe wetland and quatic habitats one or more of the water regimen, water chemistry, soil or special modifiers applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

Tidal		WATER CHEMISTRY			SOIL	SPECIAL MODIFIERS	
		Coastal Salinity	Inland Salinity	pH Modifieres for all Fresh Water	g Organic n Mineral	b Beaver d Partially Drained/Ditch f Farmed	h Diked/Impounded r Artificial s Spoil x Excavated
cial dal ularly Exposed ular ular	R Seasonal Tidal S Temporary Tidal T Semipermanent Tidal V Permanent Tidal U Unkown	1 Hyperhaline 2 Euhaline 3 Mixohaline (Brackish) 4 Polyhaline 5 Mesohaline 6 Oligohaline 0 Fresh	7 Hypersaline 8 Eusaline 9 Mixosaline 0 Fresh	a Acid t Circumneutral i Alkaline			

2.2 Community Setting

2.2.1 Land Use And Ownership

Historically, the Honolulu area has been the primary location for the island's businesses and government. At the present time, the urban Honolulu area continues to be both the commercial and civic center of Oahu. Land uses within the project area are generally characterized as Residential, Commercial and Apartment Mixed Use. Although the transmission main is located primarily within State and City and County right-of-ways, it will run adjacent to numerous properties. A summary of the Tax Map Keys for these properties is located in Appendix D.

2.2.2 Population

The population density throughout Honolulu is higher than the average density for Oahu. The area is home to both residences and businesses. The population census indicates that the population in the city of Honolulu was 377,059 in 1990. The area considered for this census extends from Red Hill to Makapuu Point, south and west of the crest of the Koolau Mountains.

2.2.3 Economy

The economy of urban Honolulu is typical of the island of Oahu as a whole, which is mainly service industries oriented.

2.2.4 Police and Fire Protection

The main police station for the City and County of Honolulu is located at 801 South Beretania Street, adjacent to the project area.

Fire protection for the project area is provided by five City and County Fire Stations located at the intersections of Beretania Street and Bishop Street, Punchbowl Street and Queen Street, Wilder Avenue and Piikoi Street, Kaheka Street and Makaloa Street and, lastly, University Avenue and Date Street. There are numerous fire hydrants throughout the project area. Figure 2-10 shows the locations of the police and fire stations.

2.2.5 Medical Facilities

There are many medical facilities throughout the Honolulu area. Health care on Oahu is provided by various general hospitals. Health care facilities for in-patient medical care include 29 hospitals of various types, including acute and long term facilities, 16 skilled

MAP/DRAWING#

102-D

nursing facilities and intermediate care facilities, and 261 care homes. Eight acute hospitals are operated directly by the state government and one by the federal government; 12 are nonprofit community hospitals. There are 7,651 beds available for general, acute, and other care services. Most other medical institutions -skilled nursing facilities, intermediate care facilities, and care homes, are privately owned. Many medical facilities are located in the general urban Honolulu area. These facilities include Kapiolani Medical Center for Women and Children, the Shriners Hospital for Children and Straub Clinic and Hospital. Two medical facilities in particular are adjacent to the project area: the Queen's Medical Center and Kaiser Permanente Medical Center. The locations of medical facilities in the area are shown in Figure 2-10.

2.2.6 Recreational Facilities

The urban Honolulu area is served by numerous recreational facilities offering diverse opportunities for the neighborhood's residents. There are 15 facilities adjacent to the proposed project area. Major facilities include the Foster Botanic Garden, Pacific Club, Nuuanu YMCA, the Honolulu Academy of Arts, Neal Blaisdell Center, the McCully-Moiliili Branch of the State Library, Puck's Alley and Varsity Theater. Public parks include Beretania Community Park, Kauluwela Playground, Kamamalu Playground, Thomas Square, Honolulu Stadium State Park, Moiliili Field and Kanewai Field. Figure 2-10 indicates the locations of these recreational facilities.

2.2.7 Schools

There are numerous schools throughout the project area. The proposed transmission main will pass directly by four of these schools. Specifically, these schools are Central Intermediate School, McKinley High School, Washington Intermediate School and the University of Hawaii. Refer to Figure 2-10 for the locations of these schools.

2.2.8 Refuse Collection and Disposal

Solid waste collection is provided by the City and County of Honolulu on a twice weekly basis. Refuse from this area is collected and transported to H-Power and the Waimanalo Gulch landfill for final disposal.

2.2.9 Public Transportation

Bus service is the main public transportation system in the Honolulu area. Regular daily bus schedules adequately provide transportation services to residents. Up to 80 bus routes share common stretches with the proposed transmission main route. The

intersection of Beretania Street and Alapai Street near the Board of Water Supply is along most of the bus routes. Handivan and Taxi Cab services are also available in the area.

2.3 Infrastructure

2.3.1 Road and Traffic

The transmission main will be routed primarily within the major thoroughfares of Honolulu. There are 18 major and 24 minor intersections along the proposed route. Vineyard Boulevard, Punchbowl Street, Beretania Street, King Street, University Avenue and Dole Street will be affected. Tables 2-2 through 2-4 detail hourly traffic volumes at the major intersections at mid-day, during the morning peak hour and during the afternoon peak hour, respectively. Each table also indicates the number of through lanes at each intersection. In general, the posted speed limit along the transmission main alignment is 35 mph. Traffic is also generally heavy in the project area during the morning and afternoon rush hours. Specifically, of the major intersections along the proposed transmission main, the intersection of King Street and Keeaumoku Street has the highest mid-day traffic volume of 3,882 vehicles per hour. Similarly, the intersection of Vineyard Boulevard and Punchbowl Street has the highest morning traffic volume and the intersection of King Street and Kalakaua Avenue has the highest afternoon traffic volume with 5,295 and 5,431 vehicles per hour, respectively.

2.3.2 Water System

The water system infrastructure within the project area consists of several reservoirs and a primary network of 8, 12, 18, 20, 24, 30 and 42-inch transmission lines and laterals. The reservoirs and transmission lines in the project area are served by the Honolulu Board of Water Supply. Water is first pumped from wells within the Pearl Harbor and Honolulu areas into several reservoirs at the 180' elevation which include the Aliamanu, Bella Vista, Punchbowl, Makiki, Diamond Head and Waahila 180' Reservoirs. The locations of these wells range from as far as the Waipahu Wells to as near as the Wilder Wells. The water supply is then conveyed either by gravity or pressure from the reservoirs via transmission mains to the respective service areas.

Specifically, along the proposed route, Vineyard Boulevard has existing 12-inch and 42-inch water lines from Liliha Street to River Street. Vineyard Boulevard then has an 8-inch line and a 42-inch line from River Street to Punchbowl Street. Punchbowl Street has a single 8-inch water line. Beretania Street has an 18-inch water line running from Punchbowl Street to the existing Board of Water Supply pump station at the BWS Beretania Street Complex. From the pump station to Alapai Street there are 18-inch,

Table 2-2 Mid-Day Traffic Volumes

Intersection	Approach Volumes (Vehicles Per Hour, VPH)								
	NORTHBOUND		SOUTHBOUND		EASTBOUND		WESTBOUND		TOTAL VPH
	No. of Lanes	VPH	No. of Lanes	VPH	No. of Lanes	VPH	No. of Lanes	VPH	
1 Liliha with Vineyard Blvd	2	695	2	727	3	1297	3	815	3534
2 Vineyard with Nuuanu	3	712	2	610	3	1212	3	750	3284
3 Vineyard with Bishop / (Pali)	3	1850	3	846	3	1032	3	1010	3738
4 Vineyard with Queen Emma	2	612	2	588	3	1063	3	976	3239
5 Vineyard with Punchbowl	1	729	2	922	3	1094	3	1003	3748
6 Beretania with Alapai (South)	1	1147	0	0	0	0	5	1886	3033
7 Beretania with Ward Avenue	2	503	2	345	0	0	5	1878	2726
8 Beretania with Victoria	2	275	2	414	0	0	5	1639	2328
9 King with Pensacola	0	0	4	1367	6	1801	0	0	3168
10 King with Piikoi	4	1528	0	0	5	2104	0	0	3632
11 King with Keeaumoku	2	788	2	842	6	2252	0	0	3882
12 King with Kalakaua Avenue	2	675	2	565	5	2400	0	0	3640
13 King with Punahou	1	420	1	597	5	1672	0	0	2689
14 King with Mccully	2	697	2	738	5	1857	0	0	3292
15 King with Isenberg	1	212	2	386	5	1734	0	0	2332
16 King with University	2	725	2	760	4	1472	3	845	3802
17 Dole with University Avenue	2	1157	3	957	2	279	2	381	2774
18 Dole with East-West	1	54	0	0	2	582	2	503	1139

Note 1: The Data shown in bold boxes represents data which was interpolated from adjacent intersections.

Table 2-3 AM Peak Traffic Volumes

Intersection	Approach Volumes (Vehicles Per Hour, VPH)								
	NORTH BOUND		SOUTH BOUND		EAST BOUND		WEST BOUND		TOTAL VPH
	No. of Lanes	VPH	No. of Lanes	VPH	No. of Lanes	VPH	No. of Lanes	VPH	
1 Liliha with Vineyard Blvd	2	615	2	797	3	1975	3	709	4096
2 Vineyard with Nuuanu	3	631	2	1157	3	2370	3	886	5044
3 Vineyard with Bishop/ (Pali)	3	400	3	1854	3	1026	3	1036	4316
4 Vineyard with Queen Emma	2	498	2	612	3	1343	3	1454	3907
5 Vineyard with Punchbowl	2	596	2	1167	3	1660	3	1872	5295
6 Beretania with Alapai (South)	1	1454	0	0	0	0	5	2185	3639
7 Beretania with Ward Avenue	2	1074	2	373	0	0	5	2634	4081
8 Beretania with Victoria	2	217	2	508	0	0	5	2406	3131
9 King with Pensacola	0	0	4	1728	6	1976	0	0	3704
10 King with Piikoi	4	1045	0	0	5	2979	0	0	4024
11 King with Keeaumoku	2	375	2	1062	6	1760	0	0	3197
12 King with Kalakaua Avenue	2	770	2	646	5	1931	0	0	3347
13 King with Punahou	1	365	1	615	5	1250	0	0	2230
14 King with Mccully	2	776	2	731	5	1364	0	0	2871
15 King with Isenberg	1	463	2	362	5	1200	0	0	2025
16 King with University	2	699	2	828	4	1146	3	1716	4389
17 Dole with University Avenue	3	841	3	742	2	329	2	226	2138
18 Dole with East-West	1	62	0	0	2	250	2	454	766

Note 1: The Data shown in bold boxes represents data which was interpolated from adjacent intersections.

Table 2-4 PM Peak Traffic Volumes

Intersection	Approach Volumes (Vehicles Per Hour, VPH)								
	NORTHBOUND		SOUTHBOUND		EASTBOUND		WESTBOUND		TOTAL VPH
	No. of Lanes	VPH	No. of Lanes	VPH	No. of Lanes	VPH	No. of Lanes	VPH	
1 Liliha with Vineyard Blvd	2	95	2	558	3	1466	3	1254	4229
2 Vineyard with Nuuanu	3	2065	2	428	3	1444	3	1139	5076
3 Vineyard with Bishop/ (Pali)	3	1793	3	861	3	1433	3	1118	5205
4 Vineyard with Queen Emma	2	1570	2	403	3	1218	3	1050	4241
5 Vineyard with Punchbowl	1	1347	2	816	3	1004	3	985	4152
6 Beretania with Alapai (South)	1	1825	0	0	0	0	5	1783	3608
7 Beretania with Ward Avenue	2	1007	2	845	0	0	5	3265	5117
8 Beretania with Victoria	2	630	2	606	0	0	5	1981	3217
9 King with Pensacola	0	0	4	1658	6	2852	0	0	4510
10 King with Piikoi	4	1525	0	0	5	2105	0	0	3630
11 King with Keeaumoku	2	978	2	1039	6	2853	0	0	4870
12 King with Kalakaua Avenue	2	1055	2	576	5	3800	0	0	5431
13 King with Punahou	1	435	1	512	5	3158	0	0	4105
14 King with Mccully	2	932	2	748	5	2544	0	0	4224
15 King with Isenberg	1	280	2	616	5	2551	0	0	3427
16 King with University	2	783	2	1030	4	2310	3	901	5024
17 Dole with University Avenue	3	1298	3	277	2	936	2	461	3972
18 Dole with East-West	1	42	0	0	2	640	2	1046	1728

Note 1: The Data shown in bold boxes represents data which was interpolated from adjacent intersections.

20-inch and 30-inch water lines. There is a single 12-inch line in Beretania Street from Alapai Street to Victoria Street. Victoria Street also has a single 12-inch line from Young Street to King Street. Along King Street, there is a 12-inch line from Victoria Street to Punahou Street. Between Punahou and Isenberg Streets there is an 8-inch line and between McCully Street and Wiliwili Street there is a 30-inch main, as shown in Figure 1-2. Between King Street and Coyne Street there are 2-inch, 12-inch, 24-inch and 30-inch lines in Isenberg Street. Coyne Street has both 6-inch and 8-inch water lines between Isenberg Street and University Avenue. University Avenue has a single 12-inch water line between Coyne Street and Dole Street. Dole Street also has a single 12-inch line between University Avenue and Donagho Road. After Donagho Road, there are 8-inch and 12-inch lines in Dole Street up to East-West Road. Finally, between East-West Road and the access road to the Waahila 180' Reservoir, there are 12-inch, 20-inch and 24-inch water lines in Dole Street. The water system in the project area is shown in Figure 1-2.

2.3.3 Wastewater System

The project area is serviced by both gravity and force main sewers. Sewer sizes range from 6-inch lines to a 5' x 4' box sewer. Wastewater from the Honolulu area is collected and conveyed to the Sand Island wastewater treatment plant. The sewer system in the project area is shown in Figure 2-11.

2.3.4 Electricity/Telephone

Electrical power and telephone service along the proposed transmission main route is available via a series of underground ducts and manholes.

2.4 Relationship to Land Use Plans, Policies, And Controls

The following land use plans, policies and controls apply to the project area:

2.4.1 State Land Use Districts

Under the State Land Use Law, Chapter 205, Hawaii Revised Statutes, all lands are classified as either "Urban", "Rural", "Agricultural", or "Conservation". The project area is designated as an "Urban District" as shown in Figure 2-12. The proposed water system improvements are allowed within the urban district.

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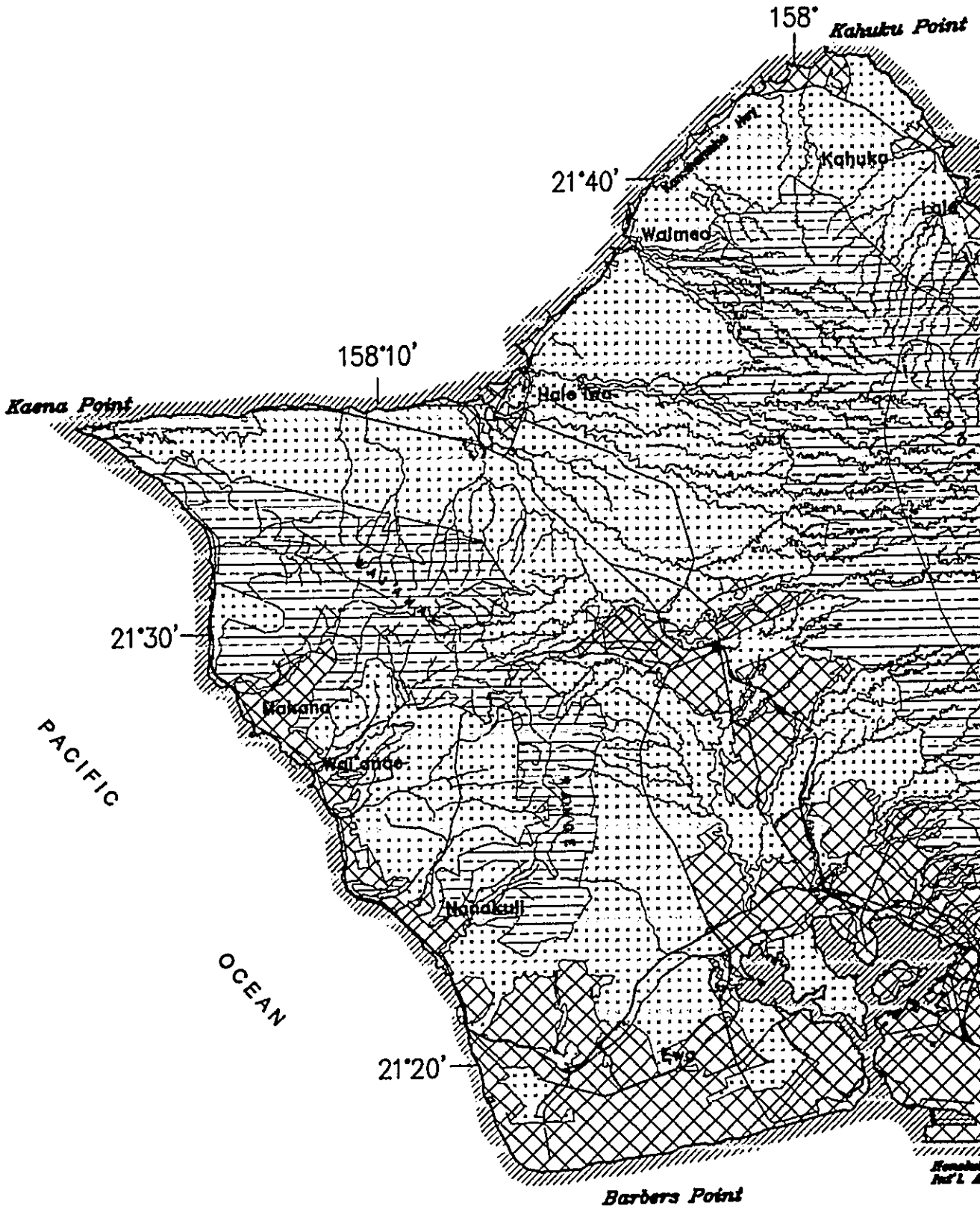
102-E

Figure 2-12 State Land Use District Map of Oahu



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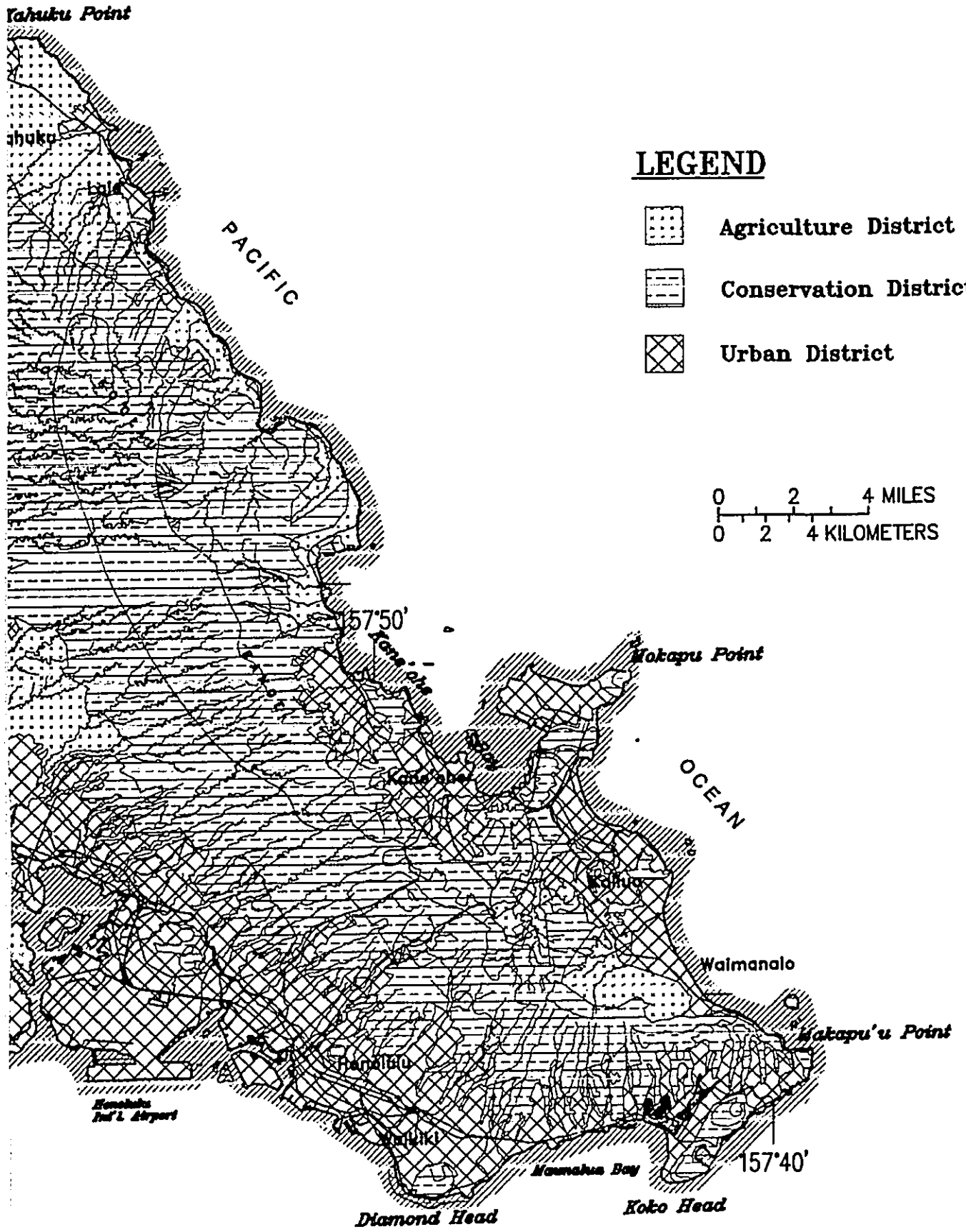
Kahuku Point
PACIFIC
OCEAN
157°50'
157°40'
Makapu Point
Kaneohe
Kailua
Waimanalo
Makapu'u Point
Honolulu
Honolulu Int'l Airport
Waikiki
Diamond Head
Maunalua Bay
Koko Head
LEGEND
Agriculture District
Conservation District
Urban District
0 2 4 MILES
0 2 4 KILOMETERS

2.4.2 Honolulu City and County General Plan

Details of the City and County zones that this project will impact are presented in Figure 2-13. The City and County of Honolulu's general plan is a comprehensive statement of objectives and policies which sets forth the long range development of Oahu and strategies of actions to achieve them. The comprehensive general plan addresses physical, social, economic and environmental concerns affecting the City and County of Honolulu. These objectives contain both statements of desirable conditions to be sought over the long run and statements of desirable conditions which can be achieved in the future. The main objectives of the general plan are: (1) to control the growth of Oahu's resident and visitor populations in order to avoid social, economic and environmental disruptions; (2) to plan for future population growth and to establish a pattern of population distribution that will allow the people of Oahu to live and work in harmony; (3) to promote employment opportunities that will enable all the people of Oahu to attain a decent standard of living; (4) to maintain the viability of Oahu's visitor industry and agriculture; (5) to make full use of the economic resources of the sea and to increase the amount of Federal spending on Oahu; (6) to protect and preserve the natural environment and to preserve the natural monuments and scenic views of Oahu for the benefit of both residents and visitors; (7) to provide decent housing for all the people of Oahu at prices they can afford; (8) to improve the transportation system; (9) to meet the needs of the people of Oahu for an adequate supply of water and for environmentally sound systems of waste disposal; (10) to maintain transportation and utility systems which will help Oahu continue to be a desirable place to live and visit; (11) to coordinate change in the physical environment of Oahu to ensure that all new development is timely, well-designed, and appropriate for the area in which it will be located; (12) to maintain those development characteristics in the urban fringe and rural areas which make them desirable places to live and to maintain attractive, meaningful and stimulating environments throughout Oahu; (13) to promote and enhance the social and physical character of Oahu's old towns and neighborhoods; and (14) to protect the people of Oahu and their property against natural disasters and other emergencies, traffic and fire hazards, unsafe conditions, etc. The proposed water system improvement project is consistent with this general plan.

In addition to the General Plan, there are eight other development plans which serve to guide development and improvement of the City. These development plans, first adopted in the years 1981-83 cover eight geographical sub-regions, encompassing the entire City and County of Honolulu as shown in Figure 2-14. Each regions's growth and development is guided by its corresponding development plan, which delineates special area plans and zoning or other land use regulations in accordance with the City's General plan.

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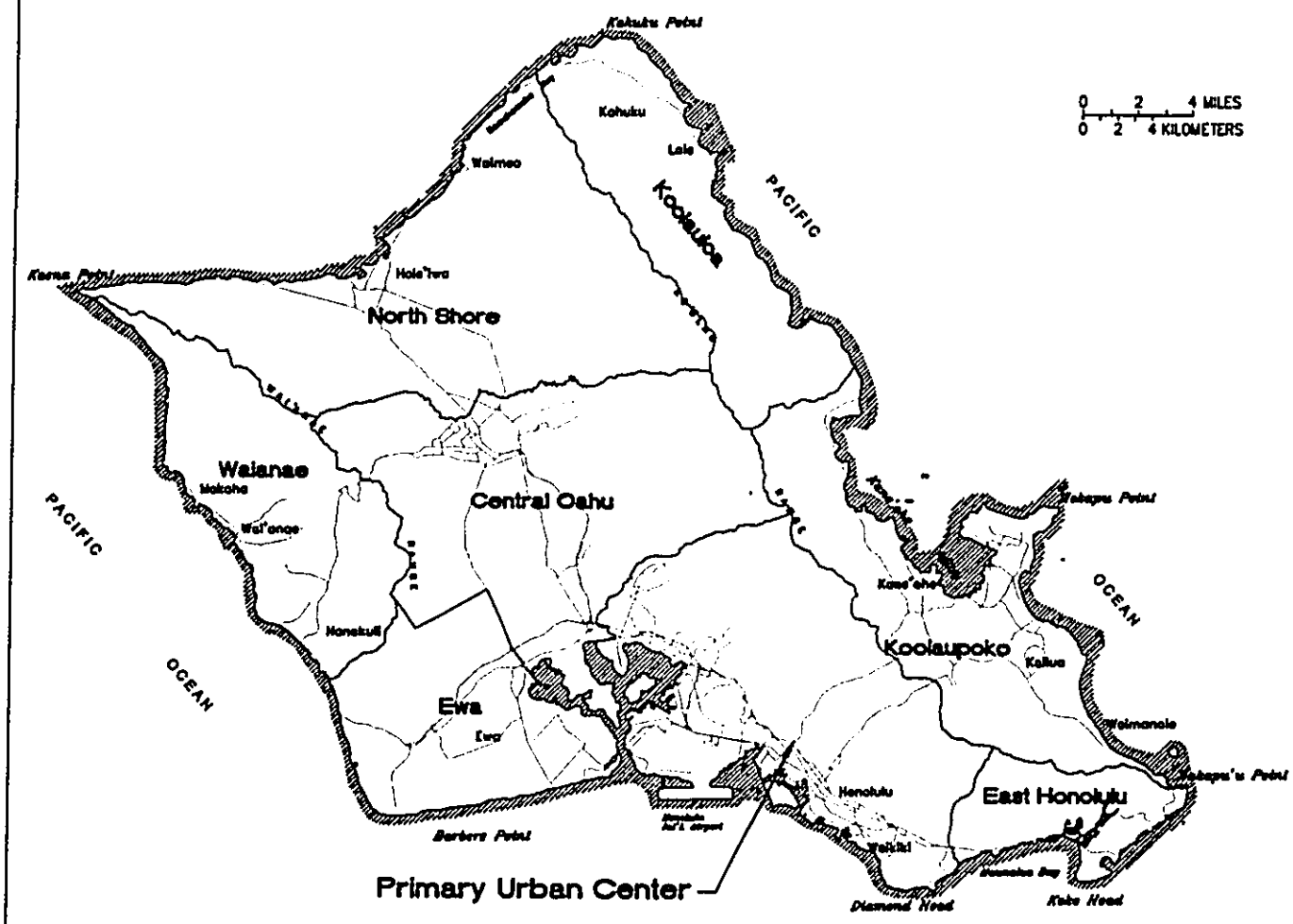
102-F

Figure 2-14 Eight Geographical Sub-Regions



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The proposed water system improvement project falls within the boundaries of the Primary Urban Center development plan. Currently, a new Primary Urban Center development plan is underway and no significant modifications are expected for the area in the vicinity of the project site. The proposed water system improvements are, therefore, consistent with the Primary Urban Center Development Plan.

2.4.3 County Zoning

The majority of the proposed water system improvements take place within City and County of Honolulu right-of-ways. The transmission main primarily traverses through a combination of AMXA (Apartment Mixed Use), RES (Residential) and COMM (Commercial) land use zones. The only sections of the transmission main not in the City and County of Honolulu right-of-way are the sections in Liliha Street and Vineyard Boulevard. These sections are within the State right-of-way.

2.4.4 County Special Management Area

The proposed project does not pass through the City and County of Honolulu's Special Management Area (SMA) as identified by the City and County of Honolulu Department of Land Utilization. Thus, it is not subject to requirements of Chapter 205-A of Hawaii Revised Statutes.

SECTION 3

ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES DURING CONSTRUCTION

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SECTION 3

ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES DURING CONSTRUCTION

In general, transmission main installation will be accomplished using a common trenching method. Construction will proceed along the alignment with a backhoe excavating a trench. The pipe will then be installed on the required pipe cushion and backfilling, compacting and repaving will be done. The pipe trench will be compacted and repaved as construction moves along the roadway in order to minimize inconvenience to the public. The construction trench will be approximately 4 feet 8 inches wide in order to accommodate the pipe width and necessary pipe cushioning. The trench depth will be a minimum of 7 feet 2 inches deep in order to accommodate the pipe height, pipe cushioning and minimum cover requirements. At the completion of the project, all disturbed areas will be restored to their original condition, including repaving.

At the stream crossings, there are four options available for pipeline installation. The options are hanging the pipe from the existing bridge, supporting the pipe on a new support structure adjacent to the existing bridge, micro tunneling under the stream bed and the trenching method as used in the roadways. Details of these methods are discussed in Section 1.3.3.2. Regardless of construction method chosen, Best Management Practices (BMPs) will be implemented in order to prevent damage to the stream. Construction activities at stream crossings may be limited to the drier summer months in order to minimize flooding. Furthermore, stream flow will be maintained such that in-stream construction will be restricted to no more than 50 percent of the width of the stream at any one time. Typical BMPs at all stream crossings may include silt fences and sand bags in order to minimize soil erosion into the streams. The final decision regarding the method of construction will be done on a stream by stream basis by the designer during the design stage of the project.

3.1 Impacts on The Physical Environment

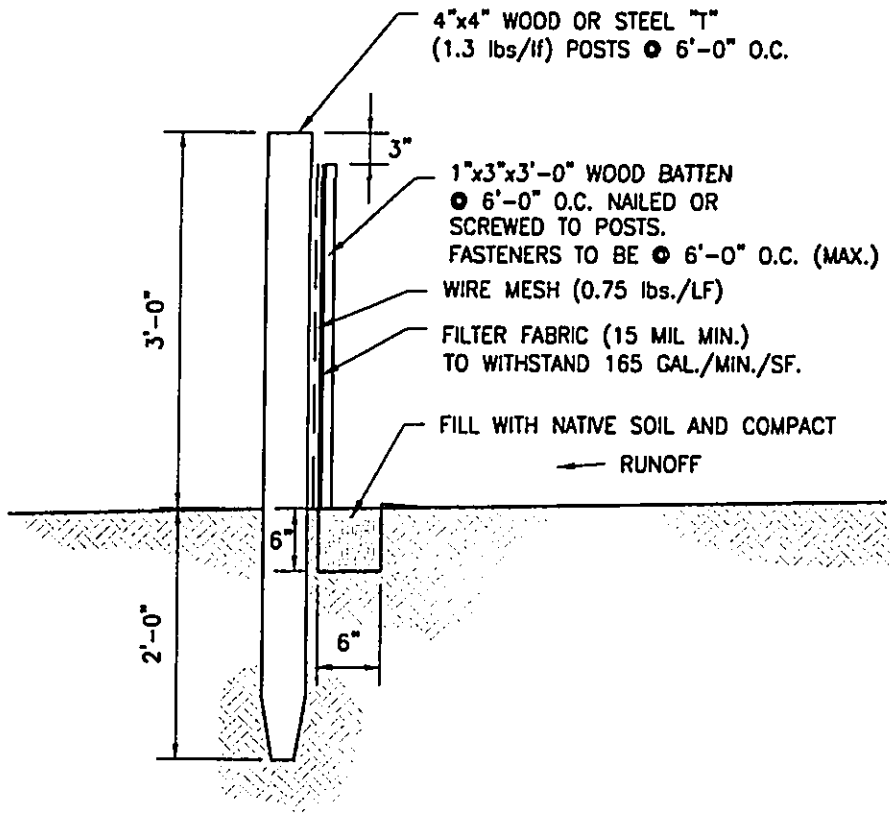
3.1.1 Erosion and Dewatering Control

Erosion due to site preparation and water line installation is anticipated to be minimal and well within acceptable limits since the nature of the trenching involved is within paved areas. Therefore, the construction activity should not have an adverse effect on adjacent properties and resources. When trenching occurs near any of the streams, silt fences will be set up at the base of slopes leading to the stream (see Figure 3-1). The location of the contractor's material and equipment yard has not been determined, but, if required, will have swales and berms for erosion control.

Figure 3–1 Typical Section – Silt Fence

BEST MANAGEMENT PRACTICES NOTES:

1. THE CONTRACTOR SHALL PROVIDE SEDIMENT BARRIERS OR TRAPS AND OTHER MITIGATIVE MEASURES FOR SEDIMENT TRANSPORT DURING CONSTRUCTION IN ACCORDANCE WITH THE CITY AND COUNTY OF HONOLULU'S RULES RELATING TO SOIL EROSION STANDARDS AND GUIDELINES.
2. SILT FENCES SHALL BE IMMEDIATELY REPAIRED WHEN DAMAGED DURING CLEARING AND GRUBBING OR GRADING OPERATIONS.
3. FILTER FABRIC SHALL BE PLACED OVER THE ENTRANCES TO STORM DRAIN INTAKE STRUCTURES.



TYPICAL SECTION–SILT FENCE
SCALE: NONE

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It is assumed ground water will be encountered where the finish grade falls below 10' msl. This is based on the assumption that ground water will be encountered at +2 feet elevation (high tide). Allowing for adequate cover over the water main, pipe size and bedding, a finish grade of +10 feet elevation is used as a threshold. The alignment for the proposed 42-inch transmission main falls below this threshold elevation less than 10% of the time. Therefore, no adverse dewatering issue will exist during construction.

3.1.2 Water Quality

The proposed water system improvement is not anticipated to adversely affect water quality in the area, although the project involves crossing Nuuanu, Makiki and Manoa Streams. The method of construction to be used is a common trenching method with minimal silt and debris runoff and dewatering requirements. Work will proceed along the alignment with a backhoe excavating a trench. The pipe will then be installed on the *required pipe cushion and backfilling, compacting and repaving will be done. At the* completion of the project, all disturbed areas will be restored to their original condition, to include repaving, as needed. Additionally, appropriate BMPs to be used include the utilization of silt fences during construction at all stream crossings to impede transport of silt and debris to these streams. Mirafi fabric sand bags will also be used at drain inlets to filter rain water and water used for dust control.

The new transmission main will need to be hydrotested and disinfected. Because the dechlorinated water will need to be discharged into drainage catch basins or streams, an National Pollutant Discharge Elimination System (NPDES) Permit will be required. After hydrotesting and disinfection of the transmission main, all chlorinated water will be dechlorinated prior to discharge into any drain inlet or stream. The discharge velocity of this water will be controlled in order to minimize flooding, stream bed scouring and impacts to aquatic resources. The dechlorinated water will be discharged at approximately 58 cubic feet per second. All hydrostatic testing, preflushing and chlorination will be done using potable water and dechlorinated using sodium thiosulfate. The solution of sodium thiosulfate will be introduced to the chlorinated water at an average concentration of 60 lbs./100,000 gallons. Upon satisfactory flushing of all trace levels of chlorine, the use of sodium thiosulfate will be terminated. Following dechlorination, the BWS will perform testing for bacteria. BMPs to be used to minimize negative impacts to water quality include the use of filter fabrics, sampling of discharge water to ensure that chlorine content does not exceed acceptable levels and obtaining an NPDES permit for all hydrostatic testing and discharge. The contractor will also use concentric silt curtains at drain outlets to streams and visual monitoring of all hydrotesting activities.

Additionally, an NPDES Storm Water Runoff Permit from the State Department of Health

Clean Water Branch will be attained because construction activities will disturb more than five acres of total land area. This project will disturb approximately 6.6 acres of land.

3.1.3 Flora and Fauna

There are no known significant rare, endangered or threatened species of flora or fauna existing in the immediate project area. The proposed transmission main will be installed entirely within the previously disturbed paved right-of-way and no mitigation measures are necessary. Installation of the transmission main will involve crossing Nuuanu, Makiki and Manoa streams. Aquatic and riparian resources in none of the three stream crossings will be affected by the proposed construction. Aquatic life, native forests, recovery habitats and endangered birds found along these streams are not present along the stretches of these three streams where the proposed water line will cross. All three stream crossing have been previously disturbed due to modifications at road and bridge crossings. Depending on the design of the transmission main and method of construction used (as detailed in Section 1.3.3.2), the new waterline may come into contact with the stream bed. If the stream bed is impacted in any way, a Stream Channel Alteration (SCAP) permit, Army Corps of Engineers (ACOE) permit and Water Quality Certification (WQC) will be required. After construction is completed however, cross-sectional flow areas at these streams should not be changed. Refer to Figures 2-5, 2-6 and 2-7 in Section 2 for existing conditions at the proposed stream crossings.

3.1.4 Historical /Archeological Features

During general construction work, the BWS will have an on-call archaeologist available for quick responses to inadvertent finds. The BWS will work closely with the State Historic Preservation Division to identify historically sensitive areas and provide monitoring services, as needed. An archaeological monitoring plan was developed for the project site by Archaeological Consultants of the Pacific, Inc. (ACPI), a copy of which is included in Appendix B (please note that Option 1 and Option 2 as referenced in the "Revised Archaeological Monitoring Plan" are now on the preferred route). This plan delineates areas to have on-site monitoring as well as those areas to have on-call monitoring. If any historic finds or burials are encountered during construction, work will cease and the BWS archaeologist and State Historic Preservation Division will be called to investigate. In addition to the report presented in Appendix B, a more detailed archaeological monitoring plan will be developed by a Board of Water Supply contracted archaeologist and approved by the State Historic Preservation Division during the design of each individual phase of construction.

During construction, the proposed routing of the new transmission main will encroach on

the northeast corner of the Capitol Historic District as shown in Appendix C. There are no traditional sites adjacent to the project. Besides the Capitol Historic District, the only other known archaeological features that are directly adjacent to the proposed transmission main routing are ancient fishponds located on University Avenue, mauka of King Street and at the intersection of Isenberg and Date Streets as shown in Appendix C. The first fishpond may affect up to 150 linear feet of the transmission main. The second fishpond is affected by a lateral that interconnects to the existing water system at the Isenberg Street and Date Street intersection. In anticipation of potential impacts to these fishponds, an archaeological monitoring plan has been developed to ensure preservation of culturally sensitive and important artifacts. According to the monitoring plan developed by ACPI and enclosed in Appendix B, an archaeological investigation, in the form of an inventory survey, should be conducted during the trenching of the water main. These investigations should consist of core samples, wherein an analysis of the stratigraphy may be made in addition to analyses of faunal and polynological remains as well as diatom and radiocarbon samples. These investigations will be done when construction reaches the area in question and will be monitored by an archaeologist as contracted by the BWS. A copy of the results acquired from these investigations will be given to the Office of Hawaiian Affairs (OHA) for review.

Previous construction activities in other areas adjacent to the proposed water main routing have uncovered various archaeological finds that may be encountered during construction. In the past, two inadvertent burials were encountered at the corner of Queen Emma Street and Old Vineyard Street. Also, an historic bottle dump (associated with the old soda works) was encountered on Vineyard Boulevard between Queen Emma and Punchbowl Streets. A last site is adjacent to the Kapapa Lo'i 'O Kanewai Cultural Garden and the Center for Hawaiian Studies on Dole Street in the vicinity of the Manoa Stream and Kanewai Field. Cultural finds and inadvertent burials have previously been encountered in this area. The locations of known Historical Districts, burial sites and traditional fish ponds are presented in Appendices B and C.

3.1.5 Noise

Construction activity will unavoidably increase the ambient noise levels. Construction equipment such as trenchers, backhoes, dump trucks and trailers will be the dominant noise producers during the construction period. Impact tools such as hammers will also be a major source of noise. Contractors should implement mitigative measures through the use of proper muffling devices to minimize noise impacts from the project activities.

Due to the increase in noise levels during construction, night work will be kept to a minimum in residential areas. Night work is more likely to occur in commercial and business areas in order to reduce overall construction time and therefore reduce impacts

to the public. Neighborhood boards will be notified in any areas subjected to the possibility of night work. Furthermore, any complaints of excessive noise from night construction will require the contractor to adjust working hours for the activity generating the excessive noise.

Any construction done at night will require a Noise Variance Permit from the State Department of Health. Acceptable decibel (dB) levels for day and night work are 100 dB and 45 dB, respectively. Construction activities typically produce approximately 90 dB of noise. Table 3-1 gives examples of typical sounds and their decibel levels.

Table 3-1 Typical Sounds and Their Decibel Levels

SOUND	DECIBEL LEVEL (dB)
Turbo Jet	150
Thunder Clap	120
Construction	**90**
Lawn Mower	90
Heavy Traffic	85
Vacuum Cleaner	70
Washing Machine	65
Normal Conversation	60
Whisper	30

3.1.6 Air Quality

Ambient air quality is expected to be affected due to the dust generated by short-term construction related activities. Excavation and trenching will generate air-borne particulate. The contractor should be responsible for utilizing dust control measures such as regular watering and sprinkling to minimize wind-blown particulates. Ambient air quality may be also adversely affected by emissions from construction equipment and other motor vehicles. The contractor will be required to minimize emissions through proper vehicle maintenance. Once the project is completed, no adverse impact on local and regional ambient air quality conditions is anticipated.

3.1.7 Public Health and Safety

The contractor shall take appropriate measures to ensure public health and safety during construction. All trench work will be secured with metal plates, safety signs and devices as required by State and City and County regulations during non-work hours.

3.2 Impacts on the Community Setting

3.2.1 Local Economy

The construction of the 42-inch transmission main will provide short term additional opportunities for local construction workers. It will also benefit the local material suppliers, in both retail and service sectors. Interruptions to local businesses adjacent to the transmission main route will be mitigated during construction. To achieve this, construction will be completed in short lengths, to include final back filling and repaving. Construction will not be done in long stretches that would inconvenience residents and businesses for an unreasonable length of time.

3.2.2 Other Community Services

The additional requirements for community services generated from the construction are expected to be minimal since only a few workers are needed and, as work progresses, the location of construction activity will move from neighborhood to neighborhood. Therefore, there are no major impacts on community service needs such as: police and fire protection, medical facilities, recreational facilities, schools and refuse collection and disposal. Access to fire apparatus will be maintained throughout the construction site for the duration of the project. Should there be any interruption in the existing fire hydrant system during construction, the contractor will be required to notify the Fire Communication Center.

3.2.3 Local Traffic

The proposed transmission main installation in urban Honolulu will have some construction-related traffic impacts. Traffic along the affected streets may increase and sometimes become congested.

Impacts of lane closure on traffic during installation of the proposed transmission main was analyzed in the *"Peer Review and Expansion of the Route Feasibility Study for the Honolulu 42-inch and 24-inch Transmission Mains" (Reference No. 9)* as prepared for the Honolulu Board of Water Supply by Marc M. Siah & Associates, Inc. The study comprehensively evaluated the impacts of closure of one lane at more than 80

intersections in the urban Honolulu area. Of these intersections, 18 were along the proposed transmission main route. These 18 intersections were evaluated using mid-day traffic data, lane configuration and capacity. More specifically, each intersection was evaluated by generally analyzing the traffic volume to capacity ratios (v/c) along the main thoroughfares for existing and during construction scenarios. This ratio represents the percentage of maximum capacity that an intersection is operating at, at any given time. Each intersection was researched in terms of mid-day traffic volume, laneage and signal timing, where available. Based on the traffic data compiled by the City and County of Honolulu's Department of Transportation Services, existing intersection capacities were calculated. An existing volume to capacity ratio was then determined using the present traffic volumes.

Next, for the purposes of this Environmental Assessment, the traffic capacity was recalculated assuming the closure of two lanes of travel. Based on this capacity and the same traffic volumes, a "during construction" volume to capacity ratio was determined. A volume to capacity ratio of 1.00 or greater is over capacity and considered an undesirable condition in both existing and during construction scenarios. None of the intersections along the proposed transmission main has volume to capacity ratios approaching 1.00 during either existing or construction conditions. It is noted that mid-day traffic data was used because in order to mitigate inconvenience to the public due to increased traffic congestion, it is recommended that the majority of the work be done during non-peak traffic hours. Also note that where street parking is available, only one lane of travel will be closed because the street parking area will be utilized for additional capacity.

Based on this mid-day traffic data, of all the major intersections along the proposed transmission main route, the most highly impacted intersection will be that of Beretania Street and Ward Avenue. Existing traffic volume at this intersection is at 56 percent (v/c) of its maximum capacity, leaving 44 percent available capacity. During construction, with two lanes closed for water line installation, excess traffic capacity will be reduced from 44 percent to 6 percent (corresponding to a v/c ratio of 0.94). No intersection along the proposed transmission main will experience traffic volumes in excess of its capacity during construction. For a comprehensive tabulation of capacity ratios both prior to and during construction along the proposed route, refer to Appendix E. In order to minimize traffic impacts, work shift and materials transportation will also be scheduled during non-peak traffic hours.

Mitigative traffic monitoring and coordination will be implemented to minimize inconvenience to the public. Specifically, traffic mitigation measures will include, but not be limited to, the following:

1) Work in the University of Hawaii, Manoa area should be scheduled when University of Hawaii students are off on summer, semester and spring breaks. Also, major sporting events and other activities will be accounted for when finalizing construction schedules in order to avoid any major conflicts.

2) The contractor will schedule daytime work activity between the hours of 8:30 a.m. and 3:00 p.m., Monday through Friday, excluding state holidays. This construction schedule will help to minimize conflicts with morning and afternoon peak traffic periods. Night work may be an option in some areas with the approval of the Department of Transportation Services and the State Department of Health.

3) During construction, no more than two lanes of traffic be out of service for an extended period of time for the roadway segment in the vicinity of the construction.

4) The contractor's heavy truck activity will be scheduled to avoid morning and afternoon peak traffic periods.

5) Adequate access to driveways, businesses, residents and public streets shall be provided.

6) During design, laying the water line outside of roadways will also be considered a mitigative measure. However, this may be difficult to achieve in the urban Honolulu area due to dense development, the occurrence of areas designated for preservation on the State and National Register of Historic Places and the various Historic Districts in the area.

7) A Traffic Control Plan approved by the either the State Department of Transportation or the City's Department of Transportation Services prior to construction of each phase of work.

3.2.4 Night and Weekend Work

As stated in Section 3.1.5, an option that may be available during construction is night and weekend work. Night work may occur in commercial and business areas in order to

reduce overall construction time and therefore reduce impacts to the public. Any construction done at night will require a Noise Variance Permit from the State Department of Health. This option will alleviate many of the traffic problems as well as minimize negative impacts to businesses during daytime business hours. However, the negative impacts that night and weekend work entail include disruptions to residential areas due to construction noise and an approximate increase in construction cost of 25 percent due to additional overtime pay.

3.3 Impacts on the Infrastructure

With proper planning and design, construction of the proposed water system improvement will not adversely affect the existing water system, electricity and telephone services, and/or the sewer and drainage systems in the project area. The final design and layout of the transmission main and booster pump station shall consider the existing utilities in the area. Proper procedures and precautions will be taken to ensure that the sewer mains, laterals and structures are protected from damage during the construction of the project. Also, wastewater service will be maintained for the customers in the surrounding area.

SECTION 4

ENVIRONMENTAL CONSEQUENCES AFTER PROJECT COMPLETION

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SECTION 4

ENVIRONMENTAL CONSEQUENCES AFTER PROJECT COMPLETION

4.1 Impacts on The Physical Environment

4.1.1 Water System Improvement

When completed, the proposed improvement will create redundancy and increase reliability in the Honolulu Low West Water System (HLWWS). The installation of the new water line and booster station will also increase the transmission capacity and flow across the HLWWS. A third benefit of the new 42-inch transmission main would be an increase in the hydraulic grade line throughout the system, resulting in increased efficiency, lower pumping costs and decreased maintenance requirements.

4.1.2 Flora and Fauna

The construction will be contained within the City and County of Honolulu's paved right-of-way. There are no known significant habitats of rare, endangered or threatened species of flora and fauna in or around the project area. For this reason, no long term impacts are expected.

4.1.3 Visual, Noise and Other Physical Environment

The completed underground transmission main construction would not have visual impacts. There is a potential visual impact if the pipe is hung or supported on a separate structure at the stream crossings. Various architectural treatments would be evaluated to match the existing bridge.

The booster pump station building will be acoustically treated so that sound levels do not exceed night limits of 45 dB. The final location and structure design will be dependent upon the Beretania Complex Facility Master Plan. For example, the pump station building could be a separate, stand alone structure, or it could be incorporated into the basement of a future parking structure. A separate environmental document will be prepared for facilities other than the booster pump station as identified in the Facility Master Plan.

The proposed water system improvement is not expected to have any adverse historical/archaeological impacts. An archaeological monitoring plan was developed for the project site by Archaeological Consultants of the Pacific, Inc. (ACPI) in order to mitigate any adverse effects. A copy of this plan is included in Appendix B (please note

that Option 1 and Option 2 as referenced in the "Revised Archaeological Monitoring Plan" are now on the preferred route). Additionally, a more detailed archaeological monitoring plan will be developed by a Board of Water Supply contracted archaeologist and approved by the State Historic Preservation Division during the design of each individual phase of construction. Lastly, the improvement will not have a significant impact on the physical environment during and after the construction of the project.

Noise and air pollution impacts associated with the project will be eliminated after the completion of the project.

4.2 Impacts on Community Setting

No long term impacts on the community setting are foreseen. The main benefit of the project is to provide an adequate and reliable water supply.

4.3 Impacts on Infrastructure

The proposed construction has no short-term or long term adverse impacts on the infrastructure in the area. The appropriate procedures and precautions will be taken to ensure that existing sewer mains, laterals and structures are protected from damage during the construction phase of the project.

SECTION 5

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES AND UNRESOLVED ISSUES

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SECTION 5

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES AND UNRESOLVED ISSUES

The proposed water system improvement project involves irreversible and irretrievable uses of energy, labor, materials, and capital funds by the City and County of Honolulu Board of Water Supply. Construction of the 42-inch transmission main and booster pump station will increase the adequacy and reliability of the existing water supply to the residents of Honolulu at both present and anticipated future population levels.

There are no unresolved issues for the proposed water system improvement project at the present time.

SECTION 6
LIST OF NECESSARY PERMITS AND APPROVALS

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SECTION 6

LIST OF NECESSARY PERMITS AND APPROVALS

Permits required in order to produce the water system improvements are listed as follows:

	Permit	Approving Agencies	Approximate Processing Time
1)	Army Corps of Engineers (404) Permit	Army Corps of Engineers U.S. Government Regulatory Section Job File No.: 200000230	90 - 180 days

An Army Corps of Engineers (404) Permit may be required if the pipeline is installed under any stream beds because fill may be introduced into the stream. If the pipeline is supported on a structure at each stream crossing, this permit will not be necessary because support piles for the structure are not considered as fill material. The need for this permit will be determined after the pipeline design is completed.

2)	Stream Channel Alteration Permit	Department of Land and Natural Resources State of Hawaii	60 -90 days

The Commission on Water Resource Management requires this permit if any stream bed or stream bank is altered in any way. The need for this permit will be determined after the pipeline design is completed.

3)	Water Quality (401) Certification	Department of Health State of Hawaii Clean Water Branch	60 - 90 days

Title IV of the Clean Water Act of 1977 (Public Law 95-217) requires this certification if an applicant is seeking a Federal license or permit for activities involving the possibility of discharge into navigable waters.

4)	National Pollutant Discharge Elimination System (NPDES): Dewatering Permit	Department of Health State of Hawaii Clean Water Branch	60 - 90 days

This permit is required for the discharge of dewatering effluent from construction activities.

5)	NPDES: Hydrotesting Permit	Department of Health State of Hawaii Clean Water Branch	60 - 90 days

This permit is required for the discharge of non-polluted hydrotesting water.

6)	NPDES: Storm Water Runoff Permit	Department of Health State of Hawaii Clean Water Branch	60 - 90 days

This permit is required for storm water discharges from construction activities including clearing, grading and excavation activities except for operations that result in the disturbance of less than five acres of total land area which are not part of a larger common plan of development or sale. Note: This project will disturb approximately 6.6 acres of land.

7)	State Right-of-Way Permit	Department of Transportation Highways Division State of Hawaii	30 - 60 days

This permit is required for any construction activities within the State right-of-way (i.e. Vineyard Boulevard).

8)	City and County Right-of-Way Permit	Department of Transportation Services City and County of Honolulu	30 - 60 days

This permit is required for any construction activities within the City and County of Honolulu right-of-way (i.e. King Street, Beretania Street, University Avenue).

9)	Building Permit	Department of Planning and Permitting City and County of Honolulu	30 - 45 days

This permit is required for the construction of any building or structure.

10)	Grading Permit	Department of Planning and Permitting City and County of Honolulu	15 - 30 days

This permit is required for grading which changes drainage patterns with respect to properties abutting the construction site, exceeds 50 cubic yards of cut or fill or exceeds three feet in vertical height at its deepest point.

11)	State Trenching Permit	Department of Transportation Highways Division State of Hawaii	15-30 days

This permit is required for trenching (i.e. digging, breaking, disturbing or undermining) any public State highway, street, thoroughfare, alley or sidewalk or any similar public place.

12)	City Trenching Permit	Department of Planning and Permitting City and County of Honolulu	15 - 30 days

This permit is required for trenching (i.e. digging, breaking, disturbing or undermining) any public City highway, street, thoroughfare, alley or sidewalk or any similar public place.

13)	Noise Variance Permit (as needed)	Department of Health State of Hawaii	7 - 14 days

This permit may be required for unusually loud construction activities or night work.

14)	State Traffic Control Plans	Department of Transportation Highways Division State of Hawaii	15-30 days

These plans must be approved by the State for work within Liliha Street and Vineyard Boulevard.

15)	State Lane Closure Permit (as needed)	Department of Transportation Highways Division State of Hawaii	15-30 days

This permit may be needed for lane closures within Liliha Street and Vineyard Boulevard.

16)	City and County Traffic Control Plans	Department of Transportation Services City and County of Honolulu	15 - 30 days

These plans must be approved by the City for work within City and County roadways.

17)	City and County Street Usage Permit (as needed)	Department of Transportation Services City and County of Honolulu	15 - 30 days

This permit may be needed for work within City and County roadways.

18)	Construction Plans and Specifications	Department of Planning and Permitting City and County of Honolulu,	30 - 60 days
		Board of Water Supply City and County of Honolulu,	30 - 60 days
		Department of Transportation Highways Division State of Hawaii	30 - 60 days

These plans must be approved by the City and State before construction may begin.

SECTION 7

ALTERNATIVES TO THE PROPOSED ACTION

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SECTION 7

ALTERNATIVES TO THE PROPOSED ACTION

The alternatives for the proposed project are "No action", "Delayed action" and "Alternative Routes and Sites". They are described as follows:

7.1 No Action

The "No Action" alternative means that no water system improvement will be constructed. Currently, the hydraulic grade line (HGL) decreases during high demand periods and higher than desired velocities occur which indicate that the existing main is exceeding its carrying capacity. Also, as the existing system ages and the population in the area increases, the water system may become inadequate. This alternative is unacceptable to the community, since water supply issues will remain unresolved.

7.2 Delayed Action

The "Delayed Action" alternative means that the water system improvement takes place at some time in the future. This alternative will postpone the resolution of water supply concerns in the area, causing potential water supply shortages due to inadequate infrastructure. Furthermore, the delay of the water system improvement will also result in higher construction costs in the future due to inflation.

7.3 Alternative Transmission Main Routes and Pump Station Sites

The "Alternative Transmission Main Routes and Pump Station Sites" alternative means that the water system improvement will utilize thoroughfares and sites other than those proposed.

7.3.1 Alternative Route Identification

In a feasibility study prepared by Marc M. Siah & Associates, Inc. for the Honolulu Board of Water Supply entitled *"Peer Review and Expansion of the Route Feasibility Study for the Honolulu 42-inch and 24-inch Transmission Mains" (Reference No.)*, alternative routes were evaluated for optimum feasibility. The purpose of the study was to find the most feasible routing for the new transmission main by assessing each alternative route on various criteria. Alternatives were identified based on construction phasing. In other words, for each of the five construction phases and depending on right-of-way options, anywhere from three to six alternative routes were identified. These alternative routes are detailed in Figures 7-1 through 7-5. Each alternative was evaluated in light of 26 criteria. These criteria were evaluated and weighted based on the relative impact each criterion would have on each route. For example, one of the more critical criteria was the

Figure 7-1 Phase I Routes (Dillingham/Liliha to Nuuanu Ave. Interconnection) for the Proposed 42-inch Transmission Main

MMS ROUTES:

——— VINEYARD BOULEVARD ROUTE - VBR

ESH ROUTES:

——— WILDER AVENUE ROUTE - WAR (I)

——— BERETANIA STREET ROUTE - BSR (I)

——— KING STREET ROUTE - KSR (I)

——— KAPIOLANI BOULEVARD ROUTE - KBR (I)

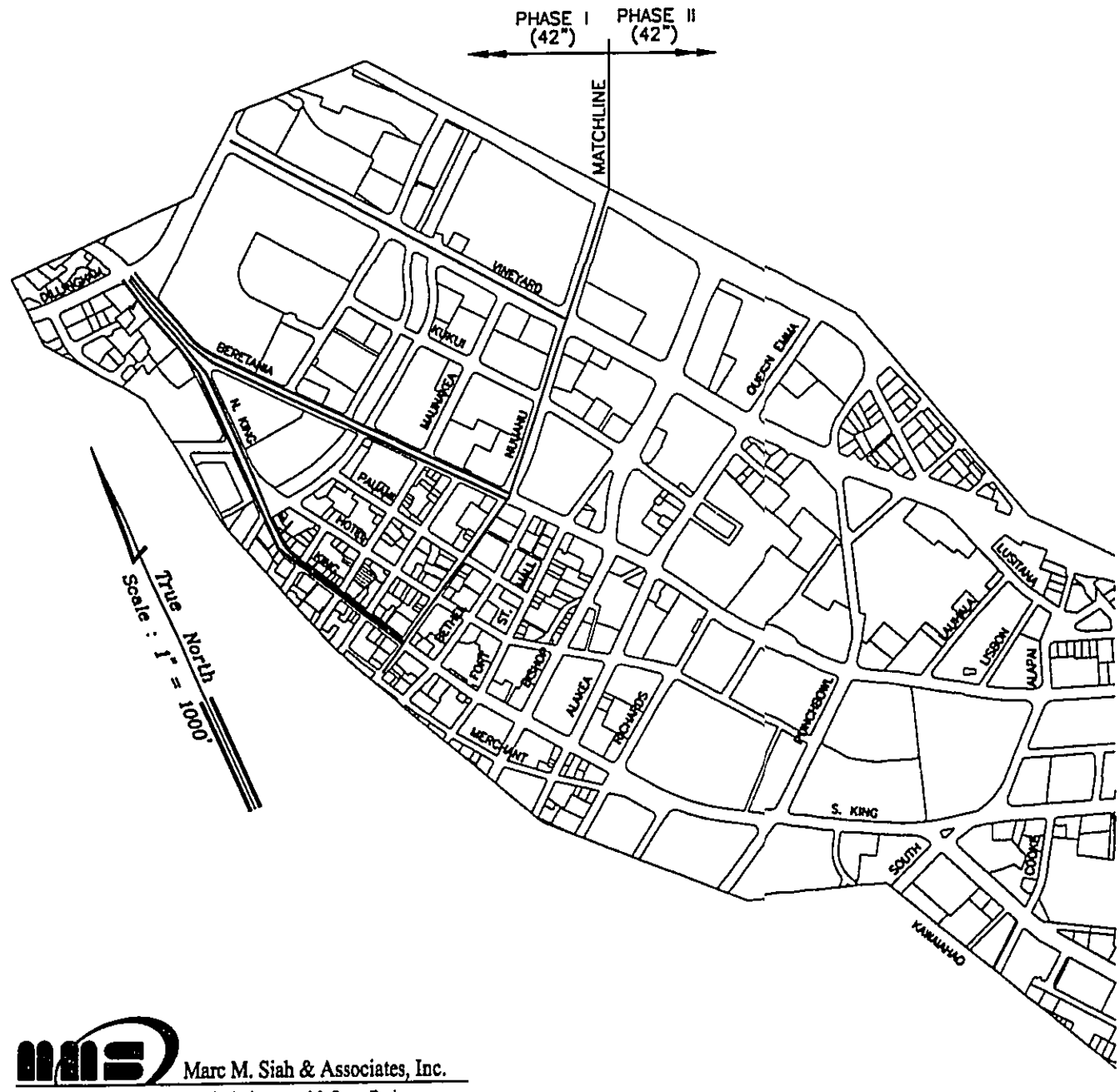

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Figure 7-2 Phase II Routes (Nuuanu Ave. Interconnection to Lauhala St.) for the Proposed 42-inch Transmission Main

MMS ROUTES:

——— VINEYARD/LUSITANA/LISBON ROUTE - VLL

——— VINEYARD/PUNCHBOWL ROUTE - VPB

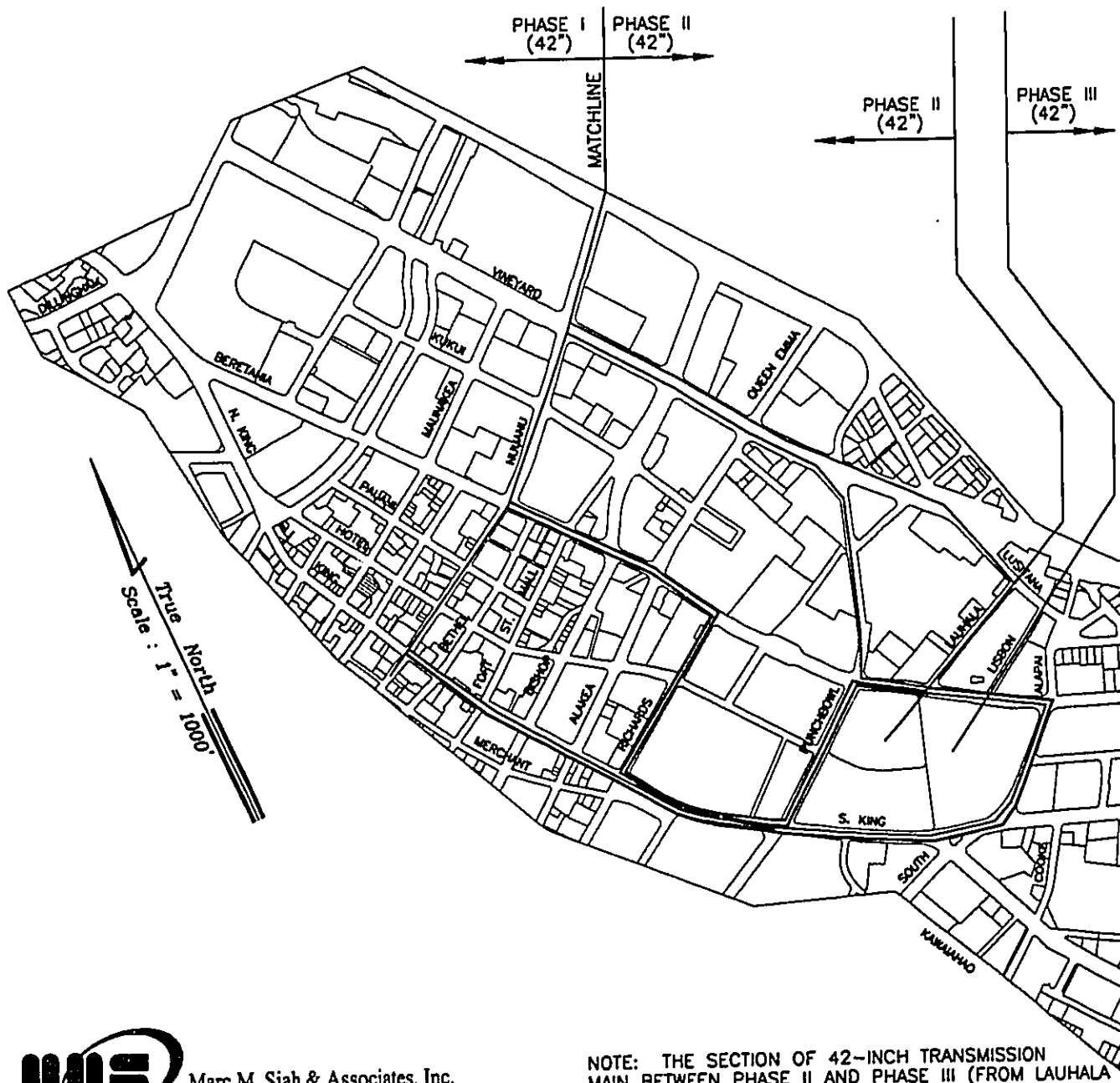
ESH ROUTES:

——— WILDER AVENUE ROUTE - WAR (II)

——— BERETANIA STREET ROUTE - BSR (II)

——— KING STREET ROUTE - KSR (II)

——— KAPIOLANI BOULEVARD ROUTE - KBR (II)



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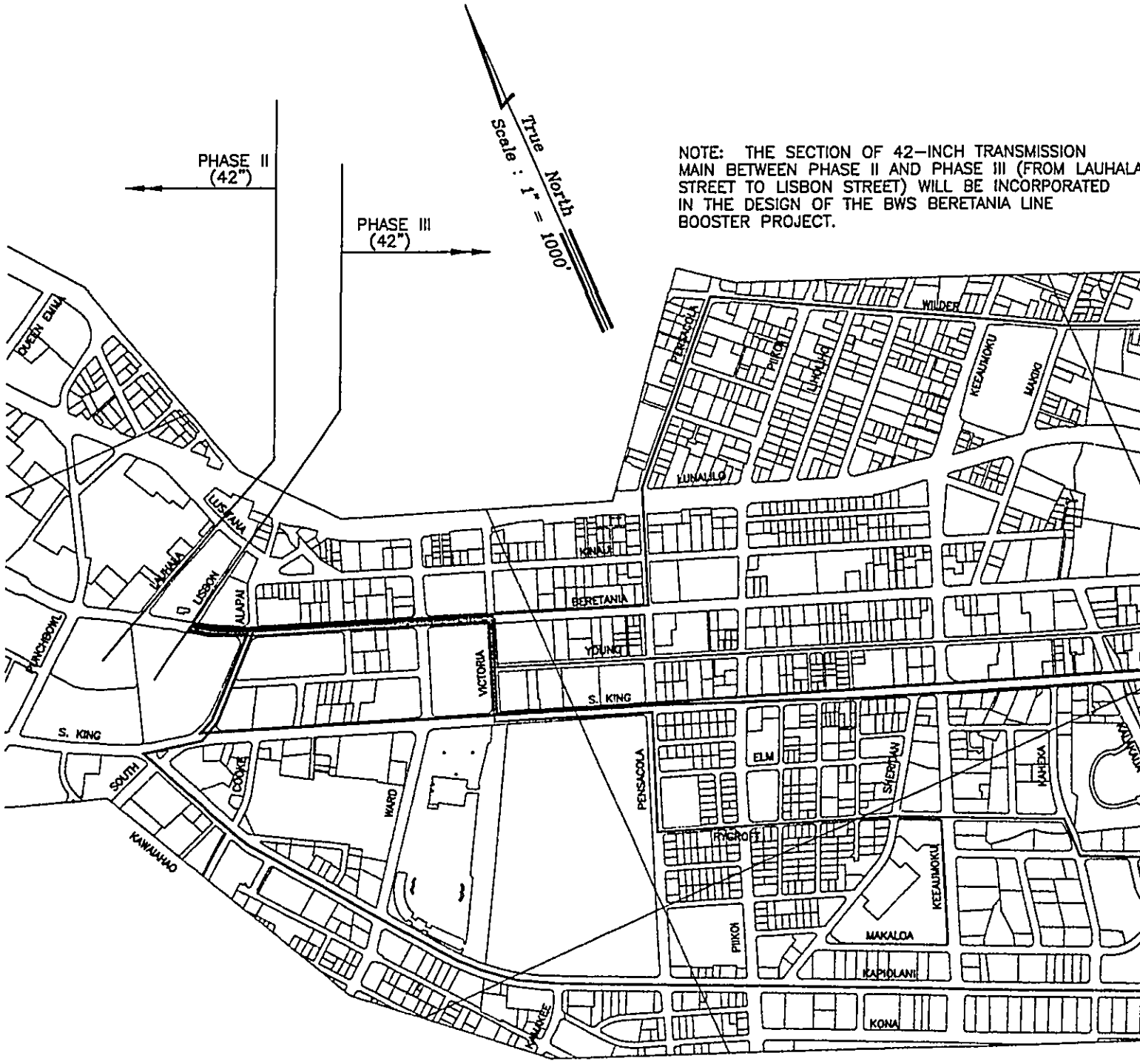
NOTE: THE SECTION OF 42-INCH TRANSMISSION MAIN BETWEEN PHASE II AND PHASE III (FROM LAUHALA STREET TO LISBON STREET) WILL BE INCORPORATED IN THE DESIGN OF THE BWS BERETANIA LINE BOOSTER PROJECT.

Figure 7-3 Phase III Routes (Lisbon St. to King/Isenberg) for the Proposed 42-inch Transmission Main



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NSMISSION
(FROM LAUHALA
ICORPORATED
LINE

ESH ROUTES:

WILDER AVENUE ROUTE – WAR (III)

BERETANIA STREET ROUTE – BSR (III)

KING STREET ROUTE – KSR (III)

KAPIOLANI BOULEVARD ROUTE – KBR (III)

MMS ROUTES

YOUNG STREET ROUTE – YSR

RYCROFT/CITRON ROUTE – RCR

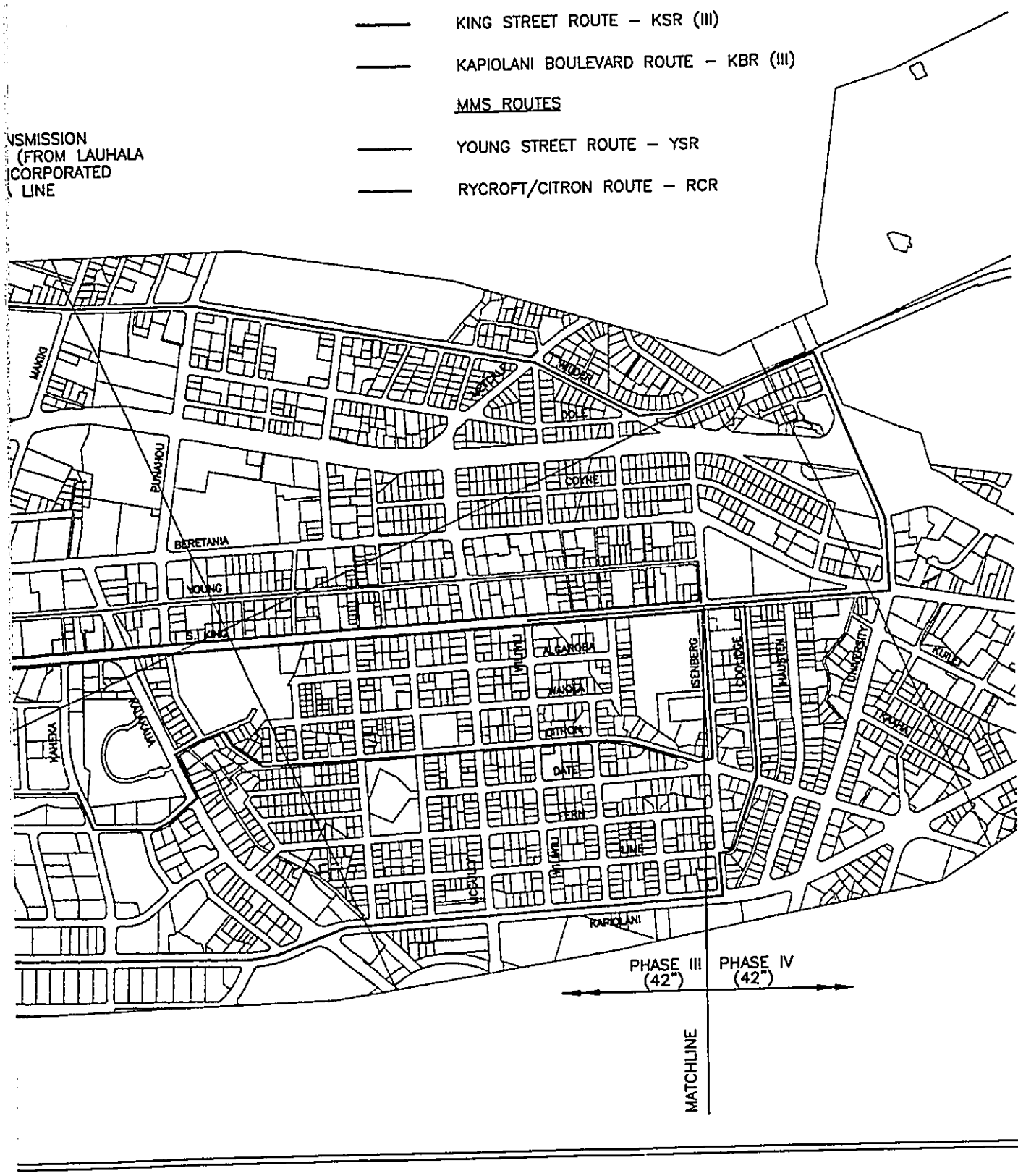
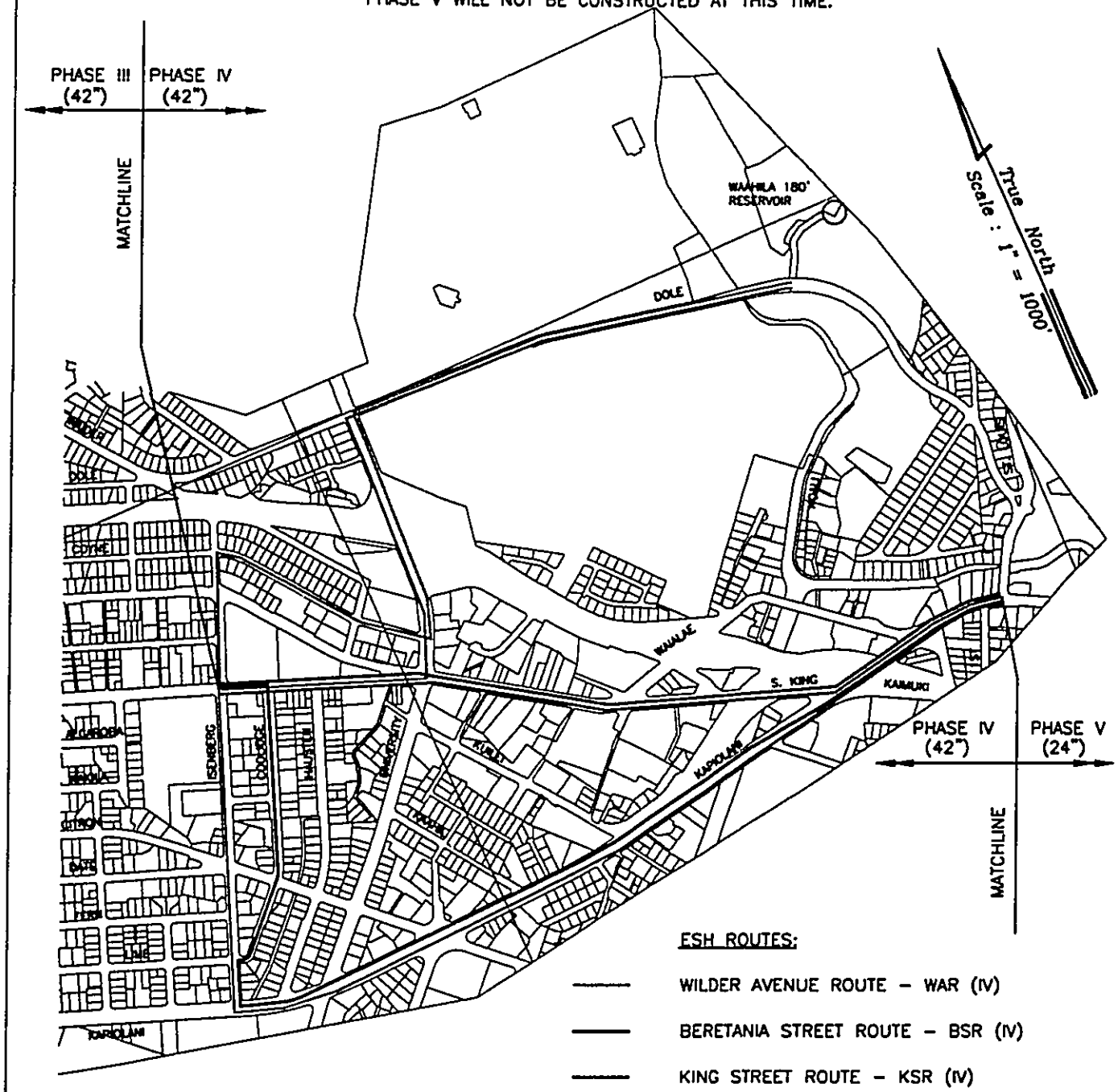


Figure 7-4 Phase IV Routes (King/Isenberg to Waialae/ St. Louis) for the Proposed 42-inch Transmission Main

NOTE: IF EITHER WAR(IV) OR CUD ARE CHOSEN FOR PHASE IV, THE 24-INCH TRANSMISSION MAIN IN PHASE V WILL NOT BE CONSTRUCTED AT THIS TIME.



ESH ROUTES:

- WILDER AVENUE ROUTE – WAR (IV)
- BERETANIA STREET ROUTE – BSR (IV)
- KING STREET ROUTE – KSR (IV)
- KAPIOLANI BOULEVARD ROUTE – KBR (IV)

MMS ROUTES:

- COYNE/UNIVERSITY/DOLE ROUTE – CUD
- ISENBERG/KAPIOLANI ROUTE – IKR

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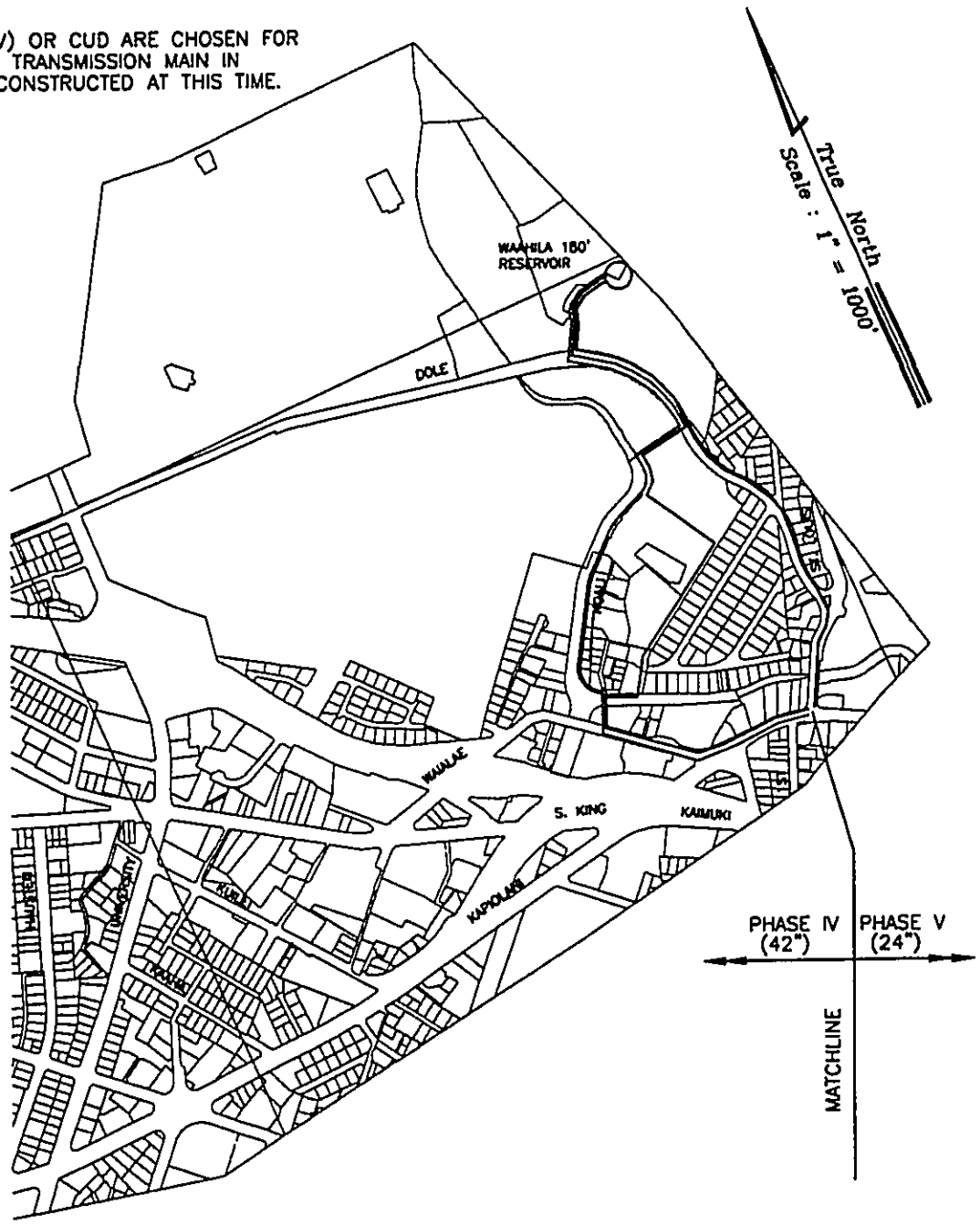
Figure 7-5 Phase V Routes (Waialae/St. Louis to Waahila 180' Reservoir) for the Proposed 24-inch Transmission Main

NOTE: IF EITHER WAR(IV) OR CUD ARE CHOSEN FOR PHASE IV, THE 24-INCH TRANSMISSION MAIN IN PHASE V WILL NOT BE CONSTRUCTED AT THIS TIME.



ESH ROUTES:

——— ST. LOUIS DRIVE ROUTE (SLDR)

——— HOKULANI SCHOOL ROUTE (HSR)

——— MANOA STREAM ROUTE (MSR)

MMS ROUTES: NONE

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construction cost of alternative routes. The route with the least expensive construction cost scored the highest. Evaluation scores for all 26 criteria were tallied and the alternative with the highest feasibility score was selected as the proposed route for each phase of construction. Of the 26 evaluation criteria used, some of the more critical criteria were the impacts of land requirements, maintenance requirements, stream crossings, water line accessibility, construction cost and traffic control.

In summary, the entire project is divided into five phases. Phase I will involve routing the 42-inch main from Dillingham Boulevard/Liliha Street to an interconnection point at Nuuanu Avenue. Phase II will involve routing the 42-inch main from the interconnection point on Nuuanu Avenue to Lauhala Street. Phase III will route the 42-inch main from Lisbon Street to an interconnection at the intersection of King Street and Isenberg Street. Phase IV will extend from King Street/Isenberg Street to an interconnection on Waialae Avenue near St. Louis Drive. Lastly, Phase V involves routing a 24-inch transmission main from the Waialae Avenue/St. Louis Drive intersection to the Waahila 180' Reservoir. The 42-inch water main from Lauhala Street to Lisbon Street will be incorporated in the Board of Water Supply's booster pump station project. Table 7-1 summarizes construction phasing and the alternative routes considered for the project. Table 7-2 summarizes the criteria used for evaluating each alternative route.

7.3.2 Alternative Route Conclusions

Alternative routes through the downtown Honolulu area included utilizing King Street, Beretania Street and Vineyard Boulevard. The King Street route was not chosen due to many factors including high construction costs, high maintenance needs and a path that traverses all three Historical Districts in the downtown area. Some of the factors that precluded the Beretania Street route were high maintenance needs, a negative impact on adjacent businesses and a path through two of the three Historical Districts. Some of the factors that made Vineyard Boulevard the proposed route in the downtown Honolulu area are minimal land requirements, no dewatering during construction, relatively low cost and no anticipated impact on archaeological sites or Historical Districts.

Some of the alternative routes considered for routing the new transmission main from the downtown Honolulu area to the Isenberg Street/King Street intersection include Wilder Avenue, Beretania Street, King Street, Young Street, Rycroft Street and Kapiolani Boulevard. The Wilder Avenue and Kapiolani Boulevard routes were eliminated from consideration due to high construction costs, high maintenance needs and large distances to required interconnection points throughout Honolulu. The Young Street and Rycroft Street alternatives were not feasible due to factors such as excessive noise in residential areas, poor soils characteristics and accessibility problems. Factors that contributed to choosing King Street over Beretania Street for the proposed route are that

Table 7-1 42-inch Transmission Main Construction and Alternative Route Summary

	PHASE I Liliha St./Dillingham Blvd. to Nuuanu Ave.	PHASE II Nuuanu Ave. to Lauhala St.	PH Li to Ise
ALTERNATIVE 1	Wilder Avenue Route - WAR (I) Via South Beretania St.	Wilder Avenue Route - WAR (II) Via S. Beretania St., Richards St., S. King St., Punchbowl St., S. Beretania St.	Wilder Avenue R S. Beretania St., Pen Ave., University
ALTERNATIVE 2	Beretania Street Route - BSR (I) Via South Beretania St.	Beretania Street Route - BSR (II) Via S. Beretania St., Richards St., S. King St., Punchbowl St., S. Beretania St.	Beretania Street S. Beretania St., Victo
ALTERNATIVE 3	King Street Route - KSR (I) Via South King St.	King Street Route - KSR (II) Via S. King St., Alapai St., S. Beretania St.	King Street Ro S. Beretania St., Alap
ALTERNATIVE 4	Kapiolani Boulevard Route - KBR (I) Via South King St.	Kapiolani Boulevard Route - KBR (II) Via S. King St., Alapai St., S. Beretania St.	Kapiolani Boulevard S. Beretania St., Alap Kapiolani Blvd., Isenber S.
ALTERNATIVE 5	Vineyard Boulevard Route - VBR (I) Via Vineyard Blvd.	Vineyard / Lusitana Route - VLL Via Vineyard Blvd., Lusitana St.	Young Stree S. Beretania St., Victo Ise
ALTERNATIVE 6		Vineyard / Punchbowl Route - VPB Via Vineyard Blvd., Punchbowl Street, South Beretania St.	Rycroft / Citro S. Beretania St., Victo Pensacola St., Rycro Kanunu St., Kalakau Kuikahi St., Citron

* NOTE: Phase V will not be necessary if the selected route in Phase IV is either the Wilder Avenue Route (WAR (IV)) or the Coyne / University Route (CUD)

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810 Richards Street, Suite 888, Honolulu, Hawaii 96813

PHASE III	PHASE IV	PHASE V (24-INCH main)*
Lisbon St. to Isenberg St.	Isenberg St. to Waialae Ave.	Waialae Ave. to the Waahila 180' Reservoir
Wilder Avenue Route - WAR (III)	**Wilder Avenue Route - WAR (IV)***	**St. Louis Drive Route - SLDR**
S. Beretania St., Pensacola St., Wilder Ave., University Ave., S. King St.	S. King St., University Ave., Dole St. (terminating at the Waahila 180' Reservoir)	St. Louis Dr., Dole St.
Beretania Street Route - BSR (III)	**Beretania Street Route - BSR (IV)**	**Hokulani School Route - HSR**
S. Beretania St., Victoria St., S. King St.	S. King St., Waialae Ave.	Waialae Ave., Koali St., through the Hokulani School property, Dole St.
King Street Route - KSR (III)	**King Street Route - KSR (IV)**	**Manoa Stream Route - MSR**
S. Beretania St., Alapai St., S. King St.	S. King St., Waialae Ave.	Waialae Ave., Koali St., along Manoa Stream, Dole St.
Kapiolani Boulevard Route - KBR (III)	**Kapiolani Boulevard Route - KBR (IV)**	
S. Beretania St., Alapai St., S. King St., Kapiolani Blvd., Isenberg St., Coolidge St., S. King St.	S. King St., Coolidge St., Isenberg St., Kapiolani Blvd., Waialae Ave.	
Young Street Route - YSR	**Coyne / University Route - CUD***	
S. Beretania St., Victoria St., Young St., Isenberg St.	Isenberg St., Coyne St., University Ave., Dole St. (terminating at the Waahila 180' Reservoir)	
Rycroft / Citron Route - RCR	**Isenberg / Kapiolani Route - IKR**	
S. Beretania St., Victoria St., S. King St., Pensacola St., Rycroft St., Kaheka St., Kanunu St., Kalakaua Ave., Philip St., Kuikahi St., Citron St., Isenberg St.	Isenberg St., Kapiolani Blvd., Waialae Ave.	

Route (CUD)

King Street was slightly less disruptive to traffic, has fewer existing utilities in the right-of-way and will have lower construction costs.

Table 7-2 Summary of Evaluation Criteria

EVALUATION CRITERIA			
1	Land Requirements	14	Groundwater (Dewatering)
2	Maintenance	15	Stream Crossings
3	Accessibility	16	Traffic Control
4	Impact on Existing Water	17	Cost
5	Impact on Existing Drain	18	Hydraulic Performance
6	Impact on Existing Sewer	19	Public Disruption
7	Impact on Existing Electrical	20	Impact on Schools
8	Impact on Existing Telephone	21	Impact on Businesses
9	Impact on Existing Cable	22	Permits
10	Impact on Existing Gas	23	Night/Weekend Work
11	Impact on Existing Fuel and Oil	24	Noise
12	Archaeological	25	Interconnections
13	Geotechnical	26	Distance From Future Growth Areas

Lastly, alternative routes considered for routing the proposed water line from the intersection of Isenberg Street and King Street to the Waahila 180' Reservoir include a University Avenue and Dole Street route and a King Street and St. Louis Drive route. The latter would consist of installing the 42-inch transmission main along King Street and Waialae Avenue to St. Louis Drive. At St. Louis Drive, a 24-inch transmission main would be installed to the Waahila 180' Reservoir. In the case of a University Avenue/Dole Street routing, the transmission main would remain a 42-inch main along the entire route to the Waahila 180' Reservoir. Some of the factors that made the University Avenue/Dole Street route more feasible include lower construction costs due to the elimination of the 24-inch line, a lower impact on existing utilities installed in the right-of-way, fewer stream crossings and routing away from residential areas. In regards to this

phase, it is possible that the BWS may decide to downsize the 42-inch Phase IV line to a 24-inch line. It is also possible that the BWS may decide at a later time to install the 24-inch Phase V line in order to supplement the water system in the area.

The "Alterative Routes" alternative would use a route for the 42-inch transmission main that would be less feasible than the proposed route in many ways. In general, an alternative solution would lead to higher construction costs, higher maintenance requirements, more disruption to the public and increased impacts to archaeological sites and Historical Districts. The complete study of alternative routes can be found in the Peer Review and Route Feasibility Study for the Honolulu 42-inch and 24-inch Transmission Mains report prepared for the Honolulu Board of Water Supply, dated January 2000.

7.3.3 Alternative Site Identification

Initially, five alternative sites were considered for the booster pump station. One site located at the BWS Beretania Street Complex was located at Tax Map Keys (TMKs): 2-1-36:1, 4 and 5. A second site at the BWS Beretania Street Complex was located at TMK: 2-1-36:70. Another site at Cartright Field (TMK: 2-4-10:15) near Kinau Street was also evaluated. A fourth site evaluated at TMK: 2-4-10:16 is a vacant lot at the corner of Kinau Street and Beretania Street near Cartright Field. The fifth site investigated is at TMK: 2-1-40:29 and is a previously vacant property near the BWS Beretania Street Complex.

Each of the five sites was evaluated based on relative location to the proposed transmission main and existing reservoirs, hydraulic properties and current property ownership.

7.3.4 Alternative Site Conclusions

The preferred site for the booster pump station is within the BWS Beretania Street Complex (TMK: 2-1-36), as shown in Figures 1-5 and 1-6. Compared to the alternate sites, this site will provide the best hydraulic properties and its proximity to the proposed 42-inch transmission main route is also beneficial. Another benefit of using this property is that it is already owned by the BWS.

SECTION 8

FINDINGS AND NOTICE OF DETERMINATION

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SECTION 8

FINDINGS AND NOTICE OF DETERMINATION

8.1 Significance Criteria

The proposed water system improvement project described in this environmental assessment involves the installation of 42-inch and 24-inch transmission mains through urban Honolulu from the intersection of Liliha Street and Vineyard Boulevard to the Waahila 180' Reservoir. The improvements will be contained within the existing State and City and County of Honolulu paved right-of-ways. The water system improvement will increase water supply quantity, reliability and efficiency and will enhance the Honolulu Board of Water Supply's capability to provide potable water service to urban Honolulu.

The proposed water system improvement project would not have a significant impact on the environment. Therefore, an Environmental Impact Statement is not required for the project. Based on the "Significant Criteria" listed in Section 12 of the Hawaii Administrative Rules Title 11, Chapter 200, an applicant or agency must determine whether an action may have a significant impact on the environment, including all phases of the project, its expected consequences both primary and secondary, its cumulative impact with other projects, and its short and long term impacts. In making the determination, the "Significant Criteria" Rules are established as the basis for identifying whether the proposed project has significant environmental impacts. Based on the analysis, the following conclusions are reached:

1. *The water system improvement would not result in irrevocable commitment to loss or destruction of any natural or cultural resources.* The proposed improvement would be contained within the existing State and City and County paved right-of-ways. There are no significant natural resources present within the immediate vicinity of the construction area. As recommended by Archaeological Consultants of the Pacific, Inc. (ACPI), in consultation with the State Division of Historic Preservation, an archaeological monitoring plan has been developed for the project (see Appendix B). During excavation activities, archaeological monitoring will occur as deemed necessary by a Board of Water Supply contracted archaeologist.

2. *The proposed project would not curtail the range of beneficial uses of the environment.* In contrast, the improved water system would provide additional resources for future uses of the environment. Furthermore, the new transmission main installation would be done exclusively within an existing utility corridor.

3. *The proposed project does not conflict with the state's long term environmental policies or goals and guidelines.* These policies, as set forth in Chapter 344, Hawaii Revised Statutes, espouse conservation of natural resources and enhancement of the quality of

life. The proposed project would not significantly impact natural resources because it would be constructed within the previously disturbed paved right-of-way. Additionally, by improving water service, it would promote general welfare, improve reliability and availability of water in the area and would enhance the Honolulu Board of Water Supply's capability to provide potable water service to urban Honolulu.

4. *The economic or social welfare of the community or state would not be affected.* The proposed water system improvement would have a long term affect on the social welfare of the community and state in a positive way. Construction of the proposed water system improvement would result in temporary economic benefits to the construction industry and indirectly to other economic sectors as well. It would also provide a valuable resource for future economic and social use. Short term negative impacts would occur during construction to include an increase in traffic and minor inconvenience to businesses directly adjacent to construction activities. Mitigative measures will be taken in order to minimize these negative impacts.

5. *The proposed project would not substantially affect public health.* The project would improve reliability of the existing water system infrastructure and would ensure an adequate, clean and safe supply of drinking water for public consumption.

6. *No substantial secondary impacts, such as population change, or effects, on public facilities are anticipated.* The proposed improvements are necessary to establish a reliable water supply system for the community. Due to its nature, it would not cause relocation and/or any changes in the population of the area. However, the proposed water system improvements would accommodate any future planned and approved population increases in the urban Honolulu area.

7. *No substantial degradation of environmental quality is anticipated.* The project area is unremarkable in terms of environmental resources and standard mitigation measures would suffice to protect the ambient environmental quality. The existing environment in the project area is characterized by previously disturbed, paved areas. The project is not expected to result in concentrations of air or water pollutants exceeding state or federal standards at any time.

8. *The proposed action does not involve a commitment to larger actions, nor would its cumulative impacts result in considerable effects on the environment.* The proposed improvement is supplemental to the existing water system and in no way implies a commitment for further upgrades to the system. The project would provide a reliable, safe and efficient water supply system for the community.

9. *No rare, threatened or endangered species or their habitats would be affected.* No known

endangered, threatened or candidate floral species would be affected by the project. According to the State of Hawaii's Stream Assessment Report, the Ala Wai Canal System has one species of endangered bird. However, in the immediate vicinity of the proposed transmission main alignment, the flora and fauna have been previously disturbed due to stream modifications at road and bridge crossings.

10. *Air quality, water quality or ambient noise levels would not be detrimentally affected.* There are no significant air or water quality impacts anticipated for this project. Short term impacts from construction activity include increased noise levels, dust and exhaust from construction machinery. Given the transitory nature of pipeline construction, implementation of proper mitigative measures such as silt fencing and mufflers for heavy machinery would ensure all compliance requirements.

11. *The project would not affect environmentally sensitive areas, such as flood plains, tsunami inundation zones, erosion-prone areas, geologically hazardous lands, fresh waters or coastal waters.* No environmentally sensitive areas would be affected by the project. The proposed project is well inland of the coast and outside of tsunami inundation zones, flood plains, and geologically hazardous lands. Seismic risks are also minimal. Furthermore, all streams crossings would occur at previously developed stream locations.

12. *The proposed project would not substantially affect scenic vistas and view planes identified in county or state plans or studies.* The majority of the proposed water system improvement will be installed entirely underground. All disturbed areas would be restored to their pre-construction conditions. Mitigation measures will be taken for the above ground structures such as the booster pump station and stream crossing structures (if applicable). These measures include landscaping and design plans that blend the new structures into their surrounding environment.

13. *The proposed project would not require substantial energy consumption.* Installation of the water main would not require substantial energy consumption. Most of the work would be done manually or with machines. Electrical energy would be used minimally during construction and due to the increased hydraulic efficiency that the project would provide, water pump stations would require less energy to do the same amount of work.

8.2 Notice of Determination

On the basis of the forgoing information, the proposed water system improvement would not have significant impacts on the environment. As such, a notice of determination of *Findings of No Significant Impacts* for the proposed improvement is appropriate.

8.3 Reasons Supporting The Determination

The nature and scale of the proposed improvement is such that no significant environmental impacts are anticipated. Potential impacts, if any, can be mitigated or minimized through sensitive site planning and engineering design, implementation of careful construction methods and compliance with all governmental requirements including those of the State Department of Health, the City and County of Honolulu's Department of Design and Construction and the City and County of Honolulu's Department of Planning and Permitting.

SECTION 9

AGENCIES AND BOARDS CONSULTED

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SECTION 9

AGENCIES AND BOARDS CONSULTED

9.1 Federal Agencies

Fish and Wildlife Service
Department of the Interior
P.O. Box 50156
300 Ala Moana Blvd.
Honolulu, HI 96850

Natural Resources Conservation Service
Department of Agriculture
P.O. Box 50004
300 Ala Moana Blvd.
Honolulu, HI 96850
(Research consultation)

Pacific Ocean Division
U.S. Army Corps of Engineers
Building 230
Regulatory Section, Job File No.: 200000230
Fort Shafter, Hawaii 96858

9.2 State Agencies

Department of Land and Natural Resources
1151 Punchbowl street
Honolulu, Hawaii 96813

State Historic Preservation Division
Department of Land and Natural Resources
33 South King Street, 6th floor
Honolulu, Hawaii 96813

Commission on Water Resources Management
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, Hawaii 96813
(Research consultation)

Clean Water Branch
Department of Health
919 Ala Moana Blvd, Room 301
Honolulu, Hawaii 96814

Department of Business, Economic Development, and Tourism
Office of Planning
250 S. Hotel Street, 4th floor, Ewa Wing
Honolulu, Hawaii 96813

Department of Education
Honolulu District
4967 Kilauea, Honolulu, HI 96816

Department of Transportation
Highways Division
601 Kamokila Boulevard
Kapolei, Hawaii 96707

University of Hawaii - Manoa Campus
Environmental Center
2550 Campus Road, Crawford 317
Honolulu, Hawaii 96822

Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 1250
Honolulu, Hawaii 96813

Manoa Public Library
2716 Woodlawn Drive
Honolulu, Hawaii 96822

McCully-Moiliili Public Library
2211 South King Street
Honolulu, Hawaii 96826

Kalihi-Palama Public Library
1325 Kalihi Street
Honolulu, Hawaii 96819

Senator Brian Taniguchi, District 11

State Capitol
Room 219
415 South Beretania Street
Honolulu, Hawaii 96813

Senator Carol Fukunaga, District 12
State Capitol
Room 210
415 South Beretania Street
Honolulu, Hawaii 96813

Senator Rod Tam, District 13
State Capitol
Room 220
415 South Beretania Street
Honolulu, Hawaii 96813

Senator Suzanne Chun-Oakland, District 14
State Capitol
Room 228
415 South Beretania Street
Honolulu, Hawaii 96813

Representative Scott Saiki, District 20
State Capitol
Room 322
415 South Beretania Street
Honolulu, Hawaii 96813

Representative Terry Nui Yoshinaga, District 22
State Capitol
Room 419
415 South Beretania Street
Honolulu, Hawaii 96813

Representative Ed Case, District 23
State Capitol
Room 439
415 South Beretania Street
Honolulu, Hawaii 96813

Representative Kenneth Hiraki, District 25
State Capitol
Room 405
415 South Beretania Street
Honolulu, Hawaii 96813

Representative Lei Ahu Isa, District 27
State Capitol
Room 314
415 South Beretania Street
Honolulu, Hawaii 96813

Representative Felipe Abinsay, Jr., District 29
State Capitol
Room 311
415 South Beretania Street
Honolulu, Hawaii 96813

Representative Romy M. Cachola, District 30
State Capitol
Room 402
415 South Beretania Street
Honolulu, Hawaii 96813

9.3 City and County Agencies

Department of Environmental Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Honolulu Fire Department
City and County of Honolulu
3375 Koapaka Street, Siute H-425
Honolulu, Hawaii 96819

Honolulu Police Department
City and County of Honolulu
801 South Beretania Street
Honolulu, Hawaii 96813

Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard
Honolulu, Hawaii 96813

Councilmember Andy Mirikitani, District 5
City and County of Honolulu
530 South King Street
Honolulu, Hawaii 96813

Councilmember Jon C. Yoshimura, District 6
City and County of Honolulu
530 South King Street
Honolulu, Hawaii 96813

Diamond Head/Kapahulu/St. Louis Heights
Neighborhood Board No. 5
ATTENTION: KAREN AH MAI
c/o Neighborhood Commission Office
City Hall, Room 400
Honolulu, Hawaii 96813

Manoa Neighborhood Board No. 7
ATTENTION: JOHN THOMAS HEINRICH
c/o Neighborhood Commission Office
City Hall, Room 400
Honolulu, Hawaii 96813

McCully/Moiliili Neighborhood Board No. 8
ATTENTION: JOHN KATO
c/o Neighborhood Commission Office
City Hall, Room 400
Honolulu, Hawaii 96813

Makiki/Lower Punchbowl/Tantalus
Neighborhood Board No. 10
ATTENTION: JOHN STEELQUIST
c/o Neighborhood Commission Office
City Hall, Room 400
Honolulu, Hawaii 96813

Ala Moana/Kakaako Neighborhood Board No. 11
ATTENTION: JOHN BREINICH
c/o Neighborhood Commission Office
City Hall, Room 400
Honolulu, Hawaii 96813

Downtown Neighborhood Board No. 13
ATTENTION: LYNNE MATUSOW
c/o Neighborhood Commission Office
City Hall, Room 400
Honolulu, Hawaii 96813

Kalihi-Palama Neighborhood Board No. 15
ATTENTION: BERNADETTE YOUNG
c/o Neighborhood Commission Office
City Hall, Room 400
Honolulu, Hawaii 96813

9.4 Other Agencies

The Queen's Medical Center
1301 Punchbowl Street
Honolulu, Hawaii 96813

Hawaiian Electric Company, Inc.
P.O. BOX 2750
Honolulu, Hawaii 96840

GTE Hawaiian Tel
P.O. Box 2200
Honolulu, Hawaii 96841

The Gas Company
515 Kamakee Street
Honolulu, Hawaii 96814

Oceanic Cable
200 Akamainui Street
Honolulu, Hawaii 96789

SECTION 10

RESPONSES AND COMMENTS TO DRAFT ENVIRONMENTAL ASSESSMENT

Marc M. Siah & Associates, Inc.
Consulting Civil • Structural • Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

October 30, 2000

Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843
Attn.: Iris Oda, Planning & Engineering Division

LOG NO: 26419
DOC NO: 0010EJ19

Dear Mr. Jamile:

SUBJECT: Chapter 6E-8 Historic Preservation Review –Draft Environmental Assessment for the Honolulu 42-inch and 24-inch Transmission Mains
Honolulu, Kona, Hawaii
TMK: various

Thank you for the opportunity to comment on the DEA for the Honolulu 42-inch and 24-inch transmission main project. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was made of the project areas. We realize that our comments are late and have surpassed the 30-day comment period. It is our understanding however, that the Final EA is not yet complete. Additionally, we have recently received a request for comment on the Phase III (Liliha to Waahila Reservoir) portion of this project and will be providing a copy of those comments separately.

The BWS proposes to install approximately 23,000 linear feet of 42-inch water line from the intersection of Liliha Street and Vineyard Boulevard to the Waahila 180' Reservoir to increase the transmission capacity and flow across Honolulu. Also included in this action is the construction of a new 60 million-gallon per day pump station at the existing BWS facility near Beretania and Alapai Street. According to the DEA, the preferred route will start at the intersection of Liliha and Vineyard, run along Vineyard and Lusitania to Lisbon, *makai* on Lisbon where it continues along Beretania to Victoria. At Victoria the route turns *makai* to King Street, proceeds along King to University Avenue, turns *mauka* on University to Dole and continues along Dole to the Waahila 180' Reservoir. The BWS may opt to downsize the transmission main to a 24-inch line from the Isenberg and King Street intersection to the Waahila 180' Reservoir. If that option is undertaken, then an additional 24-inch main may be installed from the Waahila 180' Reservoir along Dole Street and St. Louis Drive to Waialae Avenue.

Chapter 2.1.7 (Historic/Archaeological Features) of the DEA summarizes the types of historic sites that are present in the general area of the project, including Historic Districts, fishponds, habitation, and agricultural and burial sites. The preferred route of the transmission line will not cross through any Historic District and there are no surface historic sites within the transmission route. However, historic structures, such as the Academy of Arts, Thomas Square and Linekona School, are located adjacent to the corridor.

The DEA also identifies an ancient fishpond located on University Avenue *mauka* of King Street. The fishpond was recorded on a Hawaii Government Survey Map in 1881 (Reg. Map No. 1398); no other information is on file for this site. In addition to the information provided in the DEA, SHPD files

have identified buried cultural deposits from the pre-contact period (human burials) and early historic periods along the proposed corridor in the vicinity of Vineyard Boulevard and Queen Emma Street. Human skeletal remains were found at the corner of Queen Emma and Old Vineyard approximately 1 meter (c. 3-ft) below surface during the development of the Queen Emma housing project. A historic bottle dump associated with the old soda works was identified during excavation at the Texaco station on Vineyard between Queen Emma and Punchbowl streets.

Human skeletal remains have been recorded along Dole Street in front of Kanewai Park. At least 18 individuals, dating to the 15th century were unearthed in 1990 during trenching for a water main in this area. Between 1992 and 1994 archaeological data recovery excavations were conducted at the Kapapa Lo`i `O Kanewai and evidence of canals and taro pollen indicate that irrigated pondfields were present in the area during pre-contact and/or post contact times.

In the case of water line installations within active road corridors it is often impractical to conduct archaeological survey work ahead of time, at least in a fashion that will thoroughly document historic sites and allow for mitigation planning. A more practical approach may be an agreement which calls for on-site monitoring in areas where sites are likely to be found (Dole Street in the vicinity of the Center for Hawaiian Studies and Kanewai Field), on-call monitoring in areas where cultural remains are not likely to be found (within the proposed route between Liliha and University Avenue), and archeological survey in the areas where subsurface deposits are known to exist (fishpond deposits at University and King and any irrigated kalo field areas). Archaeological survey in open trenches within these areas will enable the archaeologist to document and recover historic remains visible in the trenches (including paleoenvironmental soils for pollen study and radiocarbon dating). The DEA includes in Appendix B, an archaeological monitoring plan for this project. The plan however, was written prior to selection of the proposed corridor and therefore includes recommendations that would be inapplicable to this project. We believe that a revised monitoring plan should be submitted to SHPD for review and acceptance. A burial treatment plan should also be in place for any burials which may be inadvertently discovered during the course of this project.

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

Aloha,

TIMOTHY E. JOHNS
State Historic Preservation Officer

EJ:jk

c: Mr. Kelly J. Chuck, Marc M. Siah & Associates, Inc, 810 Richards Street, Suite 888, Honolulu, HI 96813
Kai Markell, SHPD Burials Sites Program
Oahu Island Burial Council

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

February 12, 2001

Mr. Gilbert Coloma-Agaran, Chairperson
Board of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Coloma-Agaran:

Subject: Your Letter of October 30, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the Draft Environmental Assessment (EA) for our proposed transmission main project.

We have the following responses to your concerns:

1. The alternate Coyne Street/University Avenue/Dole Street alignment is the preferred alignment to avoid the busy University Avenue /King Street/Beretania Street intersection to minimize traffic impacts. In addition, the portion of the proposed main from Isenberg Street through Dole Street to the Waahila Reservoir will be revised to 24-inches. The alternative alignment is not anticipated to cross through any Historic Districts or surface historic sites but will cross the historic fishpond on University Avenue, mauka of King Street which has been identified in the Draft EA.

2. The Final EA will include a discussion regarding the recorded burial cultural deposits in the vicinity of Vineyard Boulevard, Queen Emma Street, Punchbowl Street, and Kanewai Park.

3. We agree that it is often impractical to conduct archeological survey work in roadways ahead of time to thoroughly document historic sites and allow for mitigation planning. Therefore, a more practical approach would be on-site monitoring, performed in areas where sites are likely to be found (Dole Street in the vicinity of the Center for Hawaiian Studies and Kanewai Field) and on-call monitoring in areas where cultural remains are not likely to be found (within the proposed route between Liliha and University Avenue). In addition, an archaeological survey will be conducted in the areas where subsurface deposits are known to exist (fishpond deposits at University and King Street and any kalo field areas) during actual trenching activities. We acknowledge that the survey of the open trenches would enable the archaeologist to document and recover historic remains visible in the trenches, inclusive of paleoenvironmental soils for pollen study and radiocarbon dating. A revised monitoring plan reflecting the new preferred alignment and burial treatment plan will be revised and submitted for your review and acceptance prior to construction activities in the area of concern. We acknowledge that the burial treatment plan should be in place for any burials, which may be inadvertently discovered during the course of this project.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

ARCHAEOLOGICAL CONSULTANTS
OF THE PACIFIC, INC.

JOSEPH KENNEDY
Principal Archaeologist

January 12, 2001

Sara Collins, Ph.D., Oahu Island Archaeologist
Department of Land and Natural Resources,
State Historic Preservation Division
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Dr. Collins:

Please find enclosed ACP's plan concerning, "A Revised Archaeological Monitoring Plan for a Proposed Waterline located in Honolulu, Island of Oahu", which we submit for your review. This is the revised version depicting the waterline corridor as well as the two optional routes.

We would like to thank you in advance for your review of this document. If you have any questions, please feel free to phone or fax.

Sincerely,

Debora Driscoll
ACP Office Manager

cc: Mr. Kelly Chuck

59-624 Pupukea Road • Haleiwa, Hawaii 96712
Telephone: (808) 638-7442 • Fax (808) 638-0703
E-mail: ArchaeologyPacific@mail.com or Kennedy@lava.net

Inventory Surveys • Data Recovery Studies • Monitoring • Burial Treatment Plans • Historical Studies
Qualified Expert Witness Testimony • Preservation Plans • NAGPRA Studies • Traditional Cultural Property Studies

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

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

January 30, 2001

Ms. Debora Driscoll, Office Manager
Archaeological Consultants of the Pacific, Inc.
59-624 Pupukea Road
Haleiwa, Hawaii 96712

LOG NO: 26905
DOC NO: 0101SC11

Dear Ms. Driscoll:

SUBJECT: Chapter 6E-8 Historic Preservation Review of a Draft Archaeological Monitoring Plan for a Proposed Waterline Located in Honolulu Honolulu and Waikiki, O`ahu
TMK: 1 & 2

Thank you for the opportunity to review a draft archaeological monitoring plan for the proposed installation of a waterline in Honolulu (An Archaeological Monitoring Plan for a Proposed Waterline Located in Honolulu, Island of O`ahu, January 2001. 2001. Ostroff et al.). We provide the following comments.

The plan is acceptable with one clarification. If irrigated taro soils are uncovered, pollen and charcoal studies of the soils shall be done (by individuals with this expertise) to attempt to document and date paleoenvironmental changes associated with the construction of the taro fields.

If the proposed waterline installation is carried with archaeological monitoring as stipulated in the subject plan, then we believe that the planned action will have "no adverse effect" on significant historic sites.

Should you have any questions, please feel free to contact Sara Collins at 692-8026.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

SC:jk

c: Mr. A. Van Horn Diamond, Chair, O`ahu Island Burial Council
Mr. Kala`au Wahilani, Burial Sites Program

at the Department of Land and Natural Resources, State Historic Preservation Division and the State Burials Program will be notified and their recommendations implemented.

In the event that human remains or any other historically significant properties are inadvertently discovered during the "on call monitoring" portion of the project, an archaeologist should be notified and called to the site before construction efforts continue. Research on the watermain alignment reveals that two inadvertent burials were encountered at the corner of Queen Emma Street and Old Vineyard (Han 1980). Also, a historic bottle dump (associated with the old soda works) was encountered on Vineyard Boulevard between Queen Emma and Punchbowl Streets and the Bishop Museum was called in. Therefore, there is a distinct possibility that significant traditional and/or historic sites could be encountered.

Because the waterline will be underground, there will be no adverse effect on the historic buildings that are located along the corridor. These include the Academy of Arts, Thomas Square and the Linekona School. The proposed location for the booster station is now at the existing BWS facility near Beretania and Alapai Streets. There should be no impact on traditional or historic sites from the construction of the booster station.

The proposed route for the waterline will traverse known fishponds, therefore archaeological investigations, in the form of an inventory survey, should be conducted during the trenching of the watermain. These investigations should consist of core samples, wherein an analysis of the stratigraphy may be made in addition to analyses of faunal and palynological remains as well as diatom and radiocarbon samples.

HAS BEEN REVISED

Section 5: Methodology of Archaeological Monitoring

Archaeological monitoring of the subject property will be under the supervision of the Principle Investigator Joseph Kennedy, M.A.. Prior to the commencement of subsurface construction activities, the monitoring archaeologist will conduct a coordination meeting with the construction crew in order to brief the team on the expected finds and plans for monitoring. In the event that significant historic sites are encountered, the monitoring archaeologist has the authority to halt construction in the immediate vicinity of the find until the proper authorities are notified and/or proper mitigation measures are undertaken. Construction activities may shift to other areas in this event. The treatment of possible sites encountered is dependent upon the feature type. If human burials are encountered they will be considered inadvertent finds and the proper personnel at DLNR-SHPD will be notified and their recommendations implemented. In the event that significant archaeological deposits are encountered, archaeological salvage operations are recommended.

During archaeological monitoring, the field monitor will visually inspect all excavations and rake through excavated materials in order to identify any possible

OLD PAGE 7

cultural materials. Photographs and profiles of the stratigraphy encountered and soil samples from each strata identified will be taken. All cultural materials of possible significance will be collected, bagged and labeled with the appropriated excavation information. All samples and field notes will be on file at ACP's office located at 59-624 Pupukea Road, Haleiwa, Hawaii.

Laboratory work will include the identification of vertebrate faunal remains, invertebrate faunal remains, culturally derived floral remains and artifactual materials. The results of these identifications will be tabulated for presentation and a complete report concerning the monitoring activities, including possible finds, will be prepared. Radiocarbon dating and pollen analysis will be performed when necessary. A final report will be prepared within 90 days of the completion of fieldwork. All materials collected will be curated at ACP's offices located at the address stated above.

OLD PAGE 8

at the Department of Land and Natural Resources, State Historic Preservation Division and the State Burials Program will be notified and their recommendations implemented.

In the event that human remains or any other historically significant properties are inadvertently discovered during the "on call monitoring" portion of the project, an archaeologist should be notified and called to the site before construction efforts continue. Research on the watermain alignment reveals that two inadvertent burials were encountered at the corner of Queen Emma Street and Old Vineyard (Han 1980). Also, a historic bottle dump (associated with the old soda works) was encountered on Vineyard Boulevard between Queen Emma and Punchbowl Streets and the Bishop Museum was called in. Therefore, there is a distinct possibility that significant traditional and/or historic sites could be encountered.

Because the waterline will be underground, there will be no adverse effect on the historic buildings that are located along the corridor. These include the Academy of Arts, Thomas Square and the Linekona School. The proposed location for the booster station is now at the existing BWS facility near Beretania and Alapai Streets. There should be no impact on traditional or historic sites from the construction of the booster station.

The proposed route for the waterline will traverse known fishponds, therefore archaeological investigations, in the form of an inventory survey, should be conducted during the trenching of the watermain. These investigations should consist of core samples, wherein an analysis of the stratigraphy may be made in addition to analyses of faunal and palynological remains as well as diatom and radiocarbon samples.

The waterline will cross the documented Kapapa Lo'i 'o Kanewai agricultural area (Liston and Burtchard 1996) along Dole Street. This will occur during the on-site monitoring process. If irrigated taro soils are encountered during the trenching process, pollen and charcoal studies of the soils shall be done by qualified individuals. This information will allow us to document and date paleoenvironmental changes associated with the construction of the taro fields. If irrigated taro soils are encountered anywhere along the route, samples will be taken.

Section 5: Methodology of Archaeological Monitoring

Archaeological monitoring of the subject property will be under the supervision of the Principle Investigator Joseph Kennedy, M.A.. Prior to the commencement of subsurface construction activities, the monitoring archaeologist will conduct a coordination meeting with the construction crew in order to brief the team on the expected finds and plans for monitoring. In the event that significant historic sites are encountered, the monitoring archaeologist has the authority to halt construction in the immediate vicinity of the find until the proper authorities are notified and/or proper mitigation measures are undertaken. Construction activities may shift to other areas in

NEW PAGE
7
AS IN APPENDIX B

this event. The treatment of possible sites encountered is dependent upon the feature type. If human burials are encountered they will be considered inadvertent finds and the proper personnel at DLNR-SHPD will be notified and their recommendations implemented. In the event that significant archaeological deposits are encountered, archaeological salvage operations are recommended.

During archaeological monitoring, the field monitor will visually inspect all excavations and rake through excavated materials in order to identify any possible cultural materials. Photographs and profiles of the stratigraphy encountered and soil samples from each strata identified will be taken. All cultural materials of possible significance will be collected, bagged and labeled with the appropriated excavation information. All samples and field notes will be on file at ACP's office located at 59-624 Pupukea Road, Haleiwa, Hawaii.

Laboratory work will include the identification of vertebrate faunal remains, invertebrate faunal remains, culturally derived floral remains and artifactual materials. The results of these identifications will be tabulated for presentation and a complete report concerning the monitoring activities, including possible finds, will be prepared. Radiocarbon dating and pollen analysis will be performed when necessary. A final report will be prepared within 90 days of the completion of fieldwork. All materials collected will be curated at ACP's offices located at the address stated above.

NEW PAGE
8
AS IN APPENDIX B

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

July 12, 2000

TPD6/00-02780R

Should you have any questions regarding these comments, please call Faith Miyamoto at Local 6976.

CHERYL D. SOON

MEMORANDUM

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

ATTN: IRIS ODA, PLANNING AND ENGINEERING DIVISION

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: HONOLULU 42-IN. AND 24-IN. TRANSMISSION MAINS

cc: Mr. Kelly Chuck
Marc M. Siah & Associates, Inc.

In response to the June 9, 2000 letter from Marc M. Siah & Associates, Inc., the draft environmental assessment (EA) for the subject project was reviewed. The following comments are the result of this review:

1. The traffic analysis discussed in Section 3.2.3 of the draft EA appears to be too general. The method of determining the traffic volume capacity is questionable and the capacity may be overstated. Therefore, the volume to capacity ratio used in the analysis may not accurately represent the construction-related traffic impacts.

2. It is unclear whether the numbers in Appendix D - Traffic Volume to Capacity Ratio Data are for one or two lane closures. Since the discussion of traffic mitigation measures on Page 3-7 makes reference to two lane closures, the analysis should address those conditions.

3. One of the transportation improvements being proposed by the Primary Corridor Transportation Project is an In-Town Bus Rapid Transit (BRT) System. The alignment for the In-Town BRT system includes a segment on University Avenue from Kapiolani Boulevard to Sinclair Circle at the University of Hawaii. Close coordination of this project and the subject project will be required.

RECEIVED FEB 8 2001

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

COPY

February 2, 2001

TO: MS. CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: FOR CLIFFORD S. JAMILE

SUBJECT: YOUR MEMORANDUM OF JULY 12, 2000 ON THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HONOLULU 42-INCH AND 24-INCH TRANSMISSION MAINS, HONOLULU, OAHU, HAWAII

Thank you for reviewing the environmental document for our proposed project. We have the following responses to your comments:

1. The traffic analysis discussed in the Draft Environmental Assessment was based on the method in the Highway Capacity Manual, which utilized the traffic data compiled by the City to determine traffic volume and capacity. While this method may provide general results, we feel it is adequate since traffic is one of the 26 different criteria, shown in Table 7-2, used to evaluate the most feasible transmission main route. As the design progresses, traffic control plans will be submitted to the Department of Transportation Services identifying mitigative measures that may include adjusting work hours along with other standard best management practices to minimize impacts to traffic.

2. The numbers in Appendix D – Traffic Volume to Capacity Ratio Data refer to the closure of one lane of traffic. The Final Environmental Assessment (FEA) will be revised accordingly to include "up to two lanes of roadway are anticipated to be closed to traffic to allow space for construction access and activity." The effects of closing two lanes will be evaluated and the results will be included in the FEA.

3. The Board of Water Supply will coordinate construction scheduling with the construction of the In-Town Bus Rapid Transit System. Construction of the water main is tentatively scheduled for year 2004 in the University of Hawaii area; however, this schedule is subject to change.

If you have any questions, please contact Iris Oda at 527-5245.

cc: ✓Kelly Chuck, Marc M. Siah & Associates, Inc.

PHONE (808) 594-1888

FAX (808

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

May 17, 2000

RECEIVED

Ms. Kelly J. Chuck, P.E.
Project Manager
Marc M. Siah & Associates, Inc.
810 Richards Street, Suite 888
Honolulu, HI 96813

PC# 100

Subject: Honolulu 42-Inch and 24-Inch Transmission Mains;
Board of Water Supply; Liliha Street and Vineyard Boulevard

Dear Ms. Chuck,

Thank you for the opportunity to provide comments and concerns in preparation for your environmental assessment. As with any project, the Office of Hawaiian Affairs is concerned that subsurface archaeological, historical and cultural remains may be impacted. The proposal indicates that this project will avoid historical districts and archaeological sites. For this reason, the Office of Hawaiian Affairs has no concerns at this time. If you have any questions, please contact Ken R. Salva Cruz, Policy Analyst, at 594-1847.

Sincerely,

Colin C. Kippen, Jr.
Deputy Administrator

cc: Board of Trustees
OEQC

) 594-1888

FAX (808) 594-1865

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

RECEIVED JUN 2 9 2000

June 19, 2000

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawai'i 96843
Attn: Ms. Iris Oda
Planning and Engineering Division

EIS# 397

Subject: Draft Environmental Assessment for the Honolulu 42-inch and 24-inch Transmission Mains, Honolulu, Oahu, Hawai'i

Dear Mr. Jamile,

Thank you for the opportunity to respond to the above-referenced draft. As with any project, the Office of Hawaiian Affairs is concerned that subsurface archaeological, historical and cultural remains may be impacted. We note the archaeological monitoring plan prepared by Archaeological Consultants of the Pacific, Inc. and their recommendation of an archaeological investigation prior to construction activities adjacent to the fishpond located on University Avenue. OHA would like to review these findings when the investigation is completed. Until then, we have no further comments. If you have any questions, please contact Ken R. Salva Cruz, Policy Analyst, at 594-1847.

Sincerely,

Colin C. Kippen, Jr.
Deputy Administrator

cc: Board of Trustees
Marc M. Siah & Associates, Inc.
OEQC
File

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

January 4, 2001

Mr. Colin C. Kippen, Jr.
Deputy Administrator
Office of Hawaiian Affairs
State of Hawaii
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Kippen:

Subject: Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu

Thank you for your letter regarding the Draft Environmental Assessment (EA) for the proposed transmission main project.

We provide the following response to your concerns:

1. We acknowledge your reference to the archaeological monitoring plan for the proposed project and the recommendation for an archaeological investigation of the fishponds prior to construction activities within University Avenue. However, due to traffic constraints, it is more practical to perform the archaeological investigation during construction activities. We have conferred with the State Historic Preservation Division (SHPD) and have received concurrence that the archaeological monitoring and investigation may be performed during the actual trenching activities for the transmission main. The archaeological survey of the open trenches within the fishpond area would enable the archaeologist to document and recover historic remains visible in the trenches, inclusive of paleoenvironmental soils for pollen study and radiocarbon dating. This procedure will be reflected in the Final EA and in the construction plan notes.

2. If any burials are inadvertently found, they will be treated in accordance with applicable laws (i.e., Chapter 6E-43.6) and a burial treatment plan will be developed at that time. The burial treatment plan will include consultation with appropriate parties. Should any archaeological, cultural or historic sites be found during construction, all work in the vicinity of the site will cease and the SHPD will be notified immediately.

3. The archaeological survey of the historic fishpond area will be forwarded to your department upon completion.

If you have any questions, please contact Iris Oda at 527-5235.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

To: JS
cc: JS Eng.
B. Usagawa

DOWNTOWN NEIGHBORHOOD BOARD NO. 13
c/o NEIGHBORHOOD COMMISSION • CITY HALL, ROOM 400 • HONOLULU, HAWAII 96813

June 19, 2000

Mr. Clifford S. Jamile, Manager and Chief Engineer
Board of Water Supply
630 S. Beretania Street
Honolulu, HI 96843
fax: 533-2714

Attention: Ms. Iris Oda, Planning and Engineering Division

Re: Draft Environmental Assessment for the Honolulu 42-inch and 24-inch Transmission Mains, Honolulu

Dear Mr. Jamile:

Thank you for the opportunity to comment on the Environmental Assessment. The Downtown Neighborhood Board has reviewed the document and the community heard a presentation at the June 1, 2000 Board meeting. The following concerns and questions were raised at that meeting. Inasmuch as you anticipate receiving a neg dec, we thought it best to communicate those comments in this letter.

1. In response to a question, we were assured that the project will not disrupt current water service.

2. Much of the area within the Board's confines is zoned business, although it has a high density of residents--both low rise and high rise condos. There was concern about noise from night construction. Often we are told that there will not be construction in residential areas at certain times of the day. However, that usually means areas zoned residential. Thus, there is no guarantee that many of our residents will suffer from nighttime construction. We were told that work is being done to identify the location of residences that would be affected by night noise.

3. The Environmental Assessment only includes monetary costs. It was suggested that the BWS quantify the opportunity costs as well as benefits and include them in the study, then we can use a cost-benefit analysis to justify the spending.

4. The project is slated for a 2002 start date. Given the multiple existing roadwork, will the public have a break before this work begins? How much of a break might we have?

5. Have major new construction projects, other utilities, restoration, renovations, and vision plans been factored into this time line?

6. Is there an estimated time line by phases with and without the booster pump station construction or the pump connection? Specifically, are there time line estimations for Phases 1 and 2 which directly affect the Downtown Neighborhood Board's area?

7. If work is done concurrently from both ends of the project, will it shorten the time line and, if so, by how much time?

8. Regarding the pipe support at stream crossings,are you planning to use one method of support over another? Are you planning to use what is appropriate to the bridge construction? Have stress and additional weight been factored into this to account for the life expectancy of the bridge as a safety factor?

9. Regarding the Booster Pump Station, the draft indicates two options. One to build within the existing BWS and the other as a new independent building on the existing parking lot. Given the size of the existing building it appears that it could house both the offices and the pump station. Isn't it more costly to renovate and rebuild within an existing site than to build anew? Would the facility not inherit past problems with infrastructure, etc. ? Which is the BWS's preference? Is the cost of this above and beyond the estimated cost of $30 million?

10. Vineyard Boulevard is the only access to Foster Botanical Gardens. How long will construction be in this area? Where is the pipe to be

laid in relation to their street access? What does BWS propose with regards to routing as well as guiding traffic so they do not lose revenue? Has a traffic study been done?

11. Vineyard Boulevard & Lusitana Street are key traffic corridors for Queens Medical Center, the new Queens EMS, Queens Physician's Buildings 1 and 2, employee parking for BWS, Honolulu Medical Group, as well as residences and condos in that area. What safety measures are proposed for this area?

12. How does BWS propose to assist and ease the heavy traffic? Has a counterfoil study been conducted? Again, has a traffic study been done?

13. Details of the estimated cost show the use of iron and concrete pipes. Existing pipes are currently made of what materials? The cost includes the use of both concrete and iron. Therefore does it mean that both types will be used? It was suggested by one member that BWS use concrete pipes for the following reasons:

- Concrete pipe is locally made. Its use will benefit our economy.
- Concrete is a natural resource.
- As a natural material, it has no adverse health effects.
- Iron has multiple adverse health effects which will ultimately cause medical ramifications throughout our community.

We look forward to additional presentations as the planning continues and the project is better defined. Again, thank you for keeping us informed and asking for our input.

Sincerely,

Lynne Matusow
Chair

cc: Mr. Kelly J. Chuck, Mark M. Siah & Associates, fax. 528-7180
OEQC, fax 586-4186

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

February 13, 2001

Ms. Lynne Matusow, Chair
Downtown Neighborhood Board No. 13
City and County of Honolulu
c/o Neighborhood Commission
City Hall, Room 400
Honolulu, Hawaii 96813

Dear Ms. Matusow:

Subject: Your Letter of June 19, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for our proposed project. We have the following response to your comments:

1. **In response to a question, we were assured that the project will not disrupt current water service.**

   The transmission mains will have to be connected to the existing system and as a result will require planned, short duration interruptions of a limited amount of water services. The connections will probably occur during the lowest demand periods at night.

2. **Much of the area within the Board's confines is zoned business, although it has a high density of residents – both low rise and high rise condos. There was concern about noise from night construction. Often we are told that there will not be construction in residential areas at certain times of the day. However, that usually means areas zoned residential. Thus, there is no guarantee that many of our residents will suffer from nighttime construction. We were told that work is being done to identify the location of residences that would be affected by night noise.**

   We realize that there are many residential areas along the project route that would be affected by noise from any night construction that may be required. This will be considered for any night work required by the State Department of Transportation (DOT) or City Department of Transportation Services (DTS) to reduce disruption to daytime traffic flow and allow access to businesses in heavily traveled areas. The Board of Water Supply (BWS) requires all construction work to comply with State Department of Health noise limits, and any excessive noise complaints from night construction will require the contractor to adjust their working hours for the activity generating the excessive noise.

3. **It was suggested that the Environmental Assessment (EA) quantify the opportunity-costs as well as benefits and include them in the study, then we can use a cost-benefit analysis to justify the spending.**

   The major benefits of providing a parallel transmission main through Honolulu, the highest demand area of Oahu, are system reliability, public health and safety, and fire protection. Considering the dense population, age of the existing 42-inch trunk main (50 years old) and the lack of adequate storage in Honolulu, the parallel main is absolutely necessary. A cost-benefit analysis to quantify opportunity costs and benefits could have been conducted if the costs and benefits were considered marginal. However, for the stated reasons, this project is well justified.

4. **The project is slated for a 2002 start date. Given the multiple existing roadwork, will the public have a break before this work begins? How much of a break might we have?**

   The estimated project start date for the Vineyard Boulevard segment is January 2002 which will be after the completion of State DOT resurfacing work on the H-1 Freeway in the urban Honolulu area. The State DOT estimates completion of their work by October 2001. The remaining segments east of our Beretania pumping station have been deferred and a new time schedule has not been determined.

5. **Have major new construction projects, other utilities, restoration, renovations, and vision plans been factored into this timeline?**

   The scheduling of this project is being coordinated with the roadwork coordinating committee composed of the State, City and private utilities. The H-1 Freeway work by the State DOT and other BWS water main replacement projects in metropolitan Honolulu have been factored into the construction scheduling. The affected neighborhood boards and government planning agencies have been notified of this project and the tentative construction schedule.

Is there an estimated time line by phases with and without the booster pump station construction or the pump connection? Specifically, are there time line estimations for Phases 1 and 2, which directly affect the Downtown Neighborhood Board's area?

The current estimated construction schedule is as follows:

Phase	Estimated Construction Schedule		Project Limits
	Start	End	
I	January 2002	January 2004	Along Vineyard Boulevard from Liliha Street to Nuuanu Avenue
II	January 2002	January 2004	Along Vineyard Boulevard from Nuuanu Avenue to Punchbowl Street
III	Beyond 2006		Along Punchbowl Street and Beretania Street to Victoria, along Victoria and then King Street to Keeaumoku Street
IV	Beyond 2006		Along King Street from Keeaumoku Street to Wiliwili Street
V	Beyond 2006		Along King Street from Wiliwili Street to Isenberg Street
VI	Beyond 2006		Along Isenberg from King Street to Coyne Street, along Coyne Street then University Avenue to Dole Street, then along Dole Street to the Waahila 180 Reservoir
Booster Station	December 2003	December 2005	Beretania Booster Station within the BWS Beretania Complex

6. **If work is done concurrently from both ends of the project, will it shorten the time line and, if so, by how much time?**

   The overall project construction time may be reduced by as much as two years if work occurs concurrently from both ends of the project and with proper coordination between adjacent phases. However, the least disruptive construction schedule, described in Item 5, avoids other projects and limits the project to only one construction area on each street.

Regarding the pipe support at stream crossings, are you planning to use one method of support over another? Are you planning to use what is appropriate to the bridge construction? Have stress and additional weight been factored into this to account for the life expectancy of the bridge as a safety factor?

The method of stream crossings will be determined at the time of design. The preferred method would be to minimize impacts to the stream and streambed. Due to the size and weight of the 42-inch main, it will not be attached to any of the existing bridges. Either a separate bridge structure will be constructed or the main will be installed under the stream.

Regarding the Booster Pump Station, the draft indicates two options. One to build within the existing BWS and the other as a new independent building on the existing parking lot. Given the size of the existing building it appears that it could house both the offices and the pump station. Isn't it more costly to renovate and rebuild within an existing site than to build anew? Would the facility not inherit past problems with infrastructure, etc.? Which is the BWS' preference? Is the cost of this above and beyond the estimated cost of $30 million?

The actual location and configuration of the booster pump station within the BWS complex will be determined upon completion of the Beretania Complex Facility Master Plan. The master plan is currently evaluating the feasibility of redeveloping the entire BWS Beretania complex and accommodating the proposed booster station. The estimated construction cost of the booster pump station is $1.2 million, and is in addition to the $30 million estimated for pipeline construction between Liliha and Waahila as indicated on page 2 of the Summary, Section F.

Vineyard Boulevard is the only access to Foster Botanical Gardens. How long will construction be in this area? Where is the pipe to be laid in relation to their street access? What does BWS propose with regards to routing as well as guiding traffic so they do not lose revenue? Has a traffic study been done?

Construction in the Foster Botanical Garden area will last approximately one month and along the east-bound lanes of Vineyard Boulevard *allowing continuous access to the Garden.* Approved traffic control measures will include using flagmen and police officers in designated work areas to guide traffic and ensure access to driveways. A traffic study was done (Section 3.2.3) which indicates that Vineyard Boulevard has enough capacity to accommodate construction (i.e. temporary lane closures) in the area.

10. **Vineyard Boulevard and Lusitana Street are key traffic corridors for Queens Medical Center, the new Queens EMS, Queens Physician's Buildings 1 and 2, employee parking for BWS, Honolulu Medical Group, as well as residences and condos in the area. What safety measures are proposed for this area?**

    The BWS will continue to work closely with the staff of Queen's Medical Center to minimize any disruption to health care emergency services and parking. As a result, we are evaluating the Punchbowl Street route as an alternative to Lusitana Street. The standard safety measures will include using flagmen and police officers in designated work areas as required by DTS.

11. **How does BWS propose to assist and ease the heavy traffic? Has a contra flow study been conducted? Again, has a traffic study been done?**

    As discussed in Item 2, night work in non-residential areas may occur in heavily traveled areas to reduce disruption to traffic flow and access to businesses. During design and construction, we will make every effort to minimize the impacts and allow continuous access to all businesses and residents. Traffic mitigation measures indicated in Section 3.2.3 of the Draft Environmental Assessment for the project will include the following:

    a) The contractor will schedule daytime work activity between the hours of 8:30 a.m. and 3:00 p.m., Monday through Friday, excluding state holidays. This construction schedule will help to minimize conflicts with morning and afternoon peak traffic periods.

    b) During construction, up to two lanes of traffic may be out of service for the roadway segment in the vicinity of the construction.

    c) The contractor's heavy truck activity will be scheduled to avoid morning and afternoon peak traffic periods.

    d) Adequate access to driveways, businesses, residents and public streets shall be provided.

    A route feasibility study and traffic analysis have indicated that the existing lanes have enough capacity to accommodate temporary lane closures along the route with approved traffic control plans and mitigation measures. Therefore, a contra flow study has not been conducted.

12. **Details of the estimated cost show the use of iron and concrete pipes. Existing pipes are currently made of what materials? The cost includes the use of both concrete and iron. Therefore does it mean that both types will be used? It was suggested by one member that BWS use locally made concrete pipes.**

    The existing 42-inch waterline is a cast iron pipe. Both ductile iron and concrete cylinder pipes are approved pipe materials that meet National Sanitary Foundation standards to assure safe and sanitary delivery of drinking water. The type of pipe to be installed will be the contractor's preference indicated in the lowest construction bid.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

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) 956-3980

July 12, 2000
EA: 001200

Mr. Barry Usagawa
City and County of Honolulu
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Honolulu 24-Inch and 42-Inch Transmission Mains
Draft Environmental Assessment
Honolulu, Oahu

Dear Mr. Usagawa:

The Honolulu Board of Water Supply (BWS) proposes to install approximately 23,000 linear feet of 42-inch water line from the intersection of Liliha Street and Vineyard Boulevard to the Waahila 180' Reservoir. The BWS maintains the option of downsizing a portion of the pipe to a 24-inch line. Also included in the project is the construction of a 60 million gallon per day pump station adjacent to the existing BWS facilities on Beretania Street. The purpose of the proposed action is to increase transmission capacity flow across the Honolulu Low West Water System. This will create redundancy and increase reliability to existing and planned development, and increase efficiency, thus lowering pumping costs and decreasing maintenance requirements.

This review was conducted with the assistance of Clyde Akita, Facilities Planning and Management; Wallace Gretz, Facilities Planning and Management; and Sherri Hiraoka, Environmental Center.

General Comments

We believe that this project is necessary to upgrade water transmission to the urban core of Honolulu. Considering the size and scope of the project however, we do not believe the full extent of the associated impacts can be adequately discussed in an Environmental Assessment (EA). Chapter 343 Hawaii Revised Statutes (HRS) requires that an Environmental Impact Statement (EIS) be prepared if a project may have significant impact. Construction of a 42-inch transmission line through some of the most heavily traveled sections of the city over a six year period has the potential for causing significant short term impacts. This EA represents a departure from the Board of Water Supply's usual procedure of preparing an EIS for major capital projects. The BWS for example, prepared an EIS for both the Kailua 272' and the Nanakuli 242' reservoir projects that have far smaller potential for causing significant impact. We believe that an Environmental Impact Statement should be prepared for this project.

EIS

The major difference between the EA and the EIS is the level of analysis conducted. The EIS delves far more deeply into each topic area than an EA. The discussion of alternatives for example, in the EA was rather brief and perfunctory. Alternatives such as tunneling or using an auger were not discussed. In an EIS they would have been, because the EIS rules require that "alternatives which could attain the objectives of the action regardless of cost [be discussed] in sufficient detail to explain why they were rejected" (Hawaii Administrative Rules 11-200-17 (f)).

Another important difference is the consultation period. In the EA process, the rules suggest that key parties be contacted prior to preparing a draft document, while the EIS process requires a 30 day period in which interested parties can ask to be consulted. This usually broadens the scope of coverage in the EIS. Finally, the EIS has a longer review period of 45 days compared to the EA's 30 days.

This draft EA addressed a few topics well such as soil types, existing conditions, and historical/archeological features, yet lacked much useful data in others. The EA fails to adequately discuss the impacts to local businesses along the route, yet these are sure to be some of the most direct impacts. A listing of areas that could be more fully developed follows. We hope that these comments will be helpful in redrafting a more complete document.

Purpose

The purpose of the project is "to increase the capacity and hydraulic performance of the Honolulu Low West Water System and will enhance the Honolulu Board of Water Supply's capability to provide reliable potable water service to urban Honolulu." (page 1-1) This is a commendable intent, but further discussion on the need for the new and larger line would be helpful. The description of the proposed action in the Summary section of the draft EA states that there is "the possibility of downsizing the section approaching the Waahila 180' Reservoir to a 24-inch line" (page s-1). This would suggest that the engineering and planning for this project is incomplete. Additional information to establish need may include (but is not limited to) figures on current and foreseeable demand, current service capabilities, any records of past problems or failures in the system, and the level of service that is projected after the new line is implemented.

Stream Crossings

Four options of stream crossings are discussed on page 1-5. What criteria will be used in determining the optimal method for crossing a particular stream? Is there a preferred method? The EA would benefit from a discussion of each stream crossing and which method is ideal for each stream

Our reviewers were not confident about the claim that the option of hanging "the 42-inch pipe from the existing bridge...would eliminate the need for any special permits" (page 1-5). It would seem that such an action might reduce opening clearance or flow capacity under the bridge. Please confirm with the approving agency that a Stream Channel Alteration Permit would not be required.

Flood and Tsunami Hazard

The proposed pipeline crosses Makiki and Manoa Streams in floodway areas (page 2-8). What types of precautions will be taken to reduce the hazards associated with this both during and after construction?

Traffic

The entire route discussed is heavily trafficked. There are 4 schools (page 2-20) directly on the project route, 15 recreational facilities adjacent to the route, and 2 medical facilities adjacent to the route. Not including the other facilities in the area, this project may prove itself to be a traffic nightmare. What types of mitigation measures are planned to ease the traffic burden on motorists?

It is common knowledge that there are presently many other road construction activities being conducted on Oahu, both by the Department of Transportation and by the BWS. What other activities will be going on at the time of anticipated construction that may affect traffic flow in the area? Please indicate how this project relates to other current and/or future road and highway repairs.

The largest traffic problem on the UH Manoa campus occurs at the intersection of Dole Street and Lower Campus Road. This intersection is on the preferred pipeline route, yet it is not mentioned in the draft EA. Please include this heavily traversed intersection in your discussion of traffic impacts and analysis.

During the construction of this pipeline, a number of small businesses along the route will be adversely impacted by the construction occurring outside their shops. Many of the shops along King Street are small businesses. Have their owners been notified of the impending construction? What is the magnitude of the impacts these businesses will face during the long construction of the pipeline? This issue was not adequately discussed in the EA.

Historical/Archaeological Features

Archaeological Consultants of the Pacific, Inc. recommended that an investigation be conducted on the fishpond located on University Avenue prior to construction in the area. The draft EA indicates that "this investigation will occur as construction approaches this area" (page 3-4). We would suggest that the investigation be conducted as soon as possible. Such an investigation may uncover items of previously unknown significance and thus require the rerouting of the alignment. The project will not commence until January of 2002 (page 1-11). This allows for a lot of time during which this investigation could occur.

Community Facilities

The Kapapa Lo'i O Kanewai (Kanewai Cultural Garden) is a significant cultural site overseen by the University of Hawaii (UH) School of Hawaiian, Asian and Pacific Studies. It is located under and adjacent to the Manoa Stream/Dole Street bridge on the proposed pipeline route, and will be affected by the proposed project. Please include this site as one that will be affected by the transmission main implementation, and discuss any potential impacts and mitigation measures.

Also omitted from inclusion in the Community Facilities Map (Figure 2-10) is the UH Center for Hawaiian Studies across from the Waahila 180' Reservoir and the UH Waalilia Ridge Faculty Housing, located adjacent to the reservoir. These facilities are on the proposed pipeline route and will be affected.

Alternatives to the Proposed Action

The Draft EA does not make any reference to the Oahu Integrated Resource Plan (IRP), which is a joint project between the BWS, and the City Departments of Environmental Services and Planning and Permitting. Considering that the IRP "was conceived to address the water needs, both present and future, of the eight District Planning (DP) areas on Oahu," (BWS website) it seems curious that no mention was made of implementing this plan prior to the development of this proposed transmission main. Was this new project subject to the IRP process?

One of our reviewers noted that on page 7-9, the EA states that "some of the factors that made the University Avenue/Dole Street route more feasible include lower construction costs due to the elimination of the 24-inch line." How does installing a 42-inch pipe instead of a 24-inch pipe lower construction cost?

The University/Dole Street route is preferred in part due to "routing away from residential areas" (page 7-9). Our reviewers point out that this route traverses one of the primary residential areas on the University of Hawaii Manoa Campus. Affected residences will include Johnson Hall "A", Johnson Hall "B", Gateway House, Frear Hall, Hale Aloha, Hale Noelani, Hale Wainani, and the Waahila Ridge Faculty Housing. Excluding faculty housing residents, the population of the listed residences total 2800 students.

Additionally, one lane of Dole Street is blocked off for several days, twice a semester to allow for Johnson Hall residents to move in or out. How will the proposed pipeline construction affect these activities?

JUL-12-00 WED 10:37 UH ENVIRONMENTAL CENTER FAX NO. 8089563980

Approximately 20,000 students, 3500 faculty, and 2000 staff members commute to the UH Manoa campus during the regular school year along two primary roadways. University Avenue and Dole Street. Also located on Dole Street are a major pedestrian mall, the Hawaiian Studies program, Kanewai Cultural Gardens, and housing for a majority of the students living on campus. Routing construction along both of these heavily used roadways will create short-term significant impacts that are sufficient to consider cost tradeoffs and alternate routes.

Additional Information

Several sections of the draft EA cite the "Peer Review and Expansion of the Route Feasibility Study for the Honolulu 42-inch and 24-inch Transmission Mains." This study should be included in the EA to provide a comprehensive document. It apparently contains much useful information, including the evaluation of the more than seven routes that were originally suggested, and the impacts of lane closures on traffic during installation of the line.

Conclusion

The intent of the project is well conceived, but the full extent of the potential impacts is not adequately addressed by the draft EA. Specifically, we emphasize increased traffic congestion, effects on the University of Hawaii residences, cultural site impacts, and the cumulative effects of this project, as well as those of other planned projects in the area. Considering the size, scope, and associated impacts of this project, we suggest that the EA be used as an Environmental Impact Statement Preparation Notice, and that an Environmental Impact Statement be prepared.

Thank you for the opportunity to comment on this draft Environmental Assessment.

Sincerely,

Peter Rappa
Assistant Environmental Coordinator

cc: Clifford Jamile, Honolulu BWS
Kelly Chuck, Marc M. Siah & Associates, Inc.
OEQC
James Moncur, WRRC
Clyde Akita, Facilities Planning & Management
Wallace Goetz, Facilities Planning & Management
Sherri Hiraoka, Environmental Center

FAX TRANSMITTAL SHEET

University of Hawaii, Environmental Center
2550 Campus Road, Crawford 317
Honolulu, Hawaii 96822
FAX: (808) 956-3980
TELEPHONE: (808) 956-7361

DATE: July 12, 2000

FROM: Peter Rappa

TO: Iris Oda, Honolulu BWS 527-5703

CC: OEQC 586-4186

Kelly Chuck, Marc M. Siah & Associates, Inc. 528-4352

SUBJECT: Honolulu 42-Inch and 24-Inch Transmission Mains DEA

COMMENTS: We have received permission from Mr. Kelly Chuck to submit comments until July 12, 2000

NUMBER OF PAGES including this cover sheet: 6

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

June 1, 2001

Mr. Peter Rappa
Assistant Environmental Coordinator
Environmental Center
University of Hawaii at Manoa
Krauss Annex 19
2500 Dole Street
Honolulu, Hawaii 96822

Dear Mr. Rappa:

Subject: Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the Draft Environmental Assessment (EA) for the proposed project. We have the following responses to your comments:

1. General Comments

   a. We acknowledge your statement that this project is necessary to upgrade water transmission to the urban core of Honolulu.

   b. Regarding disclosure requirements, an EA is typical for a new transmission main that will be located within an existing utility corridor since it will be installed within a previously disturbed public right-of-way with various existing underground utilities. The anticipated environmental impacts will be temporary and mitigated through best management practices during construction activities. A route feasibility study and traffic analysis have indicated that the existing lanes have enough capacity to accommodate temporary lane closures along the route with approved traffic control plans and mitigative measures. An Environmental Impact Statement is typically prepared for reservoir projects on previously undisturbed land due to the greater degree of environmental impacts, most notably visual impacts.

   c. Section 1.3.3 of the Final EA will be revised to include alternative non-trenching technologies such as micro-tunneling and directional drilling.

2. Purpose

   Preliminary engineering analysis completed during the review of the Draft EA has indicated that a portion of the project from Isenberg Street to the Waahila Reservoir should be reduced to a 24-inch main. Actual system operations and field measurements will be evaluated prior to the selection of the 24-inch main to verify the required sizing. Therefore, a 42-inch or 24-inch main has been disclosed in the Draft EA. The need for the main has been addressed in the Summary and Introduction Sections of the Draft EA.

3. Stream Crossing

   The method of stream crossing will be determined during the design phase which includes evaluating the soil type, topography, available construction area, available technology for the size and type of pipe, safety and feasibility. The preferred method would be open trench within the stream, with site-specific best management practices implemented to minimize impacts to the stream and its banks. Microtunneling is a feasible alternative with advances in technology and is less invasive to the stream. Due to the size and weight of the 42-inch main, it will not be attached to any of the existing bridges. Either a separate bridge structure will be constructed or the main will be installed under the stream and the appropriate stream crossing permits will be acquired prior to construction.

4. Flood and Tsunami Hazard

   Since open trench pipeline installation is the preferred method, an Army Corps of Engineer General Permit, Stream Channel Alteration Permit, State Department of Health 401 Water Quality Certification or waiver will be required. Best management practices, such as limiting construction activities to the drier summer months, will be specified to minimize flooding. In addition, stream flow will be maintained such that in-stream construction will be restricted to no more than 50 percent of the width of the stream at any one time. For protection after construction, the pipeline will be concrete-jacketed under the stream to eliminate any future main breaks.

5. Traffic

Sections 3.2.3 and 3.2.4 of the Final EA will be amended to include additional traffic mitigative measures. Construction activities will be limited to the off-peak traffic flow hours and will be phased so that a limited length of roadway will be affected. A traffic control plan will be prepared to ensure efficient movement through the construction area. In addition, night work may be an option to minimize disruption to daytime traffic flow.

The project's construction schedule is being coordinated with the roadwork coordinating committee composed of the State, City and private utilities. The H-1 freeway work by the State Department of Transportation and other Board of Water Supply (BWS) water main replacement projects in metropolitan Honolulu have been factored into the construction scheduling. The estimated project start date for the Vineyard Boulevard segment is January 2002. The remaining segments east of our Beretania pumping station have been deferred and a new time schedule has not been determined.

Traffic analysis was based upon data compiled by the City Department of Transportation Services and data was not available for the Dole Street/Lower Campus Road intersection. Therefore, the traffic assessment was based upon the inference with the Dole Street/East - West Road intersection. We will make every effort to schedule the construction of the main near the University of Hawaii (UH) Manoa campus during the summer and semester breaks to minimize traffic disruption in the area.

During the Draft EA and disclosure process, the affected neighborhood boards and government planning agencies were notified of the project and the tentative construction schedule. We realize that the project's construction will impact adjacent businesses along the pipeline route; however, there are many ways these impacts can be controlled and mitigated. Prior to starting construction, letters will be sent to businesses for describing the project limits, construction length, work hours and a contact person to call if there are any questions. The contractor is required to be responsive to the affected businesses concerns.

6. Historical/Archaeological Features and Community Facilities

We have conferred with the State Historic Preservation Division and have received concurrence that the archaeological monitoring and investigation can be performed during the actual trenching activities in the areas where subsurface deposits are known to exist (fishpond deposits at University and King and any kalo field areas), enabling the archaeologist to document and recover historic remains visible in the open trenches. This procedure will be reflected in the Final EA and in the construction plan notes.

The Kapapa Lo'i O Kanewai (Kanewai Cultural Garden), UH Center for Hawaiian Studies and UH Waahila Ridge Facility Housing will be included in Figure 2-10, the community facilities map.

7. Alternative to the Proposed Action

The proposed project is not subject to the Integrated Resource Plan process, which will address long-range water resource issues. This project is needed to meet the existing transmission capacity shortage, improve system reliability; and meet projected demands for growth in Honolulu.

As indicated on page 7-9, the options for routing the proposed water line from the intersection of Isenberg Street and King Street to the Waahila 180' Reservoir include: 1) University Avenue and Dole Street route and 2) King Street and St. Louis Drive route. Option 2 required an additional 3,300 linear feet of 24-inch pipe to be installed, which was one of the factors that made Option 1 more feasible. Recently, Option 1 was reduced entirely to 24-inch pipe, which further increases the feasibility of Option 1.

We will make every effort to schedule the construction of the main near the UH Manoa campus and student housing during the summer and semester breaks to minimize traffic congestion in the area and coordinate the project construction to allow the residents to move in and out of Johnson Hall.

8. Additional Information

The "Peer Review and Expansion of the Route Feasibility Study" is a large document and will not be included in the Final EA. Copies of the route study are available for review at the BWS.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

Barry Usagawa

for CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

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AMIN J. CAYETANO
GOVERNOR

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GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

June 14, 2000

Mr. Clifford S. Jamile, Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Jamile:

Subject: Draft Environmental Assessment for the Honolulu 42-inch & 24-inch Transmission Mains, Oahu

Thank you for the opportunity to review the subject document. We have the following comments.

1. We support the proposed construction schedule to build the transmission mains in small phases and from opposite ends to minimize impact to the public. We recommend that the project construction be coordinated with State DOT, City Design and Construction and all affected utilities to find ways to consolidate projects, reduce traffic woes, and minimize service interruptions.

2. The environmental assessment's description of the number of lanes that will be closed is not consistent. The summary section states, "at least two lanes will be closed at a time during construction." The impact section notes, "the traffic capacity was recalculated assuming the closure of one lane of travel." The project mitigation describes, "at no time will more than two lanes of traffic be out of service." The December 10, 1999, consultation letter states, "only one lane of traffic will be closed." The May 5, 2000, consultation letter describes, "no more than two lanes will be closed." Please clarify the above discrepancies. If necessary, please recalculate the traffic capacity during construction.

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

Sincerely,

Genevieve Salmonson
Director

c: Marc M. Siah and Associates

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

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January 4, 2001

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

Dear Ms. Salmonson:

Subject: Your Letter of June 14, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for the subject proposed project. We have the following response to your comments:

1. We will coordinate the design and construction with the city, state and affected utilities to consolidate projects, reduce traffic impacts, and minimize service interruptions.

2. The Final Environmental Assessment (FEA) will be revised accordingly to include "up to two lanes of roadway are anticipated to be closed to traffic to allow space for construction access and activity." The effects of closing two lanes along certain segments will be evaluated and the results will be included in the FEA.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

P

PLN-4

THE QUEEN'S MEDICAL CENTER

1301 Punchbowl Street • Honolulu, Hawaii 96813 • Phone (808) 538-9011 • FAX: (808) 547-4646

Jun 27 2 17 PM '00

June 23, 2000

RE

Mr. Clifford Jamile
Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains

Dear Mr. Jamile:

Thank you for meeting with Dr. Jonathan Shimada and me on Wednesday to discuss the subject report and the concerns of The Queen s Medical Center (QMC).

The proposed project and construction plans described in the report will severely restrict access to the Medical Center and the Physicians' Office Buildings on Lusitana Street, thereby disrupting the delivery of health care and emergency services to our patients . This is not acceptable.

We appreciate your understanding of the critical nature of our mission at the Medical Center, and we appreciate your willingness to consider alternatives that will eliminate adverse impacts to our patients . We look forward to working with you on this project and are willing to assist you in communicating with the physicians and staff in the office buildings on Lusitana Street.

Please contact Dr. Shimada or myself for further communication on this project.

Very truly yours,

James S. Kumagai, Ph.D., P.E.
Vice-President
Facilities Planning and Management

cc: Arthur Ushijima, President & CEO
Jonathan Shimada, Ph.D., P.E.

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

1131,

COPY

January 4, 2001

James S. Kumagai, Ph.D., P.E., Vice President
Facilities Planning and Management
The Queen's Medical Center
1301 Punchbowl Street
Honolulu, Hawaii 96813

Dear Dr. Kumagai:

Subject: Your Letter of June 23, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for our proposed project and for coordinating our project presentation, on September 12, 2000 with the Queen's Medical Center staff.

We will continue to work on minimizing potential disruptions to health care and emergency services at the Queens Medical Center. As we continue on design of the project, we are evaluating alternatives such as night work and weekend work to mitigate adverse impacts. As requested, we are also evaluating the feasibility of installing the main along the Ewa side of Punchbowl Street instead of along Lusitana Street.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

Louis W. Crompton, P.E.

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Apartment 2904
1221 Victoria Street
Honolulu, Hawaii 96814
June 20, 2000

JUN . 1 2000 cc: Mgr/T

Mr Clifford Jamile
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr Jamile

Subject: Comments on Draft Environmental Assessment for 42" Transmission Main

Background: Page 2-13 indicates Thomas Square is not a Historical District, traditional site, fishpond, or of significant archaeological significance. Figure 1-1 indicates the 42" main would be on the makai side of Beretania and Diamond Head side of Victoria. Fig 1-2 shows an existing line transversing Thomas Square in the mauka-makai direction. Page 3-1 states "all disturbed areas will be restored to their original condition". Paragraph 3.2.1 states "Interruptions to local businesses adjacent to the transmission main route will be mitigated during construction". Pg 7-7 and Fig 7-2 state route selection criteria included pipe line access, construction cost, traffic control, public disruption, impact on businesses, and noise.

Comment #1. Table 2-2 is incorrect. Victoria Street southbound is one lane and is the primary street from H-1/Kinau to the Blaisdell Center and area medical complexes such as Kaiser.

#2. Pg 3-7, bullet 1). At 8:30 A.M. Beretania is heavily congested; Victoria is congested in both directions primarily with patients, staff, and personnel trying to access the medical complexes.

#3. Pg 3-7 shows that traffic mitigation NOT CONSIDERED was doing construction work off the roadways, particularly within the boundary of Thomas Square park which is entirely grassy area and government property.

#4. Fig 7-3 shows that routing the pipe through Thomas Square was NEVER CONSIDERED.

#5. Appendix A, cost estimate, shows a little cost benefit for using [corrosive] iron pipe instead of concrete. However, the estimate does NOT show any cathodic protection system cost to protect the iron pipe. Because the iron pipe will corrode without protection while concrete will not corrode, the cost estimate is flawed. Either include cathodic protection, or, credit the concrete system for the reduced repair cost over a time span [of 50? years].

#6. Suggestion 1 - address running pipe through Thomas Square. Cost of excavating pipe, backfilling and restoration of surface in a park is less costly than on a paved street; construction in the park will not disrupt traffic; construction in the park will not disrupt businesses by removing their limited parking spaces; construction in the park will move the noise away from business facilities; and burial in the grassy parks allows easy pipe access in the future without tearing up streets and disrupting traffic. These reasons were the route selection criteria! Additionally, routing through the park will avoid the many pipe, electrical, and signal connections below the Beretania/Victoria intersection and respective streets.

#7. Suggestion 2 - Revise the construction estimate to accurately reflect life cycle cost of iron versus concrete pipe. Current estimate is biased by error or intent.

L. Crompton
NO - 10

cc: Siah & Associates

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

January 4, 2001

Mr. Louis W. Crompton, P.E.
1221 Victoria Street, #2904
Honolulu, Hawaii 96814

Dear Mr. Crompton:

Subject: Your Letter of June 20, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for our proposed project. We have the following response to your comments:

1. Table 2-2 will be revised to correctly indicate that Victoria Street between Beretania Street and King Street is a four lane street, two south bound and two north bound. The outer lanes of Victoria Street are used for parking. However, during construction in this area, approximately 3 - 4 weeks, street parking will not be permitted in order to allow through traffic in both directions at all times. Limited parking may be available during non-work hours.

   Temporary traffic impacts during construction will be mitigated through an approved traffic control plan and work will be scheduled to avoid peak hour traffic.

2. It is understood that the area is still congested at 8:30 a.m.; however, congestion by this time is much lower than between the hours of 6:30 a.m. and 8:30 a.m. and the afternoon hours of 3:00 p.m. and 6:00 p.m. At least two lanes along Victoria Street will remain open at all times during construction, with police and/or flagmen on duty to direct traffic. All lanes will be open during non-working hours.

3. There are several best practices to mitigate traffic. We agree that avoiding the roadways altogether is a traffic mitigation and this will be reflected in the Final Environmental Assessment.

4. Figure 7-3 shows alternative alignments that were considered. Traversing Thomas Square, although not shown on the map, was considered and discounted very early in the route analysis process and described in response No. 6.

5. The unit cost for the ductile iron pipe includes cathodic protection. A note will be added to the cost estimates in Appendix A to clarify this inclusion.

6. The lower installation cost for a pipeline through Thomas Square was weighed against the cost of standard installation within the roadway, which is the designated utility corridor. The main reasons for avoiding the park were easement acquisition costs, restrictions on maintenance access and park use and the fact that Thomas Square is a special design district and is designated for preservation on the State and National Register of Historic Places.

   Avoiding existing utilities within roadways and intersections is standard waterline installation practice. If the main were installed within the Thomas Square park, trees, roots, walkways and wall foundations would similarly have to be avoided.

   The contractor will be required to comply with all applicable Noise Control regulations of the Department of Health, Administrative Rules, Chapter 11-46 "Community Noise Control."

7. The life cycles of concrete cylinder pipe (CCP) and cathodically protected ductile iron Pipe (DIP) are similar, ranging between 50 - 70 years, therefore, the cost estimates are not affected. As a construction bidding requirement, both the CCP and DIP must be considered as options. The type of pipe to be installed will depend on what is indicated on the awarded low bid.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

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Jun 21 1 49 PM '00

LINDA J. CAYETANO
GOVERNOR

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

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

In reply, please refer to
EMD/CWB

06046PKP.00

June 16, 2000

Mr Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 Beretania Street
Honolulu, HI 96843

Attention Ms. Iris Oda
Planning and Engineering Division

Dear Mr Jamile:

Subject: **Draft Environmental Assessment**
Honolulu 42-Inch and 24-Inch Transmission Mains

The Department of Health has the following comments regarding the subject submittal dated May 2000:

1. The Army Corps of Engineers should be contacted to identify whether a Federal permit (including a Department of Army permit) is required for this project. If it is determined that a Federal permit is required for the subject project, then a Section 401 Water Quality Certification would also be required from our office;

2 If the project involves any of the following discharges into state waters, a NPDES general permit is required for each activity:

   a. Storm water runoff associated with construction activities, including clearing, grading, and excavation that result in the disturbance of equal to or greater than five (5) acres of total land area;

   b. Hydrotesting water; and

   c. Construction dewatering effluent.

3. The Department requires that completed Notice of Intent (NOI) forms for NPDES general permits be submitted thirty days before the discharge is to occur. NOI forms can be picked up at our office or downloaded from our website at *http://www.state.hi.us/doh/eh/cwb/forms/index.html*.

Should you have any questions, please contact Ms. Kris Poentis, Engineering Section of the Clean Water Branch, at 586-4309.

Sincerely,

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

KP:cr

c: Kelly J. Chuck, Marc M. Siah & Associates, Inc.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

1131/00 1.1.1

COPY

January 4, 2001

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

Dear Mr. Lau:

Subject: Your Letter of June 16, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for the subject project. We have the following response to your comments:

1. We will verify the federal permit requirements with the Army Corps of Engineers after the stream crossing method is determined. The project phases are still under design. A Section 401 Water Quality Certification Federal Permit will be coordinated with your office.

2. Effluent discharge permits for hydrotesting and dewatering will be coordinated with your department during the design phase of the project. The total project area is under 5 acres and therefore, a National Pollutant Discharge Elimination System (NPDES) permit for stormwater runoff is not anticipated.

3. We will comply and submit the Notice of Intent forms for NPDES general permits 30 days before the discharge is to occur.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

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

RANDALL K. FUJIKI, AIA
DIRECTOR

LORETTA R.C. CHEE
DEPUTY DIRECTOR

MH 2000/CLOG-3282

July 14, 2000

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: RANDALL K. FUJIKI, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA) FOR THE HONOLULU 42-INCH AND 24-INCH TRANSMISSION MAINS, HONOLULU, OAHU, HAWAII

In response to your request for comments of June 5, 2000, we have reviewed the DEA and have the following comments to offer:

- In May of 2000, our department recommended approval of the Development Plan Public Facilities Map (DPPFM) amendment for the Primary Urban Center - Honolulu District 42-Inch Transmission Mains - Iwilei to Waahila 180 Reservoir project. This proposed DPPFM amendment was considered and recommended for approval by the Planning Commission on June 7, 2000. Subsequently, this proposed amendment was transmitted to the City Council for their review and consideration.

Should you have any questions, please contact Matt Higashida at extension 6056.

RKF:js

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

December 22, 2000

TO: RANDALL K. FUJIKI, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: CLIFFORD S. JAMILE

SUBJECT: YOUR MEMORANDUM OF JULY 14, 2000 ON THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HONOLULU 42-INCH AND 24-INCH TRANSMISSION MAINS, HONOLULU, OAHU, HAWAII

Thank you for reviewing the environmental document for our proposed project.

We acknowledge that the Development Plan Public Facilities Map Amendment for the Primary Urban Center - Honolulu District 42-inch Transmission Mains - Iwilei to Waahila 180 Reservoir project has been approved on November 2, 2000 as Ordinance 00-58.

If you have any questions, please contact Iris Oda at 527-5245.

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

P

PLN-51/00

HO'OKAHE WAI HO'OULU 'AINA
P.O. Box 61494
Honolulu, Hawai'i 96839

June 22, 2000

Mr. Clifford S. Jamile, Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawai'i 96843

Dear Mr. Jamile

Subject: Draft EA for the Honolulu 42-inch Transmission Mains.

I am writing on behalf of Ho'okahe Wai Ho'oulu 'Āina (HWHA) a non-profit community organization that began Kapapa Lo'i 'O Kānewai, (Kānewai Cultural Garden) and continues to develop and maintain this historic cultural resource in cooperation with the University of Hawai'i. Please add us to your list of consulted organizations, and send us project updates care of: Keoni Fairbanks
3117 Esther Street
Honolulu, Hawai'i 96815

We have some questions about the project and noticed two apparent errors or omissions in the DEA.

1. Figure 2-10 Community Facilities should include Kapapa Lo'i 'O Kānewai on the map of community facilities.
2. Appendix B - Archaeological Monitoring Plan assumes a different preferred route than the DEA. The Archaeological Monitoring Plan should be revised to reflect the University Avenue/Dole Street routing for Phase IV.
3. What is the proposed depth of the construction trench for Phase IV?
4. What is the proposed method for the transmission main to cross Mānoa Stream?
5. What is the diameter of the main (42" or 24") when it crosses Manoa Stream?
6. On which side of the Dole Street bridge (mauka or makai) will the main cross the Manoa Stream?
7. Which side of Dole Street (mauka or makai) will be trenched to lay the main on the east side of the Manoa stream? In other words, what is the precise alignment, width, and depth of the construction trench in the vicinity of the Kapapa Lo'i 'O Kānewai?
8. When is construction expected to be initiated in the vicinity of Kapapa Lo'i 'O Kānewai?
9. What are proposed mitigation measures for potential impacts to Kapapa Lo'i 'O Kānewai?
10. Could the trenching along Dole Street between University Avenue and Manoa Stream, be configured to allow the UH to bury the overhead lines now running along the mauka side of the street?

Thank you for this opportunity to comment. Please address your response to me at the Esther Street address.

Sincerely,

R. Keoni Fairbanks

cc: Lilīkālā Kame'eleihiwa, UH Center for Hawaiian Studies
Michael Yoneda, UH Facilities Management
Karen AhMai, St. Louis Neighborhood Board
Kelly J. Chuck
OEQC

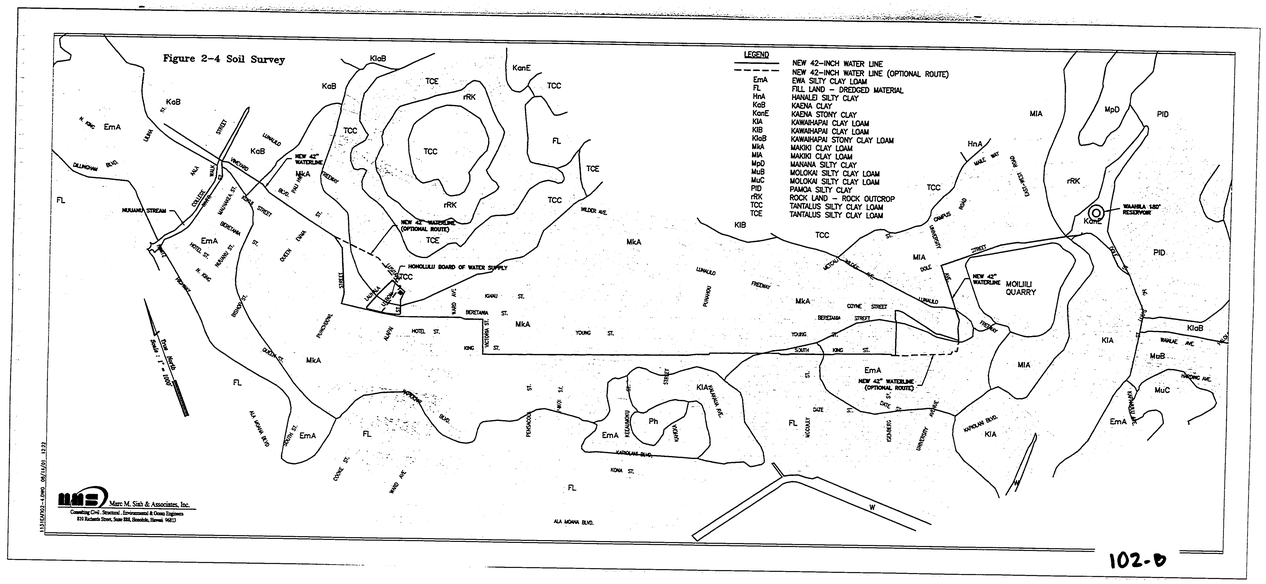
Figure 2-4 Soil Survey
LEGEND
NEW 42-INCH WATER LINE
NEW 42-INCH WATER LINE (OPTIONAL ROUTE)
EmA EWA SILTY CLAY LOAM
FL FILL LAND – DREDGED MATERIAL
HnA HANALEI SILTY CLAY
KoB KAENA CLAY
KonE KAENA STONY CLAY
KlA KAWAIHAPAI CLAY LOAM
KlB KAWAIHAPAI CLAY LOAM
KloB KAWAIHAPAI STONY CLAY LOAM
MkA MAKIKI CLAY LOAM
MlA MAKIKI CLAY LOAM
MpD MANANA SILTY CLAY
MuB MOLOKAI SILTY CLAY LOAM
MuC MOLOKAI SILTY CLAY LOAM
PID PAMOA SILTY CLAY
rRK ROCK LAND – ROCK OUTCROP
TCC TANTALUS SILTY CLAY LOAM
TCE TANTALUS SILTY CLAY LOAM
NEW 42" WATERLINE
NEW 42" WATERLINE (OPTIONAL ROUTE)
MOILILI QUARRY
WAIAKOLA 580' RESERVOIR
HONOLULU BOARD OF WATER SUPPLY
MUKAUKA STREET
ALA MOANA BLVD.
Marr M. Sieh & Associates, Inc.
Consulting Civil, Structural, Environmental & Ocean Engineers
810 Richards Street, Suite 808, Honolulu, Hawaii 96813

102-D

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

November 27, 2000

Mr. R. Keoni Fairbanks, Representative
Ho'okahe Wai Ho'oulu 'Aina
3117 Esther Street
Honolulu, Hawaii 96815

Dear Mr. Fairbanks:

Subject: Your Letter of June 22, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for our proposed project. We have the following response to your comments:

1. The community facilities map, figure 2-10 will be amended to include Kapapa Lo'i O' Kanewai.

2. The Archaeological Monitoring Plan as included in Appendix B includes both University Avenue and Dole Street routes in its scope as indicated in Figures 1 through 4. These figures show the preferred alignment at the time of the study, and also includes the various alternate corridors.

3. The actual trench depth will be according to the Board of Water Supply standards and determined during the design phase. The typical depth of the trench will be 7½ feet (3' cover + 4' outside pipe diameter + 6" below pipe). Where conflicts occur with existing utilities, the trench may be deeper in order to align the pipe below the existing utility.

4. The method used for crossing Manoa Stream will be determined during the design phase. Stream crossing design will take into account the dimensions and weight carrying capacities of the existing bridge as well as the characteristics of the streambed and its adjacent banks. Refer to either pipe hanging or trenching.

5. The size of the water main is 24 inches at the Manoa Stream crossing.

6. The precise alignment of the pipeline will not be determined until the design phase. During the design phase, a detailed investigation of the area will be performed and the pipe aligned in order to avoid existing utilities, private property and any culturally sensitive areas such as Kapapa Lo'i 'O Kanewai.

7. The exact location of the water main along Dole Street will be determined during the design phase.

8. Construction in the University area is currently proposed for funding in 2004. However, if the schedule should change, construction would begin in January 2002 at the earliest to prevent conflicts with the on-going construction on the H-1 Freeway and Punahou off ramp expansion. Work in the University of Hawaii area will be scheduled for the summer months when traffic to the University is at a minimum. Also, major sporting events and other activities will be accounted for when finalizing construction schedules in order to avoid any major conflicts.

9. One of the preferred mitigation measures is to avoid the loi by installing the 24-inch main along the existing bridge or to construct a separate bridge structure. Installing the main under Manoa Stream will result in cuts as deep as 30 feet and may cause temporary stream impacts, which could be mitigated by established best management practices. The stream would be temporarily diverted around the construction area and a series of silt curtains will retain silt-ladden runoff.

10. For safety, maintenance and reliability reasons, the electrical power lines will not be installed in the same trench as a water main.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

:: Kelly Chuck, Marc M. Siah & Associates, Inc.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

November 3, 2000

Mr. James Pennaz, P.E., Chief
Civil Works Technical Branch
Department of the Army
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440

Dear Mr. Pennaz:

Subject: Your Letter of June 21, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for our proposed project. We have the following response to your comments:

1. We understand that the project may require a Department of the Army permit depending on the method used to cross the existing streams. Design will be coordinated with Mr. William Lennan of your Regulatory Section, with reference to Job File No. 200000230, to verify the necessary permits.

2. We acknowledge that the flood hazard information provided on pages 2-8 of the Draft Environmental Assessment is correct.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

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

REPLY TO ATTENTION OF

June 21, 2000

Civil Works Technical Branch

Ms. Iris Oda
Planning and Engineering Division
Marc M. Siah & Associates, Inc.
810 Richards Street
Honolulu, Hawaii 96813

Dear Ms. Oda:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment (DEA) for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu. The following comments are provided in accordance with Corps of Engineers authorities to provide flood hazard information and to issue Department of the Army (DA) permits.

a. Based on the information provided, a DA permit may be required depending on the method used to cross the existing streams. For further information, please contact Mr. William Lennan of our Regulatory Section at 438-6986 and refer to file number 200000230.

b. The flood hazard information provided on page 2-8 of the DEA is correct.

Should you require additional information, please contact Ms. Jessie Dobinchick of my Civil Works Technical Branch staff at (808) 438-8876.

Sincerely,

James Pennaz, P.E.
Chief, Civil Works
Technical Branch

THE GAS COMPANY
Citizens Energy Services

Rec'd 6/20/00

June 16, 2000

Ms. Iris Oda
Planning and Engineering Division
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Ms. Oda:

Subject: Draft Environmental Assessment
Honolulu 42-inch and 24-inch Transmission Mains

Please be advised that The Gas Company maintains underground utility gas mains in the project vicinity, which serves commercial and residential customers in the area and is interconnected with the utility network in Honolulu. We would appreciate your consideration during the project planning and design process to minimize any potential conflicts with the existing gas facilities in the project area.

Thank you for the opportunity to comment on the Draft Environmental Assessment. Should there be any questions, or if additional information is desired, please call me at 594-5570.

Very truly yours,

Charles E Calvet, P.E.
Manager, Engineering

CEC:krs
00-145

cc: Mr. Kelly J. Chuck, Marc M. Siah & Associates, Inc.

THE GAS COMPANY
515 Kamakee Street Honolulu Hawaii 96814
PO Box 3000 Honolulu Hawaii 96802 3000
Telephone 808 535 5900 Facsimile 808 594 5630 Sales

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

November 3, 2000

Mr. Charles E. Calvet, P.E., Manager
Engineering Division
The Gas Company
P. O. Box 3000
Honolulu, Hawaii 96802-3000

Dear Mr. Calvet:

Subject: Your Letter of June 16, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for our proposed project.

The construction drawings will be submitted to your agency for review and approval to verify and minimize any potential conflict with the underground utility gas mains in the proposed project area.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

The Senate
The Twentieth Legislature
of the
State of Hawaii

STATE CAPITOL
HONOLULU, HAWAII

May 19, 2000

Kelly J. Chuck, P.E.
Marc M. Siah & Assoc., Inc.
810 Richards Street, Suite 888
Honolulu, HI 96813

Dear Mr. Chuck,

I received your notice of pending work on the 42-inch and 24-inch transmission mains and appreciate the information that was sent. I am glad that work has been scheduled to minimize disruptions to local businesses and schools as well as traffic but I would like to inquire as to what times the work has been scheduled for. Can you please provide my office with this information in the event that residents call to inquire about construction hours.

If you have any questions regarding this, please feel free to contact me at 586-6450.

Sincerely,

Rod Tam

Rod Tam
State Senator, 13th District

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

COP

EDDIE PEOPLES, Secretary-Treasurer
CHARLES A. STED, Vice Chairman
JAN M. L. Y. AMI
HERBERT S. K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

November 3, 2000

The Honorable Rod Tam
Senator
The Senate
State Capitol
Honolulu, Hawaii 96813

Dear Senator Tam:

Subject: Your Letter of May 19, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for our proposed project.

In general, work will be done between the hours of 8:30 a.m. and 3:00 p.m. in order to avoid rush hour traffic. In some instances, work may be done at night in non-residential areas to reduce disruption to traffic and businesses. If night work becomes necessary, the affected neighborhood boards will be notified and all necessary street usage permits and noise variances will be acquired.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

Oceanic CABLE
200 Akamainui Street • Mililani, Hawaii 96789-3999 • Telephone: (808) 625-2100

June 19, 2000

rec'd 6/20/00

Marc M. Siah & Associates, Inc.
810 Richards Street, Suite 888
Honolulu, Hawaii 96813

Attn: Mr. Kelly J. Chuck

Subject: Honolulu 42" and 24" Transmission Mains
Honolulu, Oahu, Hawaii

Dear Mr. Chuck,

Thank you for the drawings. Oceanic facilities are located within GTE Hawaiian Telephone facilities or on the joint poles throughout the project area. GTE will need to verify the approximate location of their entire existing infrastructure. Oceanic does not have any planned trenching work scheduled for the project areas. Should you have any questions, please contact me at 625-8346.

Sincerely,

Randy Makizuru
OSP Engineer

Cc: Ms. Iris Oda
Planning and Engineering Division
Board Of Water Supply

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

November 3, 2000

Mr. Randy Makizuru, OSP Engineer
Oceanic Cable
200 Akamainui Street
Mililani, Hawaii 96789-3999

Dear Mr. Makizuru:

Subject: Your Letter of June 19, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for our proposed project.

The construction drawings will be submitted to your agency and Verizon Hawaii, Inc., formerly GTE Hawaiian Telephone for review and approval to verify and minimize any potential conflict with the Oceanic facilities located within the Verizon Hawaii, Inc., telephone facilities or on the joint poles in the proposed project area.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

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Jul 12 12 18 PM '00

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POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111
http://www.honolulupd.org
www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

LEE D. DONOHUE
CHIEF

MICHAEL CARVALHO
ROBERT AU
DEPUTY CHIEFS

OUR REFERENCE CS- JNB

July 7, 2000

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

ATTENTION: IRIS ODA
PLANNING AND ENGINEERING DIVISION

FROM: LEE D. DONOHUE, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HONOLULU 42-INCH AND 24-INCH TRANSMISSION MAINS HONOLULU, OAHU, HAWAII

Thank you for the opportunity to review and comment on the subject document.

Since they are major thoroughfares, any construction work to be conducted on the roadways for this project will cause disruptions in traffic flow. Vehicles being driven through the area more slowly because of steel plates, restricted lanes, etc., will have a major negative impact on the services provided by this department.

It is also noted that part of the work will be in the vicinity of the University of Hawaii, which is already an area with heavy traffic congestion and a major source of complaints. Any disruption in this area will have an effect on the calls for police service. Therefore, we are recommending that work be scheduled during summer and semester breaks to minimize any anticipated problems.

In addition, this, like any other construction project, will generate complaints because of the inevitable dust, noise, and odors related to construction sites. These problems, compounded by traffic complaints, will have a major impact on the services and facilities of this department.

If there are any questions, please call Carol Sodetani of the Support Services Bureau at 529-3658.

Sincerely,

LEE D. DONOHUE
Chief of Police

By
EUGENE UEMURA
Assistance Chief
Support Services Bureau

cc: Marc M. Siah & Associates, Inc.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

11-31-00
1.1.1

October 13, 2000

TO: LEE D. DONOHUE, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

FROM: FOR CLIFFORD S. JAMILE

SUBJECT: YOUR MEMORANDUM OF JULY 7, 2000 ON THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HONOLULU 42-INCH AND 24-INCH TRANSMISSION MAINS, HONOLULU, OAHU, HAWAII

Thank you for reviewing the environmental document for our proposed project. We have the following response to your comments:

1. Temporary traffic impacts during construction is a major focus of the environmental assessment. Traffic impacts will be mitigated through an approved traffic control plan and scheduled to avoid peak hour traffic.

2. We will make every effort to schedule the construction of the main near the University of Hawaii at Manoa during the summer and semester breaks. Also, traffic concerns near the University will be addressed with an approved traffic control plan and best management practices will be implemented.

If you have any questions, please contact Iris Oda at 527-5245.

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

RECEIVED
BD OF WATER SUPPLY
Jul 10 2 33 PM '00

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU HI 96813

Jeremy Harris
Mayor

Kenneth E. Sprague, P.E., Ph.D.
Director

Barry Fukunaga
Deputy Director

PRO 00-33

July 6, 2000

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Jamile,

Subject: Draft Environmental Assessment (DEA) for the Honolulu 42-inch and 24-inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for allowing us to review and comment on the subject project. We have no objections to the proposed Honolulu 42-inch and 24-inch water transmission mains. Please follow proper procedures and precautions to ensure that our sewer mains, laterals, and structures are protected from damage during the construction of the project, and that wastewater service is maintained for our customers in the area.

Should you have any questions, please call Mr. Jack Pobuk, Program Coordinator, at 527-6696.

Sincerely,

KENNETH E. SPRAGUE
Director

cc Marc M. Siah & Assoc., Inc.

PLN-63

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

October 13, 2000

COP

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice-Chairm
JAN M.L.Y. AMI
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Offic

CLIFFORD S. JAMILE
Manager and Chief Engineer

TO: KENNETH E. SPRAGUE, DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

FROM: FOR CLIFFORD S. JAMILE

SUBJECT: YOUR MEMORANDUM OF JULY 6, 2000 ON THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HONOLULU 42-INCH AND 24-INCH TRANSMISSION MAINS, HONOLULU, OAHU, HAWAII

Thank you for reviewing the environmental document for the subject project.

We acknowledge that you have no objections to the proposed project. We will follow prope procedures and precautions to ensure that the sewer infrastructure is protected from damage during the construction of the project and wastewater service is maintained.

If you have any questions, please contact Barry Usagawa at 527-5235.

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

PLN-576

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET, SUITE H425
HONOLULU, HAWAII 96819-1869

HARRIS
GR

ATTILIO K. LEO
FIRE CHIEF
JOHN CLAR
DEPUTY FIRE C

June 22, 2000

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

ATTN: IRIS ODA
PLANNING AND ENGINEERING DIVISION

FROM: JOHN CLARK, ACTING FIRE CHIEF

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HONOLULU 42-INCH AND 24-INCH TRANSMISSION MAINS HONOLULU, OAHU, HAWAII

Jun 29 10 03 AM '00

We received a letter from Kelly J. Chuck, P.E., of Marc M. Siah & Associates, Inc., dated June 9, 2000, regarding the above-mentioned project.

The Honolulu Fire Department requests that you comply with the following:

1. Maintain fire apparatus access throughout the construction site for the duration of the project.

2. Notify the Fire Communication Center (523-4411) of any interruption in the existing fire hydrant system during the project.

Should you have any questions, please call Battalion Chief Kenneth Silva of our Fire Prevention Bureau at 831-7778.

JOHN CLARK
Acting Fire Chief

JC/KS:jl

cc: Kelly J. Chuck, P.E., Marc M. Siah & Associates, Inc.

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

October 13, 2000

COPY

JEREMY HARRIS, Mayor
EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice-Chairman
JAN M.L.Y. AMI
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

TO: JOHN CLARK, ACTING FIRE CHIEF
HONOLULU FIRE DEPARTMENT

FROM: FOR CLIFFORD S. JAMILE

SUBJECT: YOUR MEMORANDUM OF JUNE 22, 2000 ON THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HONOLULU 42-INCH AND 24-INCH TRANSMISSION MAINS, HONOLULU, OAHU, HAWAII

Thank you for reviewing the environmental document for our proposed project. We have the following response to your comments:

1. Throughout the duration of the project, fire apparatus access will be maintained throughout the construction site.

2. If there is any interruption to the existing fire hydrant system during the project, the Fire Communication Center will be notified.

If you have any questions, please contact Barry Usagawa at 527-5235.

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

PLN-52

GTE Hawaiian Tel
Beyond the call

GTE Hawaiian Telephone Company Incorporated
P.O. Box 2200 - Honolulu, HI 96841 - (808) 541

June 22, 2000

Mr. Clifford S. Jamile, Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu,Hawaii 96843

Attention: Ms. Iris Oda
Planning and Engineering Division

Subject: Draft Enviromental Assessment for the Honolulu 42-inch and 24-inch Transmission Mains, Honolulu, Oahu, Hawaii

We have reviewed your assessment for the above mentioned location and have no comment to make at this time.

A copy of your Draft Enviromental Assessment will be retained for our files.

If there are any questions, please call Sonny Perreira at 840-5884.

Sincerely,

Jay Furukawa
Section Manager
Access Design and Construction

c: File
S. Perreira
Mr. Kelly J. Chuck
Marc M. Siah & Associates, Inc.
810 Richards Street Suite 888
Honolulu, Hawaii 96813

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

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COP

JEREMY HARRIS, Mayor

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BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

October 13, 2000

Mr. Jay Furukawa, Section Manager
Access Design and Construction
GTE Hawaiian Telephone Company, Inc.
P. O. Box 2200
Honolulu, Hawaii 96841

Dear Mr. Furukawa:

Subject: Your Letter of June 22, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for the subject project.

We acknowledge that you have no objections to the proposed project.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

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

July 6, 2000

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

IN REPLY REFER TO:
HWY-DD 2.9[illegible]

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Attention: Ms. Iris Oda
Planning and Engineering Division

Dear Mr. Jamile:

Subject: Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for the opportunity to review and comment on the subject Draft Environmental Assessment (DEA). We have the following comment to the DEA:

1. Considering the weight of the 42-inch main and the load carrying capacity of the existing bridges (eight bridges were identified to be within this project), hanging the water mains from the bridges is discouraged unless the bridge structures are upgraded.

If you have any questions, please call Christine Yamasaki at 692-7572 or reply to the attention of Christine Yamasaki, Project Manager and reference HWY-DD 2.9135 as noted above.

Very truly yours,

GARY C. P. CHOY
Acting Administrator
Highways Division

c: Marc M. Siah and Associates, Inc.

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

RECEIVED DEC 3 2000

Should be 11/30/01
1130/01

COPY

November 30, 2000

Mr. Steven Kyono, Administrator
Highways Division
Department of Transportation
State of Hawaii
869 Punchbowl Street, Room 513
Honolulu, Hawaii 96813-5097

Dear Mr. Kyono:

Subject: Your Letter of July 6, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for our proposed project.

The Environmental Assessment discloses several alternative stream crossings for the 42-inch main. However, we realize that hanging the 42-inch along existing bridges is not practical due to the loading and structural improvements necessary to upgrade the bridge. Other alternative options will be pursued by the design consultant.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

The Senate
The Twentieth Legislature
of the
State of Hawaii

STATE CAPITOL
HONOLULU, HAWAII 96813

May 23, 2000

Kelly J. Chuck, P.E., Project Mgr.
Marc M. Siah & Associates, Inc.
810 Richards St. #888
Honolulu, Hawaii 96813

Dear Mr. Chuck,

Thank you for the opportunity to submit input regarding the installation of 23,000 lineal feet of 42- inch transmission main. A large portion of this transmission main will be routed through my district, particularly on King St., from Kalakaua Ave. to University Ave., and then on up to Dole St. and stopping at the Waahila Reservoir.

While I appreciate your efforts to minimize negative impacts, I remain concerned that the combination of construction projects during this period will create a significant amount of congestion and gridlock. As you may be aware, there are two highway projects, 1) a major resurfacing of the H-1 Freeway and 2) the expansion of the Punahou Off-Ramp, that will be occurring during approximately the same time period. I believe the State Department of Transportation is relying on King Street as a major alternative route.

I also feel that the segment for University Avenue should be done during the middle of May to the middle of August. This will greatly ease the congestion on University Avenue. You may also want to find out the schedules for sporting events at the University of Hawaii (especially the Sheriff Arena) and the various school carnivals as they greatly impact traffic.

I look forward to reviewing the Draft Environmental Assessment, upon its completion. Will it be possible to inform my office as to its completion and to inform us as to a date when we will be able to pick one up?

If there are any questions in regards to my comments, please feel free to call my office at 586-6460.

Sincerely,

Brian T. Taniguchi
Senator
District 11

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

January 4, 2001

1171/c

COP

The Honorable Brian T. Taniguchi
Senator
The Senate
State Capitol
Honolulu, Hawaii 96813

Dear Senator Taniguchi:

Subject: Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document and for describing other projects and events that may increase the impacts of our proposed project. We have the following response to your comments:

1. Construction along Vineyard Boulevard from Liliha Street to Nuuanu Avenue would begin in January 2002 at the earliest, after the H-1 and Punahou off-ramp improvements are scheduled for completion. The remaining portions of our project along King Street, University Avenue and Dole Street would occur after the Vineyard Boulevard phase. The project will also be coordinated with other water main replacement projects on Ward Avenue, Kapiolani Boulevard, Ala Moana Boulevard and Kalakaua Avenue and with other City and State agencies in order to minimize construction conflicts and maintain adequate alternative corridors through the area.

2. We will make every effort to schedule the construction of the University Avenue and Dole Street phase during the summer and semester breaks to minimize traffic disruption in the University area. Also, traffic concerns near the University will be addressed with an approved traffic control plan, signage and prior notification.

3. A copy of the Final Environmental Assessment will be forwarded for your information when it is completed.

If you have any questions, please contact me at 527-6180.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

REFERENCES

Marc M. Siah & Associates, Inc.
Consulting Civil • Structural • Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

REFERENCES

1. University of Hawaii, Department of Geography. *Atlas of Hawaii*, Second Edition. University of Hawaii Press. 1983.

2. State Department of Business, Economic Development & Tourism. *The State of Hawaii Data Book 1995.* State of Hawaii. 1995.

3. State Department of Business, Economic Development & Tourism. *State Land Use District Boundary Review.* State of Hawaii. 1992.

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7. Thomas W. Giambelluca. *Water Balance of the Pearl Harbor-Honolulu Basin, Hawaii, 1946-1975.* May 1983.

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9. Marc M. Siah & Associates, Inc. *Peer Review and Expansion of the Route Feasibility Study for the Honolulu 42-inch and 24-inch Transmission Mains.* Marc M. Siah & Associates, Inc. January 2000.

10. City and County of Honolulu, Neighborhood Commission. *Oahu's Neighborhood Board System Informational Boundary Maps.* City and County of Honolulu. June 1993.

11. Hawaii Cooperative Park Service Unit, Western Region National Resources and Research Division, National Park Service. *Hawaii Stream Assessment, A Preliminary Appraisal of Hawaii's Stream Resources, Report R84.* National Park Service. 1990.

12. State Department of Land and Natural Resources, Commission on Water Resource Management. *Hawaii Streams, Na Kahawai o Hawaii: A Summary of the Hawaii Stream Assessment, A Preliminary Appraisal of Hawaii's Stream Resources, Report R84.* National Park Service. 1990.

APPENDICES

Marc M. Siah & Associates, Inc.
Consulting Civil • Structural • Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

Appendix A - Construction Cost Estimate

Marc M. Siah & Associates, Inc.
Consulting Civil • Structural • Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

CONSTRUCTION COST ESTIMATE
42-INCH TRANSMISSION MAIN
VINEYARD BOULEVARD ROUTE - PHASE I (VBR)

ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT (DUCTILE IRON PIPE)	AMOUNT (CONCRETE PIPE)
TRENCH EXCAVATION	5,785	CY	$150	$867,750	$867,750
DWS 2500 CONCRETE	540	CY	$550	$297,000	$297,000
A.C. PAVEMENT	2,010	SY	$60	$120,600	$120,600
PIPE CUSHION MATERIAL	2,060	CY	$30	$61,800	$61,800
CRUSHED ROCK	1,165	CY	$65	$75,725	$75,725
TRENCH DEWATERING	1	LS	$3,580	$3,580	$3,580
ARV 2"	7	EA	$1,500	$10,500	$10,500
42" BFV 150#	4	EA	$21,000	$84,000	$84,000
42" BGGV 150#	1	EA	$84,000	$84,000	$84,000
30" BFV 150#	0	EA	$16,000	$0	$0
24" BFV 150#	0	EA	$8,000	$0	$0
18" BFV 150#	1	EA	$4,000	$4,000	$4,000
TYPE 'A' MANHOLE	6	EA	$8,000	$48,000	$48,000
CONN. 42" DILLINGHAM	1	LS	$20,000	$20,000	$20,000
CONN. 42" LUSITANA	0	LS	$20,000	$0	$0
CONN. 30" WILIWILI	0	LS	$15,000	$0	$0
CONN. 30" ISENBERG	0	LS	$15,000	$0	$0
CONN. 24" WAIALAE	0	LS	$12,000	$0	$0
CONN. 18" NUUANU	1	LS	$10,000	$10,000	$10,000
DI 42" CL. 52*	2,400	LF	$350	$840,000	
DI FITTINGS*	24,000	LB	$5	$120,000	
CCP 42" CL. 150	2,400	LF	$400		$960,000
CCP FITTINGS	1	LS	$96,000		$96,000
PHASING INTERCONNECTIONS	1	LS	$500,000	$500,000	$500,000
STREAM CROSSINGS (1)	1	LS	$300,000	$300,000	$300,000
TRAFFIC CONTROL	1	LS	$190,000	$190,000	$190,000
CHLORINATION AND FLUSHING	1	LS	$10,800	$10,800	$10,800
FIELD OFFICE	1	LS	$40,000	$40,000	$40,000
EASEMENT COSTS	1	LS	$100,000	$100,000	$100,000
CONTINGENCY	1	LS	$440,000	$440,000	$440,000
TOTAL (STANDARD)				$4,227,755	$4,323,755
COST (NIGHT WORK)				$5,284,694	$5,404,694

* **NOTE:**
THE UNIT PRICES OF DUCTILE IRON PIPE AND FITTINGS INCLUDE CATHODIC PROTECTION

CONSTRUCTION COST ESTIMATE
42-INCH TRANSMISSION MAIN
VINEYARD/PUNCHBOWL ROUTE - PHASE II (VPB)

ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT (DUCTILE IRON PIPE)	AMOUNT (CONCRETE PIPE)
TRENCH EXCAVATION	8,655	CY	$150	$1,298,250	$1,298,250
DWS 2500 CONCRETE	415	CY	$550	$228,250	$228,250
A.C. PAVEMENT	3,000	SY	$60	$180,000	$180,000
PIPE CUSHION MATERIAL	3,080	CY	$30	$92,400	$92,400
CRUSHED ROCK	1,740	CY	$65	$113,100	$113,100
TRENCH DEWATERING	1	LS	$5,360	$5,360	$5,360
ARV 2"	10	EA	$1,500	$15,000	$15,000
42" BFV 150#	4	EA	$21,000	$84,000	$84,000
42" BGGV 150#	1	EA	$84,000	$84,000	$84,000
30" BFV 150#	0	EA	$16,000	$0	$0
24" BFV 150#	0	EA	$8,000	$0	$0
18" BFV 150#	0	EA	$4,000	$0	$0
TYPE 'A' MANHOLE	5	EA	$8,000	$40,000	$40,000
CONN. 42" DILLINGHAM	0	LS	$20,000	$0	$0
CONN. 42" LUSITANA	1	LS	$20,000	$20,000	$20,000
CONN. 30" WILIWILI	0	LS	$15,000	$0	$0
CONN. 30" ISENBERG	0	LS	$15,000	$0	$0
CONN. 24" WAIALAE	0	LS	$12,000	$0	$0
CONN. 18" NUUANU	0	LS	$10,000	$0	$0
DI 42" CL. 52*	3,590	LF	$350	$1,256,500	
DI FITTINGS*	35,900	LB	$5	$179,500	
CCP 42" CL. 150	3,590	LF	$400		$1,436,000
CCP FITTINGS	1	LS	$143,600		$143,600
PHASING INTERCONNECTIONS	1	LS	$500,000	$500,000	$500,000
STREAM CROSSINGS (0)	0	LS	$0	$0	$0
TRAFFIC CONTROL	1	LS	$285,880	$285,880	$285,880
CHLORINATION AND FLUSHING	1	LS	$16,500	$16,500	$16,500
FIELD OFFICE	1	LS	$40,000	$40,000	$40,000
EASEMENT COSTS	1	LS	$0	$0	$0
CONTINGENCY	1	LS	$653,700	$653,700	$653,700
TOTAL (STANDARD)				$5,092,440	$5,236,040
COST (NIGHT WORK)				$6,365,550	$6,545,050

* **NOTE:**
THE UNIT PRICES OF DUCTILE IRON PIPE AND FITTINGS INCLUDE CATHODIC PROTECTION

CONSTRUCTION COST ESTIMATE
42-INCH TRANSMISSION MAIN
BERETANIA STREET ROUTE - PHASE III (BSR(III))

ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT (DUCTILE IRON PIPE)	AMOUNT (CONCRETE PIPE)
TRENCH EXCAVATION	27,080	CY	$150	$4,062,000	$4,062,000
DWS 2500 CONCRETE	1,245	CY	$550	$684,750	$684,750
A.C. PAVEMENT	9,380	SY	$60	$562,800	$562,800
PIPE CUSHION MATERIAL	9,670	CY	$30	$290,100	$290,100
CRUSHED ROCK	5,425	CY	$65	$352,625	$352,625
TRENCH DEWATERING	1	LS	$5,655	$5,655	$5,655
ARV 2"	15	EA	$1,500	$22,500	$22,500
42" BFV 150#	5	EA	$21,000	$105,000	$105,000
42" BGGV 150#	2	EA	$84,000	$168,000	$168,000
30" BFV 150#	1	EA	$16,000	$16,000	$16,000
24" BFV 150#	0	EA	$8,000	$0	$0
18" BFV 150#	0	EA	$4,000	$0	$0
TYPE 'A' MANHOLE	8	EA	$8,000	$64,000	$64,000
CONN. 42" DILLINGHAM	0	LS	$20,000	$0	$0
CONN. 42" LUSITANA	0	LS	$20,000	$0	$0
CONN. 30" WILIWILI	0	LS	$15,000	$0	$0
CONN. 30" ISENBERG	1	LS	$15,000	$15,000	$15,000
CONN. 24" WAIALAE	0	LS	$12,000	$0	$0
CONN. 18" NUUANU	0	LS	$10,000	$0	$0
DI 42" CL. 52*	11,250	LF	$350	$3,937,500	
DI FITTINGS*	112,500	LB	$5	$562,500	
CCP 42" CL. 150	11,250	LF	$400		$4,500,000
CCP FITTINGS	1	LS	$450,000		$450,000
PHASING INTERCONNECTIONS	1	LS	$500,000	$500,000	$500,000
STREAM CROSSINGS (0)	0	LS	$0	$0	$0
TRAFFIC CONTROL	1	LS	$442,000	$442,000	$442,000
CHLORINATION AND FLUSHING	1	LS	$15,000	$15,000	$15,000
FIELD OFFICE	1	LS	$20,000	$20,000	$20,000
EASEMENT COSTS	0	LS	$0	$0	$0
CONTINGENCY	1	LS	$1,831,600	$1,831,600	$1,831,600
TOTAL (STANDARD)				$13,657,030	$14,107,030
COST (NIGHT WORK)				$17,071,288	$17,633,788

* **NOTE:**
THE UNIT PRICES OF DUCTILE IRON PIPE AND FITTINGS INCLUDE CATHODIC PROTECTION

CONSTRUCTION COST ESTIMATE
42-INCH TRANSMISSION MAIN
COYNE/UNIVERSITY/DOLE ROUTE - PHASE IV (CUD)

ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT (DUCTILE IRON PIPE)	AMOUNT (CONCRETE PIPE)
TRENCH EXCAVATION	16,760	CY	$150	$2,514,000	$2,514,000
DWS 2500 CONCRETE	770	CY	$550	$423,500	$423,500
A.C. PAVEMENT	5,800	SY	$60	$348,000	$348,000
PIPE CUSHION MATERIAL	6,000	CY	$30	$180,000	$180,000
CRUSHED ROCK	3,350	CY	$65	$217,750	$217,750
TRENCH DEWATERING	1	LS	$3,430	$3,430	$3,430
ARV 2"	12	EA	$1,500	$18,000	$18,000
42" BFV 150#	4	EA	$21,000	$84,000	$84,000
42" BGGV 150#	1	EA	$84,000	$84,000	$84,000
30" BFV 150#	0	EA	$16,000	$0	$0
24" BFV 150#	1	EA	$8,000	$8,000	$8,000
18" BFV 150#	0	EA	$4,000	$0	$0
TYPE 'A' MANHOLE	6	EA	$8,000	$48,000	$48,000
CONN. 42" DILLINGHAM	0	LS	$20,000	$0	$0
CONN. 42" LUSITANA	0	LS	$20,000	$0	$0
CONN. 30" WILIWILI	0	LS	$15,000	$0	$0
CONN. 30" ISENBERG	0	LS	$15,000	$0	$0
CONN. 24" WAIALAE	0	LS	$12,000	$0	$0
CONN. 24" WAAHILA	1	LS	$12,000	$12,000	$12,000
CONN. 18" NUUANU	0	LS	$10,000	$0	$0
DI 42" CL. 52*	6,960	LF	$350	$2,436,000	
DI FITTINGS*	69,600	LB	$5	$348,000	
CCP 42" CL. 150	6,960	LF	$400		$2,784,000
CCP FITTINGS	1	LS	$278,400		$278,400
PHASING INTERCONNECTIONS	1	LS	$500,000	$500,000	$500,000
STREAM CROSSINGS (1)	1	LS	$160,000	$160,000	$160,000
TRAFFIC CONTROL	1	LS	$102,950	$102,950	$102,950
CHLORINATION AND FLUSHING	1	LS	$20,000	$20,000	$20,000
FIELD OFFICE	1	LS	$25,000	$25,000	$25,000
EASEMENT COSTS	1	LS	$65,200	$65,200	$65,200
CONTINGENCY	1	LS	$1,151,450	$1,151,450	$1,151,450
TOTAL (STANDARD)				$8,749,280	$9,027,680
COST (NIGHT WORK)				$10,936,600	$11,284,600

* **NOTE:**
THE UNIT PRICES OF DUCTILE IRON PIPE AND FITTINGS INCLUDE CATHODIC PROTECTION

Appendix B - Archaeological Monitoring Plan

Marc M. Siah & Associates, Inc.
Consulting Civil • Structural • Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

A REVISED ARCHAEOLOGICAL MONITORING PLAN FOR A PROPOSED WATERLINE LOCATED IN HONOLULU ISLAND OF O'AHU JANUARY 2001

Prepared for: Mr. Marc M. Siah
Marc M. Siah & Associates, Inc.
735 Bishop Street, Suite 312
Honolulu, Hawaii 96813

Prepared by: Archaeological Consultants of the Pacific, Inc.
Brad Ostroff, B.A.
Michelle Elmore, B.A.
Joseph Kennedy, M.A.
59-624 Pupukea Road
Haleiwa, Hawaii 96712

Abstract

This document addresses cultural preservation concerns along the route of a proposed waterline improvement project in Honolulu to be undertaken by the Board of Water Supply in the form of an archaeological monitoring plan for subsurface construction activities associated with the waterline.

Numerous sites have been recorded in the vicinity of the project area, including ones associated with traditional activities as well as sites which fall within the boundaries of the historic era. The traditional sites are comprised of fishponds, agricultural areas, burials, house sites, etc. The historic sites are comprised of cemeteries, commercial and residential structures, and government buildings.

Archaeological Consultants of the Pacific, Inc. recommends that "on site monitoring" be conducted in the areas where sites are likely to be found. These include the area on Dole Street around Kanewai Field and the Center for Hawaiian Studies, the known fishponds at University and King Streets and also at Isenberg and Date Streets. ACP recommends "on call monitoring" be conducted for the remainder of the project areas.

Table of Contents

An Archaeological Monitoring Plan for a Proposed Waterline in Honolulu

Section 1: Introduction

At the request of Marc M. Siah & Associates, Inc., Archaeological Consultants of the Pacific, Inc. (ACP) has prepared a plan for archaeological monitoring of subsurface construction activities associated with the proposed Board of Water Supply waterline in Honolulu.

The development of this plan was based upon an archaeological assessment conducted by ACP of the corridors along which proposed construction activities will occur. This document was prepared to determine expected finds for the project area as well as to assist in formulating recommendations for the type of archaeological investigations that should be conducted prior to, or in conjunction with, the construction efforts (Elmore and Kennedy 1999a).

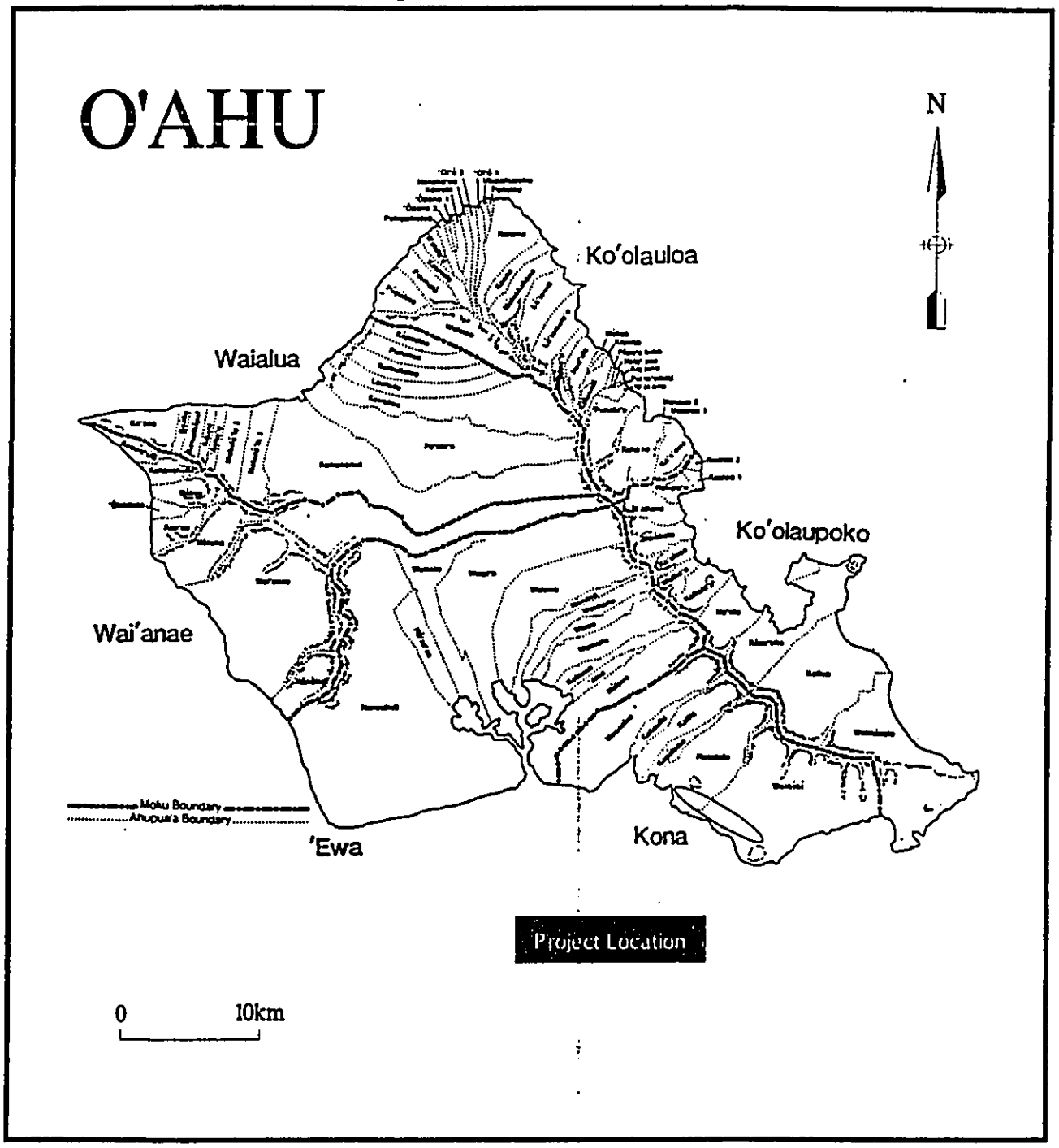
A previous monitoring plan was submitted, by ACP, for the routes proposed by the Board of Water Supply (Elmore and Kennedy 1999b). The route has been finalized and the old document is no longer viable. This is the revised monitoring plan.

ACP recommends that "on site monitoring" be conducted within the Dole Street corridor (around the Center for Hawaiian Studies and Kanewai Field), the University Ave and King Street area and the corner around Isenberg and Date Streets. And that "on call monitoring" be conducted for the remainder of the project areas. Monitoring of the construction of the waterline will help mitigate the effect of construction activities on sites that may be encountered. The revised route for the waterline will traverse two known fishponds and archaeological investigations should be conducted during any construction activities in those areas.

Section 2: Environmental Setting

The current proposed route passes through several *ahupua'a*, including Nu'uanu, Pauoa, Makiki and Manoa, within the pre-Mahele *ahupua'a* boundaries of Honolulu and Waikiki (see figures 1 and 2). The project corridor falls within Districts 1 and 2. The project area is located between geographic grid coordinates 21° 19' 18"N to 21° 17' 30"N by 157° 52' 10"W to 157° 48' 44"W and UTM (Universal Transverse Mercator) coordinates 2358150mN to 2354850mN by 617500mE to 623200mE. The proposed

Figure 1: Property Location on a Map of O'ahu



Board of Water Supply Waterline Project 2000 source: adapted from Nogelmeier in Snakenberg, 1990

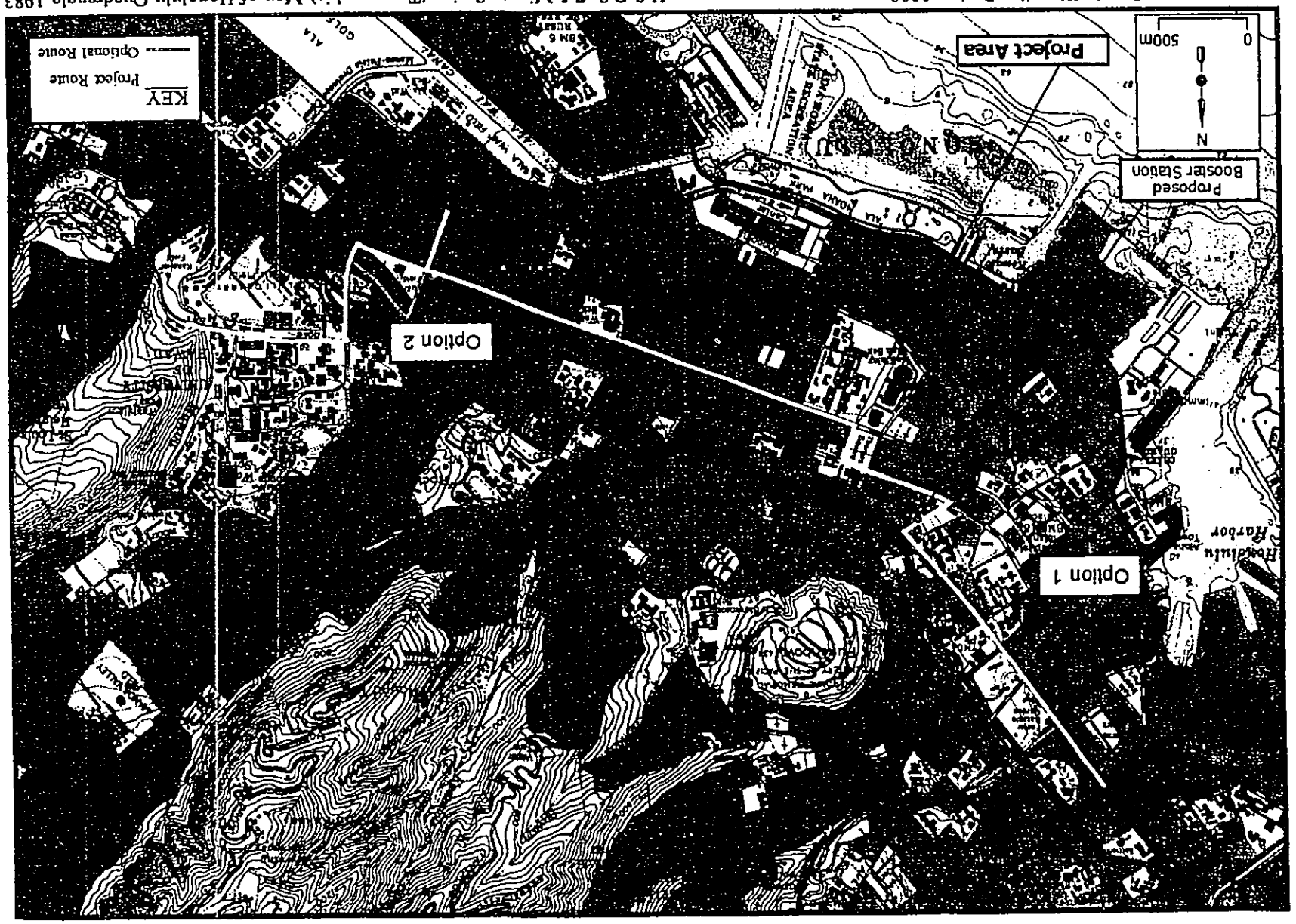


Figure 2: Project Area on a U.S.G.S. Map of O'ahu

Board of Water Supply Waterline Project 2000 source: U.S.G.S. 7.5 Minute Series (Topographic) Map of Honolulu Quadrangle 1983

project is designed to run through a highly developed urban area that includes commercial, residential and government buildings.

The topography of the project area consists of coastal plain and fill land. Soils in the area are described by Foote *et. al.* (1972) as Lualualei-Fill land-Ewa association, consisting of "deep, nearly level to moderately sloping, well drained soils that have a fine textured or moderately fine textured subsoil or underlying material, and areas of fill land; on coastal plains" (Foote *et al.* 1972: 6).

The route begins at the corner of Liliha Avenue and Vineyard Blvd., continueing east down Vineyard Blvd. until it merges with Lusitana. It turns *makai* on Lisbon (or if Option#1 is used it will be Punchbowl Street), and then proceeds east on Beretania Street. At the intersection with Victoria Street, the route then proceeds *makai* for two blocks. At the intersection the route continues Diamond Head until the intersection with University Ave. From there it proceeds *mauka* until it reaches Dole Avenue. The route proceeds east on Dole Street until it reaches its terminus at the Waahila Reservoir. A spur off the main corridor exists on Isenberg Street. It starts at King Street and ends at Date Street. If option #2 is used it will send the corridor *mauka* at Isenberg Street and then east on Coyne Street and back to University Ave.

The proposed site for the lone booster station for this project is located at the existing Board of Water Supply facility near Beretania and Alapai Streets.

Section 3: Expected Finds

The proposed project route covers a broad area ranging west to east from the intersection of Liliha Street and Vineyard Boulevard to Dole Street, and ranging north to south from Vineyard Boulevard to King Street. This route will pass through one historic district if Option #1 is used. No Historic Disrticts are impacted if the preferred route is used.

Because the route extends across a large section of Honolulu, there is a wide range of possibilities for expected finds. Subsequently, potential archaeological finds are correspondingly diverse.

Excavations around or through the Historic District are likely to encounter a variety of historically significant properties, ranging from pre-contact or traditional Hawaiian sites to 19th to 20th century properties of significance. Traditional sites relating to habitation, workshop, aquaculture and agriculture as well as human burials may be present. Post-contact sites may consist of habitation, commercial, church or cemetery locations. The revised route runs along the *mauka* edge of the Capitol District where significant historic artifacts have been encountered during previous archaeological investigations by Kennedy (1993) and Hammat (1999).

The types of sites most likely to be encountered in the University area include traditional sites such as fishponds, agricultural areas, including the Kapapa Lo`i `o Kanewai previously documented by Liston and Burtchard (1996), habitation sites and human burials. Burials have inadvertently been encountered on the University of Hawaii (Smith and Karachi 1989) and also in front of Kanewai Park while doing previous waterline work. At Kanewai Park 15 burials were encountered with 18 individuals present (Hammet, Shideler and Douglas 1991). The likelihood that burials could be encountered during future trenching must be expected.

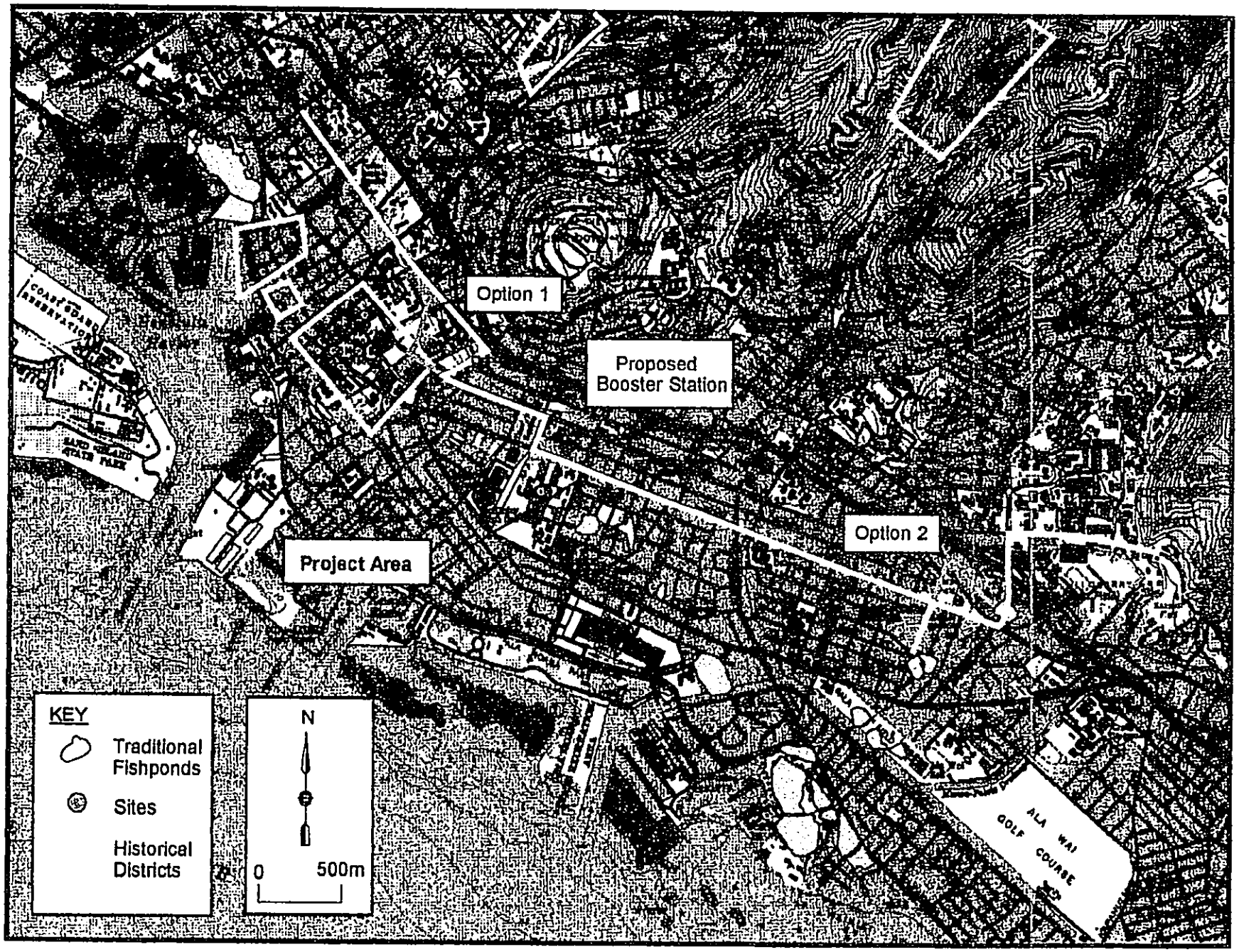
Numerous traditional fishponds are known to have existed in Honolulu. Figure 3 consists of a map depicting their locations. A fishpond, which crosses University Avenue between Beretania and Varsity Place, will probably be encountered due to the depth of the watermain trench.. This pond will be traversed even if Option #2 is used. A second known fishpond will be encountered at the corner of Isenberg and Date Streets. The construction activities in the areas outside of the Capitol District, the University of Hawaii area and the two fishponds are less likely to impact significant historic and traditional properties, although they still may be encountered.

Section 4: Recommendations

Given the likelihood of encountering significant traditional burials, agricultural zones and fish ponds, ACP recommends that "on site monitoring" be conducted in conjunction with all subsurface construction activities in the Dole Street corridor (around Kanewai Park and the Center for Hawaiian Studies.). The vicinity around University Avenue and King Street and the Isenberg and Date Street area is the location of two known fishponds and inventory level work should be done by on-sight monitors during the actual trenching of the watermain. Due to the relative sparsity of significant historic and traditional properties outside of these areas, ACP recommends that "on call monitoring" be used during subsurface construction activities in the following areas. These areas include the corridor that runs from University Ave and King Street west to Liliha Avenue and Vineyard Boulevard, the Isenberg spur (except the corner of Date and Isenberg Streets: a known fishpond) and the Isenberg to Coyne Street loop (Option #2). The only exception to this is the area of Punchbowl and Beretania Streets (Option #1), which falls within the Capitol Historic District and should have on-site monitoring if that option is used.

If burials are encountered during the on-site monitoring process, they will be considered to be inadvertent finds. All procedures for the proper treatment of burial sites and human skeletal remains will be followed in accordance with Hawaii Administrative Rules Title 13, Sub-Title 13, Chapter 300, Subchapter 4 (HAR 13-300-31). If human burials are encountered, they will be treated in accordance with Chapter 6E-43.6, Hawaii Revised Statutes (the preservation and protection of all burial sites). The proper personnel

Figure 3: Map Depicting Traditional Fishponds in Honolulu



Board of Water Supply Waterline Project 2000

source: D.L.N.R. S.H.P.D.

at the Department of Land and Natural Resources, State Historic Preservation Division and the State Burials Program will be notified and their recommendations implemented.

In the event that human remains or any other historically significant properties are inadvertently discovered during the "on call monitoring" portion of the project, an archaeologist should be notified and called to the site before construction efforts continue. Research on the watermain alignment reveals that two inadvertent burials were encountered at the corner of Queen Emma Street and Old Vineyard (Han 1980). Also, a historic bottle dump (associated with the old soda works) was encountered on Vineyard Boulevard between Queen Emma and Punchbowl Streets and the Bishop Museum was called in. Therefore, there is a distinct possibility that significant traditional and/or historic sites could be encountered.

Because the waterline will be underground, there will be no adverse effect on the historic buildings that are located along the corridor. These include the Academy of Arts, Thomas Square and the Linekona School. The proposed location for the booster station is now at the existing BWS facility near Beretania and Alapai Streets. There should be no impact on traditional or historic sites from the construction of the booster station.

The proposed route for the waterline will traverse known fishponds, therefore archaeological investigations, in the form of an inventory survey, should be conducted during the trenching of the watermain. These investigations should consist of core samples, wherein an analysis of the stratigraphy may be made in addition to analyses of faunal and palynological remains as well as diatom and radiocarbon samples.

Section 5: Methodology of Archaeological Monitoring

Archaeological monitoring of the subject property will be under the supervision of the Principle Investigator Joseph Kennedy, M.A.. Prior to the commencement of subsurface construction activities, the monitoring archaeologist will conduct a coordination meeting with the construction crew in order to brief the team on the expected finds and plans for monitoring. In the event that significant historic sites are encountered, the monitoring archaeologist has the authority to halt construction in the immediate vicinity of the find until the proper authorities are notified and/or proper mitigation measures are undertaken. Construction activities may shift to other areas in this event. The treatment of possible sites encountered is dependent upon the feature type. If human burials are encountered they will be considered inadvertent finds and the proper personnel at DLNR-SHPD will be notified and their recommendations implemented. In the event that significant archaeological deposits are encountered, archaeological salvage operations are recommended.

During archaeological monitoring, the field monitor will visually inspect all excavations and rake through excavated materials in order to identify any possible

cultural materials. Photographs and profiles of the stratigraphy encountered and soil samples from each strata identified will be taken. All cultural materials of possible significance will be collected, bagged and labeled with the appropriated excavation information. All samples and field notes will be on file at ACP's office located at 59-624 Pupukea Road, Haleiwa, Hawaii.

Laboratory work will include the identification of vertebrate faunal remains, invertebrate faunal remains, culturally derived floral remains and artifactual materials. The results of these identifications will be tabulated for presentation and a complete report concerning the monitoring activities, including possible finds, will be prepared. Radiocarbon dating and pollen analysis will be performed when necessary. A final report will be prepared within 90 days of the completion of fieldwork. All materials collected will be curated at ACP's offices located at the address stated above.

Conclusion

The preceding monitoring plan summarizes the expected finds, recommendations and methodology for archaeological monitoring of proposed construction activities in Honolulu extending from Iwilei to Manoa.

Numerous sites have been recorded in the vicinity of the subject corridors, including traditional as well as historic sites. The traditional sites are comprised of fishponds, burials, house sites, agricultural areas, etc. The historic sites are comprised of commercial, residential and government buildings, cemeteries, etc.

Archaeological Consultants of the Pacific, Inc. recommends that "on site monitoring" be conducted within the area around the Center for Hawaiian Studies and Kanewai Field on Dole Street. If Option #1: Punchbowl Street is used, additional "on-site monitoring will be necessary. The corridor will traverse two known fishponds and inventory level examinations should be conducted during the on-site monitoring of the trenching of the watermain. Also, testing should be done along Dole Street where agricultural areas were previously documented and could be encountered. ACP recommends that "on call monitoring" be conducted for the remainder of the project corridors.

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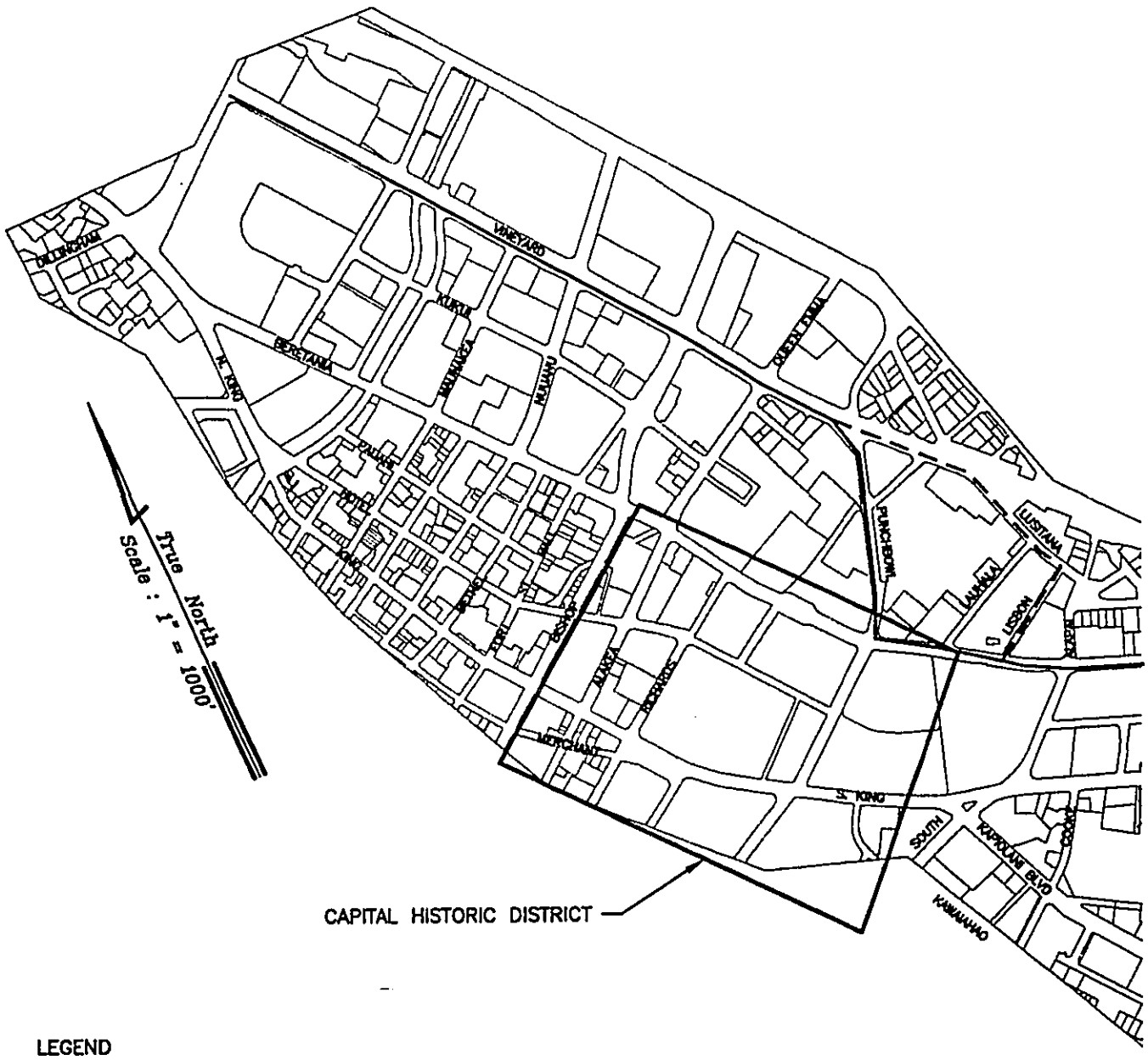
Appendix C - Adjacent Archaeological Feature

Marc M. Siah & Associates, Inc.
Consulting Civil • Structural • Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

Historic District Along Project Route



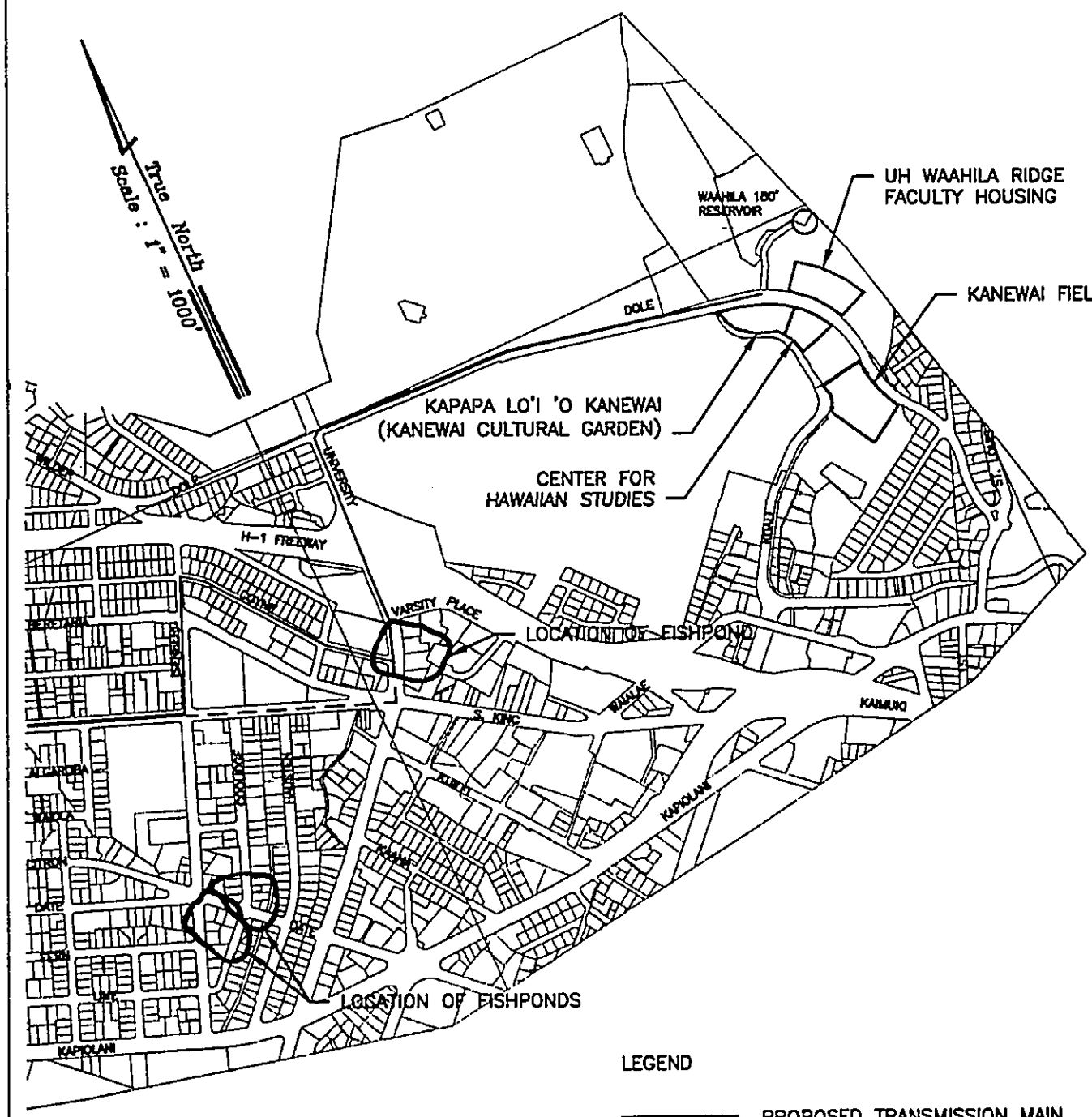
LEGEND

———— PROPOSED TRANSMISSION MAIN

— — — — PROPOSED TRANSMISSION MAIN (OPTIONAL ROUTE)

Marc M. Siah & Associates, Inc.
Consulting Civil . Structural . Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

Traditional Fishponds Along Project Route



LEGEND

——— PROPOSED TRANSMISSION MAIN

— — — — PROPOSED TRANSMISSION MAIN (OPTIONAL ROUTE)

Marc M. Siah & Associates, Inc.
Consulting Civil . Structural . Environmental & Ocean Engineers
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Appendix D - Project Tax Map Keys (TMKs)

Marc M. Siah & Associates, Inc.
Consulting Civil • Structural • Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

PROJECT TAX MAP KEYS (TMKs)

TMK	STREET OR AREA
1-7-29	Liliha
1-7-27	Nuuanu Stream
1-7-27	Nuuanu Stream
1-7-06	
2-1-04	Nuuanu
2-1-08	
2-1-09	
2-1-19	
2-1-35	Vineyard Boulevard/Punchbowl Street
2-1-37	Vineyard Boulevard/Lusitana Street/Miller Street
2-1-36	Board of Water Supply Beretania Street Complex
2-1-41	Ward Avenue
2-3-25	Makiki Stream
2-4-02	Victoria Street
2-4-03	
2-4-04	
2-4-05	
2-4-06	Makiki Stream
2-8-01	
2-8-02	
2-8-03	
2-8-04	Isenberg Street
2-8-05	University of Hawaii
2-8-06	
2-8-07	Dole Street
2-8-23	Manoa Stream
2-8-29	Waahila
3-3	Manoa Stream/Waahila

Appendix E - Traffic Volume to Capacity Ratio Data

Marc M. Siah & Associates, Inc.
Consulting Civil • Structural • Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

1 Alt VBR_I V over C at 12-1

Table 1 - Volume to Capacity Ratio - Based on Midday Peaks

Intersection	Direction of Traffic Flow	Vehicles Per Hour (VPH) Approach Volumes	Vehicles Per Hour (VPH) Existing Capacity	Volume / Capacity (V/C)	Vehicles Per Hour (VPH) Approach Volumes	Vehicles Per Hour (VPH) Construction Capacity (2 Lanes Closed)	Volume / Capacity (V/C)
1 Liliha with Vineyard Blvd.	EB	863	2778	0.31	863	1389	0.62
2 Vineyard with Nuuanu	EB	714	2778	0.26	714	1389	0.51

Note 1:

The Department of Transportation Services did not have traffic volume counts for all intersections considered.
The Data used in the above shaded boxes represents data which was interpolated from adjacent intersections.

2 Alt VPB_II V over C at 12-1

Table 1 - Volume to Capacity Ratio - Based on Midday Peaks

Intersection	Direction of Traffic Flow	Vehicles Per Hour (VPH) Approach Volumes	Vehicles Per Hour (VPH) Existing Capacity	Volume / Capacity (V/C)	Vehicles Per Hour (VPH) Approach Volumes	Vehicles Per Hour (VPH) Construction Capacity (2 Lanes Closed)	Volume / Capacity (V/C)
1 Vineyard with Nuuanu	EB	714	2778	0.26	714	1389	0.51
2 Vineyard with Bishop / (Pali)	EB	1032	2778	0.37	1032	1389	0.74
3 Vineyard with Queen Emma	EB	1063	2778	0.38	1063	1389	0.77
4 Vineyard with Punchbowl	EB	1094	2778	0.39	1094	1389	0.79

Note 1:

The Department of Transportation Services did not have traffic volume counts for all intersections considered.
The Data used in the above shaded boxes represents data which was interpolated from adjacent intersections.

3 BSR_III V over C at 12-1

Table 1 - Volume to Capacity Ratio - Based on Midday Peaks

		Vehicles Per Hour (VPH)			Vehicles Per Hour (VPH)		
Intersection	Direction of Traffic Flow	Approach Volumes	Existing Capacity	Volume / Capacity (V/C)	Approach Volumes	Construction Capacity (2 Lanes Closed)	Volume / Capacity (V/C)
1 Beretania with Alapai (South)	WB	1886	3472	0.54	1886	2083	0.91
2 Beretania with Ward Avenue	WB	1957	3472	0.56	1957	2083	0.94
3 Beretania with Victoria	NB	424	1389	0.31	424	694	0.61
4 Beretania with Victoria	SB	414	1389	0.30	414	694	0.60
5 Beretania with Victoria	WB	1639	3472	0.47	1639	2083	0.79
6 King with Victoria	SB	332	1389	0.24	332	694	0.48
7 King with Victoria	EB	2418	4167	0.58	2418	2778	0.87
8 King with Pensacola	EB	1801	4167	0.43	1801	2778	0.65
9 King with Piikoi	EB	2104	4167	0.50	2104	2778	0.76
10 King with Keeaumoku	EB	2252	4167	0.54	2252	2778	0.81
11 King with Kalakaua Avenue	EB	2400	4167	0.58	2400	2778	0.86
12 King with Punahou	EB	1672	4167	0.40	1672	2778	0.60
13 King with Mccully	EB	1857	4167	0.45	1857	2778	0.67
14 King with Isenberg	EB	1734	4167	0.42	1734	2778	0.62

Note 1:

The Department of Transportation Services did not have traffic volume counts for all intersections considered.
The Data used in the above shaded boxes represents data which was interpolated from adjacent intersections.

4 CUD_IV V over C at 12-1

Table 1 - Volume to Capacity Ratio - Based on Midday Peaks

Intersection	Direction of Traffic Flow	Vehicles Per Hour (VPH) Approach Volumes	Existing Capacity	Volume / Capacity (V/C)	Vehicles Per Hour (VPH) Approach Volumes	Construction Capacity (2 Lanes Closed)	Volume / Capacity (V/C)
1 Dole with University Avenue	NB	750	3472	0.22	750	2083	0.36
2 Dole with University Avenue	EB	565	1389	0.41	565	694	0.81
3 Dole with University Avenue	WB	221	1389	0.16	221	694	0.32
4 Dole with East-West	EB	582	1389	0.42	582	694	0.84
5 Dole with East-West	WB	311	1389	0.22	311	694	0.45

Note 1:

The Department of Transportation Services did not have traffic volume counts for all intersections considered.
The Data used in the above shaded boxes represents data which was interpolated from adjacent intersections.

Appendix F - Correspondence

Marc M. Siah & Associates, Inc.
Consulting Civil • Structural • Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

001092
PE NOV 3 2000

October 30, 2000

Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843
Attn.: Iris Oda, Planning & Engineering Division

LOG NO: 26419
DOC NO: 0010EJ19

Dear Mr. Jamile:

SUBJECT: Chapter 6E-8 Historic Preservation Review –Draft Environmental Assessment for the Honolulu 42-inch and 24-inch Transmission Mains
Honolulu, Kona, Hawaii
TMK: various

Thank you for the opportunity to comment on the DEA for the Honolulu 42-inch and 24-inch transmission main project. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was made of the project areas. We realize that our comments are late and have surpassed the 30-day comment period. It is our understanding however, that the Final EA is not yet complete. Additionally, we have recently received a request for comment on the Phase III (Liliha to Waahila Reservoir) portion of this project and will be providing a copy of those comments separately.

The BWS proposes to install approximately 23,000 linear feet of 42-inch water line from the intersection of Liliha Street and Vineyard Boulevard to the Waahila 180' Reservoir to increase the transmission capacity and flow across Honolulu. Also included in this action is the construction of a new 60 million-gallon per day pump station at the existing BWS facility near Beretania and Alapai Street. According to the DEA, the preferred route will start at the intersection of Liliha and Vineyard, run along Vineyard and Lusitania to Lisbon, *makai* on Lisbon where it continues along Beretania to Victoria. At Victoria the route turns *makai* to King Street, proceeds along King to University Avenue, turns *mauka* on University to Dole and continues along Dole to the Waahila 180' Reservoir. The BWS may opt to downsize the transmission main to a 24-inch line from the Isenberg and King Street intersection to the Waahila 180' Reservoir. If that option is undertaken, then an additional 24-inch main may be installed from the Waahila 180' Reservoir along Dole Street and St. Louis Drive to Wailalae Avenue.

Chapter 2.1.7 (Historic/Archaeological Features) of the DEA summarizes the types of historic sites that are present in the general area of the project, including Historic Districts, fishponds, habitation, and agricultural and burial sites. The preferred route of the transmission line will not cross through any Historic District and there are no surface historic sites within the transmission route. However, historic structures, such as the Academy of Arts, Thomas Square and Linekona School, are located adjacent to the corridor.

The DEA also identifies an ancient fishpond located on University Avenue *mauka* of King Street. The fishpond was recorded on a Hawaii Government Survey Map in 1881 (Reg. Map No. 1398); no other information is on file for this site. In addition to the information provided in the DEA, SHPD files

have identified buried cultural deposits from the pre-contact period (human burials) and early historic periods along the proposed corridor in the vicinity of Vineyard Boulevard and Queen Emma Street. Human skeletal remains were found at the corner of Queen Emma and Old Vineyard approximately 1 meter (c. 3-ft) below surface during the development of the Queen Emma housing project. A historic bottle dump associated with the old soda works was identified during excavation at the Texaco station on Vineyard between Queen Emma and Punchbowl streets.

Human skeletal remains have been recorded along Dole Street in front of Kanewai Park. At least 18 individuals, dating to the 15th century were unearthed in 1990 during trenching for a water main in this area. Between 1992 and 1994 archaeological data recovery excavations were conducted at the Kapapa Lo`i `O Kanewai and evidence of canals and taro pollen indicate that irrigated pondfields were present in the area during pre-contact and/or post contact times.

In the case of water line installations within active road corridors it is often impractical to conduct archaeological survey work ahead of time, at least in a fashion that will thoroughly document historic sites and allow for mitigation planning. A more practical approach may be an agreement which calls for on-site monitoring in areas where sites are likely to be found (Dole Street in the vicinity of the Center for Hawaiian Studies and Kanewai Field), on-call monitoring in areas where cultural remains are not likely to be found (within the proposed route between Liliha and University Avenue), and archeological survey in the areas where subsurface deposits are known to exist (fishpond deposits at University and King and any irrigated kalo field areas). Archaeological survey in open trenches within these areas will enable the archaeologist to document and recover historic remains visible in the trenches (including paleoenvironmental soils for pollen study and radiocarbon dating). The DEA includes in Appendix B, an archaeological monitoring plan for this project. The plan however, was written prior to selection of the proposed corridor and therefore includes recommendations that would be inapplicable to this project. We believe that a revised monitoring plan should be submitted to SHPD for review and acceptance. A burial treatment plan should also be in place for any burials which may be inadvertently discovered during the course of this project.

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

Aloha,

TIMOTHY E. JOHNS
State Historic Preservation Officer

EJ:jk

c: Mr. Kelly J. Chuck, Marc M. Siah & Associates, Inc, 810 Richards Street, Suite 888, Honolulu, HI 96813
Kai Markell, SHPD Burials Sites Program
Oahu Island Burial Council

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

February 12, 2001

Mr. Gilbert Coloma-Agaran, Chairperson
Board of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Coloma-Agaran:

Subject: Your Letter of October 30, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the Draft Environmental Assessment (EA) for our proposed transmission main project.

We have the following responses to your concerns:

1. The alternate Coyne Street/University Avenue/Dole Street alignment is the preferred alignment to avoid the busy University Avenue /King Street/Beretania Street intersection to minimize traffic impacts. In addition, the portion of the proposed main from Isenberg Street through Dole Street to the Waahila Reservoir will be revised to 24-inches. The alternative alignment is not anticipated to cross through any Historic Districts or surface historic sites but will cross the historic fishpond on University Avenue, mauka of King Street which has been identified in the Draft EA.

2. The Final EA will include a discussion regarding the recorded burial cultural deposits in the vicinity of Vineyard Boulevard, Queen Emma Street, Punchbowl Street, and Kanewai Park.

3. We agree that it is often impractical to conduct archeological survey work in roadways ahead of time to thoroughly document historic sites and allow for mitigation planning. Therefore, a more practical approach would be on-site monitoring, performed in areas where sites are likely to be found (Dole Street in the vicinity of the Center for Hawaiian Studies and Kanewai Field) and on-call monitoring in areas where cultural remains are not likely to be found (within the proposed route between Liliha and University Avenue). In addition, an archaeological survey will be conducted in the areas where subsurface deposits are known to exist (fishpond deposits at University and King Street and any kalo field areas) during actual trenching activities. We acknowledge that the survey of the open trenches would enable the archaeologist to document and recover historic remains visible in the trenches, inclusive of paleoenvironmental soils for pollen study and radiocarbon dating. A revised monitoring plan reflecting the new preferred alignment and burial treatment plan will be revised and submitted for your review and acceptance prior to construction activities in the area of concern. We acknowledge that the burial treatment plan should be in place for any burials, which may be inadvertently discovered during the course of this project.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

ARCHAEOLOGICAL CONSULTANTS
OF THE PACIFIC, INC.

JOSEPH KENNEDY
Principal Archaeologist

January 12, 2001

Sara Collins, Ph.D., Oahu Island Archaeologist
Department of Land and Natural Resources,
State Historic Preservation Division
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Dr. Collins:

Please find enclosed ACP's plan concerning, "A Revised Archaeological Monitoring Plan for a Proposed Waterline located in Honolulu, Island of Oahu", which we submit for your review. This is the revised version depicting the waterline corridor as well as the two optional routes.

We would like to thank you in advance for your review of this document. If you have any questions, please feel free to phone or fax.

Sincerely,

Debora Driscoll
ACP Office Manager

cc: Mr. Kelly Chuck

59-824 Pupukea Road • Haleiwa, Hawaii 96712
Telephone: (808) 638-7442 • Fax (808) 638-0703
E-mail: ArchaeologyPacific@mail.com *or* Kennedyj@aloha.net
Inventory Surveys • Data Recovery Studies • Monitoring • Burial Treatment Plans • Historical Studies
Qualified Expert Witness Testimony • Preservation Plans • NAGPRA Studies • Traditional Cultural Property Studies

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

January 30, 2001

Ms. Debora Driscoll, Office Manager
Archaeological Consultants of the Pacific, Inc.
59-624 Pupukea Road
Haleiwa, Hawaii 96712

LOG NO: 26905
DOC NO: 0101SC11

Dear Ms. Driscoll:

SUBJECT: Chapter 6E-8 Historic Preservation Review of a Draft Archaeological Monitoring Plan for a Proposed Waterline Located in Honolulu Honolulu and Waikiki, O`ahu
TMK: 1 & 2

Thank you for the opportunity to review a draft archaeological monitoring plan for the proposed installation of a waterline in Honolulu (An Archaeological Monitoring Plan for a Proposed Waterline Located in Honolulu, Island of O`ahu, January 2001. 2001. Ostroff et al:). We provide the following comments.

The plan is acceptable with one clarification. If irrigated taro soils are uncovered, pollen and charcoal studies of the soils shall be done (by individuals with this expertise) to attempt to document and date paleoenvironmental changes associated with the construction of the taro fields.

If the proposed waterline installation is carried with archaeological monitoring as stipulated in the subject plan, then we believe that the planned action will have "no adverse effect" on significant historic sites.

Should you have any questions, please feel free to contact Sara Collins at 692-8026.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

SC:jk

c: Mr. A. Van Horn Diamond, Chair, O`ahu Island Burial Council
Mr. Kala`au Wahilani, Burial Sites Program

at the Department of Land and Natural Resources, State Historic Preservation Division and the State Burials Program will be notified and their recommendations implemented.

In the event that human remains or any other historically significant properties are inadvertently discovered during the "on call monitoring" portion of the project, an archaeologist should be notified and called to the site before construction efforts continue. Research on the watermain alignment reveals that two inadvertent burials were encountered at the corner of Queen Emma Street and Old Vineyard (Han 1980). Also, a historic bottle dump (associated with the old soda works) was encountered on Vineyard Boulevard between Queen Emma and Punchbowl Streets and the Bishop Museum was called in. Therefore, there is a distinct possibility that significant traditional and/or historic sites could be encountered.

Because the waterline will be underground, there will be no adverse effect on the historic buildings that are located along the corridor. These include the Academy of Arts, Thomas Square and the Linekona School. The proposed location for the booster station is now at the existing BWS facility near Beretania and Alapai Streets. There should be no impact on traditional or historic sites from the construction of the booster station.

The proposed route for the waterline will traverse known fishponds, therefore archaeological investigations, in the form of an inventory survey, should be conducted during the trenching of the watermain. These investigations should consist of core samples, wherein an analysis of the stratigraphy may be made in addition to analyses of faunal and palynological remains as well as diatom and radiocarbon samples.

HAS BEEN REVISED

Section 5: Methodology of Archaeological Monitoring

Archaeological monitoring of the subject property will be under the supervision of the Principle Investigator Joseph Kennedy, M.A.. Prior to the commencement of subsurface construction activities, the monitoring archaeologist will conduct a coordination meeting with the construction crew in order to brief the team on the expected finds and plans for monitoring. In the event that significant historic sites are encountered, the monitoring archaeologist has the authority to halt construction in the immediate vicinity of the find until the proper authorities are notified and/or proper mitigation measures are undertaken. Construction activities may shift to other areas in this event. The treatment of possible sites encountered is dependent upon the feature type. If human burials are encountered they will be considered inadvertent finds and the proper personnel at DLNR-SHPD will be notified and their recommendations implemented. In the event that significant archaeological deposits are encountered, archaeological salvage operations are recommended.

During archaeological monitoring, the field monitor will visually inspect all excavations and rake through excavated materials in order to identify any possible cultural materials. Photographs and profiles of the stratigraphy encountered and soil samples from each strata identified will be taken. All cultural materials of possible significance will be collected, bagged and labeled with the appropriated excavation information. All samples and field notes will be on file at ACP's office located at 59-624 Pupukea Road, Haleiwa, Hawaii.

Laboratory work will include the identification of vertebrate faunal remains, invertebrate faunal remains, culturally derived floral remains and artifactual materials. The results of these identifications will be tabulated for presentation and a complete report concerning the monitoring activities, including possible finds, will be prepared. Radiocarbon dating and pollen analysis will be performed when necessary. A final report will be prepared within 90 days of the completion of fieldwork. All materials collected will be curated at ACP's offices located at the address stated above.

at the Department of Land and Natural Resources, State Historic Preservation Division and the State Burials Program will be notified and their recommendations implemented.

In the event that human remains or any other historically significant properties are inadvertently discovered during the "on call monitoring" portion of the project, an archaeologist should be notified and called to the site before construction efforts continue. Research on the waterinain alignment reveals that two inadvertent burials were encountered at the corner of Queen Emma Street and Old Vineyard (Han 1980). Also, a historic bottle dump (associated with the old soda works) was encountered on Vineyard Boulevard between Queen Emma and Punchbowl Streets and the Bishop Museum was called in. Therefore, there is a distinct possibility that significant traditional and/or historic sites could be encountered.

Because the waterline will be underground, there will be no adverse effect on the historic buildings that are located along the corridor. These include the Academy of Arts, Thomas Square and the Linekona School. The proposed location for the booster station is now at the existing BWS facility near Beretania and Alapai Streets. There should be no impact on traditional or historic sites from the construction of the booster station.

The proposed route for the waterline will traverse known fishponds, therefore archaeological investigations, in the form of an inventory survey, should be conducted during the trenching of the watermain. These investigations should consist of core samples, wherein an analysis of the stratigraphy may be made in addition to analyses of faunal and palynological remains as well as diatom and radiocarbon samples.

The waterline will cross the documented Kapapa Lo`i `o Kanewai agricultural area (Liston and Burtchard 1996) along Dole Street. This will occur during the on-site monitoring process. If irrigated taro soils are encountered during the trenching process, pollen and charcoal studies of the soils shall be done by qualified individuals. This information will allow us to document and date paleoenvironmental changes associated with the construction of the taro fields. If irrigated taro soils are encountered anywhere along the route, samples will be taken.

Section 5: Methodology of Archaeological Monitoring

Archaeological monitoring of the subject property will be under the supervision of the Principle Investigator Joseph Kennedy, M.A.. Prior to the commencement of subsurface construction activities, the monitoring archaeologist will conduct a coordination meeting with the construction crew in order to brief the team on the expected finds and plans for monitoring. In the event that significant historic sites are encountered, the monitoring archaeologist has the authority to halt construction in the immediate vicinity of the find until the proper authorities are notified and/or proper mitigation measures are undertaken. Construction activities may shift to other areas in

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AS IN APPENDIX B

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During archaeological monitoring, the field monitor will visually inspect all excavations and rake through excavated materials in order to identify any possible cultural materials. Photographs and profiles of the stratigraphy encountered and soil samples from each strata identified will be taken. All cultural materials of possible significance will be collected, bagged and labeled with the appropriated excavation information. All samples and field notes will be on file at ACP's office located at 59-624 Pupukea Road, Haleiwa, Hawaii.

Laboratory work will include the identification of vertebrate faunal remains, invertebrate faunal remains, culturally derived floral remains and artifactual materials. The results of these identifications will be tabulated for presentation and a complete report concerning the monitoring activities, including possible finds, will be prepared. Radiocarbon dating and pollen analysis will be performed when necessary. A final report will be prepared within 90 days of the completion of fieldwork. All materials collected will be curated at ACP's offices located at the address stated above.

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AS IN APPENDIX B

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

July 12, 2000

TPD6/00-02780R

MEMORANDUM

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

ATTN: IRIS ODA, PLANNING AND ENGINEERING DIVISION

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: HONOLULU 42-IN. AND 24-IN. TRANSMISSION MAINS

In response to the June 9, 2000 letter from Marc M. Siah & Associates, Inc., the draft environmental assessment (EA) for the subject project was reviewed. The following comments are the result of this review:

1. The traffic analysis discussed in Section 3.2.3 of the draft EA appears to be too general. The method of determining the traffic volume capacity is questionable and the capacity may be overstated. Therefore, the volume to capacity ratio used in the analysis may not accurately represent the construction-related traffic impacts.

2. It is unclear whether the numbers in Appendix D - Traffic Volume to Capacity Ratio Data are for one or two lane closures. Since the discussion of traffic mitigation measures on Page 3-7 makes reference to two lane closures, the analysis should address those conditions.

3. One of the transportation improvements being proposed by the Primary Corridor Transportation Project is an In-Town Bus Rapid Transit (BRT) System. The alignment for the In-Town BRT system includes a segment on University Avenue from Kapiolani Boulevard to Sinclair Circle at the University of Hawaii. Close coordination of this project and the subject project will be required.

Should you have any questions regarding these comments, please call Faith Miyamoto at Local 6976.

CHERYL D. SOON

cc: Mr. Kelly Chuck
Marc M. Siah & Associates, Inc.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

February 2, 2001

TO: MS. CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: FOR CLIFFORD S. JAMILE

SUBJECT: YOUR MEMORANDUM OF JULY 12, 2000 ON THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HONOLULU 42-INCH AND 24-INCH TRANSMISSION MAINS, HONOLULU, OAHU, HAWAII

Thank you for reviewing the environmental document for our proposed project. We have the following responses to your comments:

1. The traffic analysis discussed in the Draft Environmental Assessment was based on the method in the Highway Capacity Manual, which utilized the traffic data compiled by the City to determine traffic volume and capacity. While this method may provide general results, we feel it is adequate since traffic is one of the 26 different criteria, shown in Table 7-2, used to evaluate the most feasible transmission main route. As the design progresses, traffic control plans will be submitted to the Department of Transportation Services identifying mitigative measures that may include adjusting work hours along with other standard best management practices to minimize impacts to traffic.

2. The numbers in Appendix D – Traffic Volume to Capacity Ratio Data refer to the closure of one lane of traffic. The Final Environmental Assessment (FEA) will be revised accordingly to include "up to two lanes of roadway are anticipated to be closed to traffic to allow space for construction access and activity." The effects of closing two lanes will be evaluated and the results will be included in the FEA.

3. The Board of Water Supply will coordinate construction scheduling with the construction of the In-Town Bus Rapid Transit System. Construction of the water main is tentatively scheduled for year 2004 in the University of Hawaii area; however, this schedule is subject to change.

If you have any questions, please contact Iris Oda at 527-5245.

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

PHONE (808) 594-1888

FAX (808) 594-1865

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

May 17, 2000

Ms. Kelly J. Chuck, P.E.
Project Manager
Marc M. Siah & Associates, Inc.
810 Richards Street, Suite 888
Honolulu, HI 96813

PC# 100

Subject: Honolulu 42-Inch and 24-Inch Transmission Mains;
Board of Water Supply; Liliha Street and Vineyard Boulevard

Dear Ms. Chuck,

Thank you for the opportunity to provide comments and concerns in preparation for your environmental assessment. As with any project, the Office of Hawaiian Affairs is concerned that subsurface archaeological, historical and cultural remains may be impacted. The proposal indicates that this project will avoid historical districts and archaeological sites. For this reason, the Office of Hawaiian Affairs has no concerns at this time. If you have any questions, please contact Ken R. Salva Cruz, Policy Analyst, at 594-1847.

Sincerely,

Colin C. Kippen, Jr.
Deputy Administrator

cc: Board of Trustees
OEQC

PHONE (808) 594-1888

FAX (808) 594-1865

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

RECEIVED JUN 29 2000

June 19, 2000

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawai'i 96843
Attn: Ms. Iris Oda
Planning and Engineering Division

EIS# 397

Subject: Draft Environmental Assessment for the Honolulu 42-inch and 24-inch Transmission Mains, Honolulu, Oahu, Hawai'i

Dear Mr. Jamile,

Thank you for the opportunity to respond to the above-referenced draft. As with any project, the Office of Hawaiian Affairs is concerned that subsurface archaeological, historical and cultural remains may be impacted. We note the archaeological monitoring plan prepared by Archaeological Consultants of the Pacific, Inc. and their recommendation of an archaeological investigation prior to construction activities adjacent to the fishpond located on University Avenue. OHA would like to review these findings when the investigation is completed. Until then, we have no further comments. If you have any questions, please contact Ken R. Salva Cruz, Policy Analyst, at 594-1847.

Sincerely,

Colin C. Kippen, Jr.
Deputy Administrator

cc: Board of Trustees
Marc M. Siah & Associates, Inc.
OEQC
File

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

January 4, 2001

Mr. Colin C. Kippen, Jr.
Deputy Administrator
Office of Hawaiian Affairs
State of Hawaii
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Kippen:

Subject: Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu

Thank you for your letter regarding the Draft Environmental Assessment (EA) for the proposed transmission main project.

We provide the following response to your concerns:

1. We acknowledge your reference to the archaeological monitoring plan for the proposed project and the recommendation for an archaeological investigation of the fishponds prior to construction activities within University Avenue. However, due to traffic constraints, it is more practical to perform the archaeological investigation during construction activities. We have conferred with the State Historic Preservation Division (SHPD) and have received concurrence that the archaeological monitoring and investigation may be performed during the actual trenching activities for the transmission main. The archaeological survey of the open trenches within the fishpond area would enable the archaeologist to document and recover historic remains visible in the trenches, inclusive of paleoenvironmental soils for pollen study and radiocarbon dating. This procedure will be reflected in the Final EA and in the construction plan notes.

2. If any burials are inadvertently found, they will be treated in accordance with applicable laws (i.e., Chapter 6E-43.6) and a burial treatment plan will be developed at that time. The burial treatment plan will include consultation with appropriate parties. Should any archaeological, cultural or historic sites be found during construction, all work in the vicinity of the site will cease and the SHPD will be notified immediately.

3. The archaeological survey of the historic fishpond area will be forwarded to your department upon completion.

If you have any questions, please contact Iris Oda at 527-5235.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

FO:JS
cc: Eng.
B. Usagawa

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BD OF WATER SUPPLY
Jun 20 9 59 AM '00

PLN-42/1

DOWNTOWN NEIGHBORHOOD BOARD NO. 13

c/o NEIGHBORHOOD COMMISSION • CITY HALL, ROOM 400 • HONOLULU, HAWAII 96813

June 19, 2000

Mr. Clifford S. Jamile, Manager and Chief Engineer
Board of Water Supply
630 S. Beretania Street
Honolulu, HI 96843
fax: 533-2714

Attention: Ms. Iris Oda, Planning and Engineering Division

Re: Draft Environmental Assessment for the Honolulu 42-inch and 24-inch Transmission Mains, Honolulu

Dear Mr. Jamile:

Thank you for the opportunity to comment on the Environmental Assessment. The Downtown Neighborhood Board has reviewed the document and the community heard a presentation at the June 1, 2000 Board meeting. The following concerns and questions were raised at that meeting. Inasmuch as you anticipate receiving a neg dec, we thought it best to communicate those comments in this letter.

1. In response to a question, we were assured that the project will not disrupt current water service.

2. Much of the area within the Board's confines is zoned business, although it has a high density of residents--both low rise and high rise condos. There was concern about noise from night construction. Often we are told that there will not be construction in residential areas at certain times of the day. However, that usually means areas zoned residential. Thus, there is no guarantee that many of our residents will suffer from nighttime construction. We were told that work is being done to identify the location of residences that would be affected by night noise.

3. The Environmental Assessment only includes monetary costs. It was suggested that the BWS quantify the opportunity costs as well as benefits and include them in the study, then we can use a cost-benefit analysis to justify the spending.

4. The project is slated for a 2002 start date. Given the multiple existing roadwork, will the public have a break before this work begins? How much of a break might we have?

5. Have major new construction projects, other utilities, restoration, renovations, and vision plans been factored into this time line?

6. Is there an estimated time line by phases with and without the booster pump station construction or the pump connection? Specifically, are there time line estimations for Phases 1 and 2 which directly affect the Downtown Neighborhood Board's area?

7. If work is done concurrently from both ends of the project, will it shorten the time line and, if so, by how much time?

8. Regarding the pipe support at stream crossings,are you planning to use one method of support over another? Are you planning to use what is appropriate to the bridge construction? Have stress and additional weight been factored into this to account for the life expectancy of the bridge as a safety factor?

9. Regarding the Booster Pump Station, the draft indicates two options. One to build within the existing BWS and the other as a new independent building on the existing parking lot. Given the size of the existing building it appears that it could house both the offices and the pump station. Isn't it more costly to renovate and rebuild within an existing site than to build anew? Would the facility not inherit past problems with infrastructure, etc. ? Which is the BWS's preference? Is the cost of this above and beyond the estimated cost of $30 million?

10. Vineyard Boulevard is the only access to Foster Botanical Gardens. How long will construction be in this area? Where is the pipe to be

laid in relation to their street access? What does BWS propose with regards to routing as well as guiding traffic so they do not lose revenue? Has a traffic study been done?

11. Vineyard Boulevard & Lusitana Street are key traffic corridors for Queens Medical Center, the new Queens EMS, Queens Physician's Buildings 1 and 2, employee parking for BWS, Honolulu Medical Group, as well as residences and condos in that area. What safety measures are proposed for this area?

12. How does BWS propose to assist and ease the heavy traffic? Has a counterfoil study been conducted? Again, has a traffic study been done?

13. Details of the estimated cost show the use of iron and concrete pipes. Existing pipes are currently made of what materials? The cost includes the use of both concrete and iron. Therefore does it mean that both types will be used? It was suggested by one member that BWS use concrete pipes for the following reasons:

- Concrete pipe is locally made. Its use will benefit our economy.
- Concrete is a natural resource.
- As a natural material, it has no adverse health effects.
- Iron has multiple adverse health effects which will ultimately cause medical ramifications throughout our community.

We look forward to additional presentations as the planning continues and the project is better defined. Again, thank you for keeping us informed and asking for our input.

Sincerely,

Lynne Matusow
Chair

cc: Mr. Kelly J. Chuck, Mark M. Siah & Associates, fax. 528-7180
OEQC, fax 586-4186

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

February 13, 2001

Ms. Lynne Matusow, Chair
Downtown Neighborhood Board No. 13
City and County of Honolulu
c/o Neighborhood Commission
City Hall, Room 400
Honolulu, Hawaii 96813

Dear Ms. Matusow:

Subject: Your Letter of June 19, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for our proposed project. We have the following response to your comments:

1. **In response to a question, we were assured that the project will not disrupt current water service.**

   The transmission mains will have to be connected to the existing system and as a result will require planned, short duration interruptions of a limited amount of water services. The connections will probably occur during the lowest demand periods at night.

2. **Much of the area within the Board's confines is zoned business, although it has a high density of residents – both low rise and high rise condos. There was concern about noise from night construction. Often we are told that there will not be construction in residential areas at certain times of the day. However, that usually means areas zoned residential. Thus, there is no guarantee that many of our residents will suffer from nighttime construction. We were told that work is being done to identify the location of residences that would be affected by night noise.**

   We realize that there are many residential areas along the project route that would be affected by noise from any night construction that may be required. This will be considered for any night work required by the State Department of Transportation (DOT) or City Department of Transportation Services (DTS) to reduce disruption to daytime traffic flow and allow access to businesses in heavily traveled areas. The Board of Water Supply (BWS) requires all construction work to comply with State Department of Health noise limits, and any excessive noise complaints from night construction will require the contractor to adjust their working hours for the activity generating the excessive noise.

3. **It was suggested that the Environmental Assessment (EA) quantify the opportunity-costs as well as benefits and include them in the study, then we can use a cost-benefit analysis to justify the spending.**

   The major benefits of providing a parallel transmission main through Honolulu, the highest demand area of Oahu, are system reliability, public health and safety, and fire protection. Considering the dense population, age of the existing 42-inch trunk main (50 years old) and the lack of adequate storage in Honolulu, the parallel main is absolutely necessary. A cost-benefit analysis to quantify opportunity costs and benefits could have been conducted if the costs and benefits were considered marginal. However, for the stated reasons, this project is well justified.

4. **The project is slated for a 2002 start date. Given the multiple existing roadwork, will the public have a break before this work begins? How much of a break might we have?**

   The estimated project start date for the Vineyard Boulevard segment is January 2002 which will be after the completion of State DOT resurfacing work on the H-1 Freeway in the urban Honolulu area. The State DOT estimates completion of their work by October 2001. The remaining segments east of our Beretania pumping station have been deferred and a new time schedule has not been determined.

5. **Have major new construction projects, other utilities, restoration, renovations, and vision plans been factored into this timeline?**

   The scheduling of this project is being coordinated with the roadwork coordinating committee composed of the State, City and private utilities. The H-1 Freeway work by the State DOT and other BWS water main replacement projects in metropolitan Honolulu have been factored into the construction scheduling. The affected neighborhood boards and government planning agencies have been notified of this project and the tentative construction schedule.

Is there an estimated time line by phases with and without the booster pump station construction or the pump connection? Specifically, are there time line estimations for Phases 1 and 2, which directly affect the Downtown Neighborhood Board's area?

The current estimated construction schedule is as follows:

Phase	Estimated Construction Schedule		Project Limits
	Start	End	
I	January 2002	January 2004	Along Vineyard Boulevard from Liliha Street to Nuuanu Avenue
II	January 2002	January 2004	Along Vineyard Boulevard from Nuuanu Avenue to Punchbowl Street
III	Beyond 2006		Along Punchbowl Street and Beretania Street to Victoria, along Victoria and then King Street to Keeaumoku Street
IV	Beyond 2006		Along King Street from Keeaumoku Street to Wiliwili Street
V	Beyond 2006		Along King Street from Wiliwili Street to Isenberg Street
VI	Beyond 2006		Along Isenberg from King Street to Coyne Street, along Coyne Street then University Avenue to Dole Street, then along Dole Street to the Waahila 180 Reservoir
Booster Station	December 2003	December 2005	Beretania Booster Station within the BWS Beretania Complex

6. **If work is done concurrently from both ends of the project, will it shorten the time line and, if so, by how much time?**

   The overall project construction time may be reduced by as much as two years if work occurs concurrently from both ends of the project and with proper coordination between adjacent phases. However, the least disruptive construction schedule, described in Item 5, avoids other projects and limits the project to only one construction area on each street.

Regarding the pipe support at stream crossings, are you planning to use one method of support over another? Are you planning to use what is appropriate to the bridge construction? Have stress and additional weight been factored into this to account for the life expectancy of the bridge as a safety factor?

The method of stream crossings will be determined at the time of design. The preferred method would be to minimize impacts to the stream and streambed. Due to the size and weight of the 42-inch main, it will not be attached to any of the existing bridges. Either a separate bridge structure will be constructed or the main will be installed under the stream.

Regarding the Booster Pump Station, the draft indicates two options. One to build within the existing BWS and the other as a new independent building on the existing parking lot. Given the size of the existing building it appears that it could house both the offices and the pump station. Isn't it more costly to renovate and rebuild within an existing site than to build anew? Would the facility not inherit past problems with infrastructure, etc.? Which is the BWS' preference? Is the cost of this above and beyond the estimated cost of $30 million?

The actual location and configuration of the booster pump station within the BWS complex will be determined upon completion of the Beretania Complex Facility Master Plan. The master plan is currently evaluating the feasibility of redeveloping the entire BWS Beretania complex and accommodating the proposed booster station. The estimated construction cost of the booster pump station is $1.2 million, and is in addition to the $30 million estimated for pipeline construction between Liliha and Waahila as indicated on page 2 of the Summary, Section F.

Vineyard Boulevard is the only access to Foster Botanical Gardens. How long will construction be in this area? Where is the pipe to be laid in relation to their street access? What does BWS propose with regards to routing as well as guiding traffic so they do not lose revenue? Has a traffic study been done?

Construction in the Foster Botanical Garden area will last approximately one month and along the east-bound lanes of Vineyard Boulevard *allowing continuous access to the Garden.* Approved traffic control measures will include using flagmen and police officers in designated work areas to guide traffic and ensure access to driveways. A traffic study was done (Section 3.2.3) which indicates that Vineyard Boulevard has enough capacity to accommodate construction (i.e. temporary lane closures) in the area.

10. **Vineyard Boulevard and Lusitana Street are key traffic corridors for Queens Medical Center, the new Queens EMS, Queens Physician's Buildings 1 and 2, employee parking for BWS, Honolulu Medical Group, as well as residences and condos in the area. What safety measures are proposed for this area?**

    The BWS will continue to work closely with the staff of Queen's Medical Center to minimize any disruption to health care emergency services and parking. As a result, we are evaluating the Punchbowl Street route as an alternative to Lusitana Street. The standard safety measures will include using flagmen and police officers in designated work areas as required by DTS.

11. **How does BWS propose to assist and ease the heavy traffic? Has a contra flow study been conducted? Again, has a traffic study been done?**

    As discussed in Item 2, night work in non-residential areas may occur in heavily traveled areas to reduce disruption to traffic flow and access to businesses. During design and construction, we will make every effort to minimize the impacts and allow continuous access to all businesses and residents. Traffic mitigation measures indicated in Section 3.2.3 of the Draft Environmental Assessment for the project will include the following:

    a) The contractor will schedule daytime work activity between the hours of 8:30 a.m. and 3:00 p.m., Monday through Friday, excluding state holidays. This construction schedule will help to minimize conflicts with morning and afternoon peak traffic periods.

    b) During construction, up to two lanes of traffic may be out of service for the roadway segment in the vicinity of the construction.

    c) The contractor's heavy truck activity will be scheduled to avoid morning and afternoon peak traffic periods.

    d) Adequate access to driveways, businesses, residents and public streets shall be provided.

    A route feasibility study and traffic analysis have indicated that the existing lanes have enough capacity to accommodate temporary lane closures along the route with approved traffic control plans and mitigation measures. Therefore, a contra flow study has not been conducted.

12. **Details of the estimated cost show the use of iron and concrete pipes. Existing pipes are currently made of what materials? The cost includes the use of both concrete and iron. Therefore does it mean that both types will be used? It was suggested by one member that BWS use locally made concrete pipes.**

    The existing 42-inch waterline is a cast iron pipe. Both ductile iron and concrete cylinder pipes are approved pipe materials that meet National Sanitary Foundation standards to assure safe and sanitary delivery of drinking water. The type of pipe to be installed will be the contractor's preference indicated in the lowest construction bid.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

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) 956-3980

July 12, 2000
EA: 001200

Mr. Barry Usagawa
City and County of Honolulu
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Honolulu 24-Inch and 42-Inch Transmission Mains
Draft Environmental Assessment
Honolulu, Oahu

Dear Mr. Usagawa:

The Honolulu Board of Water Supply (BWS) proposes to install approximately 23,000 linear feet of 42-inch water line from the intersection of Liliha Street and Vineyard Boulevard to the Waahila 180' Reservoir. The BWS maintains the option of downsizing a portion of the pipe to a 24-inch line. Also included in the project is the construction of a 60 million gallon per day pump station adjacent to the existing BWS facilities on Beretania Street. The purpose of the proposed action is to increase transmission capacity flow across the Honolulu Low West Water System. This will create redundancy and increase reliability to existing and planned development, and increase efficiency, thus lowering pumping costs and decreasing maintenance requirements.

This review was conducted with the assistance of Clyde Akita, Facilities Planning and Management; Wallace Gretz, Facilities Planning and Management; and Sherri Hiraoka, Environmental Center.

General Comments

We believe that this project is necessary to upgrade water transmission to the urban core of Honolulu. Considering the size and scope of the project however, we do not believe the full extent of the associated impacts can be adequately discussed in an Environmental Assessment (EA). Chapter 343 Hawaii Revised Statutes (HRS) requires that an Environmental Impact Statement (EIS) be prepared if a project may have significant impact. Construction of a 42-inch transmission line through some of the most heavily traveled sections of the city over a six year period has the potential for causing significant short term impacts. This EA represents a departure from the Board of Water Supply's usual procedure of preparing an EIS for major capital projects. The BWS for example, prepared an EIS for both the Kailua 272' and the Nanakuli 242' reservoir projects that have far smaller potential for causing significant impact. We believe that an Environmental Impact Statement should be prepared for this project.

EIS

The major difference between the EA and the EIS is the level of analysis conducted. The EIS delves far more deeply into each topic area than an EA. The discussion of alternatives for example, in the EA was rather brief and perfunctory. Alternatives such as tunneling or using an auger were not discussed. In an EIS they would have been, because the EIS rules require that "alternatives which could attain the objectives of the action regardless of cost [be discussed] in sufficient detail to explain why they were rejected" (Hawaii Administrative Rules 11-200-17 (f).

Another important difference is the consultation period. In the EA process, the rules suggest that key parties be contacted prior to preparing a draft document, while the EIS process requires a 30 day period in which interested parties can ask to be consulted. This usually broadens the scope of coverage in the EIS. Finally, the EIS has a longer review period of 45 days compared to the EA's 30 days.

This draft EA addressed a few topics well such as soil types, existing conditions, and historical/archeological features, yet lacked much useful data in others. The EA fails to adequately discuss the impacts to local businesses along the route, yet these are sure to be some of the most direct impacts. A listing of areas that could be more fully developed follows. We hope that these comments will be helpful in redrafting a more complete document.

Purpose

The purpose of the project is "to increase the capacity and hydraulic performance of the Honolulu Low West Water System and will enhance the Honolulu Board of Water Supply's capability to provide reliable potable water service to urban Honolulu." (page 1-1) This is a commendable intent, but further discussion on the need for the new and larger line would be helpful. The description of the proposed action in the Summary section of the draft EA states that there is "the possibility of downsizing the section approaching the Waahila 180' Reservoir to a 24-inch line" (page s-1). This would suggest that the engineering and planning for this project is incomplete. Additional information to establish need may include (but is not limited to) figures on current and foreseeable demand, current service capabilities, any records of past problems or failures in the system, and the level of service that is projected after the new line is implemented.

Stream Crossings

Four options of stream crossings are discussed on page 1-5. What criteria will be used in determining the optimal method for crossing a particular stream? Is there a preferred method? The EA would benefit from a discussion of each stream crossing and which method is ideal for each stream

Our reviewers were not confident about the claim that the option of hanging "the 42-inch pipe from the existing bridge...would eliminate the need for any special permits" (page 1-5). It would seem that such an action might reduce opening clearance or flow capacity under the bridge. Please confirm with the approving agency that a Stream Channel Alteration Permit would not be required.

Flood and Tsunami Hazard

The proposed pipeline crosses Makiki and Manoa Streams in floodway areas (page 2-8). What types of precautions will be taken to reduce the hazards associated with this both during and after construction?

Traffic

The entire route discussed is heavily trafficked. There are 4 schools (page 2-20) directly on the project route, 15 recreational facilities adjacent to the route, and 2 medical facilities adjacent to the route. Not including the other facilities in the area, this project may prove itself to be a traffic nightmare. What types of mitigation measures are planned to ease the traffic burden on motorists?

It is common knowledge that there are presently many other road construction activities being conducted on Oahu, both by the Department of Transportation and by the BWS. What other activities will be going on at the time of anticipated construction that may affect traffic flow in the area? Please indicate how this project relates to other current and/or future road and highway repairs.

The largest traffic problem on the UH Manoa campus occurs at the intersection of Dole Street and Lower Campus Road. This intersection is on the preferred pipeline route, yet it is not mentioned in the draft EA. Please include this heavily traversed intersection in your discussion of traffic impacts and analysis.

During the construction of this pipeline, a number of small businesses along the route will be adversely impacted by the construction occurring outside their shops. Many of the shops along King Street are small businesses. Have their owners been notified of the impending construction? What is the magnitude of the impacts these businesses will face during the long construction of the pipeline? This issue was not adequately discussed in the EA.

Historical/Archaeological Features

Archaeological Consultants of the Pacific, Inc. recommended that an investigation be conducted on the fishpond located on University Avenue prior to construction in the area. The draft EA indicates that "this investigation will occur as construction approaches this area" (page 3-4). We would suggest that the investigation be conducted as soon as possible. Such an investigation may uncover items of previously unknown significance and thus require the rerouting of the alignment. The project will not commence until January of 2002 (page 1-11). This allows for a lot of time during which this investigation could occur.

Community Facilities

The Kapapa Lo'i O Kanewai (Kanewai Cultural Garden) is a significant cultural site overseen by the University of Hawaii (UH) School of Hawaiian, Asian and Pacific Studies. It is located under and adjacent to the Manoa Stream/Dole Street bridge on the proposed pipeline route, and will be affected by the proposed project. Please include this site as one that will be affected by the transmission main implementation, and discuss any potential impacts and mitigation measures.

Also omitted from inclusion in the Community Facilities Map (Figure 2-10) is the UH Center for Hawaiian Studies across from the Waahila 180' Reservoir and the UH Waahila Ridge Faculty Housing, located adjacent to the reservoir. These facilities are on the proposed pipeline route and will be affected.

Alternatives to the Proposed Action

The Draft EA does not make any reference to the Oahu Integrated Resource Plan (IRP), which is a joint project between the BWS, and the City Departments of Environmental Services and Planning and Permitting. Considering that the IRP "was conceived to address the water needs, both present and future, of the eight District Planning (DP) areas on Oahu," (BWS website) it seems curious that no mention was made of implementing this plan prior to the development of this proposed transmission main. Was this new project subject to the IRP process?

One of our reviewers noted that on page 7-9, the EA states that "some of the factors that made the University Avenue/Dole Street route more feasible include lower construction costs due to the elimination of the 24-inch line." How does installing a 42-inch pipe instead of a 24-inch pipe lower construction cost?

The University/Dole Street route is preferred in part due to "routing away from residential areas" (page 7-9). Our reviewers point out that this route traverses one of the primary residential areas on the University of Hawaii Manoa Campus. Affected residences will include Johnson Hall "A", Johnson Hall "B", Gateway House, Frear Hall, Hale Aloha, Hale Noelani, Hale Wainani, and the Waahila Ridge Faculty Housing. Excluding faculty housing residents, the population of the listed residences total 2800 students.

Additionally, one lane of Dole Street is blocked off for several days, twice a semester to allow for Johnson Hall residents to move in or out. How will the proposed pipeline construction affect these activities?

Approximately 20,000 students, 3500 faculty, and 2000 staff members commute to the UH Manoa campus during the regular school year along two primary roadways. University Avenue and Dole Street. Also located on Dole Street are a major pedestrian mall, the Hawaiian Studies program, Harawin Cultural Gardens, and housing for a majority of the students living on campus. Routing a waterline along both of these heavily used roadways will create short-term significant impacts that are sufficient to consider cost tradeoffs and alternate routes.

Additional Information

Several sections of the draft EA cite the "Peer Review and Expansion of the Route Feasibility Study for the Honolulu 42-inch and 24-inch Transmission Mains." This study should be included in the EA to provide a comprehensive document. It apparently contains much useful information, including the evaluation of the more than seven routes that were originally suggested, and the impacts of lane closures on traffic during installation of the line.

Conclusion

The intent of the project is well conceived, but the full extent of the potential impacts is not adequately addressed by the draft EA. Specifically, we emphasize increased traffic congestion, effects on the University of Hawaii residences, cultural site impacts, and the cumulative effects of this project, as well as those of other planned projects in the area. Considering the size, scope, and associated impacts of this project, we suggest that the EA be used as an Environmental Impact Statement Preparation Notice, and that an Environmental Impact Statement be prepared.

Thank you for the opportunity to comment on this draft Environmental Assessment.

Sincerely,

Peter Rappa
Assistant Environmental Coordinator

cc: Clifford Jamile, Honolulu BWS
Kelly Chuck, Marc M. Siah & Associates, Inc.
OEQC
James Moncur, WRRC
Clyde Akita, Facilities Planning & Management
Wallace Gretz, Facilities Planning & Management
Sherri Hiraoka, Environmental Center

Marc M. Siah & Associates, Inc. (808) 528-4352 10/18/00 09:56A P.013
JUL-12-00 WED 16:37 UH ENVIRONMENTAL CENTER FAX NO. 8089563980 P. 03

FAX TRANSMITTAL SHEET

University of Hawaii, Environmental Center
2550 Campus Road, Crawford 317
Honolulu, Hawaii 96822
FAX: (808) 956-3980
TELEPHONE: (808) 956-7361

DATE: July 12, 2000

FROM: Peter Rappa

TO: Iris Oda, Honolulu BWS 527-5703

CC: OEQC 586-4186
Kelly Chuck, Marc M. Siah & Associates, Inc. 528-4352

SUBJECT: Honolulu 42-Inch and 24-Inch Transmission Mains DEA

COMMENTS: We have received permission from Mr. Kelly Chuck to submit comments until July 12, 2000

NUMBER OF PAGES including this cover sheet: 6

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

June 1, 2001

Mr. Peter Rappa
Assistant Environmental Coordinator
Environmental Center
University of Hawaii at Manoa
Krauss Annex 19
2500 Dole Street
Honolulu, Hawaii 96822

Dear Mr. Rappa:

Subject: Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the Draft Environmental Assessment (EA) for the proposed project. We have the following responses to your comments:

1. General Comments

   a. We acknowledge your statement that this project is necessary to upgrade water transmission to the urban core of Honolulu.

   b. Regarding disclosure requirements, an EA is typical for a new transmission main that will be located within an existing utility corridor since it will be installed within a previously disturbed public right-of-way with various existing underground utilities. The anticipated environmental impacts will be temporary and mitigated through best management practices during construction activities. A route feasibility study and traffic analysis have indicated that the existing lanes have enough capacity to accommodate temporary lane closures along the route with approved traffic control plans and mitigative measures. An Environmental Impact Statement is typically prepared for reservoir projects on previously undisturbed land due to the greater degree of environmental impacts, most notably visual impacts.

   c. Section 1.3.3 of the Final EA will be revised to include alternative non-trenching technologies such as micro-tunneling and directional drilling.

2. Purpose

   Preliminary engineering analysis completed during the review of the Draft EA has indicated that a portion of the project from Iscnberg Street to the Waahila Reservoir should be reduced to a 24-inch main. Actual system operations and field measurements will be evaluated prior to the selection of the 24-inch main to verify the required sizing. Therefore, a 42-inch or 24-inch main has been disclosed in the Draft EA. The need for the main has been addressed in the Summary and Introduction Sections of the Draft EA.

3. Stream Crossing

   The method of stream crossing will be determined during the design phase which includes evaluating the soil type, topography, available construction area, available technology for the size and type of pipe, safety and feasibility. The preferred method would be open trench within the stream, with site-specific best management practices implemented to minimize impacts to the stream and its banks. Microtunneling is a feasible alternative with advances in technology and is less invasive to the stream. Due to the size and weight of the 42-inch main, it will not be attached to any of the existing bridges. Either a separate bridge structure will be constructed or the main will be installed under the stream and the appropriate stream crossing permits will be acquired prior to construction.

4. Flood and Tsunami Hazard

   Since open trench pipeline installation is the preferred method, an Army Corps of Engineer General Permit, Stream Channel Alteration Permit, State Department of Health 401 Water Quality Certification or waiver will be required. Best management practices, such as limiting construction activities to the drier summer months, will be specified to minimize flooding. In addition, stream flow will be maintained such that in-stream construction will be restricted to no more than 50 percent of the width of the stream at any one time. For protection after construction, the pipeline will be concrete-jacketed under the stream to eliminate any future main breaks.

5. Traffic

Sections 3.2.3 and 3.2.4 of the Final EA will be amended to include additional traffic mitigative measures. Construction activities will be limited to the off-peak traffic flow hours and will be phased so that a limited length of roadway will be affected. A traffic control plan will be prepared to ensure efficient movement through the construction area. In addition, night work may be an option to minimize disruption to daytime traffic flow.

The project's construction schedule is being coordinated with the roadwork coordinating committee composed of the State, City and private utilities. The H-1 freeway work by the State Department of Transportation and other Board of Water Supply (BWS) water main replacement projects in metropolitan Honolulu have been factored into the construction scheduling. The estimated project start date for the Vineyard Boulevard segment is January 2002. The remaining segments east of our Beretania pumping station have been deferred and a new time schedule has not been determined.

Traffic analysis was based upon data compiled by the City Department of Transportation Services and data was not available for the Dole Street/Lower Campus Road intersection. Therefore, the traffic assessment was based upon the inference with the Dole Street/East - West Road intersection. We will make every effort to schedule the construction of the main near the University of Hawaii (UH) Manoa campus during the summer and semester breaks to minimize traffic disruption in the area.

During the Draft EA and disclosure process, the affected neighborhood boards and government planning agencies were notified of the project and the tentative construction schedule. We realize that the project's construction will impact adjacent businesses along the pipeline route; however, there are many ways these impacts can be controlled and mitigated. Prior to starting construction, letters will be sent to businesses for describing the project limits, construction length, work hours and a contact person to call if there are any questions. The contractor is required to be responsive to the affected businesses concerns.

6. Historical/Archaeological Features and Community Facilities

We have conferred with the State Historic Preservation Division and have received concurrence that the archaeological monitoring and investigation can be performed during the actual trenching activities in the areas where subsurface deposits are known to exist (fishpond deposits at University and King and any kalo field areas), enabling the archaeologist to document and recover historic remains visible in the open trenches. This procedure will be reflected in the Final EA and in the construction plan notes.

The Kapapa Lo'i O Kanewai (Kanewai Cultural Garden), UH Center for Hawaiian Studies and UH Waahila Ridge Facility Housing will be included in Figure 2-10, the community facilities map.

7. Alternative to the Proposed Action

The proposed project is not subject to the Integrated Resource Plan process, which will address long-range water resource issues. This project is needed to meet the existing transmission capacity shortage, improve system reliability; and meet projected demands for growth in Honolulu.

As indicated on page 7-9, the options for routing the proposed water line from the intersection of Isenberg Street and King Street to the Waahila 180' Reservoir include: 1) University Avenue and Dole Street route and 2) King Street and St. Louis Drive route. Option 2 required an additional 3,300 linear feet of 24-inch pipe to be installed, which was one of the factors that made Option 1 more feasible. Recently, Option 1 was reduced entirely to 24-inch pipe, which further increases the feasibility of Option 1.

We will make every effort to schedule the construction of the main near the UH Manoa campus and student housing during the summer and semester breaks to minimize traffic congestion in the area and coordinate the project construction to allow the residents to move in and out of Johnson Hall.

8. Additional Information

The "Peer Review and Expansion of the Route Feasibility Study" is a large document and will not be included in the Final EA. Copies of the route study are available for review at the BWS.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

Barry Usagawa

for CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

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ENJAMIN J. CAYETANO
GOVERNOR

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PE

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

June 14, 2000

Mr. Clifford S. Jamile, Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Jamile:

Subject: Draft Environmental Assessment for the Honolulu 42-inch & 24-inch Transmission Mains, Oahu

Thank you for the opportunity to review the subject document. We have the following comments.

1. We support the proposed construction schedule to build the transmission mains in small phases and from opposite ends to minimize impact to the public. We recommend that the project construction be coordinated with State DOT, City Design and Construction and all affected utilities to find ways to consolidate projects, reduce traffic woes, and minimize service interruptions.

2. The environmental assessment's description of the number of lanes that will be closed is not consistent. The summary section states, "at least two lanes will be closed at a time during construction." The impact section notes, "the traffic capacity was recalculated assuming the closure of one lane of travel." The project mitigation describes, "at no time will more than two lanes of traffic be out of service." The December 10, 1999, consultation letter states, "only one lane of traffic will be closed." The May 5, 2000, consultation letter describes, "no more than two lanes will be closed." Please clarify the above discrepancies. If necessary, please recalculate the traffic capacity during construction.

d

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

Sincerely,

Genevieve Salmonson
Director

c: Marc M. Siah and Associates

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

11/31/00

January 4, 2001

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

Dear Ms. Salmonson:

Subject: Your Letter of June 14, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for the subject proposed project. We have the following response to your comments:

1. We will coordinate the design and construction with the city, state and affected utilities to consolidate projects, reduce traffic impacts, and minimize service interruptions.

2. The Final Environmental Assessment (FEA) will be revised accordingly to include "up to two lanes of roadway are anticipated to be closed to traffic to allow space for construction access and activity." The effects of closing two lanes along certain segments will be evaluated and the results will be included in the FEA.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

P

PLN-4

THE QUEEN'S MEDICAL CENTER

1301 Punchbowl Street • Honolulu, Hawaii 96813 • Phone (808) 538-9011 • FAX (808) 547-4646

Jun 21 2 17 PM '00

June 23, 2000

Mr. Clifford Jamile
Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains

Dear Mr. Jamile:

Thank you for meeting with Dr. Jonathan Shimada and me on Wednesday to discuss the subject report and the concerns of The Queen s Medical Center (QMC).

The proposed project and construction plans described in the report will severely restrict access to the Medical Center and the Physicians' Office Buildings on Lusitana Street, thereby disrupting the delivery of health care and emergency services to our patients. This is not acceptable.

We appreciate your understanding of the critical nature of our mission at the Medical Center, and we appreciate your willingness to consider alternatives that will eliminate adverse impacts to our patients. We look forward to working with you on this project and are willing to assist you in communicating with the physicians and staff in the office buildings on Lusitana Street.

Please contact Dr. Shimada or myself for further communication on this project.

Very truly yours,

James S. Kumagai, Ph.D., P.E.
Vice-President
Facilities Planning and Management

cc: Arthur Ushijima, President & CEO
Jonathan Shimada, Ph.D., P.E.

A Queen's Health Systems Company

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

January 4, 2001

James S. Kumagai, Ph.D., P.E., Vice President
Facilities Planning and Management
The Queen's Medical Center
1301 Punchbowl Street
Honolulu, Hawaii 96813

Dear Dr. Kumagai:

Subject: Your Letter of June 23, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for our proposed project and for coordinating our project presentation, on September 12, 2000 with the Queen's Medical Center staff.

We will continue to work on minimizing potential disruptions to health care and emergency services to the Queens Medical Center. As we continue on design of the project, we are evaluating alternatives such as night work and weekend work to mitigate adverse impacts. As requested, we are also evaluating the feasibility of installing the main along the Ewa side of Punchbowl Street instead of along Lusitana Street.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

DOCUMENT CAPTURED AS RECEIVED

Louis W. Crompton, P.E.

Apartment 2904
1221 Victoria Street
Honolulu, Hawaii 96814

June 20, 2000

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BOARD OF WATER SUPPLY
00 CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

January 4, 2001

Mr Clifford Jamile
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr Jamile

Subject: Comments on Draft Environmental Assessment for 42" Transmission Main

Background: Page 2-13 indicates Thomas Square is not a Historical District, traditional site, fishpond, or of significant archaeological significance. Figure 1-1 indicates the 42" main would be on the makai side of Beretania and Diamond Head side of Victoria. Fig 1-2 shows an existing line transversing Thomas Square in the mauka-makai direction. Page 3-1 states "all disturbed areas will be restored to their original condition". Paragraph 3.2.1 states "Interruptions to local businesses adjacent to the transmission main route will be mitigated during construction". Pg 7-7 and Fig 7-2 state route selection criteria included pipe line access, construction cost, traffic control, public disruption, impact on businesses, and noise.

Comment #1. Table 2-2 is incorrect. Victoria Street southbound is one lane and is the primary street from H-1/Kinau to the Blaisdell Center and area medical complexes such as Kaiser.

#2. Pg 3-7, bullet 1). At 8:30 A.M. Beretania is heavily congested; Victoria is congested in both directions primarily with patients, staff, and personnel trying to access the medical complexes.

#3. Pg 3-7 shows that traffic mitigation NOT CONSIDERED was doing construction work off the roadways, particularly within the boundary of Thomas Square park which is entirely grassy area and government property.

#4. Fig 7-3 shows that routing the pipe through Thomas Square was NEVER CONSIDERED.

#5. Appendix A, cost estimate, shows a little cost benefit for using [corrosive] iron pipe instead of concrete. However, the estimate does NOT show any cathodic protection system cost to protect the iron pipe. Because the iron pipe will corrode without protection while concrete will not corrode, the cost estimate is flawed. Either include cathodic protection, or, credit the concrete system for the reduced repair cost over a time span [of 50? years].

#6. Suggestion 1 - address running pipe through Thomas Square. Cost of excavating pipe, backfilling and restoration of surface in a park is less costly than on a paved street; construction in the park will not disrupt traffic; construction in the park will not disrupt businesses by removing their limited parking spaces; construction in the park will move the noise away from business facilities; and burial in the grassy parks allows easy pipe access in the future without tearing up streets and disrupting traffic. These reasons were the route selection criteria! Additionally, routing through the park will avoid the many pipe, electrical, and signal connections below the Beretania/Victoria intersection and respective streets.

#7. Suggestion 2 - Revise the construction estimate to accurately reflect life cycle cost of iron versus concrete pipe. Current estimate is biased by error or intent.

cc: Siah & Associates

L Crompton
No - 16

Mr. Louis W. Crompton, P.E.
1221 Victoria Street, #2904
Honolulu, Hawaii 96814

Dear Mr. Crompton:

Subject: Your Letter of June 20, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for our proposed project. We have the following response to your comments:

1. Table 2-2 will be revised to correctly indicate that Victoria Street between Beretania Street and King Street is a four lane street, two south bound and two north bound. The outer lanes of Victoria Street are used for parking. However, during construction in this area, approximately 3 - 4 weeks, street parking will not be permitted in order to allow through traffic in both directions at all times. Limited parking may be available during non-work hours.

   Temporary traffic impacts during construction will be mitigated through an approved traffic control plan and work will be scheduled to avoid peak hour traffic.

2. It is understood that the area is still congested at 8:30 a.m.; however, congestion by this time is much lower than between the hours of 6:30 a.m. and 8:30 a.m. and the afternoon hours of 3:00 p.m. and 6:00 p.m. At least two lanes along Victoria Street will remain open at all times during construction, with police and/or flagmen on duty to direct traffic. All lanes will be open during non-working hours.

3. There are several best practices to mitigate traffic. We agree that avoiding the roadways altogether is a traffic mitigation and this will be reflected in the Final Environmental Assessment.

4. Figure 7-3 shows alternative alignments that were considered. Traversing Thomas Square, although not shown on the map, was considered and discounted very early in the route analysis process and described in response No. 6.

5. The unit cost for the ductile iron pipe includes cathodic protection. A note will be added to the cost estimates in Appendix A to clarify this inclusion.

6. The lower installation cost for a pipeline through Thomas Square was weighed against the cost of standard installation within the roadway, which is the designated utility corridor. The main reasons for avoiding the park were easement acquisition costs, restrictions on maintenance access and park use and the fact that Thomas Square is a special design district and is designated for preservation on the State and National Register of Historic Places.

   Avoiding existing utilities within roadways and intersections is standard waterline installation practice. If the main were installed within the Thomas Square park, trees, roots, walkways and wall foundations would similarly have to be avoided.

   The contractor will be required to comply with all applicable Noise Control regulations of the Department of Health, Administrative Rules, Chapter 11-46 "Community Noise Control."

7. The life cycles of concrete cylinder pipe (CCP) and cathodically protected ductile iron Pipe (DIP) are similar, ranging between 50 - 70 years, therefore, the cost estimates are not affected. As a construction bidding requirement, both the CCP and DIP must be considered as options. The type of pipe to be installed will depend on what is indicated on the awarded low bid.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

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BENJAMIN J. CAYETANO
GOVERNOR

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

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

PG

In reply, please refer to
EMD/CWB

06046PKP.00

June 16, 2000

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 Beretania Street
Honolulu, HI 96843

Attention: Ms. Iris Oda
Planning and Engineering Division

Dear Mr. Jamile:

Subject: **Draft Environmental Assessment**
Honolulu 42-Inch and 24-Inch Transmission Mains

The Department of Health has the following comments regarding the subject submittal dated May 2000:

1. The Army Corps of Engineers should be contacted to identify whether a Federal permit (including a Department of Army permit) is required for this project. If it is determined that a Federal permit is required for the subject project, then a Section 401 Water Quality Certification would also be required from our office;

2. If the project involves any of the following discharges into state waters, a NPDES general permit is required for each activity:

   a. Storm water runoff associated with construction activities, including clearing, grading, and excavation that result in the disturbance of equal to or greater than five (5) acres of total land area;

   b. Hydrotesting water; and

   c. Construction dewatering effluent.

3. The Department requires that completed Notice of Intent (NOI) forms for NPDES general permits be submitted thirty days before the discharge is to occur. NOI forms can be picked up at our office or downloaded from our website at *http://www.state.hi.us/doh/eh/cwb/forms/index.html*.

Should you have any questions, please contact Ms. Kris Poentis, Engineering Section of the Clean Water Branch, at 586-4309.

Sincerely,

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

KP:cr

c: Kelly J. Chuck, Marc M. Siah & Associates, Inc.

Q

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

1131/00 1.1.1

January 4, 2001

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

Dear Mr. Lau:

Subject: Your Letter of June 16, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for the subject project. We have the following response to your comments:

1. We will verify the federal permit requirements with the Army Corps of Engineers after the stream crossing method is determined. The project phases are still under design. A Section 401 Water Quality Certification Federal Permit will be coordinated with your office.

2. Effluent discharge permits for hydrotesting and dewatering will be coordinated with your department during the design phase of the project. The total project area is under 5 acres and therefore, a National Pollutant Discharge Elimination System (NPDES) permit for stormwater runoff is not anticipated.

3. We will comply and submit the Notice of Intent forms for NPDES general permits 30 days before the discharge is to occur.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

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

MAYOR JEREMY HARRIS

RANDALL K. FUJIKI, AIA
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

MH 2000/CLOG-3282

July 14, 2000

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: RANDALL K. FUJIKI, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA) FOR THE HONOLULU 42-INCH AND 24-INCH TRANSMISSION MAINS, HONOLULU, OAHU, HAWAII

In response to your request for comments of June 5, 2000, we have reviewed the DEA and have the following comments to offer:

- In May of 2000, our department recommended approval of the Development Plan Public Facilities Map (DPPFM) amendment for the Primary Urban Center - Honolulu District 42-Inch Transmission Mains - Iwilei to Waahila 180 Reservoir project. This proposed DPPFM amendment was considered and recommended for approval by the Planning Commission on June 7, 2000. Subsequently, this proposed amendment was transmitted to the City Council for their review and consideration.

Should you have any questions, please contact Matt Higashida at extension 6056.

RKF:js

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AHE
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROBIS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

December 22, 2000

TO: RANDALL K. FUJIKI, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: CLIFFORD S. JAMILE

SUBJECT: YOUR MEMORANDUM OF JULY 14, 2000 ON THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HONOLULU 42-INCH AND 24-INCH TRANSMISSION MAINS, HONOLULU, OAHU, HAWAII

Thank you for reviewing the environmental document for our proposed project.

We acknowledge that the Development Plan Public Facilities Map Amendment for the Primary Urban Center - Honolulu District 42-inch Transmission Mains - Iwilei to Waahila 180 Reservoir project has been approved on November 2, 2000 as Ordinance 00-58.

If you have any questions, please contact Iris Oda at 527-5245.

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

PLN-51/00

P

HO'OKAHE WAI HO'OULU 'AINA
P.O. Box 61494
Honolulu, Hawai'i 96839

June 22, 2000

Mr. Clifford S. Jamile, Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawai'i 96843

Dear Mr. Jamile

Subject: Draft EA for the Honolulu 42-inch Transmission Mains.

I am writing on behalf of Ho'okahe Wai Ho'oulu 'Âina (HWHA) a non-profit community organization that began Kapapa Lo'i 'O Kānewai, (Kānewai Cultural Garden) and continues to develop and maintain this historic cultural resource in cooperation with the University of Hawai'i. Please add us to your list of consulted organizations, and send us project updates care of: Keoni Fairbanks
3117 Esther Street
Honolulu, Hawai'i 96815

We have some questions about the project and noticed two apparent errors or omissions in the DEA.

1. Figure 2-10 Community Facilities should include Kapapa Lo'i 'O Kānewai on the map of community facilities.
2. Appendix B - Archaeological Monitoring Plan assumes a different preferred route than the DEA. The Archaeological Monitoring Plan should be revised to reflect the University Avenue/Dole Street routing for Phase IV.
3. What is the proposed depth of the construction trench for Phase IV?
4. What is the proposed method for the transmission main to cross Mānoa Stream?
5. What is the diameter of the main (42" or 24") when it crosses Manoa Stream?
6. On which side of the Dole Street bridge (mauka or makai) will the main cross the Manoa Stream?
7. Which side of Dole Street (mauka or makai) will be trenched to lay the main on the east side of the Mānoa stream? In other words, what is the precise alignment, width, and depth of the construction trench in the vicinity of the Kapapa Lo'i 'O Kānewai?
8. When is construction expected to be initiated in the vicinity of Kapapa Lo'i 'O Kānewai?
9. What are proposed mitigation measures for potential impacts to Kapapa Lo'i 'O Kānewai?
10. Could the trenching along Dole Street between University Avenue and Manoa Stream, be configured to allow the UH to bury the overhead lines now running along the mauka side of the street?

Thank you for this opportunity to comment. Please address your response to me at the Esther Street address.

Sincerely,

R. Keoni Fairbanks

cc: Lilikalā Kame'eleihiwa, UH Center for Hawaiian Studies
Michael Yoneda, UH Facilities Management
Karen AhMai, St. Louis Neighborhood Board
Kelly J. Chuck
OEQC

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

November 27, 2000

Mr. R. Keoni Fairbanks, Representative
Ho'okahe Wai Ho'oulu 'Aina
3117 Esther Street
Honolulu, Hawaii 96815

Dear Mr. Fairbanks:

Subject: Your Letter of June 22, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for our proposed project. We have the following response to your comments:

1. The community facilities map, figure 2-10 will be amended to include Kapapa Lo'i O' Kanewai.

2. The Archaeological Monitoring Plan as included in Appendix B includes both University Avenue and Dole Street routes in its scope as indicated in Figures 1 through 4. These figures show the preferred alignment at the time of the study, and also includes the various alternate corridors.

3. The actual trench depth will be according to the Board of Water Supply standards and determined during the design phase. The typical depth of the trench will be 7½ feet (3' cover + 4' outside pipe diameter + 6" below pipe). Where conflicts occur with existing utilities, the trench may be deeper in order to align the pipe below the existing utility.

4. The method used for crossing Manoa Stream will be determined during the design phase. Stream crossing design will take into account the dimensions and weight carrying capacities of the existing bridge as well as the characteristics of the streambed and its adjacent banks. Refer to either pipe hanging or trenching.

5. The size of the water main is 24 inches at the Manoa Stream crossing.

6. The precise alignment of the pipeline will not be determined until the design phase. During the design phase, a detailed investigation of the area will be performed and the pipe aligned in order to avoid existing utilities, private property and any culturally sensitive areas such as Kapapa Lo'i 'O Kanewai.

7. The exact location of the water main along Dole Street will be determined during the design phase.

8. Construction in the University area is currently proposed for funding in 2004. However, if the schedule should change, construction would begin in January 2002 at the earliest to prevent conflicts with the on-going construction on the H-1 Freeway and Punahou off ramp expansion. Work in the University of Hawaii area will be scheduled for the summer months when traffic to the University is at a minimum. Also, major sporting events and other activities will be accounted for when finalizing construction schedules in order to avoid any major conflicts.

9. One of the preferred mitigation measures is to avoid the loi by installing the 24-inch main along the existing bridge or to construct a separate bridge structure. Installing the main under Manoa Stream will result in cuts as deep as 30 feet and may cause temporary stream impacts, which could be mitigated by established best management practices. The stream would be temporarily diverted around the construction area and a series of silt curtains will retain silt-ladden runoff.

10. For safety, maintenance and reliability reasons, the electrical power lines will not be installed in the same trench as a water main.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

:: Kelly Chuck, Marc M. Siah & Associates, Inc.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

November 3, 2000

Mr. James Pennaz, P.E., Chief
Civil Works Technical Branch
Department of the Army
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440

Dear Mr. Pennaz:

Subject: Your Letter of June 21, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for our proposed project. We have the following response to your comments:

1. We understand that the project may require a Department of the Army permit depending on the method used to cross the existing streams. Design will be coordinated with Mr. William Lennan of your Regulatory Section, with reference to Job File No. 200000230, to verify the necessary permits.

2. We acknowledge that the flood hazard information provided on pages 2-8 of the Draft Environmental Assessment is correct.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

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

REPLY TO ATTENTION OF

June 21, 2000

Civil Works Technical Branch

Ms. Iris Oda
Planning and Engineering Division
Marc M. Siah & Associates, Inc.
810 Richards Street
Honolulu, Hawaii 96813

Dear Ms. Oda:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment (DEA) for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu. The following comments are provided in accordance with Corps of Engineers authorities to provide flood hazard information and to issue Department of the Army (DA) permits.

a. Based on the information provided, a DA permit may be required depending on the method used to cross the existing streams. For further information, please contact Mr. William Lennan of our Regulatory Section at 438-6986 and refer to file number 200000230.

b. The flood hazard information provided on page 2-8 of the DEA is correct.

Should you require additional information, please contact Ms. Jessie Dobinchick of my Civil Works Technical Branch staff at (808) 438-8876.

Sincerely,

James Pennaz, P.E.
Chief, Civil Works
Technical Branch

THE GAS COMPANY
Citizens Energy Services

Rec 1
6/20/00

June 16, 2000

Ms. Iris Oda
Planning and Engineering Division
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Ms. Oda:

Subject: Draft Environmental Assessment
Honolulu 42-inch and 24-inch Transmission Mains

Please be advised that The Gas Company maintains underground utility gas mains in the project vicinity, which serves commercial and residential customers in the area and is interconnected with the utility network in Honolulu. We would appreciate your consideration during the project planning and design process to minimize any potential conflicts with the existing gas facilities in the project area.

Thank you for the opportunity to comment on the Draft Environmental Assessment. Should there be any questions, or if additional information is desired, please call me at 594-5570.

Very truly yours,

Charles E Calvet, P.E.
Manager, Engineering

CEC:krs
00-145

cc: Mr. Kelly J. Chuck, Marc M. Siah & Associates, Inc.

THE GAS COMPANY
515 Kamakee Street Honolulu Hawaii 96814
PO Box 3000 Honolulu Hawaii 96802 3000
Telephone 808 535 5900 Facsimile 808 594 5830 Sales

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

November 3, 2000

Mr. Charles E. Calvet, P.E., Manager
Engineering Division
The Gas Company
P. O. Box 3000
Honolulu, Hawaii 96802-3000

Dear Mr. Calvet:

Subject: Your Letter of June 16, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for our proposed project.

The construction drawings will be submitted to your agency for review and approval to verify and minimize any potential conflict with the underground utility gas mains in the proposed project area.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

The Senate
The Twentieth Legislature
of the
State of Hawaii
STATE CAPITOL
HONOLULU, HAWAII
May 19, 2000

Kelly J. Chuck, P.E.
Marc M. Siah & Assoc., Inc.
810 Richards Street, Suite 888
Honolulu, HI 96813

Dear Mr. Chuck,

I received your notice of pending work on the 42-inch and 24-inch transmission mains and appreciate the information that was sent. I am glad that work has been scheduled to minimize disruptions to local businesses and schools as well as traffic but I would like to inquire as to what times the work has been scheduled for. Can you please provide my office with this information in the event that residents call to inquire about construction hours.

If you have any questions regarding this, please feel free to contact me at 586-6450.

Sincerely,

Rod Tam
State Senator, 13th District

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

November 3, 2000

The Honorable Rod Tam
Senator
The Senate
State Capitol
Honolulu, Hawaii 96813

Dear Senator Tam:

Subject: Your Letter of May 19, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for our proposed project.

In general, work will be done between the hours of 8:30 a.m. and 3:00 p.m. in order to avoid rush hour traffic. In some instances, work may be done at night in non-residential areas to reduce disruption to traffic and businesses. If night work becomes necessary, the affected neighborhood boards will be notified and all necessary street usage permits and noise variances will be acquired.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

Oceanic CABLE
200 Akamainui Street • Mililani, Hawaii 96789-3999 • Telephone: (808) 625-2100

rec'd 6/20/00

June 19, 2000

Marc M. Siah & Associates, Inc.
810 Richards Street, Suite 888
Honolulu, Hawaii 96813

Attn: Mr. Kelly J. Chuck

Subject: **Honolulu 42" and 24" Transmission Mains**
Honolulu, Oahu, Hawaii

Dear Mr. Chuck,

Thank you for the drawings. Oceanic facilities are located within GTE Hawaiian Telephone facilities or on the joint poles throughout the project area. GTE will need to verify the approximate location of their entire existing infrastructure. Oceanic does not have any planned trenching work scheduled for the project areas. Should you have any questions, please contact me at 625-8346.

Sincerely,

Randy Makizuru
OSP Engineer

Cc: Ms. Iris Oda
Planning and Engineering Division
Board Of Water Supply

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

November 3, 2000

Mr. Randy Makizuru, OSP Engineer
Oceanic Cable
200 Akamainui Street
Mililani, Hawaii 96789-3999

Dear Mr. Makizuru:

Subject: Your Letter of June 19, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for our proposed project.

The construction drawings will be submitted to your agency and Verizon Hawaii, Inc., formerly GTE Hawaiian Telephone for review and approval to verify and minimize any potential conflict with the Oceanic facilities located within the Verizon Hawaii, Inc., telephone facilities or on the joint poles in the proposed project area.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

P

RECEIVED
BD OF WATER SUPPLY
Jul 12 12 18 PM '00

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 • AREA CODE (808) 529-3111
http://www.honolulupd.org
www.co.honolulu.hi.us

000659
PE

JEREMY HARRIS
MAYOR

LEE D. DONOHUE
CHIEF

MICHAEL CARVALHO
ROBERT AU
DEPUTY CHIEFS

OUR REFERENCE CS- JNB

July 7, 2000

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

ATTENTION: IRIS ODA
PLANNING AND ENGINEERING DIVISION

FROM: LEE D. DONOHUE, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HONOLULU 42-INCH AND 24-INCH TRANSMISSION MAINS HONOLULU, OAHU, HAWAII

Thank you for the opportunity to review and comment on the subject document.

Since they are major thoroughfares, any construction work to be conducted on the roadways for this project will cause disruptions in traffic flow. Vehicles being driven through the area more slowly because of steel plates, restricted lanes, etc., will have a major negative impact on the services provided by this department.

It is also noted that part of the work will be in the vicinity of the University of Hawaii, which is already an area with heavy traffic congestion and a major source of complaints. Any disruption in this area will have an effect on the calls for police service. Therefore, we are recommending that work be scheduled during summer and semester breaks to minimize any anticipated problems.

In addition, this, like any other construction project, will generate complaints because of the inevitable dust, noise, and odors related to construction sites. These problems, compounded by traffic complaints, will have a major impact on the services and facilities of this department.

If there are any questions, please call Carol Sodetani of the Support Services Bureau at 529-3658.

Sincerely,

LEE D. DONOHUE
Chief of Police

By
EUGENE DEMURA
Assistance Chief
Support Services Bureau

cc: Marc M. Siah & Associates, Inc.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

11-31-00
1.1.1

October 13, 2000

TO: LEE D. DONOHUE, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

FROM: FOR CLIFFORD S. JAMILE

SUBJECT: YOUR MEMORANDUM OF JULY 7, 2000 ON THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HONOLULU 42-INCH AND 24-INCH TRANSMISSION MAINS, HONOLULU, OAHU, HAWAII

Thank you for reviewing the environmental document for our proposed project. We have the following response to your comments:

1. Temporary traffic impacts during construction is a major focus of the environmental assessment. Traffic impacts will be mitigated through an approved traffic control plan and scheduled to avoid peak hour traffic.

2. We will make every effort to schedule the construction of the main near the University of Hawaii at Manoa during the summer and semester breaks. Also, traffic concerns near the University will be addressed with an approved traffic control plan and best management practices will be implemented.

If you have any questions, please contact Iris Oda at 527-5245.

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

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BD OF WATER SUPPLY
Jul 10 2 33 PM '00

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU HI 96813

Jeremy Harris
Mayor

Kenneth E. Sprague, P.E., Ph.D.
Director

Barry Fukunaga
Deputy Director

PRO 00-33

July 6, 2000

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Jamile,

Subject: Draft Environmental Assessment (DEA) for the Honolulu 42-inch and 24-inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for allowing us to review and comment on the subject project. We have no objections to the proposed Honolulu 42-inch and 24-inch water transmission mains. Please follow proper procedures and precautions to ensure that our sewer mains, laterals, and structures are protected from damage during the construction of the project, and that wastewater service is maintained for our customers in the area.

Should you have any questions, please call Mr. Jack Pobuk, Program Coordinator, at 527-6696.

Sincerely,

KENNETH E. SPRAGUE
Director

cc: Marc M. Siah & Assoc., Inc.

PLN-63

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

October 13, 2000

COP

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice-Chair
JAN M.L.Y. AMI
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Offic

CLIFFORD S. JAMILE
Manager and Chief Engineer

TO: KENNETH E. SPRAGUE, DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

FROM: FOR CLIFFORD S. JAMILE

SUBJECT: YOUR MEMORANDUM OF JULY 6, 2000 ON THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HONOLULU 42-INCH ANI 24-INCH TRANSMISSION MAINS, HONOLULU, OAHU, HAWAII

Thank you for reviewing the environmental document for the subject project.

We acknowledge that you have no objections to the proposed project. We will follow prop procedures and precautions to ensure that the sewer infrastructure is protected from damage during the construction of the project and wastewater service is maintained.

If you have any questions, please contact Barry Usagawa at 527-5235.

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

PLN-576

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET, SUITE H425
HONOLULU, HAWAII 96819-1869

HARRIS
DA

ATTILIO R. LEON
FIRE CHIEF
JOHN CLAR
DEPUTY FIRE C

June 22, 2000

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

ATTN: IRIS ODA
PLANNING AND ENGINEERING DIVISION

FROM: JOHN CLARK, ACTING FIRE CHIEF

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HONOLULU 42-INCH AND 24-INCH TRANSMISSION MAINS HONOLULU, OAHU, HAWAII

We received a letter from Kelly J. Chuck, P.E., of Marc M. Siah & Associates, Inc., dated June 9, 2000, regarding the above-mentioned project.

The Honolulu Fire Department requests that you comply with the following:

1. Maintain fire apparatus access throughout the construction site for the duration of the project.

2. Notify the Fire Communication Center (523-4411) of any interruption in the existing fire hydrant system during the project.

Should you have any questions, please call Battalion Chief Kenneth Silva of our Fire Prevention Bureau at 831-7778.

JOHN CLARK
Acting Fire Chief

JC/KS:jl

cc: Kelly J. Chuck, P.E., Marc M. Siah & Associates, Inc.

BD OF WATER SUPPLY
Jun 29 10 03 AM '00

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

October 13, 2000

COPY

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice-Chairman
JAN M.L.Y. AMI
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

TO: JOHN CLARK, ACTING FIRE CHIEF
HONOLULU FIRE DEPARTMENT

FROM: FOR CLIFFORD S. JAMILE

SUBJECT: YOUR MEMORANDUM OF JUNE 22, 2000 ON THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HONOLULU 42-INCH AND 24-INCH TRANSMISSION MAINS, HONOLULU, OAHU, HAWAII

Thank you for reviewing the environmental document for our proposed project. We have the following response to your comments:

1. Throughout the duration of the project, fire apparatus access will be maintained throughout the construction site.

2. If there is any interruption to the existing fire hydrant system during the project, the Fire Communication Center will be notified.

If you have any questions, please contact Barry Usagawa at 527-5235.

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

PLN-52

GTE Hawaiian Tel
Beyond the call

GTE Hawaiian Telephone Company Incorporated
P.O. Box 2200 - Honolulu, HI 96841 - (808) 541-

June 22, 2000

Mr. Clifford S. Jamile, Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu,Hawaii 96843

Attention: Ms. Iris Oda
Planning and Engineering Division

Subject: Draft Enviromental Assessment for the Honolulu 42-inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

We have reviewed your assessment for the above mentioned location and have no comment to make at this time.

A copy of your Draft Enviromental Assessment will be retained for our files.

If there are any questions, please call Sonny Perreira at 840-5884.

Sincerely,

Jay Furukawa
Section Manager
Access Design and Construction

c: File
S. Perreira
Mr. Kelly J. Chuck
Marc M. Siah & Associates, Inc.
810 Richards Street Suite 888
Honolulu, Hawaii 96813

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

RECEIVED OCT 17 2000

October 13, 2000

Mr. Jay Furukawa, Section Manager
Access Design and Construction
GTE Hawaiian Telephone Company, Inc.
P. O. Box 2200
Honolulu, Hawaii 96841

Dear Mr. Furukawa:

Subject: Your Letter of June 22, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for the subject project.

We acknowledge that you have no objections to the proposed project.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

JOHN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097
July 6, 2000

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Attention: Ms. Iris Oda
Planning and Engineering Division

Dear Mr. Jamile:

Subject: Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for the opportunity to review and comment on the subject Draft Environmental Assessment (DEA). We have the following comment to the DEA:

1. Considering the weight of the 42-inch main and the load carrying capacity of the existing bridges (eight bridges were identified to be within this project), hanging the water mains from the bridges is discouraged unless the bridge structures are upgraded.

If you have any questions, please call Christine Yamasaki at 692-7572 or reply to the attention of Christine Yamasaki, Project Manager and reference HWY-DD 2.9135 as noted above.

Very truly yours,

GARY C. P. CHOY
Acting Administrator
Highways Division

c: Marc M. Siah and Associates, Inc.

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

IN REPLY REFER TO:
HWY-DD 2.9135

RECEIVED DEC 3 2000

November 30, 2000

Should be 11/30/01

JEREMY HARRIS, Mayor

BOARD OF DIRECTORS
EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AHN
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Steven Kyono, Administrator
Highways Division
Department of Transportation
State of Hawaii
869 Punchbowl Street, Room 513
Honolulu, Hawaii 96813-5097

Dear Mr. Kyono:

Subject: Your Letter of July 6, 2000 on the Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document for our proposed project.

The Environmental Assessment discloses several alternative stream crossings for the 42-inch main. However, we realize that hanging the 42-inch along existing bridges is not practical due to the loading and structural improvements necessary to upgrade the bridge. Other alternative options will be pursued by the design consultant.

If you have any questions, please contact Iris Oda at 527-5245.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

The Senate
The Twentieth Legislature
of the
State of Hawaii

STATE CAPITOL
HONOLULU HAWAII 96813

May 23, 2000

Kelly J. Chuck, P.E., Project Mgr.
Marc M. Siah & Associates, Inc.
810 Richards St. #888
Honolulu, Hawaii 96813

Dear Mr. Chuck,

Thank you for the opportunity to submit input regarding the installation of 23,000 lineal feet of 42- inch transmission main. A large portion of this transmission main will be routed through my district, particularly on King St., from Kalakaua Ave. to University Ave., and then on up to Dole St. and stopping at the Waahila Reservoir.

While I appreciate your efforts to minimize negative impacts, I remain concerned that the combination of construction projects during this period will create a significant amount of congestion and gridlock. As you may be aware, there are two highway projects, 1) a major resurfacing of the H-1 Freeway and 2) the expansion of the Punahou Off-Ramp, that will be occurring during approximately the same time period. I believe the State Department of Transportation is relying on King Street as a major alternative route.

I also feel that the segment for University Avenue should be done during the middle of May to the middle of August. This will greatly ease the congestion on University Avenue. You may also want to find out the schedules for sporting events at the University of Hawaii (especially the Sheriff Arena) and the various school carnivals as they greatly impact traffic.

I look forward to reviewing the Draft Environmental Assessment, upon its completion. Will it be possible to inform my office as to its completion and to inform us as to a date when we will be able to pick one up?

If there are any questions in regards to my comments, please feel free to call my office at 586-6460.

Sincerely,

Brian T. Taniguchi
Senator
District 11

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

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January 4, 2001

The Honorable Brian T. Taniguchi
Senator
The Senate
State Capitol
Honolulu, Hawaii 96813

Dear Senator Taniguchi:

Subject: Draft Environmental Assessment for the Honolulu 42-Inch and 24-Inch Transmission Mains, Honolulu, Oahu, Hawaii

Thank you for reviewing the environmental document and for describing other projects and events that may increase the impacts of our proposed project. We have the following response to your comments:

1. Construction along Vineyard Boulevard from Liliha Street to Nuuanu Avenue would begin in January 2002 at the earliest, after the H-1 and Punahou off-ramp improvements are scheduled for completion. The remaining portions of our project along King Street, University Avenue and Dole Street would occur after the Vineyard Boulevard phase. The project will also be coordinated with other water main replacement projects on Ward Avenue, Kapiolani Boulevard, Ala Moana Boulevard and Kalakaua Avenue and with other City and State agencies in order to minimize construction conflicts and maintain adequate alternative corridors through the area.

2. We will make every effort to schedule the construction of the University Avenue and Dole Street phase during the summer and semester breaks to minimize traffic disruption in the University area. Also, traffic concerns near the University will be addressed with an approved traffic control plan, signage and prior notification.

3. A copy of the Final Environmental Assessment will be forwarded for your information when it is completed.

If you have any questions, please contact me at 527-6180.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Kelly Chuck, Marc M. Siah & Associates, Inc.

Marc M. Siah & Associates, Inc.
Consulting Civil • Structural • Environmental & Ocean Engineers
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