FINAL ENVIRONMENTAL ASSESSMENT
Prepared in Accordance with the Hawai‘i Revised Statutes, Chapter 343, and Hawai‘i Administrative Rules, Title 11, Chapter 200

Farrington Highway
Replacement of Mākaha Bridges No. 3 and No. 3A

District of Wai‘anae, O‘ahu, Hawai‘i
Federal Aid Project No. BR-093-1(20)

May 2011

Prepared for:
State of Hawai‘i
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
Kakuhihewa Building
601 Kamokila Boulevard
Kapolei, Hawai‘i 96707

Prepared by:
R.M. Towill Corporation
2024 N. King Street, Suite 200
Honolulu, Hawai‘i 96819-3494
RMTC Reference No. 19969-0P

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PROJECT SUMMARY

Project	Farrington Highway Replacement of Mākaha Bridges No. 3 and No. 3A Federal Aid Project No. BR-093-1(20)
Proposed Action	Demolition and replacement of two timber bridges with concrete bridges, including improvements along two drainageways, and construction of a temporary by-pass road. Accessory improvements include construction of paved shoulders, relocating bus facilities, upgrading guardrails, replacing existing driveways, relocating water and electrical utilities, upgrading signage, and pavement markings.
Applicant or Proposing Agency	State of Hawai‘i Department of Transportation 869 Punchbowl Street Honolulu, Hawai‘i 96813 Glenn M. Okimoto, Director of Transportation
Accepting Authority	State of Hawai‘i Department of Transportation 869 Punchbowl Street Honolulu, Hawai‘i 96813 Glenn M. Okimoto, Director of Transportation
Draft EA Preparer	R. M. Towill Corporation 2024 North King Street, Suite 200 Honolulu, Hawai‘i 96819 Brian Takeda, Planning Project Coordinator
Location	Farrington Highway, Route 93, District of Wai‘anae, O‘ahu, Hawai‘i
Land Ownership	State of Hawai‘i Department of Transportation, Highways Division 601 Kamokila Boulevard, Kakuhihewa Building Kapolei, Hawai‘i 96707
Tax Map Key (TMK)	Between TMKs (1) 8-4-002: 047 and (1) 8-4-010: 012. Roads and bridges are not assigned TMK numbers.
Project Area	Approximately 3.8 Acres
Existing Land Use	State Highway right-of-way
County Zoning	P-2, Preservation and R-5, Residential
State Land Use	Urban
Permits That May Be Required	FEDERAL: Department of the Army, Section 404 Permit STATE: Stream Channel Alteration Permit; Coastal Zone Management Federal Consistency Review; Section 401 Water Quality Certification; National Pollutant Discharge Elimination System (NPDES), Notice of Intent (NOI) Form C - Construction Storm Water Permit; NPDES NOI Form G - Construction Dewatering Permit. CITY AND COUNTY OF HONOLULU: Special Management Area Use Permit

CHAPTER 1
INTRODUCTION

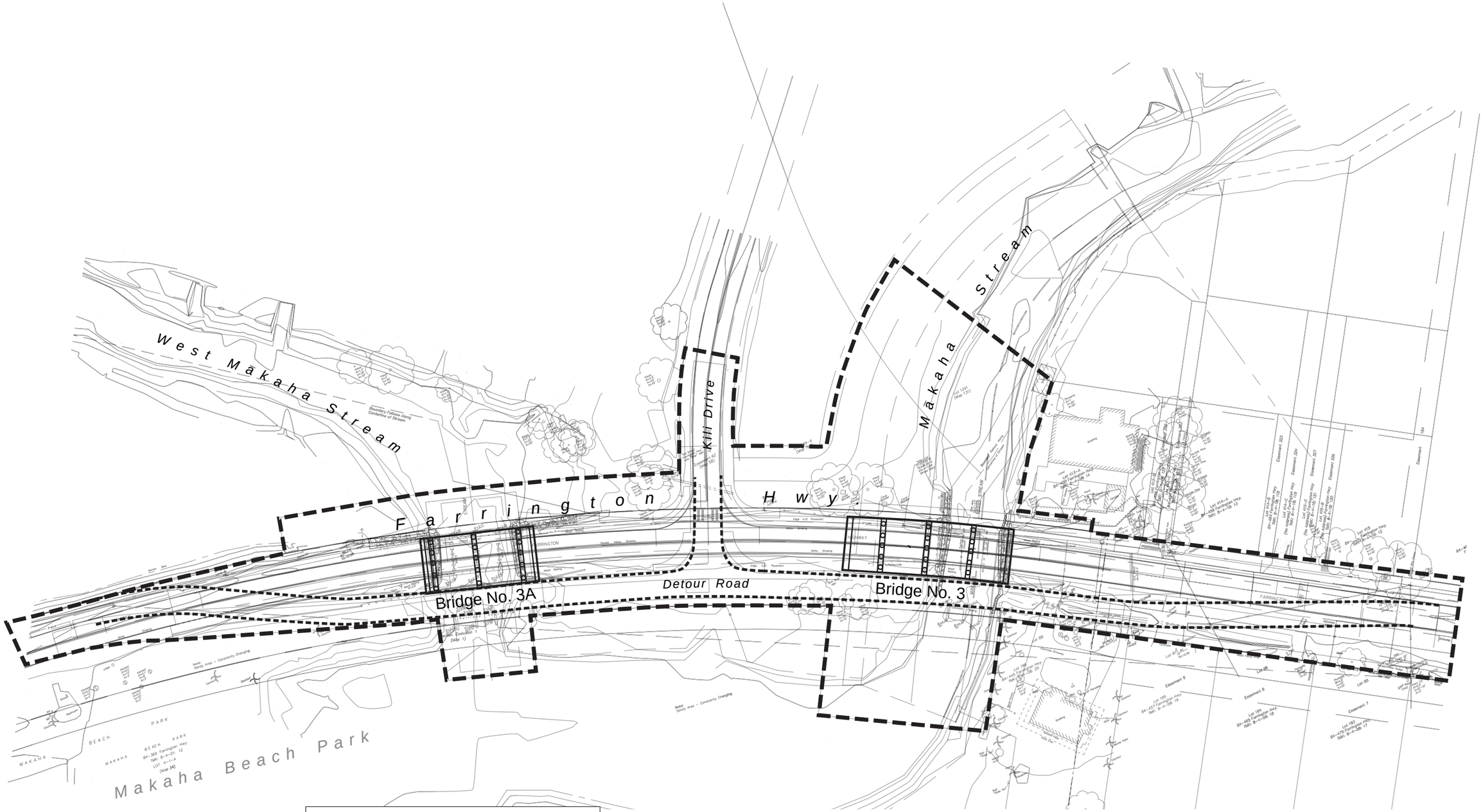
1.1 PROJECT OVERVIEW AND LOCATION

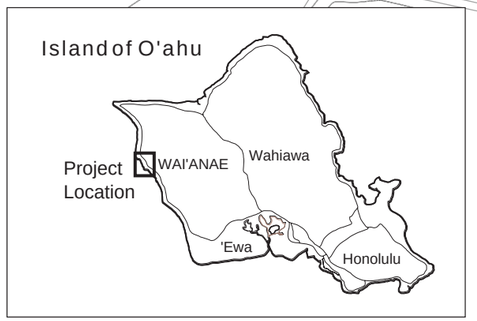
The State Department of Transportation, Highways Division (HDOT), proposes to replace two existing wooden bridges along Farrington Highway, Route 93, between milepost markers number 13.95 and number 14.21 in Mākaha on the Waiʻanae Coast of Oʻahu (**Figure 1-1**). Farrington Highway is a two lane principal arterial with 11-foot lanes and 3-foot paved shoulders. Constructed in 1937, Mākaha Bridges No. 3 and No. 3A currently support two 11-foot lanes with a 2-foot shoulder on the makai (seaward) side of the bridge and a 1-foot shoulder on the mauka (landward) side. Both bridges have been classified by HDOT as deficient and require replacement. Additionally, in 2006, Bridge No. 3 sustained damage by a fire and emergency repairs were done to repair and reinforce the damaged portions. The replacement bridges will be designed to meet or exceed current State and Federal design standards.

The portion of Farrington Highway that comprises the project site is located between Tax Map Keys (TMKs): (1) 8-4-002: Parcel 047 and (1) 8-4-010: Parcel 012. Both parcels are owned by the City and County of Honolulu. Other adjoining parcels are as indicated on **Figure 1-2**. Roadways and bridges are not assigned TMK numbers.

This Environmental Assessment for the proposed project required the evaluation of existing land uses and environmental conditions to determine the overall impacts associated with construction and operation of the facility on the surrounding area and community. All project activities will be assessed for compliance with Federal, State, and City and County of Honolulu policies and land use plans.

Construction is estimated to occur in 2012 and last approximately 18 months. The total project cost estimate is approximately $15 million. Funding sources will be from the Federal Highway Administration (FHWA) and State Highway funds. FHWA will contribute approximately 80 percent and the State of Hawaiʻi will contribute 20 percent of the funding needed for this project.





Legend

- Project Boundary
- Bridge No. 3 & 3A
- Detour Road

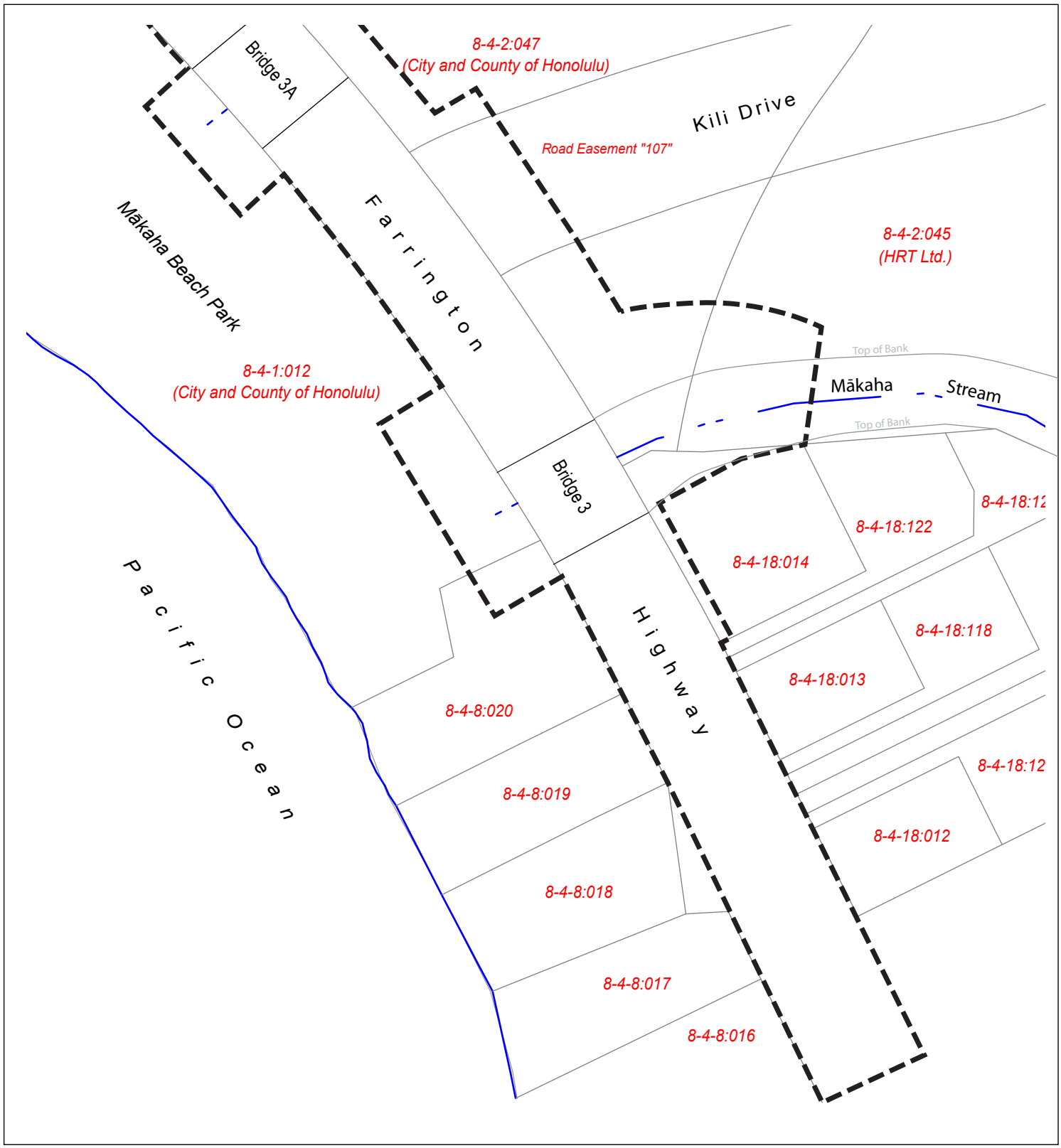
Project: Farrington Highway, Replacement of Mākaha Bridge No. 3 and 3A, District of Wai'anae, Island of O'ahu, Federal-Aid Project No. BR-093-1(20). Source Dwg.: Topographic Map of project site along Farrington Highway. Scale: 50% Reduced size drawing (Original dwg. size is 26"x24").

Figure 1-1 Project Location
Replacement of Mākaha Bridges No. 3 and No. 3A
Farrington Highway, Wai'anae, O'ahu, Hawai'i
State Department of Transportation, Highways Division

0 80 160 Feet

R.M. TOWILL CORPORATION

February 2010



Legend

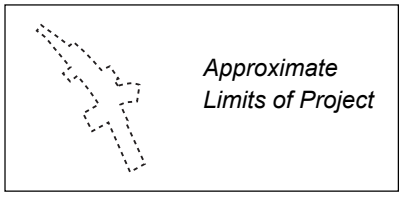


Figure 1-2 Tax Map Keys (TMKs)
Replacement of Mākaha Bridges No. 3 and No. 3A
Farrington Highway, Wai'anae, O'ahu, Hawai'i
State Department of Transportation, Highways Division

0 100 200 Feet

R.M. TOWILL CORPORATION

April 2010

1.2 PURPOSE OF THE ENVIRONMENTAL ASSESSMENT (EA)

This Environmental Assessment (EA) is prepared pursuant to the requirements of Chapter 343, Hawai'i Revised Statutes (HRS) and Hawai'i Administrative Rules, Title 11, Chapter 200. It assesses the potential for adverse environmental impacts due to construction of the proposed bridge replacements. As appropriate, mitigation measures to address potential for negative environmental impacts are identified. The use of Federal and State funds and government properties trigger the requirement for this EA.

The requirements for the National Environmental Policy Act (NEPA) will be handled through the filing of a separate Environmental Assessment document pursuant to Title 23 of the Code of Federal Regulations, Section 771.

A Draft EA was published for public review in the July 8, 2009 issue of the State Department of Health (DOH), Office of Environmental Quality Control (OEQC), Environmental Notice. Comments were received during the public comment period (see **Appendix H – Comments Received During the Draft EA Public Comment Period and Responses**).

This Final EA provides additional information based on the comments received that further describes the proposed project, the environmental conditions of the site, the potential for significant adverse impacts, and the application of mitigation measures as appropriate, to reduce the potential for significant environmental impacts.

This Final EA and accompanying Finding of No Significant Impact (FONSI) will be filed with the Office of Environmental Quality Control (OEQC) by HDOT.

1.3 PURPOSE AND NEED FOR THE PROJECT

The purpose of this project is to replace two existing wooden bridge structures with two new reinforced concrete bridge structures to negate structural and safety concerns on the aging bridges. The existing timber bridges were constructed in 1937, with resurfacing of the travelway in the area of the bridges last completed in 1986. Although both bridges are regularly

inspected and maintained to ensure integrity of the structures, it is desirable to replace the deficient structures to address existing substructure and superstructure conditions, poor hydraulic capacity, narrow bridge width, and inadequate shoulders areas.

In 1997, HDOT conducted inspections of the bridges and determined that both bridges needed to be replaced. According to HDOT's National Bridge Inventory Recording and Coding Guide, Bridge No. 3A had a sufficiency rating of 39, while Bridge No. 3 had a sufficiency rating of 52. The bridge sufficiency rating represents a composite rating weighted to assess the qualities of the bridge which includes structural adequacy and safety, serviceability and functional obsolescence, and essentiality for public use. Sufficiency ratings range from 0 to 100, with a lower value indicating a lower degree of sufficiency, but a higher degree of need for either replacement or repair.

In order to be eligible for Federal Aid funding, a bridge must be both deficient and possess a sufficiency rating value less than 50 for replacement or less than or equal to 80 for rehabilitation. The term deficient denotes that the structure is either structurally deficient or functionally obsolete.

Structurally deficient is a classification given to a bridge that is closed, restricted to light-weight vehicles, or otherwise requires immediate rehabilitation to remain open because of deteriorated structural elements. A restricted-use structurally deficient bridge is not necessarily unsafe and strict observance of the posted allowable traffic load and vehicle speed will generally provide safeguards for users. The functionally obsolete classification is given to a bridge where the deck geometry, load-carrying capacity, clearance, or approach roadway alignment no longer meet current requirements. A functionally obsolete bridge is not unsafe for all vehicles, however it has an older design with features that prevent it from accommodating current vehicle sizes and weights, and possibly present traffic volumes.

While Bridge No. 3 has a sufficiency of 52, rehabilitation was not considered due to the considerable anticipated amount of resources needed to rehabilitate the bridge to meet current design standards. The waterway opening for Bridge No. 3 currently cannot accommodate 100-year flood events. Moreover, improvements would be needed to provide for wider shoulder

widths and bridge railings to meet current roadway and safety design standards. Based on these factors, it was determined by HDOT that replacement of Bridge No. 3 would constitute a more cost-effective action than it is to rehabilitate the existing structure.

In July of 2006, a fire broke out under Bridge No. 3, which caused damage to the structure. Emergency repairs were done to repair and reinforce the damaged bridge, however, the fire damage to the bridge further warrants replacement of the structure.

The proposed replacement bridges will be designed to meet current design standards set by the American Association of State Highway and Transportation Officials (AASHTO), FHWA and HDOT. The replacement of the bridges will:

- Replace the existing timber bridges with new concrete structures, which will eliminate the potential for increased maintenance costs associated with the aging wooden bridges;
- Provide sufficient flow capacity to accommodate the 100-year flood event without overtopping or negatively impacting upstream properties by increasing the bridge openings;
- Provide new wider bridges to permit wider travelway widths and adequate shoulder areas; and
- Permit the installation of improvements to meet other requirements of AASHTO, FHWA, and DOT (i.e. improved bridge railings, guardrails and end treatments).

Since the publication of the Draft EA, updated information has been obtained and additional analysis has been performed to confirm the flow conditions at the proposed replacement bridges. The results of the anaylsis indicate that the current single span design of the Bridge 3 replacement needs to be redesigned in order to accommodate the revised 100-year storm flow. An alternative to raise the elevation of the single-span bridge and roadway profile was not considered viable because the raised elevation could create a potential "damming" effect resulting in undesired higher flood elevation of upstream properties. Rather than raising the profile of the bridge, the replacement bridge has been designed to be a two-span bridge.

The redesign of the replacement bridge will have minimal environmental impacts and will be limited to the widening of a small portion of the dry stream channel just upstream of the bridge to provide proper drainage.

1.4 PERMITS AND CLEARANCES THAT MAY BE REQUIRED

The proposed action requires various Federal, State, and City and County of Honolulu discretionary and environmental permits in addition to the environmental assessment requirements of the National Environmental Policy Act (NEPA) and Chapter 343, HRS. These permits include:

U.S. ARMY CORPS OF ENGINEERS SECTION 404/10 PERMIT

The U.S. Army Corps of Engineers has jurisdiction over "dredge and fill" actions in U.S. waters that include the West Mākaha and Mākaha streams that are located below the two bridges. Certain discharges specified in 33 CFR part 330 are permitted under a "Nationwide Permit" system, while other categories require regional and individual permits. The proposed project is expected to meet conditions for a Nationwide Permit under the criteria established in Permit No. 14 (Linear Transportation Projects) and Permit No. 33 (Temporary Construction, Access and Dewatering) (2007 Federal Register, Final Notice of Reissuance of Nationwide Permits, 72 FR 11092).

SECTION 401 WATER QUALITY CERTIFICATION (WQC)

The U.S. Clean Water Act and Section 401 of its implementing regulations (33 CFR 1341) require any applicant for a Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into navigable waters, to obtain a water quality certification from the State where the discharge takes place or originates. The State Department of Health (DOH), Clean Water Branch (CWB) administers the Water Quality Certification permitting process in Hawai‘i.

SECTION 7 ENDANGERED SPECIES ACT OF 1973 (ESA)

Section 7 of the Endangered Species Act requires Federal agencies to ensure that any action authorized, funded or carried out by them is not likely to put at risk the continued existence of any endangered or threatened species, or result in adverse modification or destruction of their habitat. Section 7 outlines the process for interagency coordination with the United States Fish and Wildlife Service (USFWS) and/or the National Oceanic and Atmospheric Administration (NOAA) Fisheries on the proposed project's potential to affect listed species.

SECTION 4(f), 49 U.S.C. §303 and 23 U.S.C. §138

Under Section 4(f), the FHWA and other DOT agencies cannot approve a transportation program or project that requires the use of any publicly owned land from a significant public park, recreation area, or wildlife and waterfowl refuge, or any land from a significant historic site, unless a determination is made that:

- The use will have no more than a de minimis impact on the area; or
- There is no feasible and prudent alternative to using the property; and
- The program or project includes all possible planning to minimize harm to the property resulting from the use.

COASTAL ZONE MANAGEMENT FEDERAL CONSISTENCY (CZM FEDCON) REVIEW

Section 307(c)(1) of the Coastal Zone Management Act (CZMA) requires the project proponent or developer to provide a consistency determination of the proposed action in relation to the federally approved State CZM Program. The State Coastal Zone Management Office must agree with the determination that the proposed action is consistent with the State of Hawai‘i’s CZM Program and/or provide specific conditions on the proposed action to place it in consistency.

STREAM CHANNEL ALTERATION PERMIT (SCAP)

Chapter 174C, HRS, authorizes the regulation and permitting of activities that propose to alter stream channels and flow characteristics in the State of Hawai‘i. The State Water Commission regulates actions that propose to alter stream channels and flows under the Title 13, Chapter 169-50, Hawai‘i Administrative Rules (HAR) of the State Water Commission for Stream Channel

Alteration Permits. The regulations state that channel alterations that would adversely affect the quantity and quality of the stream water or the stream ecology should be minimized or not allowed. Where instream flow standards have been established, no permit shall be granted for any channel alteration that diminishes the quantity or quality of the stream water below the minimum standards.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMITS

The NPDES permit program, Section 402 of the Clean Water Act of 1972, is administered in the State of Hawai'i by the Department of Health (DOH). Depending on the water quality classification of the waters that will receive construction associated discharges, a General or an Individual NPDES permit application will be required.

Offshore water quality adjacent to the project site is designated by the DOH, Clean Water Branch, as "A", open coastal waters. According to HAR, Title 11, Chapter 54-03, (c) Marine Waters, (2) Class A:

> *It is the objective of class A waters that their use for recreational purposes and aesthetic enjoyment be protected. Any other use shall be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class.*

The Class "A" designation will require the filing of General or Notice of Intent (NOI) permit applications based on the potential for project associated discharges from:

(1) Construction storm water runoff will require the filing of a NPDES NOI Form C-Construction Stormwater Permit Application. This application is triggered if the total project area is equal to or greater than 1-acre. This application is required regardless of whether it is possible to contain all runoff from the project site.

(2) A NPDES NOI Form G-Construction Dewatering Permit Application will be required if there are discharges of treated dewatering effluent to State waters

from work to prepare and construct the bridge foundations using drilled shafts or excavation to establish the foundation footings. If discharges of dewatering effluent can be handled so that no discharges enter state waters, this permit application will not be required (e.g., methods to avoid discharges include use of a retention basin to completely contain all dewatering effluent).

SECTION 106 NATIONAL HISTORIC PRESERVATION ACT (NHPA) CONSULTATION AND STATE HISTORIC PRESERVATION CLEARANCE (CHAPTER 6E, HRS)

The proposed action is also regulated by Section 106, NHPA and its implementing regulations (36 CFR 800), as well as the State Historic Preservation Act found in Chapter 6E, Hawai'i Revised Statutes. This consultation and clearance process is designed to minimize project impacts to cultural, historic, or archaeologically significant sites.

SPECIAL MANAGEMENT AREA (SMA) PERMIT, CITY AND COUNTY OF HONOLULU

The State of Hawai'i Chapter 205A, HRS, authorizes the counties to establish Special Management Area (SMAs) to protect and preserve the coastal zone in Hawai'i. The City and County of Honolulu regulates actions taking place in the SMA under Chapter 25, Revised Ordinances of Honolulu (ROH). The City and County of Honolulu, Department of Planning and Permitting (DPP) administers the SMA Permit process to control development in the SMA, minimize effects to sensitive ecological areas, and avoid permanent loss of valuable coastal resources.

The SMA permit process is used to preserve scenic views and ensure public access to beaches, coastal recreational areas, and natural reserves. Actions affecting wetland areas, including dredging, also are regulated by this permit. The proposed project is located within the SMA.

FLOOD HAZARD DISTRICTS CERTIFICATION, CITY AND COUNTY OF HONOLULU

The purposes of establishing flood hazard districts are to protect life and property and reduce public costs for flood control and rescue and relief efforts. Regulating development within the flood hazard districts promotes the safety, health, convenience and general welfare of the community.

Section 21-9.10-5(b) of the Land Use Ordinance states that "Any temporary or permanent encroachment, including fill, structures, storage of material or equipment, or other development within the floodway, shall be prohibited unless certification and supporting data, including hydrologic and hydraulic analyses performed in accordance with standard engineering practice, are provided by a licensed engineer demonstrating that the proposed encroachment will not cause any increase in regulatory flood elevations during the occurrence of the regulatory flood."

OTHER PERMIT APPLICATIONS AND LAND USE APPROVALS

Construction related building and grading permits will be required for the subject action. Applications for these ministerial permits will be filed at the appropriate time with the relevant City agencies.

CHAPTER 2
PROJECT DESCRIPTION

2.1 EXISTING CONDITIONS AND SURROUNDING LAND USE

Farrington highway is a 2-lane principal arterial with 11-foot lanes and 3-foot paved shoulders. Mākaha Bridges 3 and 3A support two 11-foot lanes with a 2-foot shoulder on the makai side of the bridge and a 1-foot shoulder on the mauka side. A 4-foot walkway is located on the mauka side of both bridges (**Figure 2-1**).

Both wooden bridges were built in 1937. In 2005, a study showed that the roadway received an average daily traffic (ADT) of 5,400 vehicles.

Mākaha Stream (also called South Mākaha Stream; State Perennial Stream ID No. 3-5-07) is an interrupted stream that originates on the western slope of the Waiʻanae mountain range deep in Mākaha Valley. Mākaha Stream flows under Bridge 3 and terminates behind a sand berm at Mākaha Beach Park (**Figure 1-1**).

West Mākaha Stream (sometimes called North Mākaha Stream) arises on the south slope of Puʻukeaʻau and eventually flows under Bridge 3A. It is a relatively short intermittent stream that terminates in an approximately 100-foot long *muliwai* (a coastal estuarine pond). Neither stream has a permanent surface connection to the ocean. The two streambeds connect to each other on the makai side of Farrington Highway, however they are usually blocked from the ocean by a sand berm at Mākaha Beach Park. Water normally flows in this area only after heavy rains (**Figure 1-1**).

On the mauka side of Farrington Highway, along the West Mākaha Stream is a salt marsh wetland (**Figure 2-2**). In the wetland, the *muliwai* is hyper-saline and surrounded by a heavy stand of pickleweed (*Batis maritima*). There are some kiawe (*Prosopis pallida*) and haole-koa (*Leucaena leucocephala*) trees scattered about the wetland.

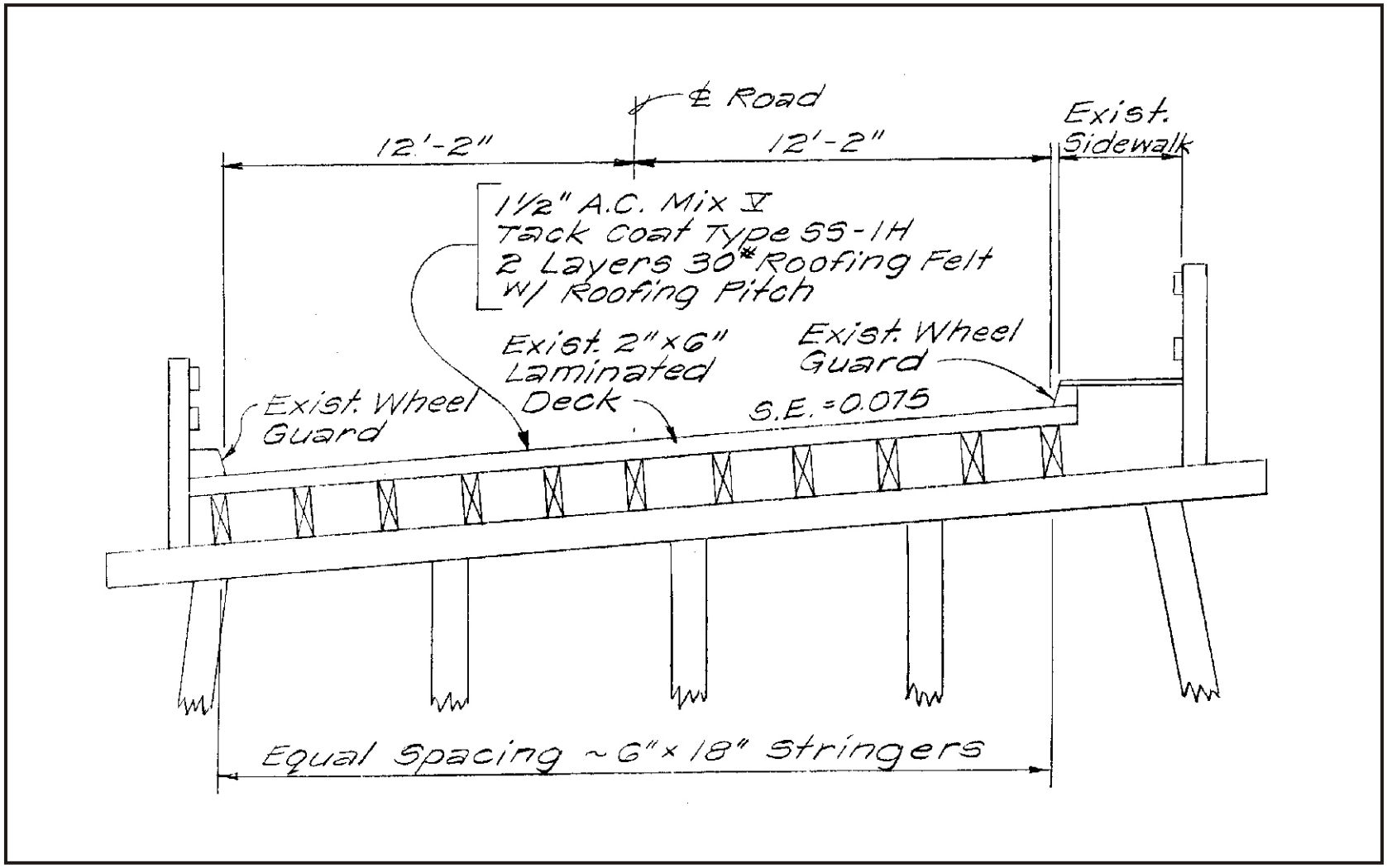
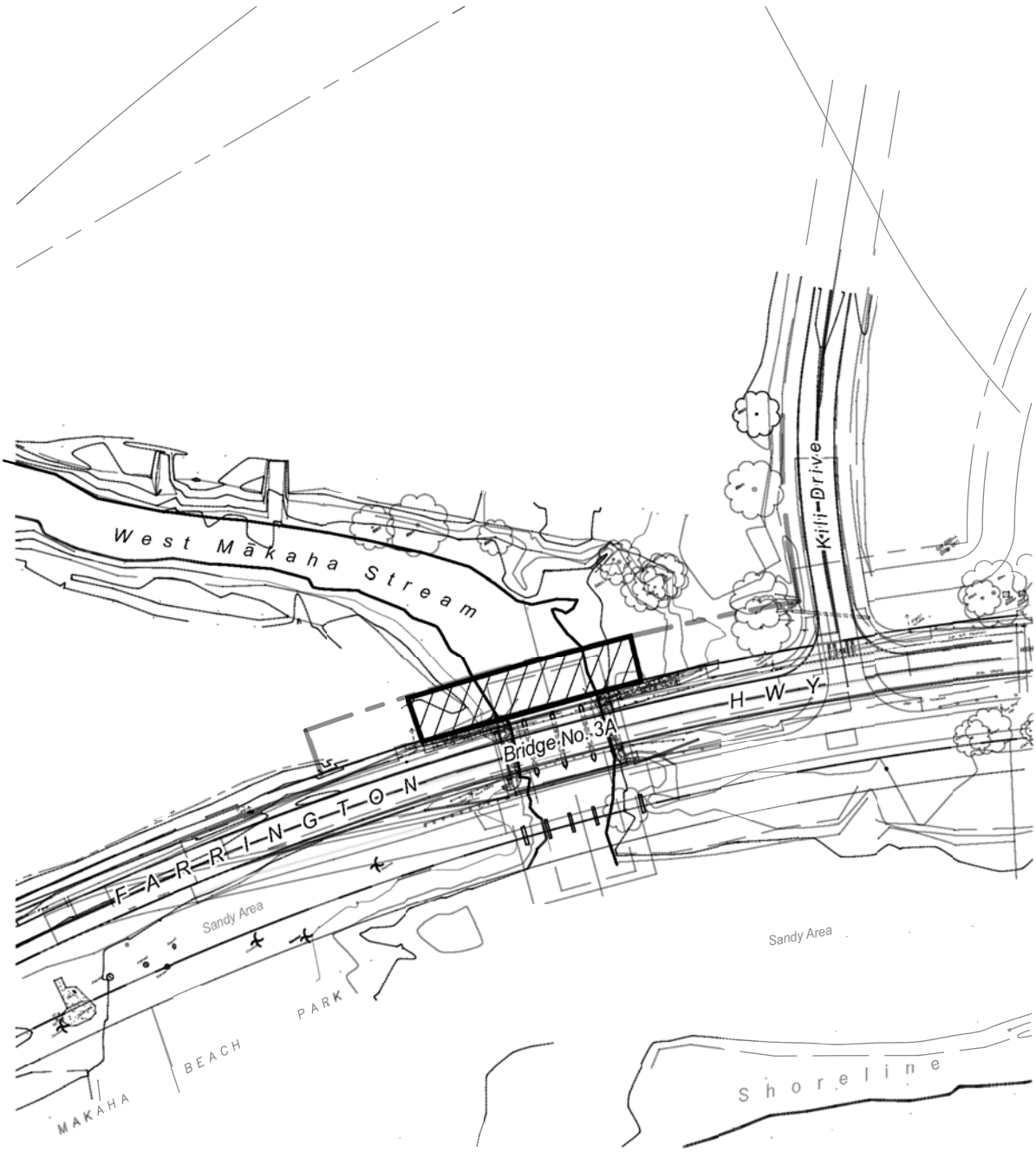


Figure 2-1 Existing Typical Bridge Section
Replacement of Mākaha Bridges No. 3 and 3A
Farrington Highway, Wai'anae, O'ahu, Hawai'i
State Department of Transportation, Highways Division

NOT TO SCALE



Legend

Approximate Location of Project Site Within Salt Marsh Wetland

Figure 2-2 West Mākaha Stream Wetland
Replacement of Mākaha Bridges No. 3 and No. 3A
Farrington Highway, Wai'anae, O'ahu, Hawai'i
State Department of Transportation, Highways Division

0 110 120 Feet

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Existing utility infrastructure in close proximity to the project site includes power lines, telecommunications cables belonging to AT&T, Sandwich Isles Communication, Hawaiian Telecom Communications Inc. (formerly Verizon, Inc.), Pacific LightNet Inc., and other communications providers, and an 12-inch Board of Water Supply (BWS) water main.

2.2 DESCRIPTION OF THE PROPOSED ACTION

The two existing wooden bridge structures will be replaced with reinforced concrete bridges. The replacement bridges will increase the travelway widths to 12 foot wide lanes in each direction and 10 foot wide shoulders to accommodate pedestrians and bicyclists (**Figure 2-3**). The proposed project will require: construction of an approximately 1,200 foot long detour road; demolition of the existing wooden bridge structures; construction of temporary bridges; construction of the new bridges, channel slope protection, and bridge appurtenances; relocation of utilities; restoration of the site; and, demobilization of construction equipment and materials. The roadways that will be affected include the segment of Farrington Highway approaching the two bridges, the portion of the highway that adjoins the two bridges, and an approximately 150 foot long segment of Kili Drive that intersects Farrington Highway. The total area involved will be approximately 3.8 acres.

Figure 1-1 identifies the proposed project site.

In order to meet current roadway design requirements, the proposed project will require additional areas beyond the current right-of-way to accommodate the increased bridge spans and structures necessary for embankment protection, channel widening and guardrail improvements. The proposed wider right-of-way will affect lands on both sides (*mauka and makai*) adjacent of the project site. Additionally, the temporary use of construction parcels will be necessary during construction.

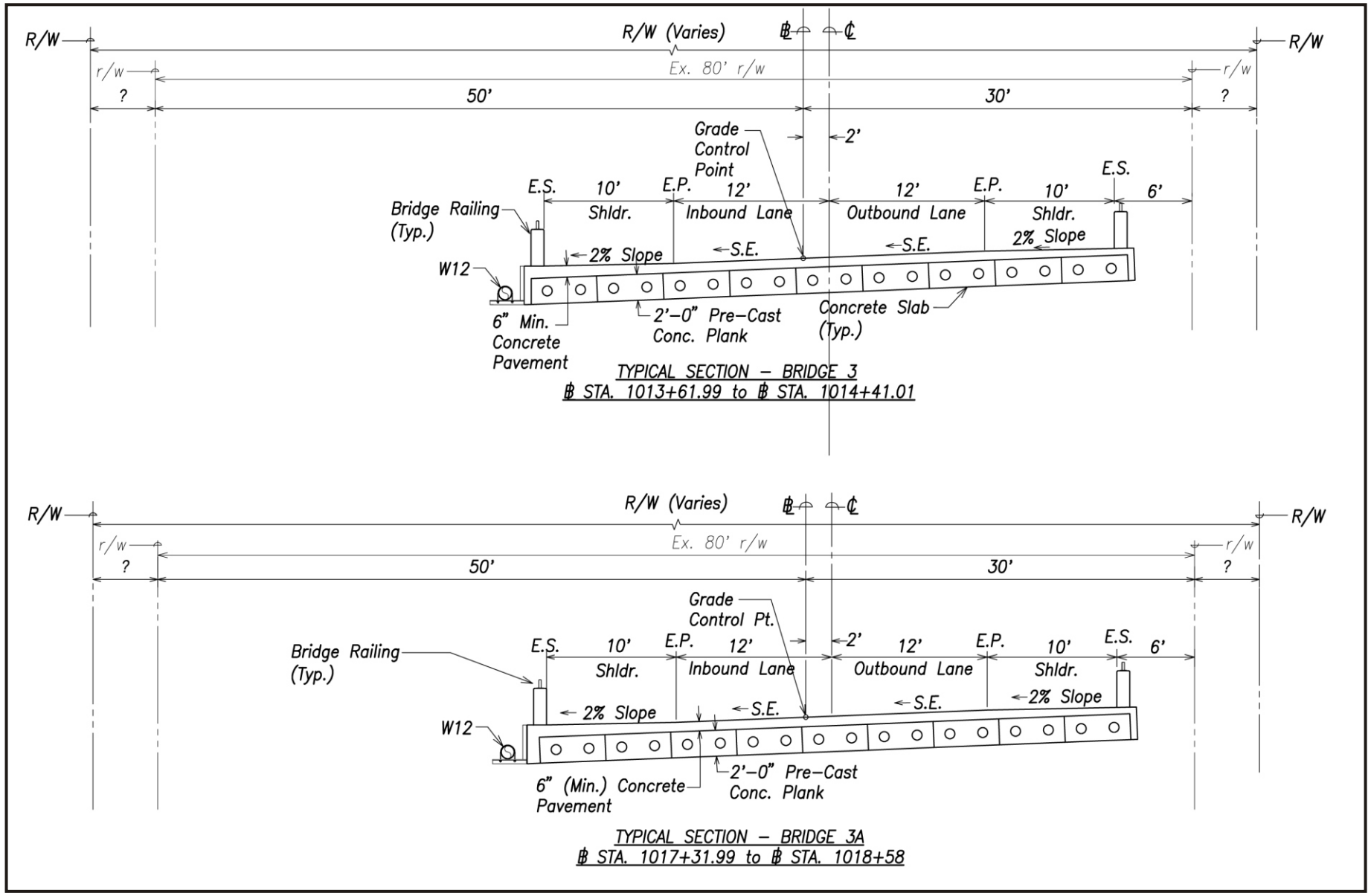


Figure 2-3 Proposed Typical Bridge Sections
Replacement of Mākaha Bridges No. 3 and No. 3A
Farrington Highway, Waiʻanae, Oʻahu, Hawaiʻi
State Department of Transportation, Highways Division

NOT TO SCALE

The tax map keys and property owners that may be potentially affected are identified in **Table 2-1**:

Table 2-1

Potentially Affect Property Owners

TMK	Owner	Potential Project Impact
8-4-18: 014	Private Residence	Temporary & Permanent Use
8-4-08: 020	Private Residence	Temporary & Permanent Use
8-4-02: 045	HRT Ltd.	Permanent Use
8-4-02: 047	City & County of Honolulu	Temporary & Permanent Use
8-4-01: 012	City & County of Honolulu	Temporary & Permanent Use

The HDOT will work with the public and private landowners for the temporary and permanent use of their lands affected by the proposed project. No residents will be permanently displaced by this project.

Specific construction details will be prepared as part of the construction design process. Preparation of these details will involve preparation of all construction documents including topographic survey; engineering plans; bid and award documents for selection of the construction contractor; and construction management documents including "as-built" drawings.

Preparation of all construction documents will be in accordance with requirements of HDOT, FHWA, and City and County of Honolulu regulations, plans, and policies.

The anticipated plan for construction of the project will include the following:

1. Pre-demolition Phase (Approximately 2 months)

    A. Construct By-Pass Road and Temporary Bridge Crossing Structures.
    Work will involve constructing the temporary by-pass road to route traffic from the north and south approach ends of Farrington Highway around the work area. The by-pass road will accommodate a tie-in or connector

with Kili Drive that normally intersects with Farrington Highway. The portion of Kili Drive that will be affected will be approximately 150 feet long from its intersection with Farrington Highway.

The by-pass road is planned to be approximately 1,200 feet long with two 10 foot wide travel lanes for each of the north and south bound lanes of traffic (**Figure 1-1 and Figure 2-4**). A pedestrian path with a 4-foot minimum width will be provided. The by-pass road and connector with Kili Drive will be located on the makai edge of the Farrington Highway right-of-way, roughly adjacent to the Mākaha Stream and West Mākaha Stream bridge sections.

Asphalt concrete or other DOT approved surface will be used to construct the by-pass road to accommodate public, private, commercial, and emergency services vehicles. The by-pass road crossing the stream at Mākaha Bridge 3A will utilize prefabricated bridge structural elements to be determined by the design engineer. The temporary bridge is anticipated to span the entire stream channel and therefore will not require construction of center piers. The existing remnant railroad abutments at the site will be removed and new abutments constructed to accommodate the wider temporary bridge. The by-pass road crossing the stream at Mākaha Bridge 3 will be constructed on embankment material with sheet pile shoring installed to support the construction. Pipe culverts will be used to allow stream flows to continue.

The temporary stream crossings will be specified to handle the anticipated traffic load for the duration of construction.

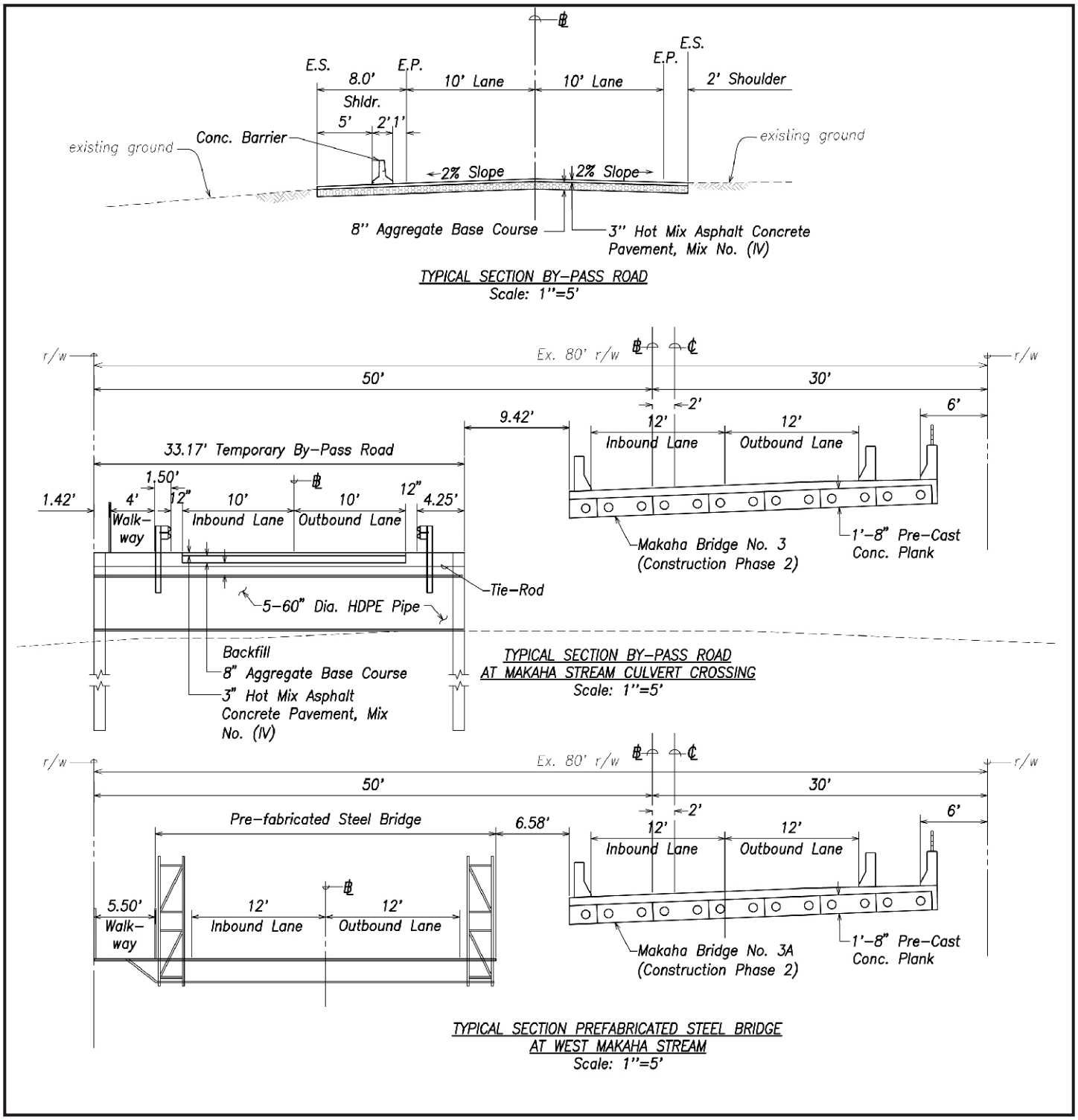


Figure 2-4 Proposed Typical Bypass Road Sections
Replacement of Mākaha Bridges No. 3 and No. 3A
Farrington Highway, Waiʻanae, Oʻahu, Hawaiʻi
State Department of Transportation, Highways Division

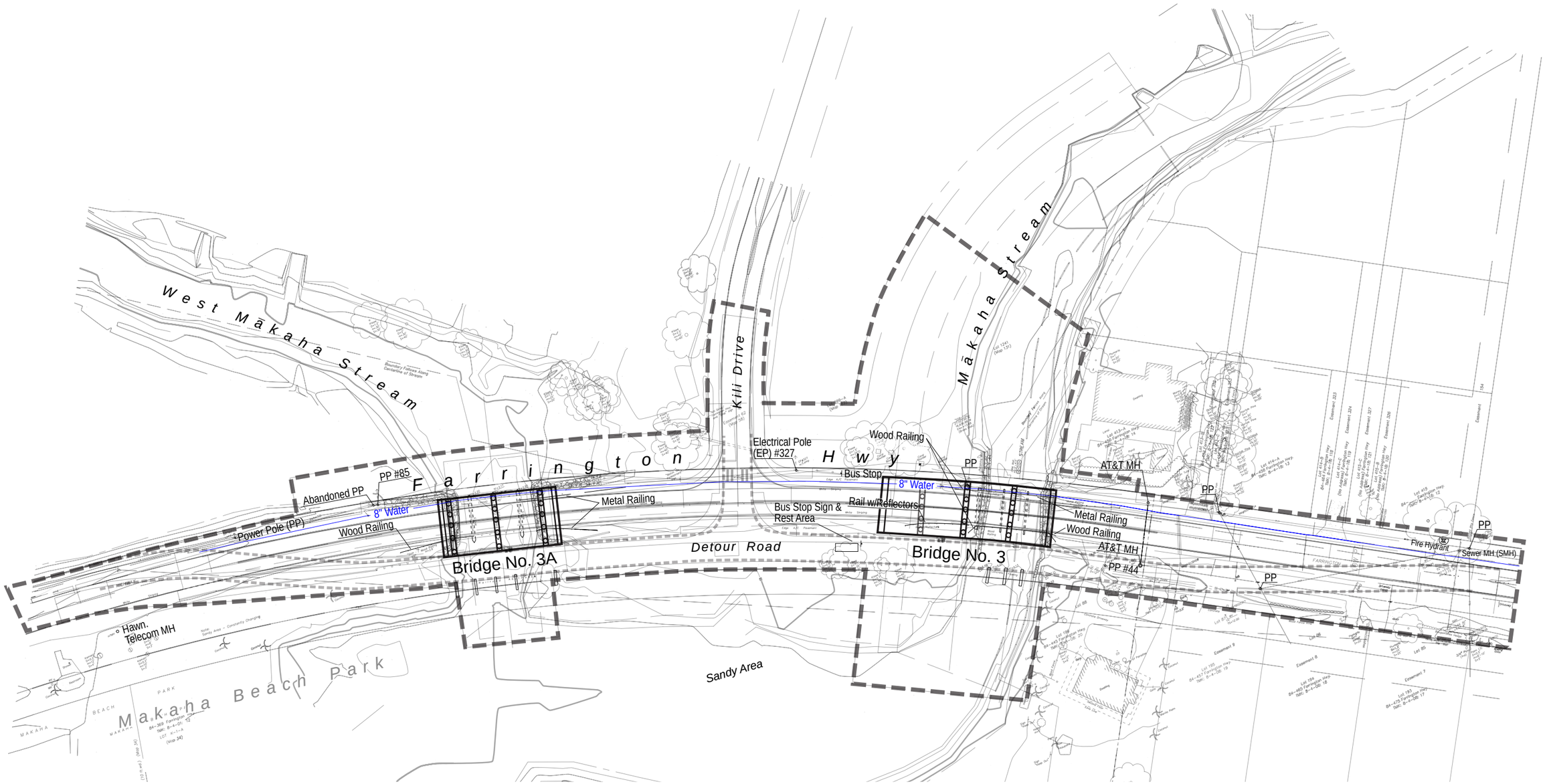
NOT TO SCALE

The by-pass road will be operated using appropriate traffic control devices and personnel to advise motorists to reduce speed and exercise caution. Police or personnel using flags will direct traffic and maintain safety of work crews during construction hours.

B. Relocate Utilities

Utilities that are located within the Farrington Highway right-of-way that will be affected will be relocated. In most cases the cost of relocation will be a shared expense with the utility companies unless otherwise noted in the DOT issued easement documents. The affected utilities include (major utilities are identified in **Figure 2-5**):

- An existing 8-inch water line that is presently attached to the bridges will be relocated prior to demolition on the makai side of the DOT right-of-way, within the planned by-pass road. This work will be coordinated with the Board of Water Supply.
- Utility poles providing communications, power and highway lighting will be temporarily relocated adjacent to the detour road. Upon completion of the new bridges the utility poles and lines will be restored adjacent to the new bridges.
- Manholes, pullboxes and ductlines serving telecommunications functions will be permanently relocated to a suitable location while the new bridges are constructed. Telecommunications providers and other utilities of record will be notified and appropriate provisions made to relocate these facilities.
- Drainage culverts and swales will be temporarily relocated.
- All other affected water and sewer laterals will be relocated as necessary while the detour road is constructed.



Legend

- Project Boundary
- Bridge No. 3 & 3A
- Detour Road

Project: Farrington Highway, Replacement of Mākaha Bridge No. 3 and 3A, District of Wai'anae, Island of O'ahu, Federal-Aid Project No. BR-093-1(20). Source Dwg.: Topographic Map of project site along Farrington Highway. Scale: 50% Reduced size drawing (Original dwg. size is 26"x24").

Figure 2-5 Affected Utilities (Major)
Replacement of Mākaha Bridges No. 3 and No. 3A
Farrington Highway, Wai'anae, O'ahu, Hawai'i
State Department of Transportation, Highways Division

0 80 160 Feet

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C. Relocate Bus Stops

Two bus stops located on the mauka and makai sides of Farrington Highway will also require temporary relocation:

- The mauka bus stop consists of a bus stop sign located between the bridges approximately 60 feet south of the Kili Drive intersection. It is expected that because more space will be available on the mauka side of the detour road the mauka bus stop will be temporarily relocated west or makai of its present location to a new location along the mauka side of the detour road.
- The makai bus stop consists of a small covered rest stop and is located across Farrington Highway approximately across the highway from the mauka bus stop. This bus stop may be temporarily relocated outside of the construction zone further west along the makai side of the detour road and possibly along Farrington Highway, in the vicinity of the City and County of Honolulu, Mākaha Beach Park.

  After construction is completed the bus stops will be relocated as close as possible and in proximity to their pre-existing locations. A new bus shelter will be constructed on the makai side of the highway.

2. Phase 1A (Approximately 6 months)

A. Demolish Existing Bridges 3 and 3A and Appurtenant Structures

The site will be prepared for demolition. Discharge pollution prevention measures will be installed for each bridge and appurtenant structure as required based on scheduling and construction activities. Measures to prevent stormwater associated runoff and release of sediments will be in

place and functional before the start of construction and will be maintained until it is appropriate for removal, e.g., following demobilization and clean-up.

The existing bridge structures will be demolished after the by-pass road is constructed and made operational. Demolition debris that cannot be further reused or recycled will be disposed of off-site at an approved facility designed to accept such wastes, e.g., PVT Landfill in Nanakuli.

In accordance with Section 1805 of Public Law 109-59, HDOT shall first make the debris from the demolition of the bridges available for beneficial use by interested Federal, State, or local government (City & County of Honolulu).

B. Construct Replacement Bridges and Accessory Improvements

Construct Bridge No. 3A replacement bridge. Construct mauka half of Bridge 3 replacement bridge. Driven concrete piles will be used to support the abutment foundations of both bridges and the center pier foundations. Other accessory structural elements will be either pre-cast or cast in place for the bridge abutments, wing walls, and main bridge structure.

Deck planking will be installed and the surface of both bridges will be surfaced with concrete pavement in accordance with requirements of the State DOT and Federal Highway Administration (FHWA).

Accessory improvements will include:

- Concrete will be used to protect the foundations of the bridge abutments and piers to resist scour. Upstream of the bridges scour and erosion protection will involve use of riprap or similar treatment. Use of concrete lined channel bottom at Bridge 3A is not planned. Reinforced concrete will be used to reconstruct the

existing concrete apron at Bridge No. 3.

- Implementation of a 24-hour per day traffic phasing plan will be used for the duration of construction to guide the sequence of work and ensure motorist, pedestrian, and work crew safety.
- Guardrails and end treatments, reflector markers, and pavement markers and striping will be installed.

3. Phase 1B (Approximately 2 months)
   This next phase of construction will include:

   A. Construct approach ends to connect the new bridges with Farrington Highway.

   B. Add embankment and resurface remaining areas to tie in the new bridges with Farrington Highway and Kili Drive.

   C. Reroute traffic from by-pass road to Farrington Highway.

   D. Demolish and remove temporary by-pass road and bridge.

4. Phase 2 (Approximately 8 months)
   Phase 2 of the project will involve completing all remaining work necessary to integrate the new bridges with the existing Farrington Highway. Work activities will include:

   A. Complete makai half of bridge No. 3.

   B. Excavate the remaining right-of-way on the makai side of the bridges in order to accommodate the larger openings of the bridge structures.

   C. Excavate the area mauka of Bridge No. 3 for the Mākaha Stream realignment. Construct channel slope protection.

5. Site Restoration, Contractor Demobilization and Clean-up

Items and facilities within the project area that have been removed or displaced for construction purposes will be repaired and/or replaced by the contractor. These items will include rock or tile walls, fencing, vegetation, and ground surfaces. Residential driveways affected by construction will also be restored.

The physical restoration of areas surrounding utility relocation work will be coordinated with appropriate utility companies and other parties of record, as required.

Upon completion of work and site inspection by the DOT the contractor will clean-up the site and remove all construction equipment, temporary structures (e.g., barriers and signage), and personnel from the job site. Any materials that cannot be further reused or recycled will be properly disposed of at an appropriate refuse facility.

2.3 PROJECT SCHEDULE AND COST

Construction is scheduled to begin in 2011 with the project lasting approximately 18 months. The overall project schedule is projected as follows:

Design Phase:	2004 – 2010
Advertisement, Bid Opening and Contract Award:	2011 – 2012
Construction:	2012 – 2013

The project cost is currently estimated at $15 million with funding provided from DOT and FHWA. DOT will contribute approximately 20 percent of the project cost and FHWA will contribute approximately 80 percent.

CHAPTER 3
ALTERNATIVES TO THE PROPOSED ACTION

3.1 INTRODUCTION

Three design alternatives were considered by HDOT in the Project Assessment Report for the Farrington Highway Makaha Bridge No.3 and No. 3A Replacement, (DOT, September 6, 2001). These are: (1) No Action; (2) Construct the new bridges within the existing alignment of Farrington Highway; and (3) Construct the new bridges within a makai alignment of Farrington Highway. A fourth design alternative was also considered by HDOT, and includes construction of the new bridges within a mauka realignment of Farrington Highway.

3.2 DESIGN ALTERNATIVE 1 – NO ACTION

The No Action Alternative involves no further action to replace the existing bridges. No action would involve no further planning and engineering cost for development and result in the continued use of bridge structures that do not meet current engineering design standards. The bridges would continue to age and increased repair and maintenance costs would be incurred to keep the bridges in a safe and operational condition.

The No Action Alternative is not considered a viable nor feasible alternative because it would fail to address the need for the replacement of bridges that have approached the end of a reasonable period of use (structurally deficient and functionally obsolete) and do not meet design standards. For this reason the No Action Alternative is rejected from further consideration.

3.3 DESIGN ALTERNATIVE 2 – REPLACE BRIDGES WITHIN EXISTING HIGHWAY

This is the preferred alternative and involves replacement of the existing bridges with wider structures that maintain the existing centerline alignment of the roadway, construction and removal of a temporary detour road, relocation of utilities, and installation of pavement markings.

A comparison of the usable space that could be made available between the new bridge structures and the existing bridges are as follows:

		Existing	Proposed
Travelway Width (feet)			
	Northbound	11	12
	Southbound	11	12
Shoulder Width (feet)			
	Makai Side	2	10**
	Mauka Side	1	10**
Walkway Width (feet)		4*	

Note: *Walkway on mauka side only.
**Including walkway area.

The replacement bridges that will replace the existing deficient bridges would meet current design standards for bridge structures and will accommodate the flow for a 100-year flood event by widening the bridge openings and channels. The new bridge structures would increase the travelway and shoulder widths, but would remove the existing raised curb. The additional width along the travelway and shoulder would contribute to increased safety for motorists, pedestrians and bicyclists.

The effort required to construct the preferred alternative will include the following:

- Replacement of two bridge structures and appurtenances;
- Building and removing a by-pass road;
- Coordinating the relocation of utilities with various utility providers;
- Coordinating the relocation of overhead power and communications utilities and highway lighting;
- Coordinating the proposed construction schedule and work activities with two residences adjacent to the Mākaha Bridge No. 3;
- Coordinating and selecting a site for construction staging; and
- Obtaining and coordinating the acquisition of a limited amount of right-of-way and necessary discretionary environmental permit applications with governmental agencies.

Approximately 18 months is estimated for construction at a cost of approximately $15 million dollars (Current estimate. Estimate in Project Assessment Report, DOT 2001, is $8 million).

3.4 DESIGN ALTERNATIVE 3 – REPLACE BRIDGES WITHIN MAKAI REALIGNED HIGHWAY

This alternative is similar to Design Alternative 2, with the exception that Farrington Highway would be realigned from its present location and moved closer to the shoreline. Construction activities would involve replacement of the existing bridge structures with wider structures, construction and removal of a temporary detour road, relocation of utilities, and installation of pavement markings.

This alternative would similarly increase the width of the travelway in both directions of traffic and increased space would be made available on the bridge shoulders for pedestrians and bicyclists. The replacement bridges would also meet current design standards for bridge structures.

Design Alternative 3 would involve the need to identify and acquire a new DOT right-of-way for a realigned Farrington Highway. Properties that adjoin the existing project site include residential, private, and governmental land. **Figure 1-2** identifies the TMKs adjacent to the existing alignment of Farrington Highway within proximity to the two bridges. Depending on the final alignment, properties that could be impacted include multiple single-family residences, the Mākaha Beach Park owned by the City and County of Honolulu, two parcels owned by telecommunications utilities (AT&T and Pacific LightNet Inc.), and other undeveloped parcels.

The process for acquisition of new DOT right-of-way would require:

- Investigate, identify and select a new alignment to replace and relocate the existing bridges;
- Identify the parcels affected by the proposed realignment of Farrington Highway. Negotiate with property owners and compensate for land that is required;
- Prepare necessary documentation to record the land transfer; and

- Prepare design documents and discretionary environmental and land use permit applications for construction.

It is expected that the selection and acquisition process needed to obtain a new right-of-way would be lengthy and involve major impacts to landowners because of loss of all or a portion of their existing properties. Other related factors that would need to be considered include:

- Design and engineering effort would be required for the portion of the new alignment that will need to connect the northwest end of Mākaha Bridge No. 3A and the southeast end of Mākaha Bridge No. 3 with Farrington Highway;
- Design and engineering effort for a new highway segment between the proposed new bridges along the highway;
- Negotiation and determination of costs associated with compensation to landowners for acquisition of property. This would include administrative costs for negotiation, property appraisal, and processing and coordination of legal documentation necessary to complete the land transactions; and
- Depending on the proposed realignment of the highway there will be potential for additional environmental impacts to land and social impacts to landowners that would require further evaluation and assessment. This would include potential for the filing of environmental/land use permit applications beyond those identified for Alternative No. 2, as described in this document.

Notwithstanding the additional effort needed to define a proposed new alignment for Farrington Highway, a preliminary estimate of approximately 18 months would be needed for construction at an estimated cost of $5.9 million dollars (Preliminary Assessment Report, DOT 2001).

While Design Alternative 3 meets the purpose and need of the proposed project to replace the existing deficient bridges, it is not considered a viable nor feasible alternative and is rejected from further consideration based on: (1) the need for acquisition of new highway right-of-way is undesirable because of potential for major economic and social disruption to property owners; and (2) in combination with the need for acquisition of large portions of land, would move a segment of Farrington Highway and the reconstructed bridges closer to the ocean. This

is undesirable based on existing conditions involving seasonal periods of heavy surf which could damage the new bridges and adjoining segment of the highway, and pose increased and unnecessary risk to public safety.

3.5 DESIGN ALTERNATIVE 4 – REPLACE BRIDGES WITHIN MAUKA REALIGNED HIGHWAY

This alternative is similar to Design Alternative 3, with the exception that Farrington Highway would be realigned from its present location and moved further mauka from the shoreline. Construction activities would involve the major realignment of Farrington Highway as well as replacement of the existing bridge structures with wider structures, construction and removal of a temporary detour road, relocation of utilities, and installation of pavement markings.

The primary benefit of this alternative is that a portion of Farrington Highway would be relocated away from tidal influences during winter and heavy surf conditions. It would increase the width of the travelway in both directions of traffic and increased space would be made available on the bridge shoulders for pedestrians and bicyclists. The replacement bridges would be constructed to meet current design standards for bridge structures, but would require major effort to realign only a relatively short segment of Farrington Highway.

This Design Alternative would also require the need to identify and acquire new DOT right-of-way. Properties that adjoin the existing project site include residential, private, and governmental land. Depending on the final alignment properties that could be impacted include multiple single-family residences, the Mākaha Beach Park owned by the City and County of Honolulu, two parcels owned by telecommunications utilities (AT&T and Pacific LightNet Inc.), and other undeveloped parcels.

The process for acquisition of new DOT right-of-way would be similar to Design Alternative 3 and would also involve major impacts to landowners because of loss of all or a portion of their existing properties. As previously identified, the factors that would need to be considered include:

- Design and engineering effort would be required for the portion of the new alignment that will need to connect the northwest end of Mākaha Bridge No. 3A and the southeast end of Mākaha Bridge No. 3 with Farrington Highway;
- Design and engineering effort for a new highway segment between the proposed new bridges along the highway;
- Negotiation and determination of costs associated with compensation to landowners for acquisition of property. This would include administrative costs for negotiation, property appraisal, and processing and coordination of legal documentation necessary to complete the land transactions; and
- Depending on the proposed realignment of the highway there will be potential for additional environmental impacts to land and social impacts to landowners that would require further evaluation and assessment. This would include potential for the filing of environmental/land use permit applications beyond those identified for Alternative No. 2, as described in this document.

The time, effort, and projected expense required for Design Alternative 4 would exceed that of all other alternatives considered. A preliminary estimate is that several years would be required to: (1) obtain major new funding for a highway realignment that includes compensation for acquisition of new property as well as construction of two new bridges; (2) coordinate the design and engineering of a realigned segment of Farrington Highway with adjoining and affected property owners and governmental agencies; (3) acquire and record property for new highway right-of-way by negotiation or condemnation; and (4) identify, prepare, file, and process major environmental entitlements and studies such as an Environmental Impact Statement (EIS)/EA and environmental and land use permits. Construction costs would involve not only the expense for two new replacement bridges, but the added expense for a new segment of highway.

While this alternative meets the stated purpose and need of the proposed project, it is similarly not considered a viable nor feasible alternative and is also rejected from further consideration due to: (1) the need for acquisition of new highway right-of-way is undesirable because of potential for major economic and social disruption to property owners; (2) when considered in light of the Preferred Design Alternative 2, this alternative would unnecessarily exceed the

stated purpose of the proposed project which is to replace two existing deficient bridges (e.g., structurally deficient and functionally obsolete); and (3) this alternative as well as Design Alternative 3, would require not only the replacement of the existing bridges, but the major realignment of Farrington Highway for only a relatively short segment along the area of the Mākaha Beach Park.

3.6 BY-PASS ROAD ALIGNMENT ALTERNATIVES

Mauka or makai alignment alternatives for the by-pass road were also considered by HDOT. The mauka alternative was rejected for the following reasons:

- A coastal estuarine pond (*muliwai*) exists along the mauka side of Bridge 3A. Construction of a by-pass road on the mauka side of the project area would result in significant adverse effects to the *muliwai*; and
- An existing residence located mauka of the western end of the project site, next to Bridge 3, is situated approximately 30 feet away from the existing right-of-way. This narrow width cannot accommodate a temporary by-pass road without causing significant property, noise, and traffic impacts to the homeowner, as well as interfering with construction of the proposed bridge structure.

Because of these existing conditions that encumber the possibility of a by-pass road along the mauka-side of the project area, the only alternative available is a temporary by-pass road built along the makai side of the project site.

CHAPTER 4
AFFECTED ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATION MEASURES

4.1 CLIMATE

The project site and surrounding area is located on the southwest coastline of O‘ahu which is generally warm and dry. Mean annual temperatures range between approximately 70 and 90 degrees Fahrenheit, with higher temperatures experienced during the summer months. Annual rainfall averages about 20 inches, most of it occurring during the winter months. The prevailing winds are tradewinds blowing from a northeasterly direction. Winds from a southeasterly direction (Kona winds) may be expected 5-8 percent of the time (Atlas of Hawai‘i, 1983).

Impacts and Mitigation Measures

The proposed project will have no impacts to the existing climate of the area. No mitigation measures are required.

4.2 TOPOGRAPHY

The project site lies at the base of the Wai‘anae mountain range which is approximately 22 miles in length. The range is rough, mountainous, and has narrow ridges with very steep slopes. The highest point on the range rises to 4,025 feet, which is the highest point on O‘ahu.

Topography of the project site includes the graded and paved surface of Farrington Highway which traverses across the wood framed Mākaha Bridges No. 3 and No. 3A. Elevation of this surface along Farrington Highway in the project vicinity is generally level and ranges from approximately 12.7 to 13.7 feet msl.

The existing Mākaha Bridge No. 3 crossing at Mākaha Stream involves a span of approximately 50 feet. Elevation of the bottom of the stream bed is about 3.6 to 3.8 feet msl. The Mākaha Bridge No. 3A crossing at West Mākaha Stream involves a span of approximately 75 feet with the bottom of the stream bed at about 1 to 2 feet msl.

Impacts and Mitigation Measures

The proposed project will be designed with minimal changes to existing roadway and bridge elevations. The stream channels will be widened to allow the bridge crossings to accommodate 100-year flood flows of the Mākaha and West Mākaha Streams. The project construction will involve:

- Replacement of the two existing bridges with new concrete reinforced bridges that will be placed above widened stream channels to accommodate a 100-year flood determined by a hydrologic analysis of the watershed. The existing stream channel under Bridge No. 3A is approximately 60 feet wide. The proposed width is anticipated to be 68 feet. The existing stream channel under Bridge No. 3 is approximately 42 feet wide. The proposed width will be about 90 feet.
- A new retaining wall will need to be constructed along the northwest boundary of TMK: 8-4-8: parcel 20 to provide bank stabilization and erosion protection for the Mākaha Bridge No. 3 structure.
- Slope protection (riprap or similar) will be installed within and along portions of the Mākaha and West Mākaha streams for erosion protection of the bridge structures.

The topographic changes within the project site will be generally consistent with the existing use of the site. The elevation of Farrington Highway within the area of the new bridges will remain similar to existing conditions and upon completion of the project will continue to function as the major thoroughfare for the region.

No significant adverse impacts are anticipated and no mitigation measures related to topography are proposed (see Section 4.3, Geology and Soils, for anticipated impacts and proposed mitigation measures related to soils stability).

4.3 GEOLOGY AND SOILS

The land type on which the project site is situated is characterized as the Lualualei-Fill land-Ewa Association. According to the Soil Conservation Service (SCS) publication, "Soil Survey of the Islands of Kauai, O'ahu, Maui, Molokai, and Lanai, State of Hawai'i," this association consists of well-drained, fine textured and moderately fine textured soils on fans and in drainageways on the southern and western coastal plains. Soils found in this association are nearly level to moderately sloping. This association makes up about 14 percent of the land area of O'ahu (U.S. Department of Agriculture, Soil Conservation Service, August 1972).

Soils at the project site consist primarily of Beach Sand (BS) and Haleiwa silty clay (HeA) (**Figure 4-1**):

- BS occurs as sandy, gravelly, or cobbly areas on all the Hawaiian Islands. They are washed and of light colored sands derived from coral and seashells. Beaches have no value for farming. Where accessible and free of cobblestones and stones, they are highly suitable for recreational uses and resort development.

- HeA or Haleiwa silty clay, 0 to 2 percent slopes, occurs as large areas on alluvial plains or as long, narrow areas along drainageways. It also includes small areas of poorly-drained clayey soils in depressions as well as small areas of moderately well-drained clayey soils. Permeability is moderate. Runoff is very slow and the erosion hazard is no more than slight. This soil is used for sugarcane, truck crops and pasture.

Impacts and Mitigation Measures

No long term adverse impacts are anticipated to the area soils. Work at the site will principally involve the reconstruction of existing bridges and work along a 1,200 foot segment of Farrington Highway. Potential for impacts involving soil stability or erosion will be addressed by use of applicable Federal, State, and City and County of Honolulu regulations and guidelines governing construction activities.

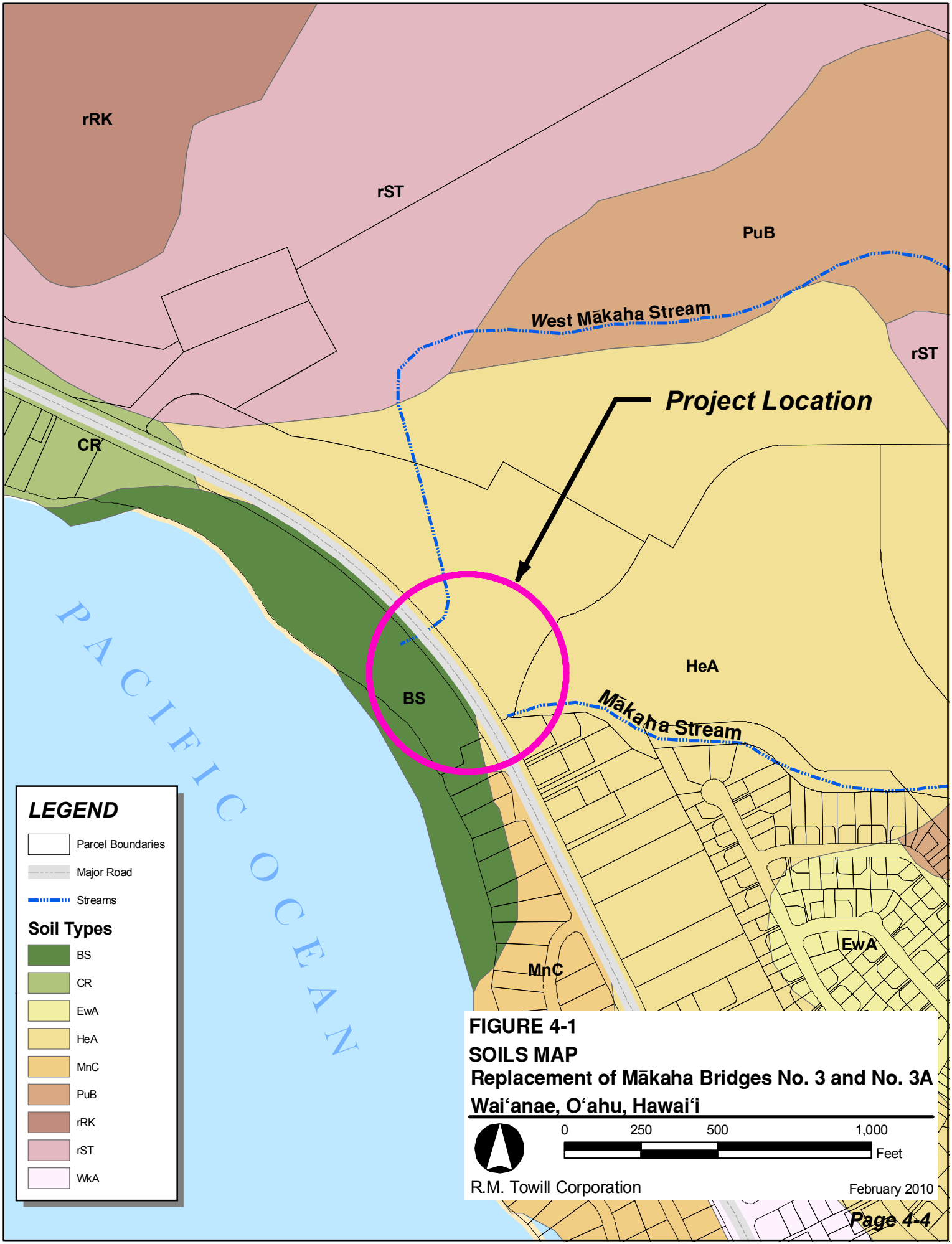


FIGURE 4-1
SOILS MAP
Replacement of Mākaha Bridges No. 3 and No. 3A
Waiʻanae, Oʻahu, Hawaiʻi

Specifically, construction activities will be done in accordance with the requirements of Chapter 11-55, HAR, Water Pollution Control, and Section 209 – Water Pollution and Erosion Control, in the HDOT's Hawai'i Standard Specifications for Road, Bridge and Public Works Construction.

Upon completion of work all equipment no longer necessary to the site will be removed and the ground returned as much as practicable, to existing preconstruction conditions.

Vegetative and structural controls will be used to stabilize surfaces that are exposed or susceptible to runoff. Use of native vegetation will be considered. Structural controls will include use of riprap or other surfacing that is consistent with the area surroundings while meeting runoff design requirements. Use of concrete lined channel bottom at Bridge No. 3A is not planned. Reinforced concrete will be used to reconstruct the existing concrete apron at Bridge No. 3.

4.4 HYDROLOGY

4.4.1 Surface Water & Wetlands

There are two streams that are in the project area, the Mākaha Stream and the West Mākaha Stream. Mākaha Stream (also known as South Mākaha Stream; State Perennial Stream ID No. 3-5-07) is an intermittent stream that originates on the western slope of the Wai'anae mountain range deep in Mākaha Valley. The upper reaches of the central tributary is the only section of the stream that regularly flows. Mākaha Stream, crosses under Bridge No. 3 on Farrington Highway terminating behind the sand berm at Mākaha Beach Park.

West Mākaha Stream (also known as North Mākaha Stream) begins at the south slope of Pu'ukea'au and ultimately flows under Bridge No. 3A. This relatively short intermittent stream terminates in a *muliwai* (a coastal estuarine pond) that is approximately 30 meters (100 feet) long.

Neither stream has a permanent surface connection to the ocean. On the makai side of Farrington Highway, the two dry streambeds connect to each other, though a sand berm at Mākaha Beach Park normally blocks runoff flows from the ocean. Water flows in the streambeds only after heavy rains and rarely breaks through the sand berm to enter directly into the ocean.

A salt marsh wetland is located on the mauka side of Farrington Highway that forms the lower reach of West Mākaha Stream (**Figure 2-2**). The *muliwai* in the wetland is hyper-saline and surrounded by a dense stand of pickleweed (*Batis maritima*). There are some Kiawe (*Prosopis pallida*) and Haole-koa (*Leucaena leucocephala*) trees scattered about the wetland. These same two species become a dominant vegetation type outside the wetland boundaries. The muliwai is about 3-feet deep throughout the wetland and consists of a muddy bottom. The hyper-saline water condition indicates wetland formation and maintenance via saltwater seepage through the coastal sand. This water in the wetland is subject to evaporation.

The lower reach of Mākaha Stream is most likely typically dry except during rainy periods. Near the bridge, the bed consists of soft sand. Just *makai* of the bridge, the streambed consists of sand and gravel. The streambed is mixed sand, gravel, cobble, and boulder up to about 1,000 feet upstream. The banks and riparian zone are dominated by *haole-koa*.

A U.S. Geological Survey (USGS) gage station (No. 16211600) is located on upper Mākaha Stream at the 939 ft elevation. This station's recorded annual mean stream flow is 1.72 cubic feet per second (cfs) during the period between 1960 and 2001. The peak stream flow of over 2,500 cfs was recorded in 1997 (USGS, 2004).

Offshore of the site along Farrington Highway are coastal waters of the Pacific Ocean located makai, several hundred feet from the highway.

Impacts and Mitigation Measures

The proposed project will involve construction within and immediately surrounding both Mākaha Streams. The potential for construction related impacts to the streams, the salt marsh wetland, and coastal waters associated with construction are anticipated to include the following:

- Discharges directly associated with construction involving release of demolition debris and construction materials – These discharges could occur by a release of materials or debris directly falling into one or both streams and/or the nearby salt marsh; and by stormwater runoff that could mix with sediments and construction materials. These discharges would most likely occur during demolition of the bridges and during construction with the excavation of soil and materials such as concrete. The specific construction activities to erect the bridges will include construction of a retaining wall along the northeast bank of Mākaha Stream, and the placement of slope protection along portions of both streams for erosion control protection.
- The salt-marsh wetland may be impacted by soil and debris from earth-moving and demolition activities. The existing 75-foot stream channel under the bridge (3A) will be widened to 123 feet. The mauka shoulder will be widened to accommodate new guardrails.
- Construction dewatering activities, if required, could also result in potential discharges to State waters. This would most likely occur during work to establish the bridge foundations. If groundwater is encountered and must be removed to maintain dry working conditions the dewatered effluent will require treatment prior to discharge to State waters as promulgated in Hawai‘i Administrative Rules (HAR), Chapter 11-54, Water Quality Standards. Alternatively, a retention basin may be used to allow the return infiltration and evaporation of effluent.

Mitigation measures to ensure protection against construction associated discharges will be provided by the following:

- *Erosion Control Plan (ECP)* - Discharges of construction associated stormwater runoff will be subject to preparation and filing of an Erosion Control Plan as required by DPP. Erosion control measures will be as prescribed in the City's Drainage Control Standards. These measures include limiting the areas subject to excavation before allowing work in new areas; planting grass or applying hydromulch to stabilize bare surfaces; and use of a stabilized construction entry

to inhibit the spreading of sediments unto adjoining roads from construction vehicles leaving the job site.

- To prevent negative impacts to the salt-marsh wetland, the portion closest to the Bridge No. 3A work area may be sectioned off using sheet piling or other appropriate measures to isolate the work area and prevent earth-moving activities from directly impacting the *muliwai*. All land disturbances will be stabilized prior to removal of sheet piling (or similar) erosion control measures.
- *National Pollutant Discharge Elimination System Notice of Intent, Form C (NPDES NOI C), Construction Stormwater* – A NPDES NOI C permit application will be prepared to ensure against mixing and discharge of storm water runoff with construction associated materials and debris. A Best Management Practices (BMPs) Plan will address the potential for mixing of stormwater with construction materials by describing management, structural, and vegetative controls that may be applied at the project site.

The following is a sample BMPs Plan that is representative of BMPs that will be applied to the proposed project:

Before Construction:

1. Existing ground cover will not be destroyed, removed or disturbed more than 20 calendar days prior to start of construction.
2. Erosion and sediment control measures will be in place and functional before earthwork can begin, and will be maintained throughout construction. Temporary measures may be removed at the beginning of the work day, but shall be replaced at the end of the work day.

During Construction:

1. Clearing shall be held to the minimum necessary for grading, equipment operation, and site work.
2. Construction shall be sequenced to minimize the exposure time of cleared surface areas. Areas of one phase shall be stabilized before another phase can be initiated. Stabilization shall be accomplished by protecting areas of disturbed soils from rainfall and runoff by use of structural

controls such as PVC sheets, geotextile filter fabric, berms or sediment basins, or vegetative controls such as grass seedling or hydromulch.

3. Temporary soil stabilization with appropriate vegetation shall be applied on areas that remain unfinished for more than 30 calendar days, and permanent soil stabilization using vegetative controls shall be applied as soon as practicable.
4. All control measures shall be checked and repaired as necessary, e.g., weekly in dry periods and within 24 hours after any heavy rainfall event. During periods of prolonged rainfall, daily checking should be conducted.
5. Maintenance and fueling of construction equipment and vehicles shall be performed only in designated areas protected by a containment berm to control potential spillage or fuel, lubricants or hydrocarbon based constituents. Sorbent and cleanup materials shall be placed in a conspicuous location to facilitate cleanup in the event of inadvertent leaks or spills. Refueling and maintenance of vehicles and equipment shall not be permitted outside of designated refueling areas.
6. All liquid materials including petroleum, oils, and lubricants (POLs), solvents, and cleaners, shall be stored in sealable containers. No open containers for the storage of such materials will be permitted.
7. Vehicle washing may only be performed in a designated area protected by appropriate controls such as a containment berm.

After Construction:

Following construction, all equipment no longer necessary to the site will be removed. Construction debris (that cannot be recycled in accordance with Section 1805 of Public Law 109-59) and refuse will be disposed of at an approved facility that accepts construction and demolition debris waste by the contractor.

- *National Pollutant Discharge Elimination System Notice of Intent, Form G (NPDES NOI G), Construction Dewatering* – A NPDES NOI G permit application will be filed if it is anticipated that dewatering effluent will need to be treated and discharged to State waters for construction activities involving the placement of

bridge structural elements such as piles or foundation elements. The NOI G will provide a BMPs Plan similar to the NOI C, but specific to the treatment and handling of dewatering effluent. Treatment and water quality monitoring will be provided to ensure that any discharges that are permitted will meet State water quality standards of HAR Chapter 11-54.

The subject project will also comply with regulatory requirements associated with Sections 401 and 404 of the Clean Water Act; Title 10 of the Rivers and Harbors Act of 1899; and the State Coastal Zone Management (CZM) Act. Adherence to these regulations will be provided through the filing of the Department of the Army Permit; Section 401 Water Quality Certification (if required); and the CZM permit review process.

4.4.2 Groundwater

HAR, Title 11, Chapter 23, established the Underground Injection Control program to protect the quality of the state's underground sources of drinking water (USDW) from pollution by subsurface disposal of fluids.

The proposed project scope will involve test borings used for geotechnical and hydrologic investigations; however such activities are exempt under the Rules (HAR 11-23-02 (3)) provided that the borings are plugged with impermeable material upon completion of work.

Additionally, the project site is located in a coastal area outside the UIC line which means that the underlying aquifer is not considered a drinking water source. The proximity of the site to the ocean suggests that the underlying groundwater is most likely brackish in nature if not entirely saltwater.

Impacts and Mitigation Measures

No adverse groundwater impacts associated with this project are anticipated. The test borings for geotechnical and hydrologic investigations will be capped with impermeable material upon completion of the investigation. No further mitigation measures are proposed.

4.5 DRAINAGE

Both the Mākaha Stream and the West Mākaha Stream are intermittent streams in the vicinity of the project site. They are mostly dry except during rainy periods.

Impacts and Mitigation Measures

The proposed project is not anticipated to have significant negative effects on drainage patterns in the project area. Both replacement bridges will improve the existing drainage patterns by providing sufficient area for operation of drainage structures. The existing bridges do not have the hydraulic capacity to accommodate a 100-year flood event. Should such an event occur, the flood would overtop Farrington Highway (Preliminary Drainage Report, March 2008). The proposed design would widen the stream channels to accommodate the 100-year flood event without increasing flood hazards to adjacent properties. No further mitigation measures are expected to be required.

4.6 BEACH EROSION AND SAND TRANSPORT

The project area is adjacent to the upper reaches of the sand deposits of the Mākaha Beach Park. The location of the replacement bridges will be the same site where the existing bridges are located and are not anticipated to increase beach erosion or alter the transport of sand along the coast.

Impacts and Mitigation Measures

The construction of the temporary makai detour road may affect sand deposits closest to the project site. However, the detour road will be temporary and will be removed upon completion of construction. Further, as part of the construction Best Management Practices (BMPs) Plan, silt curtains and other measures will be implemented to prevent erosion around the project area.

Upon project completion, the detour road will be removed and the area restored. The project is not expected to have long-term impacts to beach erosion and the natural transport of sand within the Mākaha Beach Park area.

4.7 NATURAL HAZARDS

4.7.1 Flood Zones

According to the Federal Emergency Management Agency, as referenced from the City and County of Honolulu's GIS flood information, the project site is located in an area designated Zone AE, AEF, X, XS and VE (**Figure 4-2**).

Zone AE is the flood insurance rate zone that corresponds to the 1-percent annual chance or 100-year floodplain. Zone AEF refers to a floodway area within Zone EA. The Base Flood Elevation (BFE), derived from detailed hydraulic analysis at the project site is 13 feet. Zone VE is the flood insurance rate zone that corresponds to the flood hazard areas inundated by 100-year flood that has additional hazards associated with coastal flood with wave action. The BFE for this zone is 12 feet. Zones X and XS refer to areas outside the flood limits.

A drainage analysis prepared by FEMA indicates that the existing bridges do not have the hydraulic capacity to accommodate a 100-year flood event. Should such an event occur, flood waters would overtop Farrington Highway.

Impacts and Mitigation Measures

Because the subject property is located within the 100-year floodplain, the structures will be designed to accommodate a 100-year flood event. Geotechnical and hydraulic studies will be conducted to ensure the structural integrity of the bridge structures in flooding events. The proposed design of the replacement bridges will accommodate the 100-year flood event without increasing flood hazards to adjacent properties. All work within Zones AE, AEF and VE will be in accordance with the rules and regulations of the National Flood Insurance Program.

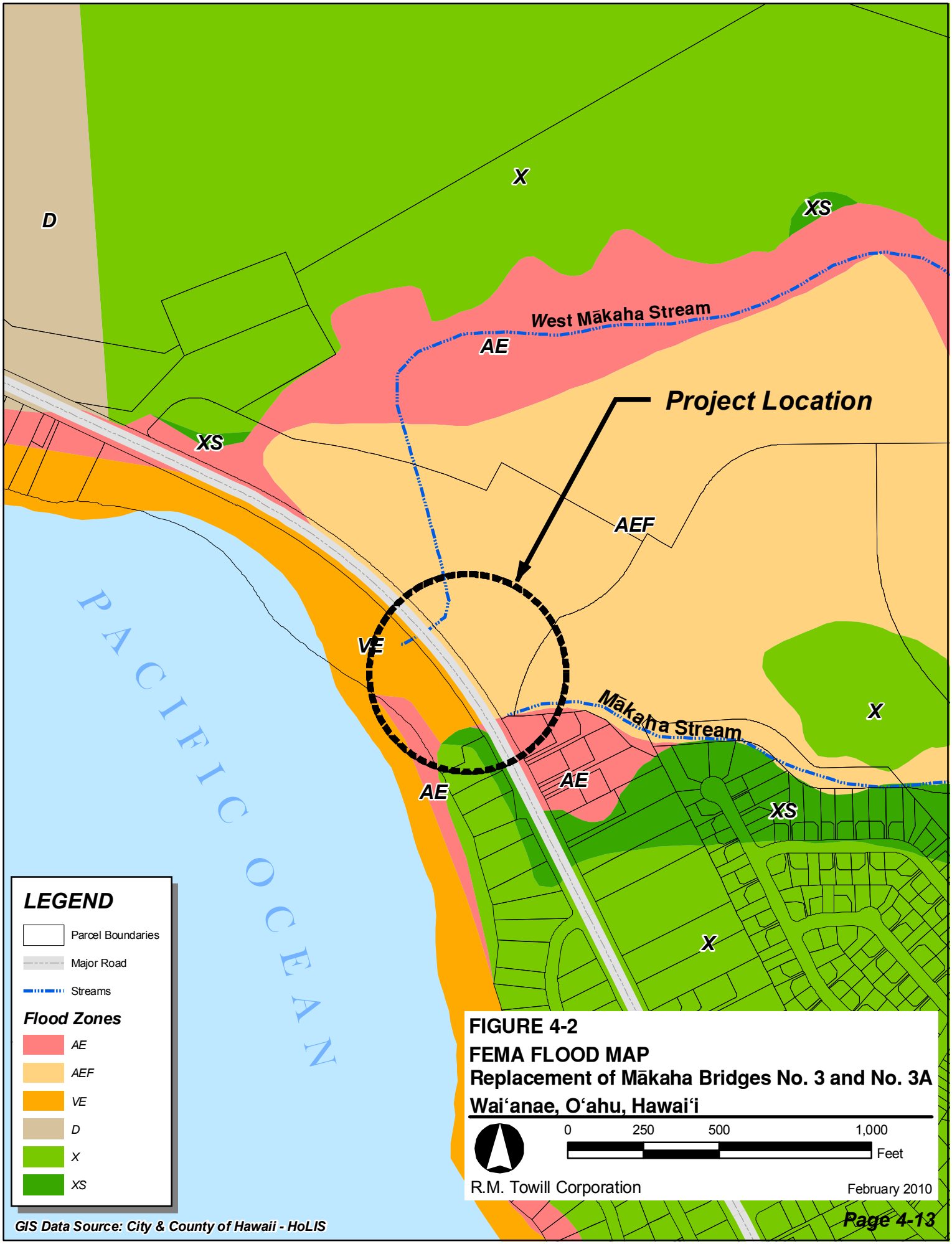


FIGURE 4-2
FEMA FLOOD MAP
Replacement of Mākaha Bridges No. 3 and No. 3A
Wai'anae, O'ahu, Hawai'i

4.7.2 Seismic Activity (Earthquakes)

Earthquakes occurring in Hawai'i are closely linked to volcanic activity. Numerous earthquakes take place every year, with the majority occurring beneath the island of Hawai'i. **Figure 4-3**, illustrates the peak horizontal acceleration for the State of Hawai'i (United States Geological Survey (USGS) 2000). The project location on the island of O'ahu has a peak acceleration value between 10 and 12 (expressed as a percentage of gravity).

Impacts and Mitigation Measures

The design of the new bridges will be in accordance with the American Association of State Highway Transportation Officials (AASHTO), Guide Specification for Load and Resistance Factor Design (LRFD) Seismic Bridge Design (May 2007).

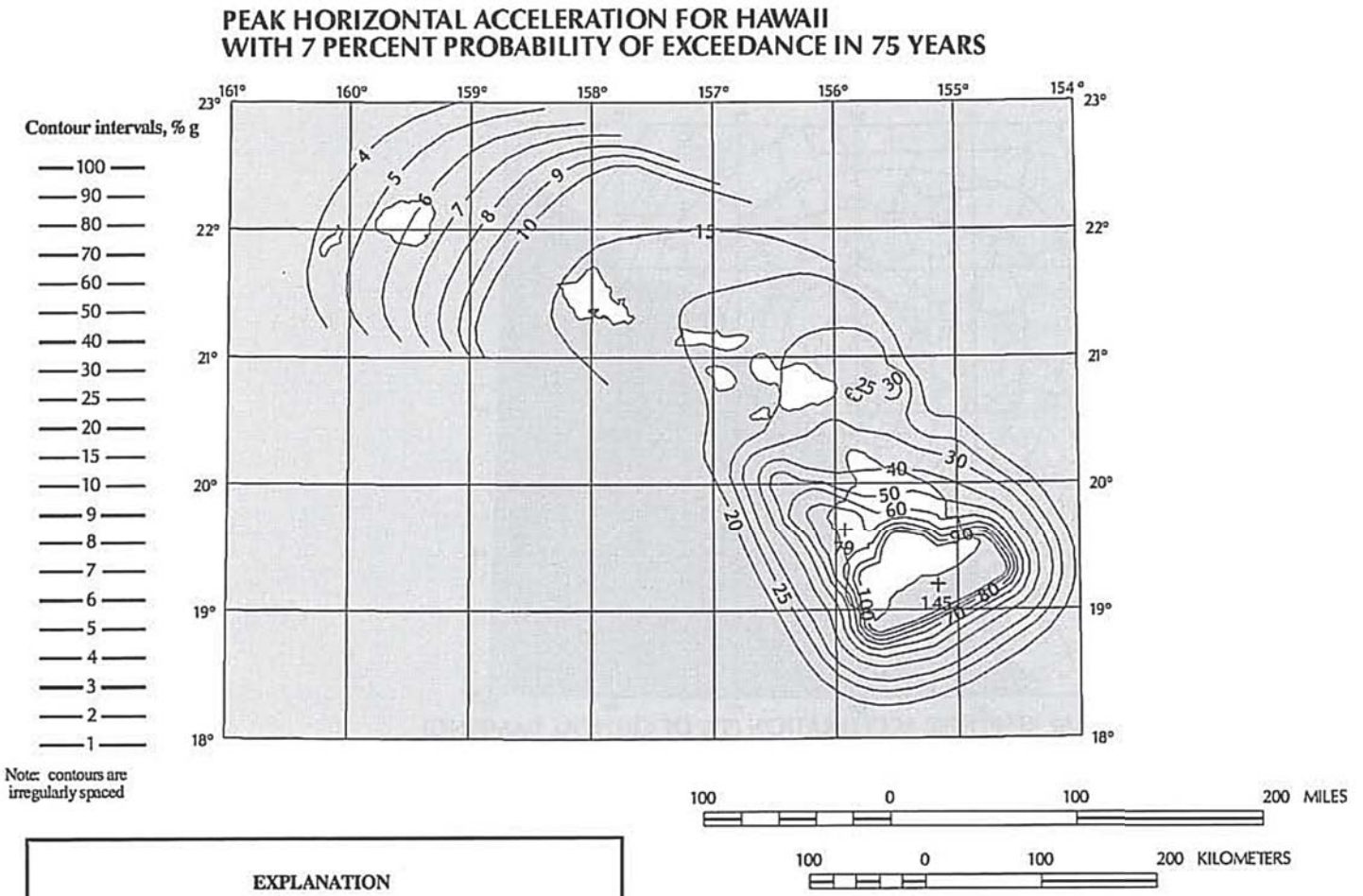
4.7.3 Tsunami

A tsunami is a series of destructive ocean waves generated by seismic activities that could potentially affect all shoreline areas in Hawai'i. Tsunami waves are capable of traversing long distances across the ocean and are capable of causing severe damage to property and endangerment to human life in coastal areas once it makes landfall. Tsunamis affecting Hawai'i are typically generated in waters off South America, the west coast of the United States, Alaska and Japan. Tsunamis can also be generated by local seismic events.

Almost all coastal areas of O'ahu, including the project area, are within the tsunami inundation zone. According to State Civil Defense, the project site is located at the border of the tsunami inundation zone at Mākaha (see **Figure 4-4**).

Impacts and Mitigation Measures

The structural design of the new bridges is based on hydraulic studies using maximum design water velocities and volume. The design of the new bridges will be in accordance with current AASHTO, LRFD specifications for bridge construction.



EXPLANATION

+ 6.2 — Point value of peak acceleration expressed as a percent of gravity

10 — Contours of peak acceleration expressed as a percent of gravity. Hachures point in direction of decreasing values.

DISCUSSION

The acceleration values contoured on this map are for the random horizontal component of acceleration. For design purposes, the reference site condition for the map is to be taken as Site Class B.

Leyendecker, Frankel, and Rukstales (2007) have prepared a CD-ROM that contains software to allow determination of Site Class B map values by latitude-longitude. The software on the CD contains site coefficients that allow the user to adjust map values for different Site Classes. Additional maps at different scales are also included on the CD. The CD was prepared using the same data as that used to prepare the USGS Probabilistic Earthquake Ground Motion maps.

The National Seismic Hazard Mapping Web Site, http://earthquake.usgs.gov/research/hazmaps contains information about maps, data, and documentation for seismic hazard maps.

Map prepared by U.S. Geological Survey.

REFERENCES

Imbsen, R., 2007, Proposed AASHTO Guide Specifications for LRFD Seismic Bridge Design, Imbsen Consulting.

Klein, F., Frankel, A., Mueller, C., Wesson, R. and Okubo, P., 2001, Seismic hazard in Hawaii: high rate of large earthquakes and probabilistic ground-motion maps, Bull. Seism. Soc. Am., v. 91, pp. 479-498.

Leyendecker, E., Frankel, A., and Rukstales, K., 2007, Seismic Design Parameters for AASHTO Guide Specifications for LRFD Seismic Bridge Design.

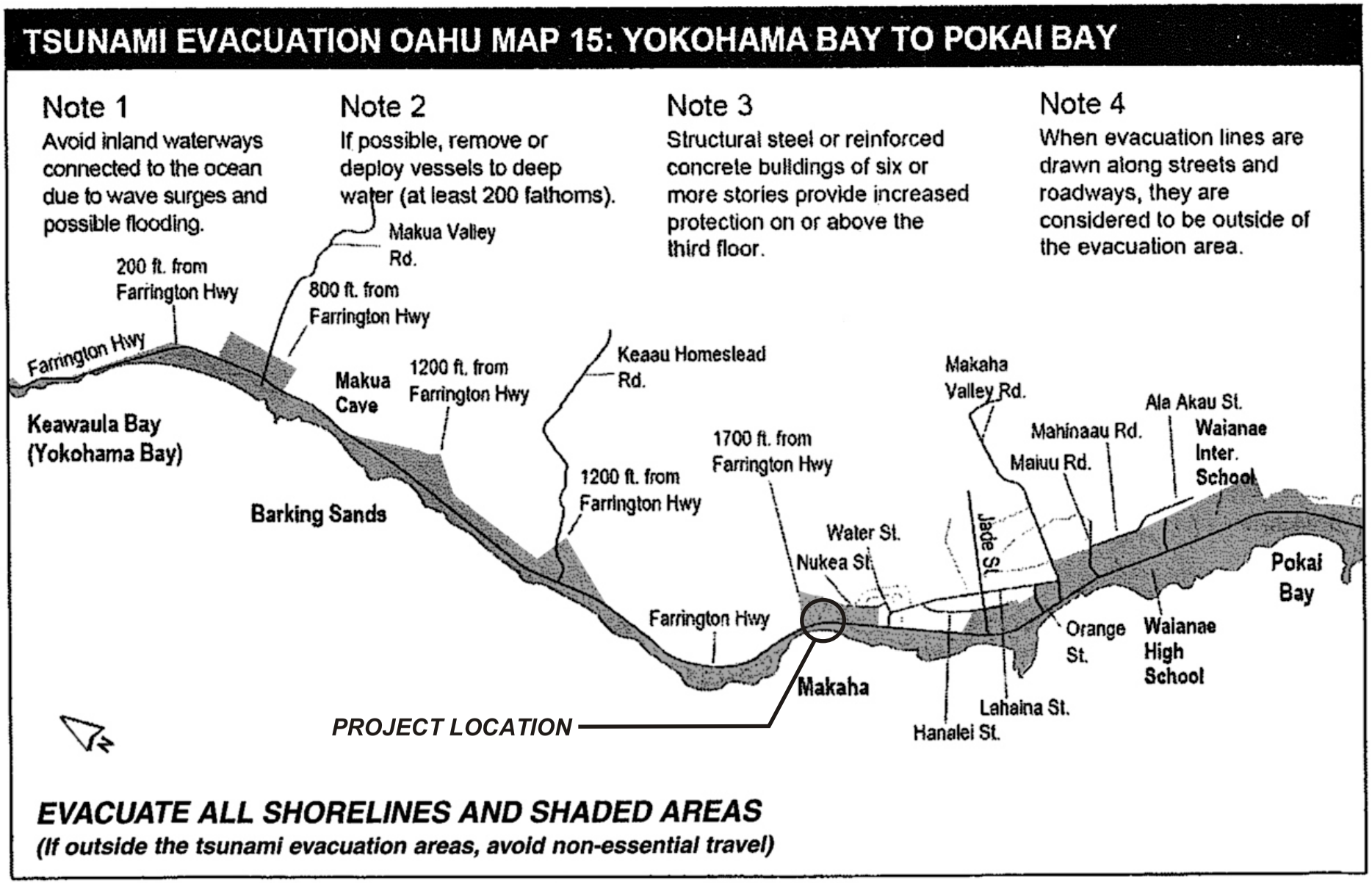
U. S. Geological Survey, National Seismic Hazard Mapping Project Web Site, http://earthquake.usgs.gov/research/hazmaps.

Figure 3.4.1-16 - Horizontal Peak Ground Accelaration Coefficient for Hawaii (PGA) with 7% Probability of Exceedance in 75 yr (Approx. 1000-yr Return Period)

Source: AASHTO Guide Specifications for LRFD Seismic Bridge Design

Figure 4-3 Seismic Hazard Map
Replacement of Mākaha Bridges No. 3 and No. 3A
Farrington Highway, Wai'anae, O'ahu, Hawai'i
State Department of Transportation, Highways

Source: United States Geological Survey, Website: http://pubs.usgs.gov/imap/i-2724/



Map Source: The Official Hawaiian Telcom White Pages-Oahu, 2009

Reference: Pacific Disaster Center: http://www5.hawaii.gov/tsunami/maps.asp

Figure 4-4 Tsunami Evacuation Zone
Replacement of Mākaha Bridges No. 3 and No. 3A
Farrington Highway, Wai'anae, O'ahu, Hawai'i
State Department of Transportation, Highways Division

NOT TO SCALE

R. M. TOWILL CORPORATION February 2010

4.7.4 Hurricanes

In Hawai'i, northeast trade winds predominate throughout most of the year and generally range in velocity between 10 and 20 mph. Trade winds of 40-60 mph periodically occur. Damaging winds, in addition to severe flooding events on O'ahu are most commonly associated with passing tropical storms or hurricanes. The frequency and severity of hurricanes to strike Hawai'i since the 1950's includes five hurricanes or tropical storms (Nina-1957, Dot-1959, Iwa-1982, Estelle-1986, & Iniki-1992) that have caused severe damage in (mothernature-hawaii.com).

Impacts and Mitigation Measures

The replacement bridges will be designed in accordance with the AASHTO LRFD specifications (1994 and 2002) to address potential for adverse effects due to hurricanes.

4.8 VISUAL RESOURCES

Farrington Highway has been in use as a public roadway for several decades. The improvements at the project site will have minimal visual impacts due to the nature of the project. The project will: (1) maintain the existing use of Farrington Highway as a principal surface transportation arterial; (2) enhance use within the area of the bridges by motorists and pedestrians with improved drainage and increased safety through the designing of the new bridges to accommodate the 100 year flood flow; and (3) permit the installation of improvements to meet requirements of AASHTO, FHWA, and DOT.

National Wild and Scenic River System

In 1968, the U.S. Congress created the National Wild and Scenic Rivers System with the intent of preserving selected rivers in their free-flowing condition and their immediate environments to protect the water quality of such rivers, fulfill other vital national conservation purposes and for the benefit and enjoyment of present and future generations.

According to the National Park Service, the State of Hawai'i does not have any designated wild and scenic rivers.

Impacts and Mitigation Measures

Scenic impacts associated with the construction and use of the proposed bridge replacement and widening are discussed in terms of short-term and long-term effects.

Short-term visual impacts associated with the project primarily relate to construction activities. Temporary signage, nighttime lighting, the presence of heavy construction equipment and ongoing modifications to the existing landscape will all create short-term impacts on the visual setting surrounding the project site. Construction activities will be apparent from the Farrington Highway corridor and from several homes in the vicinity. Visual impacts related to construction activities are temporary in nature, however, and not considered significant.

The proposed project will result in long-term visual changes in the form of new bridge structures that are larger in scale and more modern in appearance than the existing bridges. The new bridges will be constructed with pre-stressed concrete planks, cast-in-place deck topping and approach slabs. The elevation of the roadway surface may be raised at a maximum of approximately 4 inches. The height of the proposed bridge railings will be 2 feet 8 inches. The height of the existing wooden railings is 2 feet 6 inches. Therefore the potential increase in height of the new bridges will be at most 6 inches, compared to the existing structures. The new bridges will be most noticeable from a few surrounding residences, but will not intrude on any existing view planes.

No impacts to the National Wild and Scenic River system are expected as there are no wild or scenic rivers located along the proposed project corridor.

4.9 AIR QUALITY

No information was collected on air quality. Air quality at the project site is generally good due to the regular presence of trade winds. The proposed project is located along Farrington Highway and is adjacent to Kili Drive which is exposed to vehicular exhausts. Construction activities are expected to have little to no impact since the project will not require use of industrial facilities, will be of limited duration, and where engine exhausts may be a source of

potential air pollution, all internal combustion equipment will be governed in accordance with applicable state and county regulations.

Impacts and Mitigation Measures

During construction, fugitive dust is expected to be generated. Fugitive dust will be controlled with regular wetting of the soil by the contractor and/or by the use of dust screens.

Clean Air Act

The Clean Air Act identifies 188 air toxics, also known as hazardous air pollutants. The Environmental Protection Agency (EPA) reviewed this list of toxics and identified a group of 21 as mobile source air toxics. A subset of this group of 21, were further labeled as the six priority Mobile Source Air Toxics (MSAT). They include, 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter/diesel exhaust organic gases and formaldehyde. For projects warranting MSAT analysis, the six priority MSATs should be analyzed (FHWA, 2006).

The FHWA has developed a tiered approach for analyzing MSATs in NEPA documents. Depending on the specific project conditions, FHWA has identified three levels of analysis:

- No analysis for projects with no potential for meaningful MSAT effects;
- Qualitative analysis for projects with low MSAT effects; or
- Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

Impacts and Mitigation Measures

The purpose of this project is to replace two deficient bridges with new structures that meet current design standards for bridge structures. This project will not result in any meaningful changes in traffic volume, vehicle mix, location of the existing facility, or any other factor that would cause an increase in vehicle emission impacts relative to the No Action Alternative. Air quality impacts from automobiles traversing the proposed replacement bridges will not be measurably lesser or greater than those incurred from the continued use of the existing bridges. The new bridges will not, in and of themselves, result in increased long-term air quality impacts. As such, it is anticipated

that this proposed project will generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special MSAT concerns. Consequently, this project is expected to be exempted from analysis for MSATs.

Upon completion of work, air pollution levels are expected to return to pre-construction levels. No further mitigation measures with regards to air quality are anticipated to be required.

4.10 NOISE

Regulation of noise in residential areas of O'ahu is governed by the State Department of Health, HAR, Title 11, Chapter 46, "Community Noise Control." Allowable day and nighttime noise standards for sensitive receptors have been established for conservation, residential, apartment, hotel, business, agricultural and industrial districts. The project site is within a preservation and residential area that is classified within the Class A zoning district. This includes land that is zoned residential, conservation, preservation, public space, open space and includes other similar types of uses. The maximum allowable day and night noise levels at the project site are as follows:

Time	Allowable Levels
7:00 am to 10:00 pm	55 dbA
10:00 pm to 7:00 am	45 dbA

Ambient noise at and around the project site is generally low-level but steady, resulting primarily from vehicular traffic on Farrington Highway and Kili Drive. Other noise generated in the area is from park-related uses in the nearby Mākaha Beach Park.

Impacts and Mitigation Measures

Nearby areas which include residential and park use may be temporarily affected by construction generated noise. This will include construction related clearing, grading, and construction of the replacement bridges and related structures. Construction equipment is expected to include, but not be limited to a bulldozer, front loader,

excavator, grader, paver, dump trucks, a crane, concrete delivery trucks, jackhammers and other powered hand tools.

Noise generated as a result of construction is expected to be temporary, of limited duration, and restricted to daytime hours. Upon completion of work noise will return to pre-existing background levels.

Mitigation measures to address the generation of construction related noise include:

- All equipment will be properly muffled in accordance with regulations of the State and City & County of Honolulu, engine operating practices.
- All combustion and air-powered equipment will be maintained in proper working order.
- Work will be limited to weekdays during daylight hours between 8:30 am and 3:30 pm. No work will be scheduled on federal or state holidays.
- The contractor will secure a noise permit from the State Department of Health prior to the initiation of the roadway construction.

No adverse noise impacts associated with this project are anticipated. Mitigation measures as described will be employed to minimize and reduce the potential for such impacts. No further measures are anticipated to be required.

4.11 BOTANICAL RESOURCES

Project activities will occur within an existing roadway corridor. Because this area has been disturbed by past human activities, any remnants of vegetation types dominated by native plants no longer exist. Botanical surveys within the borders of the project area identified no "endangered" or "threatened" species. Further, no endemic plant species were found (Char and Associates, October 2004 (see **Appendix A**) and AECOS, September 2004 (see **Appendix B**).

The plants found within the project area are composed almost exclusively of non-native species including kiawe (*Prosopis pallida*), buffelgrass (*Cenchrus ciliaris*), Guinea grass (*Panicum maxicum*), elephant grass (*Pennisetum purpureum*), Castor bean (*Ricinus communis*) Spiny

Amarnth (*Amaranthus spinosus*) and haole koa (*Leucaena leucocephala*). Only four native species were observed; these are the ʻuhaloa (*Waltheria indica*), pohuehue (*Ipomoea pes-caprae*), ʻAkiʻaki (*Sporobolus virginicus*) and ʻilima (*Sida fallax*). These four native species are indigenous and are found in other places in the world.

Additionally, during an interagency consultation pursuant to a Section 7 of the Endangered Species Act (ESA), the Fish and Wildlife Service (FWS) concurred with the FHWA's determination that the proposed project will not adversely affect threatened or endangered species (see Chapter 12 for correspondence from FWS).

Impacts and Mitigation Measures

The vegetation in the residential area bordering the project site that will be affected include a number of coconut trees (*Cocos nucifera*) as well as several other palm species, Chinese banyan (*ficus microcarpa*) and Bougainvillea hedges.

Mākaha Bridge No. 3A crosses the hyper-saline pond of the West Mākaha Stream. Pickleweed (*Batis maritima*) lines a portion of the stream along the water's edge and continues upstream where it intermixes with buffelgrass and Guinea grass.

The studies conclude that the proposed construction activities to replace the two bridges including the temporary by-pass road and bridge are not expected to have a significant negative impact on the botanical resources. There are no botanical species present that would impose any restrictions, conditions, or impediments to this project.

Based of FWS' concurrence, the project will have no adverse effects on threatened or endangered plants therefore no mitigation measures are proposed.

4.12 FAUNA AND AVIFAUNAL RESOURCES

An avifaunal and feral mammal field survey was conducted within the project area to determine the presence of "endangered", "threatened" or rare animals (Bruner, 2004) (see **Appendix C**).

The study concluded that the two-day field observations at the project site found the typical array of alien birds and mammals expected in the area given the available habitat types. The only native species identified was the non-endangered Black-crowned Night Heron (*Nycticorax nycticorax*).

No migratory shorebirds were observed on the survey. Other birds observed included, the Spotted Dove (*Streptopelia chinensis*), Zebra Dove (*Geopelia striata*), Red-vented Bulbul (*Pycnonotus cafer*), Japanese White-eye (*Zosterops japonicus*), Common Myna (*Acridotheres tristis*), Red-crested Cardinal (*Paroaria coronata*), Northern Cardinal (*Cardinalis cardinalis*), House Finch (*Carpodacus mexicanus*) and the Common Waxbill (*Estrilda astrid*).

The only mammal recorded on the survey was a small Indian Mongoose (*Herpestes auropunctatus*), although cats and rats are likely to occur in the area. The endangered Hawaiian Hoary Bat, considered uncommon on the island of O'ahu, was not sighted during the survey.

The hyper-saline pond that is crossed by Mākaha Bridge No. 3A contains Tilapia (*Sarotherodon melanotheron*). Tilapias are not native to the Hawaiian Islands and are considered pests outside of aquaculture ponds. Their aggressiveness and ability to survive in diverse environments enables them to out-compete as well as prey on juvenile native freshwater fish species. A school of mullet (*Mugil cephalus*) was also seen in the pond. Insects recorded near the pond included two indigenous dragonflies (*Anax junius* and *Pantala flavescens*), and introduced dragonfly (*Crocothemis servilia*), and an introduced damselfly (*Ischnura ramburi*) (AECOS, 2004). These insects are not considered "threatened" or "endangered."

FWS concurred with the FHWA during an interagency consultation pursuant to a Section 7 of the ESA, that no threatened or endangered species will be adversely affected from activities related to the proposed project (see Chapter 12 for correspondence from FWS).

Impacts and Mitigation Measures

Based of the FWS' concurrence that no threatened or endangered species will be adversely affected from this project, no mitigation measures are proposed.

4.13 HAZARDOUS MATERIALS

The two existing bridges, due to their ages, potentially have lead-based paints and other chemical treatments that may be considered hazardous materials. The proposed bridges will be constructed with modern materials including concrete and steel. Oil and fuel will be used on-site for construction vehicles and equipment.

Impacts and Mitigation Measures

Removal of the existing bridges will be done in accordance with applicable Department of Health laws regulating the handling of hazardous materials. Project BMPs will be established and implemented to minimize the potential for accidental spills or exposure to persons at the site and the environment.

CHAPTER 5
PUBLIC SERVICES, POTENTIAL IMPACTS AND MITIGATION MEASURES

5.1 TRAFFIC AND ROADWAYS

Farrington Highway is a principal arterial with 11-foot lanes and 3-foot paved shoulders on the makai side of the bridge and 1-foot shoulders on the mauka side. The posted speed limit in the area of the project is 35 miles per hour.

The highway is intersected by Kili Drive, located 1.4 miles north of Mākaha Valley Road, which provides primary access to the northern part of the upper portion of Mākaha Valley. Existing Bridge 3A is located to the west of the intersection and existing Bridge 3 is located to the east. Kili Drive is located 1.4 miles north of Mākaha Valley Road.

Traffic conditions were evaluated in the Traffic for Farrington Highway, Reconstruction of Makaha Bridges 3 and 3A, conducted in 2004 by Julian Ng, P.E. The following provides a summary of the report.

5.1.1 Existing Traffic on Kili Drive

Total two-way traffic on Kili Drive is estimated to be 1,200 vehicles per day with peak hourly volumes of 60 vehicles per hour in the AM Peak Hour, and 100 vehicles per hour in the PM Peak Hour. Total two-way traffic volumes are 3,900 vehicles per day on Water Street, 2,800 vehicles per day on Jade Street, and 6,400 vehicles per day on Mākaha Valley Road (Water Street is located 0.5 miles south and Jade Street is located 0.9 miles south of Kili Drive).

5.1.2 Existing Traffic on Farrington Highway

Traffic volumes at Mākaha Bridges 3 and 3A are approximately 5,000 vehicles per day. Traffic counts from roadtube data taken at the intersection of Farrington Highway and Water Street are provided in **Table 5-1**.

Table 5-1

Traffic Count Data, Farrington Highway North of Water Street

Date/Time	Southbound	Northbound	Total
December 2-3, 1998	2,507	2,453	4,960
June 20-21, 2000	2,375	2,277	4,652
January 17-18, 2002	2,544	2,503	5,047
AM Peak Hour (7:30 AM-8:30 AM)	142	149	291
PM Peak Hour (3:00 PM-4:00 PM)	194	213	407

Source: State of Hawaii Department of Transportation, Highways Division.
Traffic Survey Data, Island of Oahu - 2002.

The highest traffic volume on Farrington Highway in one direction is less than 215 vehicles per hour, or one vehicle every 16 seconds. Traffic volumes do not exhibit high peaks during commuting periods but instead fluctuates between 120 and 215 vehicles per hour during most of the day.

5.1.3 Average Daily Traffic

Average Daily Traffic (ADT) data was taken for the three segments of Farrington Highway in the vicinity of the project site. The ADT data indicates that traffic volumes in the area were approximately 20% to 30% greater in the early 1990s than measured in the recent data.

Table 5-2

Average Daily Traffic (ADT) in Vicinity of Proposed Project

	Intersection Segments Along Farrington Highway		
Year	Jade St. to Water St.	Water St. to Lawaia St.	Lawaia St. to Kaena Pt.
1993	12,679	5,728	1,611
1994	12,610	6,703	2,468
1995	10,322	5,483	2,404
1996	9,610	5,323	1,806
1997	9,606	5,321	1,805
1998	9,022	4,185	1,791
1999	8,666	4,968	1,975
2000	10,052	4,044	1,774
2001	10,121	4,071	1,786
2002	10,104	4,464	1,865

Source: State of Hawaii Department of Transportation, Highways Division.
Traffic Summary, Island of Oahu - 2002.

Impacts and Mitigation Measures

Potential for adverse impacts to traffic resulting from the completed project are not anticipated. This is because there will be no reduction in capacity of the existing road system and bridges. The project will enhance vehicular safety and improve pedestrian access and long-term maintenance associated with use and operation of the bridges. The improvements will include lanes widened to 12 feet in each direction and 10 foot wide shoulders to accommodate bicyclists and pedestrians. No capacity constraints were identified with maintaining the existing one lane for traffic in each direction.

Potential for adverse impacts to traffic and roadways are anticipated during construction. This is expected to occur during mobilization, construction of the temporary detour road and replacement bridges, and demobilization of the project. The major potential impact would include delays in access for vehicles and pedestrians in the area along Farrington Highway, between the two bridges.

According to the Traffic Report conducted for this project a delay analysis was done assuming a one-lane detour road during construction. Traffic volume projections used for the analysis included: (1) traffic volumes equal to the hourly volumes counted in 2002; and (2) traffic volumes equal to the hourly vehicular count for 2002 plus 30% (280 vehicles per hour in one direction and 250 vehicles per hour in the opposite direction).

Projected traffic using a one-lane detour road that extends for approximately 450 feet including approach tapers, traveling at an average speed of 20 miles per hour, will require 15 seconds to traverse the detour. Flagman control of traffic through the detour was evaluated using the signalized intersection analysis.

The average delay based on the above conditions indicated approximately 30 seconds delay or Level of Service (LOS) D[1], using the criteria for unsignalized intersections.

[1] Level of Service D is a zone that approaches unstable flow, with tolerable operating speeds, however driving speed is considerably affected by changes in operating conditions (Dusch and Muhonen, 2002).

Roadway Level of Service is a measure of roadway congestion ranging from LOS A--least congested--to LOS F--most congested. LOS is one of the most common terms used to describe how "good" or how "bad" traffic is projected to be. LOS serves as a benchmark to determine whether new development will comply with an existing LOS or if it will exceed the preferred or adopted LOS.

There are six levels of service letter grades typically recognized by transportation planners and engineers. They are summarized in Table 5-3.

The LOS D was found to be acceptable for travel through the construction area.

Pedestrian Safety

The construction of the detour road will require the temporary extension of Kili Drive to intersect with the detour road. This will be to permit continued vehicular access to Farrington Highway. The existing bus stops located on the mauka and makai sides of Farrington Highway adjacent to Kili Drive will be temporarily reconfigured to maintain pedestrian access to bus service. This will be accomplished by: (1) the bus stops will be relocated along the detour road in the same general location provided there is sufficient space to maintain safety. This will be supplemented with use a flagman, traffic safety cones, signage, pavement markings and/or concrete barriers alerting motorists to yield to pedestrians or separating pedestrians from traffic flow and construction activity; or (2) if there is insufficient space, the bus stops will be relocated to an area further north, outside of the work zone, adjacent to the Mākaha Beach Park where sufficient safety measures for pedestrians can be put into place.

Safety of pedestrians who must access or cross areas that are in active construction will be maintained primarily through use of a flagman, traffic safety cones, signage, pavement markings and/or concrete barriers. Access through the construction area will be strictly enforced to maintain public safety.

Table 5-3

Level of Service (LOS) Letter Grades

Level of Service A	Level of Service B	Level of Service C	Level of Service D	Level of Service E	Level of Service F
Level of Service A describes a condition of free flow, with low volumes and high speeds.	Level of Service B is the zone of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have reasonable freedom to select their speed and lane of operation.	Level of Service C is the zone of mostly stable flow, but speeds and maneuverability are more closely constricted by the higher volumes.	Level of Service D is a zone that approaches unstable flow, with tolerable operating speeds, however driving speed is considerably affected by changes in operating conditions.	Level of Service E is a zone that cannot be described by speed alone. Operating speeds are lower than in Level D, with volume at or near the capacity of the highway.	Level of Service F is a zone in which the operating speeds are controlled by stop-and-go mechanisms, such as traffic lights. This is called forced flow operation. The stoppages disrupt the traffic flow so that the volume carried by the roadway falls below its capacity; without stoppages, the volume of traffic on the roadway would be higher, or in other words, it would reach capacity.

5.2 WASTEWATER AND SOLID WASTE

Reconstruction of the bridges and accessory improvements to Farrington Highway and Kili Drive will not require wastewater infrastructure. Solid waste that is generated as a result of construction activities is expected during demolition, construction, and demobilization of the project.

Impacts and Mitigation Measures

No impacts to wastewater facilities are anticipated. Wastewater generated during construction by work crews is expected to be handled through the use of portable sanitary toilets or by the restroom facilities located at the nearby Mākaha Beach Park parking lot. The use, operation and maintenance of portable sanitary toilets will be in accordance with applicable regulations of the State and City & County of Honolulu.

Solid waste generated during construction will similarly be in accordance with State and City & County of Honolulu rules and regulations governing solid waste disposal. No hazardous wastes are anticipated to be generated. It is expected that solid waste will be disposed of at the PVT Landfill (construction and demolition debris landfill), located at 87-2020 Farrington Highway, Wai'anae.

5.3 POWER AND COMMUNICATION

A preliminary inventory of utilities along the State DOT right-of-way at the project site includes the following:

- Aerial utilities include Hawaiian Electric Company (HECO) power and Hawaiian Telecom telephone lines. Utility poles supporting the overhead lines also support transformers and street lights.

- Below ground telecommunications facilities include manholes, handholes and fiber optic and analog cables owned by various providers including AT&T, Sandwich Isle Communications, Pacific LightNet Inc., and Hawaiian Telecom. Cable television (CATV) facilities include cables and manholes owned by Oceanic Cable (Time Warner).

- Below ground water utilities include a 12-inch water main and manholes located on the makai side of Farrington Highway. The water main transitions from the highway and is attached to each of the two bridges.

- Other facilities include drainage lines located along the makai side of Farrington Highway along TMK: 8-4-008: Parcel 020.

The preliminary identification of utilities will be confirmed with the appropriate utility companies including HECO, Hawaiian Telecom, Oceanic Cable, AT&T, Sandwich Isle Communications and the Board of Water Supply.

Impacts and Mitigation Measures

The proposed project will be coordinated with utility providers to minimize service interruptions. As required, utilities will be contacted and arrangements made for review and approval of work that may require relocation of facilities:

- Utility poles that will be affected by the project will be identified and coordinated for relocation with HECO and Hawaiian Telecom. Street lights that are attached to the existing poles will be restored as required by DOT.

- Below ground telecommunications manholes and cables will be identified and coordinated with utility service providers including Oceanic Cable, AT & T and Sandwich Isles Communications. Costs associated with this effort will be in accordance with the provisions of the easements granted by DOT for utility installation and operation.

- The 12-inch water main within existing Mākaha Bridges No. 3 and No. 3A will require relocation prior to demolition of the existing structures. The water main will be relocated along the area of the proposed detour road. The water main will be relocated and attached to the new bridges in accordance with BWS requirements.

5.4 POLICE AND FIRE PROTECTION

Police service to the project site is provided by the Honolulu Police Department, District 8, which services the communities of Ewa, Ewa Beach, West Loch, Barbers Point, Kapolei, Makakilo, Campbell Industrial Park, Honokai Hale, Ko‘ Olina, Nanakuli, Maili, Wai‘anae, Mākaha, Makua and Ka‘ena. The District 8 Headquarters is located at the Kapolei Station, 1100 Kamokila Boulevard, in Kapolei, and the District 8 Substation (Wai‘anae Station), is located at 85-939 Farrington Highway. The Wai‘anae Station is located approximately 1 mile south of the project site.

The Wai‘anae Station provides a base of operations for personnel patrolling the Wai‘anae Coast, an area encompassing 35 miles of coastline and a total land area of 128 square miles.

Fire protection is provided by the Honolulu Fire Department. The closest fire station to the project site is Fire Station No. 26, located approximately 2.5 miles to the south. Vehicles at Fire Station No. 26 include an engine truck (Engine 26), ladder and pump truck (Quint 26), and tanker truck (Tanker 26).

Impacts and Mitigation Measures

The proposed project is not anticipated to result in need for increased or additional police and fire protection services. Mitigation measures are neither planned nor anticipated to be required.

5.5 HEALTH CARE AND EMERGENCY SERVICES

Health care in the region is provided by the Wai‘anae Coast Comprehensive Health Center (WCCHC), located at 86-260 Farrington Highway. WCCHC is located approximately 4.5 miles south of the project site. WCCHC is a community-owned and operated non-profit medical facility. A full range of services, including emergency medicine, is provided. The main office is located in Wai‘anae and satellite offices are located throughout the Wai‘anae Region with facilities in Honolulu and Wahiawa (**Table 5-4**).

Emergency response is also provided by the Honolulu Police Department and Fire Department during accidents and emergencies.

Table 5-4

Wai‘anae Coast Comprehensive Health Center

Facilities and Satellite Offices

Main Campus	**Business Offices**
86-260 Farrington Highway Wai'anae, Hawai'i 96792	86-120 Farrington Highway, Suite C307 Wai'anae, Hawai'i 96792
Waiola Clinic	**Waianae Health Academy**
86-120 Farrington Highway, Suite C305B Wai'anae, Hawai'i 96792	86-088 Farrington Highway, Suite 202 Wai'anae, Hawai'i 96792
Substance Abuse Program	**Hale Kako’o**
89-188 Farrington Highway Nanakuli, Hawai'i 96792	1816 Alewa Drive Honolulu, Hawai'i 96817
Pekelo Hale	
106A Pekelo Place Wahiawa, Hawai'i 96786	

Impacts and Mitigation Measures

The proposed project is not anticipated to require health care or emergency services except during situations involving a workplace or construction site accident. Demand for additional services as a result of the project is not expected. No further mitigation measures are proposed.

5.6 EDUCATION AND LIBRARY SERVICES

The Mākaha Elementary School, 84-200 Ala Naauao Place, is located approximately three-quarters of a mile roughly southeast of the project site. Other schools that are more distantly located two or more miles from the project site are identified in **Table 5-5**.

The closest public library to the project site is the Wai‘anae Public Library, located at 85-625 Farrington Highway. This library is approximately 1.6 miles south of the project site. The location of schools, libraries and other public facilities are identified in **Figure 5-1**.

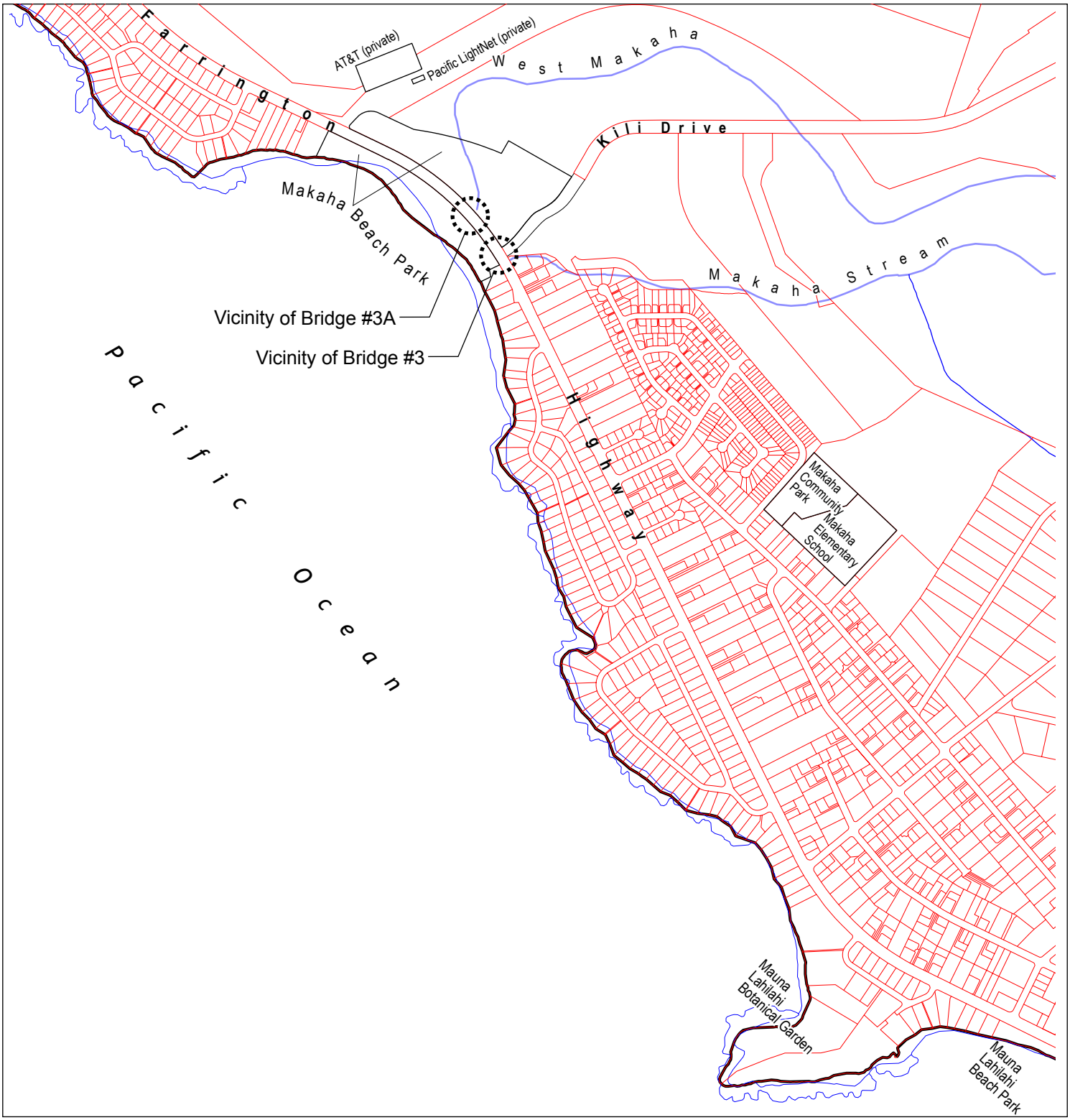


Figure 5-1 Public Facilities in Project Area
Replacement of Makaha Bridges No. 3 and No. 3A
Farrington Highway, Wai'anae, O'ahu, Hawai'i
State Department of Transportation, Highways Division

0 1000 2000 Feet

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Table 5-5

Schools Located Two Miles or More from Project Site

Wai'anae High School	**Wai'anae Intermediate School**
85-251 Farrington Highway Wai'anae, Hawai'i 96792	85-626 Farrington Highway Wai'anae, Hawai'i 96792
Wai'anae Elementary School	**Kamaile Elementary School**
85-220 McArthur Street Wai'anae, Hawai'i 96792	85-180 Ala Aku Street Wai'anae, Hawai'i 96792

Impacts and Mitigation Measures

The proposed project involves construction activities to improve existing transportation infrastructure and will not result in additional demand for educational or library services. It is anticipated that schools and libraries will not be adversely impacted during construction since they are located sufficiently distant from the project site. No mitigation measures are anticipated to be required.

5.7 PARKS AND RECREATIONAL RESOURCES

Recreational facilities in the vicinity of the proposed project primarily consist of shoreline resources including Mākaha Beach Park, located immediately makai of Farrington Highway and the project site. Mākaha Beach Park, TMK: (1) 8-4-001: 012, is owned and operated by the Department of Parks and Recreation, City and County of Honolulu, and is actively used for swimming, surfing, and picnicking by the community. Other nearby parks in the region include the Mākaha Community Park (TMK: (1) 8-4-025: 011) located adjacent to the Mākaha Elementary School and Mauna Lahilahi (TMK: (1) 8-4-001: 008) (**Figure 5-1**).

Impacts and Mitigation Measures

In order to meet current roadway design requirements, the proposed project will require acquisition of additional areas beyond the current right-of-way to allow for the increased bridge spans and structures necessary for embankment protection, channel widening and guardrail improvements (refer to **Section 2.2**).

Impacted properties include two parcels owned by the City & County of Honolulu that

are part of the Mākaha Beach Park complex. The anticipated acquisition of portions of properties owned by the City & County of Honolulu is as follows:

- TMK: (1) 8-4-002: 047 = 0.981 acres (42,745.53 sq. ft.); and
- TMK: (1) 8-4-001: 012 = 0.345 acres (15,007.32 sq. ft.).

Pursuant to Section 4(f) of the DOT Act (23 U.S.C. 138), consultation with the City and County Department of Parks and Recreation (DPR) was conducted in regards to the impacts of the proposed project to the Mākaha Beach Park property.

The proposed acquisition on the makai side of the project site is limited to the areas necessary for the channel widening and embankment protection at the bridge openings. The acquisition along the mauka side of the project site involves approximately 0.98 acres which will allow for the bridge widening and guardrail improvements. In addition, HDOT will be requesting temporary construction parcels that will briefly impact the immediate area makai of the project site. The temporary construction parcels to accommodate the temporary by-pass road.

The lands proposed to be acquired are immediately adjacent to the existing highway and bridges and are not essential to the regular operation of the beach park, therefore it is anticipated that the proposed land acquisition will not result in substantial impairment of 4(f) lands. The DPR has determined that the proposed acquisition will not significantly impact the park (see Chapter 12 for correspondence with DPR).

Some disruption to beach users at Mākaha Beach Park may occur during mobilization and construction activities. Potential impacts include use of the Farrington Highway right-of-way in the area between and including Mākaha Bridges 3 and 3A. The location of the temporary detour road will also require restricted pedestrian access to maintain safety and vehicular travel. Pedestrian and bicyclist travel along the area will be controlled with use of a flagman, traffic safety cones, signage, or pavement markings alerting motorists to yield to pedestrians crossing the detour road.

Access to the existing Mākaha Beach Park parking lot will not be impacted, therefore this designated parking facility will remain open for use throughout the entire duration of the project. The shoulder areas along the project area, occasionally used for parking by beach users will be limited or closed during the construction period to ensure safety of the public.

The period of time involving closure is expected to be temporary and will last only for the duration that mobilization, construction activities, and use of the detour road is required. The duration of this period is estimated at approximately 16 months. Upon completion of all work the area will be reopened to the public.

Because of planned guard rail improvements (extension), a portion of the shoulder area on the makai-Ka‘ena side of Bridge No. 3A will be impacted and may result in loss of use as roadside parking.

CHAPTER 6
SOCIOECONOMIC ENVIRONMENT

The following is a summary description of the socio-economic environment of the proposed project, impacts and proposed mitigation measures.

6.1 POPULATION AND ECONOMY

The area of the proposed project is in the Wai‘anae District, on the western side of the Island of O‘ahu. This encompasses the communities along the Wai‘anae Coastline. According to **Table 6-1**, O‘ahu’s population growth has been slowing over recent decades, a trend mirrored on the Wai‘anae Coast (SMS, December 2002).

TABLE 6-1

Population Growth in Study Area

Population	1960	1970	1980	1990	2000
C&C Honolulu	500,409	630,528	762,565	936,255	876,156
'Ewa	NA	24,235	35,585	42,983	68,728
Wai'anae	16,452	24,077	31,487	37,411	42,259
Average Annual Rate of Growth	1960-70	1970-80	1980-90	1990-2000	
C&C Honolulu	2.30%	1.90%	0.90%	0.50%	
'Ewa DP Area		3.90%	1.90%	4.80%	
Wai'anae DP Area	3.90%	2.70%	1.70%	1.20%	

According to Census data for O‘ahu, demographic changes for the last decade indicated the following:

- The population has aged greatly, with the median age climbing 3.5 years to 35.7 years;
- While the cohorts between age 20 and age 35 have shrunk, the number of persons age 75 and over has increased by about two-thirds of the 1990 levels;
- The number of family households has only grown slightly, but the number of households headed by single women has increased sharply;
- Single-person households have come to form 21.6% of all households; and

- The average household size, which has been declining for decades, reached 2.95.

Data on communities in the project site region bring out some of the distinctive characteristics of these areas. The Waiʻanae Coast Sustainable Communities Plan area ("DP area" in Exhibits 2-E to 2-H) has a young age structure (with a median age of 28.5) and large households (the median household size is 3.97). Incomes tend to be below the island median, and dependence on public assistance – 25.5% of households – is high. While commuters' use of public transportation was slightly higher than in ʻEwa, over 80% of workers still drove to and from work, and mean travel time to work was high (41.9 minutes).

Impacts and Mitigation Measures

The proposed project is not expected to result in adverse impacts to the existing population or socioeconomic environment of Waiʻanae. Some employment will be required during construction activities. However, employment associated with the project will be short term and will only last until the project is completed.

Long term benefits will primarily be realized in the form of improved bridge structures that will require less maintenance, and offer more reliable, transportation service over the expected lifetime of the bridges.

6.2 LAND USE AND OWNERSHIP

The project site primarily involves use of the Farrington Highway right-of-way under jurisdiction of HDOT. In order to meet current roadway design requirements, the proposed project will require acquisition of additional areas beyond the current right-of-way to allow for the increased bridge spans and structures necessary for embankment protection, channel widening and guardrail improvements (refer to **Section 2.2**). In addition, HDOT will be requesting temporary construction parcels that will briefly impact the immediate area makai of the project site. The temporary construction parcels will accommodate the temporary by-pass road.

Surrounding land uses include the makai portion of Mākaha Beach Park, the beach park parking lot located mauka of the site, and numerous private residences along the project alignment (**Figure 1-2**).

Impacts and Mitigation Measures

No alteration or change of existing land uses along this segment of Farrington Highway is proposed. Potential impacts will be limited to the construction period and may include traffic delays, disruption to beach users, and nearby area residents.

Traffic delays may be experienced during operation of the temporary detour road. Although there will be no adverse impacts to existing land uses, potential for adverse impacts to traffic will be mitigated to the extent possible by ensuring that construction is undertaken and completed in an efficient and timely manner. In is noted that the traffic analysis for this project indicates the proposed detour road will be sufficient to handle the anticipated volume of traffic at Level of Service D[1].

Beach users will continue to be provided access to the parking facilities at the Mākaha Beach Park parking lot located on the mauka side of the highway.

Mitigation to reduce impacts to residents will include limiting the length of time when noise generating equipment will be operated, and the use of dust screens and regular wetting of the site to inhibit the migration of fugitive dust.

6.3 HISTORIC AND ARCHAEOLOGICAL RESOURCES

An Archaeological Inventory Survey was undertaken for the project Area of Potential Effect (APE) (Cultural Surveys Hawai'i, December 2005). A copy of the survey report is included in Appendix D. The following provides an overview and summary of the report prepared in

[1] Level of Service D is a zone that approaches unstable flow, with tolerable operating speeds, however driving speed is considerably affected by changes in operating conditions (Dusch and Muhonen, 2002).

consultation with the SHPD Archaeology and Architecture Branches relating to identified cultural resources.

6.3.1 Scope of Work

The archaeological inventory survey and report documented all cultural resources within the 3.9 acre project area. The following scope of work was followed:

1. Ground survey. All surface cultural resources were identified and recorded. Documentation included photography and scale drawings.

2. Subsurface testing. A backhoe was used to identify and document subsurface cultural deposits. Appropriate samples from these excavations were analyzed for cultural and chronological information.

3. Research historic and archaeological background. This research focused on the specific area with general background on the ahupua‘a and district and emphasized settlement patterns.

4. Prepare survey report, to include the following:
   - Project description;
   - Topographic map of the survey area showing all recorded cultural resources;
   - Description of all cultural resources including significance, per requirements of HAR Title 13, Subtitle 13, Chapter 276 "Rules Governing Standards for Archaeological Inventory Surveys and Reports." Cultural resources were assigned State Inventory of Historic Properties (SIHP) numbers;
   - Historical and archaeological background summarizing prehistoric and historic land use of the project area and its vicinity;
   - Section concerning cultural consultations [per the requirements of HAR 13-13-276-5(g)];

- A summary of cultural resource categories and significance based upon the National and Hawai'i Registers criteria;
- Project effect recommendation; and
- Treatment recommendations to mitigate the project's adverse effect on any cultural resources recommended eligible to the National/Hawai'i Register identified in the project area.

6.3.2 Summary of Findings

Results of Fieldwork (Ground Survey and Subsurface Testing)

Fieldwork was carried out in two phases: 1) systematic pedestrian inspection to identify and document surface cultural resources; and 2) subsurface testing to locate and document subsurface cultural resources.

Pedestrian Inspection Results

The pedestrian survey located four surface cultural resources. The four cultural resources include the two in-use historic bridges (Mākaha Bridges 3 and 3A), historic Farrington Highway itself, and the remnants of the O. R. & L. Railroad. No other surface cultural resources were located within the project area. Based on the field documentation and background research, the four cultural resources are described, and their age, function, integrity and significance were assessed.

Subsurface Testing Results

CSH excavated eight backhoe trenches in the project area (**Figure 6-1**). Four were in the inland (*mauka*) extension of the project area along the southern branch of Mākaha Stream. Four were along the seaward (*makai*) side of Farrington Highway, in the vicinity of the temporary Farrington Highway realignment. Based on the backhoe testing results, the stratigraphy within the project area is largely as expected. The following is a summary of the backhoe testing results from the CSH report (See Appendix D, Section 4.2.1 Trench Descriptions, for detailed information):

Mauka of Farrington Highway, the sediments are largely terrestrial silts and silt loams, 1.5 to 2.5 m deep, over Pleistocene coral limestone deposits. The coarse bed load (poorly sorted and rounded sands, gravels, and cobbles) of a former Mākaha Stream alignment was observed closest to the existing Mākaha Stream channel in Trench 4. These terrigenous sediments in the *mauka* portion of the project area appear to have been modified and reworked in the last 100 years, based on historic and modern materials (metal wire, plastic, PVC pipe, a metal spike, etc.) found incorporated within these sediments. These historic and modern materials were found at depths ranging from 120 to 160 cm below the current land surface, and indicate large-scale earth moving activity in this *mauka* portion of the project area. The upper approximately 1.5 m of sediment within this portion of the project area appear to have been reworked, perhaps as the result of historic plantation-related land modifications. No cultural resources were documented within this mauka extension of the project area.

Source:
Figure 8. Trench Locations, Archaeological Inventory Survey for the Proposed Replacement of Makaha Bridges 3 and 3A TMKs: Por (1) 8-4-001:012, 8-4-002:045, 47, 8-4-018:014, 122, 123, 8-4-008:018, 019, 020, Cultural Surveys Hawaii. 2005.

Figure 6-1 Trench Excavation Sites
Replacement of Mākaha Bridges No. 3 and No. 3A
Farrington Highway, Wai'anae, O'ahu, Hawai'i
State Department of Transportation, Highways Division

See Graphic Scale

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The single noteworthy feature of the four trenches in the *mauka* portion of the project area consisted of the dark, highly organically enriched, "peaty," sandy loam documented and sampled at the base of Trench 4. This layer, located approximately 3.0 m below the existing land surface was only exposed in a narrow portion of Trench 4, where the backhoe operator was instructed to excavate as deep as possible to determine the depth of the water table. This peaty sediment appears to be a mix of marine calcareous sand, finer terrestrial silts and clays, and organic material. It is very moist, bordering on wet, indicating that the water table is located at about 3 m below the current land surface. Large "blocks" of this cohesive sediment were removed by the backhoe and inspected by CSH personnel on the back dirt pile of the trench. No cultural material, such as charcoal flecking, artifacts, or faunal remains, were observed within the sediment.

Despite the apparent lack of cultural material within this "peaty" deposit, a large bulk sample was collected for potential analysis back at the CSH Laboratory. The peaty sediment had potential to contain important archaeological and paleoenvironmental information regarding environmental change over time, particularly related to Polynesian settlement and subsequent Native Hawaiian land use. In order to establish the age of the deposit, a sediment sample was sent to Beta Analytic, Inc. for radiocarbon dating analysis. The results indicate that the sediment accumulated well before initial Polynesian colonization of the Hawaiian Islands. (See Table 6-2 for results of the radiocarbon analysis).

Table 6-2

Results of Radiocarbon Analysis from Trench 4, Stratum V

Beta Analytic ID #	Sample Material/Analytic Technique	Provenience	Conventional Radiocarbon Age	C13/C12 Ratio	Oxcal Calibrated Calendar Age (2 sigma)
Beta-208482	Organic "peaty" material extracted from sediment sample/Standard Radiometric	Trench 4, Stratum V, 300 cmbs	4140 +/- 60 BP	-26.3 o/oo	2890BC-2570BC (94.0%) 2520BC-2500BC (1.4%)

Based on this age, the sediment layer is potentially more of paleoenvironmental interest. The layer's high moisture content, resulting from the layer's position right at the water table, has apparently preserved the layer's organic material. Although it is difficult to tell from such a small exposure, this stratum appears to represent the remnants of a low energy, near shore, brackish or freshwater marsh area. This area could have been quite localized, for instance a "*muliwai*" or backshore natural pond formed when an ancestor of Mākaha Stream was blocked from sea access by the active beach berm.

The layer is not considered a cultural resource and was not assigned a SIHP number. The layer's exposure within Trench 4 is small and it is impossible to estimate the layers geographic extent based on this exposure.

Makai of Farrington highway the project area's sediments are a mix of terrigenous and marine sediments. Trenches adjacent to both Mākaha Bridges 3 and 3A (Trenches 6 and 5, respectively)

documented large, predominantly terrestrial, fill deposits. In both Trenches 5 and 6 the fragmented remnants of a clearly defunct communication or electric cable were documented. This cable appears to parallel the *makai* side of Farrington Highway. The cable installation has clearly disturbed the sediments along this *makai* portion of the project area, closest to the *makai* side of Farrington Highway. Farrington Highway fill deposits, and the former O. R. & L. Railroad alignment have also disturbed this makai portion of the project area.

Between the two bridges, in the vicinity of the project area's bus stop, Trenches 7 and 8 documented calcareous sand deposits overlain by recent terrigenous fill sediments. Near the project area's bus stop (approximately 8 m to the southeast) a culturally enriched, buried former A horizon was documented. This former A horizon contained both historic and prehistoric cultural remains, including marine shell and fishbone food remains, charcoal, basalt and volcanic glass flakes, bottle glass, rusted metal, and butchered cow bones. This cultural layer was assigned SIHP #50-80-07-6825.

This cultural deposit also contained previously disturbed human skeletal remains. A rib shaft and a hand phalange were the only skeletal elements noted despite extensive screening of the sand in the vicinity. There was no indication of an entire, in situ human burial. This buried A horizon deposit's extent is limited to a specific geographic area, based on testing results. The A horizon underlies the former O.R. and L. RR alignment and was likely preserved because of the stabilizing effect of the overlying rail line.

Results of Cultural Consultation

Based on the project's location and historical and cultural setting, it is most likely that the project would affect Native Hawaiian cultural resources and/or ongoing traditional cultural practices. Accordingly, the cultural consultation effort focused on the assessment of the proposed project's impact to Native Hawaiian cultural resources.

Results of the Project-Related Cultural Impact Assessment

The CSH Cultural Impact Assessment investigation for the Mākaha Bridges project (Souza and Hammatt 2004) provides a broad background for the current cultural consultation effort (See Section 6.6). This study identified ongoing cultural activities, such as intensive fishing, diving, canoeing, and surfing that currently occur *makai* of the project area at Mākaha Beach. Based on the study results, the community feels that the proposed project should impose no adverse effect on any of these on-going Native Hawaiian traditional cultural practices or activities in the project area's vicinity. The community did stress the need for effective traffic control during the proposed project.

Based on Souza and Hammatt's (2004) investigation, the proposed Mākaha Bridges project's potential to disturb Native Hawaiian burials represents the project's only notable potential adverse impact upon native Hawaiian cultural resources, beliefs, and practices. The study recommended that, should these concerns become a reality, the resulting burial issue should be resolved through consultation and coordination with the Mākaha community and the Native Hawaiian community in general, as directed under applicable Hawai'i state burial law (HRS Chapter 6E-43 and HAR Chapter 13-300).

Project-Related Cultural Input from the Koa Mana Organization

The Wai'anae-based Native Hawaiian organization Koa Mana has been actively monitoring the progress of the Mākaha Bridges project, with a particular focus on ensuring that the project does not affect significant cultural resources. Koa Mana member Mr. Alika Silva has been particularly involved. He contacted by facsimile/letter, and met in person, with project representatives in the Spring and Summer of 2005. He also communicated his project-related concerns with the Office of Hawaiian Affairs (OHA) and SHPD. Mr. Silva expressed concern that the Mākaha Bridges project and its associated archaeological inventory survey would disturb important cultural resources related to Native Hawaiian burials, the former fishpond and habitation area referred to as Kahaloko, and a temple site Mr. Silva referred to as Ka`anani`au. Mr. Silva also raised concerns that the project would disturb traditional cultural properties.

A traditional cultural property is a form of historic property under federal historic preservation legislation that does not necessarily have physical modification or artifacts related to cultural use. As defined in the National Register Bulletin 38, a traditional cultural property is a property that "is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community." Examples of a traditional cultural property include specific gathering areas of a particular medicinal herb, or a particular landform associated with a deity or mythic hero.

Mr. Silva and the Koa Mana organization have raised a number of cultural issues that are important to the project. The Koa Mana organization was contacted, but did not participate in the project's cultural impact assessment. Koa Mana member Mr. Glen Kila was contacted regarding the cultural impact assessment by email and posted letter. Neither Mr. Kila nor other Koa Mana members provided a response regarding potential ongoing traditional cultural practices or cultural resources within the project area. It is noteworthy that Mr. Alika Silva's father, Mr. Albert Silva, was contacted and participated in the project's cultural impact assessment investigation (Souza and Hammatt 2004:31).

Mr. Silva has commented to SHPD, OHA and CSH personnel that he and his organization will not communicate with CSH. At a project-related meeting at the Mākaha project site in August 2005, Mr. Silva refused to let the meeting progress until CSH personnel had left the meeting. This meeting was specifically called to hear Mr. Silva's cultural concerns and to address these concerns during the upcoming archaeological inventory survey fieldwork.

Following the inventory fieldwork, Koa Mana members Mr. Alika Silva and Mr. Glen Kila were included in the investigation's cultural consultation effort. CSH received no response from the consultation letters sent to Koa Mana. Despite attempts by the project proponents and their representatives, Koa Mana has not provided specific location information regarding the burials, temple site, and/or traditional cultural property(s) they say are within the Mākaha Bridges project area.

Results of Archaeological Inventory Survey Cultural Consultation

Following completion of the archaeological inventory survey fieldwork, per the requirements of HAR Chapter 13-275-6(c), 13-275-8(a) (2), and Chapter 13-276-5(g), CSH undertook specific cultural consultation with Native Hawaiian organizations and individuals, including OHA. CSH initiated this consultation with a letter-mailing program. A copy of the letter that was sent to OHA is included in Appendix B of the Archaeological Inventory Survey Report. It is representative of the letters that were sent to each of the selected Native Hawaiian organizations/individuals. The letters summarized the Mākaha Bridges project, the results of the archaeological inventory survey fieldwork, briefly

described the cultural resources located in the project area, and discussed potential project effect and mitigation measures. The letter asked for specific input regarding the ethnicity and treatment of the potentially Native Hawaiian burial documented in Trench 8. Additionally, the letter sought input regarding the potential for previously undocumented traditional cultural properties within the project area, based on the project-related cultural input of the Koa Mana organization. The cultural consultation effort continued with follow up telephone contacts. **Table 6-3** lists the individuals and organizations contacted and summarizes the cultural consultation results.

Table 6-3

List of Consultation Contacts with a Summary of the Consultation Effort and Results

Contact	Contact Record
Mr. Eric Enos Mākaha Ahupuaʻa Council	Consultation letter sent on September 7th, 2005. Follow up telephone message left November 9th, 2005. No Response
Mr. Mark Suiso Mākaha Ahupuaʻa Council	Consultation letter emailed on September 8th, 2005. No Response.
Ms. Annie Likos Mākaha Ahupuaʻa Council	Consultation letter emailed on September 8th, 2005. No Response.
Mr. Alika Silva Koa Mana	Certified, return receipt consultation letter sent on September 7th , 2005. No response and letter returned unclaimed. Mr. Silva had previously expressed his refusal to speak with CSH regarding the project.
Mr. Glen Kila Koa Mana	Consultation letter sent on September 7th, 2005. No response.
Ms. Alice Greenwood Oʻahu Island Burial Council	During the inventory survey fieldwork on August 31st, 2005, Matt McDermott of CSH had an informal interview with Ms. Greenwood on site at the Mākaha Bridges project area. Ms. Greenwood said she was unaware of any traditional Hawaiian cultural resources or burials within the project area. She expressed the opinion that the Native Hawaiian burial issue was the most important consideration for the Mākaha Bridges project. Ms. Greenwood indicated that she was not particularly knowledgeable about the project area and its vicinity, but that she had not heard of any cultural practices or cultural resources within the project area that might be considered traditional cultural properties. Following the completion of the fieldwork a cultural consultation letter was sent to Ms. Greenwood on September 7th, 2005. There was no response to the letter.
Mr. Landis Ornellas Hui Malama I Na Kupuna ʻO Hawaiʻi Nei	Consultation letter sent on September 7th, 2005. Follow up telephone message left November 9th, 2005. No Response

Mr. William Aila Hui Malama I Na Kupuna ʻO Hawaiʻi Nei	Consultation letter sent on September 7th, 2005. As a follow up, Matt McDermott of CSH had an informal interview with Mr. Aila by telephone on November 9th, 2005. Mr. Aila said he had no knowledge of previously disturbed burials or cultural deposits within the project area, but that he was not surprised that fragmented human remains were found during the inventory survey, as this is always possible in beach deposits. Mr. Aila said he had not heard of the remains of a Native Hawaiian temple, nor had he heard of other cultural remains or practices that might indicate traditional cultural properties, within the Mākaha Bridges project area.
Mr. Clyde W. Nāmuʻo Administrator State of Hawaiʻi Office of Hawaiian Affairs (OHA)	Consultation letter sent on September 7th, 2005. OHA responded in a September 22, 2005 letter from Clyde W. Nāmuʻo (OHA) to Matt McDermott of (CSH) [HRD05/1469C]: "Thank you for Hawaiian Affairs (OHA) your efforts in consulting OHA as the Mākaha Bridges 3 and 3A project continues. Our office has no comment specific to the recent findings but appreciates you continued correspondence. OHA requests your assurances that if the project goes forward, should iwi or Native Hawaiian cultural or traditional deposits be found during ground disturbance, work will cease, and the appropriate agencies will be contacted pursuant to applicable law."

CSH expresses thanks to all the Native Hawaiian organizations and individuals for their time and effort expended as part of the cultural consultation program. Although only limited cultural resource information was obtained, such consultation is an important and required part of an archaeological inventory survey. Based on the consultation results, no substantiating information is available regarding Koa Mana's claims for traditional cultural properties within the project area. Based on these results, the Native Hawaiian burial issue remains a prominent cultural concern for the project.

6.3.3 Summary and Interpretation

The archaeological inventory survey was conducted in accordance with requirements of HAR Chapter 13-276. The investigation included the results of cultural, historical, and archaeological background research, cultural consultation, and fieldwork. The background research focused on prehistoric and historic land use, cultural significance, and types and locations of potential cultural resources within the project area and vicinity. The cultural consultation focused on further documenting the area's past land use, identifying potential cultural resources within the project area, including traditional cultural properties, and soliciting information regarding potential mitigation measures for cultural resources that may potentially be affected.

The inventory survey field effort included systematic pedestrian inspection of the site and excavation of eight trenches to investigate subsurface cultural deposits. Four trenches were excavated in the *mauka* extension of the project area along Mākaha Stream (where drainage channel improvements and an access road will be constructed) and four were excavated along the *makai* side of Farrington Highway (in the vicinity of the temporary Farrington Highway realignment). Approximately half of the roughly 3.8-acre project area consists of paved roadways and active stream drainages that were not suitable for subsurface testing.

Based on the fieldwork results, there are five cultural resources within the project area:

- SIHP #50-80-7-6822, Mākaha Bridge No. 3, constructed in 1937;
- SIHP #50-80-7-6823, Mākaha Bridge No. 3a, constructed in 1937;
- SIHP #50-80-7-6824, Farrington Highway, originally constructed in the 1930s as part of the Territorial highway system;
- SIHP #50-80-7-6825, buried, culturally enriched A-horizon, activity area dating to the prehistoric and historic period, contains a probable Native Hawaiian burial; and,
- SIHP #50-80-12-9714, the former O. R. & L. Railroad alignment--constructed in the 1890s.

The project area remains an important transportation and communications corridor. Prehistorically, the project area likely included the primary coastal trail that circled the island of O‘ahu. In the 1800s this trail was improved to convey horse and wagon traffic, eventually becoming the "Old Wai‘anae Road," Farrington Highway's predecessor (McGrath et al. 1973). By the turn of the 19th century, the O. R. & L. Railroad passed through the project area, likely with associated electric and/or telegraph lines. In the first part of the 20th century, part of the Territorial Highway System was constructed through the project area. With Mākaha Bridges 3 and 3A, this roadway became known as Farrington Highway. Throughout the 20th century, Farrington Highway has developed as an important communications corridor, most recently, at the turn of the 20th century, with the installation of fiber optic communication lines within the

roadway's right-of-way. Four of the five cultural resources documented within the project area are components of this long established transportation and communication corridor.

The fifth cultural resource documented is a relatively rare remnant of a prehistoric and historic activity area. Based on available information, the subsurface cultural deposit may yield additional important archaeological information regarding prehistoric and historic coastal land use along the Mākaha Coast. This archaeological record may extend from the historic period to as early as the fourteenth century. This type of specific archaeological information regarding coastal habitation and land use within Mākaha is currently lacking.

Additionally, this subsurface cultural layer contains probable Native Hawaiian skeletal remains. These skeletal remains are important cultural resources in their own right, and their treatment and protection is clearly outlined in Hawai'i state burial law (HRS Chapter 6E-43 and HAR Chapter 13-300). As a previously identified, most likely Native Hawaiian burial site, the treatment of these human remains falls under the jurisdiction of the O'ahu Island Burial Council.

All recorded cultural resources were documented within the makai portions of the project area. Mauka of Farrington Highway, the project area appears to have been disturbed by grading or other land alteration, likely associated with commercial agriculture. The evidence for this is the fairly abundant rusted metal, PVC pipe, and plastic that was observed in trench profiles between one and two meters below the current land surface. In Trench 4, approximately 3 m below the current land surface, a sedimentary layer interpreted as the remnants of a former "*muliwai*," or backshore marshy pond, was documented. Based on radiocarbon dating results, it was deposited well before human colonization of the Hawaiian Islands (2890 – 2570 BC).

Cultural Resource Significance Assessments

All five cultural resources identified within the current project area are recommended eligible to the National/Hawai'i Register. This includes:

- SIHP #50-80-7-6822, Mākaha Bridge No. 3, constructed in 1937, recommended eligible under Criteria A and D.

- SIHP #50-80-7-6823, Mākaha Bridge No. 3a, constructed in 1937, recommended eligible under Criteria A and D.
- SIHP #50-80-7-6824, Farrington Highway, constructed in the 1930s as part of the Territorial Highway System, recommended eligible under Criterion D.
- SIHP #50-80-7-6825, buried A-horizon enriched with cultural material from prehistoric and historic land use, contains previously disturbed human skeletal remains that SHPD has determined are most likely Native Hawaiian, recommended eligible under Criteria D and E (Hawai'i Register only).
- SIHP #50-80-12-9714, remnants of the O. R. & L. Railroad, a portion of which, located outside the current project area, is already listed on the National Register. The railroad remnants within the current project area have lost their integrity and can no longer convey the railroad's significance under Criteria A, B, and C. The remnants do still have significance for their information (Criterion D).

The integrity and significance of each of these cultural resources is summarized in **Table 6-4**.

Impacts and Mitigation Measures

Project Effects

The proposed project will most likely not alter the historic location, function, or design of SIHP #50-80-7-6824, Farrington Highway. The proposed improvements, including bridge replacement, will alter the historic fabric of the roadway; however, such alteration is a normal and on-going aspect of road maintenance, and one that is suggested as consistent with the Secretary of the Interior's standards for the treatment of in-use historic properties (36 CFR part 68).

The project will most likely adversely affect SIHP #50-80-12-9714 (O. R. and L. RR), #50-80-7-6822 (Bridge No. 3), #50-80-7-6823 (Bridge No. 3a), and #50-80-7-6825 (subsurface cultural layer). These cultural resources will most likely be partially or completely removed by the proposed temporary Farrington Highway detour route.

Table 6-4

Cultural Resource Summary Table for the Project Area

CSH #	SIHP # (50-80-07-####)	Property Description	Number of Features	Apparent Age	Integrity[1] Location	Design	Setting	Materials	Workmanship	Feeling	Association	Recom. Signif. Under Hawai'i & National Register Criteria	Recommended Mitigation
1	-6822	Historic Bridge (3)	1	Historic	Y	Y	N	Y	Y	Y	Y	A and D	Architectural Recordation (HAER3-type)
2	-6823	Historic Bridge (3A)	1	Historic	Y	Y	Y	Y	Y	Y	Y	A and D	Architectural Recordation (HAER-type)
3	-6824	Farrington Highway	1	Historic	Y	Y	N	N	N	N	N	D	No Further Work
4	-6825	Subsurface Cultural Layer	2	Prehistoric/ Historic	Y	Y	N	Y	N	N	N	D, E[2]	Archaeological Data Recovery, Burial Treatment, Archaeological Monitoring
N/A	-9714	Remains of O.R.&L. Railroad	3	Historic	Y	N	N	N	N	N	N	D	Architectural Recordation (HAER-type)

Notes:

[1] Assessed based on guidance and definitions from National Regiester Bulletin #15, "How to Apply the National Register Criteria for Evaluation."

[2] Hawaii Register Criterion only.

[3] Historic American Engineering Record. See Archaeological Inv. Survey, Chapter 8.

Accordingly, a project specific effect determination of "adverse effect" is warranted for the proposed bridge replacement project. In compliance with Section 106 of the NHPA, a determination of "adverse effect" required the development of a Memorandum of Agreement (MOA) for the proposed undertaking. The MOA is being developed in

consultation among FHWA, as the undertaking's lead federal agency, the Advisory Council on Historic Preservation (ACHP), SHPD, HDOT, any other consulting parties. Under Hawai'i State historic preservation review legislation (HAR Chapter 13-275), a project effect recommendation of "effect, with proposed mitigation commitments" is warranted.

The proposed project clearly represents a "use" of significant historic sites under Section 4(f) of the Department of Transportation Act (DTA). Accordingly, a Section 4(f) Evaluation was prepared as part of the project's documentation. Section 4(f) of the DTA stipulates that FHWA may approve a program or project that uses or otherwise affects land from any significant historic site only if two conditions are met. First, there must be no prudent and feasible alternative to the use of the historic site. Second, the action must include all possible planning to minimize harm to the historic site. Section 4(f) language describes a significant historic site as a site that is eligible to the National Register under criteria A, B, or C, and hence worthy of preservation in place. According to Section 4(f), historic sites eligible under criterion D are not considered significant historic sites because their information content that gives them significance can be recovered through mitigation measures. These sites therefore do not require preservation in place. A Section 4(f) Evaluation is the federal Department of Transportation's internal administrative record that documents the conclusion that there is no prudent and feasible alternative to the use of the historic site, and that all possible project planning was undertaken to minimize harm. The Section 4(f) Evaluation for this project is discussed further in **Section 8.3.2**.

Mitigation Recommendations

There are five potential forms of historic preservation mitigation: A) Preservation; B) Architectural Recordation; C) Archaeological Data Recovery; D) Historical Data Recovery; and E) Ethnographic Documentation (HAR Chapter 13-275-8). CSH offers the following mitigation recommendations to alleviate the proposed project's adverse effect on cultural resources recommended eligible to the National and Hawai'i Registers (the project's "significant historic properties" based on Hawai'i state historic preservation legislation).

For the historic cultural resources that will be affected by the project, CSH recommends Historic American Engineering Record (HAER)-type documentation as a form of architectural recordation. Founded in 1969 by the American Society of Civil Engineers, the Library of Congress, and the National Park Service, the HAER program responded to the need to better document vanishing industrial and engineering cultural resources from both rural and urban areas nationwide. Modeled after the Historic American Building Survey (HABS) program, the HAER program developed unique interdisciplinary documentation techniques, utilizing historians, engineers, photographers, and architects, to better record industrial and engineering cultural resources. Typically, HAER-type documentation includes written historical reports, large format photographs, and sometimes measured plan view, cross section, and elevation drawings. HAER documentation follows the guidelines of the Secretary of the Interior's Standards for Architectural and Engineering Documentation (National Parks Service 2005). The specific scope of the recommended HAER-type documentation for the project areas' historic cultural resources should be worked out in consultation with SHPD's Architecture and/or Archaeology Branches.

Based on the results of this investigation, CSH proposes the following mitigation recommendations (See also **Table 6-4**):

- SIHP #50-80-7-6822, Mākaha Bridge No. 3, HAER-type documentation
- SIHP #50-80-7-6823, Mākaha Bridge No. 3a, HAER-type documentation
- SIHP #50-80-7-6824, Farrington Highway, no mitigation recommended
- SIHP #50-80-7-6825, buried culturally enriched A-horizon and human burial, archaeological data recovery, burial treatment, and archaeological monitoring
- SIHP #50-80-12-9714, remnants of the O. R. & L. Railroad, HAER-type documentation

The execution of the proposed HAER-type documentation and archaeological data recovery mitigation measures should be the subject of a project data recovery program that is approved by SHPD and implemented prior to the project's construction.

Further investigations by CSH have identified structural remains of the former Waiʻanae Plantation Railroad located just upstream of Bridge 3. Consultations with SHPD showed this property as previously unidentified. To mitigate for the removal of this cultural resource, the archaeological data recovery plan to be done for this project will include documentation of the structural remains. This documentation will include assigning the railroad remnants a SIHP number, standard archaeological documentation of the railroad foundation in the project's area of potential effect (including plan view maps and photographs), as-built construction drawings and additional historic documentation regarding the railroad. Because of the detailed level of documentation in the data recovery plan, separate HAER-type documentation is not warranted.

Data recovery of the SIHP #50-80-07-6825 cultural layer should focus on areal excavation techniques to archaeologically record and recover a reasonable and adequate amount of information from this significant cultural resource, per the requirements of HAR Chapter 13-278. Additionally, as a previously identified, most likely Native Hawaiian burial, burial treatment for Feature B of SIHP #50-80-07-6825, either preservation in place or relocation, falls under the Archaeological Inventory Survey for the Proposed Replacement of Mākaha Bridges 3 and 3A jurisdiction of the Oʻahu Island Burial Council (OIBC). Accordingly, a burial treatment plan (per the requirements of HAR Chapter 13-300-33) has been prepared, reviewed by the OIBC and approved by SHPD.

Because of the possibility of the project disturbing additional human remains, or significant archaeological deposits from the SIHP #50-80-7-6825 cultural layer, an archaeological monitoring program will be carried out during project construction, per the requirements of HAR Chapter 13-279. This monitoring program has provisions for additional documentation of the deeply buried sedimentary layer (Stratum V) documented in Trench 4, should this layer be disturbed/exposed by the proposed project. This layer is potentially of paleoenvironmental interest. This monitoring program could be described as another component of the project's data recovery program, because, under Hawaiʻi state historic preservation legislation, an archaeological monitoring program is considered a form of archaeological data recovery (HAR Chapter 13-275-8).

In compliance with Section 106 of the NHPA, due to the determination of "adverse effect", an MOA will document mitigation measures for the proposed undertaking.

Disposition of Materials

The complete collection of artifacts and faunal remains associated with this archaeological inventory survey were collected from public lands, the HDOT Farrington Highway ROW. This collection is small, comprised of the materials from collection areas A, B, and C from Trench 8, SIHP # 50-80-07-6825, Feature A (refer to Table 5). Until SHPD designates any acceptable repository for this material, per the requirements of HAR Chapter 13-276-6, this small Mākaha Bridges archaeological inventory survey collection will be temporarily housed at the CSH storage facility.

The human skeletal remains documented in Trench 8 as part of SIHP # 50-80-07-6825, Feature B, were returned to the trench sidewall where they were originally found, prior to the trench's backfilling. The disposition of these human remains will be determined through the procedures outlined in Hawai'i state burial law (HRS Chapter 6E-43 and HAR Chapter 13-300).

6.4 TRADITIONAL CULTURAL PRACTICES

A Cultural Impact Assessment (CIA) was undertaken for the project Area of Potential Effect (APE), by Cultural Surveys Hawai'i in late 2004 and completed in January 2005. The following is a summary of the CIA undertaken for this project in accordance with provisions of Section 106 of the National Historic Preservation Act (NHPA) and the State of Hawai'i environmental review process as promulgated in Hawai'i Revised Statutes (HRS) Chapter 13-343, which requires consideration of a proposed project's effect on traditional cultural practices.

The CIA and the companion Archaeological Inventory Survey, described in Section 6.5, supports the project's historic preservation review under Section 106, NHPA; HRS, Chapter 6E-42; HAR Chapter 13-284; and the State of Hawai'i (per the Office of Environmental Quality Control's Guidelines for Assessing Cultural Impacts).

The CIA is attached to this document in Appendix E, Cultural Impact Assessment for the Proposed Replacement of Mākaha Bridge 3 and 3A, Mākaha Ahupua‘a, Wai‘anae District, Island of O‘ahu, Cultural Surveys Hawai‘i, January 2005. A summary of the scope of work, findings, and recommendations in the CIA are provided in the following.

6.4.1 Scope of Work

The CIA included the following scope of work tasks:

1. Examination of historical documents, such as Land Commission Awards (LCAs) and historic maps, with the specific purpose of identifying traditional Hawaiian activities, including gathering of plant, animal, and other resources or agricultural pursuits as may be indicated in the historic record.

2. A review of the existing archaeological information pertaining to the archaeological sites on the property, as they may allow the reconstruction of traditional land use activities and identify and describe the cultural resources, practices, and beliefs associated with the parcel, including identification of present uses, if appropriate.

3. Conduct oral interviews with persons knowledgeable about the historic and traditional practices in the project area and region. Several formal and informal interviews were conducted.

4. Preparation of a report on items 1-3 summarizing the information gathered related to traditional practices and land use. The report assesses the impact of the proposed action on the cultural practices and features identified.

The scope of work included coordination with the State Historic Preservation Division (SHPD), and the City and County of Honolulu relating to archaeological matters.

6.4.2 Findings

Results of Review of Historical Documentation

Pre Contact to early 1800s (Mākaha Ahupua‘a) Earliest accounts specific to Mākaha describe a good sized inland settlement and a smaller coastal settlement (Green, 1980). Green (1980:20-21) describes Mākaha’s coastal settlement as “…restricted to a hamlet in a small grove of coconut trees on the Kea‘au side of the valley, some other scattered houses, a few coconut trees along the beach, and a brackish water pool that served as a fish pond, at the mouth of the Mākaha Stream.” This stream supported traditional wetland agriculture - taro in pre-contact and early historic periods and sugarcane in the more recent past. Mākaha Stream, although it has probably changed course in its lower reaches, favors the northwest side of the valley leaving most of the flat or gently sloping alluvial plain on the southeast side of the valley (Hammatt et al. 1985). Seasonal dryland cultivation in early times would have been possible, and dry land fields (kula) have been found in the valley in previous surveys (Green, 1980).

Māhele and LCA Documentation The Organic Acts of 1845 and 1846 initiated the process of the Māhele - the division of Hawaiian lands, which introduced private property into Hawaiian society. In 1848, the crown and the ali‘i (royalty) received their land titles. Kuleana awards for individual parcels within the ahupua‘a were subsequently granted in 1850. Mākaha Ahupua‘a had 13 claims of which 7 were awarded. Six of the seven Mākaha LCAs were located inland attesting to the importance of the inland settlement. The seventh Mākaha LCA claims a muliwai as its western boundary.

Land use information for the Mākaha LCAs is sparse. *Lo‘i* lands and *kula* lands were an important part of sustenance. Aside from these general land specifications, however there is mention of *noni*, ponds, and land for raising *mao*.

Based on the Māhele documents, Mākaha’s primary settlement was inland where waters from Mākaha Stream could support *lo‘i* and *kula* cultivars. Although there is evidence for settlement along the shore, for the most part, this was limited to scattered, isolated residents. The only “cluster” of habitation structures was concentrated near Mākaha Beach, near the Kea‘au side of Mākaha where there is also reference to a fishpond.

1850s-1900 By ancient custom, the sea for a mile off the shores belonged to the *ahupua'a* as part of its resources. The ruling chief could prohibit the taking of a certain fish or he could prohibit all fishing at specific times.

In 1862, Owen Jones Holt, bought out the shares of the James Robinson and Co. (Ladd and Yen 1972). The Holt family dominated the economic, land-use, and social scene in Mākaha from this time until the end of the nineteenth century. Upon Holt's death in 1862, the lands went into trust for his children.

1900 to Present The Holt Ranch began selling off its land in the early 1900s (Ladd and Yen, 1972). In 1908, the Wai'anae Sugar Company moved into Mākaha and by 1923, virtually all of lower Mākaha Valley was under sugar cane cultivation. The plantation utilized large tracks of Lualualei, Wai'anae and Mākaha Valley. For a half century, Mākaha was predominantly sugarcane fields, but by 1946, the manager's report announced the plans to liquidate the property because of the additional increase in wage rates, making the operations no longer profitable (Condé and Best 1973:358).

The lack of water resources played a role in Wai'anae Sugar Company's low profitability. In the 1930s, Wai'anae Plantation sold out to American Factors Ltd. (Amfac, Inc.). In 1945, American Factors Ltd. contracted the firm of James W. Glover, Ltd. to tunnel into a ridge in the back of Mākaha Valley. The completed tunnel (i.e. Glover Tunnel) had a daily water capacity of 700,000 gallons. The water was mainly used for the irrigation of sugar. In 1946, Wai'anae Plantation announced in the *Honolulu Advertiser* (Friday, Oct 18, 1946) that it planned to liquidate its nearly 10,000 acres of land. The day before, news of the impending sale was circulated among the investors at the Honolulu Stock Exchange. One of the investors was Chinn Ho.

Chinn Ho brokered the deal the following day, when the Wai'anae Plantation sold the Mākaha lands to the Capital Investment Corporation. Parts of the property were sold off as beach lots, shopping centers and house lots. Many of the former plantation workers bought house lots. Chinn Ho also put his personal investment into Mākaha and initiated resort development including a luxury hotel and in 1969, the Mākaha Valley Golf Club, an 18-hole course with tennis courts, restaurant and other golf facilities was opened for local and tourist use (McGrath et al.

1973:146-163). Numerous other small-scale agricultural interests were pursued during this time period (Ladd and Yen 1972). Water from Glover Tunnel was now used to water Mākaha Valley farms, and the lush grounds of the Mākaha Inn and Country Club, and its associated golf course.

Alterations to the Waiʻanae Coastline (1880-1930) Prior to the 1880s, the Waiʻanae coastline may not have undergone much alteration. The old coastal trail probably followed the natural contours of the local topography. With the introduction of horses, cattle, and wagons in the nineteenth century, many of the coastal trails were widened and graded. However, the changes probably consisted of superficial alterations to the existing trails and did not entail major realignments. The first real alteration to the Waiʻanae coastline probably came with the growth of the Waiʻanae Sugar Company. The company cultivated cane in three valleys – Mākaha, Waiʻanae, and Lualualei – and to more easily transport their cane to the dock and to the mill at Waiʻanae Kai, a railroad was constructed in 1880. The construction of the railroad would have had an impact on the natural features in the area, such as the sand dunes, as well as the human-made features, particularly the fishponds and saltponds maintained in the coastal zone. Additional alteration to the Waiʻanae coastline occurred in the late nineteenth century with the extension of Dillingham's O.R. & L. rail line into the Leeward Coast.

The mechanics of railways demanded considerable alterations to natural landscapes in order to make them feasible for transport, including less curves and hills. A 1912 map of the Government Belt Road illustrates the alignment of the old Government Road, which was probably a modified version of the original coastal trail, and the alignment of the proposed Government Belt Road, which would parallel the O. R. & L. alignment. After the Belt Road was completed, further roadwork was carried out in the 1930s on what was called the "Waiʻanae Road" (D.O.T. 1923), later named Farrington Highway. Kili Drive was built ca. 1970s to provide additional access into Mākaha Valley. The additional access was necessary due to the increased population related to residential, golf resort, and condominium development in the valley.

Mākaha Bridges 3 and 3A The Bridges were built in 1937. At that time, Hawaiʻi was still a territory, and W. D. Bartel was Chief Engineer for the Territorial Highway Department. The bridges are very important, as they connect Mākaha with the rest of the Waiʻanae District and

Honolulu. Bridge 3, which is located just south of Kili Drive traverses Mākaha Stream. Bridge 3A, located just north of Kili Drive, traverses a branch of Mākaha stream.

Previous Archaeological Studies in Mākaha

A number of prior archaeological studies have been undertaken in the Waiʻanae region. A summary description is provided in the following:

McAllister (1933) conducted a number of archaeological studies that have been carried out in Mākaha Ahupuaʻa beginning with a 1933 island-wide survey in which he described seven sites in Mākaha Ahupuaʻa.

Mākaha Valley Historical Project (1968-1970) (Green 1969, 1970, 1980; Ladd and Yen 1972; and Ladd 1973), involving fieldwork conducted between 1968 and 1970, studied almost all of Mākaha Valley and was unique in that it was funded by private enterprise without legal compulsion and the investigations covered parts of the valley beyond those due for development. More than 600 archaeological features were recorded in the upper, and 1,131 features recorded in the lower valley. Carbon dating indicated settlement of the site as early as the 13th century. Settlement was focused on the primary water source, Mākaha Stream.

Richard Bordner (1981) carried out a survey of a linear project area up the middle of the valley floor inland of Kāneʻākī Heiau in support of road widening and well placement projects. Bordner (1981:D-22) concludes "the entire Mākaha Valley was utilized for agricultural production in the most intensive way, such that all areas capable of it were undoubtedly utilized for crop production."
Kennedy (1983) produced an archaeological monitoring report on work near "Well IV" at an elevation of 1072 feet in the valley floor, two km inland from Kāneʻākī Heiau. He saw no evidence of buried features or artifacts.

Earl Neller (1984) of the SHPD went back into the area designated as Site Area 997 and relocated sites previously reported as destroyed (McAllister sites 171 & 172), identified unreported sites, and re-analyzed several sites studied during the Mākaha Valley Historical Project.

Hammatt, Shideler and Borthwick (1985) carried out an archaeological reconnaissance survey on the west side of central Mākaha Valley in the 776 site area, documenting numerous modifications of natural terraces for dry land agriculture. Ten archeological sites were recorded.

Barrera, Jr. (1986) carried out an archaeological survey of a mid valley well site on the west central side of the valley. The project area appears to have included a corridor and a proposed reservoir site. He identified four sites including four stone platforms (Site -1465), a U-shape habitation enclosure (Site -1466), a terrace (Site -1467) and a wall (Site -1468). Some 17 test pits were excavated but virtually nothing was found.

Kennedy (1986) focused investigations on the north (Mākaha) side of Mauna Lahilahi identifying five sites including a possible shrine, a *koa*, a linear pile and an enclosure.

Komori (1987) carried out archaeological survey and testing at Mauna Lahilahi relocating Kennedy's (1986) five sites and an additional eleven sites including petroglyphs, enclosures,

terraces, rock shelters & midden, and lithic scatters. He reports eight radiocarbon dates rather tightly in the AD 1300 to 1650 period.

Bordner & Cox (1988) carried out a mapping project on the upper valley floor inland of Kāne'ākī Heiau. While much of the focus of this study was more accurately locating sites previously identified during the Mākaha Valley Historical Project, their findings suggest that the relative importance of dry-land, non-irrigated agriculture had previously been underestimated.

Donham (1990) and Rosendahl (1990) carried out an archaeological inventory survey of two discrete but adjacent parcels for a total of approximately 130 acres in the south central portion of the valley. Donham identified a terrace associated with dry-land agriculture and/or habitation.

Hammatt and Robins (1991) carried out an archaeological inventory survey of a proposed 20-inch water main extending northeast from Farrington Highway up Water Street and then continuing northeast to and across Kili Drive. They documented a single historic property Site 50–80-07-4363, described as "a linear earthen berm" (Hammatt & Robins 1991). The berm was interpreted as having been "associated with the historic sugarcane cultivation" (Hammatt & Robins 1991).

Carol Kawachi (1992) of the SHPD wrote a memorandum on "Mākaha Burials Exposed by Hurricane 'Iniki" documenting burial(s) eroding out of a lot at 84-325 Makau Street. This was a pit burial, long exposed from a sand bank by Hurricane 'Iniki. The burial was reported to have included staghorn coral at major joints and a possible shell *niho palaoa*.

Moore and Kennedy (1994) carried out archaeological investigations on the northwest side of the valley for a proposed reservoir at 242-foot elevation. The access corridor and reservoir site covered approximately eleven acres. No historic features were located.

Fields Masonry documented stabilization and restoration of Kāne'ākī Heiau carried out in 1996 (1997 documentation by Emily Pagliaro). Prior restoration efforts had been carried out in 1970.

Magnuson (1997) carried out a preliminary archaeological review of upper Mākaha Valley for a proposed water line replacement project. This was primarily an archaeological literature review providing an overview of sites.

Cleghorn (1997). In 1997, test excavations associated with the inventory survey conducted for the "New Mākaha Beach Park Comfort Station and Parking Area" *mauka* of Farrington Highway identified a cultural layer *mauka* of Farrington Highway near the entrance to Kili Drive. Radiocarbon analysis indicated an age range of A.D. 1440-1690. The deposit was suggested to be "evidence of a small encampment near the coast" (Cleghorn 1997:32). He also indicates the possible importance of a pond/wetland area just *mauka* of the Highway at Mākaha Beach Park: "This pond and wetland may have offered rich resources for the Hawaiians of the area, and the pond may have been used as an inland fishpond during the prehistoric and early historic eras" (Cleghorn 1997:33). Also present in the area are remains of structures associated with the O. R. & L. Railroad (State site 50-80-12-9714). Cleghorn indicates the presence of a bridge foundation located in an unnamed stream just north of Kili Drive, *makai* of the highway (Cleghorn 1997:11).

Maly (1999) carried out a 'Limited Consultation Study with Members of the Hawaiian Community in Wai'anae" in support of the Mauna 'Olu Water System. Concerns for continuing community consultation were expressed.

Elmore, Moore, and Kennedy (2000) carried out an archaeological inventory survey of an approximately 19.6 acre parcel located on the south side of Kili Drive and just west of the

condominiums in a portion of the previously identified site area 50-80-07-776. A total of eight features were identified. Five of these were determined to be modern disturbances while the other three were thought to be possible traditional Hawaiian dry-land agricultural and/or habitation features.

Moore and Kennedy (2000) carried out an inventory survey of an approximately 20-acre parcel located on the north side of Kili Drive in a portion of previously identified site area 50-80-07-776. A total of twelve features were identified. Ten were determined to be modern disturbances while two were thought to be possible traditional Hawaiian dry-land agricultural features.

Kailihiwa and Cleghorn (2003) monitored the Mākaha water system improvements phase II for ten streets in the *ahupua'a* of Mākaha and Wai'anae. A total of three sites were identified with five features, a pit, concrete flume, two fire features, and a charcoal deposit. No cultural material was found in any of the deposits.

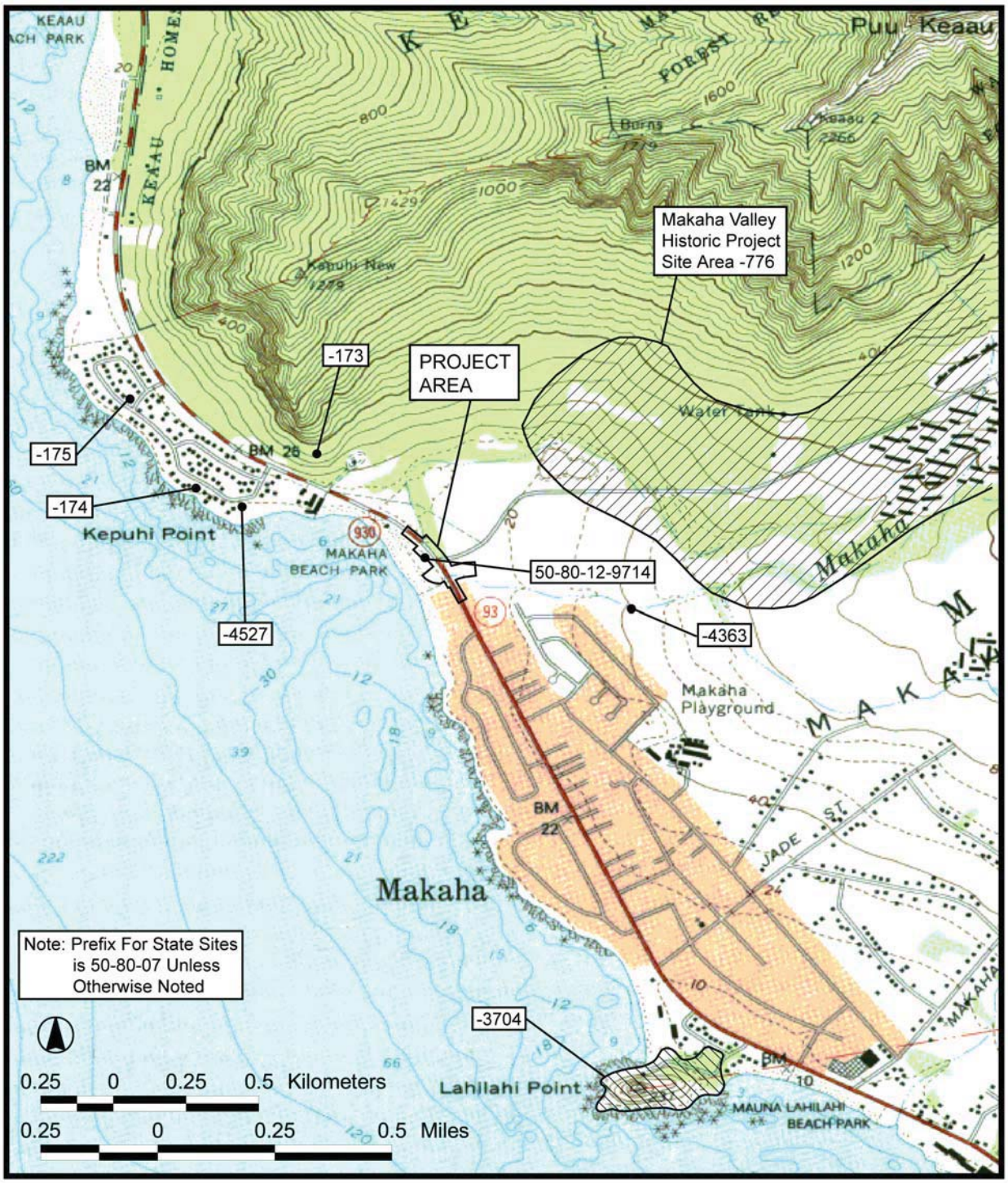
Previous Recorded Archaeological/Historic Sites

Table 6-5 and **Figure 6-6** provides a list and identifies prior sites found in the project region. For further detailed site information see Appendix E.

Table 6-5

Previously Recorded Archaeological Sites is Mākaha Ahupua‘a

State Site #	Description
50-80-07-173	Probable Location of Rock Spoken of by Hall (McAllister 1933)
	"called ...Pukahea...an object of worship, and to which sacrifices were offered in former times. (3 miles from Pukahea) a large rock...in no particular sense striking"
50-80-07-174	Laukīnui Heiau (McAllister 1933)
	Low walls inclose, on three sides, what appear to be two low stone-paved platforms...Just to the south of the inclosure a coral outcrop forms a natural platform which was undoubtedly part of the heiau...The heiau is so old as to be accredited to the *menehunes* and said to have been the important one in Mākaha Valley, though not nearly so pretentious or well-preserved as that of Kaneaki.
50-80-07-175	Mololokai (McAllister 1933)
	Two small pits on the *makai* side of the old road that were said to have been used by a group of cannibals who would place the defleshed bodies of their victims in these pits for cleaning by the high tide. Located at the foot of the ridge between Keaau and Mākaha Valleys. Now buried/destroyed.
50-80-07-776	Mākaha Valley Historic Project Site Area -776
	Various pre-contact and historic sites including field shelters, stone mounds, stone platforms, habitation enclosures, storage pits, habitation features, and dry land agricultural features.
50-80-07-3704	Mauna Lahilahi (Kennedy 1986; Komori 1987; Kawachi 1990)
	A natural promontory at the southern end of Mākaha Valley. Subsurface cultural deposits, evidence of marine and religious activities and stone tool production, petroglyphs and crevice burials all included under one site designation.
50-80-07-4363	Historic Sugarcane -Related Berm (Hammatt and Robins 1991)
50-80-07-4527	Burial at 84-325 Makau St.(Kawachi 1992)
	Pit burial, approximately 50cm below the surface extending 1.5 m long. Exposed from sand bank by Hurricane 'Iniki. Included staghorn coral at major joints and a possible shell niho palaoa.
50-80-12-9714	Remains of O.R.&L. Railroad (National/Hawai'i Historic Register 1975)
	Runs along the *makai* side of Farrington Highway. The railroad is listed on the National Register Of Historic Places.



Source:
Waianae Quadrangle, 1998 USGS 7.5 Minute Series Topographic Map and Cultural Surveys Hawaii, 2004

Figure 6-2 Location of Previously Identified Archaeological Sites
Replacement of Mākaha Bridges No. 3 and No. 3A
Farrington Highway, Wai'anae, O'ahu, Hawai'i
State Department of Transportation, Highways Division

See Graphic Scale

R.M. TOWILL CORPORATION February 2010

Consultation with Community Contacts

Community consultation was undertaken by Cultural Surveys Hawai'i (CSH), with Hawaiian cultural organizations, government agencies, and individuals who might have knowledge of and/or concerns about traditional cultural practices specifically related to the project area. This effort was made by letter, e-mail, telephone or in-person contact. In the majority of cases, letters along with a map of the project area were mailed with the following text:

> *In collaboration with R. M. Towill Corporation, CSH is conducting a Cultural Impact Assessment for the proposed Replacement of Mākaha Bridges 3 and 3A. Mākaha Ahupua'a, Wai'anae District, O'ahu (TMK: 8-4-001:012, 8-4-010:012, 8-4-2:047, 45, 8-4-002:045, 8-4-018:014, 122, 123, 8-4-08:018, 019, 020.) A map is enclosed for your information.*
>
> *The purpose of this assessment is to identify any traditional cultural practices associated with the project area, past or present. We are seeking your kōkua and guidance regarding the following aspects of our study:*
>
> *(1) General history and present and past land use of the study area.*
> *(2) Knowledge of cultural sites which may be impacted by the project – for example, historic sites, archaeological sites, and burials.*
> *(3) Knowledge of traditional gathering practices in the study area–both past and on-going.*
> *(4) Cultural associations with the study area through legends, traditional use or otherwise.*
> *(5) Referrals of kūpuna or anyone else who might be willing to share their general cultural knowledge of the study area.*
> *(6) Any other cultural concerns the community might have related to cultural practices in the Mākaha area.*

The individuals, organizations, and agencies contacted by CSH, and the results of any consultation are presented in **Table 6-6**.

Table 6-6

Community Individuals, Organizations and Agencies Contacted by CSH

Name	Affiliation	Comments
Aila, William	Wai'anae Harbor Master	Mr. Aila made a referral, George Arakaki. He spoke about the times when there was no bridge and the kids who lived at Kea'au had to travel by canoe over the Mākaha Stream to get to school. His recommendation is that a Archaeologist be on-site during excavations in areas containing sandy deposits and any excavations for the by-pass road. Also he recommends a community meeting before construction begins.

Table 6-6, Continued

Community Individuals, Organizations and Agencies Contacted by CSH

Name	Affiliation	Comments
Arakaki, George	Lived in Mākaha Valley all his life	Interviewed on Nov, 8 2004. See below.
Badayos, Lucio	Kama'āina	Mr. Badayos was born in 1930. His *'ohana* goes back 5 generations in the Wai'anae district. He recommended a cultural monitor and wanted to be notified when work starts. He is an avid fisherman along the coast fronting the project area. He spoke about *hukilau* in the old days and still practices traditional *hukilau*. He would gather different type of fish within Mākaha bay such as *kona* crab, *ulua,* barracuda and *'ō'io*. He would also catch reef fish consisting of *manini*, *kala*, *uhu,* and *nenue* using the throw net technique. Mr. Badayos mentioned catching *'ōpae* and *'o'opu* in the Mākaha stream.
Collins, Sara	Archaeology Branch Chief, SHPD/DLNR	Made referrals, Koa Mana, William Aila, and Analu Josphfidus. Noted that a burial did erode out of the sand on Makau St North of the project area.
DeSoto, Frenchy	Wai'anae Coast Archaeological Preservation Committee	Made referral, William Aila, and said there was *'o'opu* in the stream
Enos, Eric	Cultural Learning Ctr. at Ka'ala, Director of Ho'Āina O Mākaha, Mākaha Ahupua'a Council.	No major concerns except the traditional concerns regarding *'iwi*
Gabbard, Mike	City Council District 1	Made referral, Patty Teruya
Guth, Heidi	Office of Hawaiian Affairs	Made referrals, William Aila Jr. and Alika Silva
Haia, Willie	Local resident –Kamo'i Canoe Club	Made referral, Erick Enos
Hanabusa, Colleen	Senator 21st District	Made referrals, John Kaopua, Ah-Chin Poe, Josiah Ho'ohuli, and Philip Naone
Kamana, Walter	Wai'anae Kupuna	Spoke with him about Mākaha on a previous project. He mentioned the great ocean resources in Mākaha.
Kaopua, John	Wai'anae Coast Neighborhood Board	Left messages
Kapeliela, Kana'I	Cultural specialist for the SHPD/DLNR burials sites program	Made referral, Albert Silva
Keamo, Maylene	Wai'anae Ahupua'a Council, President	She is not familiar with that area, and therefore had no comment

Table 6-6, Continued

Community Individuals, Organizations and Agencies Contacted by CSH

Name	Affiliation	Comments
Keaulana, Buffalo	Legendary Waterman, local resident, long time Mākaha Lifeguard	No cultural concerns. He does not recall any *'iwi* eroding out of the beach. He is concerned about the bridge, as it is very old and should be fixed but he feels that it should be rerouted higher so that there is more beach area.
Kila, Glen	Koa Mana Resources	E-mail letter and sent letter by mail, no response
Maldonado, Eddie	Kama'āina	Made referral Albert Silva. He said people would fish in Mākaha Stream for *'ōpae,* and *'o'opu*.
Naone, Phillip	Local resident – Mākaha Canoe Club	Only concern is traffic control during construction and made referral, Albert Silva
Nunes, Keone	Cultural practitioner	Made referral, Buffalo.
Ornellas, Landis	Care taker of Kāne'ākī Heiau and Hui Malama	Interviewed on Nov, 8 2004. See below.
Patterson, Kaleo	Mākaha Ahupua'a Council	Made referral, "Buffalo" and his *'ohana.*
Puu, Mel	Mākaha Beach Lifeguard, *kama'āina*	Made referral, Lusio Badayos
Rezentes, Cynthia	Wai'anae Coast Neighborhood Board #24	Made referrals, Eddie Maldonado and other long time residents in the area.
Silva, Albert	Wai'anae Coast Neighborhood Board #24	Mr. Silva is concerned that the road should be re-routed to its original route higher up and *mauka*, so that there is more beach area. The area around the bridge is all fill, for the rail-road. Mr. Silva does not know of any *'iwi* found within the project area.
Suiso, Mark	Mākaha Ahupua'a Council	Provided contacts with Mākaha Ahupua'a Council
Teruya, Patty	Legislative Aid for Fmr. Councilmember Mike Gabbard	Made referral of Mark Suiso, Neighborhood Board members and cultural monitors

Summary of Findings

Background research indicated dry land agriculture, habitations, a heiau, a pond, and a terrace lo'i system in Mākaha Valley. Previous archaeological research specific to the project area identified a cultural layer present in an area approximately 80 m mauka of Farrington Highway (Cleghorn 1997). The presence of pre-contact cultural deposits was considered "evidence of a small encampment near the coast" (Cleghorn 1997:32). Cleghorn also indicates the possible importance of a pond/wetland area just mauka of the highway: "This pond and wetland may

have offered rich resources for the Hawaiians of the area, and the pond may have been used as an inland fishpond during the prehistoric and early historic eras" (Cleghorn 1997:33).

George Arakaki, Landis Ornellas, Lucio Badayos, Albert Silva, and other kūpuna interviewed for this assessment mentioned that in the past there was traditional gathering of fish such as awa awa, āholehole, ʻoʻopu, and ʻōpae in the stream that abuts the project area. There was no documentation of any other on-going cultural practices, archeological sites, trails, or burials within the project area. However, intensive fishing, diving, canoeing, surfing and swimming currently occur makai of the project area at Mākaha Beach. The community is concerned that there should be no adverse effect on any of the on-going activities in the surrounding area during the proposed bridge replacement. Traffic control and the possibility of encountering inadvertent burials were also of concern.

Recommendations

The specific concerns related to cultural issues noted by the interviewees and people consulted include: 1) The possibility that burials may be encountered during excavation for the project; and 2) The potential impact of the bridge replacement project on traditional ocean activities associated with this section of Mākaha, such as fishing, diving, canoeing, and surfing. It is recommended that these concerns be resolved through consultation and coordination with the Mākaha community. If the concerns are addressed, the proposed replacement of the Mākaha Bridges should not have any adverse impact upon native Hawaiian cultural resources, beliefs, and practices.

Impacts and Mitigation Measures

Potential for Encountering Human Burials During Construction

The project site and larger region of Coastal Waiʻanae have been identified as a location with the potential for discovery of human skeletal remains of Native Hawaiian origin. Accordingly, preliminary investigation of the site was subject to early consultation with the community and SHPD to ensure that appropriate practices were undertaken during the conduct of the geotechnical exploration and archaeological inventory surveys. Documentation of the effort undertaken for this portion of investigation included:

- Archaeological Monitoring Plan, Proposed Replacement of Mākaha Bridges 3 and 3A, and Addendum Addressing Geotechnical Testing. Cultural Surveys Hawai'i, Inc., October 2004. Note: This document was been reviewed and approved by SHPD.
- Public Notification of Project (Geotechnical Boring), Public Mailing and Legal Notice in Honolulu Advertiser, April 30, 2005; and Public Notification of Archaeological Inventory Survey, Public Mailing, August 2005. (See Appendix F. Mailing List of Community Members Consulted For Geotechnical Boring and Archaeological Inventory Survey.

Based on the prior notification undertaken for this project and the results of the Archaeological Inventory Survey described in Section 6.5, archaeological monitoring will be practiced during construction of the project. The Archaeological Monitoring Plan dated October 2004, will be utilized and updated as required based on coordination with SHPD. In the event of an inadvertent find verified by the archaeological monitor, work will cease and SHPD will be notified for appropriate treatment of the find.

Potential Impact of Bridge Replacement Project on Traditional Ocean Activities

Potential for major disruption to users of the area for fishing, diving, canoeing and surfing are not anticipated. It is expected that these uses will primarily be located along the shoreline and beach areas of the Mākaha Beach Park which will not be affected by the proposed project. However, there will be some loss of shoulder area parking along both sides of Farrington Highway in the area of the project site to accommodate construction and use of the temporary by-pass road. The loss of shoulder area parking space immediately along the highway is expected to be somewhat mitigated by the nearby designated beach parking lot located mauka of the Mākaha Beach Park. The disruption to shoreline parking will be temporary and will last only for the duration of construction. Guard rail improvements (extension) on the makai-Ka'ena side of the bridge may impact an area that could be used for roadside parking.

CHAPTER 7
SECONDARY AND CUMULATIVE IMPACTS

The following is a summary of secondary and/or cumulative impacts that may result from this project.

7.1 SECONDARY AND CUMULATIVE IMPACTS

Development of the proposed project will not result in substantial secondary or cumulative impacts to the natural or built environment or to the social and economic community. The proposed project will not stimulate unexpected change in population or traffic conditions, but will accommodate the current traffic demands along this section of Farrington Highway.

7.1.1. Potential Environmental Impacts

Climate and Rainfall

Secondary or cumulative impacts are not anticipated or expected. While the proposed scope and scale of the project are not sufficient to influence these resources, greenhouse gases (GHG), most notably carbon dioxide generated from vehicular traffic travelling on the bridges could be a potential contributing factor to global warming. However the proposed replacement bridges will maintain the existing roadway capacity and is therefore not expected to result in increased traffic in the area after they are constructed.

Topography, Geology and Soils

Secondary or cumulative impacts based on the replacement of the bridges are not anticipated or expected. The project site has been used as a roadway corridor for several decades. The proposed replacement bridges will be built at the same locations and at similar elevations as the existing bridges.

Surface Water, Groundwater, and Hydrology

Secondary or cumulative impacts to surface water, groundwater, and hydrological resources are not anticipated. During construction, Best Management Practices (BMPs) will be implemented

and maintained throughout the duration of the project to minimize construction-related impacts (i.e. siltation) to nearby surface waters. The project will not result in negative impacts to groundwater resources.

Natural Hazards

Potential secondary or cumulative impacts associated with floods, hurricanes, earthquakes, and tsunami have been considered in the design and operating practices applied to the site. Adverse impacts are not anticipated. Safe engineering and design standards have been incorporated in the construction of the proposed replacement bridges to be in accordance with current bridge and roadway standards and reduce or prevent secondary effects due to natural hazards from floods, earthquakes, or tsunami. The replacement bridges will be designed to accommodate a 100-year flood event without increasing flood hazards to adjacent properties.

Air Quality

The potential for secondary or cumulative impacts to air quality as a result of this project is not anticipated. The replacement bridges will be designed to meet design standards for bridge structures and maintain the same capacity. This project will not result in any meaningful changes in traffic volume, vehicle mix, location of the existing facility, or any other factor that would cause an increase in vehicle emission impacts. The new bridges will not, in and of themselves, result in increased long-term air quality impacts. Upon completion of work, air pollution levels are expected to return to pre-construction levels.

Noise

The potential for secondary or cumulative impacts to noise levels as a result of this project is not anticipated. Nearby areas which include residential and park use may be temporarily affected by construction generated noise. However, noise generated as a result of construction is expected to be temporary, of limited duration, and restricted to daytime hours. Upon completion of work noise will return to pre-existing background levels.

Flora and Fauna Resources

Potential for secondary or cumulative adverse impacts to flora and fauna at the site are not anticipated. The proposed project activities will occur within an existing roadway corridor

dominated by non-native plant and animal species. No threatened or endangered species were observed at the site.

Scenic and Aesthetic Resources

Adverse secondary or cumulative impacts from the proposed bridge replacement are not anticipated. Farrington Highway has been in use as a public roadway for several decades. The project will: (1) maintain the existing use of Farrington Highway as a principal surface transportation arterial; (2) enhance use within the area of the bridges by motorists and pedestrians with improved drainage and increased safety through the designing of the new bridges to accommodate the 100 year flood flow; and (3) permit the installation of improvements to meet requirements of AASHTO, FHWA, and DOT.

Short-term visual impacts associated with the project primarily relate to construction activities. Temporary signage, a detour road, the presence of heavy construction equipment and ongoing modifications to the existing landscape will all create short-term impacts on the visual setting surrounding the project site. Construction activities will be apparent from the Farrington Highway corridor and from several homes in the vicinity. Visual impacts related to construction activities are temporary in nature, however, and not considered significant.

The proposed project will result in long-term visual impacts in the form of new bridge structures that are larger in scale and more modern in appearance than the existing bridges. The existing wooden bridges retain a rustic appearance. By contrast, the new bridges will be wider and constructed of reinforced concrete. The maximum increase in height of the new bridges will be approximately 6 inches and therefore will not result in a significant intrusion into any existing view planes.

7.1.2. Potential Public Service Impacts

Traffic and Circulation

Potential for adverse secondary or cumulative impacts associated with traffic and circulation are not anticipated. The proposed project will not reduce capacity of the existing road system and bridges. The project will however enhance vehicular safety and improve pedestrian access and

long-term maintenance associated with use and operation of the bridges. The improvements will include lanes widened to 12 feet in each direction and 10 foot wide shoulders to accommodate bicyclists and pedestrians.

Temporary impacts to traffic and roadways are anticipated during construction. A potential impact would include delays in access for vehicles and pedestrians across the project area during construction. For public safety, roadway speed limit will be reduced at the project site.

Utilities (Solid Waste, Potable Water Power and Communications)

Potential for secondary or cumulative impacts are not anticipated. Solid waste that is generated as a result of construction activities that cannot be recycled will be disposed of at a County-approved waste facility. The existing 12-inch water main within the project site will be moved outside of the construction area prior to demolition of the existing bridge structures. After construction, the water main will be moved back and attached to the new bridges. Temporary interruption of water service may occur during relocation of the waterline. Affected power and communication lines will be temporarily relocated during construction. No extended interruption of power and communication services is anticipated.

Police, Fire, Health Care, and Emergency Services

Potential for secondary or cumulative impacts are not anticipated. During construction, a temporary detour road will be in place to convey traffic around the work areas.

Education and Library Services

Potential for secondary or cumulative impacts to education or library services are not anticipated.

Parks and Recreation

The potential for secondary or cumulative impacts to parks and recreational facilities is not anticipated. The proposed project will require acquisition of a portion of the Mākaha Beach Park, located immediately mauka and makai of Farrington Highway and the project site. Mākaha Beach Park is owned and operated by the Department of Parks and Recreation (DPR), City and County of Honolulu, and is actively used for swimming, surfing, and picnicking by the

community. In accordance with Section 4(f), the DPR was consulted regarding the proposed acquisition of park lands. DPR determined that the proposed acquisition will not have significant impacts to the park. HDOT's letter to DPR and DPR's responding determination letter is included in Chapter 12. DPR concurrence on a *de minimis* impact finding is pending.

7.1.3. Potential Socioeconomic and Related Environmental Impacts

Socioeconomic Characteristics

Potential secondary or cumulative adverse impacts to the socioeconomic resources of the area are not anticipated. The proposed project is not expected to result in adverse impacts to the existing population or socioeconomic environment of Wai'anae. Long term benefits will primarily be realized in the form of improved bridge structures that will require less maintenance, and offer more reliable, transportation service over the expected lifetime of the bridges.

Land Use and Ownership

The proposed project is not anticipated to result in significant secondary and cumulative land use impacts. Majority of project site will be within the existing roadway right-of-way, however in order to meet current roadway design requirements, the proposed project will require additional areas beyond the right-of-way to accommodate the increased bridge spans and structures necessary for embankment protection, channel widening and guardrail improvements. The proposed land acquisition will affect lands on both sides (*mauka and makai*) adjacent of the project site. Additionally, the temporary use of construction parcels will be necessary during construction.

Impacts to the Mākaha Beach Park, located immediately makai of Farrington Highway and the project site will not be significant as determined by the DPR (see Parks and Recreation impacts in the previous section). The HDOT will work with the public and private landowners for the temporary and permanent use of their lands affected by the proposed project.

Historic, Archaeological and Cultural Resources

Secondary and cumulative impacts to historic and archaeological and cultural resources are not expected.

As stated in Section 6.3, the proposed project will result in significant impacts to existing historic and cultural resources within the project site. Mitigation to address these impacts have been proposed (see Section 6.3.3.) and consultation with the SHPD is currently ongoing for its approval of these proposed mitigation measures.

A cultural impact assessment investigation was conducted for the proposed project and identified ongoing cultural activities, such as fishing, diving, canoeing, and surfing that currently take place *makai* of the project area at Mākaha Beach. Results of the study showed that the community feels that the proposed project should impose no adverse effect on any of these on-going Native Hawaiian traditional cultural practices or activities in the project area's vicinity.

CHAPTER 8
RELATIONSHIP TO LAND USE PLANS, POLICIES, AND CONTROLS

8.1 STATE OF HAWAIʻI

8.1.1 State Land Use Law

The State Land Use District classification within the project site is Urban. Because the project involves the reconstruction of two existing bridge structures and appurtenant improvements along Farrington Highway and relocation of utilities, no land use district change will be required.

The Urban District generally includes lands characterized by "city-like" concentrations of people, structures and services. The Urban District includes vacant areas for future development. According to Chapter 205, Hawaiʻi Revised Statutes (HRS):

> *§205-2 Districting and classification of lands. (a) There shall be four major land use districts in which all lands in the State shall be placed: urban, rural, agricultural, and conservation. The land use commission shall group contiguous land areas suitable for inclusion in one of these four major districts. The commission shall set standards for determining the boundaries of each district, provided that:*
>
> *(1) In the establishment of boundaries of urban districts those lands that are now in urban use and a sufficient reserve area for foreseeable urban growth shall be included.*

The proposed project site is located within generally rural surroundings with single family homes, the Mākaha Beach Park, telecommunications facilities owned by AT&T (Mākaha Cable Station), Sandwich Isles Communications and Pacific LightNet Telecom (concrete enclosed telecommunications vault), and the Mākaha Shores condominium located nearby. The proposed project will not affect nor be affected by the existing Urban District classification of the site.

8.1.2 Hawai'i State Plan

The Hawai'i State Plan, Chapter 226, HRS, serves as a written guide for the future long-range development of the State. The plan identifies goals, objectives, policies, and priorities to serve as guidelines for the growth and development of the State. The proposed project is generally consistent with the State Plan in the following areas:

> *Section 226-17 Objectives and policies for facility systems - transportation.*
> *(b) To achieve the transportation objectives, it shall be the policy of this State to:*
> *(3) Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties; and*
> *(6) Encourage transportation systems that serve to accommodate present and future development needs of communities.*

The proposed project supports these objectives by replacing an existing public transportation facility that is aging and in need of replacement. Participating governmental agencies that will share the economic cost of the project will be the State DOT and FHWA.

8.1.3 State Functional Plans

The State Functional Plan for Transportation recommends strategies and policies to achieve the broad objectives outlined in the Hawai'i State Plan. Although the State Functional Plan for Transportation has not been recently updated, the proposed project will be consistent with the following objectives:

> *Objective I.F: Improving and enhancing transportation safety; and,*
> *Objective I.G: Improved transportation maintenance programs.*

The project will support these objectives by promoting an improvement of an existing aging facility. The proposed improvements will enhance safety by construction of a new concrete bridge that will require less maintenance compared to the existing timber framed bridge structures. The construction will also provide improved flood control by increasing the size of the bridge openings and allowing the flow of a 100-year flood to pass under the roadway. Other improvements will address compliance requirements of the Americans with Disability Act and promote increased space for bicyclists using this section of roadway.

8.2 CITY AND COUNTY OF HONOLULU

8.2.1 General Plan

The General Plan of the City and County of Honolulu provides a statement of long range social, economic, environmental, and design objectives for the Island of O'ahu and State. A specific objective of the General Plan relating to the proposed project involves the Objectives and Policies for Transportation and Utilities. According to Objective A and Policy 5 and 11, of the General Plan:

> *Objective A*
> *To create a transportation system which will enable people and goods to move safely, efficiently, and at a reasonable cost; serve all people, including the poor, the elderly, and the physically handicapped; and offer a variety of attractive and convenient modes of travel.*
> *Policy 5 - Improve roads in existing communities to reduce congestion and eliminate unsafe conditions.*
> *Policy 11 - Make public, and encourage private, improvements to major walkway systems.*

The proposed action is consistent with the need to replace the existing almost 70 year old bridge structures with new bridges that will improve safety. The project will further relocate the replacement bridges above the existing 100-year flood flow which would improve the ability of the bridges to handle flooding.

Pedestrian and bicyclist access will be improved by widening the existing shoulder areas of the bridge with 10 foot wide shoulders including sidewalks.

8.2.2 Wai'anae Sustainable Communities Plan

According to the preface for the Wai'anae Sustainable Communities Plan, the plan is one of a set of eight community-oriented plans intended to help guide public policy, investment, and decision-making over the next 20 years. Each of the plans addresses one of eight planning regions of O'ahu, responding to specific conditions and community values of each region.

The plan for the Wai‘anae Sustainable Communities Plan is oriented to maintaining and enhancing the region’s ability to sustain its unique character, current population, growing families, rural lifestyle, and economic livelihood, all of which contribute to the region’s vitality and future potential.

The proposed project will address two issues that are referenced in the Wai‘anae Sustainable Communities Plan:

1. According to Section 4.1.2, General Policies Pertaining to Transportation Systems, Subsection 4.1.2.1, Farrington Highway Safety Improvements for Pedestrians and Motorists, A thorough study of safety improvements should be undertaken for Farrington Highway in Wai‘anae, and needed safety measures should be implemented in a timely manner. Safety improvements to be considered should include sidewalks, dedicated bike lanes, improved lighting, relocating utility poles and fire hydrants that are too close to the edge of the travelway, left turn lanes, traffic signals, traffic islands, median strip, pedestrian overpasses and signalized pedestrian crosswalks.

The proposed project will widen the existing travel lanes from 11 to 12 feet and provide additional space along the planned 10 foot wide bridge shoulders to better accommodate pedestrians and bicyclists.

2. The second issue identified in the Wai‘anae Sustainable Communities Plan is in Section 4.5.2, General Policies Pertaining to Flooding and Drainage; Subsection 4.5.2.1, Wai‘anae District Local Drainage Improvements Plan and Program. Local flooding in the Wai‘anae District is a known problem primarily associated with heavy storm events. Subsection 4.5.2.1., identifies a phased plan for the correction of local flooding and drainage problems. Corrective measures are identified and include removal of barriers, cleaning of drainage channels and stream channels, regrading areas to encourage positive drainage, and construction of new drainage channels, culverts, and other drainage structures.

The proposed project will address the flood hazard concerns at the existing bridges. The existing bridges are within the 100-year flood hazard area as established by FEMA. The design of the replacement bridges will improve the hydraulic capacity by increasing the openings the replacement bridges which will accommodate a 100-year flood event.

8.2.3 Zoning

A portion of the project area outside of the Farrington Highway right-of-way is Zoned P-2, General Preservation. According to the Land Use Ordinance, this is consistent with the designed permitted public use for the site (**Figure 8-1**).

8.2.4 Special Management Area

The project site is located within the Special Management Area (SMA) as designated by the City and County of Honolulu (**Figure 8-1**).

8.3 FEDERAL

A list of Federal regulatory controls are identified in the Chapter 1, Introduction, contained in this document. The following additional federal regulatory policies and laws apply to this project.

8.3.1 Environmental Justice

This new aspect of environmental activism and regulation broadens the scope of the traditional Environmental Movement, in general, and redefines the term "environment" to include places where people live, work, pray, play, and go to school. A significant federal response to ongoing advocacy and organizing efforts is Executive Order (EO) 12898, issued in 1994. The intent of the EO is to prevent environmental racism under Title VI of the 1964 Civil Rights Act. Title VI prohibits discrimination on the basis of race, color or national origin. It also prohibits the use of federal funds, including the actions of federal and state agencies, from discriminatory acts.

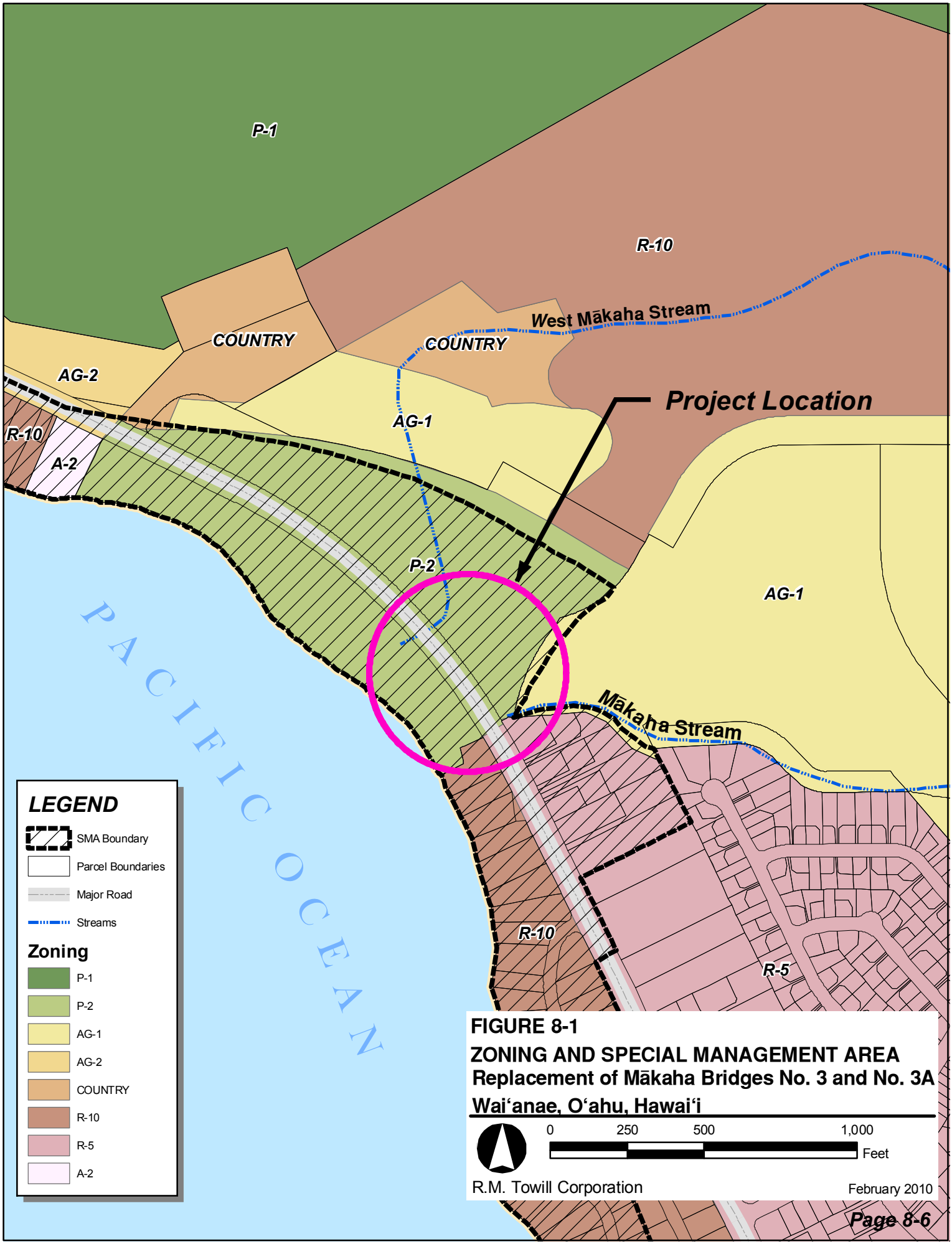


FIGURE 8-1
ZONING AND SPECIAL MANAGEMENT AREA
Replacement of Mākaha Bridges No. 3 and No. 3A
Waiʻanae, Oʻahu, Hawaiʻi

The federal Environmental Protection Agency (EPA) states that environmental justice means "fair treatment." As defined by the EPA, "Fair treatment means that no groups of people, including racial, ethnic or socioeconomic groups, should bear a disproportionate share of negative environmental consequences from industrial, municipal, and commercial operations, or the execution of federal, state, local, and tribal programs and policies."

8.3.2 Section 4(f)

Section 4(f) was created when the United States Department of Transportation (USDOT) was formed in 1966. It was initially codified at 49 U.S.C. 1653(f) (Section 4(f) of the USDOT Act of 1966) and only applies to USDOT agencies. Later that year, 23 U.S.C. 138 was added with somewhat different language, which applied only to the highway program. In 1983, Section 1653(f) was reworded without substantive change and recodified at 49 U.S.C. 303. In their final forms, these two statutes have no real practical distinction and are still commonly referred to as Section 4(f).

Purpose of Section 4(f)

The purpose of Section 4(f), as codified in 49 U.S.C. 303, is as follows:

> ***(a)*** *"[it] is the policy of the United States Government that special effort be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites. Section 4(f) declares that "[t]he Secretary of Transportation is to preserve parkland, recreation areas, wildlife refuges, and historic sites by limiting the circumstances under which such land can be used for transportation programs or projects. Section 4(f) permits the use of land for a transportation project from a significant publicly owned park, recreation lands, wildlife or waterfowl refuge, or any significant historic site only when FHWA and the Urban Mass Transportation Administration has determined that* ***(1)*** *there is no feasible and prudent alternative to such use, and* ***(2)*** *the project includes all possible planning to minimize harm to the property resulting from such use. (emphasis added)*

Section 4(f) applies only to projects which are actions of the U.S. Department of Transportation, in this case the FHWA. FHWA guidance on Section 4(f) states "the two purposes of a written Section 4(f) evaluation are to establish an administrative record and to ensure that FHWA has followed the regulatory and statutory requirements. The administrative record is the agency's written record that memorializes the basis for determining that there is no feasible and prudent

alternative to the use of the 4(f) resource and demonstrates that FHWA used all possible planning and measures to minimize harm." [1]

Historic and Archaeological Resources

As presented in Chapter 6, HDOT initiated consultation under the National Historic Preservation Act, Section 106, which has resulted in 1) identification of Mākaha Bridge No. 3 and Mākaha Bridge No. 3A as historic structures by the project's archaeological consultant and the State Historic Preservation Office (SHPO); 2) a finding of adverse impact on the historic bridges due to demolition; and 3) a pending Memorandum of Agreement between FHWA, ACHP, SHPO and HDOT setting forth mitigation measures to address the adverse impacts.

Section 4(f) Resources and Jurisdiction

The identified Section 4(f) resources within the project include: historic structures of Mākaha Bridges No. 3 and No. 3A; and Mākaha Beach Park, a significant publicly owned park and recreation area. The legal jurisdictions which must evaluate impacts and approve any mitigation measures under Section 4(f) are: for historic resources, the State Historic Preservation Office; and for park and recreational resources at Mākaha Beach Park, the City and County of Honolulu, Department of Parks and Recreation.

Applicability of Programmatic Evaluations to this Project

As presented in FHWA's "Section 4(f) Policy Paper,"[2] as an alternative to preparing an individual Section 4(f) evaluation, FHWA may, in certain circumstances, utilize a programmatic evaluation. Under a programmatic Section 4(f) evaluation, certain conditions are laid out such that, if a project meets the conditions it will satisfy the requirements of Section 4(f) that there is no feasible and prudent alternative and that the project includes all possible planning to minimize harm…Programmatic Section 4(f) statements have certain elements in common; (1) they involve projects with typical and limited range of alternatives; and (2) the official having jurisdiction over the land agrees with the use evaluation and the proposed mitigation.

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[1] Source: http://www.environment.fhwa.dot.gov/4f/4fpolicy.asp#important)

[2] Source: http://www.environment.fhwa.dot.gov/4f/4fpolicy.asp

HDOT evaluated this project against the criteria for two programmatic evaluations:

- *Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges; and*
- *Final Nationwide Section 4(f) Evaluation and Approval for Federally-Aided Highway Projects with Minor Involvements with Public Parks, Recreation Lands, and Wildlife and Waterfowl Refuges.*

The Section 4(f) project impacts on the two historic bridges were evaluated and determined by HDOT to meet the requirements of a "*Programmatic Section 4(f) Evaluation and Approval for FHWA projects that Necessitate the Use of Historic Bridges*."

HDOT also evaluated project impacts on Section 4(f) resource of Makaha Beach Park. Because the park area is between 10 and 100 acres and over one acre is to be acquired, the project did not meet all criteria for a *Final Nationwide Section 4(f) Evaluation and Approval for Federally-Aided Highway Projects with Minor Involvements with Public Parks, Recreation Lands, and Wildlife and Waterfowl Refuges.* HDOT then prepared justification for the finding of *de minimis* impact of the project on Mākaha Beach Park, as follows:

Applicability of *De Minimis* Impact Finding re Mākaha Beach Park

In certain circumstances, the FHWA can approve Section 4(f) documentation which concludes and provides justification that the transportation project will have a *de minimis* impact on a Section 4(f) resource. Pertinent regulations are as follows:

> ***49 U.S.C. 303***
> ***(d) De Minimis Impacts***
> ***(1) Requirements.***
>
> ***(B) Requirements for parks, recreation areas, and wildlife or waterfowl refuges.—****The requirements of subsection (c)(1) [there is no feasible and prudent alternative] shall be considered to be satisfied with respect to an area described in paragraph (3) if the Secretary determines, in accordance with this subsection, that a transportation program or project will have a de minimis impact on the area.*
>
> ***(C) Criteria [for de minimis impact].—*** *In making any determination under this subsection, <u>the Secretary shall consider to be part of a transportation program or project any avoidance, minimization, mitigation, or enhancement measures that are required to be implemented as a condition of approval of the transportation program or project</u>.*

> ***(3) Parks, recreation areas, and wildlife or waterfowl refuges.*** *With respect to parks, recreation areas, or wildlife or waterfowl refuges, the Secretary may make a finding of* de minimis *impact only if—*
>
> ***(A)*** *the Secretary has determined, after public notice and opportunity for public review and comment, that the transportation program or project will not adversely affect the activities, features, and attributes of the park, recreation area, or wildlife or waterfowl refuge eligible for protection under this section; and*
>
> ***(B)*** *the finding of the Secretary has received concurrence from the officials with jurisdiction over the park, recreation area, or wildlife or waterfowl refuge.*

Consultation with DPR, Mākaha Beach Park's owner, was conducted via direct written correspondence and agency review during the public comment period for the Draft Environmental Assessment. The DPR indicated "no significant adverse effect on the recreational resource due to the project" (see Chapter 12). Subsequently HDOT evaluated the applicability of a finding of *de minimis* impact on the park based on 49 U.S.C. 303 (d), De Minimis Impacts, and has determined that the project will have a *de minimis* impact on Mākaha Beach Park.

The evaluation leading up to this determination began with analysis of the "activities, features and attributes of the park…eligible for protection under this section" and receiving "concurrence [of no significant impact] from the officials with jurisdiction over the park, [and] recreation area."

In accordance with 49 U.S.C. 303(d)(3)(A) (stated above), HDOT evaluated the statement "the transportation program or project will not adversely affect the activities, features, and attributes of the park, recreation area."

Activities – Normally, recreational activities include swimming, surfing and picnicking at an ocean beach. The beach is also the site of surfing meets during the winter months. *Project Impact:* The park will be affected by 16 months of construction but ocean-related activities will not be curtailed.

Features – In addition to providing access to public beach lands and the ocean, a paved parking lot and comfort station are provided within the park on the mountain side of Farrington Highway opposite the beach. Beachgoers park informally along the ocean-

side shoulders of Farrington Highway although this is not a designated parking area. Planned facilities: none. *Project Impact:* The construction will require temporary relocation of bus stops in the same general vicinity.

Access – Access is via Farrington Highway using motorized vehicles, public bus transportation (bus stops in both directions are within the project area), bicycle and by foot. *Project Impact:* Access to the park will be affected temporarily during construction with the repositioning of bus stops and traffic control along the temporary detour road.

Usage **–** Makaha Beach Park is used for daily beachgoing but is also the venue for surfing competitions. *Project Impact:* The area of the park available for sunbathing will be affected during the construction period by the presence of the temporary detour road.

Relationship to other similarly used lands in the vicinity **–** The beach extends both north and south of the Mākaha Beach Park even though the adjoining areas are under private ownership above the established "shoreline." *Project Impact:* None. The usable area of the beach park will not be altered by the project as land takings will be adjacent to the current Right of Way.

Applicable clauses affecting the ownership, such as lease, easement, covenants, restrictions, or conditions, including forfeiture **–** There are none. HDOT's Right of Way Branch will negotiate the terms of transferring title for required land takings with the current owner, the City and County of Honolulu. *Project Impact:* No impact.

Unusual characteristics of the Section 4(f) property **–** Mākaha Beach Park is susceptible to flooding both from ocean activity and stormwater flow from West Mākaha Stream. The "makai" alignment alternative would exacerbate this risk to Farrington Highway and the two bridges by placing the roadway closer to the threat of overtopping by ocean activity. *Project Impact:* The project will have a positive impact on the drainage system and reduce susceptibility to overtopping of the two bridges during high surf and storm events.

In conformance with "Criteria", 49 U.S.C 303(d)(1)(b), HDOT evaluated the project's "avoidance, minimization, mitigation, or enhancement measures that are required to be implemented as a condition of approval of the transportation program or project."

Avoidance – The current Right of Way of Farrington Highway bisects the two TMKs which together form Mākaha Beach Park. No feasible and prudent alternative was identified that would avoid the park completely. The alternative "makai" alignment was rejected because of its impact on the recreational activities of the park and its greater susceptibility to flooding from ocean storm surges and tsunami.

Minimization – The preferred alignment has minimized taking on the seaward area of Mākaha Beach Park (TMK (1)8-4-001:012) with a taking of 0.345 acres. The larger taking will be on the mountain side of Farrington Highway which, although owned by the Department of Parks and Recreation, is not used for park activities. The existing paved parking area will not be disturbed under the preferred alternative.

Mitigation – The proposed improvements to Farrington Highway at Mākaha Bridge No. 3 and Mākaha Bridge No. 3A will mitigate the non-standard design of the existing bridges and address safety concerns, and deteriorating conditions of the two bridges, making the transportation facility serving Mākaha Beach Park more reliable.

Enhancement **–** Pedestrian and bicycle safety will be improved over the current wooden sidewalks and wooden railings along the sides of the bridges. The shoulders of the new Right of Way will be newly paved and no new visual impacts are anticipated during operation of the bridges. The area will be revegetated with grass and other landscape treatments, as required.

HDOT also evaluated the *de minimis* impact finding based on coordination requirements of FHWA regulation CFR 1 §774.5:

> *774.5* ***Coordination.*** *(b) Prior to making* de minimis *impact determinations under section 774.3(b), the following coordination shall be taken:…(2) For parks, recreation areas, and wildlife and wildfowl refuges: (i) Public notice and an opportunity for public review and comment concerning the effects on the protected activities, features, or attributes of the property must be provided. This requirement can be satisfied in conjunction with other public involvement procedures such as a comment period provided by a NEPA [or HRS, Chapter 343] document. (emphasis added)*

The HDOT fulfilled the above requirement through public disclosure of project impacts on Mākaha Beach Park in direct correspondence with the park owner and the public comment period for the Draft Environmental Assessment. In addition, HDOT evaluated compliance with additional coordination requirements stated in CFR 1 §774.4, Coordination:

> *774.5* ***Coordination.*** *(b)(ii) The Administration shall inform the official(s) with jurisdiction of its intent to make a* de minimis *impact finding. Following an opportunity for public review and comment as described in paragraph (b)(2)(i) of this section [quoted above], the official(s) with jurisdiction over the Section 4(f) resource must concur in writing that the project will not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection. This concurrence may be combined with other comments provided by the officials.*

As documented in Chapter 12, in October 2008, HDOT sent a letter to the DPR "requesting your comments to ascertain potential impacts to public parks, recreation areas, wildlife and waterfowl refuges or historic properties that may be affected by this proposed project" and disclosing that "The proposed wider right-of-way will affect lands adjacent to the project site on both sides of the project site…Impacted parcels include two parcels owned by the City and County of Honolulu [at Mākaha Beach Park]." Although HDOT did not specifically state its intent to make a *de minimis* impact finding for the project, Lester K.C. Chang, DPR Director, responded to HDOT in a letter dated December 22, 2008, with the statement, "The Department of Parks and Recreation has reviewed your request for the above mentioned project and does not feel that it will have a drastic impact on the park." DPR has concurred on a *de minimis* impact finding.

8.3.3 Executive Order 11988: Floodplain Management

The intent of the Floodplain Management Executive Order (EO) is to avoid the long- and short-term adverse impacts associated with the use and modification of floodplains, and to restore and preserve the natural and beneficial values served by floodplains. All Federal or Federally-aided construction of buildings, structures, roads, or facilities, which encroach upon or affect the base floodplain, requires an assessment of floodplain hazards and a specific finding for significant encroachments is required in final environmental document.

The purpose of the proposed project is to replace two existing wooden bridge structures located along an existing highway corridor. At present the bridges have poor hydraulic capacity. The construction of the proposed replacement bridges will widen the stream channel (increasing the bridge openings) to provide sufficient flow capacity to accommodate the 100-year flood event without overtopping or negatively impacting upstream properties.

The proposed project occurs within an area prone to flooding, however the planned improvements is anticipated to result in enhancement of existing flood conditions at the project site. The proposed project will be designed in compliance with the requirements of AASHTO, FHWA, HDOT, City and County of Honolulu and the Department of the Army, Corps of Engineers.

8.3.4 Farmland Protection and Policy Act

The implementing regulations of the Farmland Protection and Policy Act, 7 CFR Volume 6, Part 658 applies to Federal or Federally-assisted projects that "may directly or indirectly and irretrievably convert farmland that is defined as: 1) prime, 2) unique, 3) other than prime or unique that is of statewide importance, or 4) other than prime or unique that is of local importance, to nonagricultural use".

The proposed project does not affect agricultural lands. Properties that will be impacted by the proposed improvements include lands zoned for residential and park uses.

8.3.5 Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health through regulation of the nation's public drinking water supply and its sources; rivers, lakes, reservoirs, springs, and ground water wells. The SDWA authorizes the EPA to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. The EPA, state-level regulatory agencies, and water system operators then work together to make sure that these standards are met.

Originally, SDWA focused primarily on treatment as the means of providing safe drinking water at the tap. The 1996 amendments greatly enhanced the existing law by recognizing source water protection, operator training, funding for water system improvements, and public information as important components of safe drinking water. This approach ensures the quality of drinking water by protecting it from source to tap.

The area below and surrounding the project site is not designated as a groundwater recharge area by the City and County of Honolulu Board of Water Supply. In Hawai‘i, the State Department of Health administers the Underground Injection Control (UIC) program. Rules for the UIC program are promulgated in HAR, Chapter 11-23. The purpose of the program is to protect the State’s drinking/potable groundwater resources from pollution by subsurface wastewater disposal. The program regulations are accompanied by UIC maps which demarcate a boundary line known as the “UIC Line.” Lands that are makai of this line are not restricted from subsurface wastewater disposal.

At the project site, Farrington Highway serves as the boundary for the UIC line. The proposed project will not result in any underground wastewater disposal, therefore there will be no adverse impacts to the drinking water source.

CHAPTER 9
NECESSARY PERMITS AND APPROVALS

The following is a summary of the permit authorizations and other approvals that may be required for this project.

9.1 STATE OF HAWAI‘I

Department of Health (DOH)

Environmental Management Division, Clean Water Branch

- Section 401 Water Quality Certification (as determined by the U.S. Army Corps of Engineers, pursuant to Section 404/10 Department of the Army Permit)

National Pollutant Discharge Elimination System (NPDES) Permits

- Notice of Intent Form C, Construction Stormwater Permit Application
- Notice of Intent Form G, Construction Dewatering Permit Application

Department of Land and Natural Resources (DLNR)

State Planning Office

- Coastal Zone Management Federal Consistency (CZM FEDCON) Review

Commission on Water Resource Management

- Stream Channel Alteration Permit (SCAP)

9.2 CITY AND COUNTY OF HONOLULU

Department of Planning and Permitting (DPP)

- Special Management Area Use Permit (SMP)
- Shoreline Setback Variance (SSV)
- Flood Hazard District Certification
- Construction Plan Review
- Grading Permit

9.3 FEDERAL

U.S. Army Corps of Engineers

- Section 404/10 Department of the Army Permit

Section 106, National Historic Preservation Act (NHPA), Consultation

Section 4(f), Department of Transportation Act Consultation

Section 7, Endangered Species Act Consultation

Coastal Zone Management Act Federal Consistency Review

CHAPTER 10
SIGNIFICANCE CRITERIA

In accordance with the content requirements of Chapter 343, Hawai'i Revised Statutes (HRS), and the significance criteria set forth in Section 11-200 of Title 11, Chapter 200, Hawai'i Administrative Rules (HAR), it is anticipated that this project will have no significant negative environmental impacts. All anticipated potential impacts will be addressed through the use of mitigation measures and practices as set forth in this Environmental Assessment.

According to the significance criteria:

Criterion 1 - Involves an irrevocable commitment to loss or destruction of any natural or cultural resources;

Surveys of flora, fauna, archaeological and historic sites at and near the project area were conducted. The results of flora and faunal studies identified no rare, threatened or endangered species. Studies to assess archaeological and cultural resources associated with the area were also undertaken. No natural resources were discovered that would be lost or destroyed by the proposed action. Archaeological and cultural resources were determined to be present. However, mitigation measures are proposed in applicable sections of this document that will minimize or ameliorate potential for adverse impacts.

Criterion 2 - Curtails the range of beneficial uses of the environment;

The proposed project site is located on land within the existing State Department of Transportation right-of-way. Development of the site will involve replacement of two existing over 70-year old wooden bridge structures, but will not significantly displace other structures or uses of land adjoining the state right of way. The project will not significantly detract from the function or use of the environment. Potential for negative adverse impacts to the environment will be addressed through adherence to mitigation measures and practices as described in this document.

Criterion 3 - Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, H RS;

The project proposal has been prepared in accordance with Federal, State, and City and County of Honolulu regulations, laws, and policies and is in compliance with all relevant provisions.

Criterion 4 - Substantially affects the economic or social welfare of the community or state;

The proposed project is expected to have a beneficial effect on the economic and social welfare of the Waiʻanae region by:

- Providing improved drainage and safety along Farrington Highway by designing the two bridge structures to accommodate the 100-year flood event;
- Reducing the potential for increased costs associated with maintaining two aging and deficient wooden timber bridges; and,
- Permitting installation of improvements to meet requirements of AASHTO, FHWA, and DOT.

Construction of the project will generate some short-term economic benefits through creation of construction jobs and material procurement. However, these benefits will be construction related and short-term.

Criterion 5 - Substantially affects the public health;

Factors affecting public health, including air quality, water quality, noise levels, and other items were assessed and are addressed through the application of appropriate mitigation measures and practices. Mitigation measures and practices are planned for the design, construction and operation of the proposed project to avoid potential for negative adverse impacts to public health and safety of the community.

Criterion 6 - Involves substantial secondary impacts, such as population changes or effects on public facilities;

Development of the project will not result in substantial secondary or cumulative impacts to the natural or built environment or to the social and economic community. The proposed project will not stimulate unexpected changes in population, but will address the City requirement to provide sufficient drainage capacity for the region. The proposed project will replace existing public facilities, but will not place significant additional burden on the surrounding Waiʻanae region.

Criterion 7 - Involves a substantial degradation of environmental quality;

An assessment of air and water quality, noise levels, and land use associated with the construction of the proposed project has determined that the environmental quality of the area will not be substantially degraded.

Criteria 8 - Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

The proposed project is being developed in accordance with Federal, State, and City and County of Honolulu laws, regulations, and policies. The proposed replacement project is proposed by the State DOT to address the need for safe and efficient travel along Farrington Highway. The project is designed to meet existing and anticipated future needs within the region and will not result in cumulative effects upon the environment nor involve a commitment for larger actions.

Criterion 9 - Substantially affects a rare, threatened, or endangered species, or its habitat;

Investigation of the project site has been completed and has identified no habitat or species that are listed as rare, threatened, or endangered by the State or Federal government. The Fish and Wildlife Service has determined that the proposed project will not adversely affect threatened or endangered species.

Criterion 10 - Detrimentally affects air or water quality or ambient noise levels;

Short-term impacts to air quality and ambient noise levels will result from construction activities; however, potential for negative adverse impacts are anticipated to be minimal and will cease when construction is complete. Due to specific care taken in the design (including mitigation measures and practices) no detrimental long-term effects to the environment is expected from development of the proposed project.

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

The project is located adjacent to the shoreline in the area of the Mākaha Beach Park. The project will address concerns involving potential for damage through design and construction in accordance with applicable Federal, State and County regulations governing the design, construction, and operation of a designated public travelway:

- The project site is within FEMA flood zones AE and VE. Zone AE is the flood insurance rate zone that corresponds to the 1-percent annual chance or 100-year floodplain. Zone VE is the flood insurance rate zone that corresponds to the flood hazard areas inundated by 100-year flood that has additional hazards associated with coastal flood with wave action. Because the subject property is located within the 100-year floodplain, the structures will be designed to accommodate a 100-year flood event. Geotechnical and hydraulic studies will be conducted to ensure the structural integrity of the bridge structures in flooding events.
- A portion of the project is already located within the tsunami zone. No habitable structures are proposed.
- The project site is located within the coastal zone. However, it will be designed in accordance with proper design standards within this location to ensure safe and efficient operation.

Criterion 12 - Substantially affects scenic vistas and view planes identified in County or State plans or studies; and,

The proposed project will not adversely impact any scenic vista or view plane. During construction there will be equipment and personnel at the site. However, any possible visual impact associated with construction will be temporary. Upon completion of work all equipment and personnel associated with construction will be demobilized.

No new visual impacts are anticipated during operation of the bridges. The area will be revegetated with grass and other landscape treatments as required.

Criterion 13 - Requires substantial energy consumption.

Construction activities associated with the project will require use of energy during construction. The use of energy for operation of machinery and equipment will utilize electrical and/or petroleum resources which will not be recoverable. However, the use of these energy resources is not expected to be substantial given the limited scope and scale of the project.

Operation of the facility is not expected to result in further use of energy resources, except during periodic maintenance (inspection and upkeep) of the bridges.

CHAPTER 11
ORGANIZATIONS AND AGENCIES CONSULTED FOR THE ENVIRONMENTAL ASSESSMENT

11.1 GOVERNMENTAL AGENCIES

State of Hawai‘i

- Department of Transportation
  - Highways Division
- Department of Land and Natural Resources
  - Division of Aquatic Resources
  - Commission on Water Resource Management
  - Engineering Division
  - Land Division – O‘ahu District
  - State Historic Preservation Division
- Department of Health
  - Environmental Management Division, Clean Water Branch
- Office of Hawaiian Affairs

City and County of Honolulu

- Board of Water Supply
- Department of Accounting and General Services
- Department of Design and Construction
- Department of Parks and Recreation
- Department of Planning and Permitting
- Department of Transportation Services
- Honolulu Police Department
- Honolulu Fire Department

Federal

- Federal Highway Administration
- National Marine Fisheries Service

U.S. Fish and Wildlife Service

U.S. Army Corps of Engineers – Honolulu District

11.2 PUBLIC AND COMMUNITY GROUPS, ORGANIZATIONS AND INDIVIDUALS

Waiʻanae Neighborhood Board No. 24

Mākaha Ahupuaʻa Community Association

Koa Mana (did not respond)

HECO

For additional contact information see also Appendix D, Archaeological Inventory Survey, and Appendix E, Cultural Impact Assessment (Cultural Surveys Hawaiʻi, 2005).

CHAPTER 12
COMMENTS AND RESPONSES TO THE DRAFT ENVIRONMENTAL ASSESSMENT PREPARATION

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813
TELEPHONE: (808) 529-3111 · INTERNET: www.honolulupd.org

MUFI HANNEMANN
MAYOR

BOISSE P. CORREA
CHIEF

PAUL D. PUTZULU
KARL A. GODSEY
DEPUTY CHIEFS

OUR REFERENCE BS-DK

July 15, 2009

Mr. Emilio Barroga, Project Manager
Highways Division
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Barroga:

This is in response to a letter from the R.M. Towill Corporation requesting comments on a Draft Environmental Assessment for the Farrington Highway Replacement of Mākaha Bridge Nos. 3 and 3A project.

This project should have no adverse impact on the facilities or operations of the Honolulu Police Department.

If there are any questions, please call Major Michael Moses of District 8 at 692-4253 or Mr. Brandon Stone of the Executive Bureau at 529-3644.

BOISSE P. CORREA
Chief of Police

By
DEBORA A. TANDAL
Assistant Chief of Police
Support Services Bureau

cc: Mr. Brian Takeda, R.M. Towill Corporation
Ms. Katherine P. Kealoha, OEQC

Serving and Protecting With Aloha

LINDA LINGLE
GOVERNOR

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

BRENNON T. MORIOKA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRIAN H. SEKIGUCHI
JIRO A. SUMADA

IN REPLY REFER TO:
HWY-DS 2.3307

October 9, 2009

Mr. Paul Putzulu, Acting Chief
Honolulu Police Department
801 South Beretania Street
Honolulu, Hawaii 96813

Attention: Deborah A. Tandal

Dear Acting Chief Putzulu:

Subject: Draft Environmental Assessment
Farrington Highway, Replacement of Makaha Bridge No. 3
and Makaha Bridge No. 3A
Federal-Aid Project No. BR-093-1(20)
District of Waianae, Island of Oahu

Thank you for your letter dated July 15, 2009, stating that the subject project should have no adverse impact to the facilities or operations of the Honolulu Police Department.

Thank you for your review of the subject document. Should you have further comments, please contact our Project Manager, Emilio Barroga at 692-7546, Technical Design Services Office, or by email at emilio.barroga@hawaii.gov.

Very truly yours,

GLENN M. YASUI
Administrator
Highways Division

c: R.M. Towill Corporation (Michael Okamoto)

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
KAPOLEI HALE • 1000 ULUOHIA STREET, SUITE 309 • KAPOLEI, HAWAII 96707
TELEPHONE: (808) 768-3003 • FAX: (808) 768-7053 • INTERNET: www.honolulu.gov

MUFI HANNEMANN
MAYOR

LESTER K.C. CHANG
DIRECTOR

GAIL Y. HARAGUCHI
DEPUTY DIRECTOR

July 17, 2009

Mr. Emilio Barroga, Project Manager
State of Hawaii
Department of Transportation-Highways Division
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Barroga:

Subject: Draft Environmental Assessment
Replacement of Farrington Highway Makaha Bridges No. 3 and No. 3A

Thank you for the opportunity to review and comment on the Draft Environmental Assessment for the replacement of Farrington Highway Makaha Bridges No. 3 and No. 3A.

The Department of Parks and Recreation has no comment as the proposed project will not impact any program or facility of the department. Please note however; that the general contractor will be required to secure a right of entry permit for access to or any work performed on the Makaha Beach Park Property identified as TMK 8-4-001: 012 and 8-4-002: 047.

You may remove us as a consulted party to the balance of the EIS process.

Should you have any questions, please contact Mr. John Reid, Planner, at 768-3017.

Sincerely,

LESTER K. C. CHANG
Director

LKCC:jr
(322506)

cc: Office of Environmental Quality Control
Brian Takeda, R. M. Towill Corporation
Dexter Liu, Department of Parks and Recreation

LINDA LINGLE
GOVERNOR

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

BRENNON T. MORIOKA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRIAN H. SEKIGUCHI
JIRO A. SUMADA

IN REPLY REFER TO:
HWY-DS 2.3433

October 6, 2009

Mr. Lester K. C. Chang, Director
Department of Parks and Recreation
City and County of Honolulu
1000 Uluohia Street, Suite 309
Kapolei, Hawaii 96707

Dear Mr. Chang:

Subject: Draft Environmental Assessment
Farrington Highway, Replacement of Makaha Bridge No. 3
and Makaha Bridge No. 3A
Federal-Aid Project No. BR-093-1(20)
District of Waianae, Island of Oahu

Thank you for your letter dated July 17, 2009, stating that you have no comments as the proposed project will not impact any program or facility of the department. We note your comment that the general contractor will be required to secure a right of entry permit for access to or any work performed on the Makaha Beach Park property (TMK 8-4-001: 012 and 8-4-002:047).

We will keep you apprised of any changes to the design, construction schedule or the construction methodology of the bridge replacements and will continue to work with you to minimize potential negative impacts to the Park.

Thank you for your review of the subject document. Should you have further comments, please contact our Project Manager, Emilio Barroga at 692-7546, Technical Design Services Office, or by email at emilio.barroga@hawaii.gov.

Very truly yours,

GLENN M. YASUI
Administrator
Highways Division

c: R.M. Towill Corporation (Michael Okamoto)

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

MUFI HANNEMANN
MAYOR

CRAIG I. NISHIMURA, P.E.
DIRECTOR

COLLINS D. LAM, P.E.
DEPUTY DIRECTOR

July 17, 2009

Mr. Brian Takeda
R.M. Towill Corpration
2024 N. King Street, Suite 200
Honolulu, HI 96819

Dear Mr. Takeda:

Subject: Farrington Highway, Replacement of Makaha Bridge No 3. and Bridge No. 3A- Federal Aid Project No. BR-093-1(20)
TMK: (1) 8-4-002: 047and (1) 8-4-010:012

Thank you for inviting us to review the above Draft Environmental Assessment (DEA). The Department of Design and Construction does not have any comments to offer at this time.

Should you have any questions, please contact Craig Nishimura, Director, at 768-8480.

Very truly yours,

for Collins D. Lam
Craig I. Nishimura, P.E.
Director

CN.pg(322449)

LINDA LINGLE
GOVERNOR

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

BRENNON T. MORIOKA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRIAN H. SEKIGUCHI
JIRO A. SUMADA

IN REPLY REFER TO:
HWY-DS 2.3432

October 6, 2009

Mr. Craig I. Nishimura, P.E.
Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Dear Mr. Nishimura:

Subject: Draft Environmental Assessment
Farrington Highway, Replacement of Makaha Bridge No. 3 and Makaha Bridge No. 3A
Federal-Aid Project No. BR-093-1(20)
District of Waianae, Island of Oahu

Thank you for your letter dated July 17, 2009, stating that you have no comments to offer at this time regarding the subject project.

Thank you for your review of the subject document. Should you have further comments, please contact our Project Manager, Emilio Barroga at 692-7546, Technical Design Services Office, or by email at emilio.barroga@hawaii.gov.

Very truly yours,

GLENN M. YASUI
Administrator
Highways Division

c: R.M. Towill Corporation (Michael Okamoto)

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

July 20, 2009

LOG NO: 2009.3133
DOC NO: 0907NM39
Archaeology

Mr. Brian Takeda, Project Coordinator
RM Towill Corp.
Suite 200
2024 N. King Street
Honolulu, Hawai'i 96819

Dear Mr. Takeda:

SUBJECT: NEPA Historic Preservation Review Comments on DEA
State of Hawaii Department of Transportation Farrington Highway, Makaha Bridge 3
And 3A Replacement F.A. P. No. BR-093-1(20)
Makaha, Wai`anae, O`ahu
TMK: (1) 8-4-002

Thank you for the opportunity to provide comment on the replacement of Makaha Bridges 3 and 3A. The State DOT proposes to demolish and replace existing bridge structures with new bridge structures that meet current standards. The project may require construction of detour roads and temporary bridge structures. 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.

A review of our records shows that the remnants of the OR&L (50-80-12-9714), a cultural deposit (50-80-07-6825), Makaha Bridge 3 (50-80-7-6822), Makaha Bridge 3a (50-80-7-6823) and Farrington Highway (50-80-07-6824) are the only known historic sites which are recommended as eligible for the National/Hawaii Register of Historic Places within the project area. Several archaeological inventory surveys have been conducted in nearby areas. Archaeological investigations conducted for proposed Makaha Beach Park improvements identified a subsurface cultural deposit with an associated fire feature along an erosional cut within the general vicinity but clearly outside the current project area. Due to the possibility of encountering subsurface cultural deposits or human remains, on-site archaeological monitoring was recommended for all trenching associated with the fiber optic gap areas. A human burial (SIHP 4527) was also recovered near Makau Street to the northwest of the bridges after the remains were exposed in the shoreline by Hurricane Iniki.

Because subsurface cultural deposits may exist within the proposed work areas of the bridge and detour roads, we believe that the proposed undertakings may have an "adverse effect" on significant historic sites. At a minimum, we recommend that archaeological monitoring be conducted for all ground disturbances below existing base course to mitigate any "adverse effect" this project would have on buried subsurface historic sites. Normally an acceptable monitoring plan has been prepared and submitted to this office and approved (Log No. 2004.3551 Doc No. 0412SC08).

We recommend that a Memorandum of Agreement be developed to mitigate adverse effects to historic properties. Historic American Engineering Record documentation at a minimal needs to be conducted for Makaha Bridges 3 and 3a and the OR&L Railroad.

Please contact me at (808) 692-8015 if you have any questions or concerns regarding this letter.

Aloha,

Nancy A. McMahon

Nancy A. McMahon (Deputy SHPO),
Archaeology and Historic Preservation Manager

HWY-DS 2.3306

OCT 16 2009

TO: THE HONORABLE LAURA H. THIELEN, CHAIRPERSON
DEPARTMENT OF LAND AND NATURAL RESOURCES

ATTN: PUAALOKALANI AIU, ADMINISTRATOR
STATE HISTORIC PRESERVATION DIVISION

FROM: BRENNON T. MORIOKA, PH.D., P.E.
DIRECTOR OF TRANSPORTATION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
FARRINGTON HIGHWAY, REPLACEMENT OF MAKAHA BRIDGE NO. 3
AND MAKAHA BRIDGE NO. 3A
FEDERAL-AID PROJECT NO. BR-093-1(20)
DISTRICT OF WAINAE, ISLAND OF OAHU

Thank you for your letter dated July 20, 2009, concerning the subject Draft Environmental Assessment (DEA). We offer the following in response to the comments of your various divisions (as applicable, the comments have been *italicized* for your reference):

1. *A review of our records shows that the remnants of the OR&L (50-80-12-9714), a cultural deposit (50-80-07-6825), Makaha Bridge 3 (50-80-7-6822), Makaha Bridge 3a (50-80-7-6823) and Farrington Highway (50-80-07-6824) are the only known historic sites which are recommended as eligible for the National/Hawaii Register of Historic Places within the project area.*

We confirm your identification of the historic sites and properties within the project area as the only known sites recommended as eligible for the National and Hawaii Register of Historic Places. These historic sites and properties are identified in the DEA and include proposed mitigation measures to ensure against the potential for adverse effects.

2. *Because subsurface cultural deposits may exist within the proposed work areas of the bridge and detour roads, we believe that the proposed undertakings may have an "adverse effect" on significant historic sites. At a minimum, we recommend that archaeological monitoring be conducted for all ground disturbances below existing base course to mitigate any "adverse effect" this project would have on buried subsurface historic sites. Normally an acceptable monitoring plan has been prepared and submitted to this office and approved (Log No. 2004.3551 Doc No. 0412SC08).*

We acknowledge the proposed project has the potential for an "adverse effect" on significant historic sites. Accordingly, archaeological monitoring is proposed during all ground disturbing activities throughout the period of earth disturbing activities. An Archaeological Monitoring Plan was submitted and has since been approved by the State Historic Preservation Division in accordance with this comment.

3. *We recommend that a Memorandum of Agreement be developed to mitigate adverse effects to historic properties. Historic American Engineering Record documentation at a minimal needs to be conducted for Makaha Bridges 3 and 3a and the OR&L Railroad.*

We confirm that Section 106 of the National Historic Preservation Act directs that a determination of "adverse effect" requires a Memorandum of Agreement (MOA) for the proposed undertaking. An MOA will be prepared in consultation with the Federal Highways Administration, as the undertaking's lead Federal agency, the State Historic Preservation Office, Hawaii Department of Transportation, any other stake-holder agencies, and concerned consulting parties.

Thank you for your review of the subject document. Should you have further comments, please contact our Project Manager, Emilio Barroga at 692-7546, Technical Design Services Office, or by email at emilio.barroga@hawaii.gov.

EB:vs

c: R.M. Towill Corporation (Michael Okamoto)

BOARD OF WATER SUPPLY

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

July 23, 2009

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
SAMUEL T. HATA
ALLY J. PARK
ROBERT K. CUNDIFF
WILLIAM K. MAHOE

JEOFFREY S. CUDIAMAT, Ex-Officio
BRENNON T. MORIOKA, Ex-Officio

WAYNE M. HASHIRO, P.E.
Manager and Chief Engineer

DEAN A. NAKANO
Deputy Manager and Chief Engineer

Mr. Emilio Barroga
State of Hawaii
Department of Transporation
Highways Division
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Barroga:

Subject: Letter Dated July 9, 2009 Requesting Comments on the Draft Environmental Assessment for Farrington Highway, Replacement of Makaha Bridge No. 3 And Bridge No. 3A – Federal Aid Project No. BR-093-1 (20), TMK: 8-4-002:47 & 8-4-010:012

Thank you for the opportunity to comment on the proposed project.

The construction drawings should be submitted for our review and approval.

The construction schedule should be coordinated to minimize impacts on the water system.

If you have any questions, please contact Robert Chun at 748-5443.

Very truly yours,

K. Shida

KEITH S. SHIDA
Program Administrator
Customer Care Division

cc: Office of Environmental Quality Control
Mr. Brian Takeda, R.M. Towill Corporation

Water for Life . . . Ka Wai Ola

LINDA LINGLE
GOVERNOR

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

BRENNON T. MORIOKA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRIAN H. SEKIGUCHI
JIRO A. SUMADA

IN REPLY REFER TO:
HWY-DS 2.3302

October 6, 2009

Mr. Keith S. Shida
Program Administrator
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Shida:

Subject: Draft Environmental Assessment
Farrington Highway, Replacement of Makaha Bridge No. 3
and Makaha Bridge No. 3A
Federal-Aid Project No. BR-093-1(20)
District of Waianae, Island of Oahu

Thank you for your letter dated July 23, 2009, noting the Board of Water Supply's (BWS) requirement for the review and approval of the construction drawings for the subject project. The construction drawings will be submitted to the BWS for review. We add that the construction schedule will also be coordinated to minimize any potential impacts to the BWS water system.

Thank you for your review of the subject document. Should you have further comments, please contact our Project Manager, Emilio Barroga at 692-7546, Project Manager, Technical Design Services Office, or by email at emilio.barroga@hawaii.gov.

Very truly yours,

Glenn M. Yasui

GLENN M. YASUI
Administrator
Highways Division

c: R.M. Towill Corporation (Michael Okamoto)

HONOLULU FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

636 South Street
Honolulu, Hawaii 96813-5007
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd

MUFI HANNEMANN
MAYOR

KENNETH G. SILVA
FIRE CHIEF

ALVIN K. TOMITA
DEPUTY FIRE CHIEF

July 28, 2009

Mr. Emilio Barroga, Project Manager
Highways Division
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Barroga:

Subject: Draft Environmental Assessment
Replacement of Makaha Bridge Nos. 3 and 3A
Farrington Highway
Tax Map Keys: 8-4-002: 047 and 8-4-010: 012

In response to a letter from R. M. Towill Corporation received on July 10, 2009, regarding the above-mentioned subject, the Honolulu Fire Department (HFD) reviewed the material provided and determined that there will be no significant impact to the services provided by the HFD.

Should you have any questions, please call Battalion Chief Socrates Bratakos of our Fire Prevention Bureau at 723-7151.

Sincerely,

KENNETH G. SILVA
Fire Chief

KGS/SY:bh

cc: Office Of Environmental Quality Control
Brian Takeda, R. M. Towill Corporation

LINDA LINGLE
GOVERNOR

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

BRENNON T. MORIOKA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRIAN H. SEKIGUCHI
JIRO A. SUMADA

IN REPLY REFER TO:
HWY-DS 2.3303

October 6, 2009

Chief Kenneth G. Silva
Honolulu Fire Department
636 South King Street
Honolulu, Hawaii 96813

Dear Chief Silva:

Subject: Draft Environmental Assessment
Farrington Highway, Replacement of Makaha Bridge No. 3
and Makaha Bridge No. 3A
Federal-Aid Project No. BR-093-1(20)
District of Waianae, Island of Oahu

Thank you for your letter dated July 28, 2009, stating that the subject project will not result in significant impacts to the services provided by the Honolulu Fire Department.

Thank you for your review of the subject document. Should you have further comments, please contact our Project Manager, Emilio Barroga at 692-7546, Technical Design Services Office, or by email at emilio.barroga@hawaii.gov.

Very truly yours,

GLENN M. YASUI
Administrator
Highways Division

c: R.M. Towill Corporation (Michael Okamoto)

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 3, 2009

Department of Transportation-Highways Division
869 Punchbowl Street
Honolulu, Hawaii 96813

Attention: Mr. Emilio Barroga, Project Manager

Ladies and Gentlemen:

Subject: Draft Environmental Assessment for Farrington Highway, Replacement of Makaha Bridge No. 3 and Bridge No. 3A-Federal Aid Project No. BR-093-1(20)

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Commission on Water Resource Management, Land Division-Oahu District, Engineering Division, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Historic Preservation will be submitting comments through a separate letter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Charlene E. Unoki
for Morris M. Atta
Administrator

Cc: OEQC
RM Towill Corporation

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
LAND DIVISION
2009 JUL 21 A 10: 17

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 9, 2009

MEMORANDUM

TO: **DLNR Agencies:**
x Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
x Engineering Division
__Div. of Forestry & Wildlife
__Div. of ~~State Parks~~
x Commission on Water Resource Management
x Office of Conservation & Coastal Lands
x Land Division – Oahu District

RECEIVED
COMMISSION ON WATER
RESOURCE MANAGEMENT
2009 JUL 10 AM 10: 20

FROM: for Morris M. Atta Charlene
SUBJECT: Draft environmental assessment for Farrington Highway Replacement of Makaha Bridges No. 3 and No. 3A
LOCATION: Island of Oahu
APPLICANT: RM Towill Corporation on behalf of Department of Transportation

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by August 1, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached. SCAP required, as discussed on page 1-8 of document.
Signed: Alvin T. Takeda
Date: 7.20.09

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 9, 2009

MEMORANDUM

From: ~~TO:~~ **DLNR Agencies:**
x Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
x Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
x Commission on Water Resource Management
x ~~Office of Conservation & Coastal~~ Lands
x Land Division – Oahu District

To: ~~FROM:~~ Morris M. Atta
SUBJECT: Draft environmental assessment for Farrington Highway Replacement of Makaha Bridges No. 3 and No. 3A
LOCATION: Island of Oahu
APPLICANT: RM Towill Corporation on behalf of Department of Transportation

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by August 1, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

( ) We have no objections.
(X) We have no comments.
( ) Comments are attached.

Signed:
Date: 7/23/09

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 9, 2009

MEMORANDUM

TO: **DLNR Agencies:**
x Div. of Aquatic Resources
__~~Div. of Boating & Ocean~~ Recreation
x Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
x Commission on Water Resource Management
x Office of Conservation & Coastal Lands
x Land Division – Oahu District

2009 JUL 31 A 9:46
RECEIVED
LAND DIVISION
'09 JUL 09 PM 04:02 ENGINEERING

FROM: Morris M. Atta
SUBJECT: Draft environmental assessment for Farrington Highway Replacement of Makaha Bridges No. 3 and No. 3A
LOCATION: Island of Oahu
APPLICANT: RM Towill Corporation on behalf of Department of Transportation

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by August 1, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(X) Comments are attached.

Signed:
Date: 7/30/09

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/MorrisAtta
Ref: ReplaceMakahaBridge3&3A
Oahu.704

COMMENTS

(X) **We confirm that, according to the Flood Insurance Rate Map (FIRM), a portion of the project site is located in Flood Zones AE and VE and the remaining portion is located in Flood Zones X, XS and AE Floodway (AEF). The National Flood Insurance Program does not regulate activities under Zones X and XS, however, it does regulate developments within Zones AE, VE and AEF as indicated in bold letters below.**

(X) Please take note that according to the Flood Insurance Rate Map (FIRM), the project site is located in Zone___.

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

(X) **Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.**

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

(X) **Mr. Robert Sumitomo at (808) 768-8097 or Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.**

( ) Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.

( ) Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.

( ) Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

( ) The applicant should include water demands and infrastructure required to meet project needs. Please note that projects within State lands requiring water service from the Honolulu Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.

( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

(X) **Additional Comments: Because portion of this project is being conducted in a flood zone designated as AEF, strict adherence to the NFIP regulations, specifically 44CFR §60.3(d)(3), must be followed.**

(X) **Other: Please correct information reflected on pages 4-12, Item 4.7.1, Flood Zones and Figure 4-2, FEMA Flood Map of the document. A portion of the project site is located in Zones X, XS and AEF.**

Please see attached for additional comments on bridge replacement/improvements.

Should you have any questions, please call Ms. Suzie S. Agraan of the Planning Branch at 587-0258.

Signed: for ERIC T. HIRANO, CHIEF ENGINEER

Date: 7/30/09

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

Project: Farrington Highway Replacement of Makaha Bridges Nos. 3 & 3A
Farrington Highway, Waianae, Oahu

ADDITIONAL COMMENTS

For the proposed construction of bridge replacements and related improvements, we offer the following suggestions:

1. If utilities (sewer, gas, water, etc.) are to be suspended along the bridge structure, they should be located and constructed to minimize flood damage, leakage and prevent snagging of debris.

2. The proposed bridge should not impede the storm water carrying capacity of the body of water it crosses.

3. A scour analysis should be conducted to ensure that the design of the structure will minimize erosion of the foundation. If the channel opening at the structure is widened, evaluate downstream reaches to provide for adequate capacity and erosion.

OCT 16 2009

HWY-DS 2.3304

TO: THE HONORABLE LAURA H. THIELEN, CHAIRPERSON
DEPARTMENT OF LAND AND NATURAL RESOURCES

ATTN: MORRIS M. ATTA, ADMINISTRATOR
LAND DIVISION

FROM: BRENNON T. MORIOKA, PH.D., P.E.
DIRECTOR OF TRANSPORTATION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
FARRINGTON HIGHWAY, REPLACEMENT OF MAKAHA BRIDGE NO. 3
AND MAKAHA BRIDGE NO. 3A
FEDERAL-AID PROJECT NO. BR-093-1(20)
DISTRICT OF WAIANAE, ISLAND OF OAHU

Thank you for your letter dated August 3, 2009, concerning the subject Draft Environmental Assessment. We offer the following in response to the comments of your various divisions (as applicable, the comments have been *italicized* for reference):

1. Commission on Water Resource Management Comments

SCAP required as discussed on page 1-8 of the document.

We confirm that a Stream Channel Alteration Permit (SCAP) application will be prepared and submitted to the Commission on Water Resource Management for review and approval.

2. Land Division – Oahu District Comments

We have no comments.

We acknowledge the Land Division – Oahu District has no comments regarding the subject project.

3. Engineering Division Comments

We confirm that, according to the Flood Insurance Rate Map (FIRM), a portion of the project site is located in Flood Zones AE and VE and the remaining portion is located in Flood Zones X, XS and AE Floodway (AEF). The National Flood Insurance Program does not regulate activities under Zones X and XS, however, it does regulate developments within Zones AE, VE and AEF as indicated in bold letters below.

Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

(X) Mr. Robert Sumitomo at (808) 768-8097 or Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.

Additional Comments: Because portion of this project is being conducted in a flood zone designated as AEF, strict adherence to the NFIP regulations, specifically 44CFR §60.3(d)(3), must be followed.

Other: Please correct information reflected on pages 4-12, Item 4.7.1, Flood Zones and Figure 4-2, FEMA Flood Map of the document. A portion of the project site is located in Zones X, XS and AEF.

We acknowledge the subject project is located within Flood Zones AE, AEF, VE, X and XS. All work proposed for the portion of the project within Zones AE, AEF and VE will be in accordance with the minimum standards set forth in the rules and regulations of the NFIP. As required, the construction documents prepared for this project will be reviewed by the City & County of Honolulu, Department of Planning and Permitting.

Section 4.7.1 of the Environmental Assessment and Figure 4-2, FEMA Flood Map, have been revised to reflect this change.

4. Additional Comments

a. *If utilities (sewer, gas, water, etc.) are to be suspended along the bridge structure, they should be located and constructed to minimize flood damage, leakage and prevent snagging of debris.*

We confirm that a 12-inch water line will be attached to the new bridge structures on the downstream side of the bridges to minimize potential damage from flooding events.

b. *The proposed bridge should not impede the storm water carrying capacity of the body of water it crosses.*

We confirm that the proposed bridges will be designed to meet or exceed current design standards and will be able to accommodate the 100-year flood event without increasing the flood hazard to adjacent properties.

c. *A scour analysis should be conducted to ensure that the design of the structure will minimize erosion of the foundation. If the channel opening at the structure is widened, evaluate downstream reaches to provide for adequate capacity and erosion.*

We confirm that a scour analysis was performed for the design of the replacement bridge structures. Upstream and downstream channel improvements will be designed to accommodate the proposed bridge structures and mitigate the potential for erosion.

Thank you for your review of the subject document. Should you have further comments, please contact our Project Manager, Emilio Barroga at 692-7546, Technical Design Services Office, or by email at emilio.barroga@hawaii.gov.

EB: vs

c: R.M. Towill Corporation (Michael Okamoto)

PHONE (808) 594-1888

FAX (808) 594-1865

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

HRD09/2615

August 5, 2009

Emilio Barroga
Department of Transportation – Highways Division
869 Punchbowl Street
Honolulu, Hi 96813

RE: Draft Environmental Assessment for the replacement of Mākaha Bridge No. 3 and Bridge No. 3A, Farrington Highway – Federal Aid Project No. BR-093-1 (20), Wai'anae, O'ahu, TMK: (1) 8-4-002: 047 and (1) 8-4-010: 012.

Aloha e Emilio Barroga,

The Office of Hawaiian Affairs (OHA) is in receipt of your letter requesting comments on the above-mentioned project. The state Department of Transportation, Highways Division, proposes to replace two existing 70-year-old timber bridges along Farrington Highway that are deficient. The replacement concrete bridges will be designed to meet or exceed current state and federal design standards. OHA has reviewed the project and offers the following comments.

We ask that the project preserve, to the greatest extent possible, the natural floor of both West Mākaha and Mākaha streams. We note that concrete-lined stream beds hinder the ability of our native stream species to migrate upstream, thereby endangering their ability to complete their life cycle. With this in mind, we appreciate that there are no plans to channelize with concrete the stream bed under Bridge 3A (Page 2-12 of the DEA). However, we do have concerns that other portions of the West Mākaha Stream and Mākaha Stream will be altered as a result of the project. Page 2-12 of the DEA states that scour and erosion protection, such as the use of riprap, will be applied to portions of the streams mauka of the bridges. Plans are also in place to reconstruct the concrete apron under Bridge 3. If the stream beds must be lined with concrete or physically altered in some other way, we ask that appropriate consideration be afforded to the protection of native stream life.

We appreciate that the applicant has developed proposed mitigation measures, including Best Management Practices, to address run-off, erosion, water quality and wetland issues. In

addition, we seek the assurances of the applicant that the impacted natural environment surrounding the two replacement bridges will either be returned to its pre-construction state or improved through native habitat restoration after construction is complete.

OHA requests that the Final EA contain further information regarding the applicant's decision to place the by-pass road makai of Farrington Highway. The alternative analysis section only considers the possible locations for the permanent bridge replacements, but not the by-pass road. Moreover, in no other section does the DEA examine the impacts of placing the by-pass road on the mauka side of Farrington Highway. We note that a number of individuals interviewed during the Cultural Impact Assessment requested that the permanent replacement bridges be rerouted mauka of the current site to expand the beach area. While the applicant states in the alternative analysis that it is not feasible to site the permanent replacement bridges mauka of Farrington Highway, routing the by-pass road makai of the highway would actually take away more beach – albeit only temporarily – than what is currently there, resulting in exactly the opposite of what several of our beneficiaries wanted. This proposed temporary loss of beach needs to be further evaluated.

In addition, a number of Native Hawaiians have expressed concern over the impact the project will have on possible Native Hawaiian burials located near the two bridges, as well as remnants of a possible loko i'a, or fishpond. The project site is located along the beach, and sand is one of the most common mediums in which Native Hawaiian burials are found. In fact, one burial has already been disturbed at the project site during the archaeological survey. We urge that the project proceed with the utmost diligence and sensitivity to the very-high probability that additional burials are in the area.

We believe that the project's use of archaeological monitoring will help mitigate burial issues. However, our beneficiaries have also asked that some form of cultural monitoring also be included as a mitigation measure. While some applicants may be hesitant to embrace cultural monitoring because of the lack of regulations, policies and requirements that govern the practice, OHA has experienced that, if done correctly, cultural monitoring can be a very effective mitigation tool. Overall, we support the idea of having cultural monitors in addition to archaeological monitors because they often provide a unique and necessary sense of 'ike Hawai'i to a project. If the applicant agrees to use cultural monitoring, OHA recommends that a cultural monitor be able to demonstrate the following:

a) cultural, genealogical or lineal affiliation with the affected project area;
b) in-depth knowledge of the affected and anticipated cultural properties in the project area; and
c) sensitivity and the ability to act as a liaison between the applicant (the state Department of Transportation, Highways Division) and the Native Hawaiian community.

We will rely upon the assurances of the applicant that should iwi kūpuna or Native Hawaiian cultural or traditional deposits be found during the construction of the project, work will cease, and the appropriate agencies will be contacted pursuant to applicable law. OHA also looks forward to reviewing the results of the Section 106 consultation (National Historic Preservation Act).

Thank you for the opportunity to comment. If you have further questions, please contact Sterling Wong by phone at (808) 594-0248 or e-mail him at sterlingw@oha.org.

'O wau iho nō me ka 'oia'i'o,

Clyde W. Nāmu'o
Administrator

C: Brian Takeda
R.M. Towill Corporation
2024 N. King Street, Suite 200
Honolulu, Hi 96819

LINDA LINGLE
GOVERNOR

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

BRENNON T. MORIOKA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRIAN H. SEKIGUCHI
JIRO A. SUMADA

IN REPLY REFER TO:
HWY-DS 2.3305

October 20, 2009

TO: CLYDE W. NAMUO, ADMINISTRATOR
OFFICE OF HAWAIIAN AFFAIRS

FROM: GLENN M. YASUI, ADMINISTRATOR
HIGHWAYS DIVISION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA)
FARRINGTON HIGHWAY, REPLACEMENT OF MAKAHA BRIDGE NO. 3
AND MAKAHA BRIDGE NO. 3A
FEDERAL-AID PROJECT NO. BR-093-1(20)
DISTRICT OF WAIANAE, ISLAND OF OAHU

Thank you for your letter dated August 5, 2009, concerning the subject Draft Environmental Assessment (DEA), we offer the following in response to your comments (in *Italics* for your reference), below:

1. *We ask that the project preserve, to the greatest extent possible, the natural floor of both West Makaha and Makaha streams. We note that concrete-lined stream beds hinder the ability of our native stream species to migrate upstream, thereby endangering their ability to complete their life cycle. With this in mind, we appreciate that there are no plans to channelize with concrete the stream bed under Bridge 3A (Page 2-12 of the DEA). However, we do have concerns that other portions of the West Makaha Stream and Makaha Stream will be altered as a result of the project. Page 2-12 of the DEA states that scour and erosion protection, such as the use of riprap, will be applied to portions of the streams mauka of the bridges. Plans are also in place to reconstruct the concrete apron under Bridge 3. If the stream beds must be lined with concrete or physically altered in some other way, we ask that appropriate consideration be afforded to the protection of native stream life.*

The use of riprap to prevent the effects of scour will only be used along the stream banks to minimize the hardening of the stream. The stream bed will remain in its natural state except for a required concrete apron spanning the Makaha Stream beneath Bridge 3. Please note that the Makaha Stream is normally dry and only flows during large rain events. Additionally, both the Makaha Stream and West Makaha Stream are normally cut-off from the ocean by a sand berm makai of the bridges.

To the extent possible, the design and construction of the replacement bridges and related improvements will be accomplished in a manner that minimizes the potential for adverse effects to native stream flora and fauna.

2. *We appreciate that the applicant has developed proposed mitigation measures, including Best Management Practices, to address run-off, erosion, water quality and wetland issues. In addition, we seek the assurances of the applicant that the impacted natural environment surrounding the two replacement bridges will either be returned to its pre-construction state or improved through native habitat restoration after construction is complete.*

In accordance with City & County of Honolulu, State of Hawaii, and Federal regulatory requirements, the project's area of disturbance will be restored to the extent practicable to pre-construction conditions. Native plant species will further be considered for landscaping.

3. *OHA requests that the Final EA contain further information regarding the applicant's decision to place the by-pass road makai of Farrington Highway. The alternative analysis section only considers the possible locations for the permanent bridge replacements, but not the by-pass road. Moreover, in no other section does the DEA examine the impacts of placing the by-pass road on the mauka side of Farrington Highway. We note that a number of individuals interviewed during the Cultural Impact Assessment requested that the permanent replacement bridges be rerouted mauka of the current site to expand the beach area. While the applicant states in the alternative analysis that it is not feasible to site the permanent replacement bridges mauka of Farrington Highway, routing the by-pass road makai of the highway would actually take away more beach - albeit only temporarily - than what is currently there, resulting in exactly the opposite of what several of our beneficiaries wanted. This proposed temporary loss of beach needs to be further evaluated.*

The decision to locate the by-pass road to the makai side of the project site was based on the following factors:

- The coastal estuarine pond (*muliwai*) exists along the mauka side of Bridge 3A. Construction of a by-pass road on the mauka side of the project area would result in significant adverse effects to the muliwai;
- An existing residence at the western and mauka end near the project site, next to Bridge 3, is located approximately 30 feet away from the existing right-of-way. The narrow width that is available cannot accommodate a temporary by-pass road without causing significant property, noise, and traffic impacts to the homeowner, as well as interfering with construction of the proposed bridge structure.

The proposed by-pass road makai of the project site is immediately adjacent to the existing roadway and is designed to minimize the potential for adverse effects to the beach area of the Makaha Beach Park.

As noted, upon completion of the proposed project, all surrounding disturbed areas will be restored as much as practicable to pre-construction conditions.

4. *In addition, a number of Native Hawaiians have expressed concern over the impact the project will have on possible Native Hawaiian burials located near the two bridges, as well as remnants of a possible loko i a, or fishpond. The project site is located along the beach, and sand is one of the most common mediums in which Native Hawaiian burials are found. In fact, one burial has already been disturbed at the project site during the archaeological survey. We urge that the project proceed with the utmost diligence and sensitivity to the very-high probability that additional burials are in the area.*

The Draft Environmental Assessment indicates that because of the possibility of the project disturbing additional human remains or significant archaeological deposits, an archaeological monitoring program will be performed during construction in accordance with the requirements of Hawaii Administrative Rules (HAR), Chapter 13-279, Rules Governing Standards for Archaeological Monitoring Studies and Reports. Accordingly, an Archaeological Monitoring Plan prepared for the subject project has been reviewed and approved by the State Historic Preservation Division (SHPD). Additionally, a Burial Treatment Plan (in accordance with the requirements of HAR, Chapter 13-300-33, Rules of Practice and Procedure Relating to Burial Sites and Human Remains) was also prepared and has since been reviewed by the Oahu Island Burial Council and approved by SHPD.

During construction, should any significant cultural deposits or human skeletal remains be encountered, work will stop in the immediate area and the SHPD will be notified and consulted for further instructions and guidance.

5. *We believe that the project's use of archaeological monitoring will help mitigate burial issues. However, our beneficiaries have also asked that some form of cultural monitoring also be included as a mitigation measure. While some applicants may be hesitant to embrace cultural monitoring because of the lack of regulations, policies and requirements that govern the practice, OHA has experienced that, if done correctly, cultural monitoring can be a very effective mitigation tool. Overall, we support the idea of having cultural monitors in addition to archaeological monitors because they often provide a unique and necessary sense of ike Hawaii to a project. If the applicant agrees to use cultural monitoring, OHA recommends that a cultural monitor be able to demonstrate the following:*

   a) *cultural, genealogical or lineal affiliation with the affected project area;*
   b) *in-depth knowledge of the affected and anticipated cultural properties in the project area;*
   c) *sensitivity and the ability to act as a liaison between the applicant (the state Department of Transportation, Highways Division) and the Native Hawaiian community.*

We appreciate that OHA offers some guidance regarding how to properly select the use of a cultural monitor. It is noted however, that you are also correct that unfortunately there remains no State of Hawaii regulations, policies, or requirements that govern the responsibilities or legal liabilities of a cultural monitor. While the use of cultural monitors will not be employed at this time by the Hawaii Department of Transportation (HDOT) and Federal Highway Administration (FHWA), we remain committed to following all legal requirements for the protection and preservation of cultural, historical, and traditional Hawaiian and Native Hawaiian rights. This will continue to extend to consultation with Native Hawaiian groups, organizations, and individuals as provided under law and to do so in a manner that is culturally sensitive and conscientious.

6. *We will rely upon the assurances of the applicant that should iwi kupuna or Native Hawaiian cultural or traditional deposits be found during the construction of the project, work will cease, and the appropriate agencies will be contacted pursuant to applicable law. OHA also looks forward to reviewing the results of the Section 106 consultation (National Historic Preservation Act).*

The project contractor will be required to conduct archaeological monitoring during construction. In the event of an inadvertent find verified by the archaeological monitor, work will cease and SHPD will be notified for the appropriate treatment of the find.

In accordance with Section 106 of the National Historic Preservation Act, a Memorandum of Agreement (MOA) for the proposed undertaking is being developed between the FHWA, State Historic Preservation Officer, HDOT, other stake-holding agencies, and concerned consulting parties. OHA will be consulted during the preparation of the MOA.

Thank you for your review of the subject document. Should you have further comments, please contact our Project Manager, Emilio Barroga at 692-7546, Technical Design Services Office, or by email at emilio.barroga@hawaii.gov.

c: R.M. Towill Corporation (Michael Okamoto)

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

DEPT OF TRANSPORTATION
2009 AUG 10 A 10: 01
HIGHWAYS DIVISION

RECEIVED
AUG 12 2009
TECHNICAL DESIGN SVCS OFC
DEPT. OF TRANSPORTATION

August 6, 2009

Department of Transportation-Highways Division
869 Punchbowl Street
Honolulu, Hawaii 96813

Attention: Mr. Emilio Barraga, Project Manager

Ladies and Gentlemen:

Subject: Draft Environmental Assessment for Farrington Highway, Replacement of Makaha Bridge No. 3 and Bridge No. 3A-Federal Aid Project No. BR-093-1(20)

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to Division of Aquatic Resources for their review and comment.

The Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

for Morris M. Atta
Administrator

Cc: OEQC
RM Towill Corporation

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

AQUATIC RESOURCES: 2479

DIRECTOR	
COMM. FISH.	
AQ RES/ENV	
AQ REC	
PLANNER	
STAFF SVCS	
RCUH/UH	
STATISTICS	
AFRC/FED AID	
EDUCATION	
SECRETARY	
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GH

July 9, 2009

MEMORANDUM

TO: ~~DLNR Agencies:~~
x Div. of Aquatic Resources
__ Div. of ~~Boating &~~ Ocean Recreation
x Engineering Division
__ Div. of Forestry & Wildlife
__ Div. of State Parks
x Commission on Water Resource Management
x Office of Conservation & Coastal Lands
x Land Division – Oahu District

RECEIVED JUL 10 2009 AQUATIC RESOURCES

FROM: for Morris M. Atta
SUBJECT: Draft environmental assessment for Farrington Highway Replacement of Makaha Bridges No. 3 and No. 3A
LOCATION: Island of Oahu
APPLICANT: RM Towill Corporation on behalf of Department of Transportation

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by August 1, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(X) Comments are attached.

Signed:
Date: 4 Aug. 2009

RECEIVED LAND DIVISION 2009 AUG -5 P 3:23 NATURAL RESOURCES HAWAII

STATE OF HAWAII
Department of Land and Natural Resources
DIVISION OF AQUATIC RESOURCES

MEMORANDUM

TO: Dan A. Polhemus, Administrator
FROM: Glenn R. Higashi, Aquatic Biologist GRH
SUBJECT: Draft Environmental Assessment for Farrington Highway Replacement of Mākaha Bridges No. 3 and No. 3A
Comments Requested By: Morris M. Atta Land Division
Date of Request: 7/9/09 Date Received: 7/10/09

Summary of Project

Title: **Draft Environmental Assessment for Farrington Highway Replacement of Mākaha Bridges No. 3 and No. 3A**
Project By: **RM Towill Corporation on behalf of Department of Transportation Highways Division**
Location: **Mākaha, Oahu – TMK: (1) 8-4-002: 047, (1) 8-4-010: 012**

Brief Description:

The applicant, RM Towill Corporation on behalf of the Department of Transportation, Highways Division proposes to demolish and replace two timber bridges with concrete bridges, including improvements along two drainage ways, and construction of a temporary by-pass road. Accessory improvements include construction of paved shoulders, relocating bus facilities, upgrading guardrails, replacing existing driveways, relocating water and electrical utilities, upgrading signage, and pavement markings.

Farrington Highway is a 2-lane principal arterial with 11-foot lanes and 3-foot paved shoulders. Mākaha Bridges 3 and 3A support two 11-foot lanes with a 2-foot shoulder on the makai (seaward) side of the bridge and a 1-foot shoulder on the mauka (mountain) side. A 4-foot walkway is located on the mauka side of both bridges. Both wooden bridges were built in 1937.

Mākaha Stream is an interrupted perennial stream that originates on the western slope of the Waianae mountain range deep in Mākaha Valley. Mākaha Stream flows under Bridge 3 and terminates behind a sand berm at Mākaha Beach Park.

West Mākaha Stream (sometimes call North Mākaha Stream) arises on the south slope of Pu'ukea'au and eventually flows under Bridge 3A. It is a relatively short intermittent stream that terminated in an approximately 100-foot long muliwai (a coastal estuarine pond). Neither stream has a permanent surface connection to the ocean. The stream beds connect to each other on the makai side of Farrington Highway, however they are usually blocked from the ocean by a sand berm at Mākaha Beach Park.

The proposed action involves the replacement of the existing bridges with wider structures that maintain the existing centerline alignment of the roadway, construction and removal of a temporary detour road and bridge structure makai of the existing bridges, relocation of utilities, and installation of pavement markings. The replacement bridges that will replace the existing deficient bridges would meet current design standards for bridge structures and will accommodate the flow for a 100-year flood event by widening the bridge openings and channels. The new bridge structures would increase the travel way and shoulder widths, but would remove the existing raised curb, the additional width along the travel way and shoulder would contribute to increased safety for motorists, pedestrians, and bicyclists.

Construction of the by-pass road and temporary bridge crossing structures will be on the makai edge of Farrington Highway right-of-way and will accommodate a tie-in or connector with Kili Drive that normally intersects with Farrington Highway. The by-pass road is planned to be approximately 1,200 feet long with

two10 foot wide travel lanes for each of the north and south bound lanes of traffic. The by-pass road and connector with Kili Drive will be located on the makai edge of the Farrington Highway right-of-way, roughly adjacent to the Mākaha Stream and West Mākaha Stream bridge sections.

Asphalt concrete or other DOT approved surface will be used to construct the by-pass road to accommodate public, private, commercial, and emergency services vehicles. The by-pass road crossing the stream at Mākaha Bridge 3A will utilize prefabricated bridge structural elements to be determined by the design engineer. The temporary bridge is anticipated to span the entire stream channel and therefore will not require construction of center piers. The existing remnant railroad abutments at the site will be removed and new abutments constructed to accommodate the wider temporary bridge. The by-pass road crossings the stream at Mākaha Bridge 3 will be constructed on embankment material with sheet pile shoring installed to support the construction. Pipe culverts will be used to allow stream flows to continue.

Comments:

The Division of Aquatic Resources has surveyed Māhaka Stream from the stream mouth (below the proposed action area) to the upper reaches in December 2001. The lower reaches were dry, but surface water was present from the middle to upper reaches. These reaches provided habitat for the native fish species: *Awaous guamensis* and the native crustacean: *Atyoida bisulcata*. The stream also provides habitat for native damselflies: *Megalagrion hawaiiense, Megalagrion nigrohamatum nigrolineatum,* and *Megalagrion oceanicum* (ref. DAR Aquatic Resources Database, Oct. 6, 2006).

The proposed replacement bridge is not expected to have any significant impact on the aquatic resource values in this area since it is usually dry. However, mitigative measures should be implemented during the construction and removal of the temporary by-pass road and bridge structure and the demolition of the existing bridge and construction of the replacement bridge and retaining walls to minimize the potential for erosion, siltation and pollution of the aquatic environment.

1) lands denuded of vegetation should be planted or covered as quickly as possible to prevent erosion and the vegetation cleared along stream banks should be removed and prevented from falling into the stream/estuary environment;
2) scheduling site work (particularly the construction and removal of the temporary by-pass road and demolition of existing bridge and construction of replacement bridge and retaining wall) during periods of minimal rainfall;
3) prevent construction materials, petroleum products, debris and landscaping products from falling, blowing or leaching into the stream/estuary environment during the construction of the bridge and its associated improvements.

To accommodate the upstream migration and recruitment of native Hawaiian stream animals, the stream channel should be maintained to provide a continuous connection to the ocean during stream flows resulting from heavy rains. The pipe culverts for the by-pass road crossings at Mākaha Bridge 3 should be level and conform to the stream channel bottom so as not to inhibit upstream migration. Upon the removal of the temporary by-pass road and bridge structure the stream channel should be restored to its original condition again to allow the upstream migration of stream animals from the muliwai and ocean during periods of heavy rain.

The Division also concurs with the statement in AECOS's biological reconnaissance survey report (9/8/04) that the temporary road and bridge should be located outside the boundary of the wetland.

LINDA LINGLE
GOVERNOR

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

BRENNON T. MORIOKA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRIAN H. SEKIGUCHI
JIRO A. SUMADA

IN REPLY REFER TO:
HWY-DS 2.3435

OCT 13 2009

TO: THE HONORABLE LAURA H. THIELEN, CHAIRPERSON
DEPARTMENT OF LAND AND NATURAL RESOURCES

ATTN: MORRIS M. ATTA, ADMINISTRATOR
LAND DIVISION

FROM: BRENNON T. MORIOKA, PH.D., P.E.
DIRECTOR OF TRANSPORTATION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
FARRINGTON HIGHWAY, REPLACEMENT OF MAKAHA BRIDGE NO. 3
AND MAKAHA BRIDGE NO. 3A
FEDERAL-AID PROJECT NO. BR-093-1(20)
DISTRICT OF WAIANAE, ISLAND OF OAHU

Thank you for your letter dated August 6, 2009, concerning the subject Draft Environmental Assessment (DEA). We offer the following in response to the comments received from the Division of Aquatic Resources (DAR) (the comments have been *italicized* for your reference):

1. *The Division of Aquatic Resources has surveyed Makaha Stream from the stream mouth (below the proposed action area) to the upper reaches in December 2001. The lower reaches were dry, but surface water was present from the middle to upper reaches. These reaches provided habitat for the native fish species: Awaous guamensis and the native crustacean: Atyoida bisulcata. The stream also provides habitat for native damselflies: Megalagrion hawaiiense, Megalagrion nigrohamatum nigrolineatum, and Megalagrion oceanicum (ref. DAR Aquatic Resources Database, Oct. 6, 2006).*

   The proposed replacement bridge is not expected to have any significant impact on the aquatic resource values in this area since it is usually dry. However, mitigative measures should be implemented during the construction and removal of the temporary by-pass road and bridge structure and the demolition of the existing bridge and construction of the replacement bridge and retaining walls to minimize the potential for erosion, siltation and pollution of the aquatic environment.

1) *lands denuded of vegetation should be planted or covered as quickly as possible to prevent erosion and the vegetation cleared along stream banks should be removed and prevented from falling into the stream/estuary environment;*

2) *scheduling site work (particularly the construction and removal of the temporary by-pass road and demolition of existing bridge and construction of replacement bridge and retaining wall) during periods of minimal rainfall;*

3) *prevent construction materials, petroleum products, debris and landscaping products from falling, blowing or leaching into the stream/estuary environment during the construction of the bridge and its associated improvements.*

Potential for impacts involving soil stability or erosion will be addressed by adherence to applicable Federal, State, and City and County of Honolulu regulations and guidelines governing construction activities.

Specifically, construction activities will be done in accordance with the requirements of Chapter 11-55, HAR, Water Pollution Control, and Section 209 – Water Pollution and Erosion Control, in the Hawaii Department of Transportation's, Hawaii Standard Specifications for Road, Bridge and Public Works Construction.

A National Pollutant Discharge Elimination System Notice of Intent, Form C (NPDES NOI C), Construction Stormwater permit application will be filed with the Department of Health – Clean Water Branch. As part of the permit requirements, a Best Management Practices (BMPs) Plan will be developed to address the potential for erosion and mixing of stormwater with construction materials by describing management, structural, and vegetative controls that may be applied at the project site. The BMPs Plan will also have provisions to handle the on-site use of petroleum-associated products and handling of construction-related debris.

The project will also require the preparation and filing of an Erosion Control Plan as required by the City and County of Honolulu – Department of Planning and Permitting. Erosion control measures will be as prescribed in the City's Drainage Control Standards and the NPDES regulations. These measures include limiting the areas subject to excavation before allowing work in new areas; planting grass or appropriate wetland vegetation to stabilize bare surfaces; and use of a stabilized construction entry to inhibit the tracking of soil and sediment onto adjoining road surfaces from construction vehicles leaving the job site.

Construction activities involving major work within the stream channels will be limited to fair weather conditions. Work within the stream channel will employ pollution control measures (erosion control devices and stream protection measures) to divert potential stream flow around active work areas.

2. *To accommodate the upstream migration and recruitment of native Hawaiian stream animals, the stream channel should be maintained to provide a continuous connection to the ocean during stream flows resulting from heavy rains. The pipe culverts for the by-pass road crossings at Makaha Bridge 3 should be level and conform to the stream channel bottom so as not to inhibit upstream migration. Upon the removal of the temporary by-pass road and bridge structure the stream channel should be restored to its original condition again to allow the upstream migration of stream animals from the muliwai and ocean during periods of heavy rain.*

The contractor will be required to provide a continuous connection across the project area to accommodate migration and recruitment of native Hawaiian stream species during stream flow events resulting from heavy rains. Stream by-pass measures (i.e. pipe culverts) will be installed level with the channel bottom to allow access through the project area. The project area will be restored to facilitate migration of stream species from the *muliwai* and the ocean during periods of heavy rainfall events.

3. *The Division also concurs with the statement in AECOS's biological reconnaissance survey report (9/8/04) that the temporary road and bridge should be located outside the boundary of the wetland.*

To prevent negative impacts to the salt-marsh wetland, the portion closest to the Bridge No. 3A work area may be sectioned off using sheet piling or other appropriate measures to isolate the work area and prevent earth-moving activities from directly impacting the *muliwai*.

The temporary by-pass road (and bridge) will be located on the makai side of Farrington Highway away from the main portion of the *muliwai*. The temporary bridge will span the downstream portion of the *muliwai*. Throughout the construction period, pollution prevention measures and appropriate BMPs will be implemented to prevent construction-related storm water runoff and sediment from impacting the wetland. Upon project completion, all disturbed areas will be restored to the extent practicable, and stabilized prior to removal of the implemented pollution control measures.

Thank you for your review of the subject document. Should you have further comments, please contact our Project Manager, Emilio Barroga at 692-7546, Technical Design Services Office, or by email at emilio.barroga@hawaii.gov.

c: R.M. Towill Corporation (Michael Okamoto)

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001

EIS

September 17, 2009

Mr. Emilio Barroga
Project Manager - Highways Division
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Barroga:

Re: Farrington Highway - Replacement of Makaha Bridge No. 3 & Bridge No. 3A Federal Aid Project No. BR-093-1(20) Waianae, Oahu

Thank you for the opportunity to comment on the above-referenced project. We apologize for the lateness of our response. Hawaiian Electric Company, Inc. (HECO) has no objections at this time. Following are comments received from our Engineering and Construction & Maintenance Departments.

HECO has existing overhead and underground facilities in the area of the proposed construction site. We understand that the project will include demolition of the existing bridges and construction of replacement bridges, which will involve relocation of existing utility poles. Since it is necessary to relocate HECO's facilities, please submit a request in writing and we will work with you to relocate our facilities so that construction of the project may proceed as smoothly as possible.

During the planning and design phase of the project, please keep in mind that state law [OSHA 1910.269(k)(2B)] requires that a worker and the longest object he/she may contact cannot come closer than a minimum radial clearance of ten feet when working close to or under any overhead lines rated 50kV and below. In addition, a minimum clearance of ten feet must be maintained during excavation around utility poles and/or their anchor systems to prevent weakening or pole support failure.

Because any redesign or relocation of HECO's facilities may cause lengthy delays, HECO should be notified immediately in order to minimize any delays or any impacts on the project schedule. Please note that there may be costs associated with any relocation work, and that such costs may be borne by the requestor. HECO shall not be responsible for any delays or damage that may arise as a result of insufficient notice to relocate our facilities.

We appreciate your efforts to keep us apprised of the planning process. As the project progresses, please continue to keep us informed. We will be better able to evaluate any effects on our system facilities further along in the project's development. We request that

development plans show all affected HECO facilities, and address any conflicts between the proposed plans and HECO's existing facilities. Please forward the pre-final development plans to HECO for review.

To ensure HECO's continuing input in this project, I suggest dealing directly with our point of contact, Amy Ching, Transmission & Distribution, Engineering Department (543-7789). Thank you again for the opportunity to comment.

Sincerely,

Kirk S. Tomita
Senior Environmental Scientist

cc: Ms. Katherine P. Kealoha (OEQC)
Mr. Brian Takeda (R.M. Towill Corp.)
A. Ching/M. Lum/R. Tamayo
J. Hardisty

LINDA LINGLE
GOVERNOR

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

BRENNON T. MORIOKA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRIAN H. SEKIGUCHI
JIRO A. SUMADA

IN REPLY REFER TO:
HWY-DS 2.3436

October 6, 2009

Mr. Kirk S. Tomita
Senior Environmental Scientist
Hawaiian Electric Company, Inc.
P.O. Box 2750
Honolulu, Hawaii 96840

Dear Mr. Tomita:

Subject: Draft Environmental Assessment
Farrington Highway, Replacement of Makaha Bridge No. 3
and Makaha Bridge No. 3A
Federal-Aid Project No. BR-093-1(20)
District of Waianae, Island of Oahu

Thank you for your letter dated September 17, 2009, noting that HECO has no objections to the proposed project at this time.

Once the pre-final construction drawings are prepared, we will forward them to your engineering department for their review.

We will continue to coordinate with you on this project to ensure that the temporary utility line relocation will not result in disruption of service to area residents and ensure that the project proceeds as smoothly as possible.

Thank you for your review of the subject document. Should you have further comments, please contact our Project Manager, Emilio Barroga at 692-7546, Technical Design Services Office, or by email at emilio.barroga@hawaii.gov.

Very truly yours,

GLENN M. YASUI
Administrator
Highways Division

c: R.M. Towill Corporation (Michael Okamoto)

Section 4(f) Consultation with City & County of Honolulu, Department of Parks and Recreation

HWY-DS 2.9310

MAILED
OCT 29 2008
c: EB(YLW) -SS(2)
BUS-O
RMTO

Mr. Lester K.C. Chang, Director
Department of Parks and Recreation
City and County of Honolulu
1000 Uluohia Street, Suite 309
Kapolei, Hawaii 96707

Dear Mr. Chang:

Subject: Farrington Highway
Replacement of Makaha Bridge No. 3 and Makaha Bridge No. 3A
Federal Aid Project No. BR-093-1(20)
District of Waianae, Island of Oahu
Department of Transportation Act Section 4(f) Consultation Notification
(49 U.S.C. 303 and 23 U.S.C. 138)

The State Department of Transportation, Highways Division (HDOT) is proposing to replace two timber bridges (Nos. 3 and 3A) along Farrington Highway, Route 93, between milepost markers number 13.95 and number 14.21 in Makaha, Waianae District, Oahu, Hawaii (see attached ***Figure 1, Project Location***). The existing timber bridges were constructed over 70 years ago in 1937. Although regularly inspected and maintained, these timber bridges do not meet current design standards.

The purpose of this project is to replace the existing wooden bridge structures with new reinforced concrete bridge structures that meet or exceed the current design standards set by the American Association of State Highway and Transportation Officials (AASHTO), Federal Highway Administration (FHWA) and HDOT. The replacement of the bridges will:

1. Replace the two structurally deficient structures

2. Reduce the potential for increased maintenance costs associated with the aging wooden bridges.

3. Accommodate the 100-year flood event by increasing the span of the bridges; and

4. Permit the installation of improvements to meet current design standards.

Construction is anticipated to begin in 2011 and last approximately 18 months. The total project cost estimate is approximately $15 million. Funding sources will be from the Federal Highway Administration (FHWA) and State Highway funds.

As part of the overall environmental documentation effort pursuant to the National Environmental Policy Act (NEPA), 23 U.S.C. 138 (Section 4(f) of the DOT Act) and the reporting requirements of 23 U.S.C. 128, we are requesting your comments to ascertain potential impacts to public parks, recreation areas, wildlife and waterfowl refuges or historic properties that may be affected by this proposed project.

In order to meet current roadway design requirements, the proposed project will call for additional areas beyond the current right-of-way to accommodate the increased bridge spans and structures necessary for embankment protection, channel widening and guardrail improvements. The proposed wider right-of-way will affect lands adjacent to the project site on both sides of the project site (*mauka* and *makai*).

Impacted properties include two parcels owned by the City & County of Honolulu (TMKs: (1) 8-4-002: 047 & (1) 8-4-001: 012) as well as three private parcels (see attached ***Exhibit 1***). The anticipated acquisition of portions of properties owned by the City & County of Honolulu is as follows:

1. TMK: (1) 8-4-002: 047 = 0.910 acres (39,813.53 sq. ft.); and

2. TMK: (1) 8-4-001: 012 = 0.283 acres (12,342.32 sq. ft.).

Our Right-of-Way Branch will be contacting the Department of Budget and Fiscal Services regarding the proposed acquisition.

We request your comments on the proposed work and its impacts to your properties. Please submit any written comments to us within 30 days of your receipt of this letter.

Should you have any questions, please contact Emilio Barroga at 692-7546, Technical Design Services Office, Design Branch, Highways Division or by email at *emilio.barroga@hawaii.gov*.

Very truly yours,

BRENNON T. MORIOKA, Ph.D., P.E.
Director of Transportation

Enclosures

EB:rd
bc: HWY-DS(EB), RMTC (Mr. Michael Okamoto)

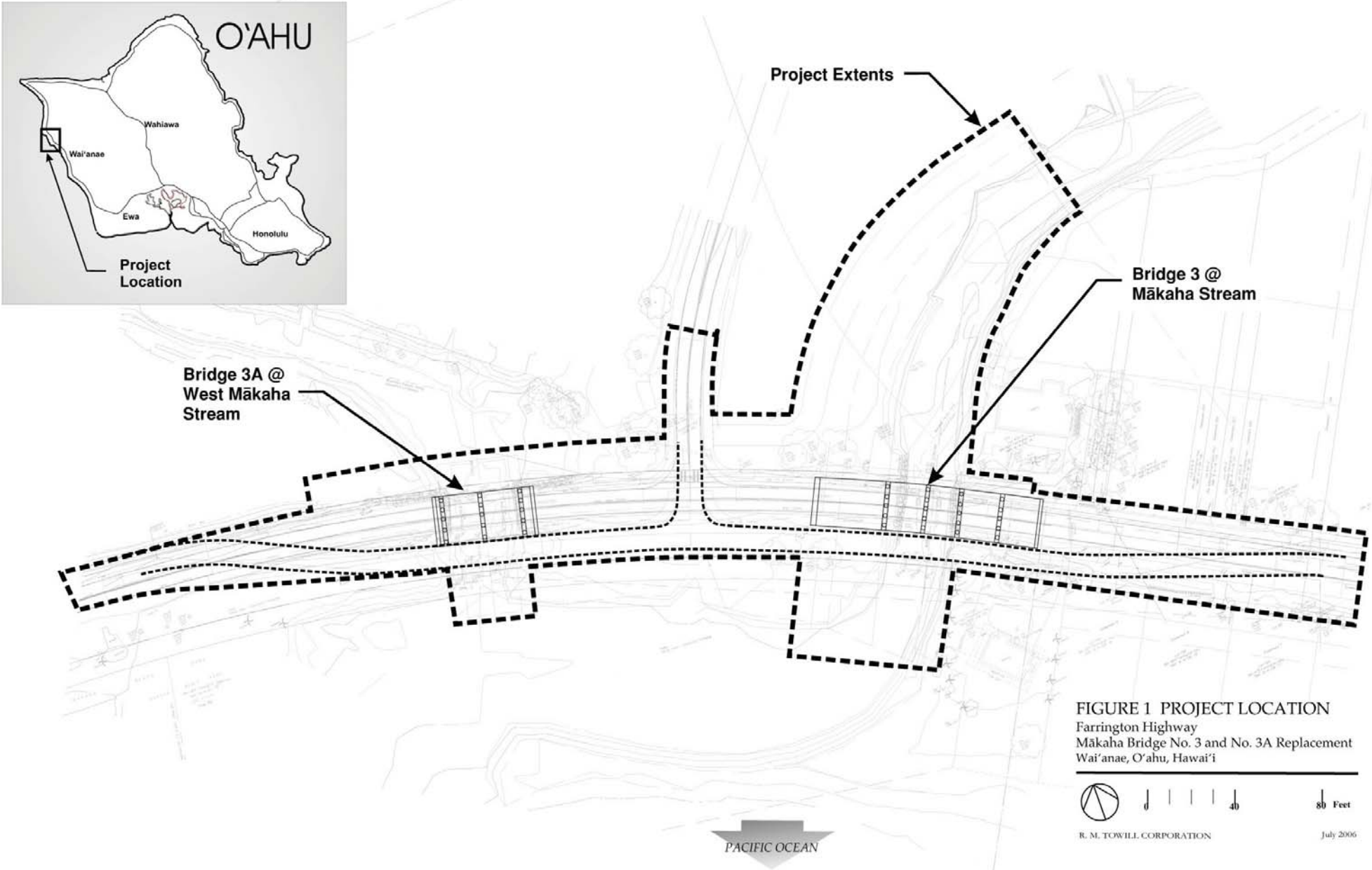
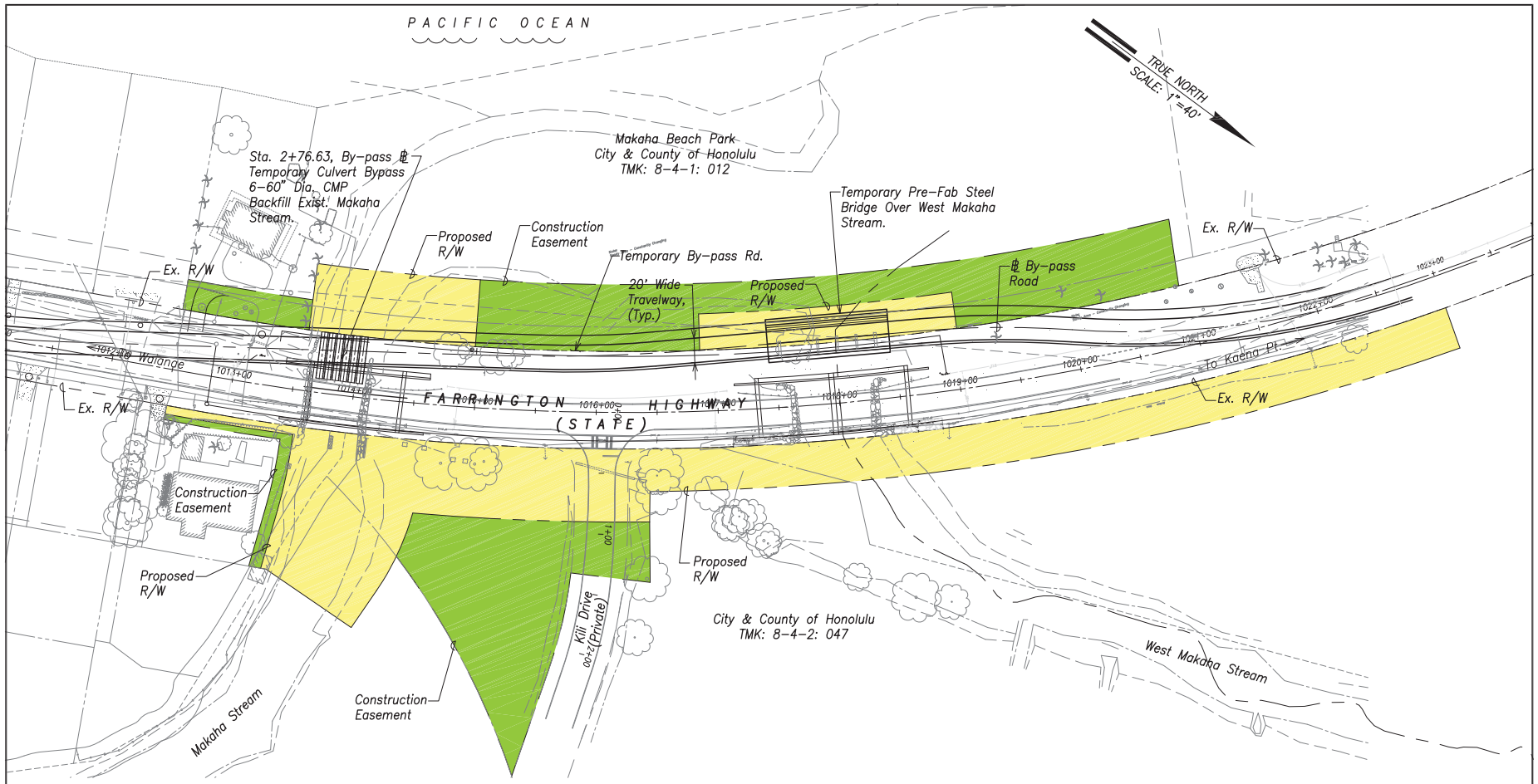


FIGURE 1 PROJECT LOCATION
Farrington Highway
Mākaha Bridge No. 3 and No. 3A Replacement
Wai'anae, O'ahu, Hawai'i



PROPOSED RIGHT-OF-WAY ACQUISITION

PROPOSED TEMPORARY CONSTRUCTION EASEMENT

Portions of City & County of Honolulu Properties to be Acquired:

TMK: 8-4-1: 012 – 12,342.32 sf (0.283 ac.)
TMK: 8-4-2: 047 – 39,654.31 sf (0.910 ac.)

Graphic Scale:

1" = 40' 40' 20' 0 40' 80'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EXHIBIT 1

PROPOSED ROW ACQUISITION

FARRINGTON HIGHWAY
Replacement of Makaha Bridge
No. 3 and Makaha Bridge 3A
F. A. Project No. BR-093-1(20)

Scale: 1" = 40' Date: August 28, 2008

DIR 1876

DEPARTMENT OF PARKS & RECREATION

CITY AND COUNTY OF HONOLULU

Kapolei Hale, 1000 Uluohia Street, Suite 309, Kapolei, Hawaii 96707
Phone: (808) 768-3003 • Fax: (808) 768-3053
Internet: www.honolulu.gov

DEPT OF TRANSPORTATION
2008 DEC 28 P 11: 44
HIGHWAYS DIVISION

MUFI HANNEMANN
MAYOR

LESTER K. C. CHANG
DIRECTOR

GAIL Y. HARAGUCHI
DEPUTY DIRECTOR

DIRECTOR'S OFFICE
DEPT. OF
TRANSPORTATION
2008 DEC 26 A 9: 56

December 22, 2008

Brennon T. Morioka, Ph.D., P.E., Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Morioka:

Subject: Farrington Highway
Replacement of Makaha Bridge No. 3 and Makaha Bridge No. 3A
Federal Aid Project no. BR-093-1(20)
District of Waianae, Island of Oahu
Department of Transportation Act Section 4(f) Consultation Notification
(49 U.S.C. 303 and 23 U.S.C. 138)

The Department of Parks and Recreation has reviewed your request for the above mentioned project and does not feel that it will have a drastic impact on the park.

Should you need further assistance, please contact Mr. Dexter Liu, Leeward Oahu District Manager, at 675-6030.

Sincerely,

Lester K. C. Chang
Director

LKCC:kt
(285930)

DEPARTMENT OF PARKS & RECREATION

CITY AND COUNTY OF HONOLULU

1000 Uluohia Street, Suite 309, Kapolei, Hawaii 96707
Phone: (808) 768-3003 • Fax: (808) 768-3053
Website: www.honolulu.gov

MUFI HANNEMANN
MAYOR

LESTER K. C. CHANG
DIRECTOR

RICHARD HARU
DEPUTY DIRECTOR

March 24, 2010

Mr. Brennon T. Morioka, Ph.D., P.E., Director
State Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Morioka:

Subject: Farrington Highway
Replacement of Mākaha Bridge No. 3 and Mākaha Bridge No. 3A
Federal Aid Project No.BR-093-1(20)
District Of Waianae, Island of Oahu

The Department of Parks and Recreation concurs with the finding of *De Minimis* impact on the Section 4(f) resource of Mākaha Beach Park as a result of the project.

Please contact Mr. Dexter Liu, Leeward Oahu District Manager, at 675-6030 should you need further assistance.

Sincerely,

LESTER K.C. CHANG
Director

LKCC:dl
(357192)

Cc: Michael Okamoto, R.M. Towill Corporation
Brian Takeda, R.M. Towill Corporation

Section 7 Consultation with the Fish & Wildlife Service

U.S. Department
of Transportation
**Federal Highway
Administration**

Hawaii Division
Box 50206
300 Ala Moana Boulevard, Room 3-306
Honolulu, HI 96850

August 9, 2006

In Reply Refer To:
HEC-HI

Mr. Patrick Leaonard
U.S. Fish and Wildlife Service
Pacific Island Ecoregion
Box 50088
300 Ala Moana Boulevard, Room 3-122
Honolulu, HI 96850

Dear Mr. Leonard:

Subject: Consultation pursuant to Section 7 of the Endangered Species Act for
Farrington Highway, Makaha Bridge No. 3 and No. 3A Replacement
District of Wai'anae, O'ahu, Hawai'i
Federal Aid Project No. BR-093-1(20)

The Federal Highways Administration (FHWA) is providing funding to the State of Hawai'i, Department of Transportation – Highways Division (HDOT), to replace two timber bridges (Nos. 3 and 3A) along Farrington Highway, Route 93, between milepost markers number 13.95 and number 14.21 in Makaha, Wai'anae District, O'ahu, Hawai'i. See attached Figure 1, Project Location.

It is our preliminary determination that this project is not likely to adversely affect listed species or critical habitat. However, in accordance with Section 7 of the Endangered Species Act, we request your comments on the proposed work and identification of any listed or proposed species or designated or proposed critical habitats that may be present in the action area described below.

The proposed project will require: construction of an approximately 1,200 foot long detour road; demolition of the existing wooden bridge structures; construction of temporary bridges; construction of the new bridges, channel slope protection, and bridge appurtenances; relocation of utilities; restoration of the site; and, demobilization of construction equipment and materials. The action area will extend from 160 feet north of Makaha Bridge No. 3 A to 160 feet south of Makaha Bridge No. 3. It will also include approximately 150 foot long segment of Kili Drive that intersects Farrington Highway. The total action area will be approximately 3.8 acres.

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

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The purpose of this project is to replace two existing wooden bridge structures with two new reinforced concrete bridge structures that meet or exceed the current design standards set by the American Association of State Highway and Transportation Officials (AASHTO), FHWA and HDOT. The replacement bridges will include one 12 foot wide lane and a 10 foot shoulder in each direction. The wide shoulder is intended to accommodate pedestrians and bicyclists. Construction is scheduled to begin in 2008 and is expected to last approximately 18 months.

In support of this request, copies of the following studies conducted for this project are attached for your review:

- *Water Quality and Biological Reconnaissance Surveys of Makaha Stream, West Makaha Stream, and Associated Wetlands, on the Leeward Coast of O'ahu*, AECOS, Inc., 2004
- *Avifaunal and Feral Mammal Field Survey of Lands Involved in the Proposed Replacement of Makaha Bridge 3 and 3A at Makaha, Oahu, Hawaii*, Phillip L. Bruner, 2004
- *Botanical Resources Assessment Study, Replacement of Makaha Bridge No. 3 and 3A, Farrington Highway, Wai'anae District, O'ahu.* Winona P. Char, 2004

Thank you in advance for your consideration of this request. Please submit any written comments to us within 30 days of your receipt of this letter.

If there are any questions or comments please do not hesitate to contact me at (808)541-2700 (x311), or email richelle.takara@fhwa.dot.gov.

Sincerely yours,

Richelle M. Takara, P.E.
Transportation Engineer

Cc: SDOT-Highways
R.M. Towill Corporation

Enclosure

RT_

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawai'i 96850

In Reply Refer To:
1-2-2006-I-666

SEP 1 1 2006

Ms. Richelle Takara, P.E
U.S. Department of Transportation
Federal Highway Administration
300 Ala Moana Blvd., Room 3-306
Honolulu, Hawaii 96850

Subject: Informal Section 7 for the Makaha Bridge Replacement Project, Oahu

Dear Ms. Takara:

We are in receipt of your letter dated August 9, 2006, requesting our concurrence that the proposed replacement of Makaha Bridge along Farrington Highway, Route 93 is not likely to adversely affect listed species or critical habitat. The proposed project will require construction of a 1,200-foot long detour road, demolition of the existing wooden bridge structures, construction of temporary bridges and new bridges, channel slope protection, and bridge appurtenances, relocation of utilities, restoration of the site, and demolition of construction equipment and materials.

We reviewed the biological surveys you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Program and we concur with your determination pursuant to section 7 of the ESA that this project will not adversely affect threatened or endangered species

We appreciate the opportunity to provide comments on the proposed project. If you have questions regarding these comments, please contact Fish and Wildlife Biologist Charmian Dang (phone: 808/792-9400; fax: 808/792-9581).

Sincerely,

Patrick Leonard
Field Supervisor

TAKE PRIDE® IN AMERICA

CHAPTER 13
REFERENCES

The following references are listed in alphabetical order.

Acrow Corporation, 2000. Acrow® Panel Bridge, 700XS Bridge Technical Handbook.

AECOS, September 2004. Water Quality and Biological Reconnaissance Surveys of Makaha Stream, West Makaha Stream, and Associated Wetlands, on the Leeward coast of O‘ahu. AECOS Publication No. 1065.

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Appendix A

Botanical Resources Assessment Study

Char and Associates

October 2004

BOTANICAL RESOURCES ASSESSMENT STUDY
REPLACEMENT OF MAKAHA BRIDGE NO. 3 AND NO. 3A
FARRINGTON HIGHWAY, WAI'ANAE DISTRICT, O'AHU

by

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Prepared for: **R.M. TOWILL CORPORATION**

October 2004

BOTANICAL RESOURCES ASSESSMENT STUDY
REPLACEMENT OF MAKAHA BRIDGE NO. 3 AND NO. 3A
FARRINGTON HIGHWAY, WAI'ANAE DISTRICT, O'AHU

INTRODUCTION

The project is located on Farrington Highway, between mile post 13.95 and mile post 14.21. Farrington Highway is a 2-lane principal arterial with 11-foot lanes and 3-foot paved shoulders. Both bridges support two 11-foot lanes with a 2-foot shoulder on the makai side of the bridge and a 1-foot shoulder on the mauka side. A 4-foot sidewalk is located on the mauka side of both bridges. The bridges are made of wood and were built in 1937. The existing bridges do not meet current design standards.

The proposed project will replace the existing wooden bridge structures with new bridge structures that meet or exceed current design standards set by Federal Highways and the State Department of Transportation. A temporary detour road and temporary detour bridge structures will be needed.

Field studies to assess the botanical resources within the project extent were conducted on 04 October 2004 by a team of two botanists. The primary objectives of the field studies were to:

1) provide a general description of the vegetation;
2) search for threatened and endangered species as well as species of concern; and
3) identify areas of potential environmental problems or concerns and propose appropriate mitigation measures.

DESCRIPTION OF THE VEGETATION

The plant names used in this report follow Wagner et al. (1990) and Wagner and Herbst (1999). The few recent name changes are those reported in the Hawaii Biological Survey series (Evenhuis and Eldredge, eds., 1999-2002).

A detailed topographic map of the project site (1" = 40') was examined prior to the field studies. The larger trees and hedge plantings are mapped and most are identified by common name by the survey engineer.

Basically, three vegetation types or plant communities can be recognized within the project extent. Maintained areas include the residential lots, Makaha Beach Park, and the highway right-of-way. Undeveloped areas are covered by stands of kiawe trees (Prosopis pallida) and dense mats of grass. Stream areas support a mixture of weedy species or mats of pickleweed (Batis maritima).

Maintained Areas

These areas are periodically maintained and support various landscape plantings. Residential lots border the highway on the Wai'anae townside of Makaha Bridge No. 3. Most of the plantings in the area to be affected by the project are identified on the detailed topographic map. These include a number of coconut trees (Cocos nucifera) as well as several other palm species, Chinese banyan (Ficus microcarpa), and Bougainvillea hedges. On the Makaha Beach Park parcel there are plantings of kamani (Calophyllum inophyllum) and coconut trees.

Along the highway right-of-way, the vegetation is periodically bladed. It consists primarily of low mats of Bermuda grass (Cynodon dactylon) and Sida ciliaris and a few clumps of khaki weed (Alternanthera repens), wiregrass (Eleusine indica), and Calyptocarpus vialis.

Kiawe and Grass Scrub

This vegetation type covers the most area within the project extent, where it occurs on both sides of the highway between Makaha Bridge No. 3 and Makaha Bridge No. 3A.

Kiawe tree cover is dense on the mauka side of the highway by Kili Drive. In this area, it forms a forest 18 to 25 feet tall with scattered koa haole thickets (Leucaena leucocephala), 3 to 7 feet tall. A dense cover of Guinea grass (Panicum maximum) and buffelgrass (Cenchrus ciliaris) is found between the kiawe trees. Where the grass cover is somewhat patchy, a few plants of lantana (Lantana camara), virgate mimosa (Desmanthus pernambucanus), and wild basil (Ocimum basilicum) are occasionally observed.

Makai of the highway, the kiawe trees form a narrow band with the trees more widely spaced apart. Buffelgrass and green panicgrass (Panicum maximum var. trichoglume) form dense mats, 2 to 3 feet tall, between the trees. A few small koa haole shrubs and scattered plants of golden crown-beard (Verbesina encelioides) are also found here. A broad, sandy beach with a few sprawling mats of the native beach morning glory or pohuehue (Ipomoea pes-caprae) is found seaward of the kiawe trees.

Stream Vegetation

Makaha Bridge No. 3 crosses an intermittent streambed. The dry streambed is composed of soil and waterworn cobbles. Robust clumps of tall Guinea grass, 7 to 8 feet high, are abundant. Scattered patches of weedy, mostly annual species are occasional and include fuzzy rattlepod (Crotalaria incana), spiny amaranth (Amaranthus spinosus), field bindweed (Ipomoea alba), castorbean (Ricinus communis), coffee senna (Senna occidentalis), Bermuda grass, buffelgrass, hairy spurge (Chamaesyce hirta), and Natal redtop grass (Melinis repens). 'Uhaloa (Waltheria indica), a small, native shrub, is common.

Makaha Bridge No. 3A crosses an open body of water (West Makaha Stream). Pickleweed (Batis maritima) lines a portion of the stream along the water's edge and continues up along the banks where it intermixes with buffelgrass and Guinea grass.

DISCUSSION

The vegetation within the project site is composed almost exclusively of introduced or alien plants such as kiawe, buffelgrass, Guinea grass, and koa haole. Introduced species are all those plants which were brought to the islands by humans, intentionally or accidentally, after Western contact, that is, Cook's arrival in the Hawaiian Islands in 1778. Only three native species were observed; these are the 'uhaloa, pohuehue, and 'ilima (Sida fallax). These three species are all indigenous, that is, they are native to the Hawaiian Islands and elsewhere.

No threatened and endangered species or species of concern (U.S. Fish and Wildlife Service 1999a, 1999b; Wagner et al. 1999) occur within the project site. Nor are there any sensitive native plant-dominated communities within the study site.

All of the lands within the project extent have been disturbed at some time in the past. Old railroad abutments and footings are present on the makai side of the highway. Today, residential lots and a beach park border a portion of the highway.

Given these findings, the proposed replacement of the two bridges and construction of a temporary detour road and detour bridges are not expected to have a significant negative impact on the botanical resources. There are no botanical reasons to impose any restrictions, conditions, or impediments to the this project.

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Appendix B

Water Quality and Biological Reconnaissance Surveys of the Mākaha Stream, West Mākaha Stream, and Associated Wetlands on the Leeward Coast of O'ahu

AECOS, Inc.

September 2004

Water quality and biological reconnaissance surveys of Mākaha Stream, West Mākaha Stream, and associated wetlands, on the leeward coast of O`ahu[1]

September 8, 2004 *AECOS* No. 1065

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Introduction

The Hawaii Department of Transportation proposes to replace Mākaha Bridge 3 and Mākaha Bridge 3A on Farrington Highway in Mākaha, on the leeward coast of O`ahu. On June 24, 2004, two *AECOS* biologists conducted a reconnaissance survey of Mākaha Stream and West Mākaha Stream where the streams cross under Farrington Highway (Figure 1). The purpose of the survey was to ascertain biological resources found around the bridges. This report presents findings of that survey.

General Site Description

Mākaha Stream (sometimes called South Mākaha Stream; State Perennial Stream ID No. 3-5-07) is an interrupted stream that originates on the western slope of Wai`anae mountain deep in Mākaha Valley. Only the upper reach of the central tributary is perennial. Mākaha Stream, flows under Bridge 3 on Farrington Highway terminating behind the sand berm at Mākaha Beach Park.

West Mākaha Stream (sometimes called North Mākaha Stream) arises on the south slope of Pu`ukea`au and eventually flows under Bridge 3A. It is a relatively short intermittent stream that terminates in a *muliwai* (a coastal estuarine pond) some 300 m (100 ft) or so long (see Figure 2b).

[1] This report was prepared for use by R. M. Towill Corporation for an Environmental Assessment to replace the bridges along Farrington Highway in Makaha. The EA will become part of the public record.

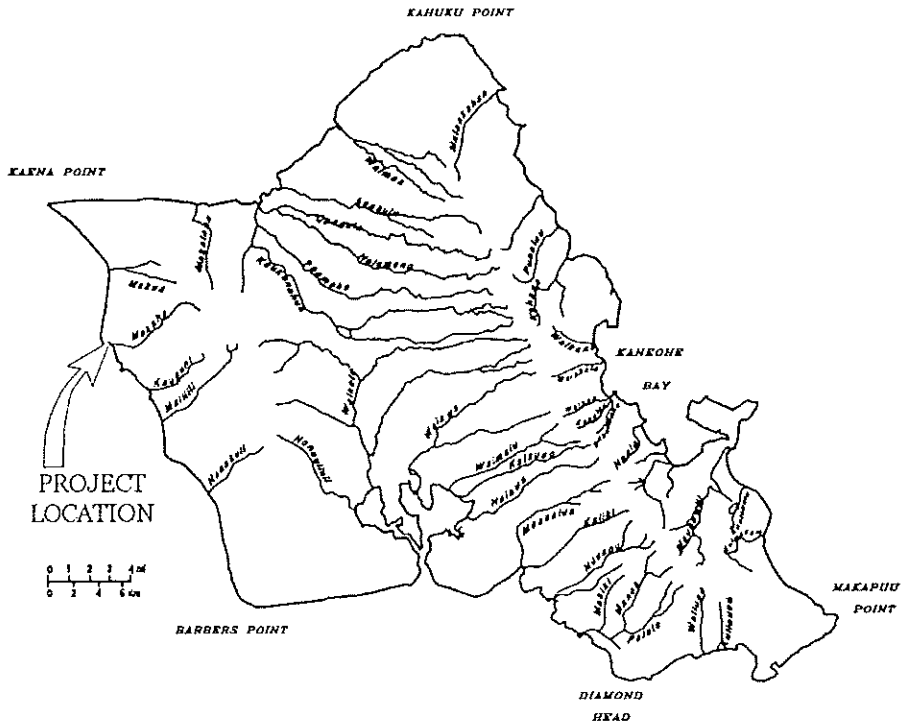

Figure 1. Project location on the Island of O`ahu.

Neither stream has a permanent above-ground connection to the ocean. On the *makai* side of Farrington Highway, the two dry streambeds connect to each other, but a sand berm at Mākaha Beach Park usually blocks them from the ocean (Figure 2). Water only rarely flows in this area after heavy rains and likely even more rarely breaks through the berm and enters the ocean. Heavy rains on O`ahu in February 2004 did result in the streams breaking through to the ocean.

On the *mauka* side of Farrington Highway, the lower reach of West Mākaha Stream is a salt marsh wetland (Figure 2b). In the wetland, the *muliwai* is hypersaline and surrounded by a nearly monospecific stand of pickleweed (*Batis maritima*). Some kiawe (*Prosopis pallida*) and koa-haole (*Leucaena leucocephala*) trees are scattered about the wetland and these trees transition to a dominant vegetation of the same two species outside of the wetland boundaries. The *muliwai* is about 1 m (~3 ft) deep throughout the wetland and the bed consists of mud bottom. The hyperhaline water indicates the wetland is formed and maintained by salt water seepage through the coastal sand, and is then influenced by evaporation.

The lower reach of Mākaha Stream was dry at the time of our survey and is likely typically dry except during freshets. The dry bed was heavily vegetated with ruderal plants, although in years with less rainfall, this might not be the case. Near the

Figure 2a (upper). Dry *muliwai* and beach berm at mouth of Mäkaha Stream.
Figure 2b (lower). *Muliwai* of West Mäkaha Stream looking upstream from Farrington Highway Bridge.

bridge, the bed consists of soft sand. At the time of our survey, there was an extensive jam of broken tree branches beneath the bridge. Just *makai* of the bridges, the streambed consists of sand and gravel, and up to 305 m (1000 ft) upstream from the bridge, the streambed is mixed sand, gravel, cobble, and boulder. Approximately 244 m (800 ft) upstream from the bridge, the stream bed becomes more incised and the right bank shows signs of erosion (Figure 3a). Layers of boulder and cobble, gray silt, and coral rubble are apparent in the eroded bank. About 305 m (1000 ft) upstream from the bridge, the streambed is incised (about 4 - 5 m deep) and narrow (about 10 - 15 m wide). The banks and riparian zone are dominated by koa-haole. It was apparent that the stream recently experienced heavy flows by the evidence of flood vegetation, or rack lines, up to 1 m (3.3 ft) high in the vegetation.

A US Geological Survey (USGS) gage station (No. 16211600) is located on upper Mākaha Stream at 939 ft elevation. The annual mean stream flow recorded for this station is 1.72 cfs (1960 - 2001) and a peak stream flow of over 2500 cfs was recorded in 1997 (USGS, 2004).

Vegetation

The vegetation present along the lower reach of the two streams is very different. The banks of the stream and muliwai surrounding West Mākaha Stream are blanketed by herbaceous pickleweed. Pickelweed is an obligate wetland plant that occurs only in salty, coastal wetlands and tidal estuaries; its presence roughly defines the boundary of this wetland. The wetland extends to about 150 m (500 ft) upstream from the bridge (Figure 3b). At this point, the streambed is normally dry and kiawe (*Prosopis pallida*) trees dominate riparian zone. Smaller *koa-haole* (*Leucaena leucocephala*) trees are interspersed among the kiawe, with lion's ear (*Leonotis nepetifolia*) and tree tobacco (*Nicotiana glauca*) uncommon across the area.

At the time of our survey, the streambed of Mākaha Stream was heavily vegetated with ruderal plants. Small *kiawe* trees, elephant grass (*Pennisetum purpureum*), castor bean (*Ricinus communis*), spiny amaranth (*Amaranthus spinosus*), *`uhaloa* (*Waltheria indica*), rattlepod (*Crotalaria quinquefolia*), *koa-haole*, moonflower (*Ipomea alba*), lion's ear, and ivy gourd (*Coccinia grandis*) are common in and along the streambed near the bridge. Approximately 305 m (1000 ft) upstream from the bridge, the banks and floodplain are dominated by koa-haole trees.

Throughout the area, the following additional plant species were observed: Spanish needle (*Bidens alba*), cherry tomato (*Lycopersicon esculentum*), tree tobacco, amaranth (*Amaranthus viridis*), monkeypod (*Samanea saman*) seedlings, Christmas berry (*Schinus terebinthifolius*), cow pea (*Macroptilium lathyroides*), and day flower (*Commelina diffusa*).

Figure 3a (upper). Eroded right bank of Mäkaha Stream approximately 800 m upstream from highway.
Figure 3b (lower). Upstream end of *muliwai* of West Mäkaha Stream surrounded by pickleweed (*Batis*).

Coastal plants observed *makai* of the bridges include beach morning glory or *pōhuehue* (*Ipomea pes-caprae*) and seashore rushgrass or *`aki`aki* (*Sporobolus virginicus*). None of these plant species observed in the streams is listed as threatened or endangered, or otherwise would be considered rare or special by the State or Federal governments (DLNR, 1998; Federal Register, 1999a, b, 2001). Indeed, all are alien species, with the exception of *`uhaloa*, *pōhuehue*, and *`aki`aki*.

Water Quality

On June 24, 2004, *AECOS* biologists collected water samples from two sites near the Farrington Highway Bridge 3A in the *muliwai* of West Mākaha Stream. Station 1 was located immediately upstream from the bridge and Station 2 was located approximately 150 m (500 ft) upstream from the bridge at the upper extent of water in the *muliwai*. Some parameters were measured by field meter and others in water samples collected in appropriate containers and taken to the AECOS Laboratory in Kane`ohe (laboratory Log No. 18928). In addition, temperature, pH, and salinity were measured in the pool immediately downstream of the bridge ("Bridge"). Table 1 lists field instruments and analytical methods used with these samples.

Table 1. Analytical methods and instruments used for the June 24, 2004 water quality sampling of West Mākaha Stream, O`ahu.

Analysis	Method	Reference	Instrument
Ammonia	EPA 350M	EPA (1993)	Technicon AutoAnalyzer II
Chlorophyll	10200H	Standard Methods 18th Edition (1992)	Turner Model 112 fluorometer
Dissolved Oxygen	EPA 360.1	EPA (1979)	YSI Model 85 DO meter
Nitrate + Nitrite	EPA 353.2	EPA (1993)	Technicon AutoAnalyzer II
Oil & grease	EPA 413.1	EPA (1979)	Perkin Elmer 1430 Infrared Spectophotometer
pH	EPA 150.1	EPA (1979)	Orion SA 250 pH meter
Salinity	EPA 120.1	EPA (1979)	Handheld refractometer
Temperature	thermister calibrated to NBS cert. thermometer (EPA 170.1)	EPA (1979)	YSI Model 85 DO meter
Total Nitrogen	persulfate digestion/EPA 353.2M	D'Elia et al. (1977) / EPA (1993)	Technicon AutoAnalyzer II
Total	persulfate	Koroleff in	Technicon

Analysis	Method	Reference	Instrument
Phosphorus	digestion/EPA 365.1	Grasshoff et al. (1986)/EPA (1993)	AutoAnalyzer II
Total Suspended Solids	Method 2540D (EPA 160.2)	Standard Methods 18th Edition (1992); EPA (1979)	Mettler H31 balance
Turbidity	Method 2130B (EPA 180.1)	Standard Methods 18th Edition (1992); EPA (1993)	Hach 2100P Turbidimeter

D'Elia, C.F., P.A. Stendler, & N. Corwin. 1977. *Limnol. Oceanogr.* 22(4): 760-764.
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The water quality results for the morning of June 24, 2004 correspond in time with an ebbing tide: there was a predicted high tide of 0.8 ft (lower high water or LHW) at 10:28 and a predicted low tide of 0.7 ft (higher low water or HLW) at 14:26 (NOAA, 2004).

The primary purpose of the June 24, 2004 water quality measurements is to characterize the existing aquatic environment, not to set baseline values or determine compliance with Hawaii's Water Quality Standards. In fact, it is not obvious to which water quality criteria these data should be compared. There are no criteria specific to wetlands, which this water body could be considered. And, although the water body could also be considered estuarine, the waters are hyperhaline not brackish and the connection to the ocean may be less frequent than seasonal. The State criteria for estuaries are included in Table 2 merely as a starting point for comparison (HDOH, 2000).

The analyses of the water in the *muliwai* of West Mākaha Stream on June 24, 2004 (Table 3) show normal pH values, but high temperatures and salinity levels. The percent saturation of dissolved oxygen was low at the upstream end of the wetland at Station 2 and in the pool just downstream from the bridge. Just upstream from the bridge, at Station 1, the water was supersaturated with oxygen. Turbidity levels and TSS concentrations were high throughout the wetland. Inorganic nitrogen (nitrate+nitrate) concentrations were relatively low, but organic nitrogen (total nitrogen) and total phosphorus levels were elevated.

Table 2. State of Hawaii geometric mean criteria for estuaries (HAR §11-54-05.1(d)(1)).

Total Nitrogen (µg N/l)	Ammonia Nitrogen (µg NH_4-N/l)	Nitrate + Nitrite Nitrogen (µg N/l)	Total Phosphorus (µg P/l)	Chlorophyll α (µg/l)	Turbidity (NTU)
200.00	6.00	8.00	25.0	2.00	1.5

- pH - not vary more than 0.5 units from ambient and not be lower than 7.0 nor higher than 8.6.
- Dissolved oxygen - not less than 75% saturation.
- Temperature - not vary more than 1 °C from ambient.

Table 3. Water quality characteristics of West Mākaha Stream from samples taken on June 24, 2004.

	Time	Temp. (°C)	DO (mg/l)	DO % sat	pH (pH units)	Salinity (ppt)	Turbidity (ntu)
Station 1	1110	28.9	--	--	8.09	40	--
"	1230	28.3	6.58	106	8.20	40	14.4
Station 2	1145	28.6	3.79	61	8.11	40	9.77
Bridge	1225	27.7	3.60	57	8.03	40	--

	TSS (mg/l)	Ammonia (µg N/l)	Nitrate + nitrite (µg N/l)	Total N (µg N/l)	Total P (µg P/l)	Chl α (µg/L)	Oil & grease (µg/L)
Station 1	35.0	630	81	2480	208	62.1	1
"	--	--	--	--	--	--	--
Station 2	44.7	676	85	2650	204	--	<1
Bridge	--	--	--	--	--	--	--

At 40 ppt, the water was uniformly hyperhaline (meaning above seawater salinity of ~34 ppt) throughout the wetland, indicating salt water seepage is the probable source of the water. At Station 2 and downstream from the bridge, the water was not well saturated with dissolved oxygen (61% and 57%), falling short of the percent saturation of dissolved oxygen criterion established by the State Department of Health (> 75%) (HDOH, 2000). The high dissolved oxygen concentration at Station 1 (106%) likely represents high photosynthetic activity due to high insolation and temperature levels. Values recorded for turbidity (14.4 and 9.77 ntu) and TSS concentrations (35.0 and 44.7 mg/l) were high. The nutrient concentrations were relatively uniform throughout the wetland. Nitrate+nitrate levels were relatively low (81 and 85 µg/l), but ammonia (630 and 676 µg/l) and total nitrogen (2480 and 2650 µg/l) levels were high. Total phosphorus levels were also high (208 and 204 µg/l).

A low level of oil and grease was detected at Station 1 near the bridge. This is in violation of Hawaii's Water Quality Standards Basic Water Quality Criteria (11-54-04(a)(2)) that state waters shall be free of oil and grease (HDOH, 2000).

Aquatic Biota

Observations during this survey were limited to the vicinity of the Farrington Highway bridges and short distances upstream and downstream. No aquatic animals were observed in the dry streambed of Mākaha Stream. Our brief survey revealed primarily introduced aquatic species in the estuarine reach of West Mākaha Stream (Table 4). Tilapia (*Sarotherodon melanotheron*) were thriving in the hyperhaline waters and we observed numerous tilapia nests in the mud bottom of the *muliwai* throughout the wetland. We observed a school of large (>10 cm) mullet (*Mugil cephalus*) near the *mauka* end of the wetland. We also observed two indigenous dragonflies (*Anax junius* and *Pantala flavescens*), an introduced dragonfly (*Crocothemis servilia*), and an introduced damselfly (*Ischnura ramburi*).

Englund et. al. (2000) found a high percentage (38%) of native insects in the lowest reach of West Mākaha Stream, higher than an average of 25% for O`ahu streams. (In his report, Englund referred to the pickleweed wetland as Mākaha Stream, called West Mākaha Stream in this report). These insects were mainly marine shore and beach flies and also native dragonflies. Polhemus (1995), as reported in Englund et. al. (2000), found 80-89% native aquatic insects in the upper reaches of Mākaha Stream.

The Hawaii Stream Assessment ranks Mākaha Stream as "moderate" for aquatic resources and "substantial" for cultural and recreational resources (Hawaii Cooperative Park Service Unit, 1990).

The wetland serve as breeding and foraging habitat for the Hawaiian stilt (*Himantopus mexicanus knudseni*), although the quality of the habitat is compromised by the heavy growth of pickleweed covering open foraging areas. We did not observe any birds during our survey, but Englund et. al. (2000) observed Hawaiian stilts foraging at the West Mākaha Stream mouth and wetlands area. The Hawaiian stilt is listed as an endangered species (DLNR, 1998; Federal register, 1999a, b, and 2001).

Discussion

Mākaha Stream *muliwai* is clearly a jurisdictional wetland. The boundary of the wetland is marked approximately by the edge of the growth of pickleweed (*Batis maritima*). If a temporary road and bridge is to be built, consideration must be given to locating it outside of the boundary of the wetland.

Table 4. Checklist of aquatic biota observed in the estuarine reach of West Mākaha Stream.

Species	Common name	Status	QC Code	Abundance
	INVERTEBRATES			
ARTHROPODA, INSECTA	(insects)			
DIPTERA, CHRYOMYIDAE				
Aphaniosoma minuta Hardy		**end**	01	P
DIPTERA, DOLICHOPODIDAE				
Dolichopus exsul Aldrich	long-legged fly	nat	01	P
DIPTERA, EPHYDRIDAE				
Atissa oahuensis Cresson		**end**	01	P
Ceropsilopa coquilletti Cresson	shore fly	nat	01	P
Classiopella uncinata Hendel	shore fly	nat	01	P
Ephydra gracilis Packard	brine fly	nat	01	P
Ephydra milbrae Jones	brine fly	nat	01	P
Hecamede granifera (Thomson)	shore fly	nat	01	P
Psilopa girschneri Von Roeder	shore fly	nat	01	P
Scatella sexnotata Cresson	shore fly	**ind**	01	P
DIPTERA, TETHINIDAE				
Dasyrhinoessa insularis (Aldrich)		**ind?**	01	P
Dasyrhinoessa sp.	[small orange]	**new?**	01	P
Tethina variseta (Melander)		nat	01	P
ODONTA, COENAGRIONIDAE	damselfly			
Ischnura ramburi (Selys-Longchamps)	Rambur's forktail	nat	10	U
ODONTA, LIBULELLIDAE	dragonfly			
Crocothemis servilia Drury	scarlet skimmer	nat	10	U
Pantala flavescens (Fabr.)	globe skimmer	**ind**	10	U
ODONTA, AESCHNIDAE				
Anax junius (Drury)	green darner	**ind**	10	U
	VERTEBRATES			
VERTEBRATA, PISCES	(fishes)			
CICHLIDAE				
Sarotherodon melanotheron Ruppell	black chin tilapia	nat	10	A
KUHLIA				
Kuhlia sandvicensis Steindachner	*aholehole*	**end**	01	O
MUGILIDAE				
Mugil cephalus L.	striped mullet	**ind**	10	U
POECILIIDAE				
Poecilia mexicana (Steindachner)	Mexican molly	nat	10	A

KEY TO SYMBOLS USED IN TABLE 4:

Status:

nat – naturalized. An introduced or exotic species.

ind – indigenous. A native species also found elsewhere in the Pacific.

end – endemic. A native species found only in the Hawaiian Islands.

QC Code:

01 – Reported previously in Englund (2000).

10 – Observed in the field by aquatic biologist on June 24, 2004.

Abundance categories:

R – Rare – only one or two individuals seen.

U – Uncommon – several to a dozen individuals observed.

O – Occasional – regularly encountered, but in small numbers.

Table 4 (continued)

C – Common - Seen everywhere, although generally not in large numbers.
A – Abundant – found in large numbers and widely distributed.
P – Present – noted as occurring, but quantitative information lacking.

This project is not anticipated to have an adverse impact on the flora or fauna of Mākaha Stream or West Mākaha Stream. The only rare, threatened, or endangered species reported from the project area is the federally listed Hawaiian stilt. While the wetland and stream mouths are only of marginal resource value for this species, its use of the area must be considered in devising BMPs for the construction phase.

Mākaha Beach Park is a popular recreation area for swimming and surfing. It will be important that the quality of the water in the construction site be maintained and not permitted to impact on the nearshore environment as a result of project activities. Because these streams are rarely connected to the ocean, construction impacts to the nearshore waters are likely to be negligible. However, because the water in West Mākaha Stream is essentially an isolated waterbody, any pollutants discharged into the water during construction could remain in the system.

This construction project provides the opportunity to replace some of the non-native vegetation around the bridges with more desirable strand trees and shrubs such as *naupaka* (*Scaevola sericea*), *kamani* (*Calophyllum inophyllum*), *hala* (*Pandanus tectorius*), and *niu* or coconut.

The new bridge designs should consider enlarging the openings under the bridge to prevent "log jams," which can result in erosion elsewhere along the streams. Elimination of log jams will likely also enhance habitat and passage for some native animals such as *`opae* and *`o`opu* and minimize the preferred habitat for tilapia.

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Appendix C

Avifaunal and Feral Mammal Field Survey of Lands Involved in the Proposed Replacement of Mākaha Bridge 3 and 3A at Mākaha, O'ahu, Hawai'i

Phil Bruner, Ph.D.

September 2004

AVIFAUNAL AND FERAL MAMMAL FIELD SURVEY OF LANDS INVOLVED IN THE PROPOSED REPLACEMENT OF MAKAHA BRIDGE 3 AND 3A AT MAKAHA, OAHU, HAWAII

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INTRODUCTION

This report presents the findings of a two day (22, 23 September 2004) field survey of lands involved in the proposed replacement of Makaha Bridge 3 and 3A at Makaha, Oahu. References to pertinent published and unpublished sources are also included in order to provide a broader perspective of the birds and mammals known from this region of Oahu. The goals of the field survey were to:

1- Document the species of birds and mammals presently found in the area of the proposed bridge replacement project.

2- Evaluate the value of the habitats at the project site with regards to their actual or potential use by native waterbirds and migratory birds.

DESCRIPTION OF THE PROJECT SITE

Makaha Bridges 3 and 3A are located near Makaha Beach Park. The streams crossed by these bridges are small and intermittent. No water was present in Makaha stream at Makaha bridge 3. West Makaha stream at Makaha bridge 3A contained small stagnant pools with Talapia fish. The shoreline vegetation along these streams was composed of alien plants, predominantly Pickleweed (*Batis maritima*), Kiawe (*Prosopis pallida*) along with a mixture of weeds and grasses. During periods of prolonged and significant rainfall these streams likely contain flashflood waters.

FIELD SURVEY PROTOCOLS

The field survey was conducted on foot from makai of the bridges to at least 1000 feet mauka of the bridges. Data were obtained during the early morning hours when birds are most active and detectable. Visual sightings and vocalizations were used to identify all birds recorded over the two survey days. Visual sightings of mammals along with tracks were used to identify all the mammals recorded on the survey.

Scientific and common names used in this report follow Pyle (2002), Honacki et al. (1982) and Walther (2004). These sources employ names used in the current scientific literature.

RESULTS OF THE FIELD SURVEY

Native Birds:

The only native species recorded on the survey was the Black-crowned Night-Heron (*Nycticorax nycticorax*). This native bird is the only species of native waterbird that is not listed as threatened or endangered. They forage in a wide variety of wetland habitats (Hawaii Audubon Society 1997). Two immature night herons were seen perched in a Kiawe tree near West Makaha Stream mauka of Makaha Bridge 3A. The stream contained pools of standing water containing Talapia fish. Night herons feed on fish as well as a wide array of other aquatic organisms. Night heron tracks were seen in the mud

both above and below Makaha Bridge 3A. Other native birds which might on occasion forage in this area include: Hawaiian Stilt (*Himantopus mexicanus knudseni*) and Hawaiian Owl (*Asio flammeus sandwichensis*). These two species are listed as endangered. The stilt is federally listed and the owl is State listed for the island of Oahu only. The stilt is a waterbird that forages by wading in shallow ponds and on mud flats. The Hawaiian Owl forages over grasslands, fallow fields and forests. It nests on the ground in high grass (Hawaii Audubon Society 1997, Pratt et al. 1987).

Migratory Birds:

No migratory birds were recorded on the two day survey. The majority of the habitat at this location is unsuitable for foraging migratory shorebirds. Wandering Tattler (*Heteroscelus incanus*) and Pacific Golden-Plover (*Pluvialis fulva*) might on rare occasions forage briefly on the exposed muddy shorelines mauka and makai of the bridges. The Pacific Golden-Plover has been extensively studied in Hawaii and on its breeding grounds in western Alaska (Johnson et al. 1981, 1989, 1993, 2001a, 2001b, 2004). Neither of these two migratory shorebirds are listed as threatened or endangered.

Alien (Introduced) Birds:

A total of nine alien species of birds were tallied in the area of Makaha Bridge 3 and 3A over the course of the survey. Table One names these species. None of these

birds are listed as threatened or endangered. The array of alien birds found at this location is typical of this region (Bruner 1988, 1989, 1990, 1997, 1998, 1999, 2001).

Feral Mammals:

The only mammal recorded on the survey was the Small Indian Mongoose (*Herpestes auropunctatus*). Rats, mice and feral cats likely occur in the area. The endangered Hawaiian Hoary Bat (*Lasiurus cinereus semotus*) was not recorded. I know of no published records for this species at this location. The bat is relatively uncommon on Oahu. It forages for flying insects at dusk as well as after dark (Tomich 1986). Kepler and Scott (1990) provide a summary of the distribution of this species. The Hawaiian Hoary Bat roosts solitarily in trees during the day. It will forage over a wide variety of habitats such as: forests, agriculture lands, wetlands, bays, and even urban areas. Given the low number of bats believed to be on Oahu it would be inappropriate to speculate what the chances and frequency of seeing a bat at this project site might be.

SUMMARY AND CONCLUSIONS

A two day field survey of the proposed Makaha Bridge 3 and 3A lands recorded the typical array of alien birds and mammals expected in this locality given the types of habitat available. The only native species found on the survey was the non-endangered

Black-crowned Night-Heron. No migratory shorebirds were observed on the survey. The streams crossed by these bridges appear to contain flowing water only when there has been a period of significant rainfall. The Makaha stream was dry and the Makaha West Stream contained only pools of standing water.

The proposed bridge replacement project of Makaha Bridge 3 and 3A should have no impact on native or migratory birds. The native Black-crowned Night-Heron found on the survey forage in a wide variety of wetland habitats and the temporary disturbance created by construction in this area should pose no significant limitations on the overall foraging habitat available for this species in this region of Oahu.

TABLE ONE

Alien (introduced) birds recorded on lands involved in the proposed bridge replacement Project and Makaha Bridges 3 and 3A. Data for this table were obtained on 22, 23 September 2004

COMMON NAME	SCIENTIFIC NAME
Spotted Dove	*Streptopelia chinensis*
Zebra Dove	*Geopelia striata*
Red-vented Bulbul	*Pycnonotus cafer*
Japanese White-eye	*Zosterops japonicus*
Common Myna	*Acridotheres tristis*
Red-crested Cardinal	*Paroaria coronata*
Northern Cardinal	*Cardinalis cardinalis*
House Finch	*Carpodacus mexicanus*
Common Waxbill	*Estrilda astrid*

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Appendix D

Archaeological Inventory Survey for the Proposed Replacement of Mākaha Bridges 3 and 3A

Cultural Surveys Hawai'i

December 2005

Archaeological Inventory Survey for the Proposed Replacement of Mākaha Bridges 3 and 3A, Farrington Highway, Mākaha Ahupuaʻa, Waiʻanae District, Island of Oʻahu

[Portions of TMK: [1] 8-4-001:012, 8-4-002:045, 47, 8-4-018:014, 122, 123, 8-4-08:018, 019, 020]

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Management Summary

Reference	Archaeological Inventory Survey for the Proposed Replacement of Mākaha Bridges 3 and 3A, Farrington Highway, Mākaha Ahupua‘a, Wai‘anae District, Island of O‘ahu. (McDermott and Tulchin 2005)
Date	December 2005 (Draft)
Project Numbers	Federal Highway Administration (FHWA) Aid Project No.: BR-093-1(20) Cultural Surveys Hawai‘I, Inc. (CSH) Job Code: MAKA 3
Investigation Permit Number	Investigation fieldwork was performed under Hawai‘i State Historic Preservation Division (SHPD) permit No. 0508, issued per Hawai‘i Administrative Rules (HAR) Chapter 13-282.
Project Location	The project area comprises portions of TMK (1) 8-4-001:012, 8-4-2:047, 45, 8-4-018:014, 122, 123, 8-4-08:018, 019, 020, and is located along the Farrington Highway corridor, approximately 500 feet (150 m) *mauka* of the shoreline at Mākaha Beach Park, at the intersection of Kili Drive and Farrington Highway, Mākaha Ahupua‘a, Wai‘anae District, Island of O‘ahu. Bridge 3 is located just south of Kili Drive and Bridge 3A is located just north of Kili Drive. This area is depicted on the 1998 Wai‘anae USGS 7.5-minute topographic quadrangle.
Land Jurisdiction	State of Hawai‘i, Private, City and County of Honolulu
Agencies	FHWA, SHPD, State of Hawai‘i Department of Transportation (HDOT)
Project Funding	FHWA and HDOT
Project Description	HDOT proposes to demolish and replace the two existing bridge structures with new bridge structures that meet current standards. The project will require construction of a temporary detour road and temporary bridge structures on the seaward (southwestern) side of Farrington Highway. Additionally, drainage improvements along both bridges will be made, including construction of erosion control measures to reduce discharges of sediment in storm water runoff.
Project Acreage	Approximately 3.9 acres
Area of Potential Effect (APE) and Survey Acreage	Based on available information, the proposed bridge replacement project will not impose adverse visual, auditory or other environmental impact to any known cultural resources[1], including standing architecture, located in the project area’s vicinity. Accordingly, the project’s APE extends no further than the project area’s approximately 3.9-acre footprint. The survey area for the current investigation included the entire approximately 3.9-acre APE.

Historic Preservation Regulatory Context	Due to FHWA funding, this project is a federal undertaking requiring compliance with Section 106 of the National Historic Preservation Act (NHPA), the National Environmental Policy Act (NEPA), and the Department of Transportation Act (DTA). As an HDOT project within state ROW, the project is subject to Hawai‘i State environmental and historic preservation review legislation [Hawai‘i Revised Statutes (HRS) Chapter 343 and HRS 6E-8 / HAR Chapter 13-275, respectively].
Document Purpose	At the request of the RM Towill Corporation, HDOT's consultant for the project, CSH completed this archaeological inventory survey investigation. It was prepared in consideration of the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation and was conducted to identify, document, and make National Register of Historic Places (National Register) and Hawai‘i Register of Historic Places (Hawai‘i Register) eligibility recommendations for the subject parcel's cultural resources. The investigation also fulfills Hawai‘i State archaeological inventory survey requirements (per HAR Chapter 13-276). The investigation includes an undertaking-specific effect recommendation and treatment/mitigation recommendations for the cultural resources recommended National/Hawai‘i Register eligible. This document is intended to support project-related historic preservation consultation among stake-holding federal and state agencies and interested Native Hawaiian and community groups.
Fieldwork Effort	Matt McDermott, MA, William Folk, BA, Carlin Jones, BA, Tony Bush, BA, and Jon Tulchin, BA, completed the investigation's fieldwork on August 30th and 31st, 2005, requiring 7 person-days.
Cultural Resources Recommended National/Hawaii Register Eligible[3]	All five cultural resources identified within the current project area are recommended eligible to the National/Hawai‘i Register: State Inventory of Historic Properties (SIHP) # 50-80-7-6822, Mākaha Bridge 3, constructed in 1937, recommended eligible under Criteria A and D. SIHP # 50-80-7-6823, Mākaha Bridge 3A, constructed in 1937, recommended eligible under Criteria A and D. SIHP # 50-80-7-6824, Farrington Highway, constructed in the 1930s as part of the Territorial Highway System, recommended eligible under Criterion D. SIHP # 50-80-7-6825, buried A-horizon enriched with cultural material from prehistoric and historic land use, contains previously disturbed human skeletal remains that SHPD has determined are most likely Native Hawaiian, recommended eligible under Criteria D and E (Hawai‘i Register only). SIHP # 50-80-12-9714, remnants of the O. R. & L. Railroad, a portion of which, located outside the current project area, is already listed on the National Register. The railroad remnants within the current project area

	have lost their integrity and can no longer convey the railroad's significance under Criteria A, B, and C. The remnants do still have significance for their information (Criterion D).
Effect Recommendation	The project will most likely adversely affect SIHP #s 50-80-12-9714 (O. R. and L. RR), 50-80-7-6822 (Bridge 3), 50-80-7-6823 (Bridge 3a), and 50-80-7-6825 (subsurface cultural layer). Although the proposed project will most likely alter a small portion of the historic fabric of SIHP # 50-80-7-6824, Farrington Highway, this alteration is suggested to represent routine maintenance to an in-use historic property that is consistent with the Secretary of the Interior's standards for the treatment of historic properties (36 CFR part 68). A project specific effect determination of "adverse effect" is warranted for the proposed bridge replacement project. In compliance with Section 106 of the NHPA, a determination of "adverse effect" requires the development of a Memorandum of Agreement (MOA) for the proposed undertaking. This MOA should be developed in consultation among FHWA, as the undertaking's lead federal agency, SHPD, HDOT, any other stake-holding federal agencies, and concerned consulting parties. Under Hawai‘i State historic preservation review legislation (HAR Chapter 13-275), a project effect recommendation of "effect, with proposed mitigation commitments" is warranted. The proposed project clearly represents a "use" of significant historic sites under Section 4(f) of the DTA[4]. Accordingly, a Section 4(f) Evaluation[5] will need to be prepared as part of the project's NEPA documentation.
Mitigation Recommendation	In order to alleviate the proposed project's adverse effect on cultural resources recommended eligible to the National and Hawai‘i Registers, CSH offers the following mitigation recommendations. The execution of the proposed Historic American Engineering Record (HAER)-type documentation (as a form of architectural recordation) and archaeological data recovery mitigation measures should be the subject of a project data recovery program that is approved by SHPD and implemented prior to the project's construction. SIHP # 50-80-7-6822, Mākaha Bridge 3, HAER-type documentation SIHP # 50-80-7-6823, Mākaha Bridge 3a, HAER-type documentation SIHP # 50-80-7-6824, Farrington Highway, no mitigation recommended SIHP # 50-80-7-6825, buried culturally enriched A-horizon and human burial, archaeological data recovery with burial treatment component. As a previously identified, most likely Native Hawaiian burial, burial treatment, either preservation in place or relocation, falls under the jurisdiction of the O‘ahu Island Burial Council (OIBC). Accordingly, the burial treatment plan (per the requirements of HAR Chapter 13-300-33) should be prepared for OIBC's consideration. SIHP # 50-80-12-9714, remnants of the O. R. & L. Railroad, HAER-type

	documentation Additionally, because of the possibility of the project disturbing additional human remains, or significant archaeological deposits from the SIHP # 50-80-7-6825 cultural layer, an archaeological monitoring program should be carried out during project construction. This monitoring program should be described as another component of the project's data recovery program[6].

[1]In historic preservation parlance, cultural resources are the physical remains and/or geographic locations that reflect the activity, heritage, and/or beliefs of ethnic groups, local communities, states, and/or nations. Generally, they are at least 50 years old, although there are exceptions, and include: buildings and structures; groupings of buildings or structures (historic districts); certain objects; archaeological artifacts, features, sites, and/or deposits; groupings of archaeological sites (archaeological districts); and, in some instances, natural landscape features and/or geographic locations of cultural significance.

[2]Historic properties, as defined under federal historic preservation legislation, are cultural resources that are at least 50 years old (with exceptions) and have been determined eligible for inclusion in the National Register of Historic Places based on their integrity and historic/cultural significance in terms of established significance criteria. Determinations of eligibility are generally made by a federal agency official in consultation with SHPD. Under federal legislation, a project's (undertaking's) potential effect on historic properties must be evaluated and potentially mitigated. Under Hawai‘i State historic preservation legislation, historic properties are defined as any cultural resources that are 50 years old, regardless of their historic/cultural significance under state law, and a project's effect and potential mitigation measures are evaluated based on the project's potential impact to "significant" historic properties (those historic properties determined eligible, based on their integrity and historic/cultural significance in terms of established significance criteria, for inclusion in the Hawai‘i Register of Historic Places). Determinations of eligibility to the Hawai‘i Register result when a state agency official's historic property "significance assessment" is approved by SHPD, or when SHPD itself makes an eligibility determination for a historic property.

[3]To be considered eligible for listing on the Hawai‘i and/or National Register a cultural resource must possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet one or more of the following broad cultural/historic significance criteria: "A" reflects major trends or events in the history of the state or nation; "B" is associated with the lives of persons significant in our past; "C" is an excellent example of a site type/work of a master; "D" has yielded or may be likely to yield information important in prehistory or history; and, "E" (Hawaii Register only) has traditional cultural significance to an ethnic group, includes religious structures and/or burials.

[4]Section 4(f) of the DTA stipulates that FHWA may approve a program or project that uses or otherwise affects land from any significant historic site only if two conditions are met. First, there must be no prudent and feasible alternative to the use of the historic site. Second, the action

must include all possible planning to minimize harm to the historic site. Section 4(f) language describes a significant historic site as a site that is eligible to the National Register under criteria A, B, or C, and hence worthy of preservation in place. According to Section 4(f), sites eligible under criterion D are not considered significant historic sites because their information content that gives them significance can be recovered through mitigation measures. These sites therefore do not require preservation in place.

[5]A Section 4(f) Evaluation is the federal Department of Transportation's internal administrative record that documents the conclusion that there is no prudent and feasible alternative to the use of the historic site, and that all possible project planning was undertaken to minimize harm.

[6]Under Hawai‘i State historic preservation review legislation, there are five potential forms of historic preservation mitigation: A) Preservation; B) Architectural Recordation; C) Archaeological Data Recovery; D) Historical Data Recovery; and E) Ethnographic Documentation (HAR Chapter 13-275-8). Under this legislation, an archaeological monitoring program is considered a form of archaeological data recovery.

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Section 1 Introduction

1.1 Project Background

Cultural Surveys Hawai‘i, Inc. (CSH) completed this archaeological inventory survey of an approximately 3.9-acre area located within Mākaha Ahupua‘a, Wai‘anae District, Island of O‘ahu. The 3.9-acre area comprises portions of TMK (1) 8-4-001:012, 8-4-2:047, 45, 8-4-018:014, 122, 123, 8-4-08:018, 019, 020, and is located along the Farrington Highway corridor, approximately 500 feet (150 m) *mauka* of the shoreline at Mākaha Beach Park, at the intersection of Kili Drive and Farrington Highway. This area is depicted on the 1998 Wai‘anae USGS 7.5-minute topographic quadrangle (Figures 1-4).

Within this area the Hawai‘i State Department of Transportation (HDOT) proposes to demolish and replace the two existing Farrington Highway bridge structures with new bridge structures that meet current standards. Bridge 3 is located just south of Kili Drive and Bridge 3A is located just north of Kili Drive. The approximately 3.9-acre project area is comprised of private, City and County of Honolulu, and State of Hawai‘i lands.

This HDOT and federally funded bridge replacement project [Federal Highway Administration (FHWA) Aid Project No.: BR-093-1(20)] will require construction of a temporary detour road and temporary bridge structures on the seaward (southwestern) side of Farrington Highway. Additionally, drainage improvements along both bridges will be made, including construction of erosion control measures to reduce discharges of sediment in storm water runoff.

Due to FHWA funding, this project is a federal undertaking requiring compliance with Section 106 of the National Historic Preservation Act (NHPA), the National Environmental Policy Act (NEPA), and the Department of Transportation Act (DTA). As an HDOT project within state ROW, the project is subject to Hawai‘i State environmental and historic preservation review legislation [Hawai‘i Revised Statutes (HRS) Chapter 343 and HRS 6E-8 / Hawai‘i Administrative Rules (HAR) Chapter 13-275, respectively].

At the request of the RM Towill Corporation, HDOT’s consultant for the project, CSH completed this archaeological inventory survey investigation. It was prepared in consideration of the Secretary of the Interior’s Standards and Guidelines for Archaeology and Historic Preservation and was conducted to identify, document, and make National Register of Historic Places (National Register) and Hawai‘i Register of Historic Places (Hawai‘i Register) eligibility recommendations for the subject parcel’s cultural resources. The investigation also fulfills Hawai‘i State archaeological inventory survey requirements (per HAR Chapter 13-276). The investigation includes an undertaking-specific effect recommendation and treatment/mitigation recommendations for the cultural resources recommended National/Hawai‘i Register eligible. This document is intended to support project-related historic preservation consultation among stake-holding federal and state agencies and interested Native Hawaiian and community groups.

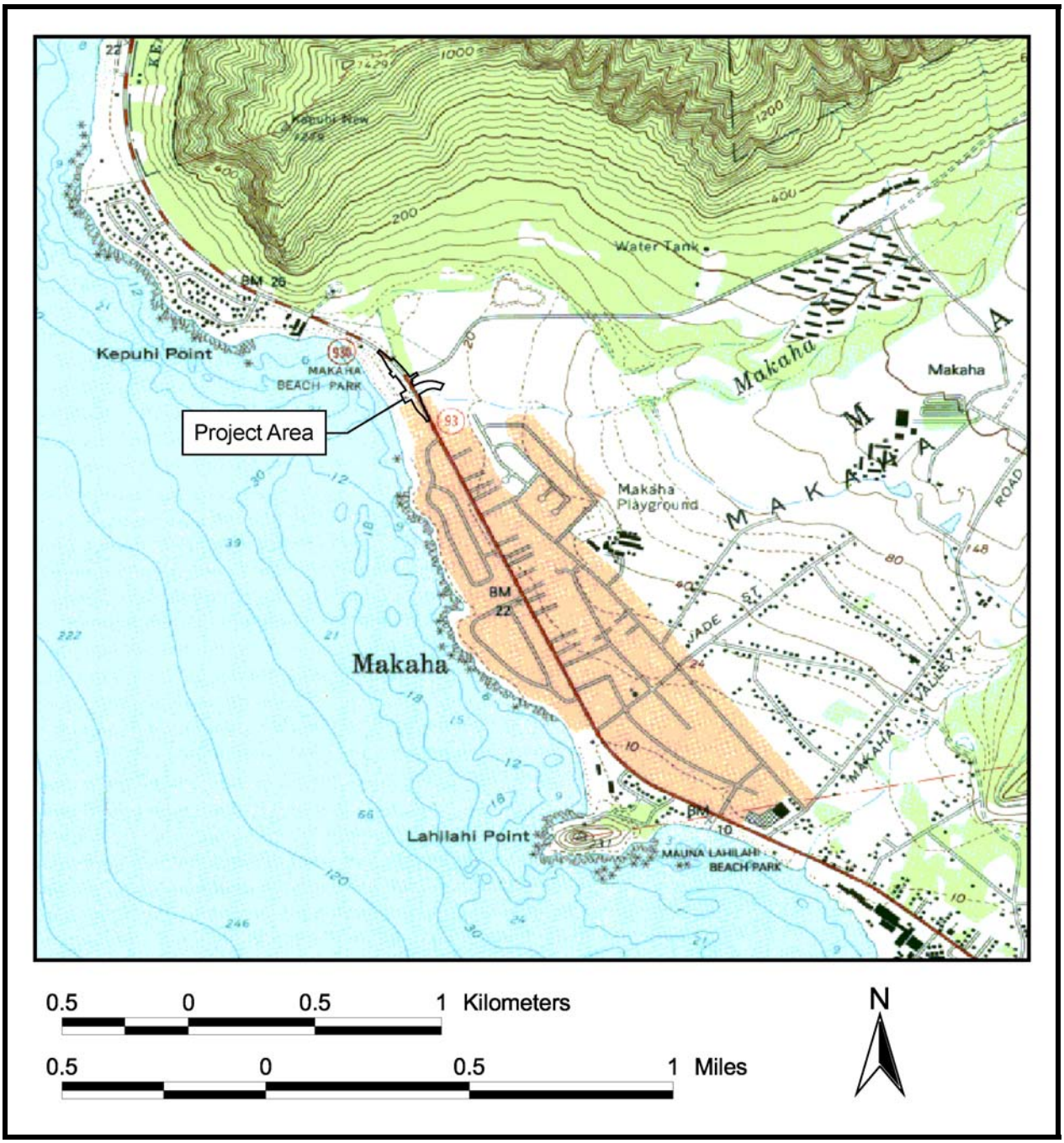

Figure 1. 1998 Wai‘anae USGS 7.5-minute topographic quadrangle showing the location of current project area

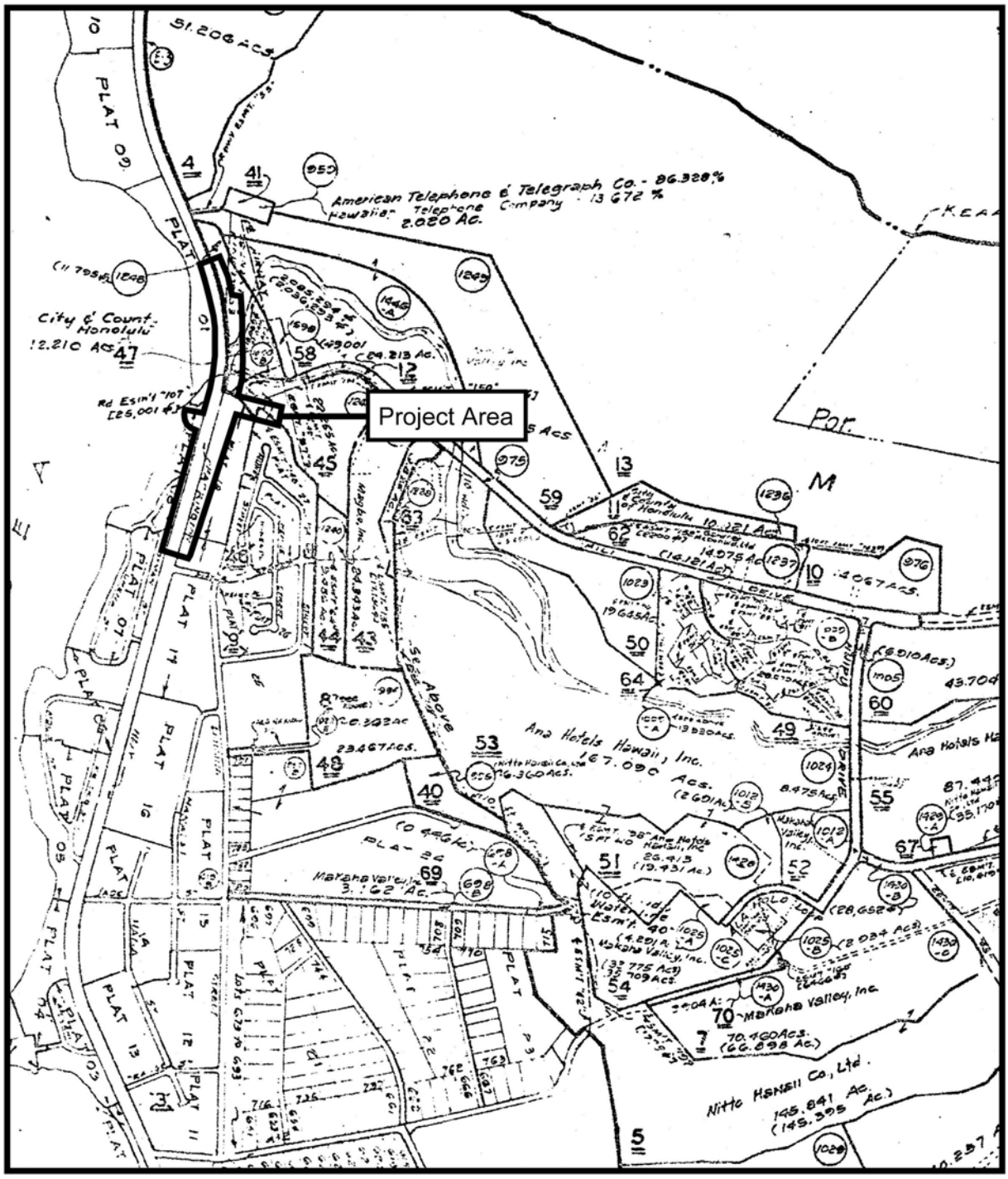

Figure 2. Portion of TMK 8-4-02 showing the location of the current project area

Figure 3. Aerial photograph showing location of current project area

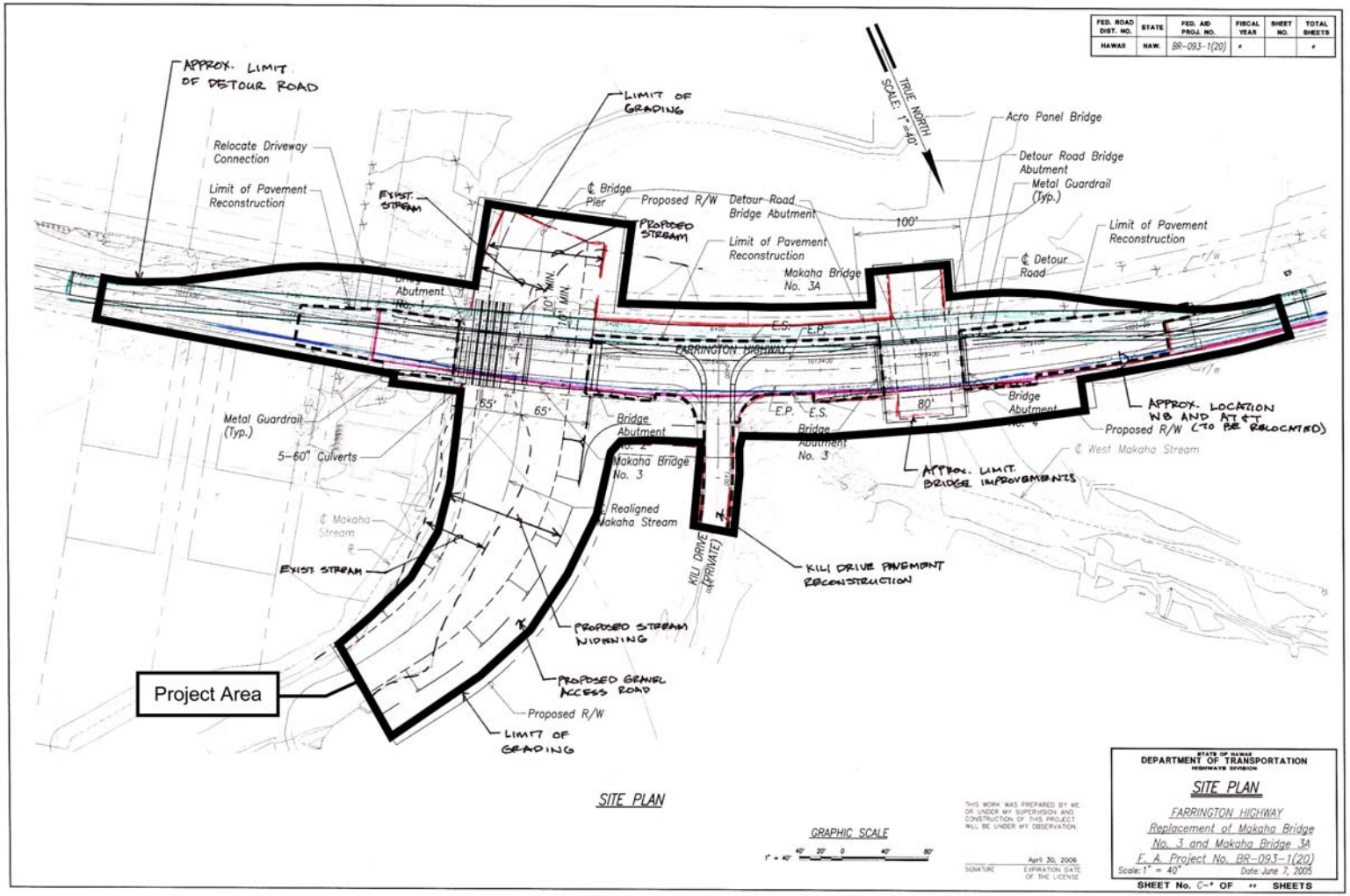

Figure 4. Construction drawing showing the project area of potential effect (APE) (labeled “Project Area”)

This archaeological inventory survey investigation is designed to comply with both federal and Hawai‘i state historic preservation legislation. Generally, under both Hawai‘i state and federal historic preservation legislation, archaeological inventory surveys are designed to identify, document, and make significance recommendations for "historic properties." As discussed in the paragraphs below, there are important distinctions between the federal and Hawai‘i state definitions of "historic properties." To alleviate any confusion these different definitions might cause, CSH has opted in this document to use the more generic term "cultural resources," as defined below, in its discussion of the cultural remains within the current project area.

In historic preservation parlance, cultural resources are the physical remains and/or geographic locations that reflect the activity, heritage, and/or beliefs of ethnic groups, local communities, states, and/or nations. Generally, they are at least 50 years old, although there are exceptions, and include: buildings and structures; groupings of buildings or structures (historic districts); certain objects; archaeological artifacts, features, sites, and/or deposits; groupings of archaeological sites (archaeological districts); and, in some instances, natural landscape features and/or geographic locations of cultural significance.

Historic properties, as defined under federal historic preservation legislation, are cultural resources that are at least 50 years old (with exceptions) and have been determined eligible for inclusion in the National Register based on established significance criteria. Determinations of eligibility are generally made by a federal agency official in consultation with the State Historic Preservation Division (SHPD). Under federal legislation, a project's (undertaking's) potential effect on historic properties must be evaluated and potentially mitigated.

Under Hawai‘i State historic preservation legislation, historic properties are defined as any cultural resources that are 50 years old, regardless of their significance under state law, and a project's effect and potential mitigation measures are evaluated based on the project's potential impact to "significant" historic properties (those historic properties determined eligible, based on established significance criteria, for inclusion in the Hawai‘i Register). Determinations of eligibility to the Hawai‘i Register result when a state agency official's historic property "significance assessment" is approved by SHPD, or when SHPD itself makes an eligibility determination for a historic property.

Based on available information, the proposed bridge replacement project will not impose adverse visual, auditory or other environmental impact to any known cultural resources, including standing architecture, located in the project area's vicinity. Accordingly, the project's area of potential effect (APE) extends no further than the project area's approximately 3.9-acre footprint (refer to Figure 4). The survey area for the current investigation included the entire approximately 3.9-acre APE.

Matt McDermott, MA (principal investigator), William Folk, BA, Kulani Jones, BA, Tony Bush, BA, and Jon Tulchin, BA, completed the investigation's fieldwork on August 30th and 31st, 2005, requiring 7 person-days. Investigation fieldwork was performed under SHPD archaeological permit No. 0508, issued per HAR Chapter 13-282.

1.2 Scope of Work

The archaeological inventory survey and its accompanying report document all cultural resources within the 3.9-acre project area. The following scope of work was followed:

1) A complete ground survey of the project area. All surface cultural resources were identified and recorded with and evaluation of age, function, interrelationships, and significance. Documentation includes photographs and scale drawings.

2) Subsurface testing with a backhoe to identify and document subsurface cultural deposits. Appropriate samples from these excavations were analyzed for cultural and chronological information.

3) Research on historic and archaeological background, including a search of historic maps, written records, and Land Commission Award documents. This research focused on the specific area with general background on the *ahupua‘a* and district and emphasizes settlement patterns.

4) Preparation of this survey report, which includes the following:

- A project description;
- A topographic map of the survey area showing all recorded cultural resources;
- Descriptions of all cultural resources, including selected photographs, scale drawings, and discussions of age, function, and significance, per the requirements of HAR Title 13, Subtitle 13, Chapter 276 “Rules Governing Standards for Archaeological Inventory Surveys and Reports.” Cultural resources were assigned State Inventory of Historic Properties (SIHP) numbers;
- Historical and archaeological background sections summarizing prehistoric and historic land use of the project area and its vicinity;
- A section concerning cultural consultations [per the requirements of HAR 13-13-276-5(g)].
- A summary of cultural resource categories and significance based upon the National and Hawai‘i Registers criteria;
- A project effect recommendation
- Treatment recommendations to mitigate the project’s adverse effect on any cultural resources recommended eligible to the National/Hawai‘i Register identified in the project area.

This scope of work included consultation with the SHPD Archaeology and Architecture Branches relating to identified cultural resources.

1.3 Environmental Setting

1.3.1 Natural Environment

Based on USGS soils survey data, soils within the project area consist of Haleiwa Silty Clay, 0 to 2 Percent Slopes (HeA). Haleiwa Silty Clay is described as a moderate to poorly drained clay occurring in alluvial fans and drainage ways (Foote *et al.* 1972). Based on backhoe testing results, the seaward-most portions of the project area, near the active beach, have marine Jaucus sands beneath terrigenous silty sediments. Also based on backhoe testing results, underlying the fine grain sediments in the inland portion of the project area are Pleistocene coral reef remnants. The elevation at the project area is approximately 20 feet (6 m) AMSL.

Rainfall is less than 20 inches (500 mm) annually along the coast with winter storms being the major source of precipitation. December through February are the relatively wet months for the region (Armstrong 1973). The project area is generally without relief, with the exception of the minor topography associated with the two drainages that pass through the project area, Mākaha Stream’s north and south branches. These are intermittent drainages that are usually blocked from the sea by the active sand beach berm. During fieldwork, the only water in these drainages consisted of a small, shallow, somewhat stagnant pond located immediately upstream of Bridge 3A.

Vegetation along this arid coast is sparse. With 20 inches (500 mm) or less of rain annually, only the hardiest plants adapted to coastal environments can thrive. The vegetation is typical of dry seashore environments in Hawai‘i and is dominated by alien species. Indigenous species include *hau* (*Hibiscus tiliaceus*), *kou* (*Cordia subcordata*), *kamani* (*Calophyllum inophyllum*), *naupaka* or *naupaka kahakai* (*Scaevola sericea*), *pa‘u o Hi‘iaka* (*Jacquemontia ovalifolia sandwicensis*), the native beach morning glory or *pohuehue* (*Ipomea pes-caprae*) and the coconut or *niu* (*Cocos nucifera*). Introduced species found bordering the Farrington Highway include sea grape (*Coccoloba uvifera*), *kiawe* trees (*Prosopis pallida*), Madagascar Olive trees (*Noronhia emarginata*), and *koa haole* (*Leucaena leucocephala). Kiawe*, *koa haole*, and various grasses were dominant within the project area.

1.3.2 Built Environment

The built environment within and in the immediate vicinity of the project area consists of paved roads, graded, unpaved road-shoulder pull-off / parking areas, residential development, historic bridges, and the remnants of an old railroad.

Paved roads are located both within and in the immediate vicinity of the project area. Farrington Highway runs directly through the project area, running roughly north-south, and continues on in both directions. As part of this investigation, this portion of Farrington Highway has been designated SIHP # 50-80-07-6824 because the highway alignment is clearly older than 50 years. Kili Drive intersects Farrington Highway in the middle of the project area.

Graded parking areas are located within the northwestern and southwestern borders of the project area. The northwestern parking area consists of a level unpaved area on the *makai* (west) side of Farrington Highway utilized by patrons of Mākaha Beach Park. The parking area in the

southwestern portion of the project area is also located on the *makai* (west) side of Farrington Highway and is similar in construction to the northwestern parking area. The parking area is utilized by the City and County as a bus stop. A small bench and shelter has been constructed in this area for bus patrons.

Residential development in the form of residential housing and access roads are located to immediate south of the project area.

Two historic wooden bridges, Bridge 3 (designated SIHP # 50-80-07-6822) and Bridge 3A (designated SIHP # 50-80-07-6823), are incorporated into the section of Farrington Highway running through the project area. Both bridges are constructed over streams leading into the ocean, and serve as a means of keeping the stretch of Farrington Highway running thru the project area level and protected from stream overflow.

Remains of the O‘ahu Railway and Land Company (O.R. & L.) Railroad (previously designated SIHP # 50-80-12-9714) are located within the western boundary of the project area, *makai* of Farrington Highway. The remains consist of rectangular concrete slabs and stone and mortar railroad berm utilized to minimize slope in order to maintain a level railroad track.

Section 2 Methods

2.1 Document Review

Background research included: a review of previous archaeological studies on file at SHPD; review of documents at Hamilton Library of the University of Hawai‘i, the Hawai‘i State Archives, the Mission Houses Museum Library, the Hawai‘i Public Library, and the Archives of the Bishop Museum; study of historic photographs at the Hawai‘i State Archives and the Archives of the Bishop Museum; and study of historic maps at the Survey Office of the Department of Land and Natural Resources.

2.2 Field Methods

The initial phase of fieldwork consisted of a systematic pedestrian inspection of the entire project area. The interval between archaeologists was 10 meters or less and visibility was good and little hampered by vegetation. All surface cultural resources were identified and documented. Cultural resource location information was recorded on project area maps and with a Trimble Pathfinder Pro XR GPS unit (submeter horizontal accuracy). Surface cultural resource documentation also included tape and compass plan view maps, cross sections, and elevations (as appropriate), digital photographs, and written descriptions. Surface cultural resources boundaries were defined in terms of the geographic extent of the feature or features that comprise the cultural resource. In the current investigation, all surface cultural resources were comprised of standing architectural features and/or remnants of structures. The boundary of each of these cultural resources was defined as the geographic extent of the component feature(s) and/or structure(s).

The second phase of fieldwork consisted of a program of subsurface testing with a backhoe. Backhoe excavations provide a rapid means of investigating subsurface deposits over a broad geographic area and identifying buried cultural deposits. Backhoe trench locations were selected based on the results of background research. They were chosen to provide adequate coverage of all portions of the project area, as well as to test specific areas that had greater potential for preserved cultural and/or paleo-environmental deposits. Although the Mākaha Bridges project area measures approximately 3.9 acres, much of this land surface, approximately 1.5-2.0 acres, is currently covered with in-use paved streets and bridges, and active drainage channels. Accordingly, backhoe trenching was only feasible within approximately half of the project area.

CSH employed current standard archaeological recording techniques to document all trenches, whether or not cultural deposits were encountered. During trench excavation, CSH personnel inspected excavated sediments and exposed trench profiles for indications of cultural deposits, including features and artifacts exposed in the trench sidewalls and artifacts removed with the trench back dirt. Upon completion of the excavation of a trench or section of trench, CSH personnel manually prepared the trench sidewalls for closer inspection. This included removing all loose debris and plant matter with shovels and trowels to locate any buried cultural deposits or features. The provenience of all features, artifacts, and/or artifact concentrations encountered during excavation was recorded.

Trench documentation included trench profile drawings, photographs, written sediment descriptions, and sample collection as appropriate. Sediment descriptions included Munsell color designations, texture and sediment size, compactness, structure, inclusions and cultural material present, and lower boundary attributes. Where appropriate, sediment, charcoal, midden, and artifact samples were collected for later analysis, including radiocarbon dating. Samples were collected from the cleaned trench sidewall with a trowel, bagged and labeled by stratigraphic provenience.

Alternatively, where appropriate, suspected culturally enriched sediments were tested for cultural materials. A measured volume of sediment was removed directly from the trench sidewall and screened through 1/8-inch mesh. The location of the screened sample and the volume of material screened (using a five-gallon bucket to estimate) were recorded on trench profile drawings. The resulting cultural material collected in the screen, including charcoal, traditional Hawaiian artifacts, food remains, historic garbage, historic building materials, etc., was bagged and labeled with the appropriate provenience. These cultural material samples, along with other available information, help to establish the age and cultural affiliation of the sampled cultural deposits. Trench locations and any cultural deposits were located on project area maps and with the Trimble Pathfinder Pro XR.

The boundaries of documented subsurface cultural resources were interpolated based on exposures of the cultural resource in different trenches in the vicinity. These boundaries are not exact, but should be sufficient to make informed cultural resource management decisions related to the current project.

2.3 Laboratory Methods

Following the completion of fieldwork, all collected materials will be analyzed using current standard archaeological laboratory techniques. Faunal material was identified and weighed by provenience. Charcoal and organic sediment samples were separated and prepared for radiocarbon dating analysis. Artifacts were identified and catalogued by provenience. Artifact analysis focused on establishing, to the greatest extent possible, material type, formal/function type, cultural affiliation, and/or age of manufacture.

Samples were sent to Beta Analytic, Inc. of Miami, Florida for radiocarbon dating analysis. Both radiometric and accelerator mass spectrometer (AMS) techniques were utilized. Appendix A shows the Beta Analytic results. The resulting conventional radiocarbon ages were calibrated into calendar ages AD/BC using the Oxcal Calibration Program, version 3.9, developed by the Oxford Radiocarbon Accelerator Unit (ORAU) and available as share-ware over the Internet.

2.4 Cultural Consultation Methods

CSH’s cultural consultation for the Mākaha Bridges project began in 2004 with a cultural impact assessment investigation (Souza and Hammatt 2005). This assessment was designed to fulfill the requirements of Hawai‘i state environmental review legislation (HRS Chapter 343), which mandates project proponents take into account the potential effects of a project on on-going cultural practices. As part of this investigation, Hawaiian organizations, agencies and

community members were contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the study area and the surrounding vicinity. The organizations consulted included the SHPD, the Office of Hawaiian Affairs, the O‘ahu Island Burial Council, and Wai‘anae Neighborhood Board. The interviewees were Landis Ornellas, George Arakaki, Albert Silva, Lucio Badayos, and Buffalo Keaulana.

As part of this inventory survey investigation, Matt McDermott, MA, carried out additional cultural consultation. Per the requirements of HAR Chapter 13-275-6(c), 13-275-8(a)(2), and Chapter 13-276-5(g), this additional cultural consultation specifically targeted individuals knowledgeable about the project area's history and past land use. The focus of this consultation was to identify cultural resources within the project area and, once identified, determine their function and cultural significance. Information was also sought from cultural informants regarding the potential impact of the project on the identified cultural resources in the project area, and proposed mitigation measures to alleviate this potential impact.

As part of this inventory survey consultation effort, following the completion of the project's fieldwork, a summary letter was sent out to Native Hawaiian organizations, local community groups, and state agencies asking for their input. Based on the response from this initial letter, follow up contacts through telephone calls and email correspondence were undertaken. The results of this cultural consultation effort are discussed below.

2.5 Cultural Resource Evaluation for National/Hawai‘i Register Eligibility

To be considered eligible for listing on the Hawai‘i and/or National Register a cultural resource must possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet one or more of the following broad cultural/historic significance criteria: "A" reflects major trends or events in the history of the state or nation; "B" is associated with the lives of persons significant in our past; "C" is an excellent example of a site type/work of a master; "D" has yielded or may be likely to yield information important in prehistory or history; and, "E" (Hawaii Register only) has traditional cultural significance to an ethnic group, includes religious structures and/or burials. For this report, cultural resource integrity and significance were assessed based on the guidance provided in National Register Bulleting # 15, "How to Apply the National Register Criteria for Evaluation." Cultural resource integrity and significance assessments were developed in consultation with SHPD's Archaeology and Architecture Branches.

Section 3 Background Research

3.1 Traditional and Historical Background

3.1.1 Mythological and Traditional Accounts

The project area is located within the *ahupua‘a* of Mākaha, which extends from the leeward Wai‘anae Range to the coast between Wai‘anae Ahupua‘a to the southeast and Kea‘au Ahupua‘a to the northwest.

Although there are many traditional accounts detailing the pre-contact period of other portions of the Wai‘anae District, few exist for Mākaha. Mary Kawena Pukui (1974) gives the meaning of Mākaha as “fierce” and Roger C. Green (1980) suggests that this translation refers to “fierce or savage people” once inhabiting the valley. Green (1980:5) refers to “…the ‘Ōlohe people, skilled wrestlers and bone-breakers, by various accounts [who] lived in Mākaha, Mākua, and Kea‘au, where they often engaged in robbery of passing travelers.”

Legend: How Mākaha Got Its Name

The shores fronting the beautiful Mākaha Valley were known for their abundant marine resources. Edward Iopa Kealanahele’s legend (How Makaha got its name, 1975) gives light to the great ocean resources:

> Long ago, there lived in this valley a handsome young chief named Makaha. His skill as a fisherman gained island-wide attention, which eventually reached the ears of Ke Anuenue [the rainbow], the goddess of rain, who lived in upper Manoa Valley.
>
> She was so intrigued that she sent her trusted winged friend, Elepaio, to investigate Makaha. Elepaio returned with exciting stories of Mākaha’s daring and skills.
>
> The next morning, Ke Anuenue created an awe-inspiring double rainbow which arched from Manoa Valley to this valley, from where she and her retinue could watch Makaha perform his daring feats at the ocean.
>
> The people of the Wai‘anae Valley were petrified by that magnificent rainbow that ended in this unnamed valley where Makaha lived.
>
> Knowing that Ke Anuenue was watching, they prayed that she would bring them the much needed gentle rains and not the harsh storms she could create when displeased.
>
> Makaha, aware of her presence, scaled Mauna Lahilahi and called loudly to his aumakua [his ancestral spirit] Mano ai Kanaka, the most vicious of man-eating

> sharks. As Mano ai Kanaka glided in from the ocean, Makaha dived from the rocky pinnacle, emerged on Mano ai Kanaka's back and rode with regal grandeur.
>
> As the two disappeared into the depths, the sea became calm. Suddenly Makaha seemed to be everywhere along the rocky coast gracefully tempting death. Then, just as suddenly, Makaha seemed to skim the ocean as Mano ai Kanaka carried him to shore.
>
> Makaha then carried his entire catch to the rainbows end deep in the valley and offered it to Ke Anuenue. Deeply touched, she sent gentle rains to the parched earth of the great Wai‘anae Valley. She was impressed by the selection of seafood that was offered her but was disappointed by the quality of the poi, mai‘a [banana] and uala [sweet potato] which were dry and stringy. She demanded to know why since she was so accustomed to good quality fruits. She was told that it was because of the lack of rainfall in the valley.
>
> Ke Anuenue became enamored with Makaha and from then on her double rainbow would appear in Mākaha's kuleana [land area] and gentle rains would fall on Wai‘anae so the people could enjoy lush bananas and an abundance of taro.
>
> The people built a heiau in honor of Ke Anuenue and Makaha but Ke Anuenue refused the honor and named the entire valley, Makaha, by which it is now known.

One of the many legends concerning the fierceness of Mākaha involves robbers and cannibals, as the following attests (McAllister 1933):

> Long ago there lived here a group of people who are said to have been very fond of human flesh. At high altitude on each side of the ridge [separating Mākaha from Keau], guards were stationed to watch for people crossing this narrow stretch of land between the mountains and the sea. On the Mākaha side, they watched from a prominent stone known as Pohaku o Kane, on the Keau side, from a stone known as Pohaku o Kaneloa. The individual who passed here was in constant danger of death, for on each side of the trail men lay in wait for the signal of the watcher. If a group of persons approached, too many to be overcome by these cannibalistic peoples, the guards called out to the men hidden below, "Moanakai" (high tide); but if, as frequently happened, only two or three people were approaching the watchers called "Mololokai" (low tide). The individuals were then attacked and the bodies taken to two small caves on the seaside of the road. Here the flesh is said to have been removed and the bones, skin, and blood left in the holes, which at high tide, were washed clean by the sea.

Stories of Malolokai

In the *ahupua‘a* of Mākaha there are accounts of a talking stone on the hill of Malolokai, and two small pits on the *makai* side of the road at Kepuhi Point:

> We rode to the plain of Kumanomano,… and it is said of the place, the teeth of the sun is sharp at Kumanomano. Mākaha rose above like a rain cloud. We passed in front of a famous hill Malolokai. We saw the talking stone standing there [Kuokoa, August 11, 1899 In Sterling and Summers 1978:79].

A brief account of the location of Malolokai cave is given by Kuokoa, July 12, 1923 in Sterling and Summers (1978:79): "…Malolokai lies below [beyond] the hill of Maunalahilahi close to a cliff. Below, in the level land of Waihokaea are the bones of the travelers who were killed by skilled *lua* fighters."

Lua literally means hand-to-hand fighting that includes bone-breaking (Pukui and Elbert 1986). It is often referred to as the *art of lua*, or the Hawaiian martial art. Starting in the 1750s, the art of *lua* was only taught to the *ali‘i* and their guards. It was a long time familial secret and could only be passed down through family. Later, in the early1920s, the *kapu* was broken and the Hawaiian martial art of *lua* was taught to other people outside of the bloodline.

Lua had an array of weapons that were used in combat made of different types of hardwood found throughout the Hawaiian islands such as *kauwila* and *kawa‘u*. Marine resources were also used to make weapons, such as shark teeth, used to make the *leiomano*, a shark tooth weapon used as a knife and the marlin (swordfish) bill.

Some legends say that they were cannibals and not *lua* fighters:

> The late Harry George Poe, born in Makua Valley in 1882, wrote in his diary that the robbers threw their victims into a pit that went underground to the ocean. Poe explained, ‘the reason is, they wants a man’s legs without no hair on to make [an] aku [tuna] fishhook. They believe in those days that the human leg is best, lucky hook for aku.’ One legend says a group of hairless men from Kauai finally wiped out the entire colony of robbers. Since that time, Malolokai has been safe for travelers [McGrath *et al.* 1973:11].

The following is a story told by an unknown Hawaiian. This area, Kepuhi Point, is at the base of the ridge that divides Mākaha and Kea‘au Valleys. McAllister recorded it in 1933 (site #175):

> Long ago there lived here a group of people who are said to have been very fond of human flesh. At a high altitude on each side of the ridge, guards were stationed to watch for people crossing this narrow stretch of land between the mountains and the sea. On the Mākaha side, they watched from a prominent stone known as Pohaku o Kane; on the Kea‘au side, from a stone known as Pohaku o Kaneloa. The individual who passed here was in constant danger of death, for on each side of the trail men lay in wait for the signal of the watcher. If a group of persons approached, too many to be overcome by these cannibalistic peoples, the guards called out to the men hidden below, "Moanakai" [high tide]; but if, as frequently happened, only two or three people were approaching, the watchers called, "Mololokai" [low tide]. The individuals were then attacked and the bodies taken to two small caves on the sea side of the road. Here the flesh is said to have been

> removed and the bones, skin and blood left in the holes, which, at high tide, were washed clean by the sea.
>
> For many years these people prayed upon the traveler until at one time men from Kauai, hairless men [Olohe] came to this beach. They were attacked by these cannibals but defeated them, killing the entire colony. Since then the region has been safe for traveling. [McAllister 1933:121-122]

In Hi‘iaka’s “Address to Cape Kaena,” she mentioned Mākaha as she travelled along the sunny coast. As she stood at the top of the Pōhākea Pass looking back she sang the following song (Emerson 1965:157):

Kaena’s profile fleets through the calm,	Kunihi Kaena, Holo i ka Malie;
With flanks ablaze in the sunlight-	Wela i ka La ke alo o ka pali;
A furnace-heat like Kilauea;	Auamo mai i ka La o Kilauea;
Ke-awa-ula swelters in heat;	Ikiiki i ka La na Ke-awa-ula
Kohola‘-lele revives in the breeze	Ola i ka makani Kai-a-ula Kohola‘ lele-
That breath from the sea, Kai-a-ulu.	He makani ia no lalo.
Fierce glows the sun of Makua;	Haoa ka Loa i na Makua;
How it quivers at Ohiki-lele-	Lili ka La i Ohiki-lolo
‘Tis the Sun-god’s dance o‘er the plain,	Ha‘a-hula le‘a ke La i ke kula,
A roit of dance at Makaha.	Ka Ha‘a ana o ka La i Makaha;
The sun-tooth is sharp at Kumano;	Oi ka niho o ka La i Ku-manomano;
Life comes again to Maile ridge,	Ola Ka-maile i ka huna na niho
When the Sun-god ensheaths his fang.	Mo‘a wela ke kula o Walio;
The Plain Walio‘ is sunburned and scorched;	Ola Kua-iwa i ka malama po
Kua-iwa revives with the nightfall;	Ola Waianae i ka makani Kai-a-ulu
Waianae is consoled by the breeze	Ke hoa aku la i ka lau o ka niu
Kai-a-ulu and waves its coco fronds;	Uwe’ o Kane-pu-niu i ka wela o ka La;
Kane-pu-niu’s fearful of sunstroke’(*e)*	Alaila ku‘u ka luhi, ka malo‘elo‘e,
A truce, now, to toil and fatigue:	Auau aku i ka wai i Lua-lua-lei
We plunge in the Lua-lei water	Aheahe Kona, Aheahe Koolau wahine,
And feel the kind breeze of Kona,	Ahe no i ka lau o ka ilima.

The cooling breath of the goddess,	Wela, wela i ka La ka pili i ka umauma,
As it stirs the leaves of ilima.	I Pu‘u-li‘ili‘i, i Kalawalawa, i Pahe-lona,
The radiant heat scorches the breast	A ka pi‘i‘na i Wai-ko-ne-ne’-ne;
While I sidle and slip and climb	Hoomaha aku i Ka-moa-ula;
Up one steep hill then another;	A ka luna i Poha-kea
Thus gain I at last Moa-ula,	Ku au, nana i kai o Hilo:
The summit of Poha-kea.	
There stand I and gaze oversea	
To Hilo, where lie my dewy-cold	
Forest preserves of lehua	
That reach to the sea in Puna-	
My lehuas that enroof Kuki‘i.	

Menehune in Mākaha are mentioned in Hawaiian Folk Tales by Thos. G. Thrum (1998) in the story of Kekupua’s Canoe. The *menehune* constructed a canoe for chief Kakae who lived in Wahiawa for his wife to travel to Tahiti. Kekupua was the chief’s main man who went to Mākaha to pull the canoe down to the ocean.

3.1.2 Early Historic Period

Wai‘anae District

The origin of the name Wai‘anae is thought to be connected to the richness of the waters off Wai‘anae’s coast: *wai* - water and *‘anae* - large mullet (Sterling and Summers 1978). Several accounts attest to the abundance of fish from Wai‘anae waters (Wilkes 1845; Pukui et al. 1974). In 1840, Wilkes makes the following comment: “The natives are much occupied in catching and drying fish, which is made a profitable business, by taking them to Oahu, where they command a ready sale” (Wilkes 1845:81-82).

Traditional accounts of Wai‘anae portray a land of dual personality: a refuge for the dispossessed and an area inhabited by the rebellious and outlaws. Certain landmarks in Wai‘anae attest to this dichotomy. Kawiwi, a mountain between Wai‘anae and Mākaha Ahupua‘a, was dedicated as a refuge by priests during times of war (McAllister 1933; Kamakau 1961). Pōka‘ī Bay was used as a school administered by the exiled high-class priests and *kahuna* who took refuge in Wai‘anae after Kamehameha Nui gained control of O‘ahu (in Sterling and Summers 1978:68). It was also near Pōka‘ī Bay, at a place named Pu‘u Kāhea, that the eighteenth-century prophet and *kahuna nui* of O‘ahu, Ka‘opulupulu, made his last famous prophecy before he was killed in Po‘olua (in Sterling and Summers 1978:71). In contrast, other places in Wai‘anae were famed for their inhospitality.

Certainly, the environmental conditions along the Wai‘anae Coast played a part in shaping Wai‘anae people. Vancouver, the first explorer to describe this coast in 1793, describes the Wai‘anae Coast as "…composed of one barren rocky waste, nearly destitute of verdure, cultivation or inhabitants..." (Vancouver 1798:217).

The *‘ōku‘u* epidemic of 1804 (thought to be cholera) undoubtedly had a major effect on the native population, not only in Wai‘anae, but throughout the rest of the islands as well. John Papa ‘Ī‘ī relates that the *‘ōku‘u* "broke out, decimating the armies of Kamehameha I" [on O‘ahu] (1959:16). Other diseases also took their toll. The combined census for the Wai‘anae and ‘Ewa Districts in 1831-1832 was 5,883 (Schmitt 1977:12). Twenty years later, the combined census for the two districts was 2,451.

Another early historic period foreign influence, which greatly impacted Hawaiian culture and the traditional lifestyle, was the sandalwood trade. In an effort to acquire western goods, ships, guns, and ammunition, the chiefs acquired massive debts to the American merchants (‘Ī‘ī 1983:155). These debts were paid off in shiploads of sandalwood. When Kamehameha found out how valuable the sandalwood trees were, he ordered the people not to let the felled trees fall on the young saplings, to ensure their protection for future trade (Kamakau 1992:209-210).

Mākaha Ahupua‘a

Earliest accounts specific to Mākaha describe a good sized inland settlement and a smaller coastal settlement. (Green 1980). These accounts correlate well with a sketch drawn by Bingham in 1826 depicting only six houses along the Mākaha coastline (Figure 5). Green (1980:20-21) describes Mākaha's coastal settlement as "…restricted to a hamlet in a small grove of coconut trees on the Kea‘au side of the valley, some other scattered houses, a few coconut trees along the beach, and a brackish water pool that served as a fish pond, at the mouth of the Mākaha Stream." This stream supported traditional wetland agriculture - taro in pre-contact and early historic periods and sugarcane in the more recent past. Mākaha Stream, although it has probably changed course in its lower reaches, favors the northwest side of the valley leaving most of the flat or gently sloping alluvial plain on the southeast side of the valley. Rainfall is less than 20 inches annually along the coast and increases to approximately 60 inches along the 4000-foot high cliffs at the back and sides of the valley (Hammatt et al. 1985). Seasonal dryland cultivation in early times would have been possible, and dry land fields (kula) have been found in the valley in previous surveys (Green 1980).

The ancient, small (130-square meter) stepped stone *heiau* called Laukīnui, is so old that tradition claims it was built by the *menehune*. In areas watered by the stream there were *lo‘i* lands, but along this arid coast there was plenty of land where there was not enough water for taro, and typically here sweet potatoes and other dryland crops would have flourished. The Bishop Museum study undertaken by Green (1980) found several field shelters with firepits from this dryland field system. Their settlement model indicates that during this early period the field shelters were used as rest and overnight habitations by people living permanently on the coast, who moved inland to plant, tend, and harvest their crops during the wet season (Green 1980: 74).

At the boundary between Mākaha and Wai‘anae Ahupua‘a lies Mauna Lahilahi, a striking pinnacle jutting out of the water. Vancouver describes Mauna Lahilahi as "a high rock,

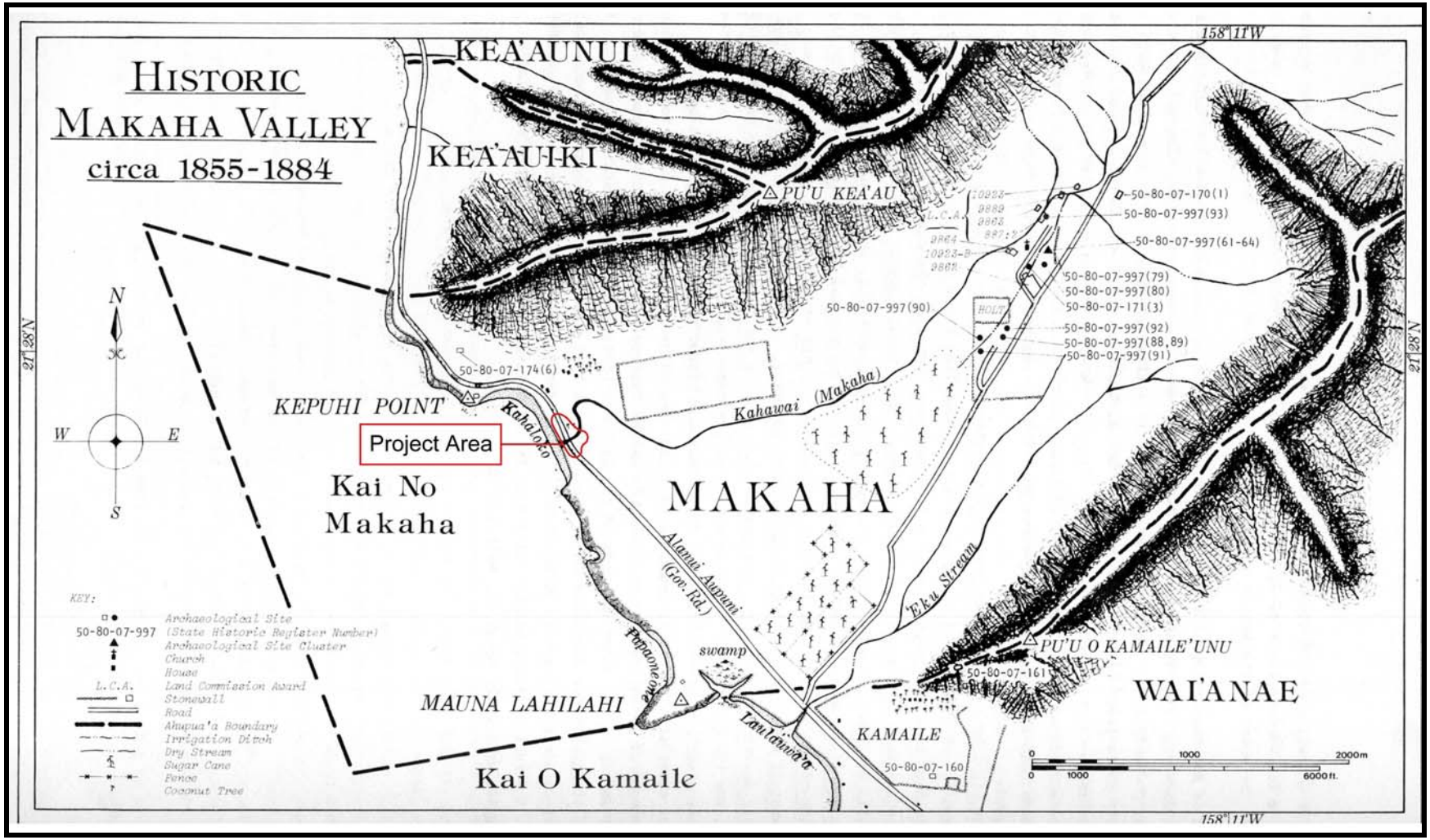

Figure 5. 1855-1884 Map (Green 1980) of Mākaha Valley showing location of project area and surrounding LCAs

remarkable for its projecting from a sandy beach." He also describes a village located south of Mauna Lahilahi situated in a grove of coconuts (Vancouver 1798:219). This village is Kamaile, which Green (1980:8) likens to a miniature *ahupua‘a* "with the beach and fishery in front and the well watered taro lands just behind." A fresh water spring, Keko‘o, gave life to this land and allowed for the existence of one of the largest populations on the Wai‘anae Coast. The presentproject area would have been north of the coastal settlement in the relatively low site density shoreline environment.

3.1.3 Māhele and LCA Documentation

The Organic Acts of 1845 and 1846 initiated the process of the Māhele - the division of Hawaiian lands, which introduced private property into Hawaiian society. In 1848, the crown and the *ali‘i* (royalty) received their land titles. *Kuleana* awards for individual parcels within the *ahupua‘a* were subsequently granted in 1850. Mākaha Ahupua‘a had 13 claims of which 7 were awarded (Table 1). Six of the seven Mākaha LCAs were located inland attesting to the importance of the inland settlement (see Figure 5). The seventh Mākaha LCA claims a *muliwai* as its western boundary. According to Pukui and Elbert (1986: 236) a *muliwai* refers to a "river, river mouth; pool near mouth of a stream, as behind a sand bar, enlarged by ocean water left there by high tide; estuary." The reference to it as a boundary suggests this LCA was probably situated near the coast. Two unawarded claims also mention the *muliwai* as their boundary. Based on this information, it is possible that these claims were for Mākaha lands within the current project area, or at least in the immediate vicinity.

Land use information for the Mākaha LCAs is sparse. *Lo‘i* lands and *kula* lands were an important part of sustenance. Aside from these general land specifications, however there is mention of *noni*, ponds, and land for raising *mao*. The *noni* and ponds are recorded in association with the *‘ili* of Kamaile suggesting the claimant was claiming land in neighboring Wai‘anae Ahupua‘a in addition to the Mākaha claim. *Mao* refers to an introduced species of "cotton" (*Gossypium barbadense* or *Gossypium hirsutum*), which was commercially grown in Hawai‘i beginning the early part of the nineteenth century, although it never became an important industry (Wagner et al., 1990: 876). *Ma‘o* generally does well in hot, arid environments and Mākaha would have been a suitable climate for such an industry.

Kuho‘oheihei (Abner) Pākī, father of Bernice Pauahi, was given the entire ahupua'a of Mākaha by Liliha after her husband, Boki, disappeared in 1829 (Green, 1980). Although several individuals are recorded as having charge over Mākaha including Aua, Kanepaiki "chief of the Pearl River", and the present "King", A. Pākī felt entitled to the entire *ahupua‘a* of Mākaha. It is uncertain how much of his claim he was granted. Whatever the case, it is suggested Paki was able to wield a certain amount of control over the residents of Mākaha during the Māhele resulting in the limited number of LCA applications. The number of taxpaying adult males in 1855 numbered 39, suggesting there were more families living and working the Mākaha lands (Barrere 1970: 7) than was reflected in Māhele awards.

Based on the Māhele documents, Mākaha's primary settlement was inland where waters from Mākaha Stream could support *lo‘i* and *kula* cultivars. Although there is evidence for settlement along the shore, for the most part, this was limited to scattered, isolated residents. The only

Table 1.LCAs in Mākaha Ahupua‘a

Land Claim #	Claimant	‘Ili	Land Use	Landscape Feature	Awarded
877	Kaana/Kuaana for Poomano, wife	Kapuaa		Surrounded by lands of Alapai	1 ap.; 1.587 Acs (also Hotel St. & Waianae awards)
8228	Inaole (no name)	Laukini	house	stream on 2 sides	No
8763	Kanakaa	Hoaole	‘ili		No
9689	Nahina	Kekio	16 *lo‘i,* house lot	kahawai, muliwai on west	1 ap. .957 Ac.
9859	Napoe	Aheakai/ Laukini Mooiki	17 *lo‘i* (*mo‘o*) & kula house	*pali* on N. Kalua ma on N., kula & stream on E, stream on S. *muliwai* on west.	No
9860	Kalua	Luulauwaa (Laulauwaa)	house	in *kahawai* (stream valley) of Mākaha, hau, *muliwai* on west	No
9861	Nahina, see above	Kekio			No
9862	Kanehaku	Kekio Mooiki			
9863	Kala	Waikani Kahueiki Kapuaa		stream on S. *pali*(s) & stream land of Alapai	1 ap.; (Kalihi) 1.346 Acs
9864	Kapea	Laukini	19 lo‘i kula	pali	1 ap.; 1.217 Acs
10613	Pākī, Abner	Ahupua‘a			Apana 5: 4,933 Acres
10923	Uniu	Mākaha		stream on E.land of Kalua on S, *pali on W.*	1 ap.; .522 Ac. 1 ap.; .576 Ac.
10923B	Alapai	Kapuaa	2 lo‘i & kula	pali on E. kahawai on W.	1 ap.; .52 Ac.

“cluster” of habitation structures was concentrated near Mākaha Beach, near the Kea‘au side of Mākaha where there is also reference to a fishpond. There is tentative, but inconclusive evidence for land claims within the vicinity of the current project area. .

3.1.4 1850 to 1900

By ancient custom, the sea for a mile off the shores belonged to the *ahupua‘a* as part of its resources. The ruling chief could prohibit the taking of a certain fish or he could prohibit all fishing at specific times. Pākī filed two such prohibitions, one in 1852, for the taking of *he‘e* or octopus (*Polypus* sp.) and the other in 1854 for the taking of *‘ōpelu* (*Decaqpterus pinnulatus*) (Barrere in Green 1980:7)

In 1855, Chief Pākī died, and the administrators of his estate sold his Mākaha lands to James Robinson and Co. Later, in 1862, one of the partners, Owen Jones Holt, bought out the shares of the others (Ladd and Yen 1972). The Holt family dominated the economic, land-use, and social scene in Mākaha from this time until the end of the nineteenth century. During the height of the Holt family dynasty, from about 1887 to 1899, the Holt Ranch raised horses, cattle, pigs, goats and peacocks (Ladd and Yen, 1972:4). Mākaha Coffee Company also made its way into the Valley, buying up land for coffee cultivation, although they never became a prosperous industry. Upon Holt’s death in 1862, the lands went into trust for his children.

3.1.5 1900 to Present

The Holt Ranch began selling off its land in the early 1900s (Ladd and Yen, 1972). In 1907, the Wai‘anae Sugar Company moved into Mākaha and by 1923, virtually all of lower Mākaha Valley was under sugar cane cultivation. The plantation utilized large tracks of Lualualei, Wai‘anae and Mākaha Valley. The manager’s report for 1900 described the plantation as having some 400 acres of new land cleared, fenced and planted, two miles of railroad, and nearly three miles of flumes laid to said lands (Condé and Best 1973:357). For a half century, Mākaha was predominantly sugarcane fields, but by 1946, the manager’s report announced the plans to liquidate the property because of the additional increase in wage rates, making the operations no longer profitable (Condé and Best 1973:358).

The lack of water resources played a role in Wai‘anae Sugar Company’s low profitability. In the 1930s, Wai‘anae Plantation sold out to American Factors Ltd. (Amfac, Inc.). American Factors Ltd. initiated a geologic study of the ground water in the mountain ridges in the back of Mākaha and Wai‘anae Valleys. The study indicated that tunneling for water would be successful, but before tunneling could commence, World War II came about and plans were put on hold (Green, 1980). In 1945, American Factors Ltd. contracted the firm of James W. Glover, Ltd. to tunnel into a ridge in the back of Mākaha Valley. The completed tunnel (i.e. Glover Tunnel) was 4200 feet long and upon completion had a daily water capacity of 700,000 gallons. The water made available was mainly used for the irrigation of sugar. In 1946, Wai‘anae Plantation announced in the *Honolulu Advertiser* (Friday, Oct 18, 1946) that it planned to liquidate its nearly 10,000 acres of land. The day before, news of the impending sale was circulated among the investors at the Honolulu Stock Exchange. One of the investors was Chinn Ho.

> The unorthodox Ho had started his Capital Investment Company only the year before with a bankroll of less than $200,000, much of it the life savings of plantation workers. He was known as a friend of the little man, an eager disciple of economic growth, and an upstart. [McGrath et al. 1973:145]

Chinn Ho managed to broker the deal the following day, by 2 p.m, when the Wai‘anae Plantation sold the Mākaha lands to the Capital Investment Corporation, which stills maintains ownership of much of Mākaha Valley. There was an attempt to convert the sugar lands back to ranching but the perennial problem of water continued. Parts of the property were sold off as beach lots, shopping centers and house lots. Many of the former plantation workers bought house lots. Chinn Ho also put his personal investment into Mākaha and initiated resort development including a luxury hotel and in 1969, the Mākaha Valley Golf Club, an 18-hole course with tennis courts, restaurant and other golf facilities was opened for local and tourist use (McGrath et al. 1973:146-163). Numerous other small-scale agricultural interests were pursued during this time period including coffee, rice and watermelons (Ladd and Yen 1972). Water from Glover Tunnel was now used to water Mākaha Valley farms, and the lush grounds of the Mākaha Inn and Country Club, and its associated golf course.

3.1.6 Alterations to the Wai‘anae Coastline (1880 –1930)

Prior to the 1880s, the Wai‘anae coastline may not have undergone much alteration. The old coastal trail probably followed the natural contours of the local topography. With the introduction of horses, cattle, and wagons in the nineteenth century, many of the coastal trails were widened and graded to accommodate these new introductions. However, the changes probably consisted of superficial alterations to the existing trails and did not entail major realignments. Kuykendall (1953:26) describes mid-nineteenth century road work: “Road making as practiced in Hawai‘i in the middle of the nineteenth century was a very superficial operation, in most places consisting of little more than clearing a right of way, doing a little rough grading, and supplying bridges of a sort where they could not be dispensed with.” The first real alteration to the Wai‘anae coastline probably came with the growth of the Wai‘anae Sugar Company. The company cultivated cane in three valleys – Mākaha, Wai‘anae, and Lualualei – and to more easily transport their cane to the dock and to the mill at Wai‘anae Kai, a railroad was constructed in 1880. The construction of the railroad would have had an impact on the natural features in the area, such as the sand dunes, as well as the human-made features, particularly the fishponds and saltponds maintained in the coastal zone. Additional alteration to the Wai‘anae coastline occurred in the late nineteenth century with the extension of Dillingham’s O.R. & L. rail line into the Leeward Coast. One reporter writes a glowing story of the railroad trip to Wai‘anae at its opening on July 4, 1895:

> For nine miles the road runs within a stone’s throw of the ocean and under the shadow of the Wai‘anae Range. With the surf breaking now on the sand beach and now dashing high on the rocks on one side, and with the sharp craigs and the mountains interspersed with valleys on the other, patrons of the road are treated to some of the most magnificent scenery the country affords. [McGrath *et al.* 1973:56]

This report suggests the railroad hugged the ocean during a good portion of the trip. The railway’s grade requirements demanded considerable alterations to natural landscapes in order to make them feasible for transport, including curve and slope reduction. A 1912 map of the Government Belt Road illustrates the alignment of the old Government Road, which was

probably a modified version of the original coastal trail, and the alignment of the proposed Government Belt Road, which would parallel the O. R. & L. alignment. After the Belt Road was completed, further roadwork was carried out in the 1930s on what was called the “Wai‘anae Road” (D.O.T. 1923), later named Farrington Highway. Kili Drive was built ca. 1970s to provide additional access into Mākaha Valley. The additional access was necessary due to the increased population related to residential, golf resort, and condominium development in the valley.

3.1.7 Mākaha Bridges 3 and 3A and Improvements to Farrington Highway

The bridges were built in 1937. Hawai‘i was still a territory, and W. D. Bartel was the Chief Engineer for the Territorial Highway Department. At the time, the bridges, with the associated improvements to the existing “Wai‘anae Road,” latter renamed Farrington Highway, were important components of the Territorial Highway System. Based on photographs of Farrington Highway in McGrath (*et al*. 1973:138-139, 144, 149), what became Farrington Highway through Wai‘anae was first paved as a result of this 1930s Territorial Highway System construction. This expansion of the O‘ahu’s belt road system was an important improvement that further facilitated transportation to and from the more remote portions of Wai‘anae, beyond Mākaha.

3.2 Previous Archaeological Research

3.2.1 Previous Archaeological Studies in Mākaha Ahupua‘a

A number of archaeological studies have been carried out in Mākaha Ahupua‘a (Figure 6, Table 2), beginning with McAllister’s (1933) island-wide survey in which he describes seven sites in Mākaha Ahupua‘a.

State site 50-80-07-169 is a complex of rock-faced terraces for irrigated taro cultivation located “two-thirds the way up the valley” and shown on McAllister’s O‘ahu site map as on the northwest side of the valley approximately 800 m northwest of Kāne‘ākī Heiau.

State site 50-80-07-170 is Kāne‘ākī Heiau which has been preserved and reconstructed.

State site 50-80-07-171 is another set of extensive once irrigated taro terraces, with some rock facings 6 ft. in height, and is reported as “half-way up Mākaha Valley and on the Honolulu side of the stream” and is shown on McAllister’s O‘ahu site map as approximately 400 m south of Kāne‘ākī Heiau. Green (1980) reported that this site was not relocated and had been destroyed but Neller (1984) relocated and described the damaged site.

State site 50-80-07-172 is described as a stone platform, is interpreted as a possible shrine, and is shown on McAllister’s O‘ahu site map as approximately 600 m south of Kāne‘ākī Heiau. Green (1980) reported that this site was not relocated and had been destroyed but Neller (1984) relocated and described the damaged site.

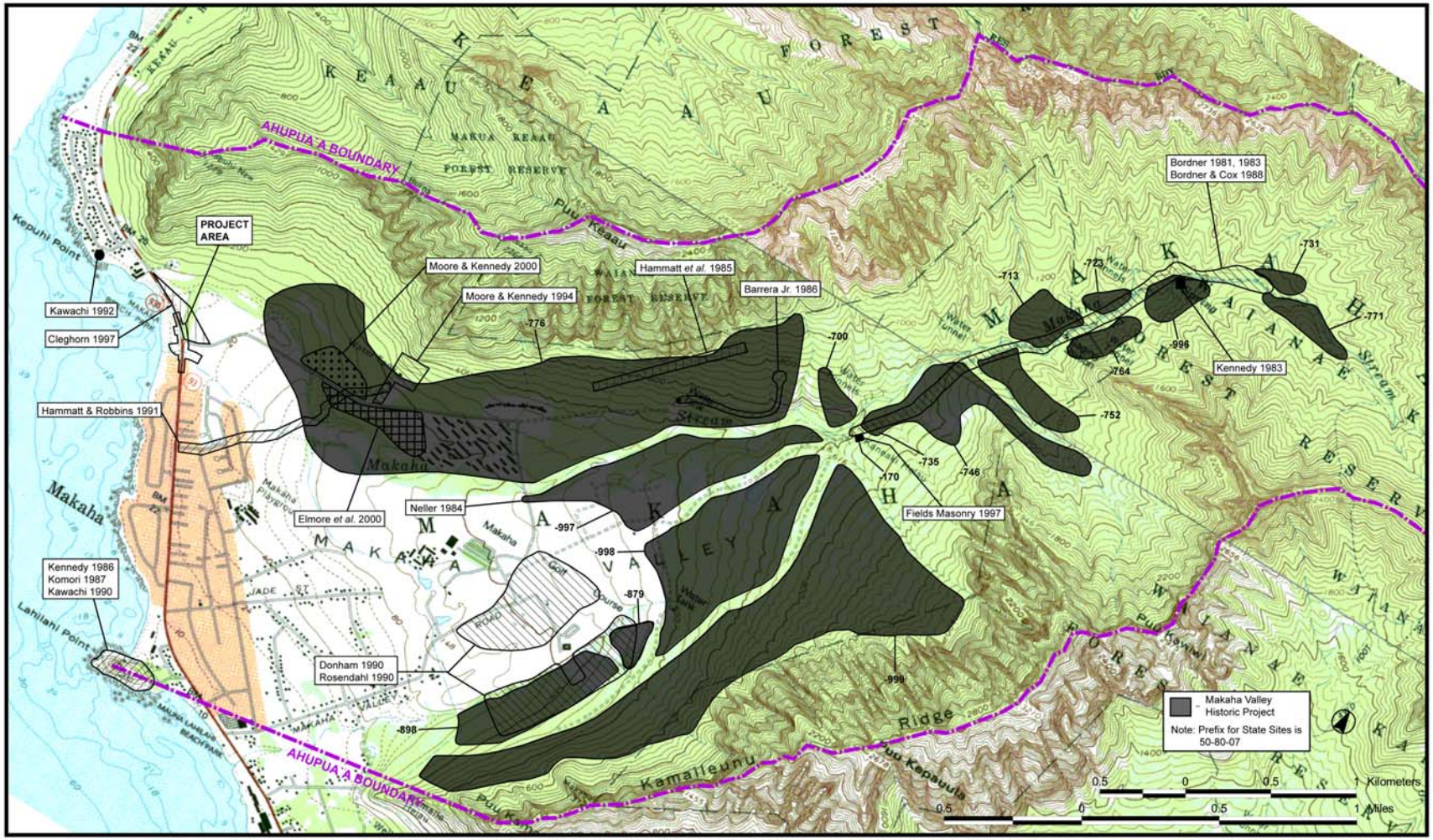

Figure 6. 1998 Wai‘anae USGS 7.5-minute topographic quadrangle showing previous archaeological investigations in Mākaha Ahupua‘a.

Table 2. Previous Archaeological Studies in Mākaha Ahupua‘a

Study	Location	Type of Study	Findings
McAllister 1933	Island-wide	Island-wide Survey	Describes 7 sites within Mākaha Ahupua‘a
Green 1969	Large expanse of the central valley	Mākaha Valley Historical Project Report 1	Presents historical documentation and analysis of remains
Green 1970	Large expanse of the central valley	Mākaha Valley Historical Project Report 2	Presents results of excavations including 16 carbon dates going back to circa AD 1200.
Ladd & Yen 1972	Large expanse of the central valley	Mākaha Valley Historical Project Report 3	Presents results of excavations
Ladd 1973	Large expanse of the central valley	Mākaha Valley Historical Project Report 4	Presents results of excavations
Green 1980	Large expanse of the central valley	Mākaha Valley Historical Project Report 5 - Summary	Summary of Archaeological Data and Cultural History
Bordner 1981	Corridor in valley floor *mauka* of Kāne‘ākī Heiau	Surface Survey	Notes numerous sites, mostly agricultural
Bordner 1983	Corridor in valley floor *mauka* of Kāne‘ākī Heiau	Surface Survey	Notes numerous sites, mostly agricultural
Kennedy 1983	Elevation of 1072 feet in the valley floor, 2 km *mauka* of Kāne‘ākī Heiau	Well Monitoring Report	Observed no buried features or artifacts
Neller 1984	Central Valley (Site Area -997)	Archaeological Reconnaissance Survey	Identifies unreported sites, and re-analysis several sites
Hammatt et al. 1985	West side of valley (Site Area 776)	Archaeological Reconnaissance Survey	Identifies numerous modified natural terraces assoc. with dryland agriculture
Barrera Jr. 1986	West central side of the valley	Archaeological Survey	Identified four sites including four stone platforms, a U-shape habitation enclosure, a terrace and a wall. Some 17 test pits were excavated

Study	Location	Type of Study	Findings
Kennedy 1986	Mauna Lahilahi	Archaeological Investigations	Identifies five archaeological sites
Ahlo et al 1986	Mauna Lahilahi	Affidavits of brief oral histories	Accounts note the general sacredness of Mauna Lahilahi & the good fishing
Komori 1987	Mauna Lahilahi	Archaeological Survey & Testing	Relocates Kennedy's five sites and describes eleven more. Reports eight carbon dates
Bordner & Cox 1988	Upper valley valley floor	Mapping Project	Ties in previously identified sites, focus on sites -764 & -77, emphasis on dryland ag.
Donham 1990	Two areas on southeast side of the valley	Archaeological Inventory Survey	Identified a terrace assoc. with dry-land ag. and/or habitation
Kawachi 1990	Mauna Lahilahi	Burial report	Describes remains of 2+ individuals, artifacts & sites
Hammatt & Robins 1991	Water Street/ Kili Drive Area	Archaeological Inventory Survey	Identified a linear earthen berm understood as associated with commercial sugar cane cultivation
Kawachi 1992	84-325 Makau St., Kepuhi Point	Burial Report	1 burial? “First in this particular area”
Moore & Kennedy 1994	Northwest side of the valley, 242-foot elevation	Archaeological Investigations	No historic features were located.
Cleghorn 1997	*Mauka* of Farrington Hwy, north of Kili Drive	Archaeological Inventory Survey	A cultural layer, a pond/wetland area remains of structures associated with the O. R. & L. Railroad, & a bridge foundation
Pagliaro 1999	Kāne‘ākī Heiau	*Heiau* Restoration Report	Presents background, a restoration plan & an account of restoration work
Magnuson 1997	Upper Mākaha Valley	Archaeological Review	Presents an overview & summary of previous studies
Maly 1999	Central valley	Limited Consultation Study	Presents a historical overview and consultation with knowledgeable parties

Study	Location	Type of Study	Findings
Elmore et al. 2000	South side of Kili Drive (Site area - 776)	Archaeological Inventory Survey	Identified three features poss. assoc. with dry-land ag. and/or habitation
Moore & Kennedy 2000	North side of Kili Drive (Site area - 776)	Archaeological Inventory Survey	Identified two features poss. assoc. with dry-land ag.
Kailihiwa& Cleghorn 2003	Lower Mākaha	Archaeological Monitoring Report	Identified three sites with five features
Tulchin and Hammatt 2003	Kili Drive and Farrington Hyw.	Archaeological Inventory Survey	No cultural resources identified

State site 50-80-07-173 is described as the “probable location” of a large rock reported in 1839 by E. O. Hall as “two or three miles distance” past the settlement at Pukahea (Pu‘u Kahea) that was once an object of worship. This sacrificial stone was reported by Hall as “in no peculiar sense striking” and “as undignified as any other hump or inanimate matter along the road.” It is unclear whether McAllister actually saw this stone, which Hall describes as “lying at the foot of a frightful precipice several hundred feet in height” but McAllister’s map appears to locate it in the flats in the central seaward portion of the valley.

State site 50-80-07-174, Laukinui Heiau, was described as “the important one [*heiau*] in Mākaha Valley”, and said to be so old as to have been built by the menehune. McAllister places this site in the vicinity of Kepuhi Point and his description of the *heiau* incorporating a “coral outcrop” and “an amazing amount of coral” fits that locale. State site 50-80-07-175 known as Mololokai is located at the base of the ridge between Kea‘au and Mākaha on the seaside of the road. This site was described as two pits where early cannibals had come to wash the de-fleshed bodies of their victims at high tide. Associated with this site were said to be two prominent stones, a Pōhaku O Kāne on the Mākaha side and a Pōhaku O Kanaloa on the Kea‘au side.

The Mākaha Valley Historical Project (Green 1969, 1970, 1980; Ladd and Yen 1972; and Ladd 1973), involving fieldwork conducted between 1968 and 1970, studied most all of Mākaha Valley. However, as Neller (1984:1) noted sites were lumped into large geographical districts and most of the valley was only surveyed at the reconnaissance level. The Mākaha Valley Historical Project research was unique in that it was funded by private enterprise without legal compulsion and the investigations covered parts of the valley beyond those due for development. More than 600 archaeological features were recorded in the upper valley and 1,131 features were recorded in the lower valley. The coastal strip and the central lower valley were not included because of previous development. Excavations were undertaken at thirty separate structural features including ten field shelters, four stone mounds, three stepped-stone platforms, three house enclosures, two storage pits, a clearing, a site thought to be a shrine, a *heiau*, a pond field terrace system, a habitation feature, two historic house platforms, and a modern curbed foundation. Carbon dating indicated settlement as early as the 13th century. Settlement was focused on the primary water source, Mākaha Stream. Subsequently, with increased population

expansion into *kula* lands occurred. By the 16th century the expansion occurred in the "upper valley" with changes in subsistence to irrigated taro system (i.e. *lo‘i*)(Green 1980:75).

Green's (1980) archival research, part of the Mākaha Valley Historical Project, identifies a number of small residences, thought to correspond to late prehistoric and early historic habitation, in the vicinity of the current project area. This area, and presumably the associated settlement, is termed Kahaloko, based on information provided by Clark (1977:91). This Kahaloko area (refer to Figure 5), with its few houses and coconut trees, is depicted on Green's reconstructed map of Mākaha Valley settlement and land use for the period between 1855 and 1884 (Green 1980:22-23). This settlement was at least generally geographically associated with a fishpond:

> It is highly probable that there was a brackish-water fishpond in the low area behind the beach where Mākaha Stream would have constantly been imponded. . . . A pond appears in this position on the preliminary field map for the O‘ahu Railway and Land Company (Dillingham Files, n.d.). The use of the name Kahaloko (place of the fishpond) for Mākaha Beach strongly suggests its presence, and Clark (1977:92) gives Mākāhā [sluice gate of a traditional Hawaiian fishpond] as the name of a large fishpond here. (Green 1980:20)

Richard Bordner (1981) carried out a survey of a linear project area up the middle of the valley floor inland of Kāne‘ākī Heiau in support of road widening and well placement projects. This corridor ran through several site areas designated during the Mākaha Valley Historical Project. Descriptions of sites are by proximity to site mapping points. Bordner (1981:D-22) concludes "the entire Mākaha Valley was utilized for agricultural production in the most intensive way, such that all areas capable of it were undoubtedly utilized for crop production." This study accessioned two reviews by Roger C. Green and Matthew Spriggs resulting in Bordner's preparing "Mākaha Valley Well III - V Re-Survey" (1983) and writing "Appendix B: Response to M. Spriggs Review of Mākaha Wells" (n. d.).

Kennedy (1983) produced an archaeological monitoring report on work at a 100 m long strip near "Well IV" at an elevation of 1072 feet in the valley floor, two km inland from Kāne‘ākī Heiau. He saw no evidence of buried features or artifacts.

Earl Neller (1984) of the SHPD went back into the area designated as Site Area 997 "to clear up various deficiencies in the published reports and unpublished site data" and to re-examine various "puzzling inconsistencies." He relocated sites previously reported as destroyed (McAllister sites 171 & 172), identified unreported sites, and re-analyzed several sites studied during the Mākaha Valley Historical Project.

Hammatt, Shideler and Borthwick (1985) carried out an archaeological reconnaissance survey of a 3,000 foot long corridor on the west side of central Mākaha Valley in the 776 site area, documenting numerous modifications of natural terraces for dry land agriculture. Ten archeological sites (1 wall, 2 habitation sites, and 7 agricultural sites) were recorded

Barrera, Jr. (1986) carried out an archaeological survey of a mid valley well site on the west central side of the valley. The project area appears to have included a corridor approximately 600 m long and 30 m wide and a proposed reservoir site 90 m in diameter. He identified four sites including four stone platforms (Site -1465), a U-shape habitation enclosure (Site -1466), a

terrace (Site -1467) and a wall (Site -1468). Some 17 test pits were excavated but virtually nothing was found.

Kennedy (1986) carried out archaeological investigations focused on the north (Mākaha) side of Mauna Lahilahi identifying five sites including a possible shrine, a *koa*, a linear pile and an enclosure.

Komori (1987) carried out archaeological survey and testing at Mauna Lahilahi relocating Kennedy's (1986) five sites and an additional eleven sites including petroglyphs, enclosures, terraces, rock shelters & midden, and lithic scatters. He reports eight radiocarbon dates rather tightly in the AD 1300 to 1650 period.

Bordner & Cox (1988) carried out a mapping project on the upper valley floor inland of Kāne‘ākī Heiau. While much of the focus of this study was more accurately locating sites previously identified during the Mākaha Valley Historical Project, their findings suggest that the relative importance of dry-land, non-irrigated agriculture had previously been underestimated.

Donham (1990) carried out an archaeological inventory survey of two discrete but adjacent parcels for a total of approximately 130 acres in the south central portion of the valley. Donham identified a terrace associated with dry-land agriculture and/or habitation.

Hammatt and Robins (1991) carried out an archaeological inventory survey of an approximately 4,600-foot long route of a proposed 20-inch water main extending northeast from Farrington Highway up Water Street and then continuing northeast to and across Kili Drive. They documented a single historic property Site 50–80-07-4363. Site -4363 was described as "a linear earthen berm ... buttressed along its stream side with cobbles and boulders" (Hammatt & Robins 1991). The berm was interpreted as having been "associated with the historic sugarcane cultivation" (Hammatt & Robins 1991). Based on historic maps, the berm probably represents an old ditch alignment. The ditch alignment was probably altered during construction of the adjacent golf courses and presently functions as a flood control structure, protecting housing down slope. Subsurface testing within the corridor encountered nothing of archaeological significance.

Carol Kawachi (1992) of the SHPD wrote a memorandum on "Mākaha Burials Exposed by Hurricane ‘Iniki" documenting burial(s) eroding out of a lot at 84-325 Makau Street. This was a pit burial, approximately 50 cm below the surface extending 1.5 m long exposed from a sand bank by Hurricane ‘Iniki. The burial was reported to have included staghorn coral at major joints and a possible shell *niho palaoa*.

Moore and Kennedy (1994) carried out archaeological investigations on the northwest side of the valley for a proposed reservoir at 242-foot elevation. The access corridor and reservoir site covered approximately eleven acres. No historic features were located.

Fields Masonry documented stabilization and restoration of Kāne‘ākī Heiau carried out in 1996 (1999 documentation by Emily Pagliaro). Prior restoration efforts had been carried out in 1970.

Magnuson (1997) carried out a preliminary archaeological review of upper Mākaha Valley for a proposed water line replacement project. This was primarily an archaeological literature review providing an overview of sites.

In 1997, test excavations associated with the inventory survey conducted for the "New Mākaha Beach Park Comfort Station and Parking Area" *mauka* of Farrington Highway by Cleghorn identified a cultural layer present in an area approximately 80 m *mauka* of Farrington Highway near its intersection with Kili Drive. Radiocarbon analysis indicated an age range of A.D. 1440-1690. The deposit was suggested to be "evidence of a small encampment near the coast" (Cleghorn 1997:32) He also indicates the possible importance of a pond/wetland area just *mauka* of the Highway at Mākaha Beach Park: "This pond and wetland may have offered rich resources for the Hawaiians of the area, and the pond may have been used as an inland fishpond during the prehistoric and early historic eras" (Cleghorn 1997:33). This pond/wetland area is likely the area Green (1980) identified as "Kahaloko." Also present in the area are remains of structures associated with the O. R. & L. Railroad (State site 50-80-12-9714). Cleghorn indicates the presence of a bridge foundation located in an unnamed stream just north of Kili Drive, *makai* of the highway (Cleghorn 1997:11) and within the current Mākaha Bridges project area.

Maly (1999) carried out a "Limited Consultation Study with Members of the Hawaiian Community in Wai‘anae" in support of the Mauna ‘Olu Water System. Several interviewees deferred to Mr. Landis Ornellas (a co-founder of the organization *Hui Mālama o Kāne‘ākī Heiau*) as a cultural expert for mid-valley Mākaha. Concerns for continuing community consultation were expressed.

Elmore (*et al.* 2000) carried out an archaeological inventory survey of an approximately 19.6 acre parcel located on the south side of Kili Drive and just west of the condominiums in a portion of the previously identified site area 50-80-07-776. A total of eight features were identified. Five of these were determined to be modern disturbances while the other three were thought to be possible traditional Hawaiian dry-land agricultural and/or habitation features.

Moore and Kennedy (2000) carried out an archaeological inventory survey of an approximately 20-acre parcel located on the north side of Kili Drive in a portion of the previously identified site area 50-80-07-776. A total of twelve features were identified. Ten of these were determined to be modern disturbances while the other two were thought to be possible traditional Hawaiian dry-land agricultural features.

Kailihiwa and Cleghorn (2003) Monitored the Mākaha water system improvements phase II for ten streets in the *ahupua‘a* of Mākaha and Wai‘anae. A total of three sites were identified with five features, a pit, concrete flume, two fire features, and a charcoal deposit. No cultural material was found any of the deposits.

Tulchin and Hammatt (2003) found no surface or subsurface cultural resources during their archaeological inventory survey, located at the corner of Kili Drive and Farrington Highway, associated with a proposed fiber optic cable facility.

3.2.2 Previously Recorded Sites in the Vicinity of the Project Area

Table 3 summarizes previously recorded archaeological sites in the vicinity of the project area; Figure 7 shows the locations of these sites.

Table 3. Previously Identified Archaeological Sites in Coastal Mākaha Ahupua‘a

State Site #	Description
50-80-07-173	Probable Location of Rock Spoken of by Hall (McAllister 1933) “called ...Pukahea...an object of worship, and to which sacrifices were offered in former times. (3 miles from Pukahea) a large rock...in no particular sense striking”
50-80-07-174	Laukīnui Heiau (McAlllister 1933) Low walls inclose, on three sides, what appear to be two low stone-paved platforms...Just to the south of the inclosure a coral outcrop forms a natural platform which was undoubtedly part of the heiau...The heiau is so old as to be accredited to the *menehunes* and said to have been the important one in Mākaha Valley, though not nearly so pretentious or well-preserved as that of Kaneaki.
50-80-07-175	Mololokai (McAllister 1933) Two small pits on the *makai* side of the old road that were said to have been used by a group of cannibals who would place the defleshed bodies of their victims in these pits for cleaning by the high tide. Located at the foot of the ridge between Keaau and Mākaha Valleys. Now buried/destroyed.
50-80-07-776	Mākaha Valley Historic Project Site Area -776 Various pre-contact and historic sites including field shelters, stone mounds, stone platforms, habitation enclosures, storage pits, habitation features, and dry land agricultural features.
50-80-07-3704	Mauna Lahilahi (Kennedy 1986; Komori 1987; Kawachi 1990) A natural promontory at the southern end of Mākaha Valley. Subsurface cultural deposits, evidence of marine and religious activities and stone tool production, petroglyphs and crevice burials all included under one site designation.
50-80-07-4363	Historic Sugarcane -Related Berm (Hammatt and Robins 1991)
50-80-07-4527	Burial at 84-325 Makau St.(Kawachi 1992) Pit burial, approximately 50cm below the surface extending 1.5 m long. Exposed from sand bank by Hurricane 'Iniki. Included staghorn coral at major joints and a possible shell niho palaoa.
50-80-12-9714	Remains of O.R.&L. Railroad (National Historic Register 1975) Runs along the *makai* side of Farrington Highway. A portion of the railroad is listed on the National Register of Historic Places**.**

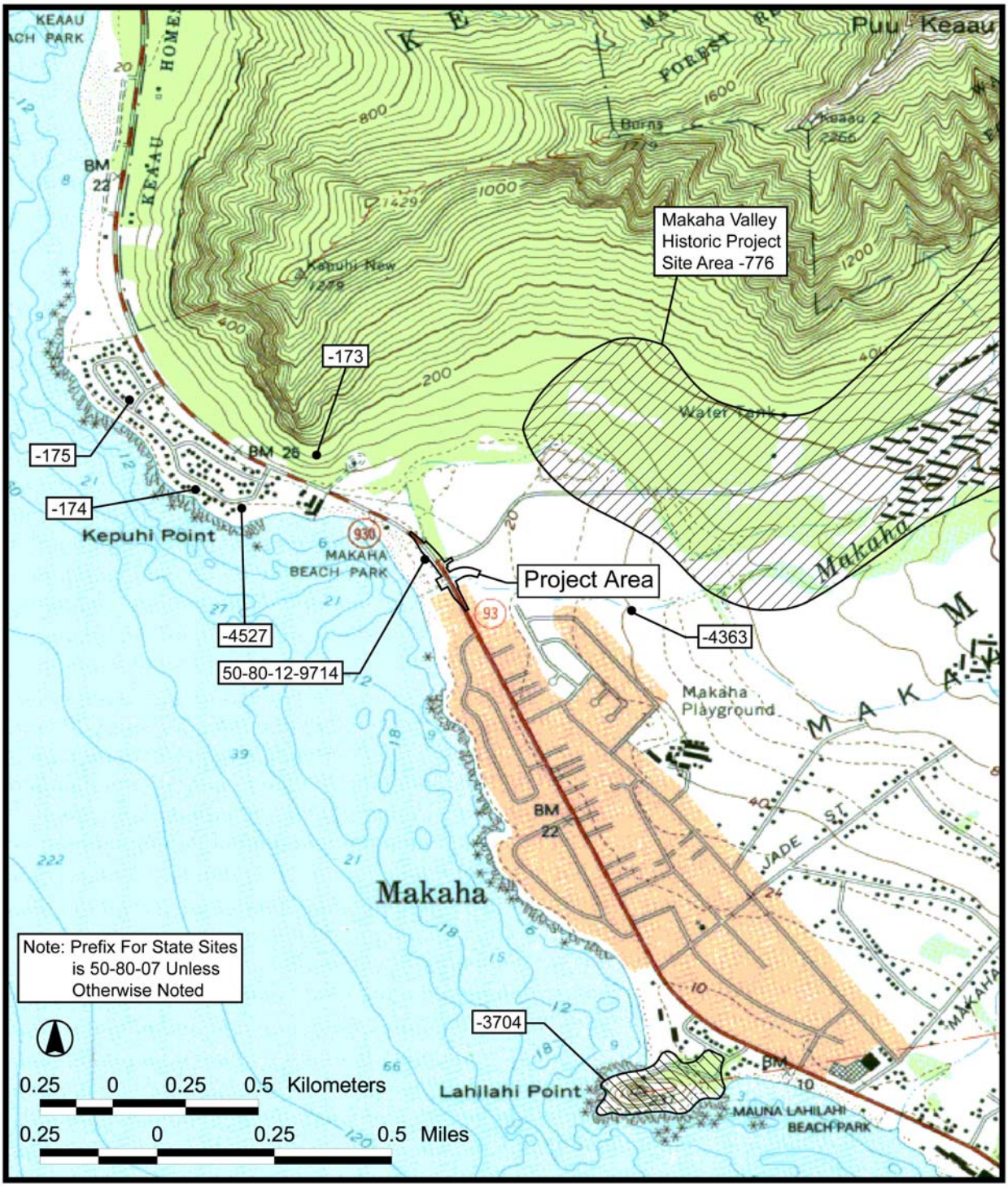

Figure 7. 1998 Wai‘anae USGS 7.5-minute topographic quadrangle, showing the location of previously identified archaeological sites within the vicinity of the project area

3.3 Settlement Pattern Summary and Predictive Model

Cordy (1998) provides a synthesis of the settlement patterns and prehistory of the Wai‘anae District. This study places the settlement of Wai`anae into the wider context of O`ahu settlement as a whole. The proximity of expansive forest resources and well-watered agricultural lands to abundant marine resources made the windward side of O`ahu most appealing to the early O`ahu settlers and their descendants. Foraging trips to the dryer areas of the island would have occurred and were most likely associated with recurrent, temporary habitation during resource procurement. The rich marine resources of the Wai`anae District, particularly the fishing grounds off shore, would have been a strong draw for early O`ahu inhabitants. As population in the windward areas increased, permanent settlement began to spill over into the well-watered regions of O‘ahu’s leeward side. Eventually, with further population expansion, permanent settlement spread to the less watered regions of the leeward side, which included much of the Wai`anae District and all of the current project area (Cordy 1998:1-6). Settlement most likely began as temporary habitation along the coast in association with marine resource procurement. Later, permanent settlement would have developed in response to expanding populations in previously settled, better watered areas.

Available radiocarbon dates indicate that by at least A.D. 600-800, there was at least temporary coastal habitation on the Wai`anae coast. This dated sample comes from the area fronting Pokai Bay, one of the only areas along the Wai`anae Coast to have a perennial stream reach the coast, and undoubtedly one of the more attractive areas for early temporary and, later, permanent settlement (Cordy 1998:6).

The current coastal Mākaha project area is less well watered than the area of Pokai Bay. The marine resources were likely equally abundant in the both areas, however. Accordingly, it is likely that the first temporary habitation of the current project area was later than the A. D. 600-800 time frame for Pokai Bay, but perhaps not significantly latter because, after Wai‘anae Ahupua‘a, Mākaha has the next most abundant fresh water resources of the Wai‘anae District (Cordy 1998:39).

Archaeological data suggests that a significant and rather substantial prehistoric population once occupied the Mākaha Valley. Roger C. Green, in his summary Report No. 5, of the Mākaha Valley Historical Project (1980) proposed that the earliest Hawaiian settlement (before A.D. 1100) was probably focused along the coast at the mouth of Mākaha Stream. This is in the immediate vicinity of the current project area. Following this initial settlement (and sometime after A.D. 1100) exploitation of the surrounding *kula* lands prompted an expansion into the surrounding lower valley.

Subsequently, as the population increased in Mākaha Valley, expansion into other *kula* regions occurred. Green argues that the *kula* expansion was a rational exploitation of “More than sufficient kula land in Mākaha for the coastal population” in an area with presumably little pressure on resources (Green 1980:74).

According to Green, various events during the 15th and early 16th centuries led to a population expansion into the upper valley regions. Green attributes this movement to “changes in the

subsistence (irrigated wet taro system), emigration of a part of the population to an area of low population density, and development of a different means of social organization (in the form of social stratification and segmentation)" (Green 1980:75).

In 1997, Cleghorn (1997) conducted an archaeological inventory survey, which abuts the eastern boundary of the current project area. Test excavations identified a cultural layer present in an area approximately 80 meters *mauka* of Farrington Highway, near the intersection of Kili Drive. Radiocarbon analysis indicated an age range of A.D. 1440-1690. This subsurface cultural deposit may be a remnant of the Kahaloko prehistoric and early historic coastal settlement that Roger Green (1980) reported for this portion of coastal Mākaha, based on archival research.

By the mid-1800s the traditional Native Hawaiian lifestyle in Mākaha Valley was in decline. The sandalwood trade, which ended circa 1829, had undoubtedly had a negative effect on the Native Hawaiian population. Beginning at this time, Mākaha Valley entered its cattle ranching period. The construction of the O.R.& L. Railroad more directly linked Honolulu to Wai`anae in 1895. Based on the paucity of L.C.A.'s claimed within the ahupua`a and the early population figures, it appears that the Native Hawaiian population was quite low in the latter half of the 19th century.

In 1907, the Wai‘anae Plantation moved into Mākaha and placed large portions of the valley under sugarcane production. With plantation activity, Mākaha's population numbers slowly increased in the early 1900's. With the construction of Farrington Highway in the 1930s, Mākaha became more closely tied with the rest of O‘ahu, including Honolulu. World War II greatly affected the landscape of the Makaha coast by placing bunkers, gun emplacements and barbed wire along the waterfront.

Based on available settlement pattern investigations and the results of previous archaeological research, it is expected that any archaeological sites identified within the current project area would be in the form of subsurface cultural deposits. These cultural deposits would reasonably include remnants of activity areas related to habitation and human burials. Past research has already established that there are surface historic cultural resources within the project area, including Farrington Highway itself, the two Mākaha Bridges, and portions of the O. R. & L. Railroad.

Section 4 Results of Fieldwork

As discussed in the methods section, above, the investigation fieldwork was carried out in two phases: 1) systematic pedestrian inspection to identify and document surface cultural resources; and 2) subsurface testing to locate and document subsurface cultural resources.

4.1 Pedestrian Inspection Results

The pedestrian survey located the four surface cultural resources that were expected within the project area based on background research. These four cultural resources include the two in-use historic bridges (Mākaha Bridges 3 and 3A), historic Farrington Highway itself, and the remnants of the O. R. & L. Railroad. No other surface cultural resources were located within the project area. Based on this investigation's field documentation and background research, these four cultural resources are described, and their age, function, integrity and significance are assessed, in the cultural resource description section of this report, below.

4.2 Subsurface Testing Results

CSH excavated eight backhoe trenches in the project area (Figure 8). Four were in the inland (*mauka*) extension of the project area along the southern branch of Mākaha Stream. Four were along the seaward (*makai*) side of Farrington Highway, in the vicinity of the temporary Farrington Highway realignment. Based on backhoe testing results, the stratigraphy within the project area is largely as expected. The following paragraphs provide an overview and summary of the backhoe testing results. For detailed information regarding each of the excavated trenches, please refer to the trench profiles, sediment descriptions, and photographs, which follow this more general summary discussion. The single subsurface cultural resource identified during the testing, a subsurface cultural layer, is described in the cultural resource description section, below.

Mauka of Farrington Highway, the sediments are largely terrestrial silts and silt loams, 1.5 to 2.5 m deep, over Pleistocene coral limestone deposits. The coarse bed load (poorly sorted and rounded sands, gravels, and cobbles) of a former Makaha Stream alignment was observed closest to the existing Makaha Stream channel in Trench 4. These terrigenous sediments in the *mauka* portion of the project area appear to have been modified and reworked in the last 100 years, based on historic and modern materials (metal wire, plastic, PVC pipe, a metal spike etc.) found incorporated within these sediments. These historic and modern materials were found at depths ranging from 120 to 160 cm below the current land surface (refer to the profiles of Trenches 1 and 4, below), and indicate large-scale earth moving activity in this *mauka* portion of the project area. The upper approximately 1.5 m of sediment within this portion of the project area appear to have been reworked, perhaps as the result of historic plantation-related land modifications. No cultural resources were documented within this mauka extension of the project area.

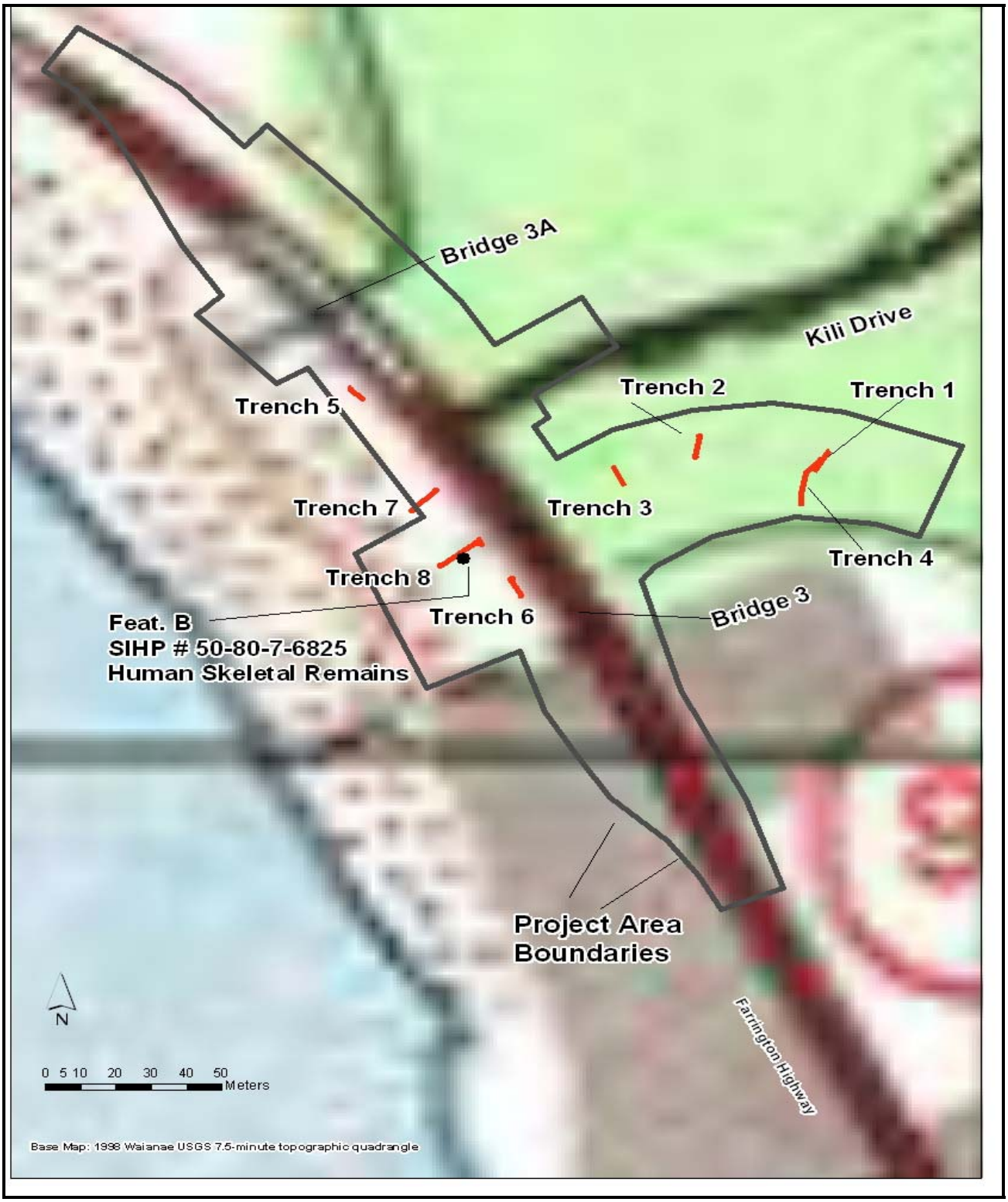

Figure 8. Trench Locations

The single noteworthy feature of the four trenches in the *mauka* portion of the project area consisted of the dark, highly organically enriched, “peaty,” sandy loam documented and sampled at the base of Trench 4. This layer, located approximately 3.0 m below the existing land surface was only exposed in a narrow portion of Trench 4, where the backhoe operator was instructed to excavate as deep as possible to determine the depth of the water table. This peaty sediment appears to be a mix of marine calcareous sand, finer terrestrial silts and clays, and organic material. It is very moist, bordering on wet, indicating that the water table is located at about 3 m below the current land surface. Large “blocks” of this cohesive sediment were removed by the backhoe and inspected by CSH personnel on the back dirt pile of the trench. No cultural material, such as charcoal flecking, artifacts, or faunal remains, were observed within the sediment.

Despite the apparent lack of cultural material within this “peaty” deposit, a large bulk sample was collected for potential analysis back at the CSH Laboratory. The peaty sediment had potential to contain important archaeological and paleoenvironmental information regarding environmental change over time, particularly related to Polynesian settlement and subsequent Native Hawaiian land use. In order to establish the age of the deposit, a sediment sample was sent to Beta Analytic, Inc. for radiocarbon dating analysis. The results (Table 4, below, also refer to Appendix A) indicate that the sediment accumulated well before initial Polynesian colonization of the Hawaiian Islands.

Table 4. Results of Radiocarbon Analysis from Trench 4, Stratum V

Beta Analytic ID #	Sample Material/Analytic Technique	Provenience	Conventional Radiocarbon Age	C13/C12 Ratio	Oxcal Calibrated Calendar Age (2 sigma)
Beta-208482	Organic “peaty” material extracted from sediment sample / Standard Radiometric	Trench 4, Stratum V, 300 cmbs	4140 +/- 60 BP	-26.3 o/oo	2890BC-2570BC (94.0%) 2520BC-2500BC (1.4%)

Based on this age, the sediment layer is potentially more of paleoenvironmental interest. The layer’s high moisture content, resulting from the layer’s position right at the water table, has apparently preserved the layer’s organic material. Although it is difficult to tell from such a small exposure, this strata appears to represent the remnants of a low energy, near shore, brackish or freshwater marsh area. This area could have been quite localized, for instance a “*muliwai*” or backshore natural pond formed when an ancestor of Mākaha Stream was blocked from sea access by the active beach berm.

The layer is not considered a cultural resource and was not assigned a SIHP number. The layer’s exposure within Trench 4 is small and it is impossible to estimate the layers geographic extent based on this exposure. The layer may well be disturbed and further exposed during the proposed Mākaha Stream channel improvements that are planned as part of the Mākaha Bridges

project. This disturbance would offer an opportunity to further sample and analyze this organic sediment layer.

Makai of Farrington highway the project area's sediments are a mix of terrigenous and marine sediments. Trenches adjacent to both Makaha Bridges 3 and 3A (Trenches 6 and 5, respectively) documented large, predominantly terrestrial, fill deposits. In both Trenches 5 and 6 the fragmented remnants of a clearly defunct communication or electric cable were documented. This cable appears to parallel the *makai* side of Farrington Highway.

The age and function of the cable could not be accurately determined based on field observations. The cable is approximately 5 cm in diameter and was installed approximately 200 cmbs below the current land surface. The cable consists of approximately 25 individual copper wires bound together with a black wrapping material, which appears similar to tar paper. Based on similarities to similar cables observed in excavations along roads in other parts of O‘ahu, for example Kalaheo Avenue in Kailua and Kalanianaole Highway in Niu Valley, this cable is tentatively identified as a military communications cable (Doug Borthwick, personal communication, November 15 2005). Based on its appearance and wear, it likely dates to the 1930s or 1940s. The cable is best considered a component feature of the Farrington Highway transportation and communication corridor, which contains a number of utility lines, both in use and abandoned.

This cable installation has clearly disturbed the sediments along this *makai* portion of the project area, closest to the *makai* side of Farrington Highway. Farrington Highway fill deposits, and the former O. R. & L. Railroad alignment have also disturbed this makai portion of the project area.

Between the two bridges, in the vicinity of the project area's bus stop, Trenches 7 and 8 documented calcareous sand deposits overlain by recent terrigenous fill sediments. Near the project area's bus stop (approximately 8 m to the southeast) a culturally enriched, buried former A horizon was documented. This former A horizon contained both historic and prehistoric cultural remains, including marine shell and fishbone food remains, charcoal, basalt and volcanic glass flakes, bottle glass, rusted metal, and butchered cow bones. This cultural layer was assigned SIHP # 50-80-07-6825.

This cultural deposit also contained previously disturbed human skeletal remains. A rib shaft and a hand phalange were the only skeletal elements noted despite extensive screening of the sand in the vicinity. There was no indication of an entire, in situ human burial. This buried A horizon deposit's extent is limited to a specific geographic area, based on testing results. The A horizon underlies the former O.R. and L. RR alignment and was likely preserved because of the stabilizing effect of the overlying rail line.

4.2.1 Trench Descriptions

Trench 1

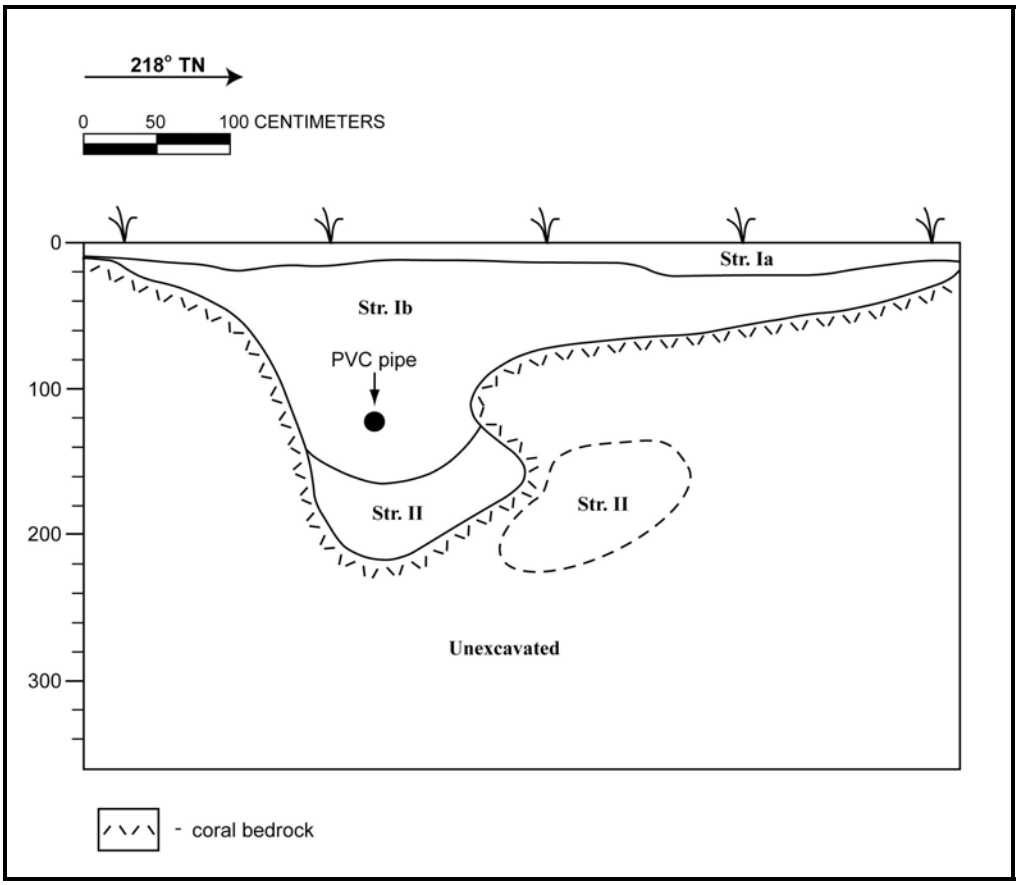

Figure 9. Trench 1, profile of east wall

Stratum IA: A Horizon; 7.5 YR 2.5/3, very dark brown; 1 - 15 cmbs; silt loam; moderate, fine, crumb structure; weakly coherent dry consistency; non-plastic; no cementation; terrestrial origin; clear boundary; smooth topography.

Stratum IB: Fill Horizon; 7.5 YR 3/2, dark brown; 15 - 140 cmbs; silt loam; weak, medium, blocky structure; hard dry consistency; non-plastic; no cementation; terrestrial origin; clear boundary; smooth topography.

Stratum II: 7.5 YR 3/2, dark brown; 140 - 220 cmbs; silty clay loam; weak, medium, blocky structure; hard dry consistency; slightly plastic; no cementation; terrestrial origin; wavy topography.

Figure 10. Photograph of Trench 1, view to the south, showing the uneven Pleistocene bedrock topography at the base of the excavation

Trenches 1 and 4 are contiguous (refer to

Figure 8). Both Figure 9 and Figure 10 show the undulating topography of the Pleistocene coral bedrock at the base of the excavation. The PVC pipe fragment observed at 125 cmbs in Stratum Ib is evidence that that the sediments in this *mauka* portion of the project area have been disturbed by earth moving activity.

Trench 2

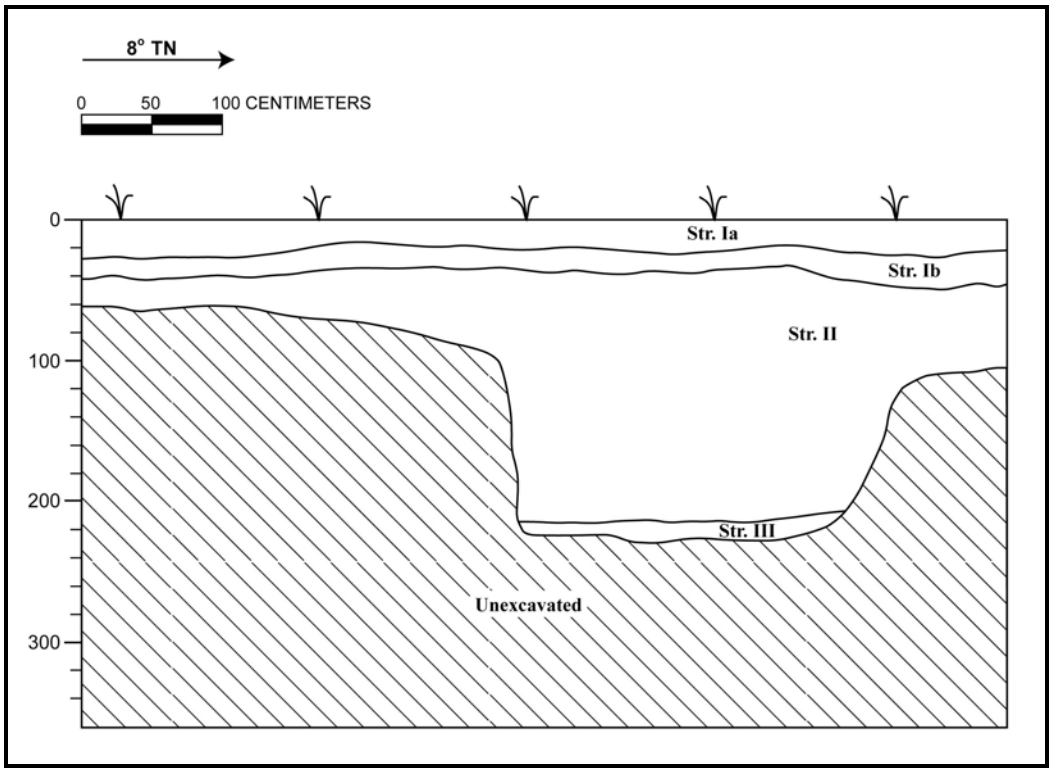

Figure 11. Trench 2, profile of west wall

Stratum IA: A Horizon; 7.5 YR 2.5/3, very dark brown; 0 - 15/25 cmbs; silt loam; moderate, fine, crumb structure; weakly coherent dry consistency; non-plastic; no cementation; terrestrial origin; clear boundary; smooth topography.

Stratum IB: Fill Horizon; 7.5 YR 3/2, dark brown; 15 - 140 cmbs; silt loam; weak, medium, blocky structure; hard dry consistency; non-plastic; no cementation; terrestrial origin; clear boundary; smooth topography.

Stratum II: 7.5 YR 3/2, dark brown; 140 - 220 cmbs; silty clay loam; weak, medium, blocky structure; hard dry consistency; slightly plastic; no cementation; terrestrial origin; clear boundary; smooth topography.

Stratum III: 7.5 YR 3/4, dark brown; 220 - 230 cmbs; gravelly silty sand; structureless (single grain); loose dry consistency; non-plastic; no cementation; mixed origin; smooth topography; 20% coral gravels and cobbles.

The base of the deeper portion of the excavation is Pleistocene coral bedrock.

Trench 2 displays typical stratigraphy for this *mauka* portion of the project area. No cultural deposits were observed.

Trench 3

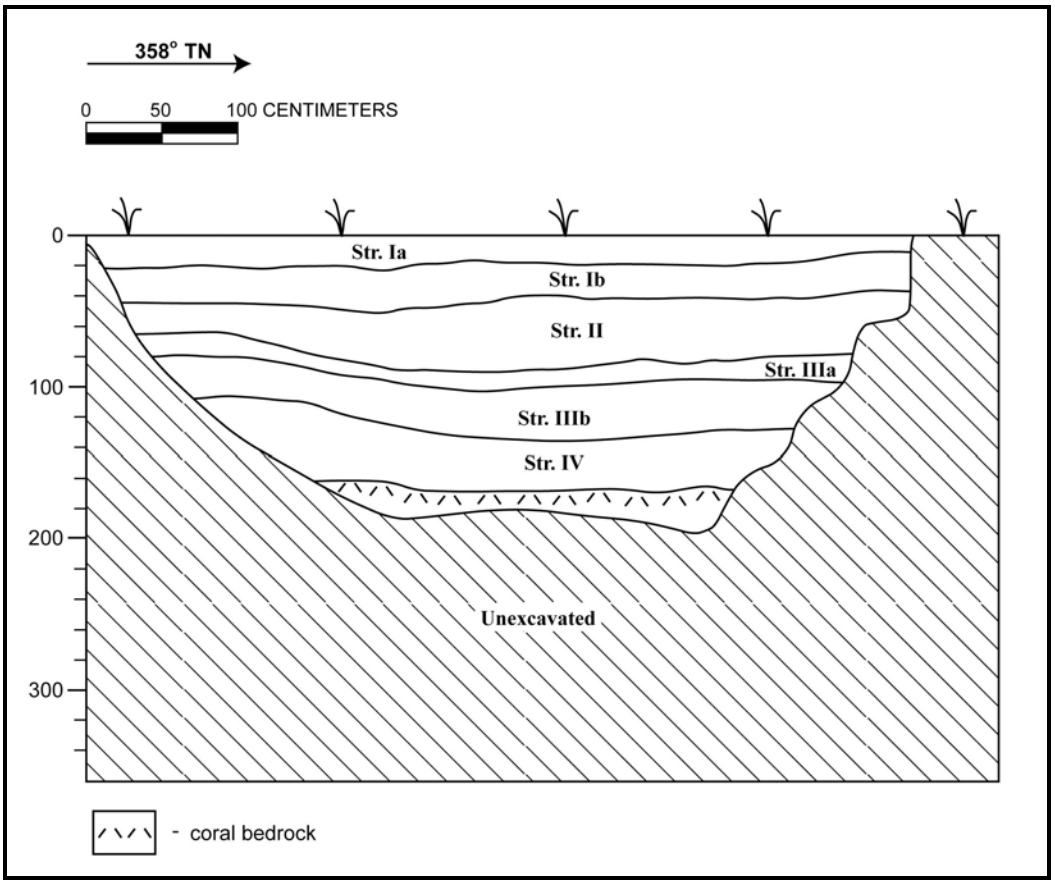

Figure 12. Trench 3, profile of west wall

Stratum IA: 7.5 YR 3/2, very dark brown; 0 - 20 cmbs; silt loam; moderate, fine, crumb structure; loose dry consistency; non-plastic; no cementation; terrestrial origin; abrupt boundary; smooth topography.

Stratum IB: (Fill Layer) 10 YR 8/1, white; 20 - 40 cmbs; compacted crushed coral; moderate, medium, blocky structure; hard dry consistency; non-plastic; no cementation; marine origin; very abrupt boundary; smooth topography.

Stratum II: 7.5 YR 3/4, dark brown; 40 - 90 cmbs; silt; moderate, fine, blocky structure; hard dry consistency; non-plastic; no cementation; terrestrial origin; abrupt boundary; smooth topography.

Stratum IIIA: 7.5 YR 3/4, dark brown; 85 - 105 cmbs; loamy, fine to medium sand; structureless; hard dry consistency; non-plastic; no cementation; mixed origin.

Stratum IIIB: 7.5 YR 2.5/3, very dark brown; 105 - 135 cmbs; silt loam; weak, fine, crumb structure; hard dry consistency; non-plastic; no cementation; mixed origin; clear boundary; smooth topography; diffuse sand < 50%.

Stratum IV: 7.5 YR 3/2, dark brown; 135 - 150 cmbs; silt; moderate, fine, granular structure; very hard dry consistency; non-plastic; no cementation; mixed origin; clear boundary; smooth topography.

Trench 3 displays typical stratigraphy for this *mauka* portion of the project area. No cultural deposits were observed.

Trench 4

Figure 13. Photograph of the south end of Trench 4 showing the coarse bed load of a former Mākaha Stream alignment (Stratum III) at the base of the excavation

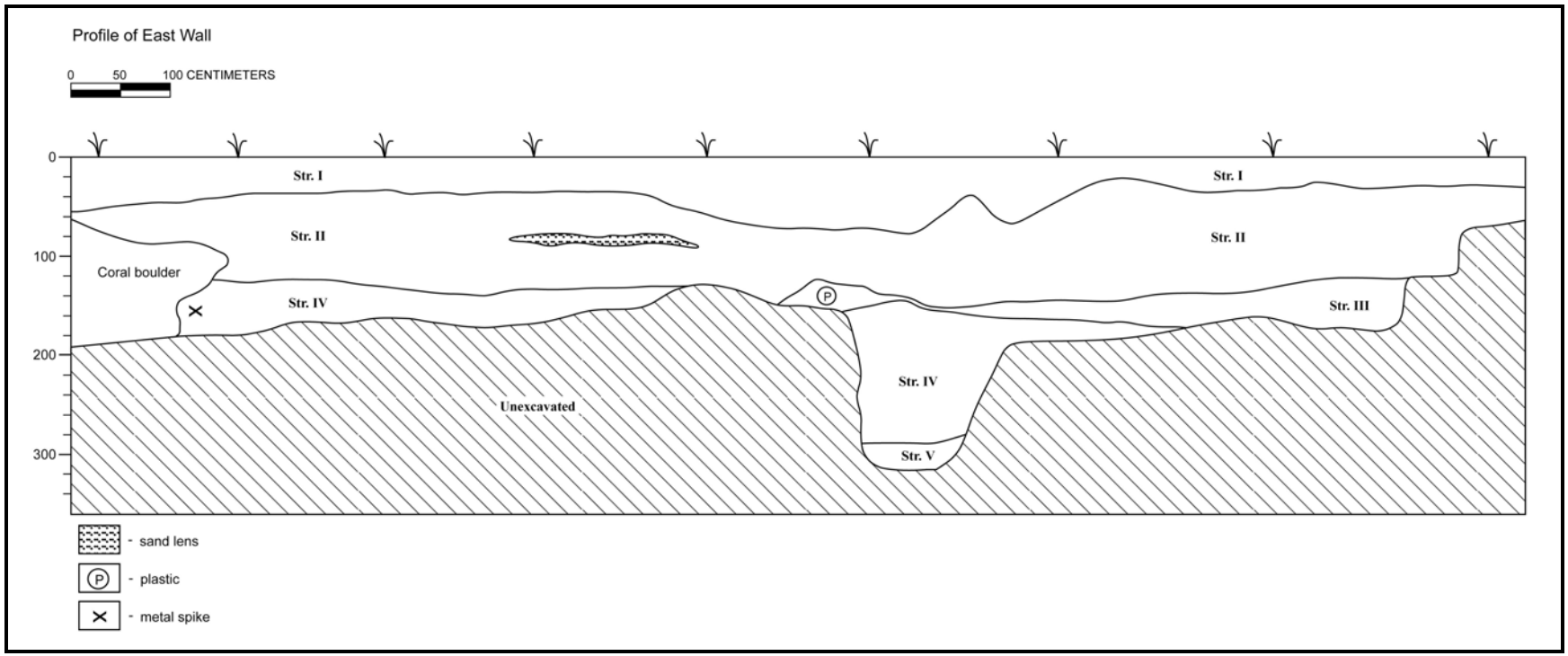

Figure 14. Trench 4, profile of east wall

Trench 4 (Continued):

Stratum I: 7.5 YR 2.5/3, very dark brown; 0 - 30 cmbs; silt loam; moderate, fine, crumb structure; weakly coherent dry consistency; non-plastic; no cementation; terrestrial origin; clear boundary; smooth topography.

Stratum II: 7.5 YR 3/2, dark brown; 20 - 160 cmbs; silty clay loam; weak, medium, blocky structure; hard dry consistency; slightly plastic; no cementation; terrestrial origin; wavy topography.

Stratum III: 7.5 YR 3/4, dark brown; 120 - 180 cmbs; cobbly, sandy loam; structureless; weakly coherent dry consistency; non-plastic; no cementation; terrestrial origin, stream bed load deposit from former channel of Mākaha Stream; contains plastic fragments; abrupt boundary; irregular topography.

Stratum IV: 10 YR 4/4, dark yellowish brown; 130 – 300 cmbs; silt loam; weak, crumb structure; loose dry consistency; non-plastic; no cementation; terrestrial origin; contains a rusted metal spike; abrupt boundary; smooth topography.

Stratum V: 10 YR 3/1 to 3/4, very dark gray / dark yellowish brown; 300 – 320 cmbs; sandy loam; weak, fine, granular structure; loose moist consistency; slightly plastic; no cementation; mixed origin; contains abundant preserved organic material, “peaty” in appearance; based on radiocarbon dating results on a sample of this sediment, this layer was deposited between 2890 and 2570 BC (refer to Table 4), well before human habitation of the Hawaiian Islands.

Trenches 1 and 4 are contiguous (refer to

Figure 8). The metal spike and plastic fragments observed in the Trench 4 profile at approximately 160 cmbs indicate that the sediments in this *mauka* portion of the project area have been disturbed by earth moving activity. The coarse stream bed load deposit (Stratum III, refer to Figure 13) indicate that Mākaha Stream’s channel has shifted in the past. The organically enriched Stratum V is potentially of paleoenvironmental interest, but is not a cultural resource (refer to the stratigraphic overview section in the preceding section of this report).

Trench 5

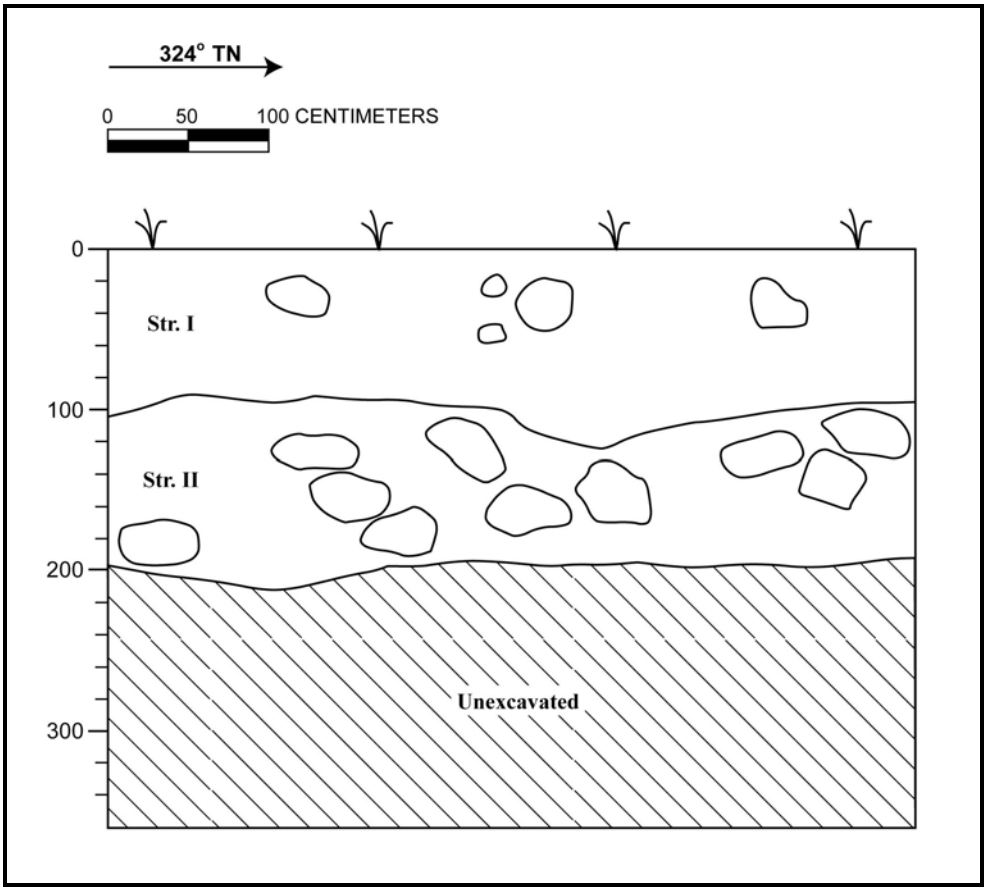

Figure 15. Trench 5, profile of west wall

Stratum I: (Fill Layer) 10 YR 2/2, very dark brown; 0 - 100 cmbs; stony, cobbly sandy loam; structureless; loose dry consistency; non-plastic; no cementation; mixed origin; abrupt boundary; wavy topography; 70% basalt rock.

Stratum II: 10 YR 4/4, dark yellowish brown; 100 - 190 cmbs; stony medium sand, structureless; loose dry consistency; non-plastic; no cementation; marine origin; 70% basalt boulders; fragments of defunct communication cable (c. 5 cm diameter) were located at the base of the excavation.

Figure 16. Photograph of Trench 5, shot north with Bridge 3A in the background, showing the two documented strata and a fragment of the defunct communication or electric cable at the base of the excavation

Trench 5 documented the substantial prior disturbance of this *makai* portion of the project area as the result of past cable and roadbed installation. There is little likelihood of intact cultural deposits in this portion of the project area, closest to the *makai* side of Farrington Highway, because of this past disturbance.

Trench 6

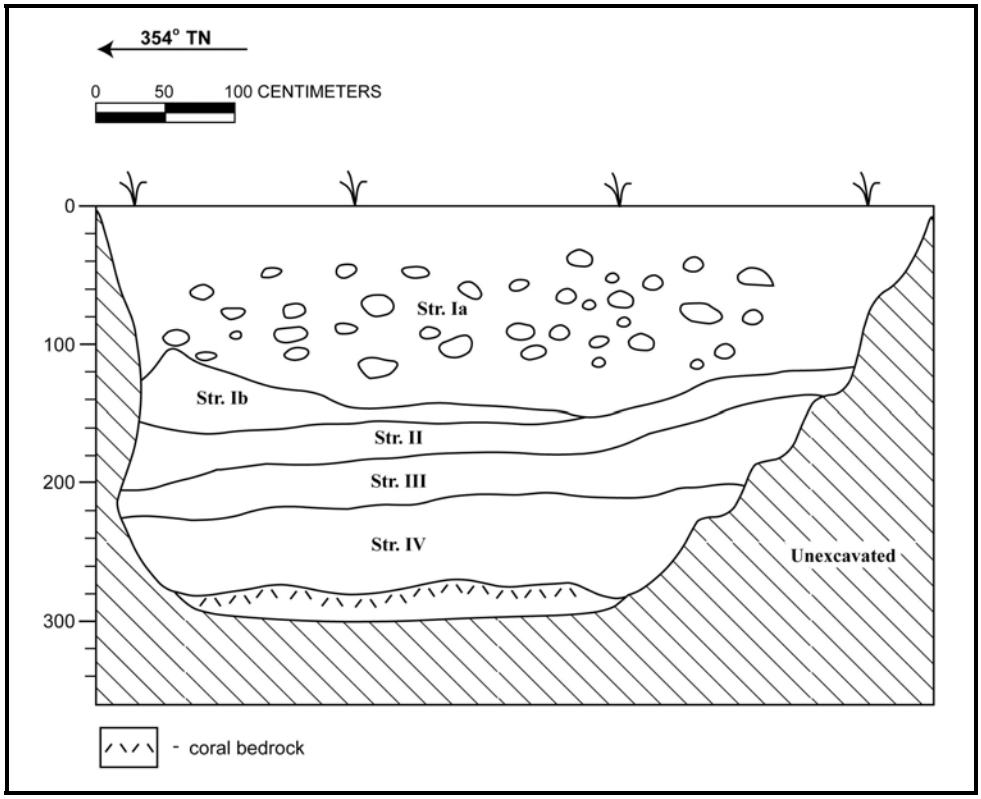

Figure 17. Trench 6, profile of east wall

Stratum IA: Fill Layer; 10 YR 4/3, brown; 0 - 150 cmbs; cobbly silt loam; moderate, fine, blocky structure; hard dry consistency; non-plastic; no cementation; mixed origin; abrupt boundary; wavy topography; fill w/ modern trash.

Stratum IB: Fill Layer; 10 YR 5/4, yellowish brown; 105 - 170 cmbs; sand, medium coarse; structureless, loose dry consistency; marine origin; very abrupt boundary; irregular topography.

Stratum II: Fill Layer; 2.5 YR 2.5/4, dark reddish brown; 120 - 210 cmbs; silt loam; weak, fine, blocky structure; slightly hard dry consistency; non-plastic; no cementation; very abrupt boundary; irregular topography.

Stratum III: Fill Layer; 10 YR 5/4, yellowish brown; 130 – 230 cmbs; sand, fine; structureless; loose dry consistency; non-plastic; no cementation; mixed origin; abrupt boundary; irregular topography; contains fragments of defunct communication or electric cable (approximately 5 cm in diameter).

Stratum IV: 10 YR 3/3, dark brown; 215 - 285 cmbs; silt; weak, medium, blocky structure; slightly hard dry consistency; non-plastic; no cementation; terrestrial origin; very abrupt boundary; wavy topography.

Like Trench 5, Trench 6 documented the substantial prior disturbance of this *makai* portion of the project area as the result of past cable and road roadbed installation. There is little likelihood of intact cultural deposits in this portion of the project area, closest to the *makai* side of Farrington Highway, because of this past disturbance.

Trench 7

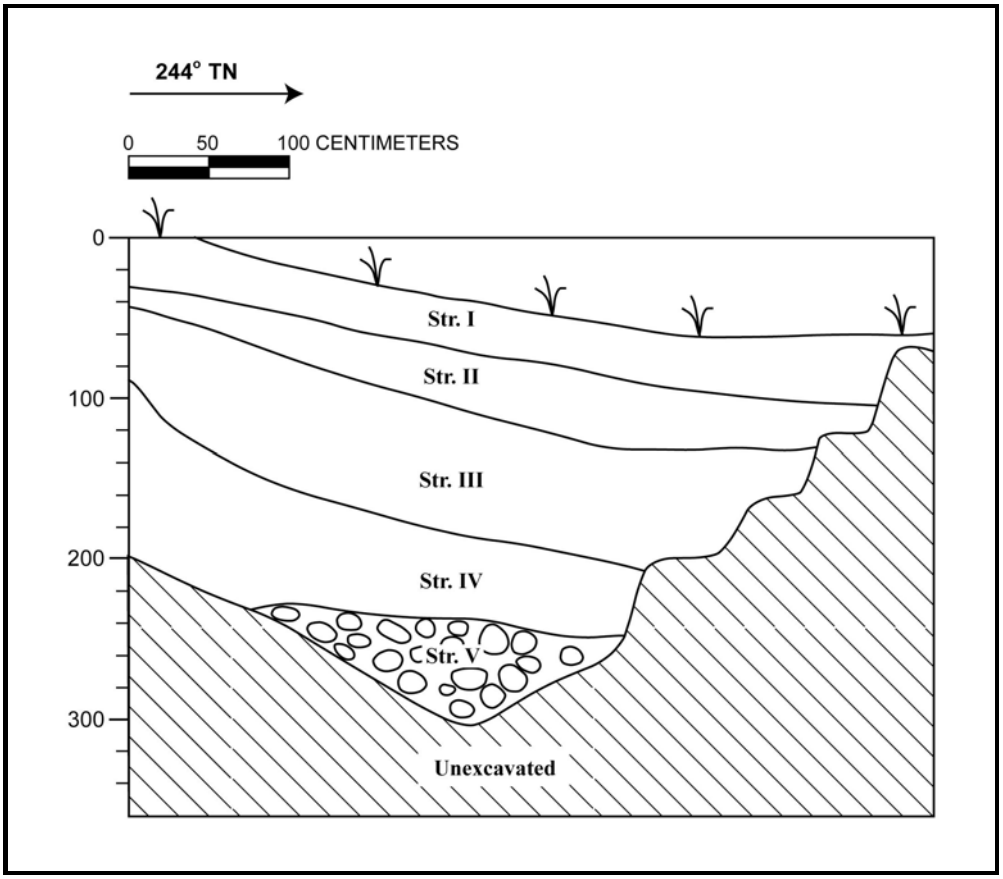

Figure 18. Trench 7, profile of south wall

Stratum I: A Horizon formed on an introduced fill layer; 10 YR 2/2, very dark brown; 0 - 30 cmbs; silt loam; moderate, fine, blocky structure; slightly hard dry consistency; non-plastic; no cementation; terrestrial origin; abrupt boundary; wavy topography; contains metal, nails, roots and rootlets; east end of trench is highly stratified with sand and a dark layer on bottom of stratum w/ abundant *kukui* nut shells.

Stratum II: 10 YR 6/4, light yellowish brown; 30 – 130 cmbs; sand, medium grain; structureless; weakly coherent dry consistency; non-plastic; no cementation; mixed origin; abrupt boundary; wavy topography; few roots and rootlets; layer mottled with darker lenses.

Stratum III: 10 YR 6/3, pale brown; 45 – 200 cmbs; sand, medium grain; structureless; weakly coherent dry consistency; non-plastic; no cementation; wavy topography.

Stratum IV: 10 YR 6/4, light yellowish brown; 90 – 230 cmbs; sand, medium grain; structureless, slightly hard dry consistency; non-plastic; no cementation; marine origin; very abrupt boundary; contains shells; clean beach sand with shell deposits and coarse sand.

Stratum V: 10 YR 7/6, yellow; 230 – 300 cmbs; stony sand, medium grain; structureless; very friable moist consistency; non-plastic; no cementation; marine origin; very abrupt boundary; this stratum, with its combination of large water rounded basalt boulders and cobbles with medium beach sand represents a high energy wave deposit.

Figure 19. Photograph of the south profile of Trench 7 showing sand layers, note high energy sand and boulder layer at the base of the excavation

Trench 7 consists of a modern terrigenous fill sediment overlying natural calcareous beach sand layers. The lowest layer exposed is a heterogenous mixture of medium grain calcareous sand and water rounded basalt boulders and cobbles. This lowest layer is a high energy wave deposit.

Subsequent to Trench 7’s documentation, a large portion of the southern trench sidewall collapsed into the trench. The new southern trench profile, following the collapse, displayed what appeared to be a buried sand A horizon, within Stratum III at approximately 100-120 cmbs. This buried A horizon could not be sampled because the Trench 7 sidewalls were unstable and threatened to collapse again. Based on appearances, this A horizon appeared very similar to the buried, culturally enriched A horizon documented in the adjacent Trench 8 (the trench description that follows). Based on this exposure in Trench 7, following the partial collapse of the Trench 7 sidewall, the northern boundary of this subsurface cultural layer appears to be Trench 7.

Trench 8

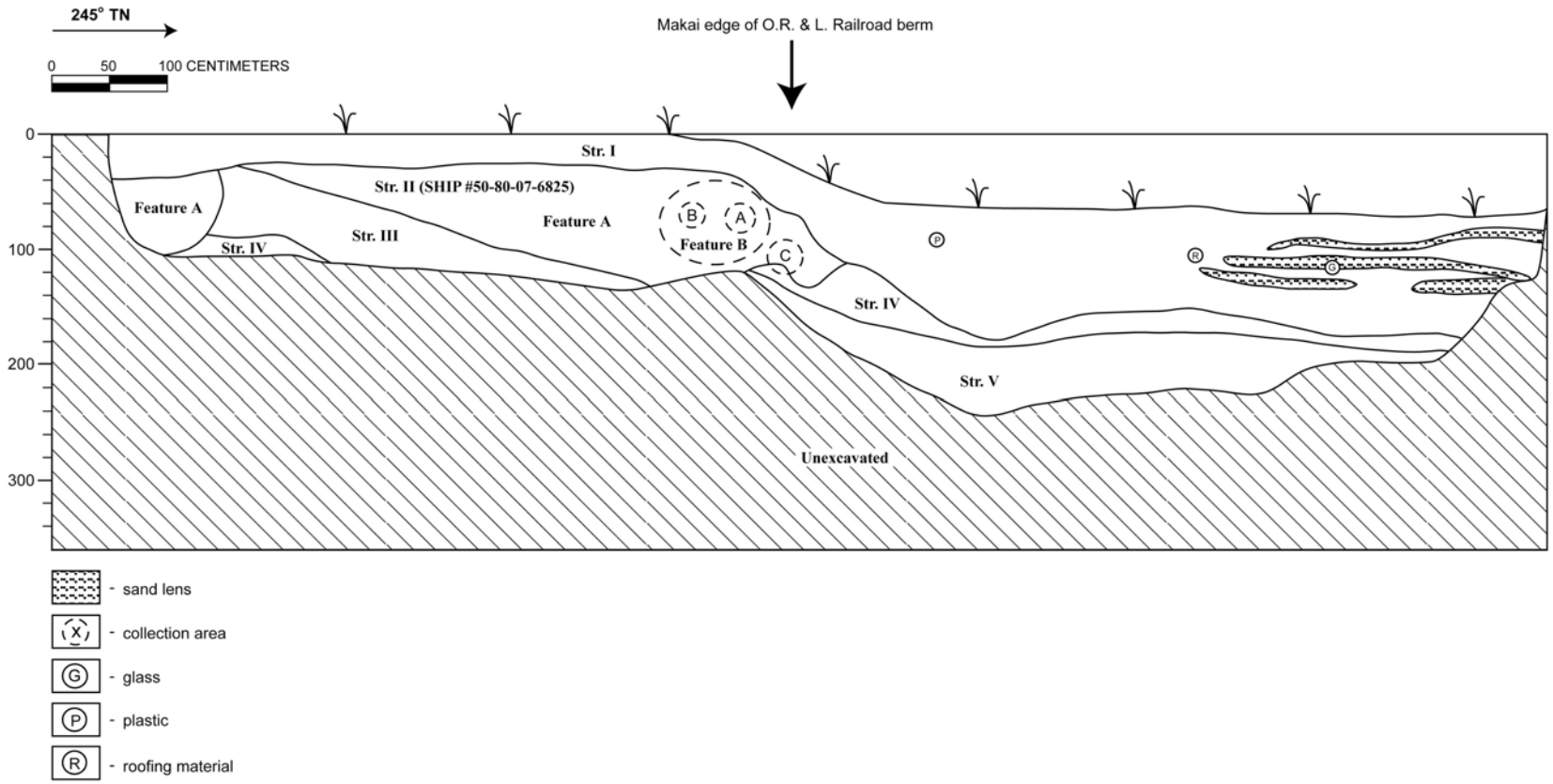

Figure 20. Trench 8, profile of south wall

(Note: Stratum II is a subsurface cultural layer designated as SIHP # 50-80-07-6825.)

Trench 8 (continued):

Stratum I: 10 YR 3/2, Fill Layer; very dark grayish brown; 0 - 185 cmbs; silt loam; moderate, fine, blocky structure; slightly hard dry consistency; non-plastic; no cementation; mixed origin; abrupt boundary; wavy topography; contains marine shell and historic/modern trash (nails, rusted barbed wire, building material); multiple thin sand lenses located through out the layer.

Stratum II: 10 YR 5/3, brown; 30 – 130 cmbs; sand, fine grain; structureless; weakly coherent dry consistency; non-plastic; no cementation; marine origin; abrupt boundary; wavy topography; classic cultural layer with mottling and cultural deposits; human rib fragment and phalange observed in this layer. (Note: Stratum II is a subsurface cultural layer designated as SIHP # 50-80-07-6825, see site description below.)

Stratum III: 10 YR 4/3, brown; 35 – 140 cmbs; sand, fine grain; structureless; slightly hard dry consistency; non-plastic; no cementation; mixed origin; very abrupt boundary; irregular topography; clean sand, no cultural deposits.

Stratum IV: 10 YR 5/8, yellowish brown; cmbs; sand, fine grain; structureless; weakly coherent dry consistency; non-plastic; no cementation; marine origin; very abrupt boundary; irregular topography; contains marine shell, no cultural material.

Stratum V: 10 YR 5/1, gray; 110 – 240 cmbs; cobbly gravelly sandy loam; structureless; weakly coherent dry consistency; non-plastic; no cementation; smooth topography; stream bed load, a portion of a former Mākaha Stream channel.

Feature A: Fill layer; 7.5 YR 3/2, dark brown; 35 – 105 cmbs; clay loam; structureless; hard dry consistency; slightly plastic; no cementation; terrestrial origin; contains abundant modern trash.

Within Trench 8, Stratum I and Feature A are modern/historic fill layers. Stratum II is a subsurface cultural layer that was designated SIHP # 50-80-07-6825 (refer the cultural resource description below for further discussion and photographs). This culturally enriched stratum appears to be a preserved portion of the former land surface prior to the construction of the O. R. and L. Railroad in the 1890s. It contains both historic and prehistoric cultural material. Stratum III and IV are natural calcareous sand layers. The underlying Stratum V is a coarse, poorly sorted gravelly cobbly sediment, similar to that observed in Stratum III of Trench 4. This layer is interpreted as the bed load of a former Mahaka Stream alignment.

4.3 Cultural Resource Descriptions

Five cultural resources were located within the current Mākaha Bridges project area. Figure 21 shows their locations.

4.3.1 SIHP #: 50-80-07-6822

FORMAL TYPE:	Bridge
FUNCTION:	Transportation
# OF FEATURES:	1
AGE:	Historic, constructed in 1937
DIMENSION:	20 m NW/SE x 15 m NE/SW
LOCATION:	On Farrington Highway, South of Kili Drive
TAX MAP KEY:	N/A, within State Highway Right-of-Way
LAND JURISDICTION:	State of Hawaii

DESCRIPTION:

SIHP # 50-80-07-6822 (a.k.a. Bridge 3) is a historic bridge built in 1937 (Figures 21 to 30). It is situated along the Makaha Coast and is incorporated into Farrington Highway. The intersection of Farrington Highway and Kili Drive is to the immediate northwest of the bridge. Remnants of the old O. R. & L. railroad berm (SIHP # 50-80-12-9714) are just southwest of the bridge (refer to Figures 22 to 24) These railroad remnants consist of abutments for a former bridge that conveyed the railroad over Mākaha Stream.

During fieldwork, the streambed beneath Bridge 3 was sandy and dry. Mākaha Stream is an intermittent stream and Bridge 3 functions to maintain Farrington Highway's level road surface and provide protection against road flooding. The bridge measures 65 ft (20 m) long (SE/S-NW/N) by 50 ft (15 m) wide (E/NE-SW/W) and is 12 ft (3.5 m) high. The bridge is constructed primarily of massive, creosote-treated, wooden columns, beams, and planks of varying length and width (refer to Figure 25 and Figure 26), with blue rock (basalt) and mortar abutments and wing walls (Figure 27 and Figure 28). The wooden column, beams, and planks are held together by large steel nuts and bolts. Concrete reinforcements are visible at each of the bridge's four corners (Figure 23 and Figure 24).

The bridge is a three span beam structure supported by wooden columns that are reinforced with wooden plank X-bracing. Although buried by stream sediments at the time of the current investigation, based on past photographs of Bridge 3 (Thompson 1983:VI-5), the bridge's columns are supported by two piers, likely comprised of concrete, and possible blue rock and

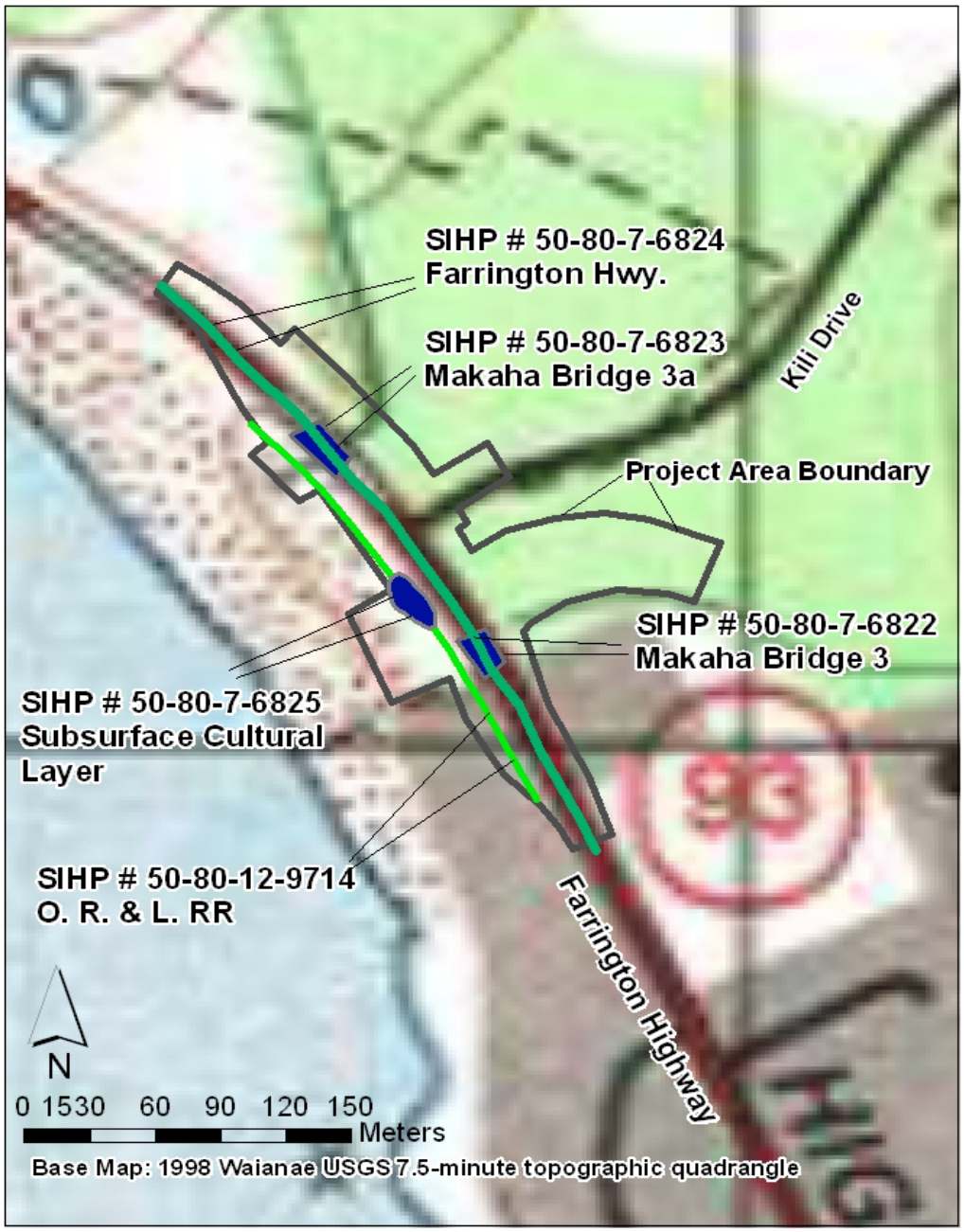

Figure 21. Map of the locations of the five cultural resources identified and documented within the project area

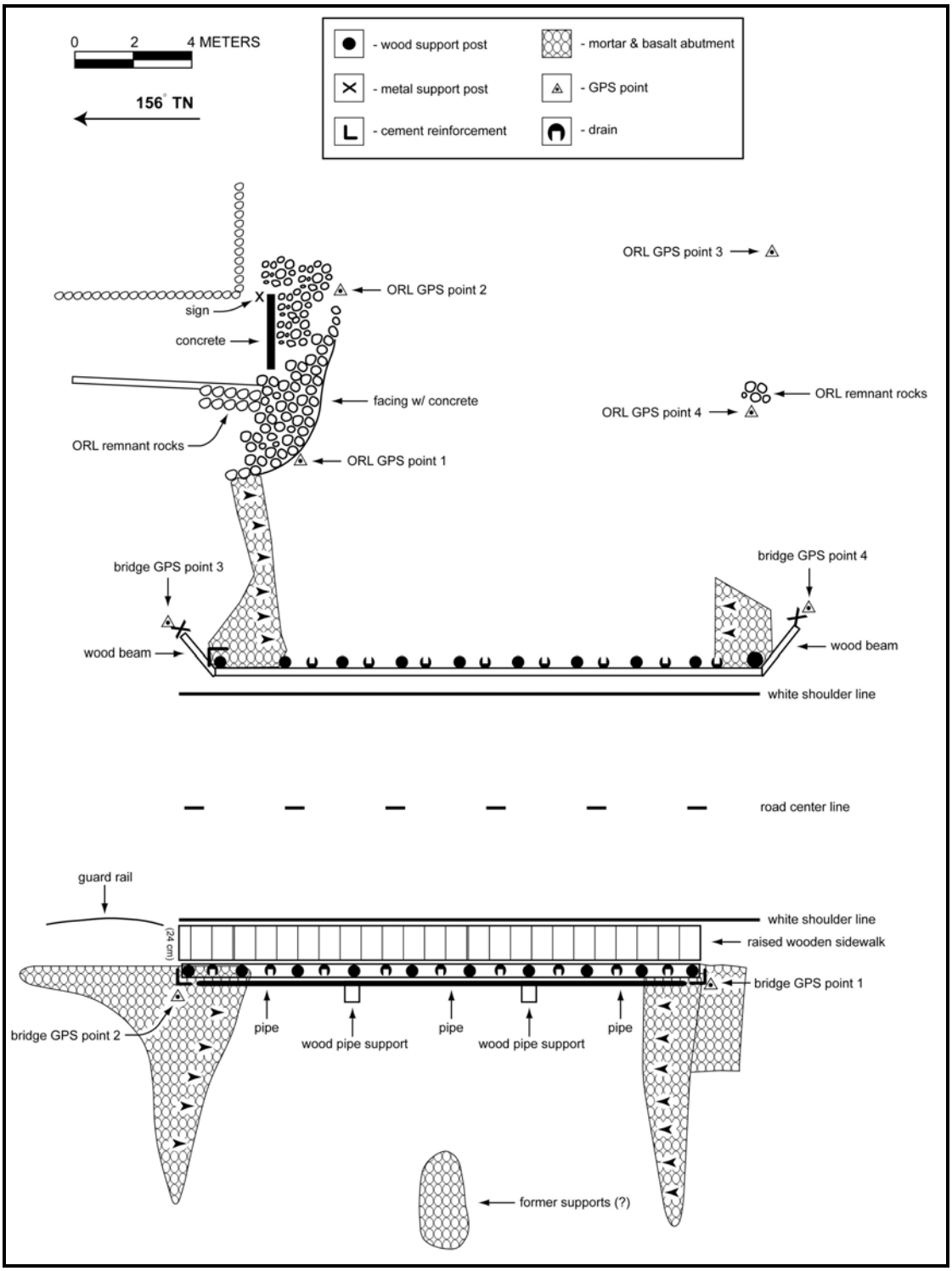

Figure 22. Plan view of SIHP # 50-80-07-6822 (a.k.a. Bridge 3) and Feature B, SIHP # 50-80-12-9714, remnant of a former O. R. and L. Railroad trestle

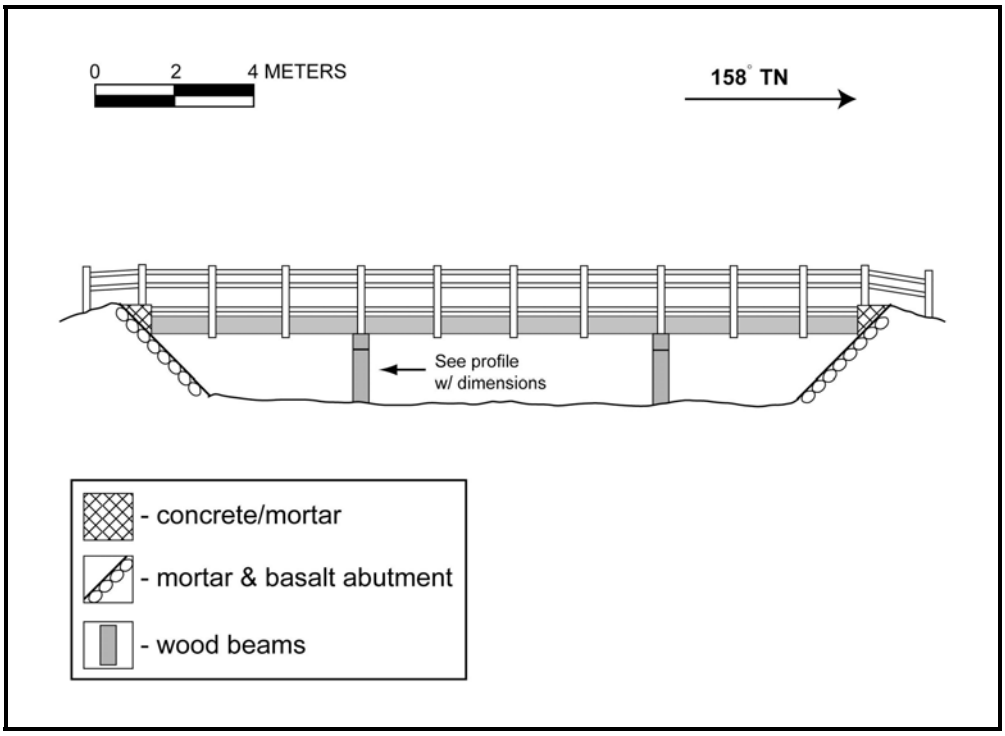

Figure 23. Elevation of SIHP # 50-80-07-6822 (a.k.a. Bridge 3)

Figure 24. Photograph of SIHP # 50-80-07-6822, view to the southeast

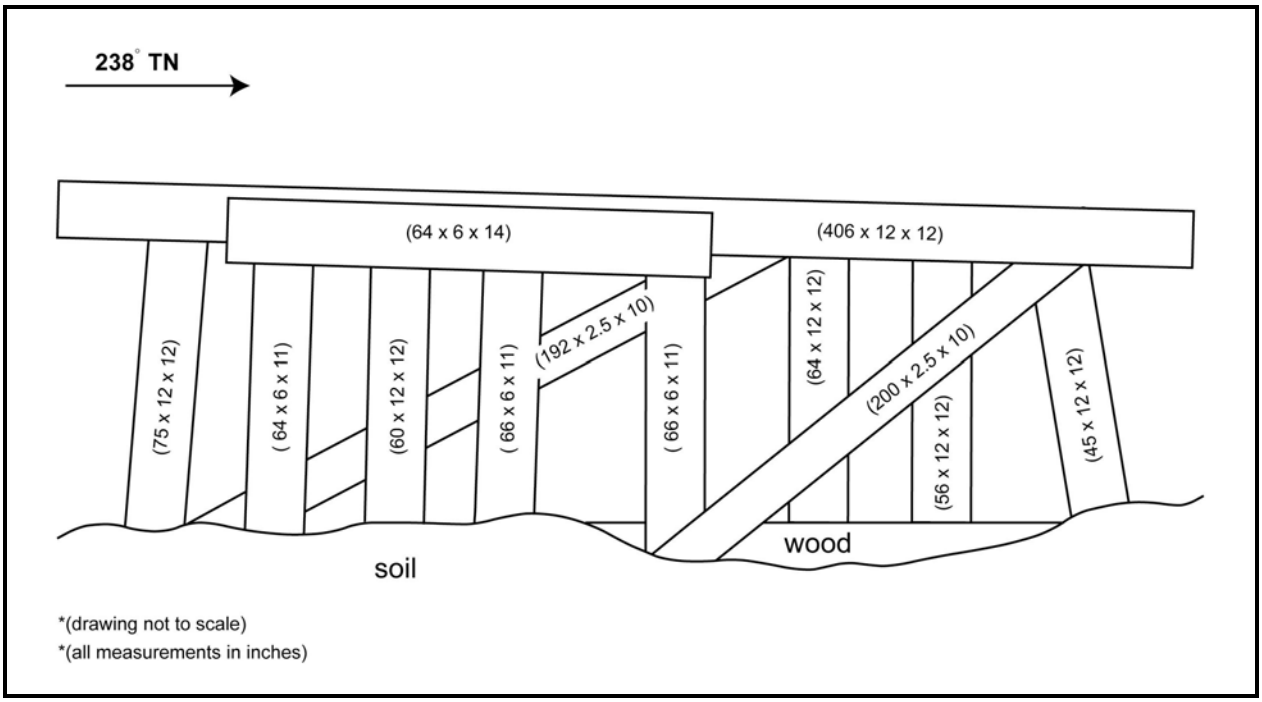

Figure 25. Schematic profile of SIHP # 50-80-07-6822 (a.k.a. Bridge 3), showing wooden bridge columns and bents with dimensions, plank X-bracing is not depicted but plank dimensions are shown

Figure 26. Photograph of SIHP # 50-80-07-6822, showing massive wooden beams, bents, and columns, and plank X-bracing, view to northwest/north

Figure 27. Photograph of SIHP # 50-80-07-6822, blue rock and mortar abutments, wooden beams and concrete end bent, view to north

Figure 28. Photograph of SIHP # 50-80-07-6822, blue rock and mortar abutments with concrete reinforcement at corners, view to north

Figure 29. Photograph of SIHP # 50-80-07-6822, wooden guardrail and metal pipe, view to southeast/east

Figure 30. Photograph of SIHP # 50-80-07-6822, raised wooden sidewalk, view to southeast/east

mortar (see description of Bridge 3A that follows). Over each of its two piers, the bridge's bents are wooden beams, while the bridge's end bents are concrete. The bridge deck is wooden planking set perpendicular to the bridge's alignment. The bridge is level with no significant elevation difference.

Wooden guardrails, which are painted white and constructed along the *mauka* (east-northeast) and *makai* (west-southwest) sides of the bridge, run parallel with the road and run the entire length of the bridge (Figure 23, Figure 24, and Figure 29). A metal pipe also runs parallel to the *mauka* side of the bridge (Figure 29). It is supported by wooden beams behind the wooden guardrail, and is suspended above the dry streambed that leads to the ocean.

A raised wooden sidewalk, located along the *mauka* (east-northeast) side of the bridge, is also incorporated into the bridges construction (Figure 30). The sidewalk runs the entire length of the bridge, is raised 10 inches (25 cm) from the road surface and is 4 ft (120 cm) wide.

The bridge's construction is similar in design and construction materials to the wooden bridges/trestles of the adjacent O. R. and L. Railroad. It may be that the abundance of railroad related construction materials and left over railroad trestles was a determining factor in the selection of Farrington Highway's bridge type and materials in the 1930s (Thompson 1983:VI-1).

Constructed as part of the Territorial Highway System in 1937, Bridge 3 is a component of Farrington Highway. Farrington Highway, described below, is an important transportation and communication corridor that connected Oahu's Wai‘anae District with Honolulu and the rest of the island. Prior to Farrington Highway's construction, overland transport with vehicles was confined to "Old Wai‘anae Road," which was not paved and did not have bridges across Mākaha Stream. Because of the transport limitations over the "Old Wai‘anae Road," prior to the construction of Farrington Highway, most transport and travel between Wai‘anae and Honolulu was made using the O. R. & L. Railroad or streamer ship.

The construction of Farrington Highway and Bridge 3 across Mākaha Stream, as part of the Territorial Highway System, were part of a significant historical trend that greatly facilitated intra-island travel and communication. It was only after 1925 that Territorial officials availed themselves of the available federal funding for road and bridge construction. This lead to abundant bridge and road construction after 1925 in Hawaii. Further federal assistance became available in the 1930s as part of the Works Progress Administration and National Reclamation Association programs (Thompson 1983:III-15).

These Territorial Highway System improvements are components of a broad historic pattern of travel and communication improvement in the State of Hawai‘i during the first half of the 20th century. These improvements lead to increased development of previously rural areas.

Based on National Register Bulletin #15 discussion of integrity, Bridge 3 maintains integrity of location. The bridge is today on the same southern branch of Mākaha Drainage where it was originally constructed in 1937. Although Farrington Highway at this location cannot be describe as rural, not like it once was back at the time of the bridge's construction, within the immediate vicinity of Bridge 3, the roadway still appears somewhat rural in character. The nearby residences are somewhat removed from the bridge and these residences are restricted to the south

side of the bridge because of the City and County’s Mākaha Beach Park. Viewed today, the bridge’s integrity of feeling and association are still evident.

As the drawings, measurements, and photographs above should demonstrate, the bridge also has integrity of design, materials, and workmanship. The massive wooden supports, the cross beams supporting the roadway itself, and the finer boards used to create the pedestrian walkway and wooden guardrails, all still convey the intended bridge construction style and appearance. These building materials, if they are not original, are weathered and at least appear to be original. If there has been significant reconstruction or refurbishment of the bridge, this apparently was done with the same material types and construction techniques that were used during the bridge’s original construction. The additions of modern steel guardrails in the vicinity of the bridge do not necessarily detract from the bridge’s integrity of design, materials, and workmanship.

The bridge’s integrity of setting has been diminished over the years with the encroachment of housing on the bridge’s southern side. The increased population in the vicinity of the bridge, with it’s associated increase in traffic volume, has diminished the bridge’s former rural setting.

As part of a historic bridge inventory of the Island of O‘ahu, prepared for the State of Hawai‘i Department of Transportation, Benthany Thompson prepared the following assessment of Bridge 3, based on observations and research undertaken in 1980:

> The Mākaha #3 bridge across Mākaha stream located on Farrington Highway .124 miles west of the intersection with Upena St. is a timber girder floor beam structure built in 1937. W. D. Bartel was the Chief Engineer for the Territorial Highway Department.
>
> The structure is 60’ in total length, with three spans. It is 29.2’ wide and 12’in height. The load capacity is H-15. There is a 4’ sidewalk on the right side. The abutments are constructed of cement rubble masonry with two wooden rails on each side. The design integrity is intact.
>
> The painted white railings with their creosoted sub-structure and cement rubble masonry abutments blend aesthetically with the rural ranch scenes of the Wai‘anae coast. The bridge is an important transportation link between the Wai‘anae coast and Honolulu.
>
> The only vantage point for viewing this bridge is from the beach. The view is good.
>
> Aesthetically, the scene is rated average. (Thompson 1983:VI-4)

Despite the intervening quarter century, Thompson’s bridge description and integrity assessment are still applicable today. Based on the available information, CSH recommends that Bridge 3 (SIHP # 50-80-07-6822) has the integrity to convey its historic significance under Criteria A, broad patterns of history (transportation improvements in the Territory of Hawai‘i in the first half of the 20th century), and D, information regarding Territory of Hawai‘i bridge construction. Based on available background information, the bridge is not recommended as eligible under Criterion B, for association with important historical figures. Additionally, the

bridge does not appear to be significant under Criterion C, as embodying the distinctive characteristics of a type, period, or method of construction, the work of a master, or displaying high artistic value.

4.3.2 SIHP #: 50-80-07-6823

FORMAL TYPE:	Bridge
FUNCTION:	Transportation
# OF FEATURES:	1
AGE:	Historic, constructed in 1937
DIMENSION:	30 m NW/SE x 15 m NE/SW
LOCATION:	On Farrington Highway, North of Kili Drive
TAX MAP KEY:	N/A, within State Highway Right-of-Way
LAND JURISDICTION:	State of Hawaii

DESCRIPTION:

SHIP # 50-80-07-6823 (a.k.a. Bridge 3A) is a historic bridge built in 1937 (Figure 31, Figure 32, Figure 33, Figure 34, Figure 35, Figure 36, Figure 37, and Figure 38). It is situated along the Makaha Coast and is incorporated into Farrington Highway. The intersection of Farrington Highway and Kili Drive is to the immediate southeast of the bridge. Remnants of the O. R. & L. railroad berm (Site 50-80-12-9714) are just southwest of the bridge (Figure 21 and Figure 31). These railroad remnants consist of abutments and piers for a former bridge that conveyed the railroad over Mākaha Stream.

During fieldwork, the streambed beneath Bridge 3 had no flowing water, only a shallow, tidally fluctuating, small pond. Mākaha Stream is an intermittent stream and Bridge 3A functions to maintain Farrington Highway’s level road surface and provide protection against road flooding. The bridge measures 100 ft (30 m) long (SE-NW) by 50 ft (15 m) wide (NE-SW) and is 15 ft (4.5 m) high. The bridge is constructed primarily of massive, creosote treated, wooden columns, beams, and planks of varying length and width (Figure 34 and Figure 35), with blue rock and mortar abutments and wing walls (Figure 36). The wooden columns, beams, and planks are held together by large steel nuts and bolts. Concrete reinforcements are visible at each of the bridges four corners (Figure 37).

The bridge is a four span beam structure supported by wooden columns that are reinforced with wooden plank X-bracing. The bridge’s columns are supported by three piers, comprised of a layer of concrete overlying a layer of blue rock and mortar. Over each of its three piers, the bridge’s bents are wooden beams, while the bridge’s end bents are concrete. The bridge

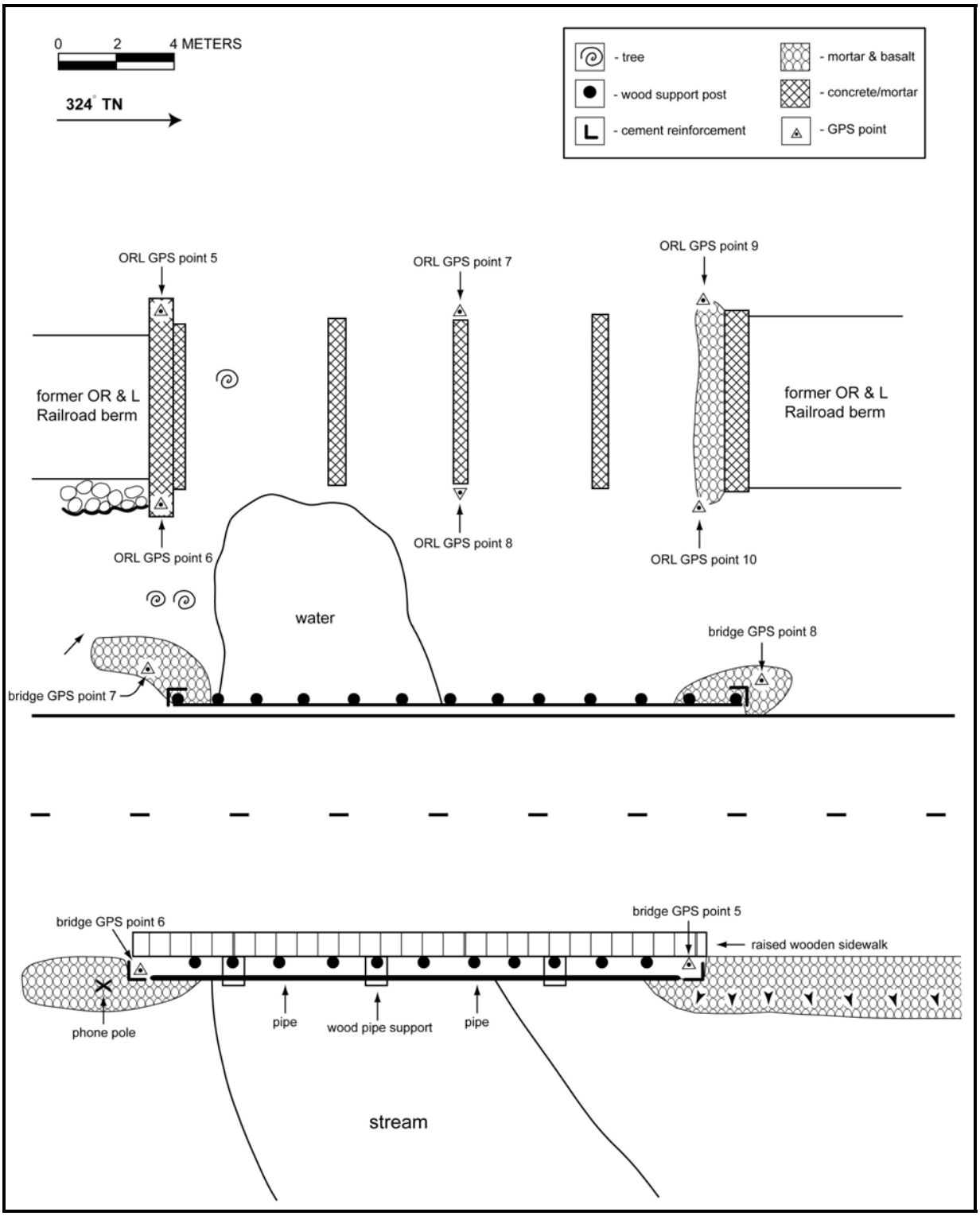

Figure 31. Plan view of SHIP # 50-80-07-6823 (a.k.a. Bridge 3A) and Feature C of SIHP # 50-80-12-9714, remnant of a former O. R. and L. Railroad trestle.

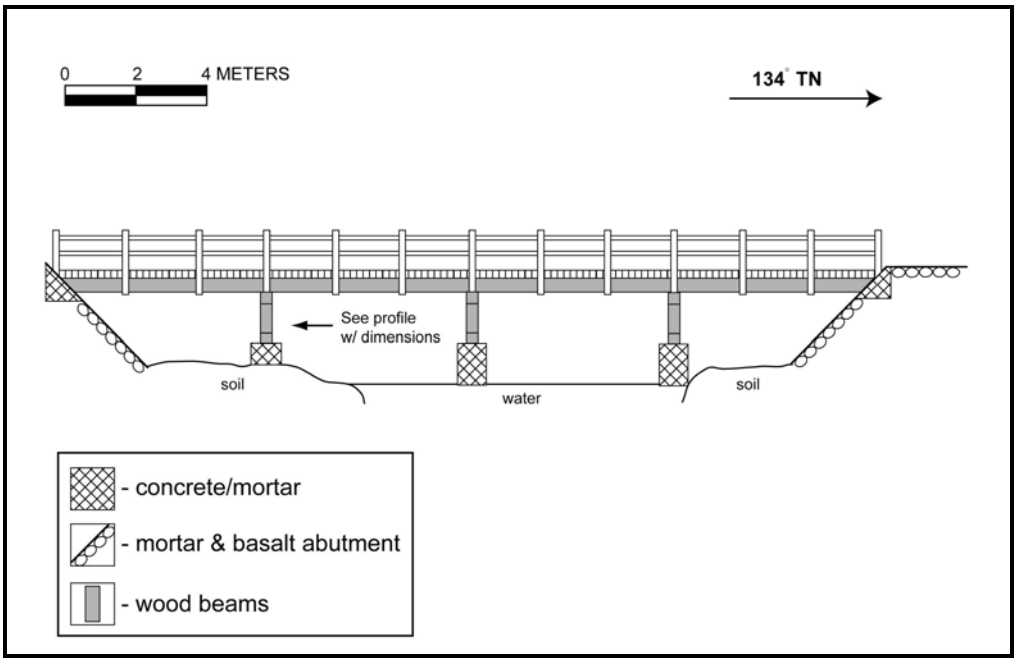

Figure 32. Elevation of SHIP # 50-80-07-6823 (a.k.a. Bridge 3A)

Figure 33. Photograph of SHIP # 50-80-07-6823, view to the northeast

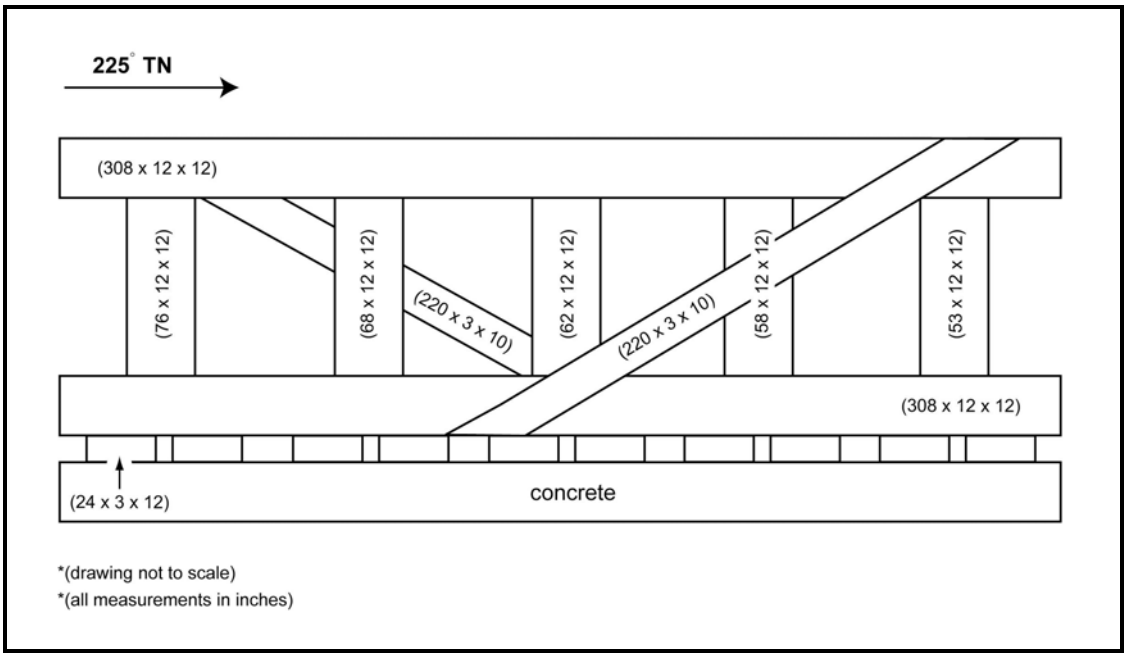

Figure 34. Schematic profile of SHIP # 50-80-07-6823, showing wooden column and bent supports, with wooden diagonal bracing, and the visible portion (concrete) of the bridge's pier

Figure 35. Photograph of SHIP # 50-80-07-6823 substructure, showing wooden columns, beams, planks, X-bracing, and the concrete and blue rock and mortar piers, view to south

Figure 36. Photograph of SHIP # 50-80-07-6823, blue rock and mortar abutment, view to the west

Figure 37. Photograph of SHIP # 50-80-07-6823, concrete corner reinforcement, wooden sidewalk and guardrail, view to northwest

Figure 38. Photograph of SHIP # 50-80-07-6823, wooden guardrail and metal pipe, view to northwest

deck is wooden planking set perpendicular to the bridge's alignment. The bridge is level with no significant elevation difference.

Wooden guardrails, which are painted white and constructed along the *mauka* (northeast) and *makai* (southwest) sides of the bridge, run parallel with the road and run the entire length of the bridge (Figure 37 and Figure 38). A metal pipe also runs parallel to the *mauka* side of the bridge (Figure 38). It is supported by wooden beams behind the wooden guardrail, and is suspended above the dry streambed that leads to the ocean.

A raised wooden sidewalk, located along the *mauka* (northeast) side of the bridge, is also incorporated into the bridges construction (See Figure 23). The sidewalk runs the entire length of the bridge, is raised 10 inches (25 cm) from the road surface and is four ft (120 cm) wide.

The bridge's construction is similar in design and construction materials to the wooden bridges/trestles of the adjacent O. R. and L. Railroad. It may be that the abundance of railroad related construction materials and left over railroad trestles was a determining factor in the selection of Farrington Highway's bridge type and materials in the 1930s (Thompson 1983:VI-1).

Constructed as part of the Territorial Highway System in 1937, Bridge 3A is a component of Farrington Highway. Farrington Highway, described below, is an important transportation and communication corridor that connected Oahu's Wai‘anae District with Honolulu and the rest of the island. Prior to Farrington Highway's construction, overland transport with vehicles was confined to "Old Wai‘anae Road," which was not paved and did not have bridges across Mākaha Stream. Because of the transport limitations over the "Old Wai‘anae Road," prior to the

construction of Farrington Highway, most transport and travel between Wai‘anae and Honolulu was made using the O. R. & L. Railroad or streamer ship.

The construction of Farrington Highway and Bridge 3A across Mākaha Stream, as part of the Territorial Highway System, were part of a historic trench that greatly facilitated intra-island travel and communication. It was only after 1925 that Territorial officials availed themselves of the available federal funding assistance for road and bridge construction. This lead to abundant bridge and road construction after 1925 in Hawaii. Further federal assistance became available in the 1930s as part of the Works Progress Administration and National Reclamation Association programs (Thompson 1983:III-15).

These Territorial Highway System improvements are components of a broad historic pattern of travel and communication improvement in the State of Hawai‘i during the first half of the 20th century. These improvements lead to increased development of previously rural areas.

Based on National Register Bulletin #15 discussion of integrity, Bridge 3A maintains integrity of location. The bridge is today on the same southern branch of Mākaha Drainage where it was originally constructed in 1937. Although Farrington Highway at this location cannot be describe as rural, not like it once was back at the time of the bridge’s construction, within the immediate vicinity of Bridge 3A, the roadway still appears rural in character. There are no residences in the immediate vicinity because of the City and County’s Mākaha Beach Park. Viewed today, the bridge’s integrity of feeling and association are still evident.

As the drawings, measurements, and photographs above should demonstrate, the bridge also has integrity of design, materials, and workmanship. The massive wooden supports, the cross beams supporting the roadway itself, and the finer boards used to create the pedestrian walkway and wooden guardrails, all still convey the intended bridge construction style and appearance. These building materials, if they are not original, are weathered and at least appear to be original. If there has been significant reconstruction or refurbishment of the bridge, this work apparently was done with the same material types and construction techniques that were used during the bridges original construction. The additions of modern guardrails in the vicinity of the bridge do not necessarily detract from the bridge’s integrity of design, materials, and workmanship.

Unlike Bridge 3, Bridge 3A’s integrity of setting has not been diminished over the years with the encroachment of housing. The increased population in the vicinity of the bridge, with it’s associated increase in traffic volume, is less noticeable with Bridge 3A, and there is much more of a sense of the bridge’s rural setting (refer to Figure 33).

As part of a historic bridge inventory of the Island of O‘ahu, prepared for the State of Hawai‘i Department of Transportation, Benthany Thompson prepared the following assessment of Bridge 3A, based on observations and research undertaken in 1980:

> The Mākaha #3A bridge located on Farrington Highway .200 of a mile west of the intersection with Upena Street is a timber girder floor beam structure built in 1937. W. D. Bartel was the Chief Engineer for the Territorial Highway Department.

> The bridge is a 4 span structure with a total length of 78’ with a width of 20.3’ and a length of 11’. It has a load capacity of H-15. The abutments are constructed of cement rubble masonry. There are two wooden railings on both sides of the structure. The design integrity is intact.
>
> The painted white railings with their creosoted sub-structure and cement rubble masonry abutments blend aesthetically with the rural ranch scenes of the Wai‘anae coast. The bridge is an important transportation link between the Wai‘anae coast and Honolulu.
>
> There are vantage points for public viewing of the bridge. The view is good.
>
> Aesthetically, the scene is rated average. (Thompson 1983:VI-6)

Despite the intervening quarter century, Thompson’s description and integrity assessment are still applicable today. Based on the available information, CSH recommends that Bridge 3A (SIHP # 50-80-07-6823) has the integrity to convey its historic significance under Criteria A, broad patterns of history (transportation improvements in the first half of the 20th century), and D, information regarding Territory of Hawai‘i bridge construction. Based on available background information, the bridge is not recommended as eligible under Criterion B, for association with important historical figures. Additionally, the bridge does not appear to be significant under Criterion C, as embodying the distinctive characteristics of a type, period, or method of construction, the work of a master, or displaying high artistic value.

4.3.3 SIHP #: 50-80-07-6824

FORMAL TYPE:	Road
FUNCTION:	Transportation
# OF FEATURES:	1
AGE:	Historic, constructed in the 1930s
DIMENSION:	Linear, 10 m wide including shoulders, approximately 340 m through the project area
LOCATION:	Parallel to the coast through Wai‘anae District, Oahu
TAX MAP KEY:	N/A, within State Highway Right-of-Way
LAND JURISDICTION:	State of Hawaii

DESCRIPTION:

SIHP #50-80-07-6824 consists of Farrington Highway, which extends through the length of the project area, oriented roughly northwest by southeast, and continues outside the project area along the Mākaha Coast (Figure 39 and Figure 40). The portion of Farrington Highway within the project area measures approximately 340 m long (NW-SE) by 10 m wide, including shoulders (NE-SW). Construction of this portion of road included grading with subsequent asphalt paving. Painted upon the road surface are two solid white lines marking the roads' boundaries, while double-solid yellow lines divide the road into two lanes of opposing traffic. The road is asphalt paved. Two historic wooden bridges (SIHP #50-80-07-6822 & SIHP # 50-80-07-6823) have also been incorporated into this portion of Farrington Highway (see site descriptions above).

A large asphalt paved shoulder extends along the *makai* side of the Highway between Bridges 3 and 3A (Figure 39). This functions as a bus pull over for the City and County bus stop. There is a small bus stop shelter at the edge of this pull out area. Modern steel guardrails and steel safety signs have been installed along portions of the roadway adjacent to the approaches to Mākaha Bridges 3 and 3A. Overhead are utility lines strung between creosote-treated wooden utility poles. Based on background research, Farrington Highway is an important subsurface utilities corridor, with water, sewer, and fiber optic lines with the highway's right-of-way. The defunct electric or, more likely, communication cable observed in Trenches 5 and 6 is best considered another of the utility lines associated with the Farrington Highway utility and communication corridor.

Figure 39. Photograph of SIHP #50-80-07-6824 (a.k.a. Farrington Highway), view to northwest

Figure 40. Photograph of SIHP #50-80-07-6824 (a.k.a. Farrington Highway), view to southeast

Farrington Highway was originally constructed in the 1930s. It’s predecessor along the Wai‘anae Coast was variously termed the “Government Road” or “Old Wai‘anae Road” and provided less than ideal travel and transport conditions for the Wai‘anae District. Farrington Highway’s predecessor was described as a “mud hole in the winter and billowed dust in the summer” (McGrath et al. 1973:51). Figure 41 is a photograph of the “Old Wai‘anae Road” in Mākaha, south of the current project area, facing south towards Wai‘anae. The Old Wai‘anae Road was not paved and did not have bridges across Mākaha Stream. Because of the transport limitations over the Old Wai‘anae Road, prior to the construction of Farrington Highway, most transport and travel between Wai‘anae and Honolulu was made using the O. R. & L. Railroad or streamer ship (McGrath et al. 1973).

The construction of Farrington Highway was a component of the overall Territorial Highway System. It was only after 1925 that Territorial officials availed themselves of the available federal funding assistance for road and bridge construction. This lead to abundant bridge and road construction after 1925 in Hawaii. Further federal assistance became available in the 1930s as part of the Works Progress Administration and National Reclamation Association programs. This funding lead to additional standardization and improvement of the Territorial Highway System (Thompson 1983:III-15). These improvements were significant events that greatly facilitated intra-island travel, transportation, and communication. Farrington Highway was eventually named after Wallace Rider Farrington (1871-1933), a former Honolulu Newspaper man, Mayor of Honolulu, and Territorial Governor of Hawai‘i (1921-1929), who was influential in expanding Hawai‘i’s roadways.

Once constructed, Farrington Highway, became an important transportation and communication corridor that connected Oahu’s Wai‘anae District with Honolulu and the rest of the island. Figure 42 and Figure 43 show the rural nature of Farrington Highway in the 1940s.

These Territorial Highway System improvements are components of a broad historic pattern of travel and communication improvement in the State of Hawai‘i during the first half of the 20th century. These improvements lead to increased development of previously rural areas.

Based on National Register Bulletin #15 discussion of integrity, Farrington Highway maintains integrity of location. Through the current project area, the road follows the same alignment where it was originally constructed in the 1930s. In terms of design, setting, materials, workmanship, feeling and association, this small stretch of Farrington Highway has lost its integrity. This loss is due to the installation of additional road features, such as signage, guardrails, and a paved bus stop pull out, and the encroachment of residences, which has reduced this portion of the roadway’s rural feel. It is quite possible that other portions of Farrington Highway, particularly the areas to the northwest of the current project area, still maintain more integrity in terms of the roadway’s Territorial Highway System origins.

Based on available information, the small portion of Farrington Highway (SIHP # 50-80-07-6824) within the current project area is recommended National and Hawai‘i Register eligible for its information content (Criterion D) regarding territorial road placement, grading, and construction techniques. The roadway is not felt to have the integrity to convey its significance under any other criteria.

Figure 41. Photograph of the old Waianae Road (taken from *Historic Waianae*, McGrath *et al.* 1973:51)

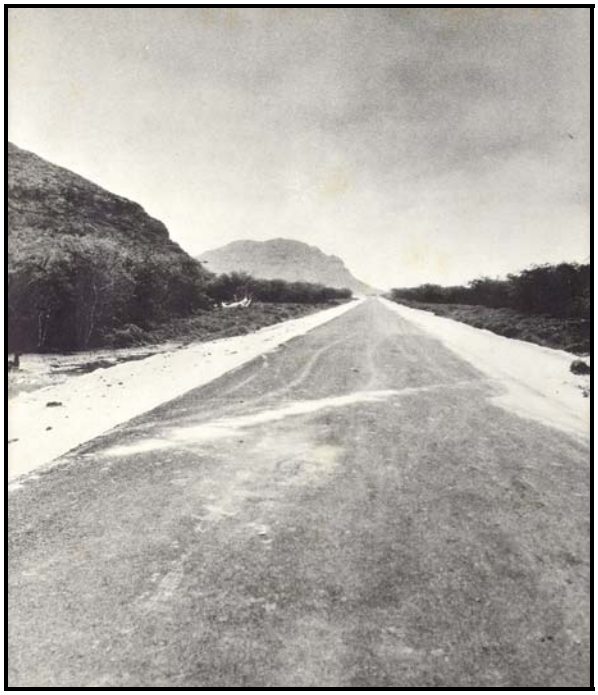

Figure 42. Photograph of Farrington Highway, late 1940’s (taken from *Historic Waianae*, McGrath *et al.* 1973:144)

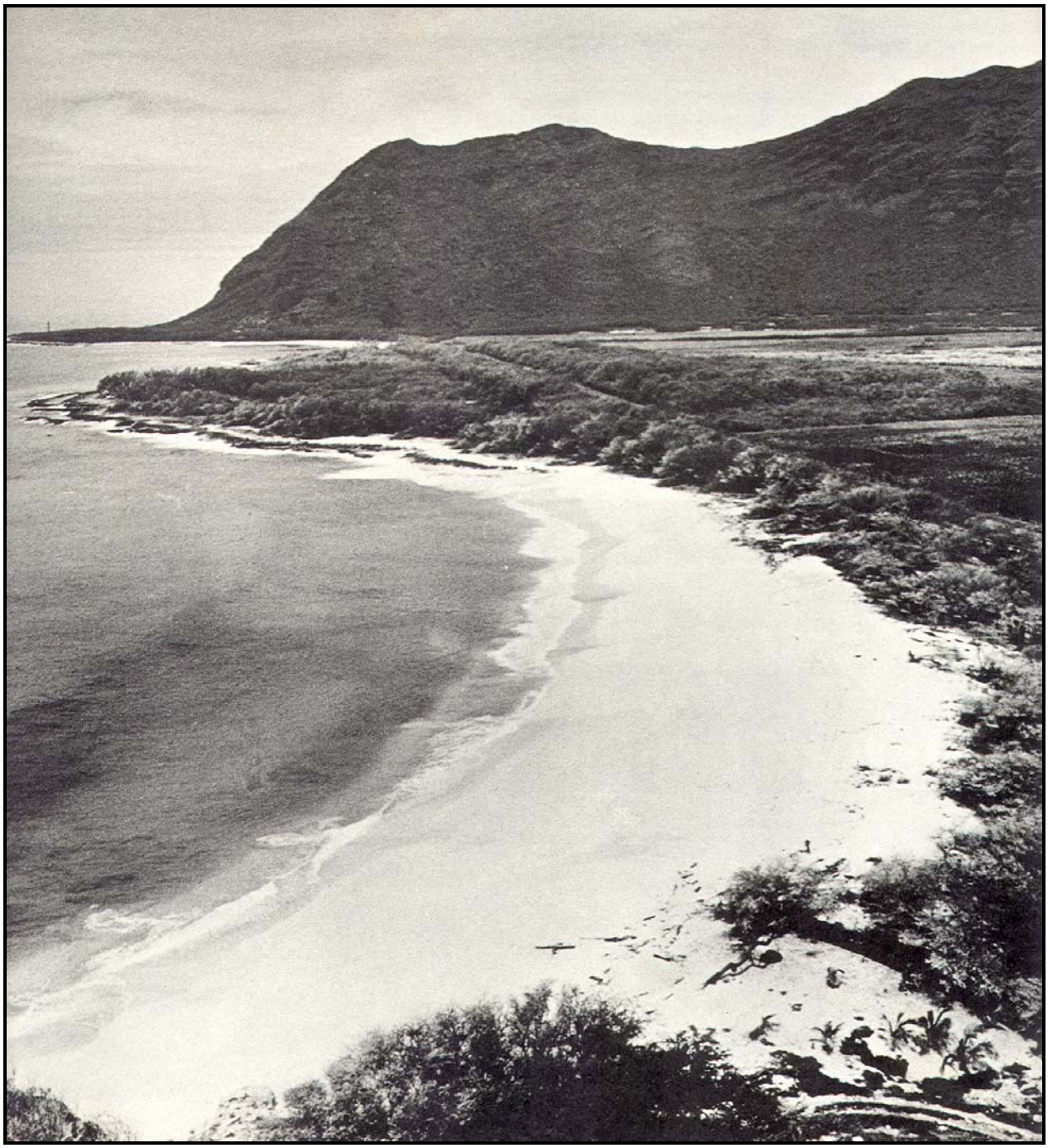

Figure 43. Photograph of Farrington Highway, 1947 (from McGrath *et al.* 1973:149), the current project area is in the distance, near the beach at the base of the ridgeline, on the far side of the shallow peninsula

4.3.4 SIHP #: 50-80-07-6825

FORMAL TYPE:	Subsurface cultural layer
FUNCTION:	Activity Area
# OF FEATURES:	2
AGE:	Prehistoric and historic
DIMENSION:	30 m NW/SE by 15 m NE/SW
LOCATION:	*Makai* side of Farrington Highway, between Bridges 3 and 3A
TAX MAP KEY:	N/A, within State Highway Right-of-Way
LAND JURISDICTION:	State of Hawaii

DESCRIPTION:

SIHP # 50-80-07-6825 is a subsurface cultural layer observed during the documentation of Trench 8, located in the southwestern portion of the project area (see Figures 8 and 21). The tentative boundaries established for SIHP # 50-80-07-6825 are Trench 7 to the northwest, a point between test Trench 6 and Trench 8 to the southeast, the *makai* edge of Farrington Highway to the northeast, and the *makai* boundary observed in Trench 8 (Figure 21). These boundaries were established through the combination of test trench observations and an evaluation of previous subsurface disturbance in the immediate area (e.g. construction of Farrington Highway). A more precise boundary could be established through further investigation; however, the current boundary is sufficient for management decisions. Based on current information, SIHP # 50-80-07-6825 measures approximately 30 m (NE-SW) by 15 m (NW-SE) for a total area of approximately 450 square meters.

SIHP #50-80-07-6825 consists of two features: Feature A is a subsurface cultural layer initially observed as Stratum II of Trench 8, but later determined to encompass a larger area (refer to discussion in the Trench 7 description, above); and Feature B consists of a human rib fragment and hand phalange. These human remains were observed within the Stratum II cultural layer and were clearly previously disturbed and disarticulated prior to the excavation of Trench 8 (Figure 20).

Feature A consists of a culturally enriched sand A-horizon--likely the former land surface during the prehistoric and historic period, before the construction of the O. R. and L. Railroad. The cultural layer is approximately 30 cm below the current land surface and has an average thickness of 80 cm. The overlying sediment (Stratum I) is a terrigenous fill sediment that contains fairly abundant historic/modern refuse.

The Stratum II cultural layer is the distinctive mottled grey and dark gray calcareous sand, with charcoal flecking, that is typical of culturally enriched A horizons in coastal Hawai‘i. The cultural layer’s lower boundary is wavy and abrupt, almost scalloped in appearance, indicating repeated small pit excavations within and down through the layer, into the underlying natural

calcareous sand deposits. The cultural layer is visible only as a slight gray area in the Trench 8 photographs (Figures 44 and 45).

The cultural layer contains varying concentrations of midden and artifacts of both prehistoric traditional Hawaiian and historic origin. Three distinct collection areas, designated A, B, and C, were sampled from the cultural layer (refer to Figure 20). From collection area B, 30 liters were screened though 1/8th inch mesh and the resulting cultural material was collected, identified, and tabulated. From each collection area A and C, 45 liters of sediment were screened and the resulting material was collected, identified, and tabulated. Table 4 shows the results of this sampling. Table 4 does not include the approximately 200 grams of butchered cow bone observed, but not collected, within collection areas A, B, and C.

The few historic artifacts, and the clearly historically butchered cow bone, observed within the deposit, were not particularly temporally diagnostic. The nail fragment was highly corroded, and although clearly not modern, was not diagnostic. The clear and green bottle glass fragments are small and without diagnostic markings. They are highly weathered with a flaky, opalescent patina covering all surfaces that have not been freshly broken. Based on this patina, these glass fragments are clearly not modern. In all, these few historic artifacts do not contradict the impression that the cultural deposit predates, and was capped by, the installation of the O. R. and L. Railroad in the 1890s.

In order to better establish the age range of the cultural layer’s formation, the 5.0 g of wood charcoal from collection area C were sent to Beta Analytic, Inc. for radiocarbon dating analysis. The AMS method was required for this small sample. Unfortunately, the charcoal sample consisted of diffuse charcoal particles collected from throughout collection area C, not from a distinct cultural sub-feature, such as a hearth. Accordingly, the resulting age determination is less than ideal for dating a specific event. Also, the individual charcoal particles that made up the sample were too small for wood charcoal species identification. This sample was, however, the best that was available from the cultural layer’s documentation. Dating results are shown in Table 5, below (also refer to Appendix A). The resulting calendar age, at the 2-sigma, is between A.D. 1300 and 1430.

Based on the limited “window” on the SIHP # 50-80-07-6825 cultural deposit available from the documentation of Trench 8, it is difficult to determine the deposit’s full archaeological potential. As no postholes or other structural remnants were identified in Trench 8, it is best to classify the deposit as an “activity area,” rather than a more specific functional term, such as “habitation area.” Further investigation of the deposit may more conclusively determine the types of activities, possibly including habitation, that were responsible for the deposit’s formation.

Feature B, the human hand phalange and rib fragment located in collection areas A, B, and C, comprises a previously identified burial site based on the definitions of Hawai‘i state burial law (HAR Chapter 13-300-2), and was treated as such during the documentation of Trench 8. CSH personnel carefully cleaned the exposed Trench 8 sidewalls to determine if any burial pit cut was discernable; there was no evidence of a pit. Because the human remains were clearly disarticulated and previously disturbed, CSH personnel carefully excavated into the trench

Figure 44. Photograph of Trench 8, view to southwest

Figure 45. Photograph of Trench 8, view to south

Table 5. Catalogue of Recovered Materials from SIHP # 50-80-07-6825, Collection Areas A-C

Collection Area	Stratum	Depth	# of Pieces	Total Weight	Material Type	Function/ Formal Type
A	II	60-100cmbs	-	17.4g	Marine Shell	Midden
A	II	60-100cmbs	-	4.1g	Charcoal	-
A	II	60-100cmbs	2	0.5g	Volcanic Glass	Lithic Reduction Debitage
A	II	60-100cmbs	8	13.6g	Basalt	Lithic Reduction Debitage
A	II	60-100cmbs	1	0.4g	Bottle Glass	Shards
B	II	60-100cmbs	-	8.3g	Marine Shell	Midden
B	II	60-100cmbs	-	1.4g	Charcoal	-
B	II	60-100cmbs	6	2.4g	Basalt	Lithic Reduction Debitage
B	II	60-100cmbs	4	22.7g	Bottle Glass	Shards
B	II	60-100cmbs	3	0.2g	Fish Bone	Midden
C	II	70-110cmbs	-	19.2g	Marine Shell	Midden
C	II	70-110cmbs	-	5.0g	Charcoal*	-
C	II	70-110cmbs	1	3.1g	Nail	Building Material
C	II	70-110cmbs	5	1.7g	Basalt	Lithic Reduction Debitage
C	II	70-110cmbs	4	0.3g	Animal Bone	Midden

*Wood Charcoal sent to Beta Analytic, Inc. for AMS radiocarbon dating analysis (Sample Beta-208481)

Table 6. Results of Radiocarbon Analysis from SIHP # 50-80-07-6825

Beta Analytic ID #	Sample Material/Analytic Technique	Provenience	Conventional Radiocarbon Age	C13/C12 Ratio	Oxcal Calibrated Calender Age (2 sigma)
Beta-208481	Wood Charcoal/ AMS	Sample Area C, Stratum II, 70-110 cmbs, Trench 8	570 +/- 40 BP	-25.5 o/oo	1300AD-1430AD (95.4%)

sidewalls, and screened the resulting sediment, to locate additional human skeletal remains, or portions of an undisturbed skeleton. Excavations 30 cm into either trench sidewall did not reveal additional skeletal material, although additional butchered cow bone was observed, but not collected.

SHPD was immediately notified of the burial find, per the requirements of HAR 13-300-31(b)(3). Because it would be unsafe to leave an open, unattended trench within the project area, SHPD agreed that CSH could not keep the trench open for a SHPD site visit. Following trench documentation, the human remains were returned to where they were found in the trench sidewall and the trench was backfilled. SHPD agreed to notify the Koa Mana organization, which had expressed prior concern that the project would affect Native Hawaiian burial deposits, of the burial discovery. CSH agreed to notify additional Native Hawaiian organizations and community members as part of the inventory survey's cultural consultation effort, see discussion below [8-31-05 personal communication, Melanie Chinen (SHPD), with Matt McDermott (CSH)].

Regarding the burial's ethnicity, CSH provided SHPD with the following summary of the available evidence in an email [9-2-05 email communication, Matt McDermott (CSH) to Melanie Chinen (SHPD)]:

> Here is my response to your enquiry regarding burial ethnicity. Typical archaeological evidence for determining ethnicity of a burial includes associated burial goods, burial position/evidence of mortuary practices, and association with a dated stratigraphic layer. The human rib fragment and finger bone were previously disturbed and were found within a stratigraphic layer that clearly has both prehistoric, traditional Hawaiian cultural remains, as well as historic metal and bottle glass. Because this is a naturally deposited stratigraphic layer, not a fill deposit, it appears this layer accumulated during both the prehistoric as well as the historic period. Accordingly, for this burial, based on the evidence of associated burial goods, burial position/mortuary practices, and association with a dated stratigraphic layer, we cannot say whether the burial is Native Hawaiian or not.

> That being said, archaeology also weighs the evidence of demographics and overall cultural context. In the at least 800 year human habitation of the Waianae coastline, there have been thousands, more likely tens of thousands of Native Hawaiians buried in unmarked graves within Waianae beach sands. During the last 200 years along the Waianae coastline, there have most likely been perhaps a hundred, maybe a few hundred, unmarked non-Native Hawaiian burials in Waianae beach sands. This is largely due to the early establishment of cemeteries for non-Native Hawaiians. Based on these reasonable estimates, there is a distinctly higher probability that the previously disturbed rib and finger bones discovered in sand deposits during the Makaha Bridges inventory survey are from a Native Hawaiian burial. This likelihood cannot be definitively confirmed with the available archaeological evidence, nor could it be confirmed with osteology, unless more of the skeleton, preferably the skull, was located. If possible, DNA analysis would offer your best option to more conclusively determine ethnicity. DNA, however, is a destructive analysis. Based on available evidence, including demographics and cultural context, I believe this burial is more likely Native Hawaiian.

In response to CSH’s request, SHPD made an ethnicity determination for the burial site of “probable Native Hawaiian,” per the requirements of HAR Chapter 13-300-31(g) [9-21-05 email communication, Melanie Chinen (SHPD) to Matt McDermott (CSH)]. As a previously identified, most likely Native Hawaiian, burial site, the decision regarding burial treatment, either preservation in place or relocation, falls under the jurisdiction of the O‘ahu Island Burial Council (HAR Chapter 13-300-33).

Undoubtedly, construction activities associated with the old O. R. & L. Railroad and Farrington Highway have affected at least the upper portions of the SIHP # 50-80-07-6825 cultural layer. It is also likely that the installation of the O. R. & L. Railroad line over a portion of the cultural layer has served to insulate and preserve portions of the deposit (refer to Figure 20).

The overall integrity of SIHP # 50-80-07-6825 is difficult to assess based on the small “window” on the subsurface cultural layer documented in Trench 8. The subsurface layer clearly has integrity of location. Arguably it has integrity of design (the haphazard accumulation of cultural material as part of a prehistoric and historic coastal activity area) and materials (the cultural material that makes up the deposit). Integrity of setting, workmanship, feeling, and association are not particularly relevant to this type of archaeological, subsurface cultural resource.

The significance of the cultural deposit is best discussed in terms of its potential to provide important archaeological information. Previous archaeological research along O‘ahu’s Wai‘anae Coast indicates a traditional-Hawaiian settlement pattern characterized by relatively early coastal occupation associated with marine resources procurement. From early coastal settlements, with time and expanded populations, habitation spread inland into agricultural areas. There is fairly abundant archaeological information regarding inland settlement for Mākaha Valley, but very little information about coastal settlement (Cordy 1998). With this rarity of coastal habitation

deposits, SIHP # 50-80-07-6825 has potential to provide important information that is lacking regarding Mākaha's prehistoric and early historic archaeological record.

The SIHP # 50-80-07-6825 subsurface deposit may be comparable and homologous to the coastal subsurface cultural deposits (SIHP # 50-80-07-6634) recently documented at near-by Mauna Lahilahi Beach Park in the Ahupua‘a of Wai‘anae, immediately to the south of Makaha (Perzinski & Hammatt 2004). SIHP #50-80-07-6634, an intact cultural layer, was documented during backhoe testing. The cultural layer contained four distinct cultural layers (Stratum II, IIA, IIB, and IIC) all containing varying concentrations of midden, artifacts and charcoal. Based on laboratory analysis, radiocarbon dating, and historical research, it was determined that the upper two layers (Stratum II & IIA) represented an early post-contact to historic cultural deposit. These sub-layers were distinguished by a very dark gray color and in most instances a presence of historic trash as well as invertebrate midden, cut bone, and few fish hooks.

Within the lower two layers (Stratum IIB and IIC) of SIHP #50-80-07-6634 no historic midden or artifacts (modern bottle glass, rusted metal) were encountered. These layers were generally distinguishable by a slightly lighter color, a lack of historic midden and artifacts and a higher concentration of marine and vertebrate midden. Radiocarbon analysis of the charcoal collected from the cultural layer indicated that Stratum IIB was deposited no earlier than A.D. 1430.Thus it was suggested that Stratum IIB and IIC represented the pre-contact component of the site (Perzinski & Hammatt 2004).

Other potentially comparable and homologous subsurface cultural layers along the Wai‘anae Coastline include SIHP #s 50-80-07-5762 and 50-80-07-5763. Both of these buried calcareous sand A-horizons were documented during archaeological inventory survey of Ulehawa Beach Park in Nānākuli and Lualualei Ahupua`a, south of the current Mākaha Bridges project area. These layers contained charcoal, fishhook fragments, volcanic glass and basalt flakes, marine shell and fishbone midden deposits, and small, distinct pit features. Based on radiocarbon dating analysis, these deposits date to the late prehistoric/early historic period (McDermott and Hammatt 2000:147-148).

There are clear similarities between SIHP # 50-80-07-6825, within the current Mākaha Bridges project area, and SIHP # 50-80-07-6634, within Mauna Lahilahi Beach Park, and SIHP #s 50-80-07-5762 and 50-80-07-5763, within Ulehawa Beach Park. These similarities in geographic setting, stratigraphy, and midden and artifact deposits, indicate that these subsurface cultural layers are the result of comparable formation processes. These subsurface deposits represent the remains of traditional Hawaiian coastal land use and probably habitation. Due to their apparent rarity, the archaeological information they contain is particularly significant.

Based on available information, SIHP # 50-80-07-6825 is recommended eligible to both the Hawai‘i and National Register for the archaeological information (Criterion D) it has yielded and will potentially yield regarding traditional Hawaiian coastal land use along the Mākaha and Wai‘anae Coast. Additionally, based on SIHP # 50-80-07-6825's most likely Native Hawaiian burial site, the cultural resource is recommended significant under Hawai‘i Register Criterion E, for its traditional cultural significance to Native Hawaiians.

4.3.5 SIHP #: 50-80-12-9714

FORMAL TYPE:	Railroad remnants
FUNCTION:	Transportation
# OF FEATURES:	3
AGE:	Historic, constructed in the 1890s
DIMENSION:	Linear, 5 m wide NE/SW by approximately 270 m long NW/SE within the project area
LOCATION:	10 m *makai* and parallel to Farrington Highway,
TAX MAP KEY:	N/A, within State Highway Right-of-Way
LAND JURISDICTION:	State of Hawaii

DESCRIPTION:

SIHP # 50-80-12-9714 consists the historic O. R. & L. Railroad alignment, which extends northwest / southeast through the entire project area, parallel and *makai* of Farrington Highway (refer to Figure 21). The former narrow gauge railroad was constructed through the project area between 1895, when the O. R. and L. tracks reached Wai‘anae, and 1898, when the O. R. and L. tracks rounded Ka‘ena Point (McGrath et al. 1973). Within the current project area, the former railroad alignment lacks all indications of track and railroad ties. Only the level, artificially prepared surface of the former railroad berm/bed (Feature A), and two railroad trestle remnants (Features B and C), are discernable on the current land surface.

Feature A, the former railroad bed, is discernable as a slightly raised (c. 20-40 cm high) approximately 2 m wide, low berm that extends northwest / southeast near the exposed sands of the active beach. This berm is not visible across the entire project area; in places it blends in with the surrounding topography. The alignment is overgrown with *kiawe* tress and tall grasses. Based on the results of subsurface testing, where Trenches 7 and 8 sectioned a portion of the former railroad alignment, the berm is made of locally available sediments, with no indication of imported gravels or other material to prepare the railroad bed surface. As noted above, there was no indication of railroad ties, rail spikes, or tracks within the project area. The berm is most easily discernable adjacent to the remnants of the two railroad trestles that formerly crossed Mākaha Stream’s outlets, immediately *makai* of Bridges 3 and 3A.

Feature B (Figures 46 and 47) is the railroad trestle remnant immediately *makai* of Mākaha Bridge 3. Based on the visible remnants, this former railroad bridge over Mākaha Stream’s southern drainage would have been a single span beam structure supported by crudely constructed basalt rock and mortar abutments. The remnants are shown on Figure 22, the plan view of Bridge 3. Figure 46 is a photograph of the former railroad bridge’s southern abutment,

Figure 46. Photograph of the southern abutment of Feature B, SIHP # 50-80-12-9714, shot south, showing crude basalt boulder and mortar construction.

Figure 47. Photograph of the northern abutment of Feature B, SIHP # 50-80-12-9714, shot north, showing the lack of construction remnants

showing the crude basalt boulder and mortar construction. The feature's southern abutment measures 8 m east/west, by 4 m north/south, by 1.5 m high. There is a narrow horizontal concrete form on the southern side of the abutment that is oriented perpendicular to the bridge's alignment. This likely served as an end bent for the railroad bridge. No similar concrete end bent was observed for the bridge's northern abutment (refer to Figure 22).

The bridge's northern abutment is only poorly preserved, or was never formally constructed. Only a few basalt boulders were noted along what would have been the bridge's northern abutment. Unlike Feature C, describe below, there are no indications of bridge support piers between the bridge abutments. It may be there never were bridge piers, or it could be that these were removed or buried by stream erosion. It is also possible that the bridge was supported by piles driven directly into the drainage sediments that have since been removed or eroded away.

Feature C, immediately *makai* of Mākaha Bridge 3A (refer to Figure 31) was much more formally constructed and/or is better preserved than Feature B. Feature C consists of the remains of a four span railroad trestle that once crossed the northern drainage of Mākaha Stream. Between the bridge's abutments are three piers that would have supported the bridge's substructure. These piers are 6 m long, 0.8 m wide, and 0.2 to 0.6 m high above the current drainage bottom surface. They are made of formed concrete, with visible seam scars from the wooden forms that were used when they were created (Figure 48). These piers likely supported the bridge's support columns.

The Feature C remnant abutments are tiered (Figures 48 and 49). The northern abutment (Figure 48) consists of three tiers, the lower of which is basalt rock and mortar, with the upper tiers made of formed concrete. The northern abutment measures 7.5 m long, by 2.0 m wide, by 2.0 m high. The southern abutment is two-tiered and made of formed concrete (Figure 49). Basalt boulders are piled along the abutment's northeastern (*mauka*) side. The southern abutment measures 8.0 m long, by 1.2 m wide, by 1.4 m high.

These railroad trestle features were certainly created between the late 1890s,when the railroad was first constructed through this portion of Mākaha, and 1947, when the O. R. and L. Railroad ceased operation. No construction dates were observed imprinted into the features' concrete. Without additional information, such as railroad records or historic maps or photographs, it is difficult to determine exactly when these railroad abutments and piers were constructed.

A 13-mile section of the O. R. and L. Railroad's remnant track, to the south of the current project area, extending from Auyong Homestead Road in Nānākuli, around Kahe Point, and into Kapolei, was listed on the National Register in 1975. Based on the information included on a 1982 update to the O. R. and L.'s National Register nomination form, this 13-mile segment of track was determined significant under Criteria A, B, and C. This segment of the O. R. and L. Railroad still has track and railroad ties and maintains the integrity to convey its historic significance under these criteria.

The portion of the O.R. & L. within the current Makaha Bridges project area has not been previously documented, nor has it been previously evaluated for eligibility to either the Hawai‘i or National Registers. This small portion of the former railway alignment is clearly highly

Figure 48. Photograph of the northern abutment and piers of Feature C, SIHP # 50-80-12-9714, shot northwest

Figure 49. Photograph of the southern abutment of Feature C, SIHP # 50-80-12-9714, shot west

disturbed and lacks integrity. The remnants have integrity of location, but without the component tracks, railroad ties, and spikes, they lack integrity of design, materials, workmanship, feeling and association. The railroad remnants' setting has also been compromised by modern development of the adjacent private residences, Mākaha Beach Park, and Farrington Highway. Without this integrity, the railroad remnant cannot convey its historic significance under Criteria A, B, and C.

Accordingly, the section of the O. R. and L. Railroad within the current project area is recommended as a "non-contributing component" of a cultural resource that is currently listed on the National Register. Although deemed a non-contributing component, CSH does recommend the section of railroad remnant within the current project area as Hawai‘i and National Register eligible for its information potential (Criterion D). The remnant railroad features have yielded and may still yield important information regarding late 19th and early 20th century railroad grade and trestle construction techniques.

Section 5 Results of Cultural Consultation

Based on the project's location and historical and cultural setting, it is most likely that the project would affect Native Hawaiian cultural resources and/or ongoing traditional cultural practices related to Native Hawaiian cultural traditions. Accordingly, this cultural consultation effort focused on the assessment of the proposed project's impact to Native Hawaiian cultural resources.

5.1 Results of the Project-Related Cultural Impact Assessment

CSH's cultural impact assessment investigation associated with the Mākaha Bridges project (Souza and Hammatt 2004) provides a broad background for the current cultural consultation effort. This study identified ongoing cultural activities, such as intensive fishing, diving, canoeing, and surfing that currently occur *makai* of the project area at Mākaha Beach. Based on the results of this study, the community feels that the proposed bridge replacement should impose no adverse effect on any of these on-going Native Hawaiian traditional cultural practices or activities in the project area's vicinity. The community did stress the need for effective traffic control during the proposed project.

Based on Souza and Hammatt's (2004) investigation, the proposed Mākaha Bridges project's potential to disturb Native Hawaiian burials represents the project's only notable potential adverse impact upon native Hawaiian cultural resources, beliefs, and practices. This study recommended that, should these concerns become a reality, the resulting burial issue should be resolved through consultation and coordination with the Mākaha community and the Native Hawaiian community in general, as directed under applicable Hawai‘i state burial law (HRS Chapter 6E-43 and HAR Chapter 13-300).

5.2 Project-Related Cultural Input from the Koa Mana Organization

The Wai‘anae-based Native Hawaiian organization Koa Mana has been actively monitoring the progress of the Mākaha Bridges project, with a particular focus on ensuring that the project does not affect significant cultural resources. Koa Mana member Mr. Alika Silva has been particularly involved. He contacted by facsimile/letter, and met in person, with project proponents and/or their representatives several times in the Spring and Summer of 2005 regarding the project. He also communicated his project-related concerns with the Office of Hawaiian Affairs (OHA) and SHPD. Mr. Silva expressed concern that the Mākaha Bridges project and its associated archaeological inventory survey would disturb important cultural resources related to Native Hawaiian burials, the former fishpond and habitation area referred to as Kahaloko, and a temple site Mr. Silva referred to as Ka`anani`au. Mr. Silva also raised concerns that the project would disturb traditional cultural properties.

A traditional cultural property is a form of historic property under federal historic preservation legislation that does not necessarily have physical modification or artifacts related to cultural use. As defined in the National Register Bulletin 38, a traditional cultural property is a property that "is eligible for inclusion in the National Register because of its association with cultural practices

or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community." Examples of a traditional cultural property include specific gathering areas of a particular medicinal herb, or a particular landform associated with a deity or mythic hero.

Mr. Silva and the Koa Mana organization have raised a number of cultural issues that are important to the project. The Koa Mana organization was contacted, but did not participate in the project's cultural impact assessment. Koa Mana member Mr. Glen Kila was contacted regarding the cultural impact assessment by email and posted letter. Neither Mr. Kila nor other Koa Mana members provided a response regarding potential ongoing traditional cultural practices or cultural resources within the project area. It is noteworthy that Mr. Alika Silva's father, Mr. Albert Silva, was contacted and participated in the project's cultural impact assessment investigation (Souza and Hammatt 2004:31).

Mr. Silva has commented to SHPD, OHA and CSH personnel that he and his organization will not communicate with CSH. At a project-related meeting at the Mākaha project site in August 2005, Mr. Silva refused to let the meeting progress until CSH personnel had left the meeting. This meeting was specifically called to hear Mr. Silva's cultural concerns and to address these concerns during the upcoming archaeological inventory survey fieldwork.

Following the inventory fieldwork, Koa Mana members Mr. Alika Silva and Mr. Glen Kila were included in the investigation's cultural consultation effort. CSH received no response from the consultation letters sent to Koa Mana. Despite attempts by the project proponents and their representatives, Koa Mana has not provided specific location information regarding the burials, temple site, and/or traditional cultural property(s) they say are within the Mākaha Bridges project area.

5.3 Results of Archaeological Inventory Survey Cultural Consultation

Following the completion of the archaeological inventory survey fieldwork, per the requirements of HAR Chapter 13-275-6(c), 13-275-8(a)(2), and Chapter 13-276-5(g), CSH undertook specific cultural consultation with Native Hawaiian organizations and individuals, including OHA. CSH initiated this consultation with a letter-mailing program. Appendix B is a copy of the letter that was sent to OHA. It is representative of the letters that were sent to each of the selected Native Hawaiian organizations/individuals. The letters summarized the Mākaha Bridges project, the results of the archaeological inventory survey fieldwork, briefly described the five cultural resources located in the project area, and discussed potential project effect and mitigation measures. The letter asked for specific input regarding the ethnicity and treatment of the potentially Native Hawaiian burial documented in Trench 8. Additionally, the letter sought input regarding the potential for previously undocumented traditional cultural properties within the project area, based on the project-related cultural input of the Koa Mana organization. The cultural consultation effort continued with follow up telephone contacts. Table 7 lists the individuals and organizations contacted and summarizes the cultural consultation results.

Table 7. List of Consultation Contacts with a Summary of the Consultation Effort and Results

Contact	Contact Record
Mr. Eric Enos Mākaha Ahupua‘a Council	Consultation letter sent on September 7th, 2005. Follow up telephone message left November 9th, 2005. No Response
Mr. Mark Suiso Mākaha Ahupua‘a Council	Consultation letter emailed on September 8th, 2005. No Response.
Ms. Annie Likos Mākaha Ahupua‘a Council	Consultation letter emailed on September 8th, 2005. No Response.
Mr. Alika Silva Koa Mana	Certified, return receipt consultation letter sent on September 7th, 2005. No response and letter returned unclaimed. Mr. Silva had previously expressed his refusal to speak with CSH regarding the project.
Mr. Glen Kila Koa Mana	Consultation letter sent on September 7th, 2005. No response.
Ms. Alice Greenwood O‘ahu Island Burial Council	During the inventory survey fieldwork on August 31st, 2005, Matt McDermott of CSH had an informal interview with Ms. Greenwood on site at the Mākaha Bridges project area. Ms. Greenwood said she was unaware of any traditional Hawaiian cultural resources or burials within the project area. She expressed the opinion that the Native Hawaiian burial issue was the most important consideration for the Mākaha Bridges project. Ms. Greenwood indicated that she was not particularly knowledgeable about the project area and its vicinity, but that she had not heard of any cultural practices or cultural resources within the project area that might be considered traditional cultural properties. Following the completion of the fieldwork a cultural consultation letter was sent to Ms. Greenwood on September 7th, 2005. There was no response to the letter.
Mr. Landis Ornellas Hui Malama I Na Kupuna ‘O Hawai‘i Nei	Consultation letter sent on September 7th, 2005. Follow up telephone message left November 9th, 2005. No Response
Mr. William Aila Hui Malama I Na Kupuna ‘O Hawai‘i Nei	Consultation letter sent on September 7th, 2005. As a follow up, Matt McDermott of CSH had an informal interview with Mr. Aila by telephone on November 9th, 2005. Mr. Aila said he had no knowledge of previously disturbed burials or cultural deposits within the project area, but that he was not surprised that fragmented human remains were found during the inventory survey, as this is always possible in beach deposits. Mr. Aila said he had not heard of the remains of a Native Hawaiian temple, nor had he heard of other cultural remains or practices that might indicate traditional cultural properties, within the Mākaha Bridges project area.

Contact	Contact Record
Mr. Clide W. Nāmu‘o Administrator State of Hawai‘i Office of Hawaiian Affairs (OHA)	Consultation letter sent on September 7th, 2005. OHA responded in a September 22, 2005 letter from Clyde W. Nāmu‘o (OHA) to Matt McDermott of (CSH) [HRD05/1469C]: “Thank you for your efforts in consulting OHA as the Mākaha Bridges 3 and 3A project continues. Our office has no comment specific to the recent findings but appreciates you continued correspondence. OHA requests your assurances that if the project goes forward, should iwi or Native Hawaiian cultural or traditional deposits be found during ground disturbance, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.”

CSH would like to thank all the Native Hawaiian organizations and individuals for their time and effort expended as part of this cultural consultation program. Although only limited cultural resource information was obtained through this particular consultation effort, such consultation is an important and required part of an archaeological inventory survey. Based on these consultation results, no substantiating information is available regarding Koa Mana’s claims for traditional cultural properties within the project area. Based on these results, the Native Hawaiian burial issue remains a prominent cultural concern for the Mākaha Bridges project.

Section 6 Summary and Interpretation

In compliance with and to fulfill applicable Hawai‘i state and federal historic preservation legislation, CSH completed this archaeological inventory survey investigation for the proposed Mākaha Bridges project. This HDOT and federally funded bridge replacement project [Federal Highway Administration (FHWA) Aid Project No.: BR-093-1(20)] will require construction of a temporary detour road and temporary bridge structures on the seaward (southwestern) side of Farrington Highway. Additionally, drainage improvements along both bridges will be made, including construction of erosion control measures to reduce discharges of sediment in storm water runoff. This federal undertaking will take place along Farrington Highway, in the vicinity of Kili Drive, Mākaha Ahupua‘a, Wai‘anae District, Island of O‘ahu. The project area and area of potential effect measures approximately 3.9 acres.

Per the Hawai‘i state requirements for archaeological inventory surveys [HAR Chapter 13-276], this inventory survey investigation includes the results of cultural, historical, and archaeological background research, cultural consultation, and fieldwork. The background research focused on summarizing the project area’s prehistoric and historic land use, cultural significance, and types and locations of potential cultural resources within the project area and its vicinity. The cultural consultation focused on further documenting the project area’s past land use, identifying potential cultural resources within the project area, including traditional cultural properties, and soliciting information regarding potential mitigation measures for cultural resources that will potentially be affected by the project.

As part of its inventory survey field effort, carried out on August 30 and 31, 2005, CSH conducted systematic pedestrian inspection of the project area. CSH also excavated eight backhoe trenches to prospect for subsurface cultural deposits. Four were excavated in the *mauka* extension of the project area along Mākaha Stream (where drainage channel improvements and an access road will be constructed) and four were excavated along the *makai* side of Farrington Highway (in the vicinity of the temporary Farrington Highway realignment). Approximately half of the roughly 3.9-acre project area consists of paved roadways and active stream drainages that were not suitable for subsurface testing.

Based on the fieldwork results, there are five cultural resources within the project area:

- SIHP # 50-80-7-6822, Makaha Bridge 3, constructed in 1937
- SIHP # 50-80-7-6823, Makaha Bridge 3a, constructed in 1937
- SIHP # 50-80-7-6824, Farrington Highway, originally constructed in the 1930s as part of the Territorial highway system
- SIHP # 50-80-7-6825, buried, culturally enriched A-horizon, activity area dating to the prehistoric and historic period, contains a probable Native Hawaiian burial.
- SIHP # 50-80-12-9714, the former O. R. & L. Railroad alignment--constructed in the 1890s

These findings are largely in keeping with expectations, based on background research. During the prehistoric and historic period, and continuing today, the project area was/is an important transportation and/or communication corridor. Prehistorically, the project area likely included the primary coastal trail that circled the island of O‘ahu. In the 1800s this trail was improved to convey horse and wagon traffic, eventually becoming the "Old Waianae Road," Farrington Highway's predecessor (McGrath et al. 1973). By the turn of the 19th century, the O. R. & L. Railroad passed through the project area, likely with associated electric and/or telegraph lines. In the first part of the 20th century, in response to the demands of advancing automotive technology, part of the Territorial Highway System was constructed through the project area. With its associated Bridges 3 and 3A within the project area, this roadway became known as Farrington Highway. Throughout the 20th century, Farrington Highway has developed as an important communications corridor, most recently, at the turn of the 20th century, with the installation of fiber optic communication lines within the roadway's right-of-way. Four of the five cultural resources documented within the project area are components of this long established transportation and communication corridor.

The fifth cultural resource documented within the project area is a relatively rare remnant of a prehistoric and historic activity area. Based on the available information, this subsurface cultural deposit may yield additional important archaeological information regarding prehistoric and historic coastal land use along the Mākaha Coast. This archaeological record may extend from the historic period, prior to the construction of the O. R. & L. Railroad, back into Mākaha's prehistory, to as early as the fourteenth century (AD 1300 - 1430 based preliminary radiocarbon dating results). This type of specific archaeological information regarding coastal habitation and land use within Mahaka is currently lacking.

Additionally, this subsurface cultural layer contains probable Native Hawaiian skeletal remains. These skeletal remains are important cultural resources in their own right, and their treatment and protection is clearly outlined in Hawai‘i state burial law (HRS Chapter 6E-43 and HAR Chapter 13-300). As a previously identified, most likely Native Hawaiian burial site, the treatment of these human remains falls under the jurisdiction of the O‘ahu Island Burial Council.

All of these recorded cultural resources were documented within the *makai* portions of the project area. *Mauka* of Farrington Highway, the project area appears to have been disturbed by grading or other land alteration, likely associated with commercial agriculture. The evidence for this past land disturbance is the fairly abundant rusted metal, PVC pipe, and plastic that was observed in trench profiles between one and two meters below the current land surface. In Trench 4, approximately 3 m below the current land surface, a sedimentary layer interpreted as the remnants of a former "*muliwai*," or backshore marshy pond, was documented. This deposit is perhaps of paleoenvironmental interest, but, based on radiocarbon dating results, it was deposited well before human colonization of the Hawaiian Islands (2890 – 2570 BC).

Section 7 Cultural Resource Significance Assessments

All five cultural resources identified within the current project area are recommended eligible to the National/Hawai‘i Register:

SIHP # 50-80-7-6822, Mākaha Bridge 3, constructed in 1937, recommended eligible under Criteria A and D.

SIHP # 50-80-7-6823, Mākaha Bridge 3a, constructed in 1937, recommended eligible under Criteria A and D.

SIHP # 50-80-7-6824, Farrington Highway, constructed in the 1930s as part of the Territorial Highway System, recommended eligible under Criterion D.

SIHP # 50-80-7-6825, buried A-horizon enriched with cultural material from prehistoric and historic land use, contains previously disturbed human skeletal remains that SHPD has determined are most likely Native Hawaiian, recommended eligible under Criteria D and E (Hawai‘i Register only).

SIHP # 50-80-12-9714, remnants of the O. R. & L. Railroad, a portion of which, located outside the current project area, is already listed on the National Register. The railroad remnants within the current project area have lost their integrity and can no longer convey the railroad’s significance under Criteria A, B, and C. The remnants do still have significance for their information (Criterion D).

The integrity and significance of each of these cultural resources is discussed in greater detail in the cultural resource description portion of this document. Table 8, below, is a summary of the five cultural resources documented within the Mākaha Bridges project area.

Table 8. Cultural Resource Summary Table for the Project Area

CSH #	SIHP # (50-80-07-####)	Property Description	Number of Features	Apparent Age	Integrity[1]							Recommended Significance Under Hawai‘i and National Register Criteria	Recommended Mitigation
					Location	Design	Setting	Materials	Workmanship	Feeling	Association		
1	-6822	Historic Bridge (3)	1	Historic	Y	Y	N	Y	Y	Y	Y	A and D	Architectural Recordation (HAER[3]-type)
2	-6823	Historic Bridge (3A)	1	Historic	Y	Y	Y	Y	Y	Y	Y	A and D	Architectural Recordation (HAER-type)
3	-6824	Farrington Highway	1	Historic	Y	Y	N	N	N	N	N	D	No Further Work
4	-6825	Subsurface Cultural Layer	2	Prehistoric/Historic	Y	Y	N	Y	N	N	N	D, E[2]	Archaeological Data Recovery, Burial Treatment, Archaeological Monitoring
N/A	-9714	Remains of O.R.&L. Railroad	3	Historic	Y	N	N	N	N	N	N	D	Architectural Recordation (HAER-type)

[1]Assessed based on the guidance and definitions from National Register Bulletin #15, “How to Apply the National Register Criteria for Evaluation.” [2]Hawaii Register Criterion only [3]Historic American Engineering Record—see discussion below

Section 8 Project Effect and Mitigation Recommendations

8.1 Project Effect

The proposed project will most likely not alter the historic location, function, or design of SIHP # 50-80-7-6824, Farrington Highway. The proposed roadway improvements, including bridge replacement, will alter the historic fabric of the roadway; however, such alteration is a normal and on-going aspect of road maintenance, and one that is suggested as consistent with the Secretary of the Interior's standards for the treatment of in-use historic properties (36 CFR part 68).

The project will most likely adversely affect SIHP #s 50-80-12-9714 (O. R. and L. RR), 50-80-7-6822 (Bridge 3), 50-80-7-6823 (Bridge 3a), and 50-80-7-6825 (subsurface cultural layer). These cultural resources will most likely be partially or completely removed by the proposed temporary Farrington Highway detour route.

Accordingly, a project specific effect determination of "adverse effect" is warranted for the proposed bridge replacement project. In compliance with Section 106 of the NHPA, a determination of "adverse effect" requires the development of a Memorandum of Agreement (MOA) for the proposed undertaking. This MOA should be developed in consultation among FHWA, as the undertaking's lead federal agency, SHPD, HDOT, any other stake-holding agencies, and concerned consulting parties. Under Hawai‘i State historic preservation review legislation (HAR Chapter 13-275), a project effect recommendation of "effect, with proposed mitigation commitments" is warranted.

The proposed project clearly represents a "use" of significant historic sites under Section 4(f) of the Department of Transportation Act (DTA). Accordingly, a Section 4(f) Evaluation will need to be prepared as part of the project's NEPA documentation. Section 4(f) of the DTA stipulates that FHWA may approve a program or project that uses or otherwise affects land from any significant historic site only if two conditions are met. First, there must be no prudent and feasible alternative to the use of the historic site. Second, the action must include all possible planning to minimize harm to the historic site. Section 4(f) language describes a significant historic site as a site that is eligible to the National Register under criteria A, B, or C, and hence worthy of preservation in place. According to Section 4(f), historic sites eligible under criterion D are not considered significant historic sites because their information content that gives them significance can be recovered through mitigation measures. These sites therefore do not require preservation in place. A Section 4(f) Evaluation is the federal Department of Transportation's internal administrative record that documents the conclusion that there is no prudent and feasible alternative to the use of the historic site, and that all possible project planning was undertaken to minimize harm.

8.2 Mitigation Recommendations

Under Hawai‘i State historic preservation review legislation, there are five potential forms of historic preservation mitigation: A) Preservation; B) Architectural Recordation; C) Archaeological Data Recovery; D) Historical Data Recovery; and E) Ethnographic Documentation (HAR Chapter 13-275-8). In order to alleviate the proposed project's adverse effect on cultural resources recommended eligible to the National and Hawai‘i Registers (the project's "significant historic properties" based on Hawai‘i state historic preservation legislation), CSH offers the following mitigation recommendations.

For the historic cultural resources that will be affected by the project, CSH recommends Historic American Engineering Record (HAER)-type documentation as a form of architectural recordation. Founded in 1969 by the American Society of Civil Engineers, the Library of Congress, and the National Park Service, the HAER program responded to the need to better document vanishing industrial and engineering cultural resources from both rural and urban areas nationwide. Modeled after the Historic American Building Survey (HABS) program, the HAER program developed unique interdisciplinary documentation techniques, utilizing historians, engineers, photographers, and architects, to better record industrial and engineering cultural resources. Typically, HAER-type documentation includes written historical reports, large format photographs, and sometimes measured plan view, cross section, and elevation drawings. HAER documentation follows the guidelines of the Secretary of the Interior's Standards for Architectural and Engineering Documentation (National Parks Service 2005). The specific scope of the recommended HAER-type documentation for the project areas' historic cultural resources should be worked out in consultation with SHPD's Architecture and/or Archaeology Branches.

Based on the results of this investigation, CSH proposes the following mitigation recommendations (refer to Table 8):

- SIHP # 50-80-7-6822, Mākaha Bridge 3, HAER-type documentation
- SIHP # 50-80-7-6823, Mākaha Bridge 3a, HAER-type documentation
- SIHP # 50-80-7-6824, Farrington Highway, no mitigation recommended
- SIHP # 50-80-7-6825, buried culturally enriched A-horizon and human burial, archaeological data recovery, burial treatment, and archaeological monitoring
- SIHP # 50-80-12-9714, remnants of the O. R. & L. Railroad, HAER-type documentation

The execution of the proposed HAER-type documentation and archaeological data recovery mitigation measures should be the subject of a project data recovery program that is approved by SHPD and implemented prior to the project's construction.

Data recovery of the SIHP # 50-80-07-6825 cultural layer should focus on areal excavation techniques to archaeologically record and recover a reasonable and adequate amount of information from this significant cultural resource, per the requirements of HAR Chapter 13-278. Additionally, as a previously identified, most likely Native Hawaiian burial, burial treatment for Feature B of SIHP # 50-80-07-6825, either preservation in place or relocation, falls under the

jurisdiction of the O‘ahu Island Burial Council (OIBC). Accordingly, a burial treatment plan (per the requirements of HAR Chapter 13-300-33) should be prepared for OIBC’s consideration.

Because of the possibility of the project disturbing additional human remains, or significant archaeological deposits from the SIHP # 50-80-7-6825 cultural layer, an archaeological monitoring program should be carried out during project construction, per the requirements of HAR Chapter 13-279. This monitoring program should have provisions for additional documentation of the deeply buried sedimentary layer (Stratum V) documented in Trench 4, should this layer be disturbed/exposed by the proposed project. This layer is potentially of paleoenvironmental interest. This monitoring program could be described as another component of the project’s data recovery program, because, under Hawai‘i state historic preservation legislation, an archaeological monitoring program is considered a form of archaeological data recovery (HAR Chapter 13-275-8).

Consultation with SHPD should determine whether separate archaeological data recovery, architectural recordation, and archaeological monitoring plans can be combined into a single project mitigation plan to govern the project’s historic preservation mitigation effort. Whether or not a single project mitigation plan is acceptable with SHPD, a stand-alone burial treatment plan, prepared for the OIBC’s consideration, is recommended.

8.3 Disposition of Materials

The complete collection of artifacts and faunal remains associated with this archaeological inventory survey were collected from public lands, the HDOT Farrington Highway ROW. This collection is small, comprised of the materials from collection areas A, B, and C from Trench 8, SIHP # 50-80-07-6825, Feature A (refer to Table 5). Until SHPD designates any acceptable repository for this material, per the requirements of HAR Chapter 13-276-6, this small Mākaha Bridges archaeological inventory survey collection will be temporarily housed at the CSH storage facility.

The human skeletal remains documented in Trench 8 as part of SIHP # 50-80-07-6825, Feature B, were returned to the trench sidewall where they were originally found, prior to the trench’s backfilling. The disposition of these human remains will be determined through the procedures outlined in Hawai‘i state burial law (HRS Chapter 6E-43 and HAR Chapter 13-300).

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Section 10 Appendix A: Radiocarbon Dating Results

BETA

BETA ANALYTIC INC.

DR. M.A. TAMERS and MR. D.G. HOOD

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MAKA3 **REPORT OF RADIOCARBON DATING ANALYSES**

Dr. Hallett H. Hammatt/Matt McDermott — Report Date: 9/29/2005

Cultural Surveys Hawaii — Material Received: 9/12/2005

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 208481	580 +/- 40 BP	-25.5 o/oo	570 +/- 40 BP
SAMPLE : MAKA3-SAM.1			
ANALYSIS : AMS-Advance delivery			
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal AD 1300 to 1430 (Cal BP 650 to 520)			
Beta - 208482	4170 +/- 60 BP	-26.3 o/oo	4140 +/- 60 BP
SAMPLE : MAKA3-SAM.2			
ANALYSIS : Radiometric-Advance delivery (bulk low carbon analysis on sediment)			
MATERIAL/PRETREATMENT : (peat): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal BC 2890 to 2560 (Cal BP 4840 to 4510) AND Cal BC 2520 to 2500 (Cal BP 4480 to 4440)			

Dates are reported as RCYBP (radiocarbon years before present, "present" = 1950A.D.). By International convention, the modern reference standard was 95% of the C14 content of the National Bureau of Standards' Oxalic Acid & calculated using the Libby C14 half life (5568 years). Quoted errors represent 1 standard deviation statistics (68% probability) & are based on combined measurements of the sample, background, and modern reference standards.

Measured C13/C12 ratios were calculated relative to the PDB-1 international standard and the RCYBP ages were normalized to -25 per mil. If the ratio and age are accompanied by an (*), then the C13/C12 value was estimated, based on values typical of the material type. The quoted results are NOT calibrated to calendar years. Calibration to calendar years should be calculated using the Conventional C14 age.

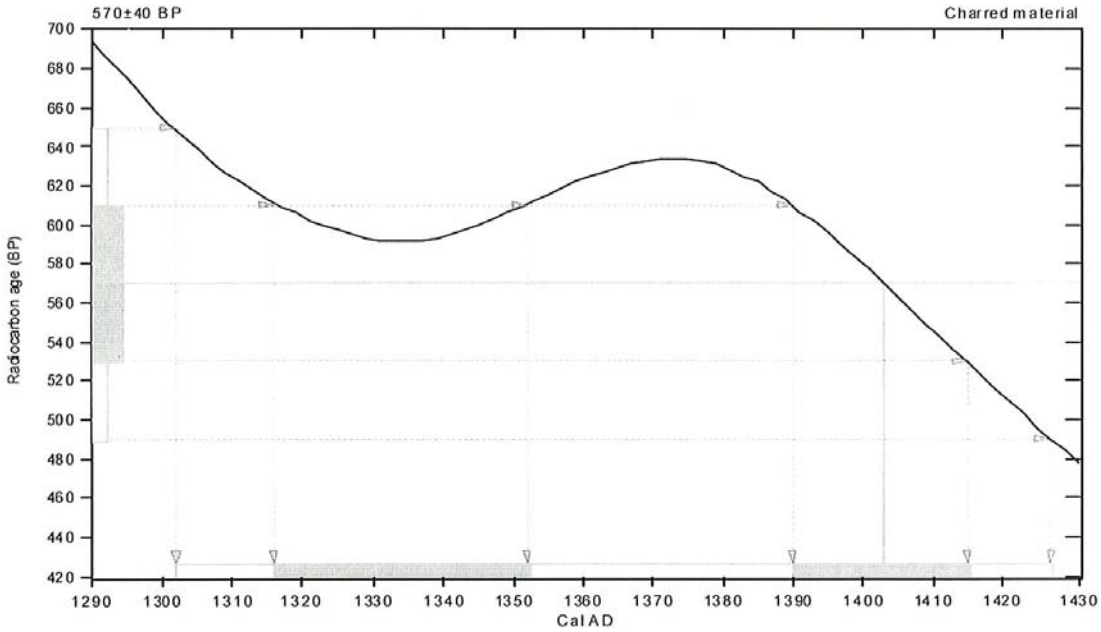
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.5:lab. mult=1)

Laboratory number:	**Beta-208481**
Conventional radiocarbon age:	**570±40 BP**
2 Sigma calibrated result: (95% probability)	**Cal AD 1300 to 1430 (Cal BP 650 to 520)**

Intercept data

Intercept of radiocarbon age with calibration curve:	Cal AD 1400 (Cal BP 550)
1 Sigma calibrated results: (68% probability)	Cal AD 1320 to 1350 (Cal BP 630 to 600) and Cal AD 1390 to 1420 (Cal BP 560 to 540)



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INTCAL98
Calibration Database
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INTCAL98 Radiocarbon Age Calibration
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Mathematics
A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

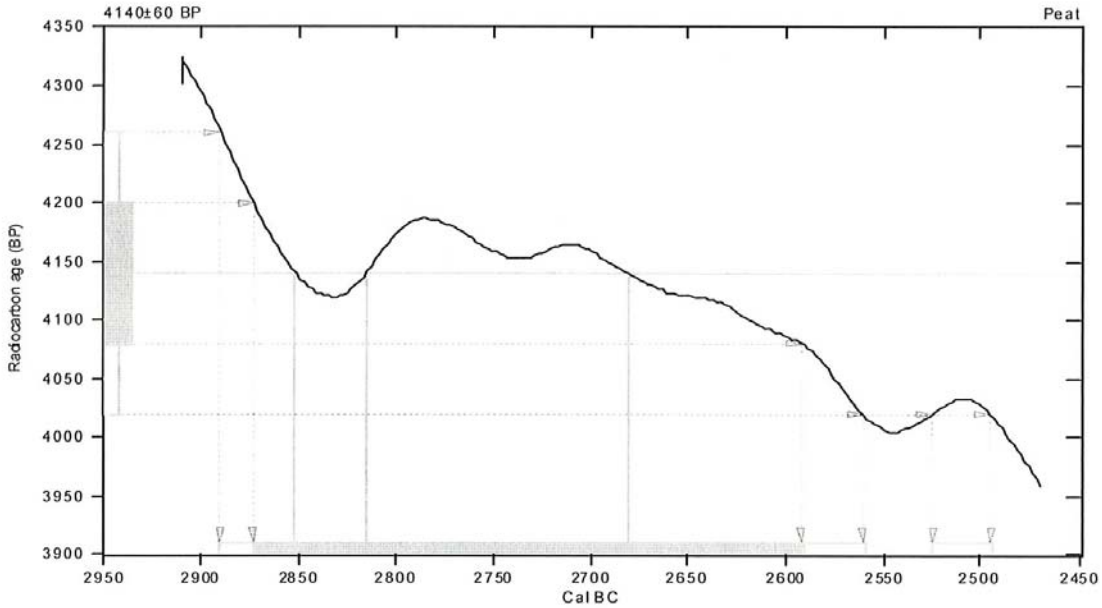
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.3:lab. mult=1)

Laboratory number:	**Beta-208482**
Conventional radiocarbon age:	**4140±60 BP**
2 Sigma calibrated results: (95% probability)	**Cal BC 2890 to 2560 (Cal BP 4840 to 4510) and Cal BC 2520 to 2500 (Cal BP 4480 to 4440)**

Intercept data

Intercepts of radiocarbon age with calibration curve:	Cal BC 2850 (Cal BP 4800) and Cal BC 2820 (Cal BP 4770) and Cal BC 2680 (Cal BP 4630)
1 Sigma calibrated result: (68% probability)	Cal BC 2870 to 2590 (Cal BP 4820 to 4540)



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Section 11 Appendix B: Sample Cultural Consultation Letter

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7 September 2005

Clyde W. Nāmu'o
Administrator
State of Hawai'i Office of Hawaiian Affairs
711 Kapi'olani Boulevard, Suite 500
Honolulu, Hawai'i 96813

Subject: CSH's request for cultural consultation and/or comment regarding the fieldwork results and significance evaluations for the Mākaha Bridges 3 and 3a archaeological inventory survey, Mākaha, Oahu.

Federal Aid Project Number: BR-093-1 (20)
CSH Job Code: MAKA 3

Dear Mr. Nāmu'o:

Previous project-related correspondence has notified the Office of Hawaiian Affairs (OHA) that the Hawai'i State Department of Transportation (State DOT) intends to replace the existing wooden Mākaha Bridges 3 and 3a with modern concrete bridge structures (7-13-2005 letter from Brian Takeda [RM Towill] to Clyde W. Nāmu'o [OHA]). This federal undertaking, utilizing Federal Highway Administration (FHWA) funding, will take place along Farrington Highway, in the vicinity of Kili Drive, Mākaha Ahupua'a, Wai'anae District, Island of O'ahu.

In compliance with applicable Hawai'i state and federal historic preservation legislation, Cultural Surveys Hawai'i, Inc. (CSH) completed fieldwork for a project-related archaeological inventory survey on August 30 and 31, 2005. Per the Hawai'i state requirements for archaeological inventory surveys [Hawai'i Administrative Rules (HAR) Chapter 13-275-6 and 13-276-5], CSH is providing OHA with a brief summary of the fieldwork findings and the initial significance assessments for the five historic properties located within the project area. One of these properties, a subsurface, culturally enriched, jaucas sand A-horizon, contains human skeletal remains with the potential to be Native Hawaiian. As this property may be eligible to the Hawai'i Register of Historic Places under Criterion E, for its cultural significance to Native Hawaiians, CSH is hereby seeking OHA's input regarding the significance and treatment of this potential Native Hawaiian burial site. Additionally, CSH is seeking OHA's assistance with the identification of any potential traditional cultural properties in the proposed project area.

As part of its inventory survey field effort, CSH conducted systematic pedestrian inspection of the project area, refer to the attached project area map/construction drawing. Approximately half of the roughly 3.5-acre project area consists of paved roadways and active stream drainages. Based on the results of

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pedestrian inspection, CSH documented the structural remains associated with the two Mākaha Bridges (3 and 3a), the former O'ahu Rail and Land Company (O. R. & L.) Railroad, and Farrington Highway itself. Pedestrian inspection did not identify any other historic properties in the project area.

CSH also excavated eight backhoe trenches to prospect for subsurface cultural deposits. Four were excavated in the *mauka* extension of the project area along Mākaha Stream (where drainage channel improvements and an access road will be constructed) and four were excavated along the *makai* side of Farrington Highway (in the vicinity of the temporary Farrington Highway realignment). Backhoe testing, described below, identified a single subsurface historic property.

The stratigraphy within the project area is largely as expected. *Mauka* of Farrington Highway, the sediments are largely terrestrial silts and silt loams, 1.5 to 2.5 m deep, over Pleistocene coral limestone deposits. No historic properties were documented within this *mauka* extension of the project area.

Makai of Farrington highway the project area's sediments are a mix of terrigenous and marine sediments. Trenches adjacent to both Makaha Bridges 3 and 3a documented large, predominantly terrestrial, fill deposits. Between the two bridges, in the vicinity of the project area's bus stop, two trenches documented jaucas sand deposits overlain by recent terrigenous fill sediments. Near the project area's bus stop, a culturally enriched, buried sand, former A horizon was documented. This former A horizon contained both historic and prehistoric cultural remains, including marine shell and fishbone food remains, charcoal, basalt and volcanic glass flakes, bottle glass, rusted metal, and butchered cow bone. This deposit also contained previously disturbed human skeletal remains. A rib shaft and a hand phalange were the only human skeletal elements noted, despite extensive screening of the sand in the vicinity. There was no indication of an entire, in situ human burial. This buried A horizon deposit's extent is limited to a specific geographic area, based on testing results. The A horizon underlies the former O. R. and L. Railroad alignment and was likely preserved because of the stabilizing effect of the overlying rail line.

The State Historic Preservation Division (SHPD) was notified of the discovery of the human skeletal remains immediately. These skeletal remains are to be treated as a previously identified human burial, following HAR Chapter 13-300. Following trench documentation, the human remains were returned to where they were found in the trench sidewall and the trench was backfilled. SHPD agreed to notify the Koa Mana organization, as well as the O'ahu Island Burial Council and other concerned Native Hawaiian groups and individuals, of the burial discovery.

As is often the case with previously disturbed, partial human skeletons found during subsurface testing, there is no specific archaeological evidence, for example associated burial goods, burial position/evidence of mortuary practices, and/or association with a dated stratigraphic layer, to indicate the ethnicity of the remains. Because ribs and phalanges are not ethnically diagnostic, it is unlikely that osteology will help identify the remains' ethnicity, unless more of the skeleton is recovered, particularly the skull.

Based on demographics and cultural context, however, it is more likely that the remains are Native Hawaiian. As yet, SHPD has not made an ethnicity determination for the human remains per the requirements of HAR Chapter 13-300-31. SHPD's ethnicity determination will decided which group has

jurisdiction over the burial's treatment, either the O'ahu Island Burial Council (OIBC), if the burial is determined to be most likely Native Hawaiian, or SHPD, if the burial is determined to be most likely non-Native Hawaiian, or if SHPD decides there is insufficient information to make a burial ethnicity determination. A burial treatment plan, following the HAR Chapter 13-300 guidelines, will be prepared for consideration of either the OIBC or SHPD, depending on jurisdiction, that outlines the different burial treatment options and the results of lineal/cultural descent advertising.

Based on the fieldwork results, there are five historic properties within the project area:

1) Makaha Bridge 3--constructed in 1937--likely eligible for the Hawaii and National Register under Criteria A (broad patterns in history), C (excellent example of a historic property type), and D (information content)--Historic American Engineering Record (HAER)-type documentation might be an appropriate mitigation measure for the bridge's demolition.

2) Makaha Bridge 3a--constructed in 1937--likely eligible for the Hawaii and National Register under Criteria A, C, and D--HAER-type documentation might be an appropriate mitigation measure for the bridge's demolition.

3) The O. R. & L. Railroad alignment--constructed in the 1890s--already listed on the Hawaii and National Registers under Criteria A, C, and D--the component within the current project area has lost its structural integrity and can no longer convey its significance under Criteria A and C, but most likely is still significant under Criterion D, for its information content--HAER-type documentation might be an appropriate mitigation measure for the demolition of the remaining O. R. and L structures, which include stream crossing bridge abutments and associated supports in the project area.

4) Farrington Highway itself--originally constructed in the 1920s/1930s as part of the Territorial highway system--as a whole, likely significant under Criterion A (broad patterns in history) and possibly Criterion D (information content) of both the Hawaii and National Register, however, the portion of road within the current project area does not appear to have retained sufficient integrity and accordingly is best considered a "non-contributing component" of the otherwise eligible historic property--as a "non-contributing component," it is likely that no mitigation for the project-related modification of the highway will be required.

5) Buried, culturally enriched A-horizon--likely the former land surface during the prehistoric and historic period, before the construction of the O. R. and L.--likely significant under Criterion D (information content) of the Hawaii and National Registers, and Criterion E (traditional cultural significance—usually applied to burials) of the Hawaii Register--if the deposit cannot be avoided by the proposed bridge replacement, some form of data recovery investigation will likely be required to gather information from the buried A horizon and alleviate damage to the burial remains.

I hope this summary provides the information you require to comment on the inventory survey findings and the proposed historic property significance assessments. Per the requirements of HAR Chapter 13-275-8, CSH is particularly interested in OHA's input and comment regarding the significance and

treatment of the buried cultural deposit that potentially contains remnants of a previously disturbed Native Hawaiian burial. Any input OHA might have regarding the ethnicity of this burial would be greatly appreciated.

Additionally, in earlier project-related cultural consultation, Mr. Alika Silva, of the Koa Mana organization, has suggested that the project area contains a traditional cultural property. A traditional cultural property is a form of historic property under federal historic preservation legislation that does not necessarily have physical modification or artifacts related to cultural use, but nevertheless has demonstrated cultural importance to maintain the cultural practices and identity of a cultural or ethnic group. Traditional cultural properties are often only identifiable through the input of knowledgeable cultural informants. Accordingly, CSH seeks any input that OHA may have regarding traditional cultural properties within the proposed project area.

Thank you very much for your assistance with this matter. OHA's response to this request will become part of the project's historic preservation administrative record and will help assist the project proponent, State DOT, with their compliance with both Hawai'i state and federal historic preservation legislation. OHA's response will also help ensure that the proposed project's cultural resource management review and mitigation decisions are based on the most accurate cultural information. Please contact me with any questions.

Sincerely,
Cultural Surveys Hawai'i, Inc.

Matt McDermott
Projects Manager
(email: mmcdermott@culturalsurveys.com)

C: Brian Takeda, RM Towill

Appendix E

Cultural Impact Assessment for the Proposed Replacement of Mākaha Bridges 3 and 3A

Cultural Surveys Hawai'i

January 2005

Cultural Impact Assessment

for the Proposed Replacement of Mākaha Bridges 3 and 3A,

Mākaha Ahupuaʻa, Waiʻanae District, Island of Oʻahu

(Portions of TMK: 8-4-001:012, 8-4-010:012, 8-4-2:047, 45, 8-4-002:045, 8-4-018:014, 122, 123, 8-4-08:018, 019, 020.)

DRAFT

by

Kēhaulani Souza, B.A.

and

Hallett H. Hammatt, Ph.D.

Prepared for

R. M. Towill Corporation

Cultural Surveys Hawaiʻi, Inc.

January 2005

MANAGEMENT SUMMARY

Title	Cultural Impact Assessment for the Proposed Replacement of Mākaha Bridges 3 and 3A, Mākaha Ahupuaʻa, Waiʻanae District, Island of Oʻahu
Date	January 2005 (Draft)
Project Numbers	Federal Highway Administration (FHWA) Aid Project No.: BR-093-1(20) Cultural Surveys Hawaiʻi Inc. (CSH) Job Code: MAKA 4
Agencies	• State of Hawaiʻi Department of Land and Natural Resources / State Historic Preservation Division (DLNR / SHPD) • State of Hawaiʻi Department of Health / Office of Environmental Quality Control (DOH / OEQC) • State of Hawaiʻi Department of Transportation (DOT) • FHWA
Project Location	The project area comprises portions of TMK:8-4-001:012, 8-4-010:012, 8-4-2:047, 45, 8-4-002:045, 8-4-018:014, 122, 123, 8-4-08:018, 019, 020, and is located along the Farrington Highway corridor, approximately 500 feet (150 m) *mauka* of the shoreline at Mākaha Beach Park, at the intersection of Kili Drive and Farrington Highway, Mākaha Ahupuaʻa, Waiʻanae District, Island of Oʻahu. Bridge 3 is located just south of Kili Drive and bridge 3A is located just north of Kili Drive.
Land Jurisdiction	State of Hawaiʻi
Project Acreage	Approximately six acres
Project Description	DOT proposes to demolish and replace the two existing bridge structures with new bridge structures that meet current standards. The project may require construction of detour roads and temporary bridge structures.
Area of Potential Effect (APE)	For this cultural impact assessment, the project's APE is defined as the entire approximately 6-acre footprint of the proposed bridge replacement project. This area includes the proposed traffic detour routes and any temporary construction easements. The project area's surrounding built environment is developed with paved streets and surrounding residential and commercial buildings. Accordingly, the proposed bridge construction poses no *additional* auditory, visual or other environmental impact to the project area vicinity. For the current cultural impact assessment, the project area and the project APE are one and the same.
Cultural Tradition Focus	Based on the project's location and historical and cultural setting, it is most likely that the project would affect Native Hawaiian cultural resources and/or ongoing traditional cultural practices related to Native Hawaiian cultural traditions. Accordingly, this investigation focused primarily on the assessment of the proposed project's impact to Native Hawaiian cultural traditions

Document Purpose	Because of at least partial FHWA funding, the project is a federal undertaking requiring compliance with Section 106 of the National Historic Preservation Act (NHPA). Section 106 requires consultation with Native Hawaiian groups regarding an undertaking's potential impact to cultural resources of traditional cultural significance. Additionally, the project requires compliance with the State of Hawai'i environmental review process [Hawai'i Revised Statutes (HRS) Chapter 13-343], which requires consideration of a proposed project's effect on traditional cultural practices. At the request of R. M. Towill Corporation (RMTC), CSH undertook this cultural impact assessment to provide information pertinent to the assessment of the proposed project's cultural impacts. This document is intended to support the project's historic preservation review under Section 106 of the NHPA and state environmental review [per the OEQC's *Guidelines for Assessing Cultural Impacts*). This report provides documentation of the project's consultation efforts under applicable state and federal historic preservation legislation. A companion CSH archaeological inventory survey investigation (reference) for the same project provides further documentation to support the project's required historic preservation review and consultation.
Consultation Effort	Hawaiian organizations, agencies and community members were contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the study area and the surrounding vicinity. The organizations consulted included the SHPD, the Office of Hawaiian Affairs, the O'ahu Island Burial Council, and Wai'anae Neighborhood Board. The interviewees were Landis Ornellas, George Arakaki, Albert Silva, Lucio Badayos, and Buffalo Keaulana. Cultural anthropologist Kēhaulani Souza, B.A. conducted the consultations and interviews under the general supervision of Hallett H. Hammatt, Ph.D. (principal investigator).
Identified Cultural Issues	Cultural activities, such as intensive fishing, diving, canoeing and surfing currently occur *makai* of the project area at Mākaha Beach. The community feels that the proposed bridge replacement should impose no adverse effect on any of these on-going activities in the project area's vicinity. The need for effective traffic control during the proposed project and the possibility of encountering inadvertent burials during construction were concerns raised by this investigation.
Cultural Impact Recommandations	Based on this investigation, the proposed project's potential to disturb Native Hawaiian burials represents the project's only notable potential adverse impact upon native Hawaiian cultural resources, beliefs, and practices. It is recommended that, should these concerns become a reality, they be resolved through consultation and coordination with the Mākaha community and the Native Hawaiian community in general, as directed under applicable state and federal burial law (HRS Chapter 13-300 and 6E-43 and the Native American Graves Protection Act, respectively). The proposed project does not appear to have the potential to affect ongoing traditional cultural practices.

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I. INTRODUCTION

A. Project Background

At the request of R. M. Towill Corporation (RMTC), Cultural Surveys Hawai‘i, Inc. (CSH) undertook this cultural impact assessment of an approximately 6-acre parcel for the proposed replacement of Mākāha Bridges 3 and 3A, located within Mākaha Ahupua‘a, Wai‘anae District, Island of O‘ahu (Figures 1-4). The State Department of Transportation (DOT) proposes to demolish and replace the two existing bridge structures with new bridge structures that meet current standards. The project may require construction of detour roads and temporary bridge structures.

The cultural impact assessment provides information pertinent to the assessment of the proposed project's cultural impacts [per Hawai‘i Revised Statutes (HRS) Act 50, Chapter 343 and the Office of Environmental Quality's *Guidelines for Assessing Cultural Impacts*). This document was prepared to support the proposed project's historic preservation review under HRS Chapter 6E-42 and HAR Chapter 13-284, as well as the project's environmental review under HRS Chapter 343.

The process for evaluating cultural impacts is constantly evolving. There continues to be gray areas and unresolved matters pertaining to traditional access, gathering rights, and other cultural issues. Act 50 is an attempt to balance between traditional lifestyles, development, and economic growth.

B. Natural Setting

The project area is located along the Farrington Highway corridor, approximately 500 feet (150 m) *mauka* of the shoreline at Mākaha Beach Park, at the intersection of Kili Drive and Farrington Highway, Mākaha Ahupua‘a, Wai‘anae District, Island of O‘ahu (Figures 1-4). Bridge 3 is located just south of Kili Drive and bridge 3A is located just north of Kili Drive.

Soils within the project area consist of Haleiwa Silty Clay, 0 to 2 Percent Slopes (HeA) near the intersection of Kili Drive and Farrington Highway. Haleiwa Silty Clay is described as a moderate to poorly drained clay occurring in alluvial fans and drainage ways (Foote et al. 1972). The elevation at the project area is approximately 20 feet (6 m) AMSL.

Rainfall is less than 20 inches (500 mm) annually along the coast with winter storms being the major source of precipitation. December through February are the relatively wet months for the region (Armstrong 1973).

Vegetation along this arid coast is sparse. With 20 inches (500 mm) or less of rain annually, only the hardiest plants adapted to the coastal environments can thrive in this zone. The vegetation is typical of dry seashore environments in Hawai‘i and is dominated by alien species. Indigenous species include *hau* (*Hibiscus tiliaceus*), *kou* (*Cordia subcordata*), *kamani* (*Calophyllum inophyllum*), *naupaka* or *naupaka kahakai* (*Scaevola sericea*), *pa‘u o Hi‘iaka* (*Jacquemontia ovalifolia sandwicensis*), the native beach morning glory or *pohuehue* (*Ipomea pes-caprae*) and the coconut or *niu* (*Cocos nucifera*). Introduced species found bordering the Farrington Highway include sea grape (*Coccoloba uvifera*), *kiawe* trees (*Prosopis pallida*), Madagascar Olive trees (*Noronhia emarginata*), and *koa haole* (*Leucaena leucocephala). Kiawe*, *koa haole*, and various grasses were dominant within the project area.

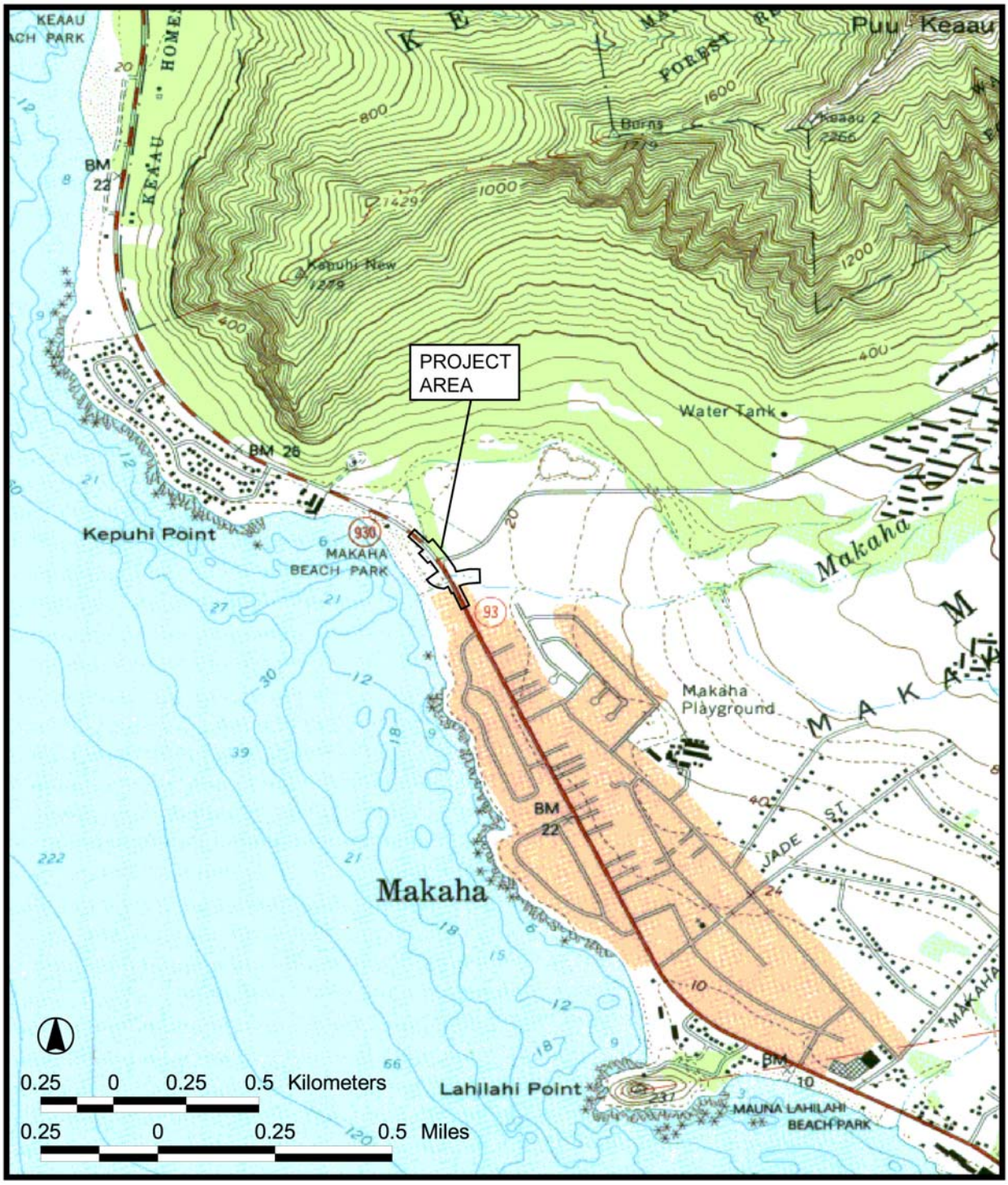

Figure 1. 1998 USGS 7.5 Minute Series Topographic Map, Wai‘anae Quadrangle, showing location of current project area

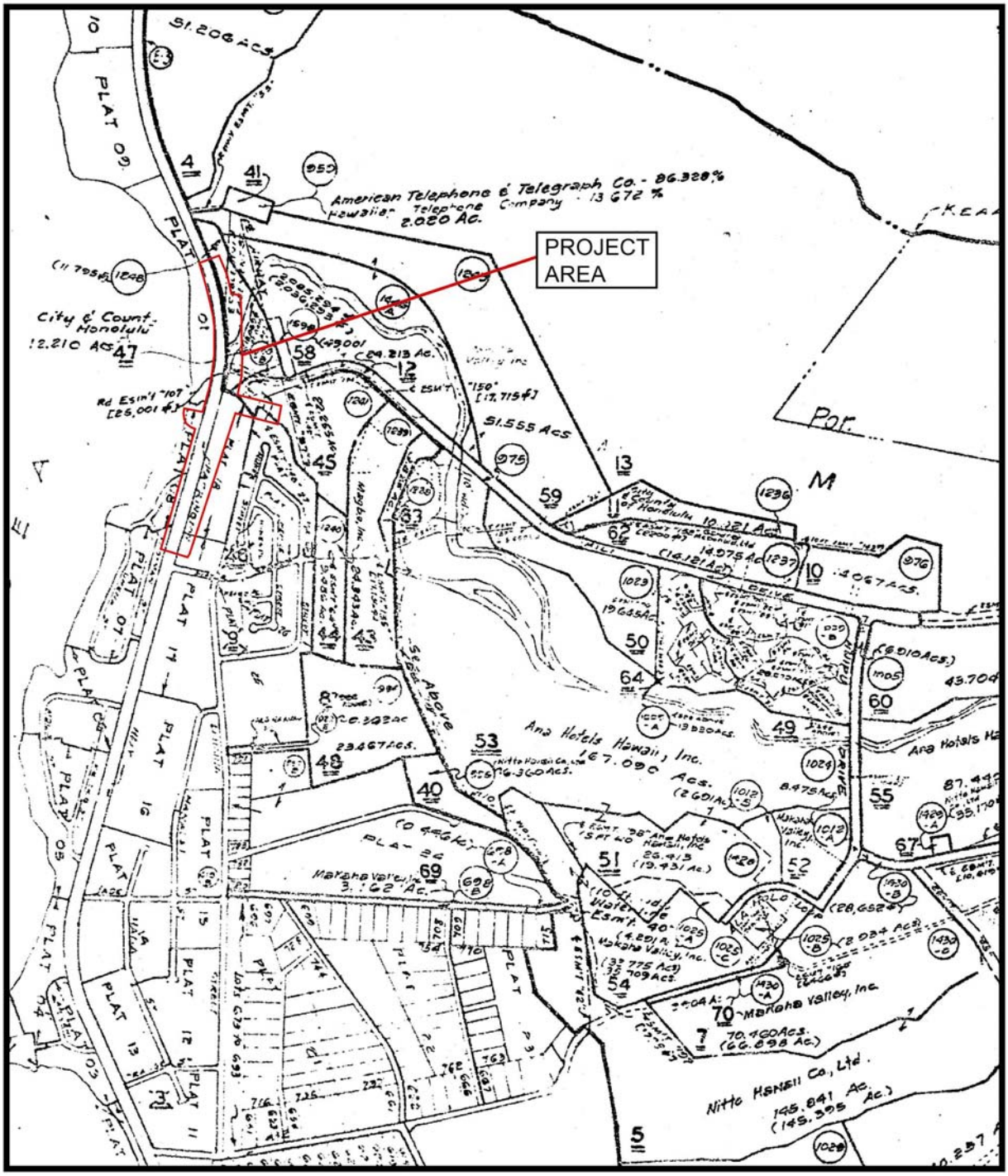

Figure 2. Portion of TMK 8-4-02, showing location of current project area

Figure 3. Aerial photograph, showing location of current project area

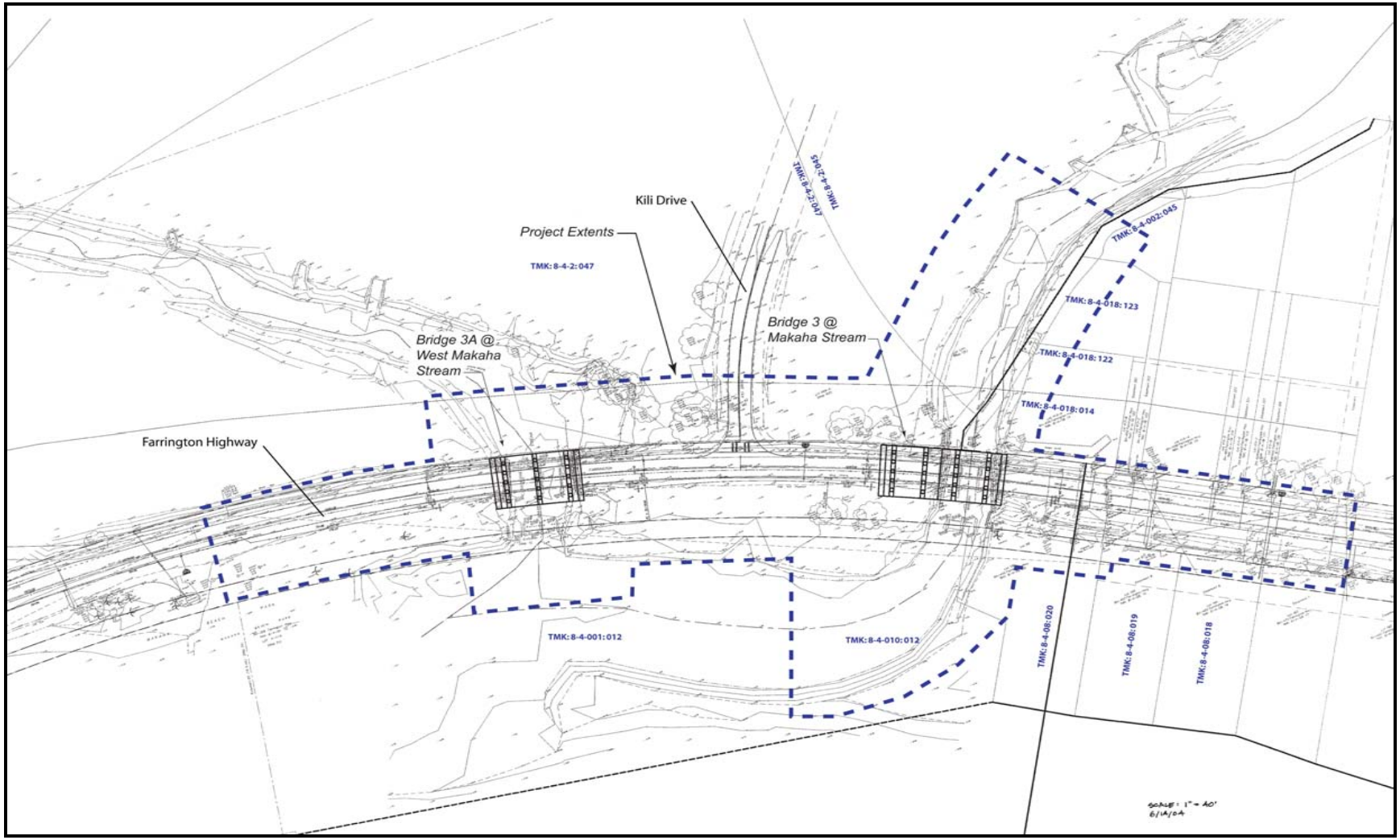

Figure 4. Project map showing project area boundaries (dashed line) and TMKs

C. Scope of Work

The following scope of work was proposed to satisfy requirements related Cultural Impact Assessments:

1) Examination of historical documents, such as Land Commission Awards (LCAs) and historic maps, with the specific purpose of identifying traditional Hawaiian activities, including gathering of plant, animal, and other resources or agricultural pursuits as may be indicated in the historic record.
2) A review of the existing archaeological information pertaining to the archaeological sites on the property, as they may allow us to reconstruct traditional land use activities and identify and describe the cultural resources, practices, and beliefs associated with the parcel, and identify present uses, if appropriate.
3) Conduct oral interviews with persons knowledgeable about the historic and traditional practices in the project area and region. Several formal and informal interviews were conducted.
4) Preparation of a report on items 1-3 summarizing the information gathered related to traditional practices and land use. The report assesses the impact of the proposed action on the cultural practices and features identified.

This scope of work also includes full coordination with the State Historic Preservation Division (SHPD), and the City and County of Honolulu relating to archaeological matters. This coordination takes place after consent of the owner or representatives of the study parcel.

D. Methods

Background research included a review of previous archaeological studies on file at the SHPD, a review of geology and cultural history documents at Hamilton Library at the University of Hawai‘i, the Hawai‘i State Archives, the Mission House Museum Library, the Hawai‘i Public Library, and the Archives of the Bishop Museum. Further research included a study of historic photographs at the Hawai‘i State Archives and the Archives of the Bishop Museum, a study of historic maps at the Hawai‘i State Archives and the Archives of the Bishop Museum, and a study of historic maps at the Survey Office of the Department of Accounting and General Services. Information on LCAs was accessed through Waihona ‘Āina Corporation’s Māhele Data Base (www.waihona.com).

Hawaiian organizations, agencies and community members were contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the study area and the surrounding vicinity. A discussion of the consultation process can be found in the following section on “Community Consultations”. Please refer to Table 4 for a complete list of individuals and organizations contacted.

E. Identification of Knowledgeable Interview Informants

As partial fulfillment for the Scope of Work (SOW), consultation with organizations and the community were conducted to identify knowledgeable *kūpuna* and participants to be interviewed, as well as others who could inform on the history of the subject parcel and previous land use. The organizations consulted included the SHPD, the Office of Hawaiian Affairs, the

O‘ahu Island Burial Council, and Wai‘anae Neighborhood Board. The interviewees were Landis Ornellas, George Arakaki, Albert Silva, Lucio Badayos, and Buffalo Keaulana.

F. The Interview Process

Once the participants were identified, they were contacted and appointments were made to conduct the interviews. Each interview lasted approximately 1½ - 2 hours. Two interviews were taped and transcribed; others were conducted over the telephone. Excerpts from the interviews as well as the informal ‘talk story’ sessions are used throughout this report, wherever applicable.

Cultural anthropologist Kēhaulani Souza, B.A. conducted the consultations and interviews under the general supervision of Hallett H. Hammatt, Ph.D. (principal investigator).

II. CULTURAL BACKGROUND

A. Mythological and Traditional Accounts

The project area is located within the *ahupua‘a* of Mākaha, which extends from the leeward Wai‘anae Range to the coast between Wai‘anae Ahupua‘a to the southeast and Kea‘au Ahupua‘a to the northwest.

Although many traditional accounts detailing the pre-contact period of other portions of the Wai‘anae District, few exist for Mākaha. Mary Kawena Pukui (1974) gives the meaning of Mākaha as “fierce” and Roger C. Green (1980) suggests that this translation refers to “fierce or savage people” once inhabiting the valley. Green (1980:5) refers to “…the ‘Ōlohe people, skilled wrestlers and bone-breakers, by various accounts [who] lived in Mākaha, Mākua, and Kea‘au, where they often engaged in robbery of passing travelers.”

Legend: How Mākaha Got Its Name

The shores fronting the beautiful Mākaha Valley were known for their abundant marine resources. Edward Iopa Kealanahele’s legend (How Makaha got its name, 1975) gives light to the great ocean resources:

> Long ago, there lived in this valley a handsome young chief named Makaha. His skill as a fisherman gained island-wide attention which eventually reached the ears of Ke Anuenue [the rainbow], the goddess of rain, who lived in upper Manoa Valley.
>
> She was so intrigued that she sent her trusted winged friend, Elepaio, to investigate Makaha. Elepaio returned with exciting stories of Mākaha’s daring and skills.
>
> The next morning, Ke Anuenue created an awe-inspiring double rainbow which arched from Manoa Valley to this valley, from where she and her retinue could watch Makaha perform his daring feats at the ocean.
>
> The people of the Wai‘anae Valley were petrified by that magnificent rainbow that ended in this unnamed valley where Makaha lived.
>
> Knowing that Ke Anuenue was watching, they prayed that she would bring them the much needed gentle rains and not the harsh storms she could create when displeased.
>
> Makaha, aware of her presence, scaled Mauna Lahilahi and called loudly to his aumakua [his ancestral spirit] Mano ai Kanaka, the most vicious of man-eating sharks. As Mano ai Kanaka glided in from the ocean, Makaha dived from the rocky pinnacle, emerged on Mano ai Kanaka’s back and rode with regal grandeur.
>
> As the two disappeared into the depths, the sea became calm. Suddenly Makaha seemed to be everywhere along the rocky coast gracefully tempting death. Then, just as suddenly, Makaha seemed to skim the ocean as Mano ai Kanaka carried him to shore.

> Makaha then carried his entire catch to the rainbows end deep in the valley and offered it to Ke Anuenue. Deeply touched, she sent gentle rains to the parched earth of the great Wai‘anae Valley. She was impressed by the selection of seafood that was offered her but was disappointed by the quality of the poi, mai‘a [banana] and uala [sweet potato] which were dry and stringy. She demanded to know why since she was so accustomed to good quality fruits. She was told that it was because of the lack of rainfall in the valley.
>
> Ke Anuenue became enamored with Makaha and from then on her double rainbow would appear in Mākaha's kuleana [land area] and gentle rains would fall on Wai‘anae so the people could enjoy lush bananas and an abundance of taro.
>
> The people built a heiau in honor of Ke Anuenue and Makaha but Ke Anuenue refused the honor and named the entire valley, Makaha, by which it is now known.

One of the many legends concerning the fierceness of Mākaha involves robbers and cannibals, as the following attests (McAllister 1933):

> Long ago there lived here a group of people who are said to have been very fond of human flesh. At high altitude on each side of the ridge [separating Mākaha from Keau], guards were stationed to watch for people crossing this narrow stretch of land between the mountains and the sea. On the Mākaha side, they watched from a prominent stone known as Pohaku o Kane, on the Keau side, from a stone known as Pohaku o Kaneloa. The individual who passed here was in constant danger of death, for on each side of the trail men lay in wait for the signal of the watcher. If a group of persons approached, too many to be overcome by these cannibalistic peoples, the guards called out to the men hidden below, *"Moanakai"* (high tide); but if, as frequently happened, only two or three people were approaching the watchers called "*Mololokai*" (low tide). The individuals were then attacked and the bodies taken to two small caves on the seaside of the road. Here the flesh is said to have been removed and the bones, skin, and blood left in the holes, which at high tide, were washed clean by the sea.

Stories of Malolokai

In the *ahupua‘a* of Mākaha there are accounts of a talking stone on the hill of Malolokai, and two small pits on the *makai* side of the road at Kepuhi Point:

> We rode to the plain of Kumanomano,… and it is said of the place, the teeth of the sun is sharp at Kumanomano. Mākaha rose above like a rain cloud. We passed in front of a famous hill Malolokai. We saw the talking stone standing there [Haleiwa Hotel, about Leilono] [Kuokoa, August 11, 1899 In Sterling and Summers 1978:79].

A brief account of the location of Malolokai cave is given by Kuokoa, July 12, 1923 in Sterling and Summers (1978:79): "…Malolokai lies below [beyond] the hill of Maunalahilahi close to a cliff. Below, in the level land of Waihokaea are the bones of the travelers who were killed by skilled *lua* fighters."

Lua literally means hand-to-hand fighting that includes bone-breaking (Pukui and Elbert 1986). It is often referred to as the *art of lua*, or the Hawaiian martial art. Starting in the 1750s, the art of *lua* was only taught to the *ali‘i* and their guards. It was a long time familial secret and

could only be passed down through family. Later, in the early1920s, the *kapu* was broken and the Hawaiian martial art of *lua* was taught to other people outside of the bloodline.

Lua had an array of weapons that were used in combat made of different types of hardwood found throughout the Hawaiian islands such as *kauwila* and *kawa'u*. Marine resources were also used to make weapons, such as shark teeth, used to make the *leiomano*, a shark tooth weapon used as a knife and the marlin (swordfish) bill.

Some legends say that they were cannibals and not *lua* fighters:

> The late Harry George Poe, born in Makua Valley in 1882, wrote in his diary that the robbers threw their victims into a pit that went underground to the ocean. Poe explained, 'the reason is, they wants a man's legs without no hair on to make [an] aku [tuna] fishhook. They believe in those days that the human leg is best, lucky hook for aku.' One legend says a group of hairless men from Kauai finally wiped out the entire colony of robbers. Since that time, Malolokai has been safe for travelers [McGrath, Brewer, and Krauss 1973:11].

The following is a story told by an unknown Hawaiian. This area, Kepuhi Point, is at the base of the ridge which divides Mākaha and Kea'au Valleys. It was recorded by McAllister in 1933 (site #175):

> Long ago there lived here a group of people who are said to have been very fond of human flesh. At a high altitude on each side of the ridge, guards were stationed to watch for people crossing this narrow stretch of land between the mountains and the sea. On the Mākaha side, they watched from a prominent stone known as Pohaku o Kane; on the Kea'au side, from a stone known as Pohaku o Kaneloa. The individual who passed here was in constant danger of death, for on each side of the trail men lay in wait for the signal of the watcher. If a group of persons approached, too many to be overcome by these cannibalistic peoples, the guards called out to the men hidden below, "Moanakai" [high tide]; but if, as frequently happened, only two or three people were approaching, the watchers called, "Mololokai" [low tide]. The individuals were then attacked and the bodies taken to two small caves on the sea side of the road. Here the flesh is said to have been removed and the bones, skin and blood left in the holes, which, at high tide, were washed clean by the sea.
>
> For many years these people prayed upon the traveler until at one time men from Kauai, hairless men [Olohe] came to this beach. They were attacked by these cannibals but defeated them, killing the entire colony. Since then the region has been safe for traveling [McAllister, 1933:121-122].

In Hi'iaka's "Address to Cape Kaena," she mentioned Mākaha as she travelled along the sunny coast. As she stood at the top of the Pōhākea Pass looking back she sang the following song (Emerson 1965:157):

Kaena's profile fleets through the calm,	Kunihi Kaena, Holo i ka Malie;
With flanks ablaze in the sunlight-	Wela i ka La ke alo o ka pali;
A furnace-heat like Kilauea;	Auamo mai i ka La o Kilauea;
Ke-awa-ula swelters in heat;	Ikiiki i ka La na Ke-awa-ula

Kohola‘-lele revives in the breeze	Ola i ka makani Kai-a-ula Kohola‘ lele-
That breath from the sea, Kai-a-ulu.	He makani ia no lalo.
Fierce glows the sun of Makua;	Haoa ka Loa i na Makua;
How it quivers at Ohiki-lele-	Lili ka La i Ohiki-lolo
‘Tis the Sun-god’s dance o‘er the plain,	Ha‘a-hula le‘a ke La i ke kula,
A roit of dance at Makaha.	Ka Ha‘a ana o ka La i Makaha;
The sun-tooth is sharp at Kumano;	Oi ka niho o ka La i Ku-manomano;
Life comes again to Maile ridge,	Ola Ka-maile i ka huna na niho
When the Sun-god ensheaths his fang.	Mo‘a wela ke kula o Walio;
The Plain Walio‘ is sunburned and scorched;	Ola Kua-iwa i ka malama po
Kua-iwa revives with the nightfall;	Ola Waianae i ka makani Kai-a-ulu
Waianae is consoled by the breeze	Ke hoa aku la i ka lau o ka niu
Kai-a-ulu and waves its coco fronds;	Uwe’ o Kane-pu-niu i ka wela o ka La;
Kane-pu-niu’s fearful of sunstroke’(*e)*	Alaila ku‘u ka luhi, ka malo‘elo‘e,
A truce, now, to toil and fatigue:	Auau aku i ka wai i Lua-lua-lei
We plunge in the Lua-lei water	Aheahe Kona, Aheahe Koolau wahine,
And feel the kind breeze of Kona,	Ahe no i ka lau o ka ilima.
The cooling breath of the goddess,	Wela, wela i ka La ka pili i ka umauma,
As it stirs the leaves of ilima.	I Pu‘u-li‘ili‘i, i Kalawalawa, i Pahe-lona,
The radiant heat scorches the breast	A ka pi‘i‘na i Wai-ko-ne-ne’-ne;
While I sidle and slip and climb	Hoomaha aku i Ka-moa-ula;
Up one steep hill then another;	A ka luna i Poha-kea
Thus gain I at last Moa-ula,	Ku au, nana i kai o Hilo:
The summit of Poha-kea.	
There stand I and gaze oversea	
To Hilo, where lie my dewy-cold	
Forest preserves of lehua	
That reach to the sea in Puna-	
My lehuas that enroof Kuki‘i.	

Menehune in Mākaha are mentioned in Hawaiian Folk Tales by Thos. G. Thrum (1998) in the story of Kekupua’s Canoe. The *menehune* constructed a canoe for chief Kakae who lived in Wahiawa for his wife to travel to Tahiti. Kekupua was the chief’s main man who went to Mākaha to pull the canoe down to the ocean.

III. HISTORICAL BACKGROUND

A. Pre Contact to early 1800s

Wai‘anae District

The origin of the name Wai‘anae is thought to be connected to the richness of the waters off Wai‘anae’s coast: *wai* - water and *‘anae* - large mullet (Sterling and Summers 1978). Several accounts attest to the abundance of fish from Wai‘anae waters (Wilkes 1845; Pukui et al. 1974). In 1840, Wilkes makes the following comment: “The natives are much occupied in catching and drying fish, which is made a profitable business, by taking them to Oahu, where they command a ready sale” (Wilkes 1845:81-82).

Traditional accounts of Wai‘anae portray a land of dual personality: a refuge for the dispossessed and an area inhabited by the rebellious and outlaws. Certain landmarks in Wai‘anae attest to this dichotomy. Kawiwi, a mountain between Wai‘anae and Mākaha Ahupua‘a, was dedicated as a refuge by priests during times of war (McAllister 1933; Kamakau 1961). Pōka‘ī Bay was used as a school administered by the exiled high-class priests and *kahuna* who took refuge in Wai‘anae after Kamehameha Nui gained control of O‘ahu (in Sterling and Summers 1978:68). It was also near Pōka‘ī Bay, at a place named Pu‘u Kāhea, that the eighteenth-century prophet and *kahuna nui* of O‘ahu, Ka‘opulupulu, made his last famous prophecy before he was killed in Po‘olua (in Sterling and Summers 1978:71). In contrast, other places in Wai‘anae were famed for their inhospitality.

Certainly, the environmental conditions along the Wai‘anae Coast played a part in shaping Wai‘anae people. Vancouver, the first explorer to describe this coast in 1793, describes the Wai‘anae Coast as “…composed of one barren rocky waste, nearly destitute of verdure, cultivation or inhabitants...” (Vancouver 1798:217).

The *‘ōku‘u* epidemic of 1804 (thought to be cholera) undoubtedly had a major effect on the native population, not only in Wai‘anae, but throughout the rest of the islands as well. John Papa ‘Ī‘ī relates that the *‘ōku‘u* “broke out, decimating the armies of Kamehameha I” [on O‘ahu] (1983:16). Other diseases also took their toll. The combined census for the Wai‘anae and ‘Ewa Districts in 1831-1832 was 5,883 (Schmitt 1977:12). Twenty years later, the combined census for the two districts was 2,451.

Another early historic period foreign influence, which greatly impacted Hawaiian culture and the traditional lifestyle, was the sandalwood trade. In an effort to acquire western goods, ships, guns, and ammunition, the chiefs acquired massive debts to the American merchants (‘Ī‘ī 1983:155). These debts were paid off in shiploads of sandalwood. When Kamehameha found out how valuable the sandalwood trees were, he ordered the people not to let the felled trees fall on the young saplings, to ensure their protection for future trade (Kamakau 1992:209-210).

Mākaha Ahupua‘a

Earliest accounts specific to Mākaha describe a good sized inland settlement and a smaller coastal settlement. (Green 1980). These accounts correlate well with a sketch drawn by Bingham in 1826 depicting only six houses along the Mākaha coastline. Green (1980:20-21) describes Mākaha’s coastal settlement as “…restricted to a hamlet in a small grove of coconut trees on the

Kea‘au side of the valley, some other scattered houses, a few coconut trees along the beach, and a brackish water pool that served as a fish pond, at the mouth of the Mākaha Stream." This stream supported traditional wetland agriculture - taro in pre-contact and early historic periods and sugarcane in the more recent past. Mākaha Stream, although it has probably changed course in its lower reaches, favors the northwest side of the valley leaving most of the flat or gently sloping alluvial plain on the southeast side of the valley. Rainfall is less than 20 inches annually along the coast and increases to approximately 60 inches along the 4000-foot high cliffs at the back and sides of the valley (Hammatt et al. 1985). The major source of precipitation is winter storms, and December through February are relatively wet months for the region. Seasonal dryland cultivation in early times would have been possible, and dry land fields (kula) have been found in the valley in previous surveys (Green 1980).

The ancient, small (130-square meter) stepped stone *heiau* called Laukīnui, is so old that tradition claims it was built by the *menehune*. In areas watered by the stream there were *lo‘i* lands, but along this arid coast there was plenty of land where there was not enough water for taro, and typically here sweet potatoes and other dryland crops would have flourished. The Bishop Museum study undertaken by Green (1980) found several field shelters with firepits from this dryland field system. Their settlement model indicates that during this early period the field shelters were used as rest and overnight habitations by people living permanently on the coast, who moved inland to plant, tend, and harvest their crops during the wet season (Green 1980: 74).

At the boundary between Mākaha and Wai‘anae Ahupua‘a lies Mauna Lahilahi, a striking pinnacle jutting out of the water. Vancouver describes Mauna Lahilahi as "a high rock, remarkable for its projecting from a sandy beach." He also describes a village located south of Mauna Lahilahi situated in a grove of coconuts (Vancouver 1798:219). This village is Kamaile, which Green (1980:8) likens to a miniature *ahupua‘a* "with the beach and fishery in front and the well watered taro lands just behind." A fresh water spring, Keko‘o, gave life to this land and allowed for the existence of one of the largest populations on the Wai‘anae Coast. The present project area would have been south of the coastal settlement in the relatively low site density shoreline environment.

B. Māhele and LCA Documentation

The Organic Acts of 1845 and 1846 initiated the process of the Māhele - the division of Hawaiian lands, which introduced private property into Hawaiian society. In 1848, the crown and the *ali‘i* (royalty) received their land titles. *Kuleana* awards for individual parcels within the *ahupua‘a* were subsequently granted in 1850. Mākaha Ahupua‘a had 13 claims of which 7 were awarded (Table 1). Six of the seven Mākaha LCAs were located inland attesting to the importance of the inland settlement (Figure 5). The seventh Mākaha LCA claims a *muliwai* as its western boundary. According to Pukui and Elbert (1957: 236) a *muliwai* refers to a "river, river mouth; pool near mouth of a stream, as behind a sand bar, enlarged by ocean water left there by high tide; estuary." The reference to it as a boundary suggests this LCA was probably situated near the coast. Two unawarded claims also mention the *muliwai* as their boundary.

Table 1. LCAs in Mākaha Ahupuaʻa

Land Claim #	Claimant	ʻIli	Land Use	Landscape Feature	Awarded
877	Kaana/Kuaana for Poomano, wife	Kapuaa		Surrounded by lands of Alapai	1 ap.; 1.587 Acs (also Hotel St. & Waianae awards)
8228	Inaole (no name)	Laukini	house	stream on 2 sides	No
8763	Kanakaa	Hoaole	*ʻili*		No
9689	Nahina	Kekio	16 *loʻi,* house lot	*kahawai*, *muliwai* on west	1 ap. .957 Ac.
9859	Napoe	Aheakai/ Laukini Mooiki	17 *loʻi* (*moʻo*) & kula house	*pali* on N. Kalua ma on N., kula & stream on E, stream on S. Muliwai on W.	No
9860	Kalua	Luulauwaa (Laulauwaa)	house	in *kahawai* (stream valley) of Mākaha, hau, *muliwai* on W.	No
9861	Nahina, see above	Kekio			No
9862	Kanehaku	Kekio Mooiki			
9863	Kala	Waikani Kahueiki Kapuaa		stream on S. *pali*(s) & stream land of Alapai	1 ap.; (Kalihi) 1.346 Acs
9864	Kapea	Laukini	19 *loʻi kula*	*pali*	1 ap.; 1.217 Acs
10613	Pākī, Abner	Ahupuaʻa			Apana 5: 4,933 Acres
10923	Uniu	Mākaha		stream on E.land of Kalua on S, *pali on W.*	1 ap.; .522 Ac. 1 ap.; .576 Ac.
10923B	Alapai	Kapuaa	2 *loʻi* & *kula*	*pali* on E. *kahawai on W.*	1 ap.; .52 Ac.

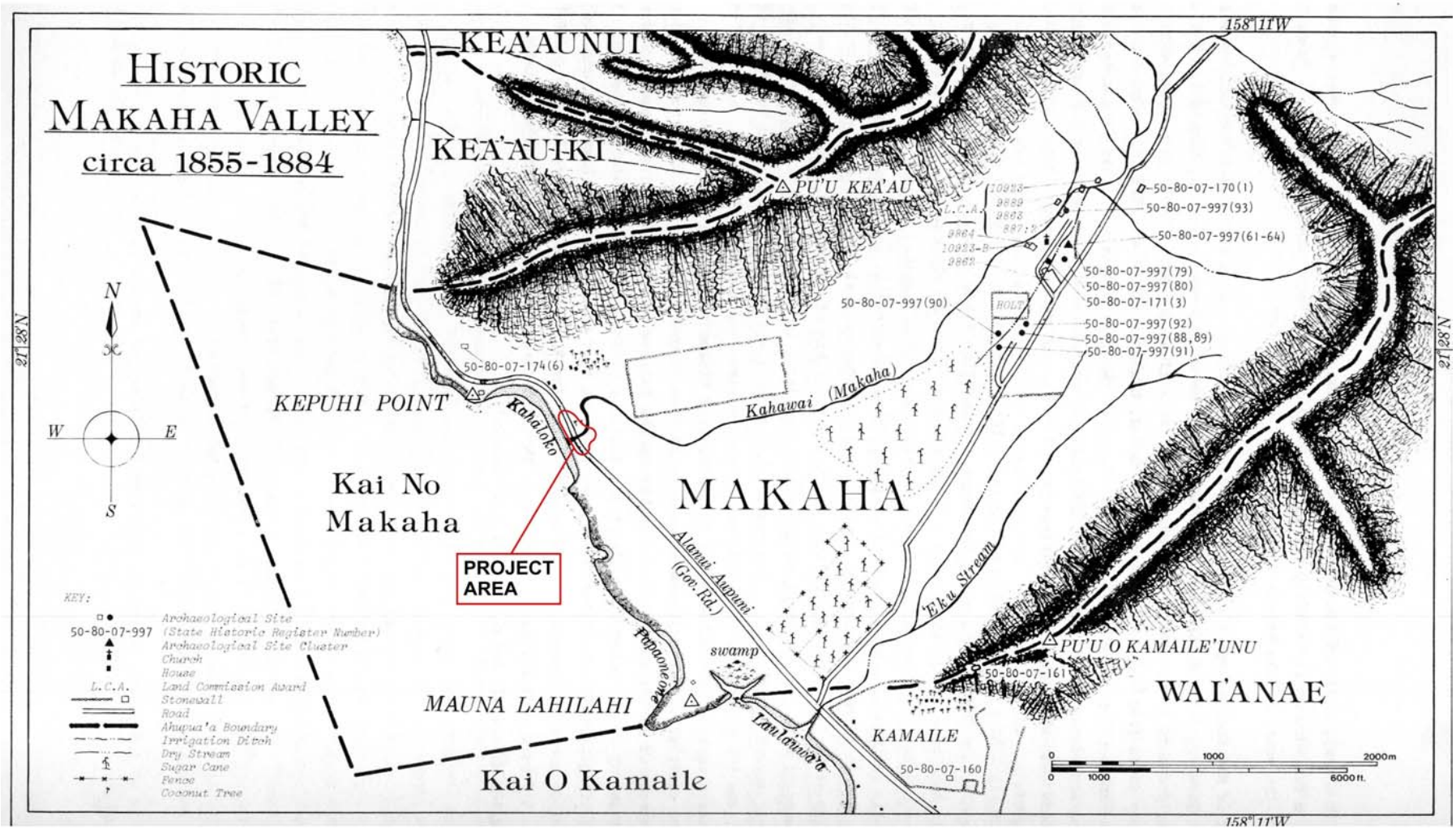

Figure 5. 1855-1884 Map (Green 1980) of Mākaha Valley showing location of project area and surrounding LCAs

Land use information for the Mākaha LCAs is sparse. *Lo‘i* lands and *kula* lands were an important part of sustenance. Aside from these general land specifications, however there is mention of *noni*, ponds, and land for raising *mao*. The *noni* and ponds are recorded in association with the *‘ili* of Kamaile suggesting the claimant was claiming land in neighboring Wai‘anae Ahupua‘a in addition to the Mākaha claim. *Mao* refers to an introduced species of “cotton” (*Gossypium barbadense* or *Gossypium hirsutum*), which was commercially grown in Hawai‘i beginning the early part of the nineteenth century, although it never became an important industry (Wagner et al., 1990: 876). *Ma‘o* generally does well in hot, arid environments and Mākaha would have been a suitable climate for such an industry.

Kuho‘oheihei (Abner) Pākī, father of Bernice Pauahi, was given the entire ahupua’a of Mākaha by Liliha after her husband, Boki, disappeared in 1829 (Green, 1980). Although several individuals are recorded as having charge over Mākaha including Aua, Kanepaiki “chief of the Pearl River”, and the present “King”, A. Pākī felt entitled to the entire *ahupua‘a* of Mākaha. It is uncertain how much of his claim he was granted. Whatever the case, it is suggested Paki was able to wield a certain amount of control over the residents of Mākaha during the Māhele resulting in the limited number of LCA applications. The number of taxpaying adult males in 1855 numbered 39, suggesting there were more families living and working the Mākaha lands (Barrere 1970: 7) than was reflected in Māhele awards.

Based on the Māhele documents, Mākaha’s primary settlement was inland where waters from Mākaha Stream could support *lo‘i* and *kula* cultivars. Although there is evidence for settlement along the shore, for the most part, this was limited to scattered, isolated residents. The only “cluster” of habitation structures was concentrated near Mākaha Beach, near the Kea‘au side of Mākaha where there is also reference to a fishpond.

C. 1850-1900

By ancient custom, the sea for a mile off the shores belonged to the *ahupua‘a* as part of its resources. The ruling chief could prohibit the taking of a certain fish or he could prohibit all fishing at specific times. Pākī filed two such prohibitions, one in 1852, for the taking of *he‘e* or octopus (*Polypus* sp.) and the other in 1854 for the taking of *‘ōpelu* (*Decaqpterus pinnulatus*) (Barrere in Green 1980:7).

In 1855, Chief Pākī died, and the administrators of his estate sold his Mākaha lands to James Robinson and Co. Later, in 1862, one of the partners, Owen Jones Holt, bought out the shares of the others (Ladd and Yen 1972). The Holt family dominated the economic, land-use, and social scene in Mākaha from this time until the end of the nineteenth century. During the height of the Holt family dynasty, from about 1887 to 1899, the Holt Ranch raised horses, cattle, pigs, goats and peacocks (Ladd and Yen, 1972:4). Mākaha Coffee Company also made its way into the Valley, buying up land for coffee cultivation, although they never became a prosperous industry. Upon Holt’s death in 1862, the lands went into trust for his children.

D. 1900 to Present

The Holt Ranch began selling off its land in the early 1900s (Ladd and Yen, 1972). In 1908, the Wai‘anae Sugar Company moved into Mākaha and by 1923, virtually all of lower Mākaha Valley was under sugar cane cultivation (see Figure 5). The plantation utilized large tracks of Lualualei, Wai‘anae and Mākaha Valley. In 1884, newspaper accounts note 7 1/2 miles of track laid which included Mākaha and in 1899, increased the length with 3 more miles of track. The

manager's report for 1900 described the plantation as having some 400 acres of new land cleared, fenced and planted, two miles of railroad, and nearly three miles of flumes laid to said lands (Condé and Best 1973:357). For a half century, Mākaha was predominantly sugarcane fields, but by 1946, the manager's report announced the plans to liquidate the property because of the additional increase in wage rates, making the operations no longer profitable (Condé and Best 1973:358).

The lack of water resources played a role in Wai'anae Sugar Company's low profitability. In the 1930s, Wai'anae Plantation sold out to American Factors Ltd. (Amfac, Inc.). American Factors Ltd. initiated a geologic study of the ground water in the mountain ridges in the back of Mākaha and Wai'anae Valleys. The study indicated that tunneling for water would be successful, but before tunneling could commence, World War II came about and plans were put on hold (Green, 1980). In 1945, American Factors Ltd. contracted the firm of James W. Glover, Ltd. to tunnel into a ridge in the back of Mākaha Valley. The completed tunnel (i.e. Glover Tunnel) was 4200 feet long and upon completion had a daily water capacity of 700,000 gallons. The water made available was mainly used for the irrigation of sugar. In 1946, Wai'anae Plantation announced in the *Honolulu Advertiser* (Friday, Oct 18, 1946) that it planned to liquidate its nearly 10,000 acres of land. The day before, news of the impending sale was circulated among the investors at the Honolulu Stock Exchange. One of the investors was Chinn Ho.

> The unorthodox Ho had started his Capital Investment Company only the year before with a bankroll of less than $200,000, much of it the life savings of plantation workers. He was known as a friend of the little man, an eager disciple of economic growth, and an upstart [McGrath et al. 1973:145].

Chinn Ho managed to broker the deal the following day, by 2 p.m, when the Wai'anae Plantation sold the Mākaha lands to the Capital Investment Corporation, which stills maintains ownership of much of Mākaha Valley. There was an attempt to convert the sugar lands back to ranching but the perennial problem of water continued. Parts of the property were sold off as beach lots, shopping centers and house lots. Many of the former plantation workers bought house lots. Chinn Ho also put his personal investment into Mākaha and initiated resort development including a luxury hotel and in 1969, the Mākaha Valley Golf Club, an 18-hole course with tennis courts, restaurant and other golf facilities was opened for local and tourist use (McGrath et al. 1973:146-163). Numerous other small-scale agricultural interests were pursued during this time period including coffee, rice and watermelons (Ladd and Yen 1972). Water from Glover Tunnel was now used to water Mākaha Valley farms, and the lush grounds of the Mākaha Inn and Country Club, and its associated golf course.

E. Alterations to the Wai'anae Coastline (1880-1930)

Prior to the 1880s, the Wai'anae coastline may not have undergone much alteration. The old coastal trail probably followed the natural contours of the local topography. With the introduction of horses, cattle, and wagons in the nineteenth century, many of the coastal trails were widened and graded to accommodate these new introductions. However, the changes probably consisted of superficial alterations to the existing trails and did not entail major realignments. Kuykendall (1953:26) describes mid-nineteenth century road work: "Road making as practiced in Hawai'i in the middle of the nineteenth century was a very superficial operation, in most places consisting of little more than clearing a right of way, doing a little rough grading, and supplying bridges of a sort where they could not be dispensed with." The first real alteration

to the Waiʻanae coastline probably came with the growth of the Waiʻanae Sugar Company. The company cultivated cane in three valleys – Mākaha, Waiʻanae, and Lualualei – and to more easily transport their cane to the dock and to the mill at Waiʻanae Kai, a railroad was constructed in 1880. The construction of the railroad would have had an impact on the natural features in the area, such as the sand dunes, as well as the human-made features, particularly the fishponds and saltponds maintained in the coastal zone. Additional alteration to the Waiʻanae coastline occurred in the late nineteenth century with the extension of Dillingham's O.R. & L. rail line into the Leeward Coast. One reporter writes a glowing story of the railroad trip to Waiʻanae at its opening on July 4, 1895:

> For nine miles the road runs within a stone's throw of the ocean and under the shadow of the Waiʻanae Range. With the surf breaking now on the sand beach and now dashing high on the rocks on one side, and with the sharp craigs and the mountains interspersed with valleys on the other, patrons of the road are treated to some of the most magnificent scenery the country affords [in Krauss 1973:56].

This report suggests the railroad hugged the ocean during a good portion of the trip. The mechanics of railways demanded considerable alterations to natural landscapes in order to make them feasible for transport, including less curves and hills. A 1912 map of the Government Belt Road illustrates the alignment of the old Government Road, which was probably a modified version of the original coastal trail, and the alignment of the proposed Government Belt Road, which would parallel the O. R. & L. alignment. After the Belt Road was completed, further roadwork was carried out in the 1930s on what was called the "Waiʻanae Road" (D.O.T. 1923), later named Farrington Highway. Kili Drive was built ca. 1970s to provide additional access into Mākaha Valley. The additional access was necessary due to the increased population related to residential, golf resort, and condominium development in the valley.

F. Mākaha Bridges 3 and 3A

The Bridges were built in 1937. At that time, Hawaiʻi was still a territory, and W. D. Bartel was the Chief Engineer for the Territorial Highway Department. The bridges are very important, as they connect Mākaha with the rest of the Waiʻanae District and Honolulu. Bridge 3, which is located just south of Kili Drive traverses Mākaha Stream. Bridge 3A, located just north of Kili Drive, traverses a branch of Mākaha stream that flows intermittently

IV. PREVIOUS ARCHAEOLOGICAL RESEARCH

A. Previous Archaeological Studies in Mākaha Ahupuaʻa

A number of archaeological studies have been carried out in Mākaha Ahupuaʻa (Figure 6, Table 2), beginning with McAllister's (1933) island-wide survey in which he describes seven sites in Mākaha Ahupuaʻa.

> State site 50-80-07-169 is a complex of rock-faced terraces for irrigated taro cultivation located "two-thirds the way up the valley" and shown on McAllister's Oʻahu site map as on the northwest side of the valley approximately 800 m northwest of Kāneʻākī Heiau.
>
> State site 50-80-07-170 is Kāneʻākī Heiau which has been preserved and reconstructed.
>
> State site 50-80-07-171 is another set of extensive once irrigated taro terraces, with some rock facings 6 ft. in height, and is reported as "half-way up Mākaha Valley and on the Honolulu side of the stream" and is shown on McAllister's Oʻahu site map as approximately 400 m south of Kāneʻākī Heiau. Green (1980) reported that this site was not relocated and had been destroyed but Neller (1984) relocated and described the damaged site.
>
> State site 50-80-07-172 is described as a stone platform, is interpreted as a possible shrine, and is shown on McAllister's Oʻahu site map as approximately 600 m south of Kāneʻākī Heiau. Green (1980) reported that this site was not relocated and had been destroyed but Neller (1984) relocated and described the damaged site.
>
> State site 50-80-07-173 is described as the "probable location" of a large rock reported in 1839 by E. O. Hall as "two or three miles distance" past the settlement at Pukahea (Puʻu Kahea) that was once an object of worship. This sacrificial stone was reported by Hall as "in no peculiar sense striking" and "as undignified as any other hump or inanimate matter along the road." It is unclear whether McAllister actually saw this stone which Hall describes as "lying at the foot of a frightful precipice several hundred feet in height" but McAllister's map appears to locate it in the flats in the central seaward portion of the valley.
>
> State site 50-80-07-174, Laukinui Heiau, was described as "the important one [*heiau*] in Mākaha Valley", and said to be so old as to have been built by the menehune. McAllister places this site in the vicinity of Kepuhi Point and his description of the *heiau* incorporating a "coral outcrop" and "an amazing amount of coral" fits that locale. State site 50-80-07-175 known as Mololokai is located at the base of the ridge between Keaʻau and Mākaha on the seaside of the road. This site was described as two pits where early cannibals had come to wash the de-fleshed bodies of their victims at high tide. Associated with this site were said to be two prominent stones, a Pōhaku O Kāne on the Mākaha side and a Pōhaku O Kanaloa on the Keaʻau side.

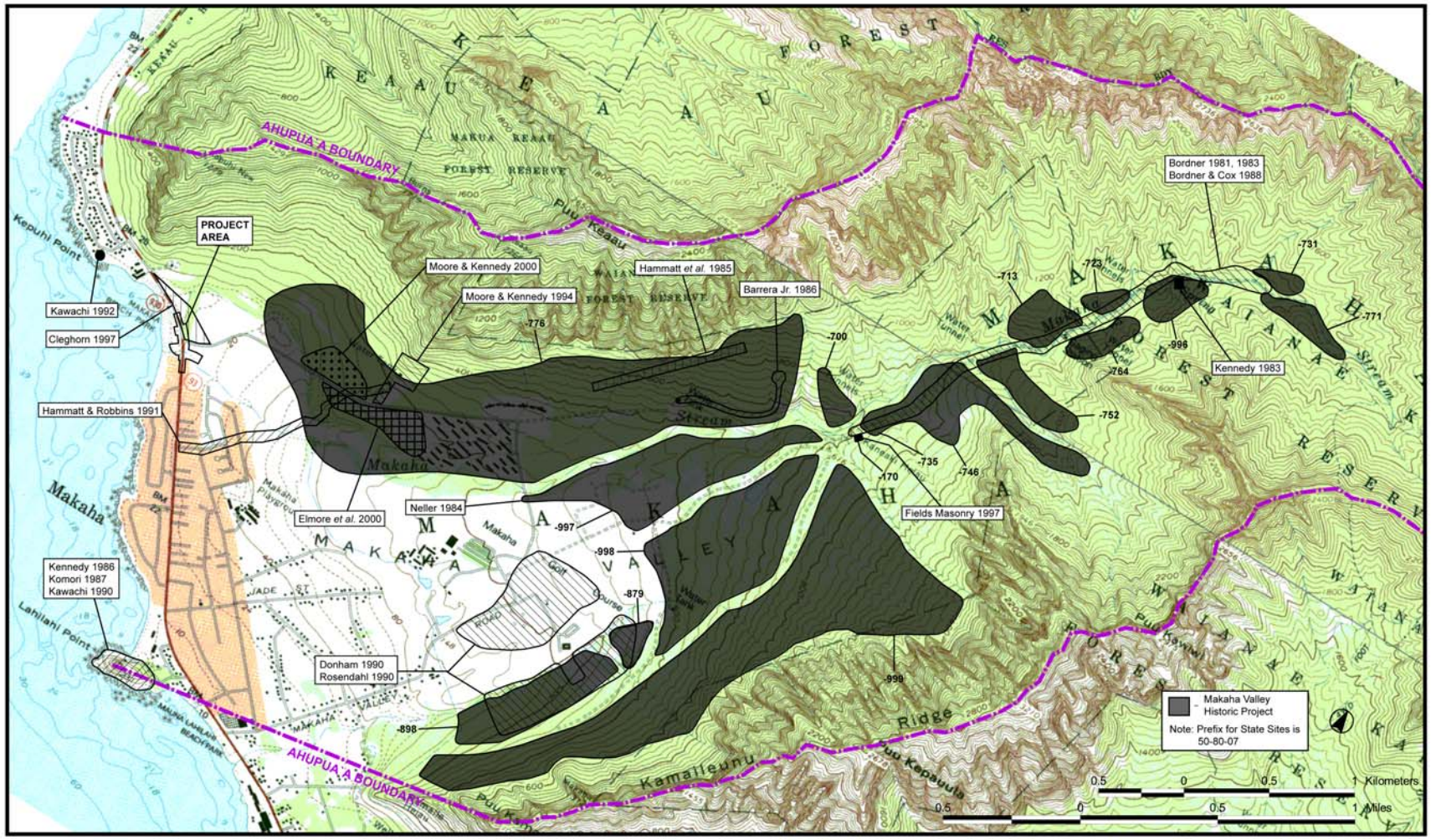

Figure 6. Previous Archaeological Studies in Mākaha Ahupua'a.

Table 2. Previous Archaeological Studies in Mākaha Ahupuaʻa

Study	Location	Type of Study	Findings
McAllister 1933	Island-wide	Island-wide Survey	Describes 7 sites within Mākaha Ahupuaʻa
Green 1969	Large expanse of the central valley	Mākaha Valley Historical Project Report 1	Presents historical documentation and analysis of remains
Green 1970	Large expanse of the central valley	Mākaha Valley Historical Project Report 2	Presents results of excavations including 16 carbon dates going back to circa AD 1200.
Ladd & Yen 1972	Large expanse of the central valley	Mākaha Valley Historical Project Report 3	Presents results of excavations
Ladd 1973	Large expanse of the central valley	Mākaha Valley Historical Project Report 4	Presents results of excavations
Green 1980	Large expanse of the central valley	Mākaha Valley Historical Project Report 5 - Summary	Summary of Archaeological Data and Cultural History
Bordner 1981	Corridor in valley floor *mauka* of Kāneʻākī Heiau	Surface Survey	Notes numerous sites, mostly agricultural
Bordner 1983	Corridor in valley floor *mauka* of Kāneʻākī Heiau	Surface Survey	Notes numerous sites, mostly agricultural
Kennedy 1983	Elevation of 1072 feet in the valley floor, 2 km *mauka* of Kāneʻākī Heiau	Well Monitoring Report	Observed no buried features or artifacts
Neller 1984	Central Valley (Site Area -997)	Archaeological Reconnaissance Survey	Identifies unreported sites, and re-analysis several sites
Hammatt et al. 1985	West side of valley (Site Area 776)	Archaeological Reconnaissance Survey	Identifies numerous modified natural terraces assoc. with dryland agriculture

Study	Location	Type of Study	Findings
Barrera Jr. 1986	West central side of the valley	Archaeological Survey	Identified four sites including four stone platforms, a U-shape habitation enclosure, a terrace and a wall. Some 17 test pits were excavated
Kennedy 1986	Mauna Lahilahi	Archaeological Investigations	Identifies five archaeological sites
Ahlo 1986; Kim 1986; Rio 1986; Simmons 1986	Mauna Lahilahi	Affidavits of brief oral histories	Accounts note the general sacredness of Mauna Lahilahi & the good fishing
Komori 1987	Mauna Lahilahi	Archaeological Survey & Testing	Relocates Kennedy's five sites and describes eleven more. Reports eight carbon dates
Bordner & Cox 1988	Upper valley valley floor	Mapping Project	Ties in previously identified sites, focus on sites -764 & -77, emphasis on dryland ag.
Donham 1990	Two areas on southeast side of the valley	Archaeological Inventory Survey	Identified a terrace assoc. with dry-land ag. and/or habitation
Kawachi 1990	Mauna Lahilahi	Burial report	Describes remains of 2+ individuals, artifacts & sites
Rosendahl 1990	Two areas on southeast side of the valley	Archaeological Inventory Survey (synopsis)	Identified a terrace assoc. with dry-land ag. and/or habitation
Hammatt & Robins 1991	Water Street/ Kili Drive Area	Archaeological Inventory Survey	Identified a linear earthen berm understood as associated with commercial sugar cane cultivation
Kawachi 1992	84-325 Makau St., Kepuhi Point	Burial Report	1 burial? "First in this particular area"
Moore & Kennedy 1994	Northwest side of the valley, 242-foot elevation	Archaeological Investigations	No historic features were located.
Cleghorn 1997	*Mauka* of Farrington Hwy, north of Kili Drive	Archaeological Inventory Survey	A cultural layer, a pond/wetland area remains of structures associated with the O. R. & L. Railroad, & a bridge foundation

Study	Location	Type of Study	Findings
Fields Masonry 1997	Kāneʻākī Heiau	*Heiau* Restoration Report	Presents background, a restoration plan & an account of restoration work
Magnuson 1997	Upper Mākaha Valley	Archaeological Review	Presents an overview & summary of previous studies
Maly 1999	Central valley	Limited Consultation Study	Presents a historical overview and consultation with knowledgeable parties
Elmore et al. 2000	South side of Kili Drive (Site area - 776)	Archaeological Inventory Survey	Identified three features poss. assoc. with dry-land ag. and/or habitation
Moore & Kennedy 2000	North side of Kili Drive (Site area - 776)	Archaeological Inventory Survey	Identified two features poss. assoc. with dry-land ag.
Kailihiwa& Cleghorn 2003	Lower Mākaha	Archaeological Monitoring Report	Identified three sites with five features,

The Mākaha Valley Historical Project (Green 1969, 1970, 1980; Ladd and Yen 1972; and Ladd 1973), involving fieldwork conducted between 1968 and 1970, studied most all of Mākaha Valley. However, as Neller (1984:1) noted sites were lumped into large geographical districts and most of the valley was only surveyed at the reconnaissance level. The Mākaha Valley Historical Project research was unique in that it was funded by private enterprise without legal compulsion and the investigations covered parts of the valley beyond those due for development. More than 600 archaeological features were recorded in the upper valley and 1,131 features were recorded in the lower valley. The coastal strip and the central lower valley were not included because of previous development. Excavations were undertaken at thirty separate structural features including ten field shelters, four stone mounds, three stepped-stone platforms, three house enclosures, two storage pits, a clearing, a site thought to be a shrine, a *heiau*, a pond field terrace system, a habitation feature, two historic house platforms, and a modern curbed foundation. Carbon dating indicated settlement as early as the 13th century. Settlement was focused on the primary water source, Mākaha Stream. Subsequently, with increased population expansion into *kula* lands occurred. By the 16th century the expansion occurred in the "upper valley" with changes in subsistence to irrigated taro system (*i.e. loʻi*)(Green 1980:75).

Richard Bordner (1981) carried out a survey of a linear project area up the middle of the valley floor inland of Kāneʻākī Heiau in support of road widening and well placement projects. This corridor ran through several site areas designated during the Mākaha Valley Historical Project. Descriptions of sites are by proximity to site mapping points. Bordner (1981:D-22) concludes "the entire Mākaha Valley was utilized for agricultural production in the most intensive way, such that all areas capable of it were undoubtedly utilized for crop production." This study accessioned two reviews by Roger C. Green and Matthew Spriggs resulting in

Bordner's preparing "Mākaha Valley Well III - V Re-Survey" (1983) and writing "Appendix B: Response to M. Spriggs Review of Mākaha Wells" (n. d.).

Kennedy (1983) produced an archaeological monitoring report on work at a 100 m long strip near "Well IV" at an elevation of 1072 feet in the valley floor, two km inland from Kāneʻākī Heiau. He saw no evidence of buried features or artifacts.

Earl Neller (1984) of the SHPD went back into the area designated as Site Area 997 "to clear up various deficiencies in the published reports and unpublished site data" and to re-examine various "puzzling inconsistencies." He relocated sites previously reported as destroyed (McAllister sites 171 & 172), identified unreported sites, and re-analyzed several sites studied during the Mākaha Valley Historical Project.

Hammatt, Shideler and Borthwick (1985) carried out an archaeological reconnaissance survey of a 3,000 foot long corridor on the west side of central Mākaha Valley in the 776 site area, documenting numerous modifications of natural terraces for dry land agriculture. Ten archeological sites (1 wall, 2 habitation sites, and 7 agricultural sites) were recorded

Barrera, Jr. (1986) carried out an archaeological survey of a mid valley well site on the west central side of the valley. The project area appears to have included a corridor approximately 600 m long and 30 m wide and a proposed reservoir site 90 m in diameter. He identified four sites including four stone platforms (Site -1465), a U-shape habitation enclosure (Site -1466), a terrace (Site -1467) and a wall (Site -1468). Some 17 test pits were excavated but virtually nothing was found.

Kennedy (1986) carried out archaeological investigations focused on the north (Mākaha) side of Mauna Lahilahi identifying five sites including a possible shrine, a *koa*, a linear pile and an enclosure.

Komori (1987) carried out archaeological survey and testing at Mauna Lahilahi relocating Kennedy's (1986) five sites and an additional eleven sites including petroglyphs, enclosures, terraces, rock shelters & midden, and lithic scatters. He reports eight radiocarbon dates rather tightly in the AD 1300 to 1650 period.

Bordner & Cox (1988) carried out a mapping project on the upper valley floor inland of Kāneʻākī Heiau. While much of the focus of this study was more accurately locating sites previously identified during the Mākaha Valley Historical Project, their findings suggest that the relative importance of dry-land, non-irrigated agriculture had previously been underestimated.

Donham (1990) and Rosendahl (1990) carried out an archaeological inventory survey of two discrete but adjacent parcels for a total of approximately 130 acres in the south central portion of the valley. Donham identified a terrace associated with dry-land agriculture and/or habitation.

Hammatt and Robins (1991) carried out an archaeological inventory survey of an approximately 4,600-foot long route of a proposed 20-inch water main extending northeast from Farrington Highway up Water Street and then continuing northeast to and across Kili Drive. They documented a single historic property Site 50–80-07-4363. Site -4363 was described as "a linear earthen berm ... buttressed along its stream side with cobbles and boulders" (Hammatt & Robins 1991). The berm was interpreted as having been "associated with the historic sugarcane cultivation" (Hammatt & Robins 1991). Based on historic maps, the berm probably represents an old ditch alignment. The ditch alignment was probably altered during construction of the

adjacent golf courses and presently functions as a flood control structure, protecting housing downslope. Subsurface testing within the corridor encountered nothing of archaeological significance.

Carol Kawachi (1992) of the SHPD wrote a memorandum on "Mākaha Burials Exposed by Hurricane 'Iniki" documenting burial(s) eroding out of a lot at 84-325 Makau Street. This was a pit burial, approximately 50 cm below the surface extending 1.5 m long exposed from a sand bank by Hurricane 'Iniki. The burial was reported to have included staghorn coral at major joints and a possible shell *niho palaoa*.

Moore and Kennedy (1994) carried out archaeological investigations on the northwest side of the valley for a proposed reservoir at 242-foot elevation. The access corridor and reservoir site covered approximately eleven acres. No historic features were located.

Fields Masonry documented stabilization and restoration of Kāne'ākī Heiau carried out in 1996 (1997 documentation by Emily Pagliaro). Prior restoration efforts had been carried out in 1970.

Magnuson (1997) carried out a preliminary archaeological review of upper Mākaha Valley for a proposed water line replacement project. This was primarily an archaeological literature review providing an overview of sites.

In 1997, test excavations associated with the inventory survey conducted for the "New Mākaha Beach Park Comfort Station and Parking Area" *mauka* of Farrington Highway by Cleghorn identified a cultural layer present in an area approximately 80 m *mauka* of Farrington Highway near the entrance to Kili Drive. Radiocarbon analysis indicated an age range of A.D. 1440-1690. The deposit was suggested to be "evidence of a small encampment near the coast" (Cleghorn 1997:32) He also indicates the possible importance of a pond/wetland area just *mauka* of the Highway at Mākaha Beach Park: "This pond and wetland may have offered rich resources for the Hawaiians of the area, and the pond may have been used as an inland fishpond during the prehistoric and early historic eras" (Cleghorn 1997:33). Also present in the area are remains of structures associated with the O. R. & L. Railroad (State site 50-80-12-9714). Cleghorn indicates the presence of a bridge foundation located in an unnamed stream just north of Kili Drive, *makai* of the highway (Cleghorn 1997:11).

Maly (1999) carried out a "Limited Consultation Study with Members of the Hawaiian Community in Wai'anae" in support of the Mauna 'Olu Water System. Several interviewees deferred to Mr. Landis Ornellas (a co-founder of the organization *Hui Mālama o Kāne'ākī Heiau*) as a cultural expert for mid-valley Mākaha. Concerns for continuing community consultation were expressed.

Elmore, Moore, and Kennedy (2000) carried out an archaeological inventory survey of an approximately 19.6 acre parcel located on the south side of Kili Drive and just west of the condominiums in a portion of the previously identified site area 50-80-07-776. A total of eight features were identified. Five of these were determined to be modern disturbances while the other three were thought to be possible traditional Hawaiian dry-land agricultural and/or habitation features.

Moore and Kennedy (2000) carried out an archaeological inventory survey of an approximately 20-acre parcel located on the north side of Kili Drive in a portion of the previously identified site area 50-80-07-776. A total of twelve features were identified. Ten of

these were determined to be modern disturbances while the other two were thought to be possible traditional Hawaiian dry-land agricultural features.

Kailihiwa and Cleghorn (2003) Monitored the Mākaha water system improvements phase II for ten streets in the *ahupua'a* of Mākaha and Wai'anae. A total of three sites were identified with five features, a pit, concrete flume, two fire features, and a charcoal deposit. No cultural material was found any of the deposits.

B. Previously Recorded Sites in the Vicinity of the Project Area

Table 3 summarizes previously recorded archaeological sites in the vicinity of the project area; Figure 7 shows the locations of the sites.

Table 3. Previously Identified Archaeological Sites in Coastal Mākaha Ahupua'a

State Site #	Description
50-80-07-173	**Probable Location of Rock Spoken of by Hall (McAllister 1933)** "called ...Pukahea...an object of worship, and to which sacrifices were offered in former times. (3 miles from Pukahea) a large rock...in no particular sense striking"
50-80-07-174	**Laukīnui Heiau (McAlllister 1933)** Low walls inclose, on three sides, what appear to be two low stone-paved platforms...Just to the south of the inclosure a coral outcrop forms a natural platform which was undoubtedly part of the heiau...The heiau is so old as to be accredited to the *menehunes* and said to have been the important one in Mākaha Valley, though not nearly so pretentious or well-preserved as that of Kaneaki.
50-80-07-175	**Mololokai (McAllister 1933)** Two small pits on the *makai* side of the old road that were said to have been used by a group of cannibals who would place the defleshed bodies of their victims in these pits for cleaning by the high tide. Located at the foot of the ridge between Keaau and Mākaha Valleys. Now buried/destroyed.
50-80-07-776	**Mākaha Valley Historic Project Site Area -776** Various pre-contact and historic sites including field shelters, stone mounds, stone platforms, habitation enclosures, storage pits, habitation features, and dry land agricultural features.
50-80-07-3704	**Mauna Lahilahi (Kennedy 1986; Komori 1987; Kawachi 1990)** A natural promontory at the southern end of Mākaha Valley. Subsurface cultural deposits, evidence of marine and religious activities and stone tool production, petroglyphs and crevice burials all included under one site designation.
50-80-07-4363	**Historic Sugarcane -Related Berm (Hammatt and Robins 1991)**

50-80-07-4527	**Burial at 84-325 Makau St.(Kawachi 1992)** Pit burial, approximately 50cm below the surface extending 1.5 m long. Exposed from sand bank by Hurricane 'Iniki. Included staghorn coral at major joints and a possible shell niho palaoa.
50-80-12-9714	**Remains of O.R.&L. Railroad (National/Hawai‘i Historic Register 1975)** Runs along the *makai* side of Farrington Highway. The railroad is listed on the National Register Of Historic Places**.**

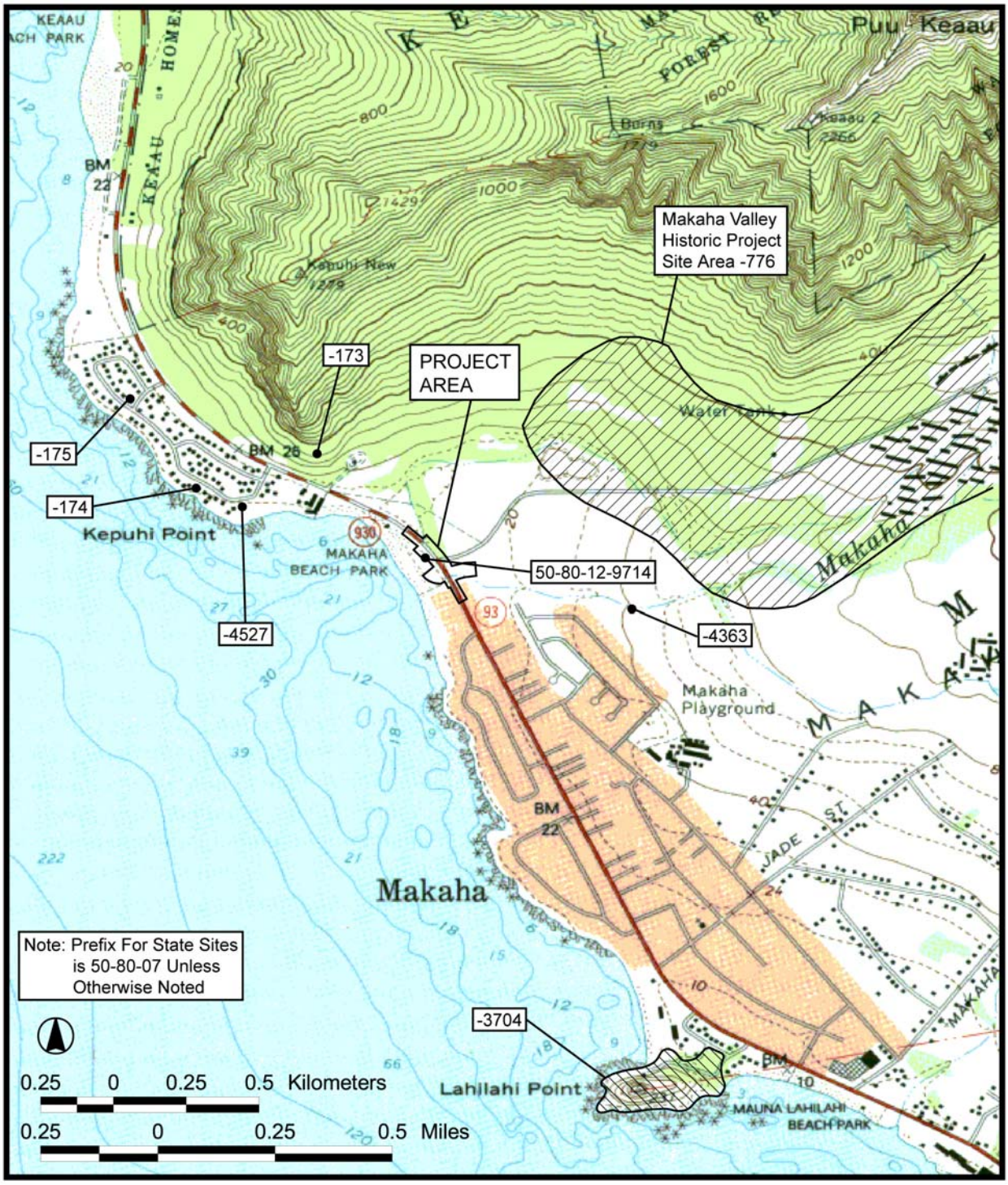

Figure 7. 1998 USGS 7.5 Minute Series Topographic Map, Wai‘anae Quadrangle, showing location of previously identified archaeological sites

V. RESULTS OF COMMUNITY CONSULTATION

Throughout the course of this study, an effort was made to contact and consult with Hawaiian cultural organizations, government agencies, and individuals who might have knowledge of and/or concerns about traditional cultural practices specifically related to the project area. This effort was made by letter, e-mail, telephone or in-person contact. In the majority of cases, letters along with a map of the project area were mailed with the following text:

In collaboration with R. M. Towill Corporation, CSH is conducting a Cultural Impact Assessment for the proposed Replacement of Mākaha Bridges 3 and 3A. Mākaha Ahupuaʻa, Waiʻanae District, Oʻahu (TMK: 8-4-001:012, 8-4-010:012, 8-4-2:047, 45, 8-4-002:045, 8-4-018:014, 122, 123, 8-4-08:018, 019, 020.) A map is enclosed for your information.

The purpose of this assessment is to identify any traditional cultural practices associated with the project area, past or present. We are seeking your *kōkua* and guidance regarding the following aspects of our study:

1. General history and present and past land use of the study area.
2. Knowledge of cultural sites which may be impacted by the project – for example, historic sites, archaeological sites, and burials.
3. Knowledge of traditional gathering practices in the study area–both past and on-going.
4. Cultural associations with the study area through legends, traditional use or otherwise.
5. Referrals of *kūpuna* or anyone else who might be willing to share their general cultural knowledge of the study area.
6. Any other cultural concerns the community might have related to cultural practices in the Mākaha area.

The individuals, organizations, and agencies contacted, and the results of any consultation are presented in the Table 4.

Table 4. Community Contacts and Comments

NAME	AFFILIATION	COMMENTS
Aila, William	Waiʻanae Harbor Master	Mr. Aila made a referral, George Arakaki. He spoke about the times when there was no bridge and the kids who lived at Keaʻau had to travel by canoe over the Mākaha Stream to get to school. His recommendation is that a Archaeologist be on-site during excavations in areas containing sandy deposits and any excavations for the by-pass road. Also he recommends a community meeting before construction begins.
Arakaki, George	Lived in Mākaha Valley all his life	Interviewed on Nov, 8 2004. See below.
Badayos, Lucio	Kamaʻāina	Mr. Badayos was born in 1930. His *ʻohana* goes back 5 generations in the Waiʻanae district. He recommended a cultural monitor and wanted to be notified when work starts. He is an avid fisherman along the coast fronting the project area. He spoke about *hukilau* in the old days and still practices traditional *hukilau*. He would gather different type of fish within Mākaha bay such as *kona* crab, *ulua,* barracuda and *ʻōʻio*. He would also catch reef fish consisting of *manini*, *kala*, *uhu,* and *nenue* using the throw net technique. Mr. Badayos mentioned catching *ʻōpae* and *ʻoʻopu* in the Mākaha stream.
Collins, Sara	Archaeology Branch Chief, SHPD/DLNR	Made referrals, Koa Mana, William Aila, and Analu Josphfidus. Noted that a burial did erode out of the sand on Makau St North of the project area.
DeSoto, Frenchy	Waiʻanae Coast Archaeological Preservation Committee	Made referral, William Aila, and said there was *ʻoʻopu* in the stream
Enos, Eric	Cultural Learning Center at Kaʻala, Director of Hoʻāina O Mākaha, Mākaha Ahupuaʻa Council.	No major concerns except the traditional concerns regarding *ʻiwi*
Gabbard, Mike	City Council District 1	Made referral, Patty Teruya
Guth, Heidi	Office of Hawaiian Affairs	Made referrals, William Aila Jr. and Alika Silva
Haia, Willie	Local resident –Kamoʻi Canoe Club	Made referral, Erick Enos
Hanabusa, Colleen	Senator 21st District	Made referrals, John Kaopua, Ah-Chin Poe, Josiah Hoʻohuli, and Philip Naone
Kamana, Walter	Waiʻanae Kupuna	Spoke with him about Mākaha on a previous

NAME	AFFILIATION	COMMENTS
		project. He mentioned the great ocean resources in Mākaha.
Kaopua, John	Wai‘anae Coast Neighborhood Board	Left messages
Kapeliela, Kana‘I	Cultural specialist for the SHPD/DLNR burials sites program	Made referral, Albert Silva
Keamo, Maylene	Wai‘anae Ahupua‘a Council, President	She is not familiar with that area, and therefore had no comment
Keaulana, Buffalo	Legendary Waterman, local resident, long time Mākaha Lifeguard	No cultural concerns. He does not recall any ‘*iwi* eroding out of the beach. He is concerned about the bridge, as it is very old and should be fixed but he feels that it should be rerouted higher so that there is more beach area.
Kila, Glen	Koa Mana Resources	E-mail letter and sent letter by mail, no response
Maldonado, Eddie	Kama‘āina	Made referral Albert Silva. He said people would fish in Mākaha Stream for ‘*ōpae,* and *‘o‘opu*.
Naone, Phillip	Local resident – Mākaha Canoe Club	Only concern is traffic control during construction and made referral, Albert Silva
Nunes, Keone	Cultural practitioner	Made referral, Buffalo.
Ornellas, Landis	Care taker of Kāne‘ākī Heiau and Hui Malama	Interviewed on Nov, 8 2004. See below.
Patterson, Kaleo	Mākaha Ahupua‘a Council	Made referral, “Buffalo” and his *‘ohana.*
Puu, Mel	Mākaha Beach Lifeguard, *kama‘āina*	Made referral, Lusio Badayos
Rezentes, Cynthia	Wai‘anae Coast Neighborhood Board #24	Made referrals, Eddie Maldonado and other long time residents in the area.
Silva, Albert	Wai‘anae Coast Neighborhood Board #24	Mr. Silva is concerned that the road should be re-routed to its original rout higher up and *mauka*, so that there is more beach area. The area around the bridge is all fill, as it was filled in for the rail-road. Mr. Silva does not know of any *‘iwi* found within the project area.
Suiso, Mark	Mākaha Ahupua‘a Council	Provided contacts with Mākaha Ahupua‘a Council
Teruya, Patty	Legislative Aid for Councilmember Mike Gabbard	Made referral of Mark Suiso, Neighborhood Board members and cultural monitors

VI. BACKGROUNDS OF *KAMA'ĀINA* INTERVIEWEES

Kama'āina and *kūpuna* with knowledge of the Mākaha area were interviewed for this assessment. Two of the interviewees, Landis Ornallas and George Arakaki, participated in formal interview sessions that were taped and transcribed. Lucio Badayos, Buffalo Keaulana and Albert Silva were interviewed via the telephone. To assist in discussion of natural and cultural resources and any traditional cultural practices specific to the project area, CSH initiated interviews with questions from seven broad categories. The categories include: Stream Resources, Marine Resources, Gathering for Plant Resources, Surfing, Burials, Historic Properties and Trails. Information provided by the interviewees is incorporated in the traditional practices section of this assessment.

A. George Arakaki

George Arakaki was born in the early thirties and raised in Mākaha. His father worked for the Wai'anae Plantation. He attended Wai'anae Elementary School then moved on to Waipahu High School for 11th and 12th grade. After high school he worked for the fishery. In the early fifties he was drafted for two years. He retired from Pacific Construction and currently resides in Mākaha.

B. Landis Ornellas

Landis Ornellas was raised in Wai'anae and graduated from Wai'anae High School. Mr. Ornellas is the caretaker of Kāne'ākī Heiau and is also involved in many community activities. He currently resides in his hometown of Wai'anae.

C. Albert Hollis Silva

Albert Hollis Silva, a local cowboy, was born in 1929 and raised along the Wai'anae Coast. He was a rancher for twenty-seven years at Ohikilolo Ranch. Mr. Silva is also an active community member who was chair of the Wai'anae Neighborhood Board. He is still very active in the community and always willing to help perpetuate the Hawaiian culture.

D. Richard "Buffalo" Keaulana

Richard Keaulana, who is often referred to as "Buffalo," is a legendary waterman. He was born in 1934 and spent most of his life surfing, fishing, and diving along the Wai'anae coast, with his favorite area being Mākaha Beach. Mākaha is an outdoor classroom for him to educate people on the importance of respecting the ocean. At one time he was appointed head lifeguard of Mākaha Beach and caretaker of the park.

E. Lucio Badayos

Lucio Badayos was born in 1930. His *'ohana* goes back 5 generations in the Wai'anae district where he currently resides. Mr. Badayos is an avid fisherman and practices the old fishing techniques such as *hukilau*. He values passing on the old ways to the children of today.

VII. TRADITIONAL PRACTICES

Traditional cultural practices are based on knowledge passed down from generation to generation concerning harmony between humans and their natural resources. The Hawaiians of old depended on these cultural practices for survival. Based on their familiarity with specific places and through much trial and error, Hawaiian communities were able to devise systems that fostered sustainable use of resources. Many of these cultural practices are still practiced in some of Hawai‘i‘s communities today.

This section will express the different types of traditional practices, cultural resources, and *mo‘olelo* associated with Mākaha. Excerpts from interviews and ‘talk story’ sessions are incorporated throughout this section where applicable.

A. Stream Resources

The following is a quote from the State of Hawai‘i Department of Land and Natural Resources, and National Park Services Hawai‘i Stream Assessment (1990:234):

> A key to understanding stream-related cultural resources in Hawai‘i is the realization that in prehistoric and historic times, Hawaiians were as much farmers as they were fishermen, and stream water was crucial to successful farming. Many valley floors in the islands had irrigated taro fields [*lo‘i*] fed by canals [‘*awai*] from streams, springs, and waterfall ponds. Houses were located on the narrow dry slopes at the base of valley walls and across sand flats and dunes at valley mouth. Burials and dry agricultural areas for tree corps, sweet potatoes, wauke, and the like were also associated with these house.

It was documented that the Mākaha stream had *‘ōpae* and *‘o‘opu* in it (Hommon’s field notes 1968:83-84, in Green 1980:28). Hommon and Green believed that the Mākaha Stream ran all the way to the sea, as seen on historic maps.

Bowers stated that the stream near the Holt house, Mākaha Stream, was always flowing, “…this stream is an unfailing one, never running dry, even in the hottest weather” (Bower1880:492 in Green 1980:30). It is further stated by James Holt in Green’s report that the stream did have a constant flow:

> James Holt also made this point when interviewed at site 50-80-07-997 (93), which was his house in 1910, for he voluntarily recalled that the stream used to have considerable flow year-round to the ocean and that they used to have a swimming hole just down from the house in the streambed [Hommon, field notes, 1969]. However, I do not think that toward its seaward end the flow in the Mākaha stream was of great magnitude and it may have been somewhat variable over the years, for, as far as one can tell, it never could have been used as the sole supply for the irrigation of sugarcane or other corps on the low-lying flats just in land of the coast in this part of the valley. Rather, it required flumes from the upper Mākaha Valley, more flumes based on the well at Kamaile to the Kea‘au side at the beginning of the 20th century [War Department 1922 map]. Before that the amount of cane that could be grown in the Mākaha Valley was limited by the amount of water available from the Mākaha Stream [Green 1980:30].

Many people in the community spoke about fishing in the Mākaha Stream and how abundant the resources were as compared to present day. Below is a segment from an interview with George Arakaki (GA) and Landis Ornellas (LO):

GA: Yeah we would catch *‘ōpae* and *‘o‘opu* used to get plenty before. I don’t know what happen? All of a sudden it disappeared.

LO: Even when I came back from the service to work at Mākaha, had *‘o‘opu, ‘ōpae*. It was loaded because the stream always ran and there was a lot of lively hood.

CSH: Was the stream one or was it two streams?

LO: I think that was one stream because I think that this area was mud flats. This stream was turned, it was diverted, this sub-division was protected and it was moved towards Ka‘ena. I used to take care of that stream, that was my responsibility, but no one does it now. I have no responsibility in there anymore. But if we ever come across a twenty-five year plus rain, going to have big problems. The trees that are growing in there right now are about 8 inches in diameter. She is going to divert water like Manoa.

CSH: Did the stream run all the way down to the ocean?

LO: Yes it did well into my lifetime it ran to the ocean. It had to because the *‘o‘opu* migrates *mauka* and even in the seventies (1970’s) we could find the fish, and probably in the rainy season when it opened up to the ocean, and then we have the migration and then it dries. Even in the seventies we had water and plenty *‘ōpae*. My grandfather always told me you see all the fish all the *o‘opu* on the shoreline they are waiting to go *mauka*. All these changes that were made caused the ecosystem to be varied.

B. Marine Resources

A research on of ocean resources indicated that although the entire Wai‘anae coastline was utilized for gathering and subsistence, particular spots were richer in certain resources than others. Generally, the whole coastline of Wai‘anae was utilized because certain fish are known to frequent certain areas and experienced fishermen know where the holes or spots are if he or she wants to catch a particular fish.

In a recent interview Buffalo Keaulana expressed his passion for old fishing techniques that were often used along the Wai‘anae coast, as well as different types of fish caught. Mr. Keaulana spoke about *lau* fishing, commonly called *hukilau*, in Mākaha bay. He said the different types of fish that were caught were *manini, kala*, *‘ō‘io*, and *papio*. George Arakaki also mentioned *lau* fishing and other types of fish and kona crab that were caught at Mākaha Beach. “I used to go fishing with a bam boo pole. We used to catch *moi* and all kinds of fish, mostly *moi* and *āholehole*”(GA).

Lusio Badayos, a *kama‘āina* to the area also spoke about how he practices the old techniques of *hukilau*. Mr. Badayos had just recently (2004) put together a *hukilau* for the community of Wai‘anae. He said that it is a good way to teach the children how things were done in the old days. Besides hukilau Mr. Badayos also pole fished where he would catch in deeper waters, *ulua*, barracuda and *‘ō‘io.* The reef fish caught with the throw net technique were *kala*, *palani*, *manini*, *uhu* and *nenue*

Albert Silva a *kama'āina* of the Wai‘anae coast, was a cowboy, but utilized and is very knowledgeable about ocean resources as an additional source of food and recreation.

Mr. Silva mentioned fishing in streams and in the ocean:

> Oh yes, they caught *awa awa, āholehole*, certain stages of the ā*holehole* before the big waters come. They come in when the high tide. Then they get trapped inside and then they have a storm and it rains the sand breaks and then they go back. Wai'anae had a big one, before they put the jetty in that was a big one.
>
> A lot of *hukilau* fishing was done there. A lot of the people are gone now. Over there good fishing and then further down towards Wai'anae good *moi* hole, you know, the churning water, oh good *moi* hole. Then *limu*, my mother use to pick *limu.*

Hukilau, "to pull the leaves," is a gathering technique whereby a net with a long rope on each end to which leaves are attached is drawn in a large semi-circle out in a bay. As the two ends are drawn shoreward, the fish are forced into the net and captured. (Hosaka 160:1973).

Based on the interviewees, this coast is notable for abundant varieties of fish and *limu.* The ocean was and still is a way of life; it was the 'ice box' for the people in the community. Having an ocean and a stream full of fish has helped sustain the lifestyle of the community. Additionally, as Ī‘ī (1959:98) mentioned, Mākaha was a "landing place for fleets of fishing canoes." *Makai* of the project area was and continues to be an area for the gathering of ocean resources. Interviews specifically recalled Mākaha Beach as a well-known area for Hukilau style of fishing. The large sandy area allowed for this type of fishing technique, which is still practiced today.

C. Native Gathering of Plants

Hawaiians utilized upland resources for a multitude of purposes. Forest resources were gathered, not only for the basic needs of food and clothing, but for tools, weapons, canoe building, house construction, dyes, adornments, hula, medicinal, and religious purposes.

Within the project area itself no specific documentation was found in regards to gathering of plants during traditional Hawaiian times. During this evaluation there were no ongoing practices related to traditional gathering of plant resources identified in the present project area. Based on the information it is likely that there was far greater emphasis on gathering plant resources further inland.

D. Surfing

Surfing (*Pae I Ka Nalu)* is not a new sport. It was one of the most popular sports in the old days of Hawai‘i. It is said that Hawaiians would leave home and work when they would hear the call, "*Ua pi‘i mai ka nalu!*" "Surf's up." There was even a Hawaiian god that they would pray to bring on the required waves, La‘amaomao.

Fronting the project area is Mākaha Beach, which is famous for its great surfing. The following are different versions of chants to call forth the waves (Gutmanis 1983):

'Alo, 'alo po'I pu	Come break together,
'Iuka I ka pohuehue	Run up to the *pohuehue* vines
Ka ipu nui lawe mai	Bring the big wind calabash

Ka ipu iki waiho aku	Leave behind the small.
Ku mai! Ku mai!	Arise! Arise!
Ka nalu nui mai kahiki mai	Great surfs from Kahiki
'Alo po'I pu	Waves break together!
Ku mai I ka pohuehue	Rise with the *pohuehue*
Hu! Kaiko'o loa	Well up, raging surf
Ku mai, ku mai	Stand, stand
Ka'ale nui maiKahiki mai	Waves from Kahiki
Ka ipu nui lawe mai	Bring the large wind-gourd
Ka ipu iki waiho aku	Leave the small one.
Ho'a'e , ho a'e iluna	Go, go up to the beach
I ka pohuehue	Morning glory
Ka ipu nui lawe mai	Bring the large wind-gourd
Ka ipu iki waiho aku	Leave the small one.

Buffalo Keaulana, a living legend of Mākaha, was raised along the Wai'anae coast and has a strong passion for this area. When asked where his favorite place to surf is, he said, "…right here in Mākaha. Mākaha is the best place to surf, you have the channel and the wave comes from that end you see the white water going on that side coming that way."

Mākaha is the jewel of the Wai'anae coast. People come from all over the world to see the big waves at Mākaha Beach. Icons like Buffalo, Rusty and Brain Keaulana, and Rell Sun have evolved out of this famous surf spot. Buffalo, often referred to as the legendary waterman, started the Big Board Surfing Classic in 1977 to help maintain and further the development of the Hawaiian culture. By doing this he has helped sustain and promote the old ways and pass on this knowledge to the *keiki*. This will help the children of today and tomorrow understand their cultural background so strongly rooted in nature. For these reasons, it is vital to preserve this natural class room so that the *kūpuna* can pass on their *mana'o* and keep the Hawaiian culture alive.

To summarize Buffalo, Mākaha Surf Beach and its natural environment are critical to perpetuating Hawaiian culture and teaching the following generations respect for the ocean. Thus, no project should negatively impact Mākaha Surf Beach.

E. Burials

Commenting on the nature of burial areas and body positions used in burial, William Ellis (1827: 361-363) says: "The common people committed their dead to the earth in a most singular manner." The body was flexed, bound with cord, wrapped in a coarse mat, and buried one or two days after death. Graves were "…either simply pits dug in the earth, or large enclosures. Occasionally they buried their dead in sequestered places at a short distance from their habitations,

but frequently in their gardens and sometimes in their houses. Their graves were not deep and the bodies were usually placed in them in a sitting posture."

Hawaiians placed significance on the *iwi*, which were regarded as a lasting physical manifestation of the departed person and spirit. "The bones of the dead were guarded, respected, treasured, venerated, loved or even deified by relatives; coveted and despoiled by enemies" (Pukui et al., 1972:107).

There is no documentation of any burials within the project area. However, there is documentation of *'iwi* eroding out of Mākaha Beach Park. The closest known burial was documented by Joe Kennedy on January 5, 2004, when human remains eroded out of the beach near the Mākaha Shores Condominium Apartments on Makau Street about ½ mile west of the project area (see Figure 7, site –4527).

Albert Silva is concerned that there is still a possibility of encountering significant deposits: "…no I see no problem. The only concern that I have is that you can have a monitor a Keiki Hanau O Ka Āina so that we maintain our culture and don't bring a *malahini.*"

Along with Albert Silva, there are others in the community concerned about the '*iwi.* William Aila and Eric Enos are concerned that there is a possibility of finding '*iwi* in sandy deposits. Therefore, they both recommended archaeological monitoring for areas in the project that contain sandy deposits.

F. Historic Properties

Remnants of the O. R. & L. (State Site #50-80-12-9714) railroad run along the *makai* (west) side of Farrington Highway and are within the project area. The railroad is listed on the National Register Of Historic Places, though the specific section, on the register is located in 'Ewa, where the train still runs.

G. Trails

John Papa 'Ī'ī describes a network of Leeward O'ahu trails, which in early historic times crossed the Wai'anae Range, allowing passage from Central O'ahu through Pōhākea Pass and Kolekole Pass. The Pu'u Kapolei trail gave accesses to the Wai'anae district from Central O'ahu, which evolved into the present day Farrington Highway. There was another trail called Kumaipo that went through Makaha (Figure 8).

> The stronghold of Kawiwi was part of a mountain ridge lying between Wai'anae and Makaha and overlooking Kamaile. The trail Kumaipo, went down to the farms of Makaha and the homes of that land. A branch trail which led up Mount Kaala and looking down on Waialua and Mokuleia could be used to go down to those levels land. It was customary to have dwelling places along the mountain trails that led downward from here into Kamaile, as well as along the beach trail of Makaha.
>
> There were many houses at Makaha, where a fine circle of sand provided a landing place for fleets of fishing canoes. The trail which passed by this sandy bar was the one from Puu o Kapolei, which had joined the beach trail from Puuloa and from Waimanalo.['Ī'ī, 1973:96-98].

As noted earlier, the coastal trail is referenced in a *mo'oleo* telling of the cannibals waylaying travelers in Mākaha. This trail has evolved through the horse-and-buggy era to the present

Farrington Highway. It should also be noted that Ī‘ī’s (1959:97) description of “many houses at Mākaha” contradicts other accounts of sparse settlements in pre-contact Mākaha.

Sterling and Summers mention two tails in the vicinity of the current project area, one *mauka* and the other a *makai.* The *mauka* trail is named Kumaipo Trail (Figure 8):

> …there was also a trail going up from Waianae and then down makaha-uka, called Kumaipo. Below that trail was a fortress in the olden days, named Kawiwi…The fortress is on a ridge leading down from a mountain, and it lies between Waianae and Makaha, overlooking Kamaile. The trail, Kumaipo, went down to the food patches of Makaha and the homes on that land. A branch of the trail went up the mountain hat looked down on Waialua and Mokuleia, Where the people could travel down to the flat and level lands. It was customary to have dwelling places along the mountain trails that lead downward from there into Kamaile, and also along the beach trail of Makaha. [Na hunahuna no ka moolelo Hawai‘i Kuokoa Jan. 1, 1870. Hen: Vol1, p2705 in Sterling and Summers1978:77].

In summary, the present project area is located within the traditional coastal trail corridor that eventually evolved to include the O. R. & L. and Farrington Highway alignments.

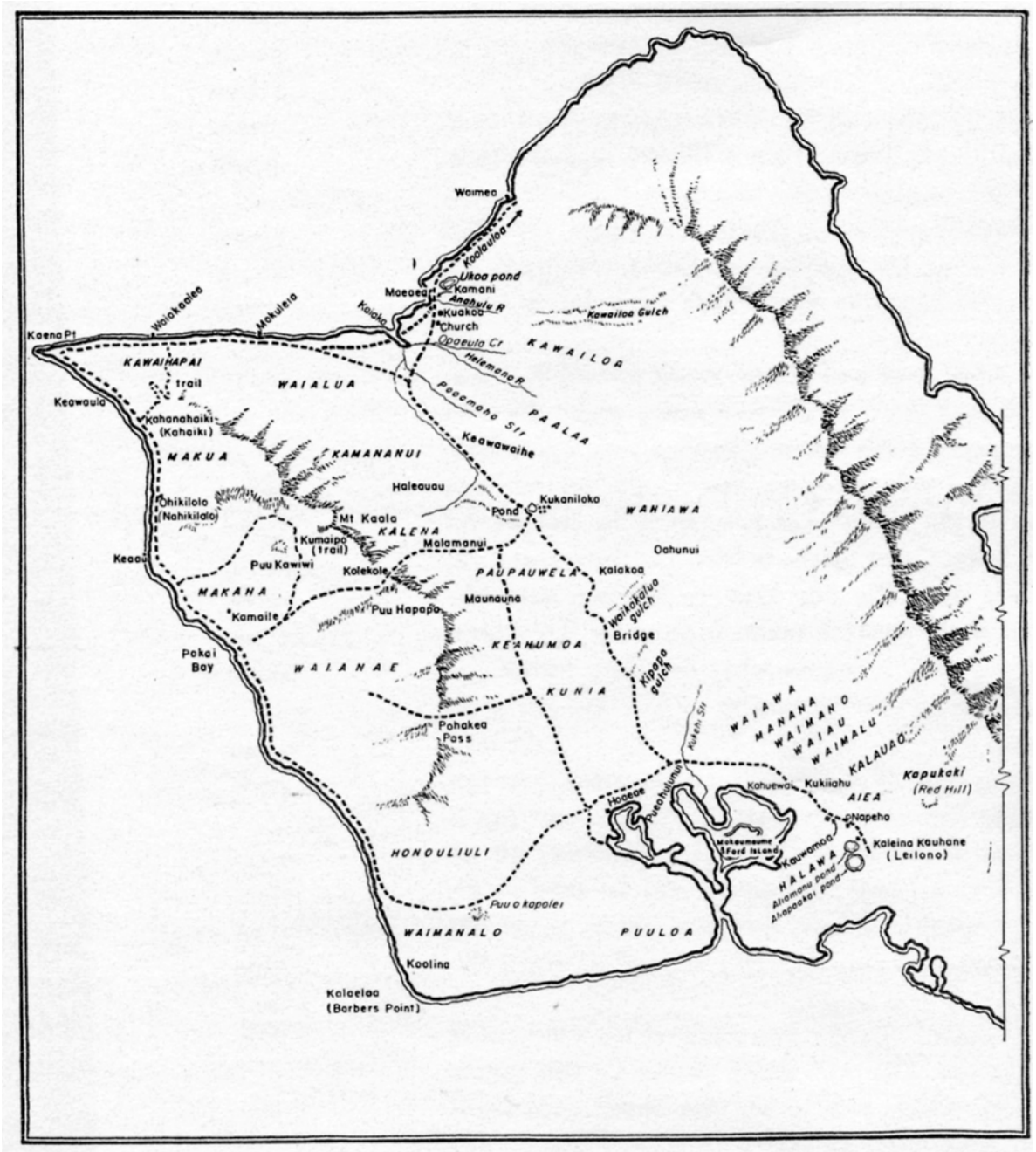

Figure 8. Map (‘Ī‘ī, 1959:96) of the trails of leeward O‘ahu (map by Paul Rockwood)

VIII. SUMMARY AND RECOMMENDATIONS

A. Summary

Background research indicated dry land agriculture, habitations, a *heiau*, a pond, and a terrace *lo'i* system in Mākaha Valley. Previous archaeological research specific to the project area identified a cultural layer present in an area approximately 80 m *mauka* of Farrington Highway (Cleghorn 1997). The presence of pre-contact cultural deposits was considered "evidence of a small encampment near the coast" (Cleghorn 1997:32). Cleghorn also indicates the possible importance of a pond/wetland area just *mauka* of the highway: "This pond and wetland may have offered rich resources for the Hawaiians of the area, and the pond may have been used as an inland fishpond during the prehistoric and early historic eras" (Cleghorn 1997:33).

George Arakaki, Landis Ornellas, Lucio Badayos, Albert Silva, and other *kūpuna* interviewed for this assessment mentioned that in the past there was traditional gathering of fish such as *awa awa, āholehole*, *'o'opu*, and *'ōpae* in the stream that abuts the project area. There was no documentation of any other on-going cultural practices, archeological sites, trails, or burials within the project area. However, intensive fishing, diving, canoeing, surfing and the O. R. & L. currently occur *makai* of the project area at Mākaha Beach. The community is concerned that there should be no adverse effect on any of the on-going activities in the surrounding area during the proposed bridge replacement. Traffic control and the possibility of encountering inadvertent burials were also of concern.

B. Recommendations

The specific concerns related to cultural issues noted by the interviewees and people consulted include:

1. The possibility that burials may be encountered during excavation for the project.
2. The potential impact of the bridge replacement project on traditional ocean activities associated with this section of Mākaha, such as fishing, diving, canoeing, and surfing.

It is recommended that these concerns be resolved through consultation and coordination with the Mākaha community. If the concerns are addressed, the proposed replacement of the Mākaha Bridges should not have any adverse impact upon native Hawaiian cultural resources, beliefs, and practices.

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Appendix F

Mailing List of Community Members Consulted for Geotechnical Boring and Archaeological Inventory Survey for Mākaha Bridges 3 and 3A

Mailing List of Community Members Consulted for Geotechnical Boring and Archaeological Inventory Survey for Makaha Bridges 3 and 3A

Contents:

The following attached documents are included in this section:

(1) Notice of Proposed Project and List of Community Recipients of the Public Notification. Mailed April 22, 2005

(2) Copy of Public Notice Printed in Honolulu Advertiser, April 30, 2005

(3) Notice of Archaeological Inventory Survey. Mailed on or about August 4, 2005

Note:

No personal addresses are provided in the attached.

Farrington Highway

Makaha Bridge No. 3 and No. 3A Replacements
Federal Aid Project No. BR-093-1(20)

Notice of Proposed Project

The State Department of Transportation - Highways Division (DOTH) is proposing to replace two timber bridges (Nos. 3 and 3A) along Farrington Highway, Route 93, between milepost markers number 13.95 and number 14.21 in Makaha, Waianae District, Oahu, Hawaii.

Work associated with this project will involve geotechnical boring to look at the underlying substrate, demolition of the existing bridges and construction of the replacement bridges.

The purpose for replacing these two existing bridges is to construct new bridges that meet or exceed the current design standards set by the American Association of State Highway and Transportation Officials (AASHTO), Federal Highway Administration (FHWA), and State Department of Transportation (DOT).

The geotechnical boring will be done using a drill rig mounted on a flatbed truck. On difficult terrain, the rig may be transported to the boring site by an all-terrain vehicle (ATV). Drilling depth will be between 10 and 75 feet from grade. The proposed geotechnical work will take approximately two (2) weeks to complete.

Demolition and reconstruction of the bridges will require a detour road to be constructed around the project site. Traffic controls and flagmen will be used to maintain safety. A water truck will be used on-site to control fugitive dust.

The existing timber bridges were originally constructed in 1937. The replacement of the nearly 70 year old structures with bridges constructed of concrete and steel will:

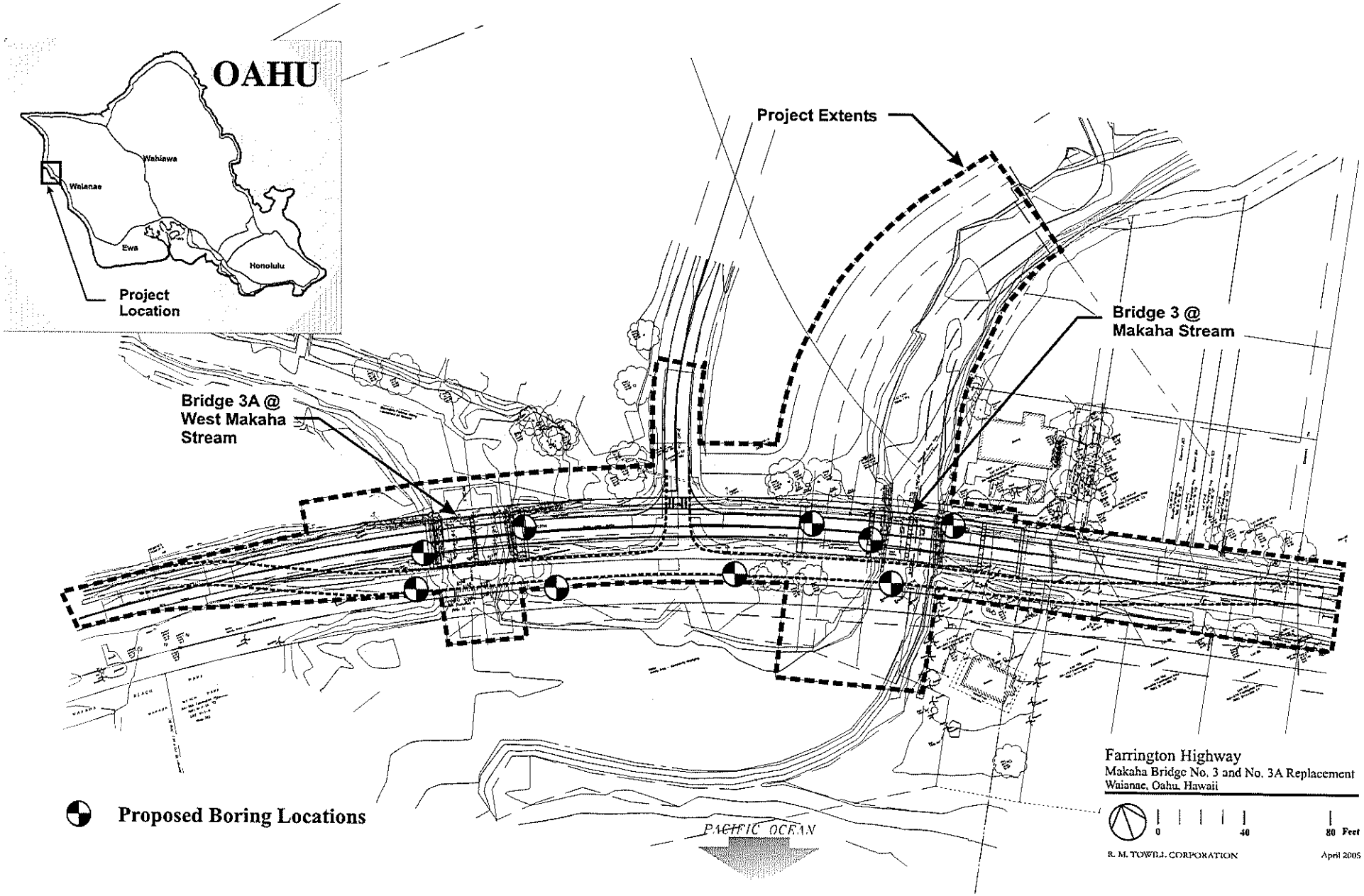
- Improve protection and safety of the traveling public;
- Provide improved drainage and increase safety of the structures by raising the bridges above the 100 year flood flow;
- Reduce the potential for increased maintenance costs associated with wooden structures; and,
- Permit installation of improvements to meet requirements of AASHTO, FHWA, and DOT.

The geotechnical boring is tentatively scheduled to being the week of May 23rd. Construction of the project is scheduled to begin in 2006 and last approximately 12 months.

Notification concerning potential burials along the the proposed project alignment will also be published in the Honolulu Advertiser and the Westside Stories.

QUESTIONS? Please call Mr. Emilio Barroga, P.E., DOT at 692-7546, or Brian Takeda, R.M. Towill Corporation at 842-1133. If there are comments please provide them in writing to R.M. Towill Corporation, 420 Waiakamilo Road, Suite 411, Honolulu, Hawaii 96817.

Thank you


OAHU
Wahiawa
Waianae
Ewa
Honolulu
Project Location
Project Extents
Bridge 3 @ Makaha Stream
Bridge 3A @ West Makaha Stream
Proposed Boring Locations
PACIFIC OCEAN
Farrington Highway
Makaha Bridge No. 3 and No. 3A Replacement
Waianae, Oahu, Hawaii
0
40
80 Feet
R. M. TOWILL CORPORATION
April 2005

Makaha Bridges 3 and 3A
LIST OF RECIPIENTS OF PUBLIC NOTIFICATION OF PROJECT
Mailed on April 22, 2005

Name	Affiliation
Makaha Ahupua'a Community Assn.	Community Organization
Patricia Anne Likos	Makaha Ahupua'a Community Assn.
Mark Suiso	Makaha Ahupua'a Community Assn.
Phillip Naone	Makaha Canoe Club
Kaleo Patterson	Waianae Protestant Church
Alika Silva	Koa Mana
Glenn Kila	Koa Mana
William Aila, Jr.	Waianae/Makaha Resident
Eric Enos	Waianae/Makaha Resident
Clarence Delude	Waianae/Makaha Resident
Pat Patterson	Waianae/Makaha Resident
Landis Ornellas	Waianae/Makaha Resident
Alice Greenwood	Waianae/Makaha Resident
Maria B. Klausmeyer	Waianae/Makaha Resident
Moana Kea Among	Waianae/Makaha Resident
Ron S. Moore	Waianae/Makaha Resident
Donald H. Denhart	Waianae/Makaha Resident
Katherine F. Denhart	Waianae/Makaha Resident
Sandra H. Denhart	Waianae/Makaha Resident
Elizabeth Winstedt	Waianae/Makaha Resident
Mitchell D. Maxwell	Waianae/Makaha Resident
Greg W. Kowalski	Waianae/Makaha Resident
Robert Neuman	Waianae/Makaha Resident
Keith J. Kohl	Waianae/Makaha Resident
Juliana J. Zhang-Kohl	Waianae/Makaha Resident
Robert C. Palmer	Waianae/Makaha Resident
Jason C. Ellis	Waianae/Makaha Resident
HeatherL. Ellis	Waianae/Makaha Resident
HRT Ltd.	Waianae/Makaha Resident
Cynthia Rezentes, Chair	Waianae Neighborhood Board
Georgette Jordan, Boardmember	Waianae Neighborhood Board
Karen Awana, Boardmember	Waianae Neighborhood Board
Todd Apo, Counciman	Honolulu City Council
Colleen Hanabusa, State Senator	State Senate
Maile Shimabukuro, State Representative	State House of Representatives
Nathan Napoka	State Historic Preservation Div., Dept. of Land & Natural Resources
Kana'i Kapeliela	State Historic Preservation Div., Dept. of Land & Natural Resources
Van Horne Diamond	Oahu Island Burial Council
Analu Josephides	Oahu Island Burial Council
Lance Foster	Office of Hawaiian Affairs
Lester K.C. Chang, Director	Dept. of Parks & Recreation

The Honolulu Advertiser

CLASSIFIED ADVERTISING

X-AD

Printed by: 132Theresa
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Ad Taker: Oyama, Theresa

PLEASE NOTE - SIZE:
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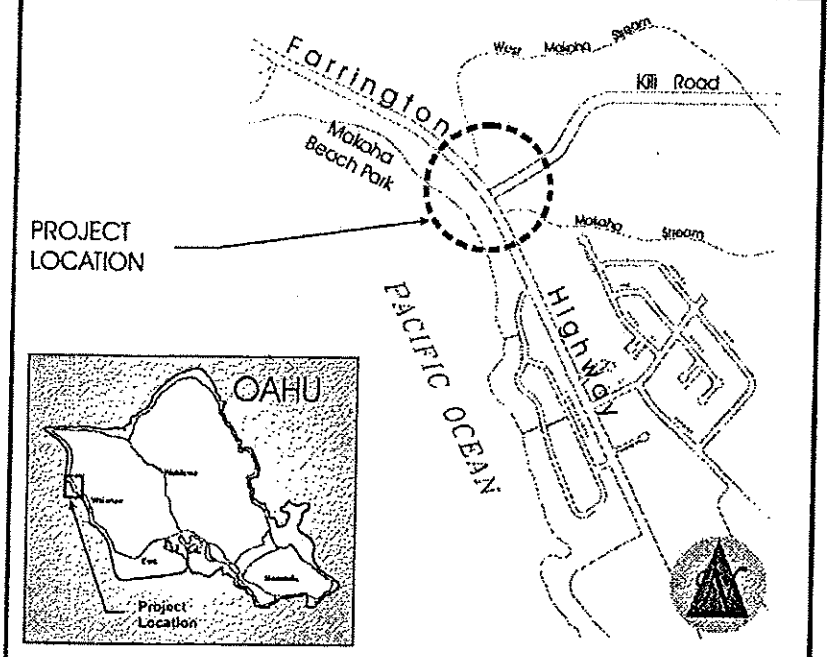
Ad #: 85403
Classification: 005000 - Legal Ads
Ad Start: Saturday, 04-30-05

Advertiser Name: R M TOWILL CORP
Total # of Insertions: 1
Ad Stop: Saturday, 04-30-05

Ad Copy:



PUBLIC NOTICE

Pursuant to Section 106, National Historic Preservation Act Consultation and Chapter 343, Hawaii Revised Statutes

The State Department of Transportation - Highways Division (DOTH) is proposing to replace two timber bridges (nos. 3 and 3A) along Farrington Highway, Route 93, between milepost markers number 13.95 and number 14.21 in Makaha, Waianae District, Oahu, Hawaii.

The work associated with the project will involve geotechnical boring to look at the underlying substrate, demolition of the existing bridges and construction of the replacement bridges. The geotechnical boring is scheduled for the week of May 23rd and will last about 2 weeks. Construction of the project is scheduled to begin in 2006 and last approximately 12 months.

All persons having information about possible burial or important cultural sites within the proposed project extent are hereby requested to submit written information to the State Historic Preservation Division, Department of Land and Natural Resources, 601 Kamokila Blvd., Kapolei, HI 96707 at (808) 692-8027; Mr. Emilio Barroga, (DOTH - Design Branch, 601 Kamokila Boulevard, Room 688 Kapolei, HI 96707) at (808) 692-7546; or Brian Takeda (R.M. Towill Corporation) at 842-1133. Note: If your written information is confidential, please submit it to the State Historic Preservation Division.

Written information on possible sites within the project area must be received no later than May 18, 2005.

(Hon. Adv.: Apr. 30, 2005) (A-85403)

Julia

CONTINUED FROM B1

the most wonderful Mother's Day gift I could possibly have," Engle said.

Punahou students in the Case Middle School's May Day Court and Julia's 10-year-old sister Christina gathered yesterday to send their best wishes to their stricken classmate. Julia was supposed to be a princess in the May Day Court before the accident.

Meanwhile, city spokesman Bill Brennan said a healthy 80-foot tall Norfolk pine that was even closer to the Engle family's home on Beckwith Street than the diseased tree that fell has been removed.

Brennan said the tree cost the city about $3,500 to cut down, and that tree along with several others removed on the street, will be replaced by a different type of tree better suited for a residential neighborhood.

Engle said the family will move back into the home when Julia is released from the hospital.

"Christina would like to wait until her sister comes home," she said.

Engle said her daughter's prognosis is still "day to day," but she is very happy the girl is making steady improvement.

Reach James Gonser at 535-2431 or jgonser@honoluluadvertiser.com.

Kaua'i

CONTINUED FROM B1

on Lum was 4-1, with only Gonsalves, a former police officer, voting against him.

Gonsalves turned up the heat when, in an e-mail announcing he would not attend Lum's inauguration, he referred to the new chief as Hop Sing. Hop Sing was the name of a Chinese cook in the TV show "Bonanza."

Gonsalves said it was a nickname that dates to when he and Lum served together on the force, but Lum said he doesn't remember it being used and considered it a racial slur.

Gonsalves said he personally apologized to the chief as well as to Deputy Chief Ron Vennaman, who in the same e-mail he referred to as Little Joe, another character on the TV series.

Gonsalves refused to resign from the commission over the written remarks.

Mayor Baptiste has asked the council to remove Gonsalves from the commission. Under the County Charter, police commissioners are appointed by the mayor and confirmed by the council, and their removal also requires the approval of both.

Baptiste sent the council a resolution removing Gonsalves. The council has put off for months taking up the resolution.

At Thursday's meeting, Gonsalves appeared with supporters who spoke on his behalf, and the council voted 6-1 to receive the resolution, a parliamentary move that effectively kills it.

Only council Chairman Kalpo Asing, a critic of the Baptiste administration and of the operation of the police department, voted against the move.

As for any investigation, Councilwoman JoAnn Yukimura said that while the council has rules that would apply to an investigation of the police department, the [illegible] what procedures would be followed is still something we want to understand," said Councilman Jay Furfaro.

Yukimura said she voted to keep Gonsalves on the commission because she felt he had made an error but had owned up to it.

"I think he showed remorse for his remarks and apologized not only to the chief and his wife, but to the Chinese community. A mistake was made, but he acknowledged it. Also, he has a lot of support in the community," she said.

The council was more evenly split, 4-3, in its vote to confirm Furtado for her second and final term on the commission.

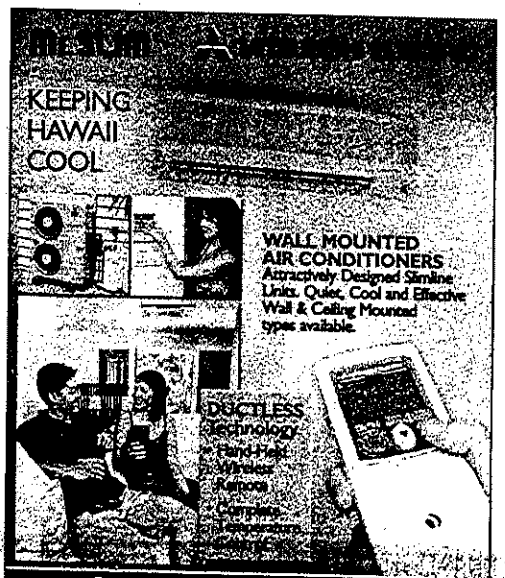
On that vote, Asing once again was on the losing side, along with members Mel Rapozo and Shaylene Iseri-Carvalho.

Both Rapozo and Iseri-Carvalho have experience working with the police department, he as a former officer and she as a former prosecutor.

They suggested that some of the problems on the commission and in the department could be tied to Furtado's actions on the commission.

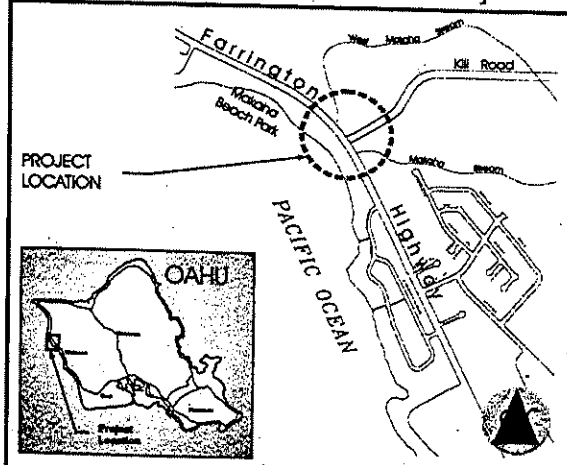
Council members Furfaro, Daryl Kaneshiro, Jimmy Tokioka and Yukimura voted for her.

Reach Jan TenBruggencate at jant@honoluluadvertiser.com or (808) 245-3074.



HAWAI'I'S Legals

[HONOLULUADVERTISER.COM]



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The work associated with the project will involve geotechnical boring to look at the underlying substrate, demolition of the existing bridges and construction of the replacement bridges. The geotechnical boring is scheduled for the week of May 23rd and will last about 2 weeks. Construction of the project is scheduled to begin in 2006 and last approximately 12 months.

All persons having information about possible burial or important cultural sites within the proposed project extent are hereby requested to submit written information to the State Historic Preservation Division, Department of Land and Natural Resources, 601 Kamokila Blvd., Kapolei, HI 96707 at (808) 692-8027; Mr. Emilio Barroga, (DOTH - Design Branch, 601 Kamokila Boulevard, Room 688 Kapolei, HI 96707) at (808) 692-7546; or Brian Takeda (R.M. Towill Corporation) at 842-1133. *Note: If your written information is confidential, please submit it to the State Historic Preservation Division.*

Written information on possible sites within the project area must be received no later than May 18, 2005.

(Hon. Adv.: Apr. 30, 2005) (A-85403)

DEPARTMENT OF DEFENSE
United States Air Force

Notice of Availability (NOA) of the Record of Decision (ROD) for the Termination of the Air Force Mission at Johnston Atoll Airfield

AGENCY: United States Air Force, DoD.
ACTION: Notice of Availability.

SUMMARY: This announces the availability of the ROD that documents the decision of the United States Air Force (Air Force) with regard to the Final Environmental Impact Statement (FEIS) for the Termination of the Air Force Mission at Johnston Atoll Airfield. The ROD has been prepared in accordance with the National Environmental Policy Act (NEPA) and the regulations implementing NEPA promulgated by the President's Council on Environmental Quality (CEQ), specifically Title 40 Code of Federal Regulations, Part 1505.2, Record of decision in cases requiring environmental impact statements. Accordingly, the ROD, (1) States the Air Force's [illegible]

OWNER'S NOTICE OF COMPLETION OF CONTRACT

NOTICE IS HEREBY GIVEN that pursuant to the Provisions of Section 507-43, of the Hawaii Revised Statutes, the construction by RAYMOND'S PAINTING COMPANY, INC. of that certain Exterior Painting of Hawaiki Tower, situated at 88 Piikoi Street, TMK: 2-3-6:4, Honolulu, Oahu, Hawaii, has been completed.

AOAO
Hawaiki Tower
(Owners)

(Hon. Adv.: Apr. 23, 30, 2005) (A-70274)

OWNER'S NOTICE OF COMPLETION OF CONTRACT

NOTICE IS HEREBY GIVEN that pursuant to the Provisions of Section 507-43, of the Hawaii Revised Statutes, the construction by Akamai Roofing Inc. of that certain Roofing situated at Kahala Corner 4614 Kilauea Avenue, TMK: 3-5-016:010, Honolulu, Oahu, Hawaii, has been completed.

Trustees of the
Estate of
Bernice Pauahi Bishop
(Owners)

(Hon. Adv.: Apr. 23, 30, 2005) (A-74475)

NOTICE

On April 12, 2005, an application was filed with the Federal Communications Commission requesting authority to transfer control of Polynesian Broadcasting, Inc., licensee of Station KZOO, Honolulu, Hawaii, from Mitsuru Furuya to David F. Furuya.

Station KZOO operates on frequency 1210 kilohertz.

The transferor in the application is Mitsuru Furuya, an individual. The licensee in the application is Polynesian Broadcasting, Inc., and its officers, directors, and sole stockholder consist of David F. Furuya, Robyn Furuya, and Mitsuru Furuya. The transferee in the application is David F. Furuya, an individual.

A copy of the transfer of control application and related materials are available for inspection by members of the public during normal business hours at the main studio of Station KZOO, located at 2752 Woodlawn Drive, Building 5-204, Honolulu, Hawaii 96822, and at the offices of the Federal Communications Commission in Washington, D.C.

(Hon. Adv.: Apr. 29, 30; May 6, 7, 2005) (81040)

OWNER'S NOTICE OF COMPLETION OF CONTRACT

NOTICE IS HEREBY GIVEN that pursuant to the Provisions of Section 507-43, of the Hawaii Revised Statutes, the construction by Construct Inc. of that certain Remodel Kitchen, Baths, and Replace All Windows situated at 44-747 Kaneohe Bay Drive, TMK: 4-4-018: 005, Kaneohe, Oahu, Hawaii, has been completed.

David B. & Jacinta R. Neel
James W. & Evelyn R. Neel
(Owners)

(Hon. Adv.: Apr. 23, 30, 2005) (A-72322)

MAKE LIFE

Farrington Highway

Makaha Bridge No. 3 and No. 3A Replacements Federal Aid Project No. BR-093-1(20)

Notice of Archaeological Inventory Survey

August 4, 2005

The State Department of Transportation - Highways Division (DOTH) through its consultant R.M. Towill Corporation is providing this follow-up notification of project activities for the replacement of two timber bridges (Nos. 3 and 3A) along Farrington Highway, Route 93, between milepost markers number 13.95 and number 14.21 in Makaha, Waianae District, Oahu, Hawaii.

An archaeological survey has been scheduled to take place between August 22 and August 31, 2005. The purpose for conducting this survey is to assess and ensure against disturbance of significant cultural and archaeological resources that may be discovered within the project limits during construction of the bridge replacements and accessory work.

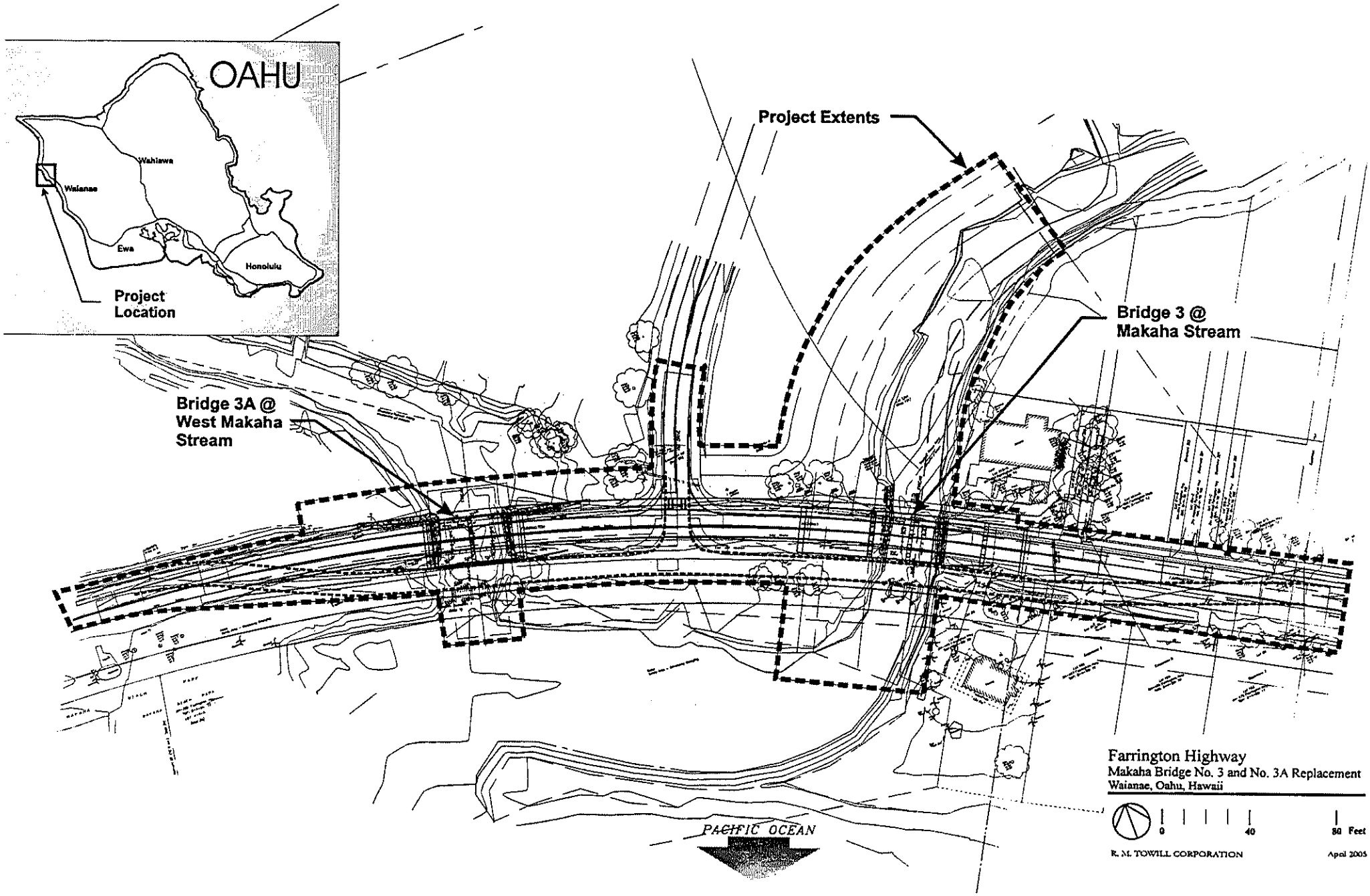
The location of the project site is attached for reference.

All work undertaken for this survey will be in accordance with applicable requirements governing the conduct of archaeological site work. This will include the rules and regulations of the State Historic Preservation Division, Department of Land and Natural Resources; Chapter 6E, Hawaii Revised Statutes; and Section 106 of the National Historic Preservation Act.

QUESTIONS? Please call Brian Takeda, R.M. Towill Corporation at 842-1133. If there are comments please provide them in writing to R.M. Towill Corporation, 420 Waiakamilo Road, Suite 411, Honolulu, Hawaii 96817.

Thank you

Attachment


OAHU
Wahiawa
Waianae
Ewa
Honolulu
Project Location
Project Extents
Bridge 3 @ Makaha Stream
Bridge 3A @ West Makaha Stream
PACIFIC OCEAN
Farrington Highway
Makaha Bridge No. 3 and No. 3A Replacement
Waianae, Oahu, Hawaii
0
40
80 Feet
R. M. TOWILL CORPORATION
April 2005

Makaha Bridges 3 and 3A
LIST OF RECIPIENTS OF PUBLIC NOTIFICATION OF ARCHAEOLOGICAL INVENTORY SURVEY
Mailed on about August 4, 2005

Name	Affiliation
Makaha Ahupua'a Community Assn.	Community Organization
Patricia Anne Likos	Makaha Ahupua'a Community Assn.
Mark Suiso	Makaha Ahupua'a Community Assn.
Phillip Naone	Makaha Canoe Club
Kaleo Patterson	Waianae Protestant Church
Alika Silva	Koa Mana
Glenn Kila	Koa Mana
William Aila, Jr.	Waianae/Makaha Resident
Eric Enos	Waianae/Makaha Resident
Clarence Delude	Waianae/Makaha Resident
Pat Patterson	Waianae/Makaha Resident
Landis Ornellas	Waianae/Makaha Resident
Alice Greenwood	Waianae/Makaha Resident
Maria B. Klausmeyer	Waianae/Makaha Resident
Moana Kea Among	Waianae/Makaha Resident
Ron S. Moore	Waianae/Makaha Resident
Donald H. Denhart	Waianae/Makaha Resident
Katherine F. Denhart	Waianae/Makaha Resident
Sandra H. Denhart	Waianae/Makaha Resident
Elizabeth Winstedt	Waianae/Makaha Resident
Mitchell D. Maxwell	Waianae/Makaha Resident
Greg W. Kowalski	Waianae/Makaha Resident
Robert Neuman	Waianae/Makaha Resident
Keith J. Kohl	Waianae/Makaha Resident
Juliana J. Zhang-Kohl	Waianae/Makaha Resident
Robert C. Palmer	Waianae/Makaha Resident
Jason C. Ellis	Waianae/Makaha Resident
HeatherL. Ellis	Waianae/Makaha Resident
HRT Ltd.	Waianae/Makaha Resident
Tom Lenchanko	Resident
Hanalei Kopfe	Resident
Cynthia Rezentes, Chair	Waianae Neighborhood Board
Georgette Jordan, Boardmember	Waianae Neighborhood Board
Karen Awana, Boardmember	Waianae Neighborhood Board
Todd Apo, Counciman	Honolulu City Council
Colleen Hanabusa, State Senator	State Senate
Maile Shimabukuro, State Representative	State House of Representatives
Nathan Napoka	State Historic Preservation Div., Dept. of Land & Natural Resources
Kana'i Kapeliela	State Historic Preservation Div., Dept. of Land & Natural Resources
Mary Carney	State Historic Preservation Div., Dept. of Land & Natural Resources
Van Horne Diamond	Oahu Island Burial Council
Analu Josephides	Oahu Island Burial Council
Lance Foster	Office of Hawaiian Affairs
Lester K.C. Chang, Director	Dept. of Parks & Recreation

Appendix G

Additional Documentation for Mākaha Bridges Project,
Compilation of Community Correspondence: 2004 - 2005

Community and Related Correspondence Regarding Archaeological and Cultural Concerns
Makaha Bridges No. 3 and 3A Project
Compiled: 2004-2005 (See Attached)

Item No.	Date	To	From	Subject
1	4/1/2004	M. Okamoto, RMTC	M. Okamoto, RMTC	Letter from DLNR, SHPD re Section 106 Consultation
2	5/24/2004	M. Okamoto, RMTC	SHPD	Letter from DLNR, SHPD re Section 106 Consultation
3	1/12/2005	Makaha Ahupuaa Comm Assn	B. Takeda, RMTC	Section 106 Consultation
4	1/13/2005	A. Silva, Koa Mana	B. Takeda, RMTC	Section 106 Consultation w/attachments
5	1/21/2005	B. Takeda, RMTC	A. Silva, Koa Mana	Fax Transmittal
6	4/22/2005	Public Notice of Project	RMTC	Public Notification of Project
7	4/28/2005	Koa Mana	RMTC	Section 106 Consultation-Public Notice
8	4/30/2005	Advertiser Publication	RMTC	Legal Advertisement
9	6/1/2005	B. Takeda, RMTC	A. Silva, Koa Mana	Fax Transmittal w/attachments
10	6/13/2005	A. Silva, Koa Mana	B. Takeda, RMTC	Section 106 Consultation
11	6/14/2005	R. Haraga, DOT	Sen. Akaka	Request for Comments re A. Silva w/attachments
12	6/15/2005	A. Silva, Koa Mana	B. Takeda, RMTC	Section 106 Consultation w/Attachments
13	6/16/2005	B. Takeda, RMTC	A. Silva, Koa Mana	Fax Transmittal
14	7/8/2005	Senator Akaka	R. Haraga, DOT	Response to Ltr. From A. Silva
15	7/13/2005	A. Silva, Koa Mana	B. Takeda, RMTC	Section 106 Consultation, Response to Phone Call 7/13/05, w/Attachments
16	7/13/2005	L. Foster, OHA	B. Takeda, RMTC	Section 106 Consultation
17	8/5/2005	Arch Inventory Public Notice	RMTC	Public Notification of Arch. Inventory Survey
18	8/5/2005	N. Napoka, SHPD	B. Takeda, RMTC	Section 106 Consultation w/OHA response attached
19	8/19/2005	A. Silva, Koa Mana	B. Takeda, RMTC	Section 106 Consultation, Response to Ltr of 8/11/05
20	8/25/2005	B. Takeda, RMTC	A. Silva, Koa Mana	Fax Transmittal
21	8/29/2005	B. Takeda, RMTC	A. Silva, Koa Mana	Fax Transmittal

420 Waiakamilo Road
Suite 411
Honolulu Hawaii 96817-4941
Telephone 808 842 1133
Fax 808 842 1937
eMail rmtowill@i-one.com

R. M. TOWILL CORPORATION
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Surveying
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Facsimile Transmittal

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Date April 1, 2004

Fax Number 692-8020

To Department of Land and Natural Resources
State Historic Preservation Division
Attention: Ms. Holly McEldowney, Administrator

Sent by Mike Okamoto

Subject Farrington Highway, Makaha Bridge 3 and 3A
Replacement F.A.P. No. BR-093-1(20)

RMTC Project Number 1-19969-0E

6 Pages transmitted including this cover sheet

☐ Originals will be mailed

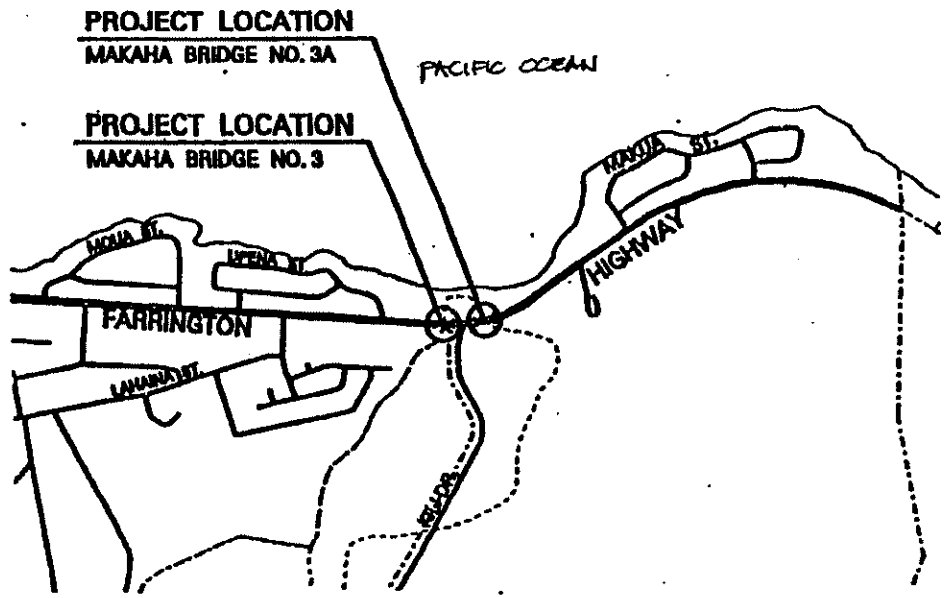
Message

The State Department of Transportation has retained R.M. Towill Corporation as civil engineer for the replacement of Makaha Bridges 3 and 3A. The purpose of the project is to demolish and replace existing bridge structures with new bridge structures that meet or exceed current standards. The project requires construction of detour roads and temporary bridge structures.

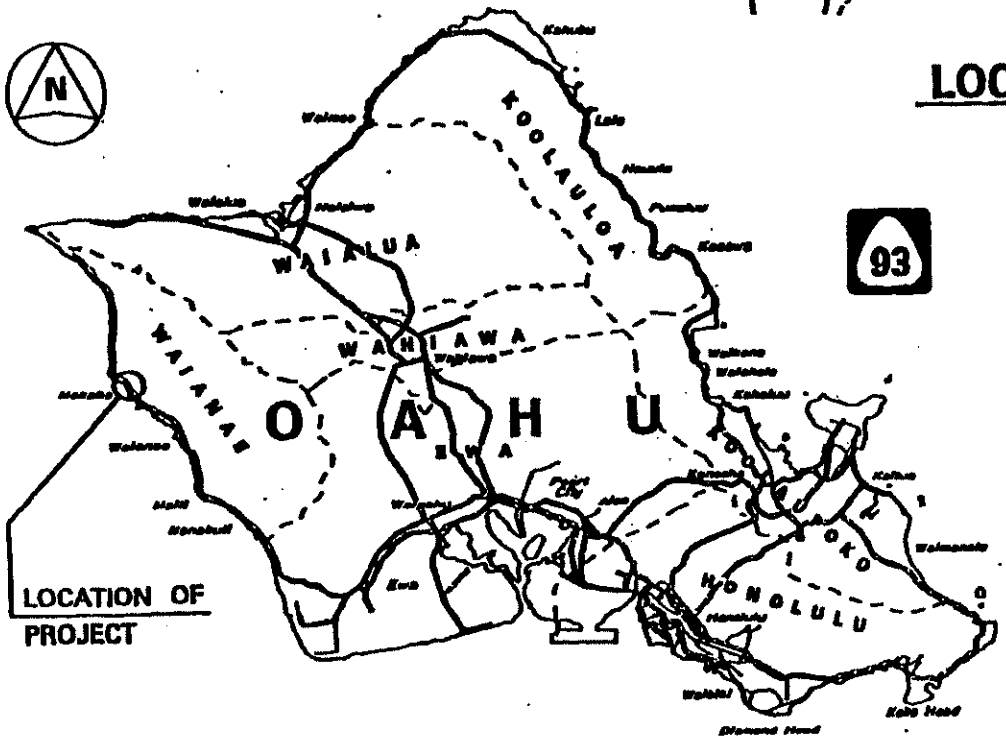
Existing railroad bridge abutments located within the State R/W may conflict with the construction of detour road and temporary bridge structures. Please provide your preliminary comments on the proposed detour road and bridge structures and the significance of the railroad bridge abutments. Please comment if the abutments can be demolished or used for the temporary bridge structures.

If you have any questions, please call me at 748-7478.

The information contained in this facsimile message is privileged and confidential and is intended for the use of the addressee only. If you have received this telefax in error, you are hereby notified that any disclosure, copying, distribution, or taking action on the contents of this telefaxed information is strictly prohibited. It would be appreciated if you will please notify us immediately by telephone in order for us to arrange for the return of the original document.



LOCATION PLAN

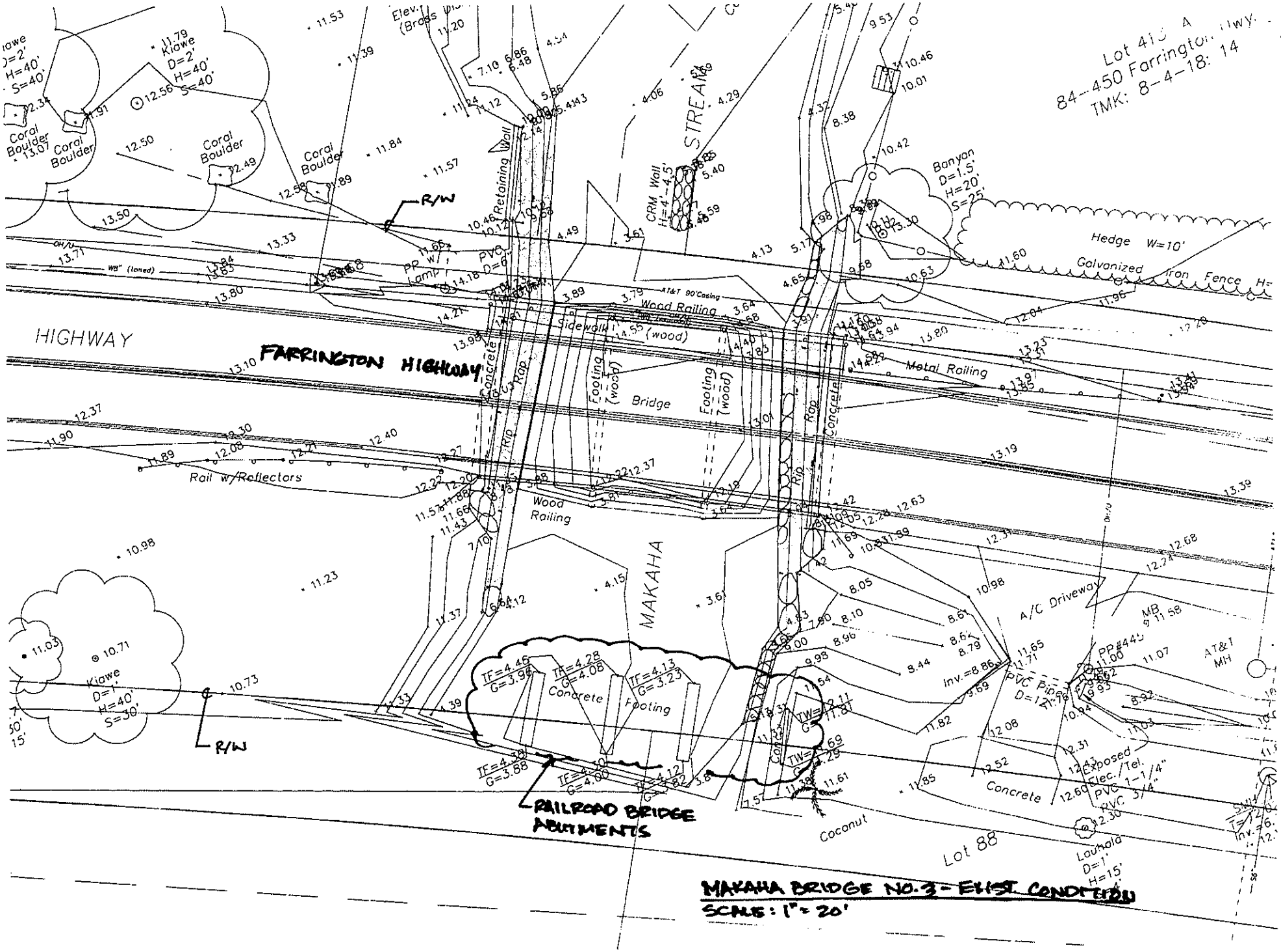


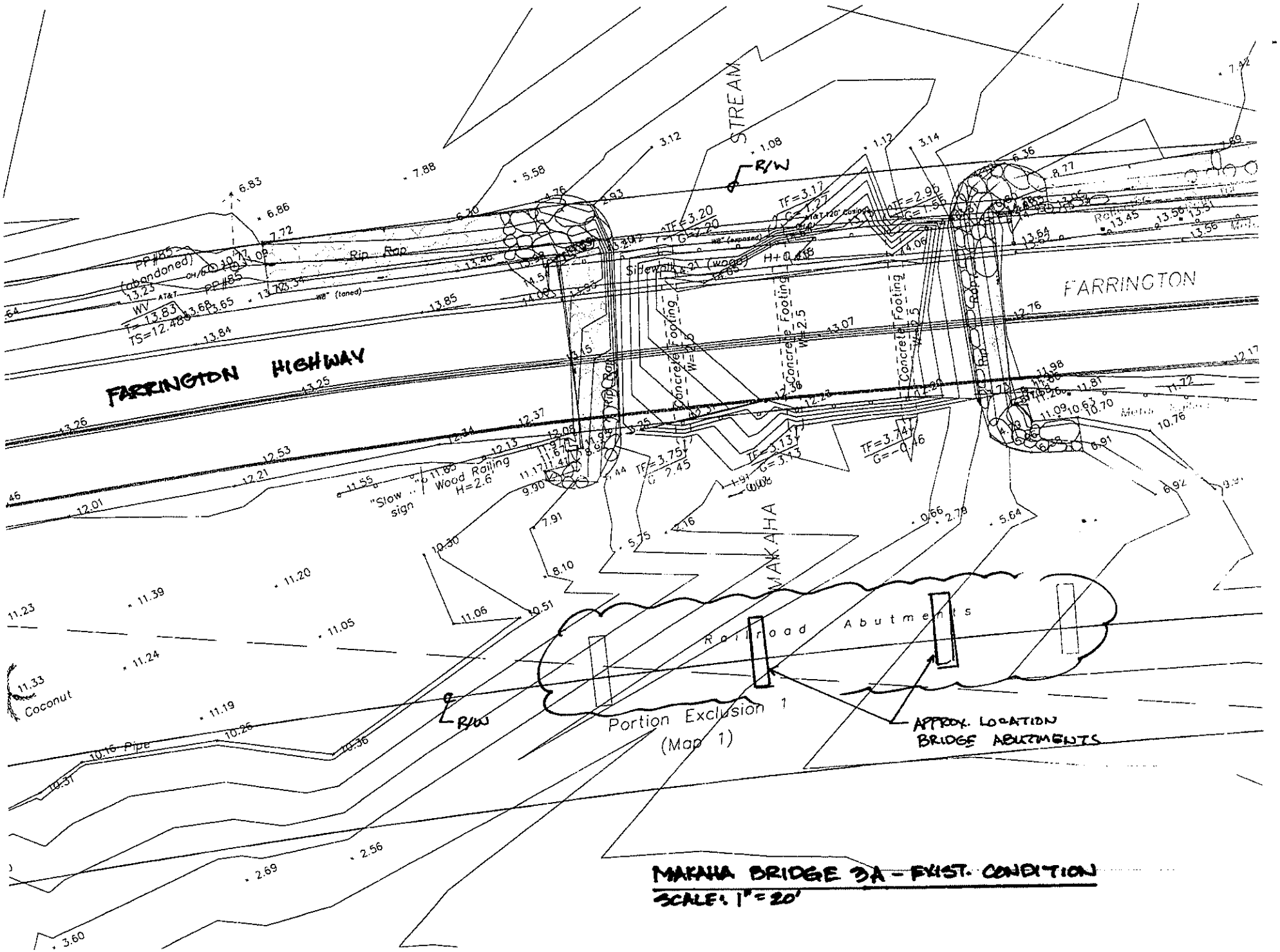
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FARRINGTON HIGHWAY

REPLACEMENT OF MAKAHA BRIDGE NO. 3 AND MAKAHA BRIDGE NO. 3A

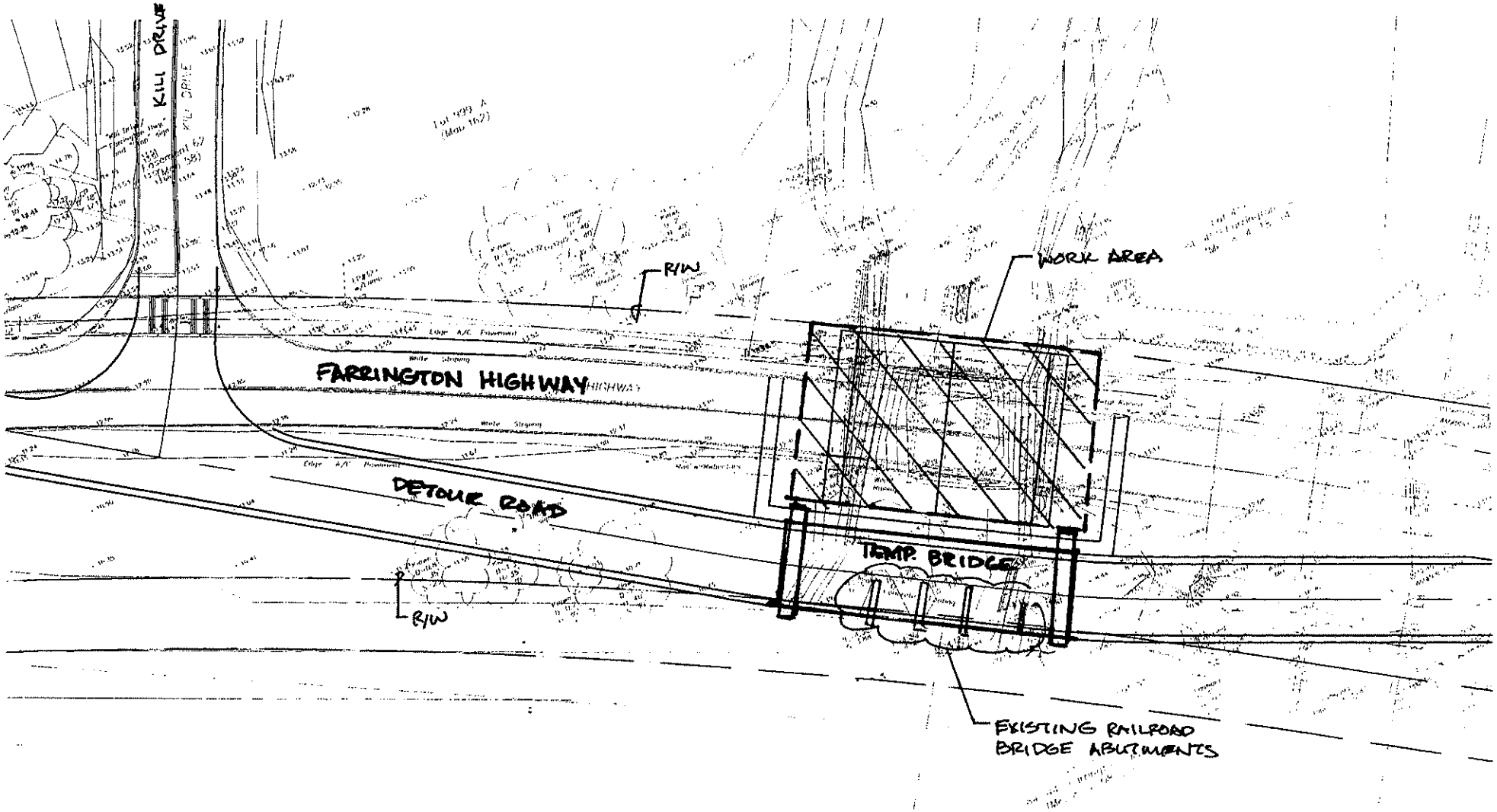
DISTRICT OF WAIANAE
ISLAND OF OAHU


Lot 415 A
84-450 Farrington Hwy.
TMK: 8-4-18: 14
STREAM
MAKAHA
HIGHWAY
FARRINGTON HIGHWAY
Bridge
Sidewalk
Wood Railing
Metal Railing
Hedge W=10'
Galvanized Iron Fence
Banyan D=1.5' H=20' S=25'
Coral Boulder
Kiawe D=2' H=40' S=40'
Retaining Wall
CRM Wall H=4'-4.5'
Concrete Rip Rap
Footing (wood)
Rail w/Reflectors
R/W
A/C Driveway
PVC Pipe
Exposed Elec./Tel. PVC 1-1/4" PVC 3/4"
Concrete Footing
Coconut
Lauhala D=1' H=15'
Lot 88
RAILROAD BRIDGE ABUTMENTS
MAKAHA BRIDGE NO. 3 - EXIST. CONDITION
SCALE: 1" = 20'



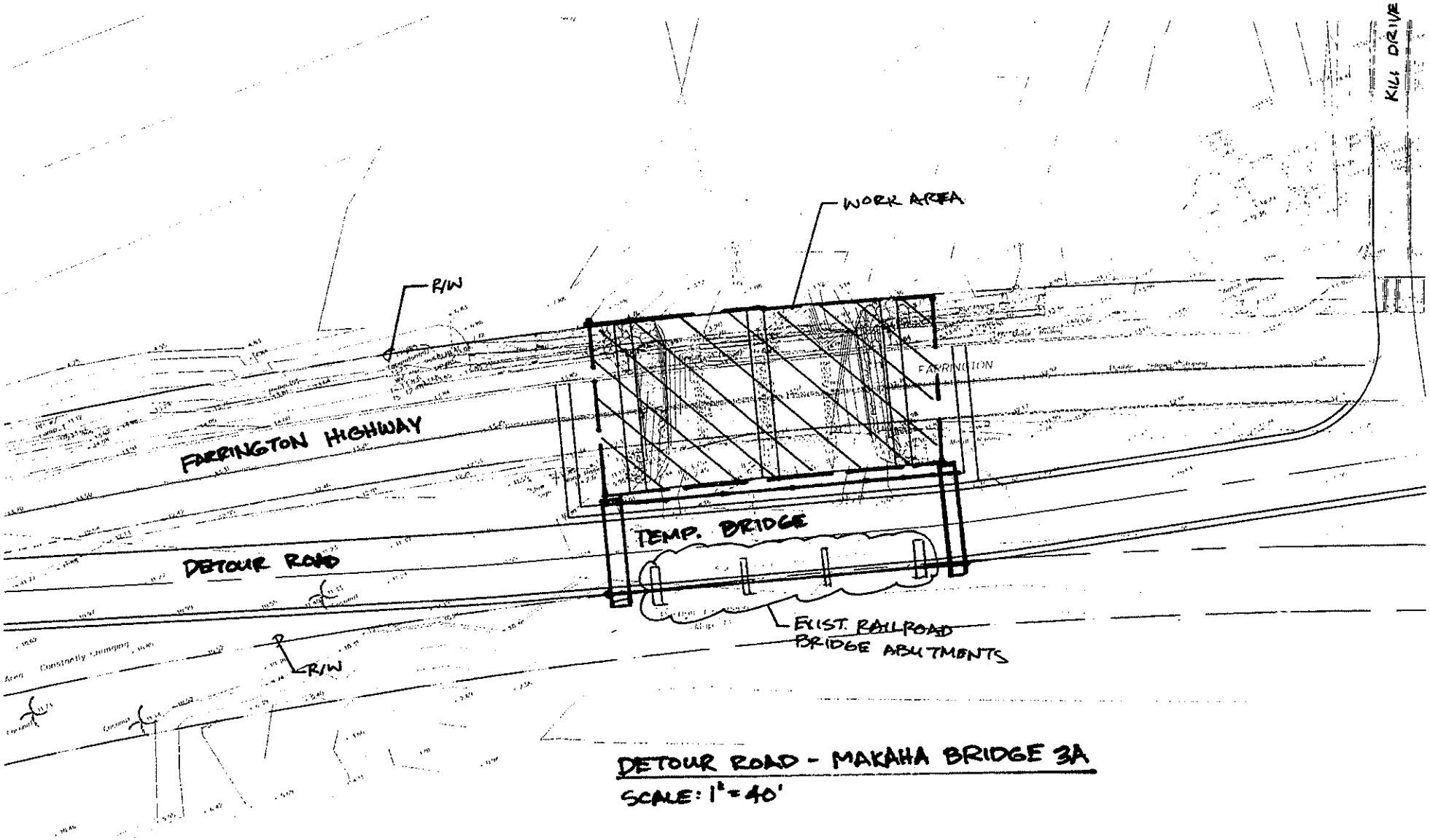
MAKAHA BRIDGE 3A - EXIST. CONDITION

SCALE: 1" = 20'



DETOUR ROAD - MAKAHA BRIDGE 3

SCALE: 1" = 40'



DETOUR ROAD - MAKAHA BRIDGE 3A

SCALE: 1" = 40'

2 cms

2

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

MAY 25 2004

Mike Okamoto
R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

LOG NO: 2004.1370
DOC NO: 0404EJ42

Dear Mr. Okamoto:

SUBJECT: **National Historic Preservation Act, Section 106 Compliance – Review Comments on State of Hawaii Department of Transportation Farrington Highway, Makaha Bridge 3 And 3A Replacement F.A. P. No. BR-093-1(20)**
Makaha, Wai'anae, O'ahu
TMK: (1) 8-4-002

Thank you for the opportunity to provide comment on the replacement of Makaha Bridges 3 and 3A. The State DOT proposes to demolish and replace existing bridge structures with new bridge structures that meet current standards. The project may require construction of detour roads and temporary bridge structures. 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. Judging from the submitted materials, it appears that the proposed actions are Federal undertakings since they will be at least partially funded through the Federal Highways Administration (FHWA). We received notification of this undertaking from your office on April 1, 2004.

Archaeological Comments

A review of our records shows that the remnants of the OR&L are the only known historic sites within the project area. Several archaeological inventory surveys have been conducted in nearby areas. Archaeological investigations conducted for proposed Makaha Beach Park improvements identified a subsurface cultural deposit with an associated fire feature along an erosional cut within the general vicinity but clearly outside the current project area. Archeological inventory survey was also conducted approximately 500 feet *mauka* of the shoreline at the intersection of Kili Drive and Farrington Highway for the proposed Sandwich Isles Fiber Optic Cable Landing. No subsurface cultural deposits were identified during the monitoring of two geotechnical boring excavations on either side of Farrington Highway for this project. The borings on the *mauka* side of the highway were within alluvial soils underlain by hard coral substrate. The *makai* boring soils were comprised of medium dense sand underlain by hard coral formations. Due to the possibility of encountering subsurface cultural deposits or human remains, on-site archaeological monitoring was recommended for all trenching associated with the fiber optic gap areas. A human burial (SIHP 4527) was also recovered near Makau Street to the northwest of the bridges after the remains were exposed in the shoreline by Hurricane Iniki.

Because subsurface cultural deposits may exist within the proposed work areas of the bridge and detour roads, we believe that the proposed undertakings may have an "adverse effect" on significant historic sites. At a minimum, we recommend that archaeological monitoring be conducted for all ground disturbances below existing base course to mitigate any "adverse effect" this project would have on buried subsurface historic sites.

Normally an acceptable monitoring plan would be prepared and submitted to this office for review and acceptance prior to beginning any ground disturbance. An archaeological monitoring plan must contain the following eight specifications: 1) the kinds of remains that are anticipated and where in the construction area the remains are likely to be found; 2) how the expected types of remains will be documented; 3) how the expected types of remains will be treated; 4) the archaeologist conducting the monitoring has the authority to halt construction in the immediate area of a find in order to carry out the plan; 5)a coordination meeting between the archaeologist and construction crew is scheduled, so that the construction team is aware of the plan; 6) what laboratory work will be done on remains that are collected; 7) a schedule for report preparation; and 8) details concerning the archiving of any collections that are made.

Architectural Comments
As a result of your discussion on May 13, 2004 with SHPD staff, Susan Tasaki, we found that there has been no structural analysis of the bridges' performance should there be a 100-year-storm, which was the determining factor for their proposed demolition. Therefore, we request more information on the feasibility of upgrading the bridges to meet current code requirements.

History and Culture Comments
Comments from the History and Culture Branch on any cultural concerns will be forthcoming.

Given the pending status of information on architectural and cultural concerns, it is possible that the responsible Federal agency, in this case FHWA, may determine that the proposed undertakings will have an "adverse effect" and that a Memorandum of Agreement will be needed to stipulate what forms of mitigation will be needed. We recommend that you confer with the State DOT and the FHWA concerning their plans for carrying out compliance with Section 106 of the National Historic Preservation Act.

Should you have any questions about architectural matters including the bridge and railroad bridge abutments etc., please feel free to contact Susan Tasaki at 692-8032 and Nathan Napoka at 587-0192. Should you have any questions about archaeology, please feel free to call Sara Collins at 692-8026 or Elaine Jourdane at 692-8027. Should you have any questions about burial matters please feel free to call Kai Markell at 587-0008. Should you have questions regarding other cultural matters, please feel free to contact Nathan Napoka at 587-0192.

Sincerely,

Peter T. Young
State Historic Preservation Officer

EJ:jen

c: Mr. A. Van Horn Diamond, Chair, O'ahu Island Burial Council
Messrs. Glen Kila & Alika Silva, 85-140 Maiuu Road, Waianae, HI 96792
Mr. Kai Markell, Burial sites Program
Mr. Nathan Napoka, Branch Chief, History and Culture Branch
Ms. Susan Tasaki, Architecture Branch
Ms. Patty Teruya, (Secretary/Treasurer & Planning & Zoning Chair), Waianae Neighborhood Board No. 24, P.O. Box 2308, Waianae, HI 96792
Mr. Abraham Wong, FHWA, Prince Jonah Kuhio Kalanianaole Federal Building, 300 Ala Moana Blvd, Room 3-306, PO Box 50206, Honolulu, HI 96850-3306

3

420 Waiakamilo Road
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eMail: rmtowill@i-one.com

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To:	**Ms. Annie Likos** **Makaha Ahupua'a Community Assn.**	**Sent by:**	**Brian Takeda** **Planning Project Coordinator**
Phone (c):	**282-3224**	**Subject:**	**Makaha Bridges 3 & 3A** **Preliminary Information &** **Section 106 Consultation**
Date:	**January 12, 2005**		

Dear Annie,

Thanks again for discussing this project with me. Per our discussion we would like to conduct geotechnical exploration to assess the soil bearing properties in the area of the two bridges. This information will be used to ensure that the bridge design is safe for the general public. We are also consulting with the community on the geotechnical exploration and the future Makaha Bridges project to help identify any archaeological or cultural concerns that should be addressed as the project is designed and constructed.

Information is attached that will also be forwarded to various members of the Makaha community that have expressed an interest in being consulted. Our current list of community members is preliminary and we are in the process of finding other Native Hawaiian organizations or parties that we should consult as part of the National Historic Preservation Act, Section 106 process. I would like to thank your organization for their assistance with identifying some of the parties which should be contacted.

Attached are the following files in .pdf format:

(1) Overall Plan for Makaha Bridges
(2) Site Map of Locations Planned for the Geotechnical Boring.
(3) An earlier letter from State Historic Preservation Division dated May 25, 2004, in response to our initial inquiry regarding potential archaeological concerns in the area of the project site.

The overall schedule is to conduct the geotechnical boring following our contact and coordination with parties who have an interest. We anticipate this will take approximately 30+ days to complete. The schedule for the design and construction will be determined once we complete our soils testing and consultation with the community.

I hope you will not hesitate to contact me if you have any further comments or questions.

Sincerely,
Brian.

Attachments

4

420 Waiakamilo Road
Suite 411
Honolulu, HI 96817-4941
Tel. 808 842 1133
Fax 808 842 1937
eMail: rmtowill@i-one.com

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To:	**Ms. Alika Silva** **Koa Mana** **85-140 Maiuu Road** **Waianae, Hawaii 96792**	**Sent by:**	**Brian Takeda** **Planning Project Coordinator**
Phone: **Date:**	**696-0041** **January 13, 2005**	**Subject:**	**Makaha Bridges 3 & 3A: Preliminary Information & Section 106 Consultation**

Dear Alika:

Thank you for discussing this project with me over the phone yesterday. Per our discussion we would like to conduct geotechnical exploration to assess the soil bearing properties in the area of the two bridges. This information will be used to ensure that the bridge design is safe for the general public. We are consulting with the community on the geotechnical exploration and the future Makaha Bridges project to help identify any archaeological or cultural concerns that should be addressed as the project is designed and constructed. You have asked us to coordinate the issue of lineal descendancy with the State Historic Preservation Division (SHPD) by requesting that they provide a list of names of persons who are either (1) known lineal descendants or (2) persons who have asked to be listed as a lineal descendent in the project area. Per your request, we will provide you and Mr. Lance Foster, Office of Hawaiian Affairs, with a copy of our transmittal.

You have also asked for a contact person at the State Department of Transportation (DOT) who can be reached regarding this project. The DOT contact person is Mr. Jeffrey Fujimoto, who is at 692-7545.

Attached is the information that will be provided to various members of the Makaha community that have expressed an interest in being consulted:

(1) Overall Plan for Makaha Bridges;
(2) Site Map of Locations Planned for the Geotechnical Boring; and
(3) A letter from SHPD dated May 25, 2004, in response to our initial inquiry regarding potential archaeological concerns in the area of the project site.

Our current list of community members is preliminary and we are in the process of finding other Native Hawaiian organizations or parties that we should consult as part of the National Historic Preservation Act, Section 106 process. We would appreciate your assistance by providing us with any other names and addresses of persons or organizations who you believe should be included in the consultation.

The overall schedule is to conduct the geotechnical boring following our contact and coordination with parties who have an interest. We anticipate this will take approximately 30+ days to complete. The schedule for the design and construction will be determined once we complete our soils testing and consultation with the community.

I hope you will not hesitate to contact me if you have any further comments or questions.

Sincerely,
Brian.

Attachments

cc Mr. Nathan Napoka, SHPD
Mr. Lance Foster, OHA
Mr. Jeffrey Fujimoto, DOT

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
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DEPUTY DIRECTOR - WATER

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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

R-F		BRT	
AYF		NM	
RTT		GHH	
REC'D	DEC 22 2004	RNTC	
JHY		LWL	

December 7, 2004

Ms. Sarah Masciangelo and Dr. Hallett Hammatt
Cultural Surveys Hawaii, Inc.
P.O. Box 1114
Kailua, Hawaii 96734

Log No: 2004.3551
Doc No: 0412SC08

Dear Ms. Masciangelo and Dr. Hammatt:

SUBJECT: National Historic Preservation Act, Section 106 Compliance - Historic Preservation Review of an Archaeological Monitoring Plan for the Proposed Replacement of Mākaha Bridges 3 and 3A Mākaha, Wai`anae District, O`ahu Island TMK: Portions of (1) 8-4-001:012; 8-4-010: 012; 8-4-002:047, 045; 8-4-018: 014, 122, 123; 8-4-008: 018, 019, 020

Thank you for the opportunity to review an archaeological monitoring plan prepared for the proposed replacement of Mākaha Bridges 3 and 3A (Masciangelo & Hammatt. 2004. *Archaeological Monitoring Plan for the Proposed Replacement of Mākaha Bridges 3 and 3A, Mākaha Ahupua`a, Wai`anae District, O`ahu Island Portions of TMK: 8-4-001:012, 8-4-010: 012, 8-4-002:047, 045, 8-4-018:014, 122, 123; 8-4-008:018, 019, 020)*. We received the subject plan on October 22, 2004, and an addendum to the plan that covers some proposed soils testing on November 4, 2004. We provide the following comments.

You have recommended that on-site archaeological monitoring will occur throughout the entire project area during the bridge replacement work and the geotechnical boring work, as covered by the addendum. Treatment of any inadvertently discovered historic sites, including human burials, will occur in accordance with the provisions of Chapter 6E, Hawaii Revised Statutes, and its implementing regulations. We concur with this approach, and we recommend that the subject plan and its addendum be deemed adequate and accepted as final.

The only additional recommendation that we would make is that you work with your clients to ensure that various consulting and interested parties, including representatives of Koa Mana, are provided sufficient notice of any work plans and schedules.

Should you have any questions about archaeological matters, please contact Sara Collins at 692-8026. Should you have any questions about cultural or burial matters, please contact Nathan Napoka, Branch Chief, History and Culture Branch, at 587-0192.

Sincerely,

Peter T. Young, Chairperson and
State Historic Preservation Officer

SC: slc

c: Lucio Badayos, 85-574B Plantation Road, Waianae, HI 96792
A. Van Horn Diamond, Chair, O`ahu Island Burial Council
Glen Kila & Alika Silva, 85-140 Maiuu Road, Waianae, HI 96792
Nathan Napoka, Branch Chief, History and Culture Branch
Bryan Taketa, R.M. Towill Corp., 420 Waiakamilo Road, Suite 411, Honolulu, HI 96817
Abraham Wong, FHWA, Prince Jonah Kuhio Kalanianaole Federal Bldg, 300 Ala Moana Blvd, Room 3-306, P.O. Box 50206, Honolulu, HI 96850-3306

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

MAY 25 2004

LOG NO: 2004.1370
DOC NO: 0404EJ42

Mike Okamoto
R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

Dear Mr. Okamoto:

SUBJECT: **National Historic Preservation Act, Section 106 Compliance – Review Comments on State of Hawaii Department of Transportation Farrington Highway, Makaha Bridge 3 And 3A Replacement F.A. P. No. BR-093-1(20)**
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TMK: (1) 8-4-002

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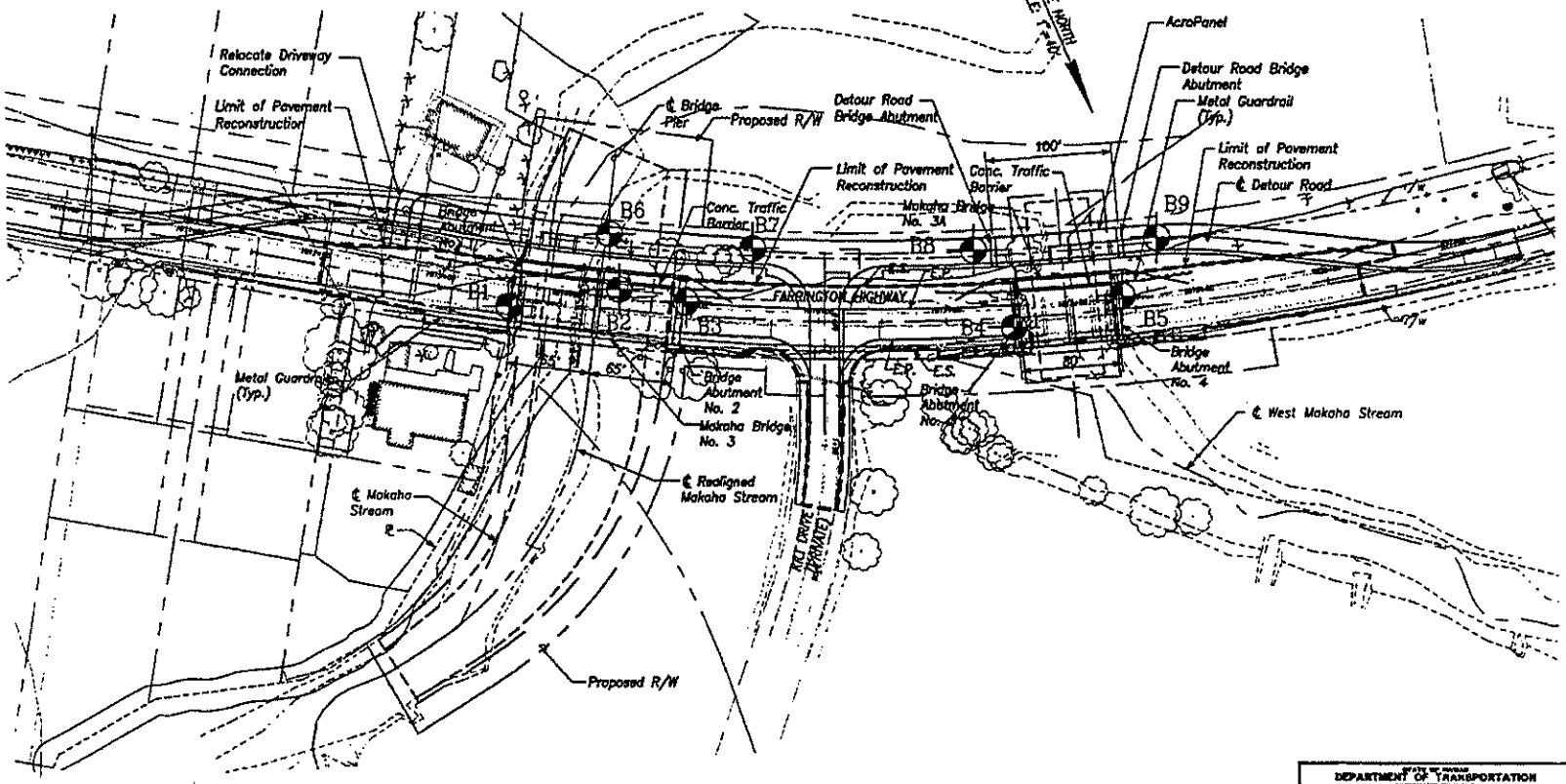
Sincerely,

Peter T. Young
State Historic Preservation Officer

EJ:jen

c: Mr. A. Van Horn Diamond, Chair, O'ahu Island Burial Council
Messrs. Glen Kila & Alika Silva, 85-140 Maiuu Road, Waianae, HI 96792
Mr. Kai Markell, Burial sites Program
Mr. Nathan Napoka, Branch Chief, History and Culture Branch
Ms. Susan Tasaki, Architecture Branch
Ms. Patty Teruya, (Secretary/Treasurer & Planning & Zoning Chair), Waianae Neighborhood Board No. 24, P.O. Box 2308, Waianae, HI 96792
Mr. Abraham Wong, FHWA, Prince Jonah Kuhio Kalanianaole Federal Building, 300 Ala Moana Blvd, Room 3-306, PO Box 50206, Honolulu, HI 96850-3306

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(20)	2004		*



Proposed boring lcoations

8/16/04

SITE PLAN

GRAPHIC SCALE

1" = 40'

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE — April 30, 2004 EXPIRATION DATE OF THE LICENSE

DEPARTMENT OF TRANSPORTATION

SITE PLAN

FARRINGTON HIGHWAY

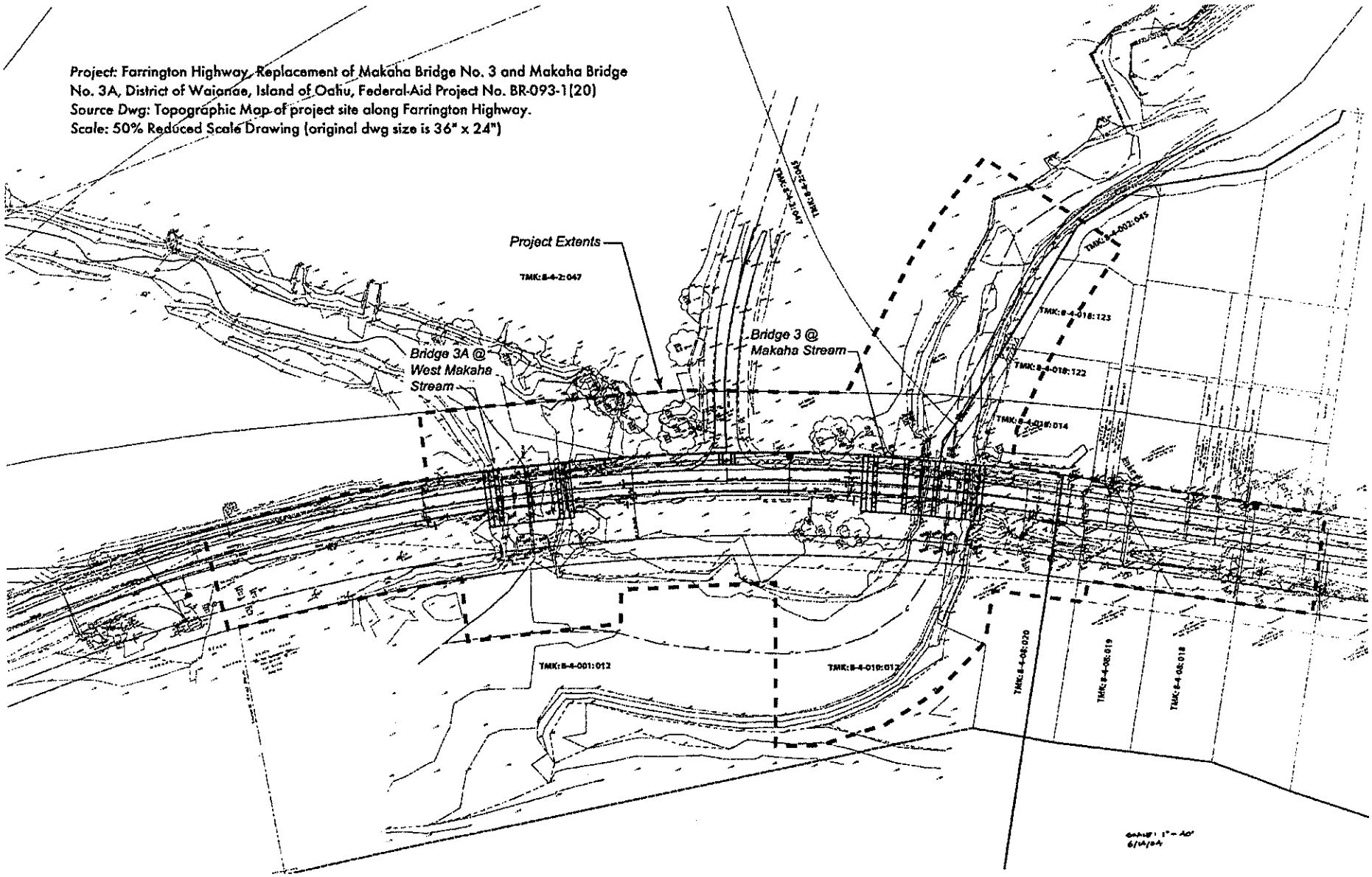
Replacement of Makaha Bridge No. 3 and Makaha Bridge 3A

F. A. Project No. BR-093-1(20)

Scale 1" = 40' Date: March 31, 2004

SHEET No. C-* OF ** SHEETS

Project: Farrington Highway, Replacement of Makaha Bridge No. 3 and Makaha Bridge No. 3A, District of Waianae, Island of Oahu, Federal-Aid Project No. BR-093-1(20)
Source Dwg: Topographic Map of project site along Farrington Highway.
Scale: 50% Reduced Scale Drawing (original dwg size is 36" x 24")



Brian Taketa
Planning Project Coordinator
R M Towill

January 21, 2005

Re: SHPD recording and establishing **site interpretations** without **substantive consultation** with lineal descendants, Koa Mana's concern for TCP in the Makaha Bridge area, and concerns for the **observance** of the State Audit (Report No. 04-15) and under Chapters 6E, 6E-2, 6E-3.3, 6E- 4, HRS and Chapters 13-300, 13-300-4, 13-300-28(b), 13-300-31(c), 13-300-31(d), 13-300-31(f), 13-300-32(c) and 13-300-35 (f) HAR.

Dear Brian:

Thank you for addressing our concerns regarding our family burial grounds. **Previously**, SHPD's staffers and archaeologist have been determining and recommending what is culturally sensitive and what is to be recorded for cultural interpretation of sites. This was done without the input of lineal descendants and Koa Mana's MOA. In a resent audit dated December 2004, the office of the Auditor determined that the DLNR/SHPD's approach to the trusteeship of iwi kupuna was "**haphazard, disorderly, completely lacking... inadequate and culturally insensitive...**" The audit report also noted a heavy reliance by the SHPD on western methods of site identification to the **detriment of the Hawaiian culture and native people**. In summary the State Audit found:

- State and **Federal** laws recognized the reverence paid by native Hawaiians to remains of ancestors;
- Families are kept waiting for determinations of **lineal** or cultural recognition;
- A **haphazard** approach to the trusteeship and the respectful disposition of families iwi kupuna; and
- **Oral traditions** are vital to the Hawaiian culture and should be valued in this process.

We recommend SHPD give equal, or greater weight to lineal descendants regarding cultural interpretation as the substance, significant and spiritual relationship of any one individual, family or families of lineal descent to a site or feature that is often greater than its physical characteristics. **Determining** these cultural aspects of a site, feature or area in context of foreign activities and projects is the **significant and important role of lineal descendant cultural monitors for cultural interpretation and preservation.**

Understandingly, SHPD's previous recommendations to Towill were flawed, as the audit gives opportunity to inform and consult with known lineal descendants for **substantive** consultation and cultural **interpretation.** You also expressed how Alani Apio of the BWS wanted the Makaha Ahupuaa, a non-Hawaiian organization to determine the sensitivity of the area. As I stated, Apio and his Ahupuaa group do not represent our lineal descendant families, for they have no history to this area and has deliberately ignored state laws and statues that resulted in desecration of family burials and TCP, such as Kaneikapualena Heiau. Apio and the BWS are liable for deliberate damages to Hawaiian burials and nationally registered historic sites, and the BWS for deliberately destroying wetlands in Kamaile, Waianae.

We again request that you review the State Audit and contact the new SHPD Administrator. Please inform us of what sites or features are marked sensitive in your project area and your plans for using lineal descendant cultural monitors in known burial grounds. Mahalo.

Sincerely submitted,

Alika Silva

Alika Silva, Kahu Kulaiwi, Koa Mana, Kupukaaina, Waianae Moku, Oahu
Mailing Address 85-140 Maiuu Rd, Waianae, HI 96792 Phone: 696-0041

cc. Tom Lenchanko, Aha Kukaniloko and Kahunana, spokesperson
Dexter Kaiama, Attorney at law
Lance Foster, OHA Director of Native Rights Land and Culture
Glen Kila, Waianae Neighborhood Board Representative

6

Farrington Highway

Makaha Bridge No. 3 and No. 3A Replacements
Federal Aid Project No. BR-093-1(20)

Notice of Proposed Project

The State Department of Transportation - Highways Division (DOTH) is proposing to replace two timber bridges (Nos. 3 and 3A) along Farrington Highway, Route 93, between milepost markers number 13.95 and number 14.21 in Makaha, Waianae District, Oahu, Hawaii.

Work associated with this project will involve geotechnical boring to look at the underlying substrate, demolition of the existing bridges and construction of the replacement bridges.

The purpose for replacing these two existing bridges is to construct new bridges that meet or exceed the current design standards set by the American Association of State Highway and Transportation Officials (AASHTO), Federal Highway Administration (FHWA), and State Department of Transportation (DOT).

The geotechnical boring will be done using a drill rig mounted on a flatbed truck. On difficult terrain, the rig may be transported to the boring site by an all-terrain vehicle (ATV). Drilling depth will be between 10 and 75 feet from grade. The proposed geotechnical work will take approximately two (2) weeks to complete.

Demolition and reconstruction of the bridges will require a detour road to be constructed around the project site. Traffic controls and flagmen will be used to maintain safety. A water truck will be used on-site to control fugitive dust.

The existing timber bridges were originally constructed in 1937. The replacement of the nearly 70 year old structures with bridges constructed of concrete and steel will:

- Improve protection and safety of the traveling public;
- Provide improved drainage and increase safety of the structures by raising the bridges above the 100 year flood flow;
- Reduce the potential for increased maintenance costs associated with wooden structures; and,
- Permit installation of improvements to meet requirements of AASHTO, FHWA, and DOT.

The geotechnical boring is tentatively scheduled to being the week of May 23rd. Construction of the project is scheduled to begin in 2006 and last approximately 12 months.

Notification concerning potential burials along the the proposed project alignment will also be published in the Honolulu Advertiser and the Westside Stories.

QUESTIONS? Please call Mr. Emilio Barroga, P.E., DOT at 692-7546, or Brian Takeda, R.M. Towill Corporation at 842-1133. If there are comments please provide them in writing to R.M. Towill Corporation, 420 Waiakamilo Road, Suite 411, Honolulu, Hawaii 96817.

Thank you

R. M. TOWILL CORPORATIO
SINCE 1930
420 Waiakamilo Road Suite 411 Honolulu HI 96817-49

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$4.420 N METER
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U.S. POSTAGE

UNCLAIMED

Mr. Alika Silva
Koa Mana
85-140 Maiuu Road
Waianae, Hawaii 96792

1st NOTICE LN 4/28
2nd NOTICE 5/13
RETURNED 5/18

96792-2125

R. M. TOWILL CORPORATIO
SINCE 1930
420 Waiakamilo Road Suite 411 Honolulu HI 96817-45

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U.S. POSTAGE

UNCLAIMED

Mr. Glenn Kila
Koa Mana
85-140 Maiuu Road
Waianae, Hawaii 96792

1st NOTICE LN 4/28
2nd NOTICE 5-4
RETURNED 5/13

96792-2125

Farrington Highway

Makaha Bridge No. 3 and No. 3A Replacements
Federal Aid Project No. BR-093-1(20)

Notice of Proposed Project

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The geotechnical boring is tentatively scheduled to being the week of May 23rd. Construction of the project is scheduled to begin in 2006 and last approximately 12 months.

Notification concerning potential burials along the the proposed project alignment will also be published in the Honolulu Advertiser and the Westside Stories.

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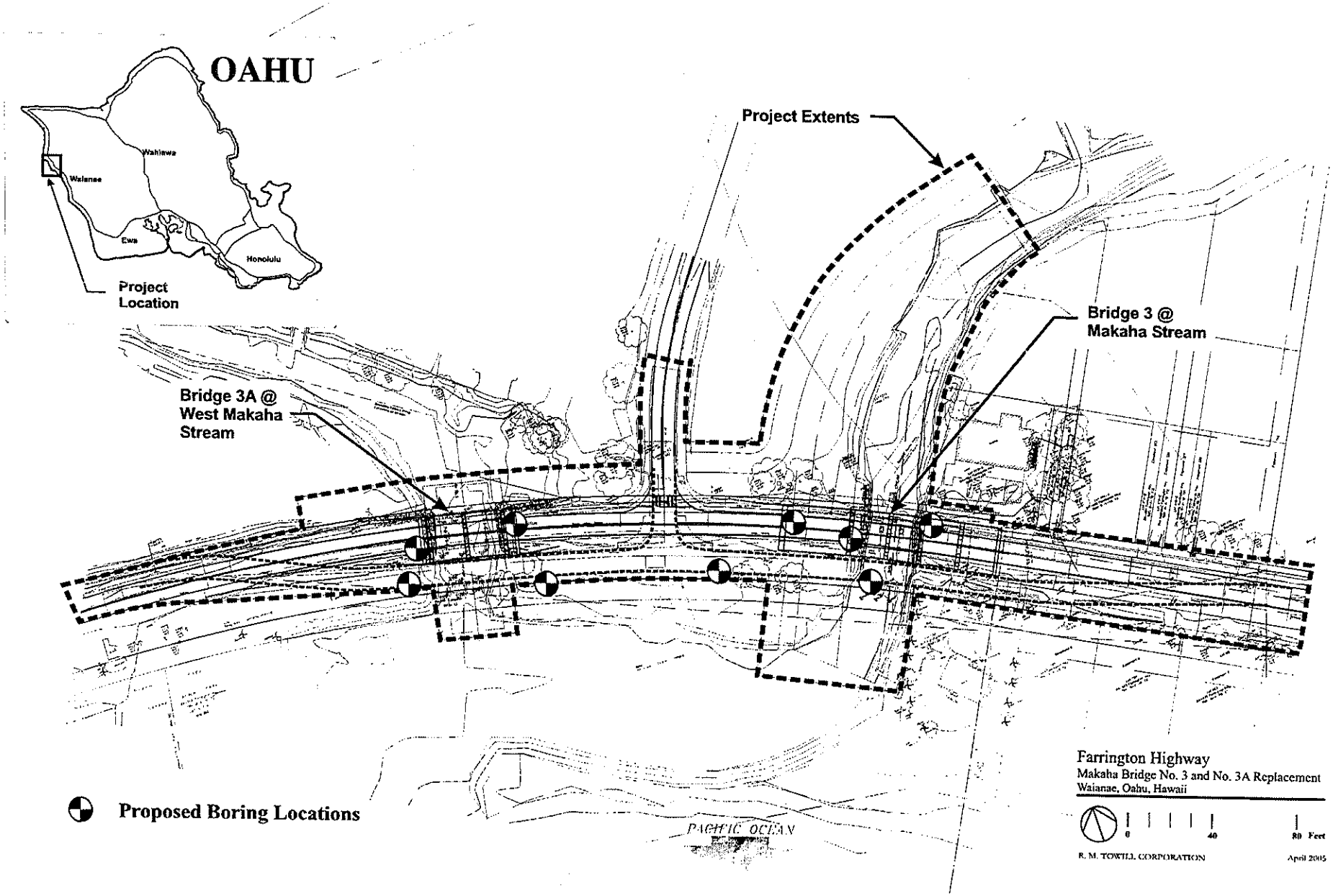
Thank you


OAHU
Wahiawa
Waianae
Ewa
Honolulu
Project Location
Project Extents
Bridge 3 @ Makaha Stream
Bridge 3A @ West Makaha Stream
Proposed Boring Locations
PACIFIC OCEAN
Farrington Highway
Makaha Bridge No. 3 and No. 3A Replacement
Waianae, Oahu, Hawaii
0
40
80 Feet
R. M. TOWILL CORPORATION
April 2005

8

The Honolulu Advertiser

CLASSIFIED ADVERTISING

X-AD

Printed by: 132Theresa
at: 3:53 pm
on: Thursday, Apr 28, 2005

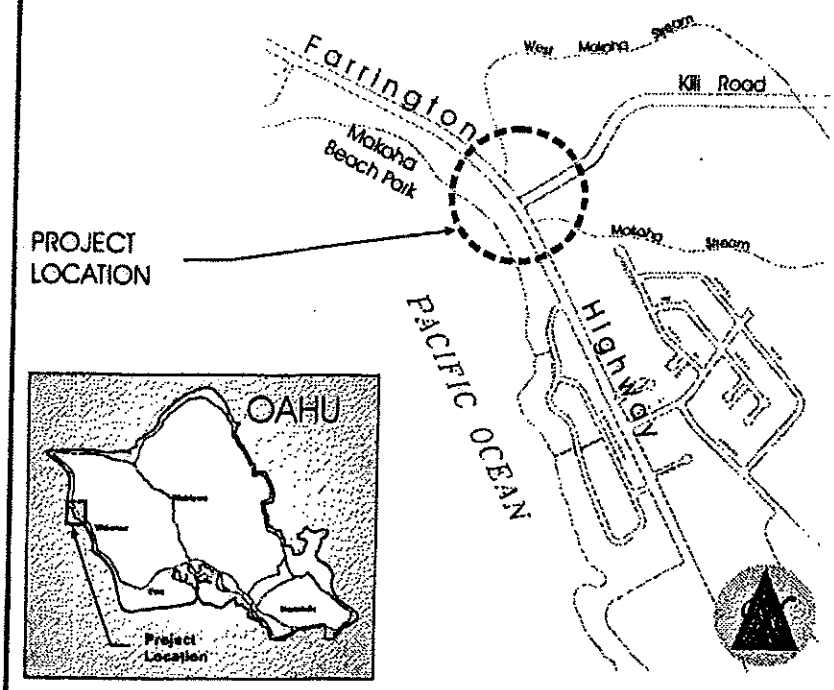
Ad Taker: Oyama, Theresa

PLEASE NOTE - SIZE:
_____ Column(s) Wide
X
_____ Inches Deep

Ad #: 85403
Classification: 005000 - Legal Ads
Ad Start: Saturday, 04-30-05

Advertiser Name: R M TOWILL CORP
Total # of Insertions: 1
Ad Stop: Saturday, 04-30-05

Ad Copy:



PUBLIC NOTICE

Pursuant to Section 106, National Historic Preservation Act Consultation and Chapter 343, Hawaii Revised Statutes

The State Department of Transportation - Highways Division (DOTH) is proposing to replace two timber bridges (nos. 3 and 3A) along Farrington Highway, Route 93, between milepost markers number 13.95 and number 14.21 in Makaha, Waianae District, Oahu, Hawaii.

The work associated with the project will involve geotechnical boring to look at the underlying substrate, demolition of the existing bridges and construction of the replacement bridges. The geotechnical boring is scheduled for the week of May 23rd and will last about 2 weeks. Construction of the project is scheduled to begin in 2006 and last approximately 12 months.

All persons having information about possible burial or important cultural sites within the proposed project extent are hereby requested to submit written information to the State Historic Preservation Division, Department of Land and Natural Resources, 601 Kamokila Blvd., Kapolei, HI 96707 at (808) 692-8027; Mr. Emilio Barroga, (DOTH - Design Branch, 601 Kamokila Boulevard, Room 688 Kapolei, HI 96707) at (808) 692-7546; or Brian Takeda (R.M. Towill Corporation) at 842-1133. Note: If your written information is confidential, please submit it to the State Historic Preservation Division.

Written information on possible sites within the project area must be received no later than May 18, 2005.

(Hon. Adv.: Apr. 30, 2005) (A-85403)

9

ATTN: Brian Takeda

FAX: 1 page + cover sht.

From: Alika Poe Silva, Koa Mana

Date: June 1, 2005

Re: Concerns for Religious temple and burial sites

Mahalo Brian

Alika, Koa Mana

Brian Takeda
R.M. Towill Corp. 8421133

June 1, 2005

Re: Our meeting at Makaha Bridges on May 31, 2005, was arranged for consultation for the Poe/Silva Ohana and Koa Mana (lineal descendants of the area). Our religious temples, Ka'anani'au and burial sites as well as erosion issues were strongly requested to be protected. Monitoring of our sacred sites under section 106, Chapters 6-E and 13-300 Shall be included in your Makaha Bridges Project

Dear Brian Takeda:

Thank you for meeting with us at the Makaha Bridges to discuss our concerns. We felt harassed and violated by you inviting Mr. Aila to our family arranged meeting. We called this meeting in good faith between our ohana representatives and your Corp. on behalf of (DOTH) and we were disappointed in your decision, it frustrated the purpose of the meeting. Again, we had to request to you to maintain our rights for confidential meetings with lineal descendants regarding genealogy and religious ties to temples and burial sites that are at Kahaloko Makaha and are now in (DOTH) Bridges Replacement Project area.

According to the Hawaii Supreme Court, the State of Hawaii in the KA-PA'AKAI Decision, held that the State and its sub-agencies Shall: 1) Identify resources and practices in the project area; 2) Identify how they will be impacted; 3) Identify how to mitigate the impacts by the project.

Our family officially puts you on **NOTICE** for Preservation and recommends the following:
.Adherence to KA-PA'AKAI ruling and require on site cultural monitoring for Makaha Bridges Project;
.Koa Mana and our family have requested cultural sensitivity, consultation Mtg. for Makaha Bridges Project;
.We reviewed maps (Jackson1884, Cordy 1850) and documents written in Hawaiian by our tutu(s);
.We marked on your map, concerning adverse impacts to our temple (Kaananiau) and burial sites;
.We shared genealogy documents (confidentially) of Poe, Kupihea ties to Makaha Bridges area;
.We strongly requested R.M. Towill/Takeda, to protect our known religious sites and temples (Kaananiau), and to follow the preservation laws and statutes of Section 106 and State of Hawaii Constitution, Article 12 section 7, states that the State and sub-agencies Shall Protect all Rights and Practices customarily and traditionally exercised for subsistence, cultural and **religious** purposes possessed by Ahupuaa Tenants' who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778... this means the state shall protect Ahupuaa Tenants' "**religious rights**", and burials sites protected under Chapters 6-E HRS. and 13-300 HAR.;
.Follow-up meetings and monitoring of adverse affects by geo-boring/construction, concerning sacred sites; and
.Adherence to our MOA made with SHPD and Koa Mana in (Sept. 2001) regarding TCP Preservation.

We discussed and summarized as you ran through Section 106 requirements. You stated you had to address several points regarding a federal and state undertaking. Also we request **clarification** of Section 106 regarding clear protection for sacred sites. The **Notice above** requires on site review by an archaeologist and a **cultural monitor of lineal descent**. Cultural Monitoring of our religious temple (Kaananiau), burial sites and sustenance zones (Kahaloko) will produce a better out come for sacred sites preservation. Regarding the review of circa map1855-1884 (Jackson) and (Cordy) 1820-1850 and Tutu Kahaleula and Tutu Poe Hawaiian written language documents clearly identifies and connects ohana Poe, Kupihea, and Koa Mana to Kahaloko Makaha in your Project area. Also, after reviewing my genealogy documents and ties to these sites, you excepted my lineal ties to Kahaloko Makaha and requested for us to continue this consultation process.

We thank you again for your assistance in matters of protecting our religion, temples, burials and national treasures. We await your response. Mahalo.

Sincerely,
Alika Silva 6/1/05
Alika Silva, Kahu Kulaiwi, Koa Mana, Kupukaaina o Waianae Moku, O'ahu
c. Emilio Barroga, P.E., DOT at 692-7546
Tom Lenchanko, Kahu kolaila and spokesperson Aha Kukaniloko and Kahunana
Lance Foster, OHA Director of Native Rights land and Culture
Victor Kila, Kahu, Koa Mana, Kupukaaina o Waianae Moku, O'ahu

Brian Taketa
Planning Project Coordinator
R M Towill

January 21, 2005

Re: SHPD recording and establishing **site interpretations** without **substantive consultation** with lineal descendants, Koa Mana's concern for TCP in the Makaha Bridge area, and concerns for the **observance** of the State Audit (Report No. 04-15) and under Chapters 6E, 6E-2, 6E-3.3, 6E- 4, HRS and Chapters 13-300, 13-300-4, 13-300-28(b), 13-300-31(c), 13-300-31(d), 13-300-31(f), 13-300-32(c) and 13-300-35 (f) HAR.

Dear Brian:

Thank you for addressing our concerns regarding our family burial grounds. **Previously**, SHPD's staffers and archaeologist have been determining and recommending what is culturally sensitive and what is to be recorded for cultural interpretation of sites. This was done without the input of lineal descendants and Koa Mana's MOA. In a resent audit dated December 2004, the office of the Auditor determined that the DLNR/SHPD's approach to the trusteeship of iwi kupuna was "**haphazard, disorderly, completely lacking... inadequate** and **culturally insensitive...**" The audit report also noted a heavy reliance by the SHPD on western methods of site identification to the **detriment of the Hawaiian culture and native people**. In summary the State Audit found:

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Understandingly, SHPD's previous recommendations to Towill were flawed, as the audit gives opportunity to inform and consult with known lineal descendants for **substantive** consultation and cultural **interpretation.** You also expressed how Alani Apio of the BWS wanted the Makaha Ahupuaa, a non-Hawaiian organization to determine the sensitivity of the area. As I stated, Apio and his Ahupuaa group do not represent our lineal descendant families, for they have no history to this area and has deliberately ignored state laws and statues that resulted in desecration of family burials and TCP, such as Kaneikapualena Heiau. Apio and the BWS are liable for deliberate damages to Hawaiian burials and nationally registered historic sites, and the BWS for deliberately destroying wetlands in Kamaile, Waianae.

We again request that you review the State Audit and contact the new SHPD Administrator. Please inform us of what sites or features are marked sensitive in your project area and your plans for using lineal descendant cultural monitors in known burial grounds. Mahalo.

Sincerely submitted,

Alika Silva

Alika Silva, Kahu Kulaiwi, Koa Mana, Kupukaaina, Waianae Moku, Oahu
Mailing Address 85-140 Maiuu Rd, Waianae, HI 96792 Phone: 696-0041

cc. Tom Lenchanko, Aha Kukaniloko and Kahunana, spokesperson
Dexter Kaiama, Attorney at law
Lance Foster, OHA Director of Native Rights Land and Culture
Glen Kila, Waianae Neighborhood Board Representative

Melanie Chinen
Administrator, SHPD

December 24, 2004

Re: Potential adverse affects to family burial grounds, by Replacement of Makaha Bridges 3, 3A and other projects in the area. Concerns that the SHPD will honor our MOA and concerns under HAR Chapter 13-300-28, 13-300-31(f), 13-300-35 and HRS Chapter 6E-2, 6E-3.3

Dear Melanie:

Thank you for your assistance in these matters regarding potential adverse affects to family burial grounds in Makaha, Waianae Moku. We are concerned that the Board of Water Supply 8" Main Makau Street and Farrington Highway, Sandwich Isles Fiber Optic Farrington Highway and FHWA Makaha Bridges Replacement 3 and 3A projects will have an adverse affect to our TCP.

Waves from the last two hurricanes and intermittent rainstorms have caused burials to be eroded out of the sand dunes and riverbanks at the two Makaha bridges and in other near sites such as Makau Street. Also, we are concerned regarding several burial caves on Holt Street and Lawai'a Street.

We are asking you to recommend to the FHWA, BWS and Sandwich Isles Comm. SIC, and other developers to utilize Cultural Monitoring as an **additional level** of protection and preservation in these known, significant and Traditional Cultural Properties TCP. We also propose meeting with you and all three developers at the same time if necessary to ramp-up safeguards and minimize adverse impacts in known kulaiwi (family burials). Alterations by construction will have an adverse affect and to minimized those impacts, **you could recommend and advise the following:**

- Additional level of protection for culturally sensitive sites by using a Cultural Monitor;
- Having Cultural Monitoring early on site, during all sub-testing, and reviewing of plans;
- Contractor(s) managers prepare a construction "Best Management Practices Plan";
- Recognize & consult with Koa Mana about lineal tie sensitivity, resources preservation; and
- Check SHPD records, data on reported and returned iwi to Koa Mana 1982 & 92 hurricanes

We are also asking **you** and the SHPD to **honor** our Memorandum Of Agreement (**MOA**) made in September 2001with then Admin. Dr. Don Hibbard, regarding protection and preservation of sacred sites TCP of Koa Mana, and especially give more support to multiple pressured sites such as this. Kahaloko is the correct place name that signifies the exits and entrance gates of the fishpond with a Ka'anani'au altar marker connecting off shore and deep sea resources to our PohakuoKane and fishponds as one complex. We have lineal ties and are very concerned about cultural sensitivity and native natural resources in this area. Our tutu Harry Poe requested sensitivity to McAllister (1930), Place Names (1954), and also Aunty Lei Fernandez in (1978) Ho'ohana E'ala project 0-597 requesting preservation. Our tutu mo'olelo have stated, and we their descendants in (2004) are saying these sacred sites require protection and preservation for generations yet to be born.

We **thank you** again for your assistance regarding the protection and preservation of our families' MOA and TCP. Please schedule a meeting to resolve these burial concerns. Mahalo nui. Akua lako.

Sincerely,

Alika Silva

Alika Silva, Kahu Kulaiwi, Koa Mana, Kupukaaina Poe and Kahale Ohana, Waianae Moku, Oahu

Glen Kele, Kahu Kulaiwi, Koa Mana

c: Tom Lenchanko, Kahu ko laila Kukaniloko, Kupukaaina Unukahi Ohana, Waianae Moku, Oahu
Lance Foster, OHA Director of Native Rights Land and Culture

10

420 Waiakamilo Road
Suite 411
Honolulu, HI 96817-4941
Tel. 808 842 1133
Fax 808 842 1937
eMail: rmtowill@i-one.com

R. M. TOWILL CORPORATION
SINCE 1930

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Surveying
Construction Management

Please contact our office at 842-1133 should problems occur with transmission or receipt of facsimile documents.

To:	**Mr. Alika Silva** **Koa Mana** **85-140 Maiuu Road** **Waianae, Hawaii 96792**	**Sent by:**	**Brian Takeda** **Planning Project Coordinator**
Phone/ Facsimile:	**696-0041**	**Subject:**	**Phone Call on July 12, 2005 Regarding Section 106 Consultation for Mākaha Bridge No. 3 and No. 3A Replacements Federal Aid Project No. BR-093-1(20)**
Date:	**July 13, 2005**		

Dear Mr. Silva:

This is in response to your phone message on July 12, 2005. I returned your call at 2:30 PM the same day and waited for approximately 10 to 12 rings before hanging up since there was no answering machine to leave a message for you. I am sorry I missed your call but wish to respond to your comments concerning: (1) you have not heard from us since our site visit with you on May 31, 2005; (2) you are asking us to cease work on this project stating that we are desecrating your ancestral and religious lands; and (3) you wish to be provided with an update concerning the project.

1. Follow-up Concerning May 31st Site Visit

On June 17, 2005 we mailed a certified letter to you dated June 15, 2005, in follow-up to our May 31st meeting. This letter and its attachments are again attached to this correspondence. We have been advised by the U.S. Postal Service that they will make one attempt to deliver a letter that has been sent by certified mail. If no one is there to receive the mail the Post Office will leave two 10-day notices that a letter is waiting for you at the Post Office for pick-up. After a total of 20-days if the letter has still not been picked-up it will be returned to the sender. Because you have indicated that you have not received any of the correspondence that we have mailed to you, we will do the following for future correspondence:

A. Mail one copy of the correspondence by regular mail;
B. Mail one copy of the correspondence by certified mail; and
C. Fax a copy of the correspondence to you at the phone number you have provided as 696-0041.

2. Request for Cessation of Work

We are sorry that you have decided to request a stoppage of work and understand that you are opposed to any work on this project unless your services are used as a cultural monitor. We hope you will review the letter dated June 15, 2005 (attached), which we prepared for you in coordination with the State Department of Transportation and the Federal Highway Administration.

Regarding the recently completed geotechnical exploration of the site, we note that the work undertaken involved archaeological monitoring that was reviewed and approved by the State

Historic Preservation Division (SHPD) prior to start-up. No Iwi or human remains were discovered during the course of the soils sampling.

3. Update Concerning Future Project Activities
As noted in our June letter the design and environmental documents are currently being prepared for this project. We have also advised you that an archaeological inventory survey is in preparation and that we will continue to provide notification and seek consultation with the Hawaiian community, Native Hawaiian Organizations, the State Historic Preservation Officer, SHPD, and other appropriate agencies and parties to ascertain if there are any archaeological or cultural issues of concern that should be addressed prior to the start of the survey. We expect to shortly mail the notification of the survey.

If you should have any further comments may we ask that you please provide them in writing so that you can assured of a prompt reply.

Thank you.

Attachment

cc Mr. Emilio Barroga, P.E., DOT
Mr. Nathan Napoka, SHPD
Mr. Lance Foster, OHA

DANIEL K. AKAKA
HAWAII

WASHINGTON OFFICE:
141 HART SENATE OFFICE BUILDING
WASHINGTON, DC 20510
TELEPHONE: (202) 224-6361

HONOLULU OFFICE:
3108 PRINCE JONAH KUHIO
KALANIANAOLE FEDERAL BUILDING
P.O. BOX 50144
HONOLULU, HI 96850
TELEPHONE: (808) 522-8970

HWY-727

11

United States Senate

WASHINGTON, DC 20510-1103

COMMITTEES:
ARMED SERVICES
ENERGY AND NATURAL RESOURCES
HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS
INDIAN AFFAIRS
VETERANS' AFFAIRS
SELECT COMMITTEE ON ETHICS

DEPT OF TRANSPORTATION
2005 JUN 15 P 9:31
HIGHWAYS DIVISION

June 14, 2005

Mr. Rodney Haraga
Director
Hawaii State Dept. of Transportation
869 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Haraga:

This is in regard to a request I received from my constituent, Mr. Alika Silva, concerning the Department of Transportation's bridge construction project in Waianae.

Enclosed is a copy of the request I received from Mr. Silva for your reference. As explained by Mr. Silva, a Hawaiian temple and family burial sites are located in the path of construction of two highway bridges in Waianae. He requests that the Department of Transportation provide a "cultural monitor" for this construction project and that as a lineal descendent of those buried at this site, that he be allowed to serve in that capacity. Mr. Silva is also concerned that test drilling at the construction site has begun without consideration of his request or the applicable laws which protect Hawaiian sacred archaeological areas.

I would appreciate your assistance in looking into the issues raised by Mr. Silva. I would also appreciate your advice on the process for Mr. Silva's request "for a cultural monitor" to be considered by the Department. For your information, I have also sent a request to Mr. Peter Young, Chair, Department of Land and Natural Resources, for advice on the issues raised by Mr. Silva.

In responding to this request, please send your reply to my Honolulu Office, P.O. Box 50144, Honolulu, Hawaii 96850.

Thank you for your assistance.

Aloha pumehana,

Daniel K. Akaka

DANIEL K. AKAKA
U.S. Senator

DESIGN BRANCH
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DEPT. OF TRANSPORTATION

'05 JUN 17 A11:06

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Enclosures

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2005 JUN -6 AM 9:06

Attention: Carlene C/O for Honorable Daniel K. Akaka U.S Senator
Fax: 6 Pages + 2 cover sheets.
From: Alika Silva, Kahu Kulaiwi, Koa Mana, Kupukaaina o Waianae Moku O'ahu
Date: June 3, 2005
Re: Request for Honorable Daniel K Akaka U.S. Senators assistance;
Regarding preservation for our national treasures (Historic Sites) and religious temple Ka'anani'au (Temple Of Kane), and family burial sites; Also our Kahaloko (Large Near Shore Fishpond), together Kaananiau-kahaloko-kahawai-Makaha means a/or land/place division or place of dividing the fish that are caught in large migrating schools and are driven in to inland fishponds for growing for subsistence for families' of our God Kane

Aloha Honorable Daniel K Akaka:

We hope this letter finds you well and in good sprite. We are humbled by asking you for your assistance in these matters regarding preserving some small remaining pieces of our national treasures. Our families' Native Hawaiian Religious Temple and some of our family burial sites are at risk because of deliberate and willful insensitivity by consultants (R.M. Towill B.Takeda) ignoring well fought for laws and court ruling by axing in to pieces the integrity of our Hawaiian National Treasures for Bridges Replacement project in Makaha Waianae Moku (District).

We are concerned of deliberate discrimination to our temples, burials and sustenance zone because the state (DOT) consultant stated to me the people who hired him don't want to be held hostage by Hawaiian cultural monitors, I was disappointed to hear that of course.

Takeda also express concerns of us turning in the Board of Water Supply and State (SHPD) archaeologist for deliberate desecrations to Kane temples, and family burial sites and illegal capping of the only remaining Spring (Kiko'o) wetlands in Kamaile Waianae just down the road from this project. I believe it's part of the discrimination and prejudice that's been happening to us for a while now. We are sadden by this especially when two of my blood related uncles gave there lives for this system: World war I, Gold Star Recipient uncle John R. Rowe; Uncle Herbert Pilila'au Medal of Honor and Gold star Recipient and uncle Henry Silva who barely made it back from world war II. Our family sacrificed for us.

I spoke to Takeda again yesterday, after some discussion regarding concern of adverse affects to our family practices, burial sites and temples. He stated the State (DOT) doesn't have a budget to pay for cultural monitoring on projects like this and he doesn't know of any others that did. I stated that's totally unacceptable and not true, review my letter June 1, 2005, Stating Hawaii Supreme Court, KA-PA'AKAI decision held that the State and its sub-agencies Shall:1) Identify resources and **practices** in the project area; 2) Identify how they will be **impacted**; and 3) Identify how to **mitigate** the impacts by the project.

Most importantly is this third piece of this ruling involving the states (DOT) conduct with its $2.5 million dollar portion of this $12.5 million dollar Bridges Project total cost. Takeda believes by calling me on the phone to tell me they just discovered more of our temple and some burial sites, to him its an except-able process regarding No.3**"mitigation"** it's totally **unacceptable to us**. Adverse impacts to our family burials and religion practices can be legally called **inadvertent discoveries if we are not culturally monitoring the Project.** We believe cultural monitoring of your family burial sites and temple is the only **alleviation possible** when deliberately disturbing sacred sites at this level of adverse impacts. Maybe in rare cases burials maybe relocated on the site so we maybe able to balance needs for the community and military who will be using it to go to Makua or Ohikilolo, where my family still lives today. The remaining $10 million Federal dollars are attach to Section 106 Federal law, but it has no policies for monitoring. The Army does require it today in their projects in Makua and Lihue Waianae Uka. Why doesn't the state DOT do the same for this case with this Federal moneys, could you assist us and them and recommend that they do?

Thank you again Honorable Senator Daniel Akaka, for your assistance in these matters of Malama Aina, preservation of our national treasures religion, temples and family burial sites. Aloha.

The following attachment are Letters, Notice of Proposed Project with map and comments, also our request for genealogy recognition for burial sites and places, at the project site and significant Heiau Kaneaki and Kaneikapualena.

1). Request for Recognition from State Historic Preservation Division (SHPD), Burial Sites Program (BSP) dated January 7, 2004, (No response from SHPD to date).
2). Letter address to new SHPD Administrator (M. Chinen) dated December 24, 2004, requesting cultural monitoring for sacred site, (No response from SHPD except verbally by phone call [5-20-05], Melanie stated she wants to study cultural monitoring for two years before she can support it, I responded the military [Army] is already doing it for Lihue Waianae Uka, and for Makua Waianae Kai).
3). Letter addressed to States (DOT) consultant Brian Takeda, dated January 21, 2005, noting several serious concerns and no redress from him or written response ether, other then verbally besides the meeting on May 31, that he didn't want to give me but by several family member and my self demanding it, he finely agreed to just meet.
4). Notice of Proposed Project by B. Takeda (Not dated) which I received from a Neighborhood Board Member (5-27-05) who got it from a Neighborhood board Meeting weeks earlier. I was not notified by Takeda he was proceedings with construction **Plans,** but when I spoke to him last, he assured me he would contact me and SHPD before any construction would proceed. However the decisions to proceed with geo-drilling began at the site on (May 24, 2005), according to Takeda. Geo-boring/construction was deliberately done without **"No Section 106 required consultation which I began requesting for back in November 4, 2004,"**(Ph. notes). Clearly a violations of Section 106 and of the State Constitution Article 12, section 7, law and statutes, Hawaii Supreme Court ruling and again all requiring substantive consultation.
5). Letter addressed to Takeda (RM Towill) dated June 1, 2005, regarding Notice of Preservation due to his lack of responding to my numerous request for information and substantive consultation regarding this Federal and State undertaking under Section 106 and other laws and statutes that are made to preserve.

It's also important to note: We have consistently been contacting and requesting Takeda to employ cultural monitoring for this Project, it's a significant Historic Site; We made it know to him this is our Traditional Cultural Property and we are lineal descendant to burials at this site; Monthly we would request he contact SHPD regarding our request for lineal descendant recognition and monthly he and they have not responded; We would also contact Kanai Kapeliela almost weekly to coordinate and address our concerns; Finely on May 20th while speaking to Mrs. Chinen (SHPD) about another meeting and issue I ask her about this project and about monitoring, she then told me she wanted to study it for two year, no wonder Kanai Kapeliela left the SHPD, he couldn't take the lack of responsibility anymore...

Nonetheless there will be much information that should or could have been forwarded to you, but I'm almost out of paper so I'll summarize. I have spoken to Takeda over eleven times at lease once a month requesting cultural monitoring. I've spoken to Kapeliela (SHPD) at lease twice a month for recognition and site visits, which we have done with photographs as well and have consulted with him.

We have done cultural monitoring for the Board of Water Supply in other projects in the area, Federal moneys and agency already set presidents with us and BWS for this area and process.

The U.S. Army also set the presidents regarding cultural monitoring of historic significant sites. Finally can you recommend to the Federal and State Transportation divisions to recommend cultural monitoring for this undertaking in our national treasure and religious site. My last note is we have maps from circa 1855-1884 (Jackson) and Hawaiian language documents proving it's significant. Mahalo.

Sincerely submitted and requesting your assistance,

Alika Silva 6/3/05

Alika Silva, Kahu Kulaiwi, Koa Mana, Kupukaaina o Waianae Moku, O'ahu

January 7, 2004

Kaiana Markell
Burial Sites Program (BSP)
State Historic Preservation Division

Subject: Request for recognition of Alika Silva and Glen Kila as direct and collateral lineal descendants in the matters of protecting the burials of Poe, Moo, Kaiwi, Kawelo, Hale, Paka, Pulu, Kanaue, Pukooku, Poopuakala, Haulele families et al.

Aloha Kaiana,

Please note for the purpose of establishing our direct and collateral lineal descendant claims to the remains of Poe, Moo, Kaiwi, Kawelo, Hale, Kalipo, Kanani, Kaia, Paka, Pulu, Kalama, Nauhane, Nawahine, Pau, Pililaau, Kupihea, Kaulu, Haulele and Nanaue located in Makaha Auhupuaa, in the areas of Kepuhi, Kumanomano, Makaha bridges, Makau, Lawaia and Holt Streets and Farrington Highway.

We also request recognition for direct and collateral lineal descent claims for our family burial sites at Kaneaki Heiau. We have shared with you the names of the original builders of this significant heiau and burial complex by our Tupuna Kawelo and the family clans supported him. We were taught by our Kupuna Uncle Adrian Silva and Aunty Lei Fernadez that Tutu Kawelo, Paka, Nawahine, Pau, Haulele, Pukooku, Kalipo, Kanaue and Kaulu clans were also buried in this heiau and surrounding area.

We the applicants, Alika Silva and Glen Kila have submitted genealogical information in oral, document forms and ilk submitted to the SHPD and Burial Site Program. We request formal recognition to our claims by the Burial Sites Program, State Historic Preservation Division and the Oahu Island Burial Council. Your kokua is greatly appreciated. Mahalo no.

Akua lako, e malama i ko makou Aloha Aina,

Alika Silva

Alika Silva, Kupukaaina, Kahu Kukaiwi, Koa Mana, Kaulu Ohana, Waianae Moku, Oahu

Glen Kila

Glen Makakauali'i Kila, Kupukaaina, Kahu Kulaiwi, Koa Mana, Kaulu Ohana Waianae Moku, Oahu

Melanie Chinen
Administrator, SHPD

December 24, 2004

Re: Potential adverse affects to family burial grounds, by Replacement of Makaha Bridges 3, 3A and other projects in the area. Concerns that the SHPD will honor our MOA and concerns under HAR Chapter 13-300-28, 13-300-31(f), 13-300-35 and HRS Chapter 6E-2, 6E-3.3

Dear Melanie:

Thank you for your assistance in these matters regarding potential adverse affects to family burial grounds in Makaha, Waianae Moku. We are concerned that the Board of Water Supply 8" Main Makau Street and Farrington Highway, Sandwich Isles Fiber Optic Farrington Highway and FHWA Makaha Bridges Replacement 3 and 3A projects will have an adverse affect to our TCP.

Waves from the last two hurricanes and intermittent rainstorms have caused burials to be eroded out of the sand dunes and riverbanks at the two Makaha bridges and in other near sites such as Makau Street. Also, we are concerned regarding several burial caves on Holt Street and Lawai'a Street.

We are asking you to recommend to the FHWA, BWS and Sandwich Isles Comm. SIC, and other developers to utilize Cultural Monitoring as an **additional level** of protection and preservation in these known, significant and Traditional Cultural Properties TCP. We also propose meeting with you and all three developers at the same time if necessary to ramp-up safeguards and minimize adverse impacts in known kulaiwi (family burials). Alterations by construction will have an adverse affect and to minimized those impacts, **you could recommend and advise the following**:

- Additional level of protection for culturally sensitive sites by using a Cultural Monitor;
- Having Cultural Monitoring early on site, during all sub-testing, and reviewing of plans;
- Contractor(s) managers prepare a construction "Best Management Practices Plan";
- Recognize & consult with Koa Mana about lineal tie sensitivity, resources preservation; and
- Check SHPD records, data on reported and returned iwi to Koa Mana 1982 & 92 hurricanes

We are also asking you and the SHPD to honor our Memorandum Of Agreement (MOA) made in September 2001with then Admin. Dr. Don Hibbard, regarding protection and preservation of sacred sites TCP of Koa Mana, and especially give more support to multiple pressured sites such as this. Kahaloko is the correct place name that signifies the exits and entrance gates of the fishpond with a Ka'anani'au altar marker connecting off shore and deep sea resources to our PohakuoKane and fishponds as one complex. We have lineal ties and are very concerned about cultural sensitivity and native natural resources in this area. Our tutu Harry Poe requested sensitivity to McAllister (1930), Place Names (1954), and also Aunty Lei Fernandez in (1978) Ho'ohana E'ala project 0-597 requesting preservation. Our tutu mo'olelo have stated, and we their descendants in (2004) are saying these sacred sites require protection and preservation for generations yet to be born.

We **thank you** again for your assistance regarding the protection and preservation of our families' MOA and TCP. Please schedule a meeting to resolve these burial concerns. Mahalo nui. Akua lako.

Sincerely,

Alika Silva

Alika Silva, Kahu Kulaiwi, Koa Mana, Kupukaaina Poe and Kahale Ohana, Waianae Moku, Oahu

Glen Kilu, Kahu Kulaiwi, Koa Mana

c: Tom Lenchanko, Kahu ko laila Kukaniloko, Kupukaaina Unukahi Ohana, Waianae Moku, Oahu
Lance Foster, OHA Director of Native Rights Land and Culture

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Koa Mana
85-140 Maiuu Road
Wai'anae, Hawaii 96792

LW 6/18
7/15
RT 7/21/05

12

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3. Article Addressed to:
Mr. Alika Silva
Koa Mana
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Wai'anae, HI 96792

4a. Article Number
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June 15, 2005

Mr. Alika Silva
Koa Mana
85-140 Maiuu Road
Wai'anae, Hawai'i 96792

Dear Mr. Silva:

Section 106 Consultation Regarding
Mākaha Bridge No. 3 and No. 3A Replacements
Federal Aid Project No. BR-093-1(20)

Thank you for the opportunity to meet with you on May 31, 2005 at the Mākaha Bridges Project site to receive information concerning locations of cultural importance and ancestral burials. We acknowledge receipt of your follow-up letter dated June 1, 2005 transmitted via fax and subsequent phone discussions with the most recent occurring on June 2, 2005.

A copy of your letter was forwarded to the Federal Highway Administration (FHWA) and State Department of Transportation (DOT) to provide them with a record of your comments and requests. We have prepared the following in response to your letter with your comments identified in italics for convenience:

> *"According to the Hawaii Supreme Court, the State of Hawaii in the KA-PA'AKAI Decision, held that the State and its sub-agencies Shall: 1) Identify resources and practices in the project area; 2) Identify how they will be impacted; 3) Identify how to mitigate the impacts by the project."*

We acknowledge your reference to this decision concerning a project in Ka'ūpūlehu, Island of Hawai'i, concerning legal recognition of the cultural, historical, and traditional Hawaiian rights of the Hawaiian people and community.

> *"Our family officially puts you on **NOTICE** for Preservation and recommends the following:*
> *.Adherence to KA-PA'AKAI ruling and require on site cultural monitoring for Makaha Bridges Project;*
> *.Koa Mana and our family have requested cultural sensitivity, consultation Mtg. For Mākaha Bridges Project;*

.We reviewed maps (Jackson1884, Cordy 1850) and documents written in Hawaiian by our tutu(s);
.We marked on your map, concerning adverse impacts to our temple (Kaananiau) and burial sites;
.We shared genealogy documents (confidentially) of Poe, Kupihea ties to Mākaha Bridges area;
.We strongly requested R.M. Towill/Takeda, to protect our known religious sites and temples (Kaananiau), and to follow the preservation laws and statutes of Section 106 and State of Hawaii Constitution, Article 12 section 7, states that the State and sub-agencies Shall Protect all Rights and Practices customarily and traditionally exercised for subsistence, cultural and ***religious*** *purposes possessed by Ahupuaa Tenants' who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778...this means the state shall protect Ahupuaa Tenants'* ***"religious rights"****, and burials sites protected under Chapters 6-E HRS. and 13-300 HAR.;*
.Follow-up meetings and monitoring of adverse affects by geo-boring/construction, concerning sacred sites; and
.Adherence to our MOA made with SHPD and Koa Mana in (Sept. 2001) regarding TCP Preservation."

We appreciate the time you have taken to share the historical documentation you have collected concerning your family and the project site. Although we are not the authorized nor appropriate party to verify this information we urge you to work with the State Historic Preservation Division (SHPD), Department of Land and Natural Resources, to obtain the Traditional Cultural Place (TCP) and cultural significance recognition of the site that you are seeking.

Concerning your request for protection of the locations you have identified by circling the entirety of the project site, we have started and intend to continue to work with SHPD and the Hawaiian/Native Hawaiian community to ensure proper protection and procedures for all work that may involve ground disturbance. We provided notification concerning geotechnical work that was scheduled to begin during the week of May 23, 2005. A notice was mailed to you on April 22, 2005; a certified letter was mailed to you on April 26, 2005 (unclaimed, copy attached); and a notice of this project was published in the Honolulu Advertiser on Saturday, April 30, 2005 (copy attached). On May 27, 2005, you stated by phone that you have not received nor had any knowledge of these notices except when a notice was made available to you from another source. Subsequent to our phone discussion representatives from the State DOT and R. M. Towill Corporation met with you on May 31st where cultural but no specific burial location information was provided. The result of our meeting was for us to seek further guidance from SHPD and our archaeological consultant, Cultural Surveys Hawai'i, concerning our responsibilities to properly care for the cultural resources you described. According to Ms. Melanie Chinen, SHPD Administrator, we understand that they will arrange to meet with you at a later date to record, document, and keep confidential any burial information you disclose.

Regarding the current work that was started involving geotechnical sampling of soil, we have prepared an archaeological monitoring plan that has since been approved by SHPD and which serves as the basis from which monitoring and notification requirements will be met. Accordingly, if a human burial is encountered, appropriate procedures as outlined for inadvertent burial discoveries in HRS 6E- 43.6, will be followed. This includes immediate work stoppage in the area of the find and notification of SHPD. We have also instructed the archaeological monitor to immediately notify us if a human burial is found. As a matter of courtesy I have advised you that you would then be notified by a phone call from me. It is our hope that if these remains are demonstrated to be of lineal descent to you or your family that the proper steps will be taken to address your concerns through SHPD.

We understand that you have chosen to not speak with our consultant, Cultural Surveys of Hawai'i, concerning our efforts to document archaeological and cultural information as part of the Section 106 Consultation process. We are sorry that you have decided to do this as the information you provide could be helpful in allowing us to better understand the importance of the cultural and historical resources of the area. We have asked other members of the Hawaiian Community who were willing to share some of their rich cultural knowledge of the area and wish to leave open this opportunity for you to do so. We will, however, respect your decision if you choose not to.

We have checked with Mr. Nathan Napoka, SHPD, concerning the Memorandum of Agreement or MOA you are referring to. It is our understanding that there is no official signed copy of the MOA as would be transmitted to you by SHPD. If we are in error of this understanding please provide us with a copy so that we may review it for applicability to this project.

> *"...we request clarification of Section 106 regarding clear protection for sacred sites. The Notice above requires on site review by an archaeologist and a cultural monitor of lineal descent. Cultural Monitoring of our religious temple (Kaananaiau), burial sites and sustenance zones (Kahaloko) will produce a better out come for sacred sites preservation."*

We understand you are claiming lineal descendancy to burials at the Mākaha Bridges site and recommend that Koa Mana serve as the designated "cultural monitor" for this project. On June 2, 2005 you also discussed with me by phone that monetary compensation must be a part of this service. Although you have not told us your fee for this service, we have forwarded and have consulted with FHWA and DOT concerning your recommendation and report the following.

FHWA and DOT remains committed to following all legal requirements for the protection and preservation of cultural, historical, and traditional Hawaiian and Native Hawaiian rights. This extends to consultation with Native Hawaiian Organizations as provided under Section 106 of the National Historic Preservation Act. As a part of this consultation we have shared information

that describes the proposed project that will construct and replace the approximately 70 year old Mākaha Bridges. We remain willing to listen to how the project can be planned and constructed in a more culturally sensitive manner and will continue to notify and seek consultation with the Hawaiian community, Native Hawaiian Organizations, the State Historic Preservation Officer, SHPD, and other appropriate agencies and parties, for the duration of the Section 106 Consultation process. According to FHWA, a "cultural monitor" with monetary compensation will not be a part of this process as there are no regulations, policies, or requirements that govern the responsibilities or legal liabilities of such a position.

> *"Regarding the review of circa map 1855-1884 (Jackson) and (Cordy) 1820-1850 and Tutu Kahaleula and Tutu Poe Hawaiian written language documents clearly identifies and connects ohana Poe, Kupihea, and Koa Mana to Kahaloko Makaha in your Project area. Also, after reviewing my genealogy documents and ties to these sites, you excepted by lineal ties to Kahaloko Makaha and requested for us to continue this consultation process."*

As we have indicated above, we are not the authorized nor appropriate party who can legally recognize your genealogy or your claim of lineal descendancy. The appropriate authority to contact to coordinate this is the State Historic Preservation Division, Department of Land and Natural Resources. We hope that you will consult and work with this agency to resolve your claim.

Finally, we will continue to provide notification and seek further consultation concerning work that will be required for this project. We are currently preparing the design and environmental documents and will provide notification for the review of the Environmental Assessment when it is ready for public comment.

We wish to acknowledge the time you have taken to share your comments and concerns and appreciate your candor.

Sincerely,

Brian Takeda

Brian Takeda
Planning Project Coordinator

Attachments

cc: KK FHWA/EB DOT-H/MC/NN/MC SHPD
Councilman Todd Apo, Honolulu City Council
Chairperson Cynthia Rezentes, Waianae Neighborhood Board
Senator Daniel Akaka

K:\plan\19969 Makaha Bridges Permits\Makaha 106 Paper Trail\A-Silva6-15-07.wpd

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Farrington Highway

Makaha Bridge No. 3 and No. 3A Replacements
Federal Aid Project No. BR-093-1(20)

Notice of Proposed Project

The State Department of Transportation - Highways Division (DOTH) is proposing to replace two timber bridges (Nos. 3 and 3A) along Farrington Highway, Route 93, between milepost markers number 13.95 and number 14.21 in Makaha, Waianae District, Oahu, Hawaii.

Work associated with this project will involve geotechnical boring to look at the underlying substrate, demolition of the existing bridges and construction of the replacement bridges.

The purpose for replacing these two existing bridges is to construct new bridges that meet or exceed the current design standards set by the American Association of State Highway and Transportation Officials (AASHTO), Federal Highway Administration (FHWA), and State Department of Transportation (DOT).

The geotechnical boring will be done using a drill rig mounted on a flatbed truck. On difficult terrain, the rig may be transported to the boring site by an all-terrain vehicle (ATV). Drilling depth will be between 10 and 75 feet from grade. The proposed geotechnical work will take approximately two (2) weeks to complete.

Demolition and reconstruction of the bridges will require a detour road to be constructed around the project site. Traffic controls and flagmen will be used to maintain safety. A water truck will be used on-site to control fugitive dust.

The existing timber bridges were originally constructed in 1937. The replacement of the nearly 70 year old structures with bridges constructed of concrete and steel will:

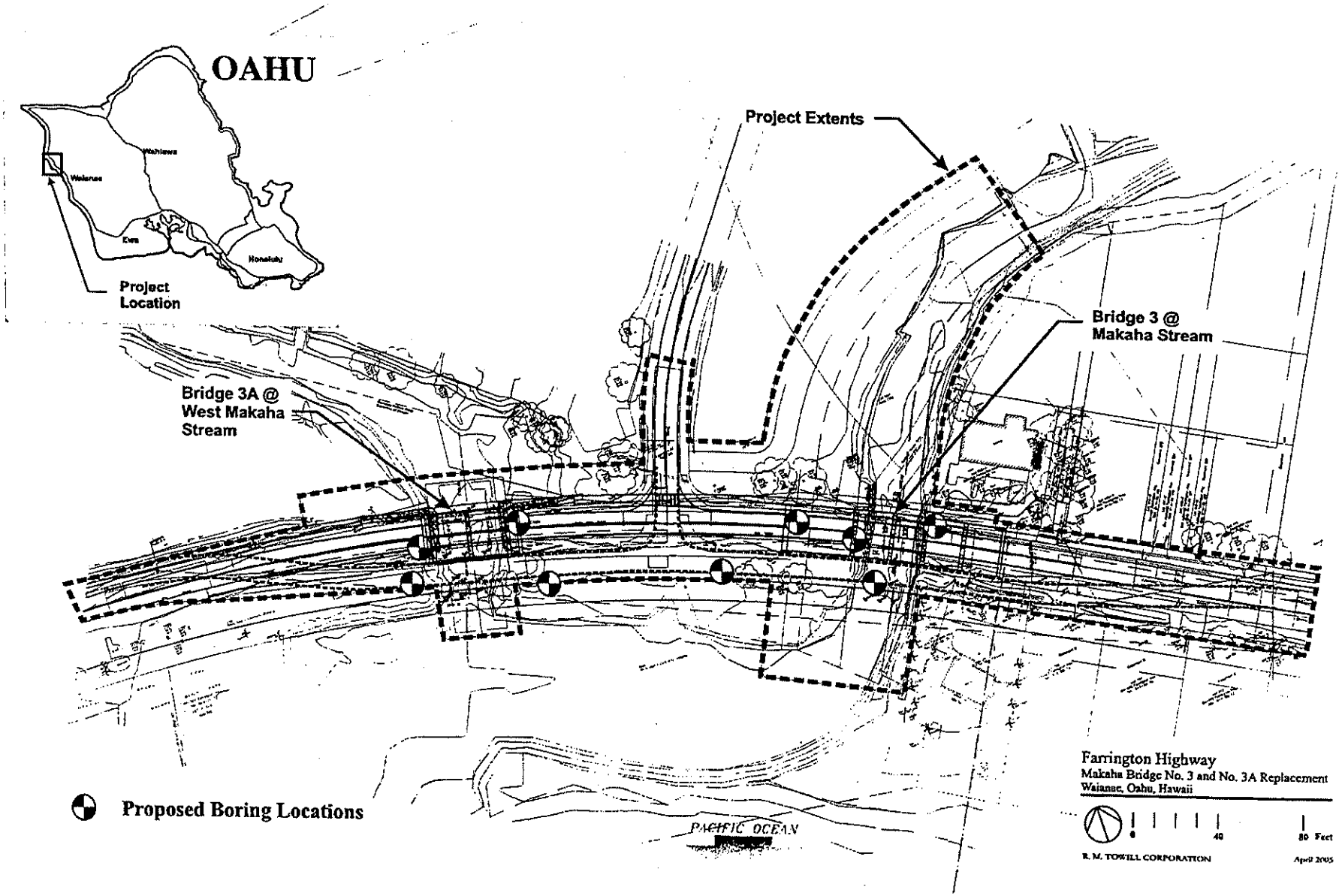
- Improve protection and safety of the traveling public;
- Provide improved drainage and increase safety of the structures by raising the bridges above the 100 year flood flow;
- Reduce the potential for increased maintenance costs associated with wooden structures; and,
- Permit installation of improvements to meet requirements of AASHTO, FHWA, and DOT.

The geotechnical boring is tentatively scheduled to being the week of May 23rd. Construction of the project is scheduled to begin in 2006 and last approximately 12 months.

Notification concerning potential burials along the the proposed project alignment will also be published in the Honolulu Advertiser and the Westside Stories.

QUESTIONS? Please call Mr. Emilio Barroga, P.E., DOT at 692-7546, or Brian Takeda, R.M. Towill Corporation at 842-1133. If there are comments please provide them in writing to R.M. Towill Corporation, 420 Waiakamilo Road, Suite 411, Honolulu, Hawaii 96817.

Thank you


OAHU
Project Location
Project Extents
Bridge 3 @ Makaha Stream
Bridge 3A @ West Makaha Stream
Proposed Boring Locations
PACIFIC OCEAN
Farrington Highway
Makaha Bridge No. 3 and No. 3A Replacement
Waianae, Oahu, Hawaii
0
40
80 Feet
R. M. TOWILL CORPORATION
April 2005

Julia

CONTINUED FROM B1

the most wonderful Mother's Day gift I could possibly have," Engle said.

Punahou students in the Case Middle School's May Day Court and Julia's 10-year-old sister Christina gathered yesterday to send their best wishes to their stricken classmate. Julia was supposed to be a princess in the May Day Court before the accident.

Meanwhile, city spokesman Bill Brennan said a healthy 80-foot tall Norfolk pine that was even closer to the Engle family's home on Beckwith Street than the diseased tree that fell has been removed.

Brennan said the tree cost the city about $3,500 to cut down, and that tree along with several others removed on the street, will be replaced by a different type of tree better suited for a residential neighborhood.

Engle said the family will move back into the home when Julia is released from the hospital.

"Christina would like to wait until her sister comes home," she said.

Engle said her daughter's prognosis is still "day to day," but she is very happy the girl is making steady improvement.

Reach James Gonser at 535-2431 or jgonser@honoluluadvertiser.com.

Kaua'i

CONTINUED FROM B1

on Lum was 4-1, with only Gonsalves, a former police officer, voting against him.

Gonsalves turned up the heat when, in an e-mail announcing he would not attend Lum's inauguration, he referred to the new chief as Hop Sing. Hop Sing was the name of a Chinese cook in the TV show "Bonanza."

Gonsalves said it was a nickname that dates to when he and Lum served together on the force, but Lum said he doesn't remember it being used and considered it a racial slur.

Gonsalves said he personally apologized to the chief as well as to Deputy Chief Ron Vennaman, who in the same e-mail he referred to as Little Joe, another character on the TV series.

Gonsalves refused to resign from the commission over the written remarks.

Mayor Baptiste has asked the council to remove Gonsalves from the commission. Under the County Charter, police commissioners are appointed by the mayor and confirmed by the council, and their removal also requires the approval of both.

Baptiste sent the council a resolution removing Gonsalves. The council has put off for months taking up the resolution.

At Thursday's meeting, Gonsalves appeared with supporters who spoke on his behalf, and the council voted 6-1 to receive the resolution, a parliamentary move that effectively kills it.

Only council Chairman Kaipo Asing, a critic of the Baptiste administration and of the operation of the police department, voted against the move.

As for any investigation, Councilwoman JoAnn Yukimura said that while the council has rules that would apply to an investi- what procedures would be followed is still something we want to understand," said Councilman Jay Furfaro.

Yukimura said she voted to keep Gonsalves on the commission because she felt he had made an error but had owned up to it.

"I think he showed remorse for his remarks and apologized not only to the chief and his wife, but to the Chinese community. A mistake was made, but he acknowledged it. Also, he has a lot of support in the community," she said.

The council was more evenly split, 4-3, in its vote to confirm Furtado for her second and final term on the commission.

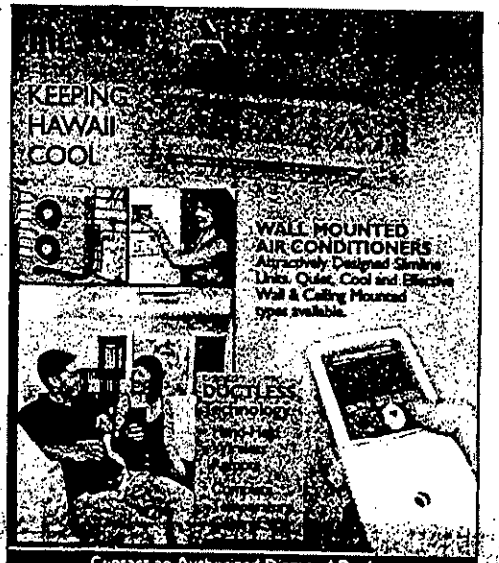
On that vote, Asing once again was on the losing side, along with members Mel Rapozo and Shaylene Iseri-Carvalho.

Both Rapozo and Iseri-Carvalho have experience working with the police department, he as a former officer and she as a former prosecutor.

They suggested that some of the problems on the commission and in the department could be tied to Furtado's actions on the commission.

Council members Furfaro, Daryl Kaneshiro, Jimmy Tokioka and Yukimura voted for her.

Reach Jan TenBruggencate at jant@honoluluadvertiser.com or (808) 245-3074.



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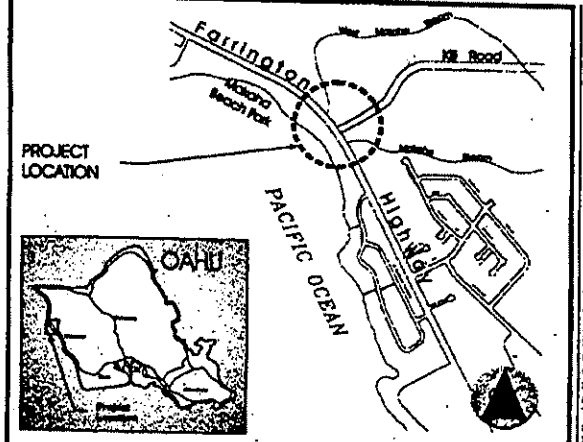

PUBLIC NOTICE

Pursuant to Section 106, National Historic Preservation Act Consultation and Chapter 343, Hawaii Revised Statutes

The State Department of Transportation - Highways Division (DOTH) is proposing to replace two timber bridges (nos. 3 and 3A) along Farrington Highway, Route 93, between milepost markers number 13.05 and number 14.21 in Makaha, Waianae District, Oahu, Hawaii.

The work associated with the project will involve geotechnical boring to look at the underlying substrate, demolition of the existing bridges and construction of the replacement bridges. The geotechnical boring is scheduled for the week of May 23rd and will last about 2 weeks. Construction of the project is scheduled to begin in 2006 and last approximately 12 months.

All persons having information about possible burial or important cultural sites within the proposed project extent are hereby requested to submit written information to the State Historic Preservation Division, Department of Land and Natural Resources, 601 Kamokila Blvd., Kapolei, HI 96707 at (808) 692-8027; Mr. Emilio Barroga, (DOTH - Design Branch, 601 Kamokila Boulevard, Room 688 Kapolei, HI 96707) at (808) 692-7546; or Brian Takada (R.M. Towill Corporation) at 842-1133. *Note: If your written information is confidential, please submit it to the State Historic Preservation Division.*

Written information on possible sites within the project area must be received no later than May 18, 2005.

(Hon. Adv.: Apr. 30, 2005) (A-85403)

DEPARTMENT OF DEFENSE
United States Air Force

Notice of Availability (NOA) of the Record of Decision (ROD) for the Termination of the Air Force Mission at Johnston Atoll Airfield

AGENCY: United States Air Force, DoD.
ACTION: Notice of Availability.

SUMMARY: This announces the availability of the ROD that documents the decision of the United States Air Force (Air Force) with regard to the Final Environmental Impact Statement (FEIS) for the Termination of the Air Force Mission at Johnston Atoll Airfield. The ROD has been prepared in accordance with the National Environmental Policy Act (NEPA) and the regulations implementing NEPA promulgated by the President's Council on Environmental Quality (CEQ), specifically Title 40 Code of Federal Regulations, Part 1505.2, Record of decision in cases requiring environmental impact statements.

OWNER'S NOTICE OF COMPLETION OF CONTRACT

NOTICE IS HEREBY GIVEN that pursuant to the Provisions of Section 507-43, of the Hawaii Revised Statutes, the construction by RAYMOND'S PAINTING COMPANY, INC. of that certain Exterior Painting of Hawaiki Tower, situated at 88 Piikoi Street, TMK: 2-3-6:4, Honolulu, Oahu, Hawaii, has been completed.

AOAO
Hawaiki Tower
(Owners)

(Hon. Adv.: Apr. 23, 30, 2005) (A-70274)

OWNER'S NOTICE OF COMPLETION OF CONTRACT

NOTICE IS HEREBY GIVEN that pursuant to the Provisions of Section 507-43, of the Hawaii Revised Statutes, the construction by Akamai Roofing Inc. of that certain Roofing situated at Kahala Corner 4614 Kilauea Avenue, TMK: 3-5-016:010, Honolulu, Oahu, Hawaii, has been completed.

Trustees of the
Estate of
Bernice Pauahi Bishop
(Owners)

(Hon. Adv.: Apr. 23, 30, 2005) (A-74475)

NOTICE

On April 12, 2005, an application was filed with the Federal Communications Commission requesting authority to transfer control of Polynesian Broadcasting, Inc., licensee of Station KZOO, Honolulu, Hawaii, from Mitsuru Furuya to David F. Furuya.

Station KZOO operates on frequency 1210 kilohertz.

The transferor in the application is Mitsuru Furuya, an individual. The licensee in the application is Polynesian Broadcasting, Inc., and its officers, directors, and sole stockholder consist of David F. Furuya, Robyn Furuya, and Mitsuru Furuya. The transferee in the application is David F. Furuya, an individual.

A copy of the transfer of control application and related materials are available for inspection by members of the public during normal business hours at the main studio of Station KZOO, located at 2752 Woodlawn Drive, Building 5-204, Honolulu, Hawaii 96822, and at the offices of the Federal Communications Commission in Washington, D.C.

(Hon. Adv.: Apr. 29, 30; May 6, 7, 2005) (B1040)

OWNER'S NOTICE OF COMPLETION OF CONTRACT

NOTICE IS HEREBY GIVEN that pursuant to the Provisions of Section 507-43, of the Hawaii Revised Statutes, the construction by Construct Inc. of that certain Remodel Kitchen, Baths, and Replace All Windows situated at 44-747 Kaneohe Bay Drive, TMK: 4-4-018: 005, Kaneohe, Oahu, Hawaii, has been completed.

David B. & Jacinta R. Neal
James W. & Evelyn R. Neal
(Owners)

(Hon. Adv.: Apr. 23, 30, 2005) (A-72322)

MAKE

13

ATTN: Brian Takeda
FAX: 1 page + Cover Sht.
From: Alika Poe Silva, Koa Mana
Date: June 16, 2005
Re: Makaha Bridges Project

Brian Takeda
RM. Towill

June 16, 2005

Re: Deliberate violations of Hawaii Supreme Court Ruling KA- PA'AKAI, held that State and sub-agencies shall: 1] Identify Resources and **Practices** in the project area; 2] Identify how they will be impacted; and 3] Identify how they will be **mitigated**. Also Federal law Section 106 lacking Burial and Historic Site Protection Planning Policies, reverting back to State responsibility in protecting Native Rights under State Constitution Article 12, section 7, e.g.

Dear Mr. Takeda:

We are writing to you again to inform you of your deliberate intention to violate the laws mention above.

Our families are requesting you immediately cease and desist your deliberate desecration to our religious temple Ka 'anani'au , Kahaloko and families' burial place. Due to you/RM Towill deliberately allowing geo-drilling in our Traditional Cultural Property (TCP) without **lawful mitigation** of your adverse impacts, we find your decision and activities to be a deliberate act in violation of the laws mentioned above.

Hawaii Supreme Court Ruling KA-PA'AKAI held, that the state shall: **1]** Identify resources and practices in the project area {Consultation, site interpretation, resources and practices have been identified to you at our on-site meeting (5-31-05)}; **2]** Identify how they will be impacted {Deliberate adverse affects to irreplaceable religious temple, burial sites and TCP are unacceptable}; and **3]** Identify how they will **Mitigate** the impacts by the project {Understandingly to **alleviate** deliberate adverse impacts, **On-site Cultural Monitoring** is **truly** the only **acceptable** alternative available to **mitigate** and reasonably minimize adverse impacts. However you have not respectfully responded to our request specifically concerning mitigation, it remains ignored by you not responding to us, and for on-site cultural monitoring to date, while you/Towill are still geo-drilling in our TCP which we strongly object to as mention above}.

We stated to you again, at our on-site meeting of May 31, 2005 regarding maintaining cultural and site sensitivity and marked on your map the area of concern. Also the importance of **on-site cultural monitoring** in your project area.

Any destruction of our sacred cultural sites including those containing our beloved kupuna, will be considered by our Kupukaaina as deliberate, wanton and irreparable harm. We hope you make the right decision. Mahalo.

Sincerely submitted,

Alika Silva 6/16/05

Alika Poe Silva, Kahu Kulaiwi, Koa Mana, Kupukaaina o Waianae Moku, Oahu
You can contact me at Ph. 696-0041 or write to 85-140 Maiuu Rd. Waianae Hi. 96792.

14

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

HWY 729

IN REPLY REFER TO:
HWY-DS 2.0013

July 8, 2005

Honorable Senator Daniel K. Akaka
United States Senate
3016 Prince Jonah Kuhio Kalanianaole Federal Building
P.O. Box 50144
Honolulu, Hawai'i 96850

Dear Senator Akaka:

Subject: Mr. Alika Silva
Regarding Farrington Highway, Replacement of Makaha Bridge No. 3 and Makaha Bridge No. 3A, District of Waianae, Island of Oahu
Federal-Aid Project BR-093-1(20)

Thank you for your letter dated June 14, 2005 concerning comments provided to you by Mr. Alika Silva. Our staff and consultant, R.M. Towill Corporation, met with Mr. Silva on May 31, 2005, where Mr. Silva shared his concerns regarding burials and the prior use of the site surrounding the Makaha Bridges. R.M. Towill Corporation has been in communication with Mr. Silva in the hope that specific information will be shared with us that will allow us to respond to the cultural sensitivity concerns he raises. We attach a letter sent by certified mail to Mr. Silva by our consultant dated June 15, 2005 that documents steps we have taken in good faith.

We offer the following additional points that we hope will provide further clarification to this matter:

1. KA-PA'AKAI Decision (Ka Pa'akai O Ka'aina v. LUC, S. Ct. 2112421162 Remand)

Mr. Silva (Koa Mana) cites this court case a number of times. This landmark Supreme Court decision involved the State Land Use Commission (LUC) in their review of a site in Ka'upulehu, North Kona, Island of Hawai'i. In its determination the court found that the LUC did not satisfy the statutory and constitutional obligation to preserve and protect the customary and traditional rights of Native Hawaiians. The precedent this case establishes is that State agencies cannot delegate to a private entity (e.g., the developer) the authority to determine how to preserve and

protect customary and traditional rights. The court found that State agencies with jurisdiction must review and provide guidance and direction when developing the measures that will be used to provide such protection.

In the case of the Makaha Bridges project we consulted with the State Department of Land and Natural Resources (DLNR), State Historic Preservation Division (SHPD), to ensure that proper procedures would be followed. Copies of their responses are attached for your reference and include: (1) May 25, 2004, letter to our consultant, R.M. Towill Corporation; and (2) December 7, 2004, letter to our consultant, Cultural Surveys Hawai'i, Inc.

We note that the requirement for an archaeological monitoring plan has been completed and approved by SHPD. The recommendation that we further consult with Koa Mana is on-going and the results of our efforts to further consult with Mr. Silva are documented in the letter cited above, dated June 15, 2005.

2. Hawaiian Temple, Family Burial Sites, and Claim of Lineal Descendancy

During the meeting of May 31, 2005, Mr. Silva discussed the prior use of the site by Ancient Hawaiians and stated that he is of lineal descent to burials at the project site. We respect these claims and through our consultant, R.M. Towill Corporation, have asked SHPD to verify this. We report the following:

- SHPD (through the O'ahu Island Burial Council) has not yet granted Mr. Silva lineal descendancy. It is our understanding that a claim for lineal descendancy requires the identification of a burial site containing a named individual that can be traced by existing documents to a living blood relative. We note that during our meeting with Mr. Silva, he provided no specific information on burial locations that could allow us to properly coordinate with SHPD.

- The Makaha Bridges Project requires the completion of a Cultural Impact Assessment to demonstrate consultation with Native Hawaiian groups to provide information pertinent to the assessment of a project's cultural impacts. The Cultural Impact Assessment will include information from community informants throughout the Waianae region with interest or lineage to the Makaha Bridges site. According to our archaeological monitor, Cultural Surveys Hawai'i, Mr. Silva has not responded to their requests for his participation in this effort.

- We further instructed our consultant to coordinate this project through appropriate notification to both Hawaiian and non-Hawaiian community groups, organizations, and individuals. We note that this included a number of meetings, discussions, and distribution of mailed materials to groups and individuals. A

mailing list of public contacts is attached for reference.

3. Request for Use of Cultural Monitor for Makaha Bridges Project

Our response to Mr. Silva's request to serve as a cultural monitor was coordinated with SHPD, the Federal Highway Administration (FHWA) and within our office and is stated in the June 15, 2005 letter prepared by our consultant (attached). It stated:

> "FHWA and DOT remains committed to following all legal requirements for the protection and preservation of cultural, historical, and traditional Hawaiian and Native Hawaiian rights. This extends to consultation with Native Hawaiian Organizations as provided under Section 106 of the National Historic Preservation Act. As a part of this consultation we have shared information that describes the proposed project that will construct and replace the approximately 70 year old Makaha Bridges. We remain willing to listen to how the project can be planned and constructed in a more culturally sensitive manner and will continue to notify and seek consultation with the Hawaiian community, Native Hawaiian Organizations, the State Historic Preservation Officer, SHPD, and other appropriate agencies and parties, for the duration of the Section 106 Consultation process. According to FHWA, a "cultural monitor" with monetary compensation will not be a part of this process as there are no regulations, policies, or requirements that govern the responsibilities or legal liabilities of such a position."

While a cultural monitor is not planned to be used for this project it is our hope that Mr. Silva will decide to share with us how we can undertake the important work needed for this project in a more culturally sensitive manner thereby helping to address the protection and preservation of customary and traditional Hawaiian rights.

4. Geotechnical Boring Begun in Violation of Law

Mr. Silva is incorrect concerning non-notification of geotechnical work at the Makaha Bridges Project site. The actions taken to notify the community and individuals, including Mr. Silva, were (attached, see also letter to Alika Silva dated June 15, 2005):

> Memorandum to Alika Silva, January 13, 2005
> Community Mailing, April 22, 2005
> Certified Letter to Mr. Silva, April 26, 2005 (unclaimed)
> Public Notice in Honolulu Advertiser, April 30, 2005

Thank you for allowing us this opportunity to respond. We hope we have provided sufficient information for you and your staff concerning this matter. Should you have any further questions,

please contact Mr. Emilio Barroga, Jr. at 692-7546, Highways Division, Design Branch.

Very truly yours,

RODNEY K. HARAGA
Director of Transportation

Attachments

c: FHWA (Ms. KaiNani Kraut)
State Historic Preservation Division

15

420 Waiakamilo Road
Suite 411
Honolulu, HI 96817-4941
Tel. 808 842 1133
Fax 808 842 1937
eMail: rmtowill@i-one.com

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To:	**Mr. Alika Silva** **Koa Mana** **85-140 Maiuu Road** **Waianae, Hawaii 96792**	**Sent by:**	**Brian Takeda** **Planning Project Coordinator**
Phone/ Facsimile:	**696-0041**	**Subject:**	**Phone Call on July 12, 2005 Regarding Section 106 Consultation for Mākaha Bridge No. 3 and No. 3A Replacements Federal Aid Project No. BR-093-1(20)**
Date:	**July 13, 2005**		

Dear Mr. Silva:

This is in response to your phone message on July 12, 2005. I returned your call at 2:30 PM the same day and waited for approximately 10 to 12 rings before hanging up since there was no answering machine to leave a message for you. I am sorry I missed your call but wish to respond to your comments concerning: (1) you have not heard from us since our site visit with you on May 31, 2005; (2) you are asking us to cease work on this project stating that we are desecrating your ancestral and religious lands; and (3) you wish to be provided with an update concerning the project.

1. Follow-up Concerning May 31st Site Visit

On June 17, 2005 we mailed a certified letter to you dated June 15, 2005, in follow-up to our May 31st meeting. This letter and its attachments are again attached to this correspondence. We have been advised by the U.S. Postal Service that they will make one attempt to deliver a letter that has been sent by certified mail. If no one is there to receive the mail the Post Office will leave two 10-day notices that a letter is waiting for you at the Post Office for pick-up. After a total of 20-days if the letter has still not been picked-up it will be returned to the sender. Because you have indicated that you have not received any of the correspondence that we have mailed to you, we will do the following for future correspondence:

A. Mail one copy of the correspondence by regular mail;
B. Mail one copy of the correspondence by certified mail; and
C. Fax a copy of the correspondence to you at the phone number you have provided as 696-0041.

2. Request for Cessation of Work

We are sorry that you have decided to request a stoppage of work and understand that you are opposed to any work on this project unless your services are used as a cultural monitor. We hope you will review the letter dated June 15, 2005 (attached), which we prepared for you in coordination with the State Department of Transportation and the Federal Highway Administration.

Regarding the recently completed geotechnical exploration of the site, we note that the work undertaken involved archaeological monitoring that was reviewed and approved by the State

Historic Preservation Division (SHPD) prior to start-up. No Iwi or human remains were discovered during the course of the soils sampling.

3. Update Concerning Future Project Activities
As noted in our June letter the design and environmental documents are currently being prepared for this project. We have also advised you that an archaeological inventory survey is in preparation and that we will continue to provide notification and seek consultation with the Hawaiian community, Native Hawaiian Organizations, the State Historic Preservation Officer, SHPD, and other appropriate agencies and parties to ascertain if there are any archaeological or cultural issues of concern that should be addressed prior to the start of the survey. We expect to shortly mail the notification of the survey.

If you should have any further comments may we ask that you please provide them in writing so that you can assured of a prompt reply.

Thank you.

Attachment

cc Mr. Emilio Barroga, P.E., DOT
Mr. Nathan Napoka, SHPD
Mr. Lance Foster, OHA

ATTN: Brian Takeda

FAX: 1 page + cover sht.

From: Alika Poe Silva, Koa Mana

Date: June 1, 2005

Re: Concerns for Religious temple and burial sites

Mahalo Brian

Alika, Koa Mana

Brian Takeda
R.M. Towill Corp. 8421133

June 1, 2005

Re: Our meeting at Makaha Bridges on May 31, 2005, was arranged for consultation for the Poe/Silva Ohana and Koa Mana (lineal descendants of the area). Our religious temples, Ka'anani'au and burial sites as well as erosion issues were strongly requested to be protected. Monitoring of our sacred sites under section 106, Chapters 6-E and 13-300 Shall be included in your Makaha Bridges Project

Dear Brian Takeda:

Thank you for meeting with us at the Makaha Bridges to discuss our concerns. We felt harassed and violated by you inviting Mr. Aila to our family arranged meeting. We called this meeting in good faith between our ohana representatives and your Corp. on behalf of (DOTH) and we were disappointed in your decision, it frustrated the purpose of the meeting. Again, we had to request to you to maintain our rights for confidential meetings with lineal descendants regarding genealogy and religious ties to temples and burial sites that are at Kahaloko Makaha and are now in (DOTH) Bridges Replacement Project area.

According to the Hawaii Supreme Court, the State of Hawaii in the KA-PA'AKAI Decision, held that the State and its sub-agencies Shall: 1) Identify resources and practices in the project area; 2) Identify how they will be impacted; 3) Identify how to mitigate the impacts by the project.

Our family officially puts you on **NOTICE** for Preservation and recommends the following:
.Adherence to KA-PA'AKAI ruling and require on site cultural monitoring for Makaha Bridges Project;
.Koa Mana and our family have requested cultural sensitivity, consultation Mtg. for Makaha Bridges Project;
.We reviewed maps (Jackson1884, Cordy 1850) and documents written in Hawaiian by our tutu(s);
.We marked on your map, concerning adverse impacts to our temple (Kaananiau) and burial sites;
.We shared genealogy documents (confidentially) of Poe, Kupihea ties to Makaha Bridges area;
.We strongly requested R.M. Towill/Takeda, to protect our known religious sites and temples (Kaananiau), and to follow the preservation laws and statutes of Section 106 and State of Hawaii Constitution, Article 12 section 7, states that the State and sub-agencies Shall Protect all Rights and Practices customarily and traditionally exercised for subsistence, cultural and **religious** purposes possessed by Ahupuaa Tenants' who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778... this means the state shall protect Ahupuaa Tenants' "**religious rights**", and burials sites protected under Chapters 6-E HRS. and 13-300 HAR.;
.Follow-up meetings and monitoring of adverse affects by geo-boring/construction, concerning sacred sites; and
.Adherence to our MOA made with SHPD and Koa Mana in (Sept. 2001) regarding TCP Preservation.

We discussed and summarized as you ran through Section 106 requirements. You stated you had to address several points regarding a federal and state undertaking. Also we request **clarification** of Section 106 regarding clear protection for sacred sites. The **Notice above** requires on site review by an archaeologist and a **cultural monitor of lineal descent**. Cultural Monitoring of our religious temple (Kaananiau), burial sites and sustenance zones (Kahaloko) will produce a better out come for sacred sites preservation. Regarding the review of circa map1855-1884 (Jackson) and (Cordy) 1820-1850 and Tutu Kahaleula and Tutu Poe Hawaiian written language documents clearly identifies and connects ohana Poe, Kupihea, and Koa Mana to Kahaloko Makaha in your Project area. Also, after reviewing my genealogy documents and ties to these sites, you excepted my lineal ties to Kahaloko Makaha and requested for us to continue this consultation process.

We thank you again for your assistance in matters of protecting our religion, temples, burials and national treasures. We await your response. Mahalo.

Sincerely,
Alika Silva 6/1/05
Alika Silva, Kahu Kulaiwi, Koa Mana, Kupukaaina o Waianae Moku, O'ahu
c. Emilio Barroga, P.E., DOT at 692-7546
Tom Lenchanko, Kahu kolaila and spokesperson Aha Kukaniloko and Kahunana
Lance Foster, OHA Director of Native Rights land and Culture
Victor Kila, Kahu, Koa Mana, Kupukaaina o Waianae Moku, O'ahu

Brian Taketa
Planning Project Coordinator
R M Towill

January 21, 2005

Re: SHPD recording and establishing **site interpretations** without **substantive consultation** with lineal descendants, Koa Mana's concern for TCP in the Makaha Bridge area, and concerns for the **observance** of the State Audit (Report No. 04-15) and under Chapters 6E, 6E-2, 6E-3.3, 6E- 4, HRS and Chapters 13-300, 13-300-4, 13-300-28(b), 13-300-31(c), 13-300-31(d), 13-300-31(f), 13-300-32(c) and 13-300-35 (f) HAR.

Dear Brian:

Thank you for addressing our concerns regarding our family burial grounds. **Previously,** SHPD's staffers and archaeologist have been determining and recommending what is culturally sensitive and what is to be recorded for cultural interpretation of sites. This was done without the input of lineal descendants and Koa Mana's MOA. In a resent audit dated December 2004, the office of the Auditor determined that the DLNR/SHPD's approach to the trusteeship of iwi kupuna was "**haphazard, disorderly, completely lacking... inadequate** and **culturally insensitive...**" The audit report also noted a heavy reliance by the SHPD on western methods of site identification to the **detriment of the Hawaiian culture and native people**. In summary the State Audit found:

- State and **Federal** laws recognized the reverence paid by native Hawaiians to remains of ancestors;
- Families are kept waiting for determinations of **lineal** or cultural recognition;
- A **haphazard** approach to the trusteeship and the respectful disposition of families iwi kupuna; and
- **Oral traditions** are vital to the Hawaiian culture and should be valued in this process.

We recommend SHPD give equal, or greater weight to lineal descendants regarding cultural interpretation as the substance, significant and spiritual relationship of any one individual, family or families of lineal descent to a site or feature that is often greater than its physical characteristics. **Determining** these cultural **aspects** of a site, feature or area in context of foreign activities and projects is the **significant and important role of lineal descendant cultural monitors for cultural interpretation and preservation.**

Understandingly, SHPD's previous recommendations to Towill were flawed, as the audit gives opportunity to inform and consult with known lineal descendants for **substantive** consultation and cultural **interpretation.** You also expressed how Alani Apio of the BWS wanted the Makaha Ahupuaa, a non-Hawaiian organization to determine the sensitivity of the area. As I stated, Apio and his Ahupuaa group do not represent our lineal descendant families, for they have no history to this area and has deliberately ignored state laws and statues that resulted in desecration of family burials and TCP, such as Kaneikapualena Heiau. Apio and the BWS are liable for deliberate damages to Hawaiian burials and nationally registered historic sites, and the BWS for deliberately destroying wetlands in Kamaile, Waianae.

We again request that you review the State Audit and contact the new SHPD Administrator. Please inform us of what sites or features are marked sensitive in your project area and your plans for using lineal descendant cultural monitors in known burial grounds. Mahalo.

Sincerely submitted,

Alika Silva

Alika Silva, Kahu Kulaiwi, Koa Mana, Kupukaaina, Waianae Moku, Oahu
Mailing Address 85-140 Maiuu Rd, Waianae, HI 96792 Phone: 696-0041

cc. Tom Lenchanko, Aha Kukaniloko and Kahunana, spokesperson
Dexter Kaiama, Attorney at law
Lance Foster, OHA Director of Native Rights Land and Culture
Glen Kila, Waianae Neighborhood Board Representative

Melanie Chinen
Administrator, SHPD

December 24, 2004

Re: Potential adverse affects to family burial grounds, by Replacement of Makaha Bridges 3, 3A and other projects in the area. Concerns that the SHPD will honor our MOA and concerns under HAR Chapter 13-300-28, 13-300-31(f), 13-300-35 and HRS Chapter 6E-2, 6E-3.3

Dear Melanie:

Thank you for your assistance in these matters regarding potential adverse affects to family burial grounds in Makaha, Waianae Moku. We are concerned that the Board of Water Supply 8" Main Makau Street and Farrington Highway, Sandwich Isles Fiber Optic Farrington Highway and FHWA Makaha Bridges Replacement 3 and 3A projects will have an adverse affect to our TCP.

Waves from the last two hurricanes and intermittent rainstorms have caused burials to be eroded out of the sand dunes and riverbanks at the two Makaha bridges and in other near sites such as Makau Street. Also, we are concerned regarding several burial caves on Holt Street and Lawai'a Street.

We are asking you to recommend to the FHWA, BWS and Sandwich Isles Comm. SIC, and other developers to utilize Cultural Monitoring as an **additional level** of protection and preservation in these known, significant and Traditional Cultural Properties TCP. We also propose meeting with you and all three developers at the same time if necessary to ramp-up safeguards and minimize adverse impacts in known kulaiwi (family burials). Alterations by construction will have an adverse affect and to minimized those impacts, **you could recommend and advise the following**:

- Additional level of protection for culturally sensitive sites by using a Cultural Monitor;
- Having Cultural Monitoring early on site, during all sub-testing, and reviewing of plans;
- Contractor(s) managers prepare a construction "Best Management Practices Plan";
- Recognize & consult with Koa Mana about lineal tie sensitivity, resources preservation; and
- Check SHPD records, data on reported and returned iwi to Koa Mana 1982 & 92 hurricanes

We are also asking **you** and the SHPD to **honor** our Memorandum Of Agreement (**MOA**) made in September 2001with then Admin. Dr. Don Hibbard, regarding protection and preservation of sacred sites TCP of Koa Mana, and especially give more support to multiple pressured sites such as this. Kahaloko is the correct place name that signifies the exits and entrance gates of the fishpond with a Ka'anani'au altar marker connecting off shore and deep sea resources to our PohakuoKane and fishponds as one complex. We have lineal ties and are very concerned about cultural sensitivity and native natural resources in this area. Our tutu Harry Poe requested sensitivity to McAllister (1930), Place Names (1954), and also Aunty Lei Fernandez in (1978) Ho'ohana E'ala project 0-597 requesting preservation. Our tutu mo'olelo have stated, and we their descendants in (2004) are saying these sacred sites require protection and preservation for generations yet to be born.

We **thank you** again for your assistance regarding the protection and preservation of our families' MOA and TCP. Please schedule a meeting to resolve these burial concerns. Mahalo nui. Akua lako.

Sincerely,

Alika Silva

Alika Silva, Kahu Kulaiwi, Koa Mana, Kupukaaina Poe and Kahale Ohana, Waianae Moku, Oahu

Glen Kelly, Kahu Kulaiwi, Koa Mana

c: Tom Lenchanko, Kahu ko laila Kukaniloko, Kupukaaina Unukahi Ohana, Waianae Moku, Oahu
Lance Foster, OHA Director of Native Rights Land and Culture

ATTN: Brian Takeda
FAX: 1 page + Cover Sht.
From: Alika Poe Silva, Koa Mana
Date: June 16, 2005
Re: Makaha Bridges Project

Brian Takeda
RM. Towill

June 16, 2005

Re: Deliberate violations of Hawaii Supreme Court Ruling KA- PA'AKAI, held that State and sub-agencies shall: 1] Identify Resources and **Practices** in the project area; 2] Identify how they will be impacted; and 3] Identify how they will be **mitigated**. Also Federal law Section 106 lacking Burial and Historic Site Protection Planning Policies, reverting back to State responsibility in protecting Native Rights under State Constitution Article 12, section 7, e.g.

Dear Mr. Takeda:

We are writing to you again to inform you of your deliberate intention to violate the laws mention above.

Our families are requesting you immediately cease and desist your deliberate desecration to our religious temple Ka 'anani'au , Kahaloko and families' burial place. Due to you/RM Towill deliberately allowing geo-drilling in our Traditional Cultural Property (TCP) without **lawful mitigation** of your adverse impacts, we find your decision and activities to be a deliberate act in violation of the laws mentioned above.

Hawaii Supreme Court Ruling KA-PA'AKAI held, that the state shall: **1]** Identify resources and practices in the project area {Consultation, site interpretation, resources and practices have been identified to you at our on-site meeting (5-31-05)}; **2]** Identify how they will be impacted {Deliberate adverse affects to irreplaceable religious temple, burial sites and TCP are unacceptable}; and **3]** Identify how they will **Mitigate** the impacts by the project {Understandingly to **alleviate** deliberate adverse impacts, **On-site Cultural Monitoring** is **truly** the only **acceptable** alternative available to **mitigate** and reasonably minimize adverse impacts. However you have not respectfully responded to our request specifically concerning mitigation, it remains ignored by you not responding to us, and for on-site cultural monitoring to date, while you/Towill are still geo-drilling in our TCP which we strongly object to as mention above}.

We stated to you again, at our on-site meeting of May 31, 2005 regarding maintaining cultural and site sensitivity and marked on your map the area of concern. Also the importance of **on-site cultural monitoring** in your project area.

Any destruction of our sacred cultural sites including those containing our beloved kupuna, will be considered by our Kupukaaina as deliberate, wanton and irreparable harm. We hope you make the right decision. Mahalo.

Sincerely submitted,

Alika Silva 6/16/05

Alika Poe Silva, Kahu Kulaiwi, Koa Mana, Kupukaaina o Waianae Moku, Oahu
You can contact me at Ph. 696-0041 or write to 85-140 Maiuu Rd. Waianae Hi. 96792.

Brian Taketa
Planning Project Coordinator
R M Towill

January 21, 2005

Re: SHPD recording and establishing **site interpretations** without **substantive consultation** with lineal descendants, Koa Mana's concern for TCP in the Makaha Bridge area, and concerns for the **observance** of the State Audit (Report No. 04-15) and under Chapters 6E, 6E-2, 6E-3.3, 6E- 4, HRS and Chapters 13-300, 13-300-4, 13-300-28(b), 13-300-31(c), 13-300-31(d), 13-300-31(f), 13-300-32(c) and 13-300-35 (f) HAR.

Dear Brian:

Thank you for addressing our concerns regarding our family burial grounds. **Previously**, SHPD's staffers and archaeologist have been determining and recommending what is culturally sensitive and what is to be recorded for cultural interpretation of sites. This was done without the input of lineal descendants and Koa Mana's MOA. In a resent audit dated December 2004, the office of the Auditor determined that the DLNR/SHPD's approach to the trusteeship of iwi kupuna was "**haphazard, disorderly, completely lacking... inadequate and culturally insensitive...**" The audit report also noted a heavy reliance by the SHPD on western methods of site identification to the **detriment of the Hawaiian culture and native people**. In summary the State Audit found:

- State and **Federal** laws recognized the reverence paid by native Hawaiians to remains of ancestors;
- Families are kept waiting for determinations of **lineal** or cultural recognition;
- A **haphazard** approach to the trusteeship and the respectful disposition of families iwi kupuna; and
- **Oral traditions** are vital to the Hawaiian culture and should be valued in this process.

We recommend SHPD give equal, or greater weight to lineal descendants regarding cultural interpretation as the substance, significant and spiritual relationship of any one individual, family or families of lineal descent to a site or feature that is often greater than its physical characteristics. **Determining** these cultural aspects of a site, feature or area in context of foreign activities and projects is the **significant and important role of lineal descendant cultural monitors for cultural interpretation and preservation.**

Understandingly, SHPD's previous recommendations to Towill were flawed, as the audit gives opportunity to inform and consult with known lineal descendants for **substantive** consultation and cultural **interpretation.** You also expressed how Alani Apio of the BWS wanted the Makaha Ahupuaa, a non-Hawaiian organization to determine the sensitivity of the area. As I stated, Apio and his Ahupuaa group do not represent our lineal descendant families, for they have no history to this area and has deliberately ignored state laws and statues that resulted in desecration of family burials and TCP, such as Kaneikapualena Heiau. Apio and the BWS are liable for deliberate damages to Hawaiian burials and nationally registered historic sites, and the BWS for deliberately destroying wetlands in Kamaile, Waianae.

We again request that you review the State Audit and contact the new SHPD Administrator. Please inform us of what sites or features are marked sensitive in your project area and your plans for using lineal descendant cultural monitors in known burial grounds. Mahalo.

Sincerely submitted,

Alika Silva

Alika Silva, Kahu Kulaiwi, Koa Mana, Kupukaaina, Waianae Moku, Oahu
Mailing Address 85-140 Maiuu Rd, Waianae, HI 96792 Phone: 696-0041

cc. Tom Lenchanko, Aha Kukaniloko and Kahunana, spokesperson
Dexter Kaiama, Attorney at law
Lance Foster, OHA Director of Native Rights Land and Culture
Glen Kila, Waianae Neighborhood Board Representative

420 Waiakamilo Road
Suite 411
Honolulu, HI 96817-4941
Tel. 808 842 1133
Fax 808 842 1937
eMail: rmtowill@i-one.com

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Please contact our office at 842-1133 should problems occur with transmission or receipt of facsimile documents.

To:	**Ms. Alika Silva** **Koa Mana** **85-140 Maiuu Road** **Waianae, Hawaii 96792**	**Sent by:**	**Brian Takeda** **Planning Project Coordinator**
Phone/ Facsimile:	**696-0041**	**Subject:**	**Phone Call on July 12, 2005 Regarding Section 106 Consultation for Mākaha Bridge No. 3 and No. 3A Replacements Federal Aid Project No. BR-093-1(20)**
Date:	**July 13, 2005**		

Dear Mr. Silva:

This is in response to your phone message on July 12, 2005. I returned your call at 2:30 PM the same day and waited for approximately 10 to 12 rings before hanging up since there was no answering machine to leave a message for you. I am sorry I missed your call but wish to respond to your comments concerning: (1) you have not heard from us since our site visit with you on May 31, 2005; (2) you are asking us to cease work on this project stating that we are desecrating your ancestral and religious lands; and (3) you wish to be provided with an update concerning the project.

1. Follow-up Concerning May 31st Site Visit

On June 17, 2005 we mailed a certified letter to you dated June 15, 2005, in follow-up to our May 31st meeting. This letter and its attachments are again attached to this correspondence. We have been advised by the U.S. Postal Service that they will make one attempt to deliver a letter that has been sent by certified mail. If no one is there to receive the mail the Post Office will leave two 10-day notices that a letter is waiting for you at the Post Office for pick-up. After a total of 20-days if the letter has still not been picked-up it will be returned to the sender. Because you have indicated that you have not received any of the correspondence that we have mailed to you, we will do the following for future correspondence:

A. Mail one copy of the correspondence by regular mail;
B. Mail one copy of the correspondence by certified mail; and
C. Fax a copy of the correspondence to you at the phone number you have provided as 696-0041.

2. Request for Cessation of Work

We are sorry that you have decided to request a stoppage of work and understand that you are opposed to any work on this project unless your services are used as a cultural monitor. We hope you will review the letter dated June 15, 2005 (attached), which we prepared for you in coordination with the State Department of Transportation and the Federal Highway Administration.

Regarding the recently completed geotechnical exploration of the site, we note that the work undertaken involved archaeological monitoring that was reviewed and approved by the State

Historic Preservation Division (SHPD) prior to start-up. No Iwi or human remains were discovered during the course of the soils sampling.

3. Update Concerning Future Project Activities

As noted in our June letter the design and environmental documents are currently being prepared for this project. We have also advised you that an archaeological inventory survey is in preparation and that we will continue to provide notification and seek consultation with the Hawaiian community, Native Hawaiian Organizations, the State Historic Preservation Officer, SHPD, and other appropriate agencies and parties to ascertain if there are any archaeological or cultural issues of concern that should be addressed prior to the start of the survey. We expect to shortly mail the notification of the survey.

If you should have any further comments may we ask that you please provide them in writing so that you can assured of a prompt reply.

Thank you.

Attachment

cc Mr. Emilio Barroga, P.E., DOT
Mr. Nathan Napoka, SHPD
Mr. Lance Foster, OHA

16

420 Waiakamilo Road
Suite 411
Honolulu Hawaii 96817-4941
Telephone 808 842 1133
Fax 808 842 1937
eMail rmtowill@hawaii.rr.com

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July 13, 2005

Mr. Lance Foster, Director
Native Rights Division
Office of Hawaiian Affairs
711 Kapi`olani Boulevard, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Foster:

Request for Section 106 Consultation, National Historic Preservation Act
Makaha Bridge 3 and 3A Replacement, Farrington Highway, Makaha, Oahu
Federal Aid Project No. BR-093-1(20)

On behalf of the State Department of Transportation, Highways Division (DOT-H), we are requesting consultation with the Office of Hawaiian Affairs (OHA) for the subject project which involves the replacement of two 70-year old timber bridges along Farrington Highway.

The proposed project will improve drainage along two drainageways, demolish and replace two timber bridge structures, and construct a temporary detour road. Accessory improvements will include construction of sidewalks, relocation of two bus facilities, replacement of existing driveways, and relocation of water, electrical, and telecommunications utilities. A figure describing this project is attached and we will coordinate with OHA during preparation of the Draft Environmental Assessment.

We are continuing with efforts to consult with Hawaiian, Native Hawaiian, and community organizations and governmental agencies to identify important cultural or archaeological resources that may be affected by the proposed project. We have been advised by Mr. Alika Silva, Koa Mana, that he has been in contact with you concerning protection and preservation of the ancestral remains of members of his family which he has stated is within the limits of the proposed project. Because it is our intention that these resources be properly respected and preserved in accordance with law we ask that this information, which we understand is of an extremely sensitive nature, be provided to the State Historic Preservation Division (SHPD), of the Department of Land and Natural Resources. Our purpose for making this request is to ensure that all reasonable steps are taken to ensure against the possibility of disturbing a known burial site and for SHPD to provide direction to us accordingly.

We appreciate the time you have taken to discuss this important project with us and look forward to your future guidance. If you should have any questions concerning this matter please do not hesitate to contact us at 842-1133 or by e-mail to: briant@rmtowill.com.

Sincerely,

Brian Takeda

Brian Takeda
Planning Project Coordinator

Attachment

cc Mr. Emilio Barroga, P.E., Project Manager
Technical Design Services Office
State Department of Transportation
601 Kamokila Boulevard, Room 688
Kapolei, Hawai 96707

Mr. Nathan Napoka, History and Culture Branch Chief
State Historic Preservation Division
State Department of Land and Natural Resources
601 Kamokila Boulevard, Room 555
Kapolei, Hawai 96707

MO RMTC

Farrington Highway

Makaha Bridge No. 3 and No. 3A Replacements Federal Aid Project No. BR-093-1(20)

Notice of Archaeological Inventory Survey

August 4, 2005

The State Department of Transportation - Highways Division (DOTH) through its consultant R.M. Towill Corporation is providing this follow-up notification of project activities for the replacement of two timber bridges (Nos. 3 and 3A) along Farrington Highway, Route 93, between milepost markers number 13.95 and number 14.21 in Makaha, Waianae District, Oahu, Hawaii.

An archaeological survey has been scheduled to take place between August 22 and August 31, 2005. The purpose for conducting this survey is to assess and ensure against disturbance of significant cultural and archaeological resources that may be discovered within the project limits during construction of the bridge replacements and accessory work.

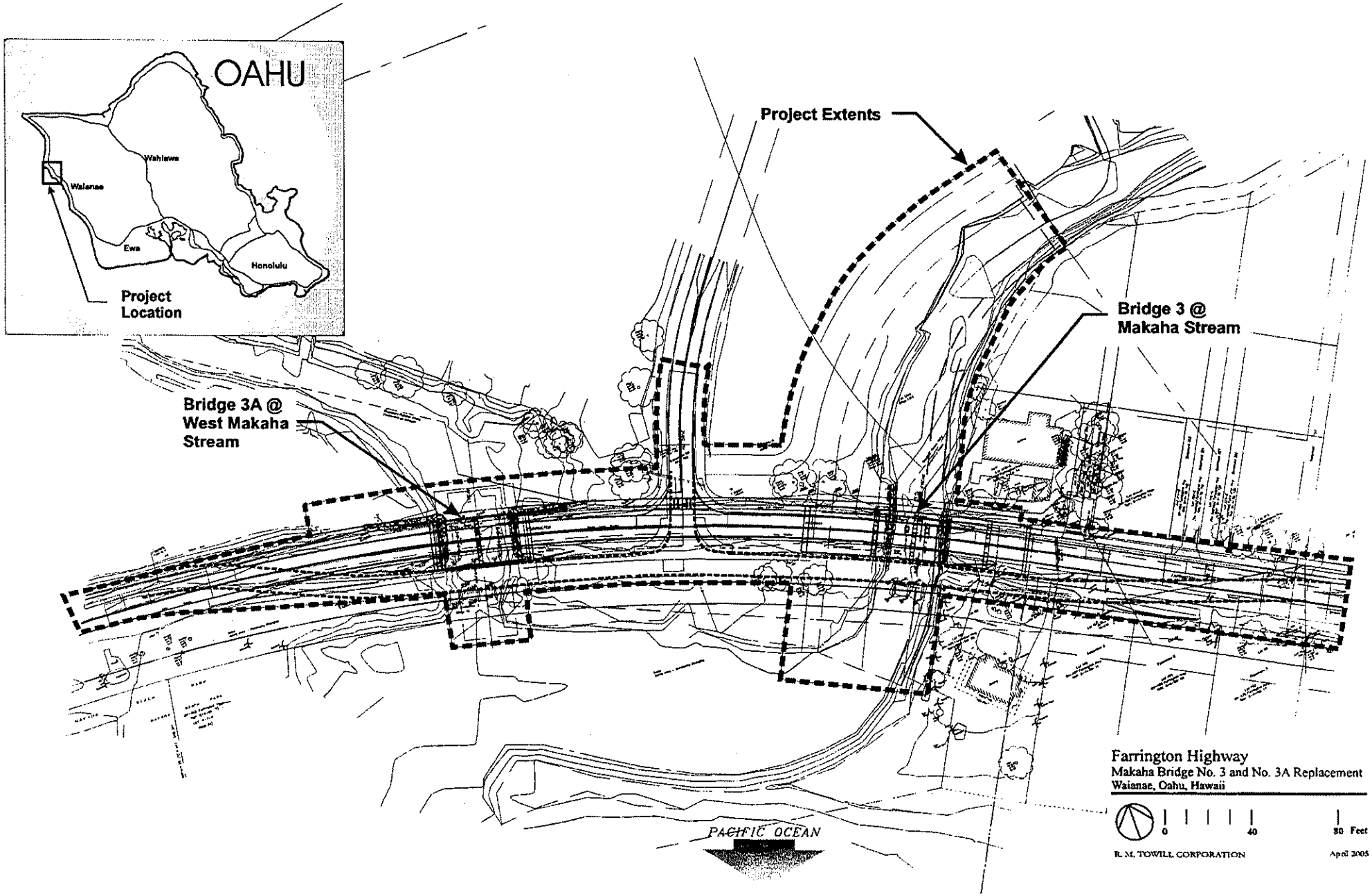
The location of the project site is attached for reference.

All work undertaken for this survey will be in accordance with applicable requirements governing the conduct of archaeological site work. This will include the rules and regulations of the State Historic Preservation Division, Department of Land and Natural Resources; Chapter 6E, Hawaii Revised Statutes; and Section 106 of the National Historic Preservation Act.

QUESTIONS? Please call Brian Takeda, R.M. Towill Corporation at 842-1133. If there are comments please provide them in writing to R.M. Towill Corporation, 420 Waiakamilo Road, Suite 411, Honolulu, Hawaii 96817.

Thank you

Attachment


OAHU
Wahiawa
Waianae
Ewa
Honolulu
Project Location
Project Extents
Bridge 3 @ Makaha Stream
Bridge 3A @ West Makaha Stream
PACIFIC OCEAN
Farrington Highway
Makaha Bridge No. 3 and No. 3A Replacement
Waianae, Oahu, Hawaii
0
40
80 Feet
R. M. TOWILL CORPORATION
April 2005

18

420 Waiakamilo Road
Suite 411
Honolulu, HI 96817-4941
Tel. 808 842 1133
Fax 808 842 1937
eMail: briant@rmtowill.com

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Please contact our office at 842-1133 should problems occur with transmission or receipt of facsimile documents.

Proj. No.: 1-19969-0P

To: Nathan E. Napoka
History and Culture Branch Chief
State Historic Preservation Division
Dept. of Land and Natural Resources
601 Kamokila Boulevard, Suite 555
Kakuhihewa Building
Kapolei, Hawaii 96707
Phone: (808) 587-0192

Sent by: Brian Takeda
Planning Project Coordinator

cc: Mike Okamoto, P.E.
Engineering Project Coordinator

FAX #: (808) 587-0044

Date: August 4, 2005

Subject: Section 106 Process for Makaha Bridges Project: OHA Response to July 13, 2005 Letter from RMTC

Dear Nathan,

We have received a response letter to our earlier inquiry to OHA asking that if there is any Native Hawaiian burial information provided to them by Mr. Alika Silva that it be transmitted to SHPD for proper handling (e.g., confidentiality of information). Unfortunately, the response we received does not state that the location information has been provided to SHPD other than to indicate that Mr. Silva has reported "...that at least one set of human remains exists within the bounds of proposed construction." Because the size of the project site extends across several acres this information does not add further clarity as to where there must be special consideration or treatment of any ground that is known to contain iwi.

We further understand that to date, that Mr. Silva has not provided the specific location and related information concerning ancestral burials at the Makaha Bridges Project Site to SHPD that would allow you to provide guidance to us on this matter. We have discussed this matter with our archaeological consultant, Cultural Surveys of Hawaii (CSH), who will proceed with the archaeological inventory survey starting the week of August 22nd for a period of less than approximately 1-week. As previously coordinated with SHPD, all work will be in accordance with the previously accepted archaeological monitoring plan.

OHA has further recommended that we include our notice of the archaeological survey to the following persons:

Alice Greenwood, William Aila, Hanalei Hopfe, Glen Kila, and Tom Lenchanko.

Most of these individuals are already on our list of community members to be contacted. Only Ms. Hanalei Hopfa and Mr. Tom Lenchanko will need to be added. We will also again mail to Mr. Silva notification concerning this work to allow him the opportunity to respond..

Do not hesitate to call or e-mail me if there are any questions.

Sincerely,
Brian.

Attachments

PHONE (808) 594-1888

FAX (808) 594-1865

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

HRD05/1469B

August 1, 2005

Brian Takeda
R.M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, HI 96813

RE: Section 106 Consultation for the Proposed Replacement of Mākaha Bridges 3 and 3A, Mākaha, O'ahu, Federal Aid Project Number BR-093-1 (20).

Dear Mr. Takeda,

The Office of Hawaiian Affairs (OHA) is in receipt of your July 13, 2005 request for comment on the above listed proposed project, Federal Aid Project Number BR-093-1 (20). OHA offers the following comments:

It appears as that the consultation process in support of the proposed project has begun; the request letter mentions that Alika Silva of the group Koa Mana has been consulted and has made substantive comments. OHA recommends that the following individuals also be contacted as part of the Section 106 consultation: Alice Greenwood, William Aila, Hanalei Hopfe, Glen Kila and Tom Lenchanko. These individuals have served as cultural consultants on prior projects and can likely assist you in this process.

Alika Silva of the group Koa Mana has reported that at least one set of human remains exists within the bounds of proposed construction. Mr. Silva identifies these remains as those of his lineal ancestors. Due to this, OHA recommends that some form of action be taken to address this concern. The mitigation could be in the form of subsurface testing in the presence of Mr. Silva or, if possible, altering the construction plans to avoid the area of concern.

OHA further requests your assurances that if the project goes forward, should iwi or Native Hawaiian cultural or traditional deposits be found during ground disturbance, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.

Thank you for the opportunity to comment. If you have further questions or concerns, please contact Jesse Yorck at (808) 594-0239 or jessey@oha.org.

'O wau iho nō,

Clyde W. Nāmu'o
Administrator

420 Walakamilo Road
Suite 411
Honolulu Hawaii 96817-4950
Telephone 808 842 1133
Fax 808 842 1937
eMail rmtowill@hawaii.rr.com

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COPY

August 19, 2005

Mr. Alika Silva
Koa Mana
85-140 Maiuu Road
Wai'anae, Hawai'i 96792

Dear Mr. Silva:

Section 106 Consultation Regarding
Mākaha Bridge No. 3 and No. 3A Replacements
Federal Aid Project No. BR-093-1(20)

We acknowledge receipt of your letter dated August 11, 2005 transmitted by facsimile. A copy has been forwarded to the Department of Transportation (DOT) to provide them with a record of your correspondence. The following has been prepared in response (your comments are cited verbatim in italics):

> *"Re: Takeda's intentional violations of Supreme Court ruling, Ka Pa'akai, which set forth a frame work for historic site and Traditional Cultural Practices (TCP), Preservation, protection"*

We strongly disagree that our efforts constitute an "intentional violation." In fact, the approach used for this project demonstrates a desire for correct and proper sensitivity to Native Hawaiian and Hawaiian culture by actively seeking consultation often and early.

> *"We have concerns regarding your Survey for your Project ie. Geo drilling, intentionally lack of substantive consultation, and series of deliberate desecration of our sacred sites at Ka'anani'au, Kahaloko. Also removal of materials/samples from below disturbed Road surface and area. We hope your new found intentions include apologizing and returning the sample materials illegally taken from our sacred temple without consultation and/or consent. US Joint Resolution did not transfer dominion."*

We also strongly disagree that there has been a lack of substantive consultation and point out that we have substantively consulted with you as well the Hawaiian and Native Hawaiian Community concerning this project. The consultation conducted to date represents a deliberate effort to inform and involve the community to help provide a better project. We provided notification and sought consultation in numerous letters (many of which were addressed to you by certified mail), a legal notification in the Honolulu Advertiser on Saturday, April 30, 2005, at meetings before the Wai'anae Neighborhood Board, and at a town hall meeting sponsored by State Senator Colleen Hanabusa where the Mākaha Bridges project was presented as one of several projects before the community. During a meeting with you on May 31, 2005, representatives of the State Department of Transportation were present, where you shared information concerning the cultural history of the area but did not help us identify specific locations or sites associated with this project where special treatment or cultural sensitivity should be practiced. You did, however, circle the entirety of the project site which covers an area in excess of +160,000 square feet

or approximately 3.8 acres, and did ask that no ground disturbance be undertaken using a backhoe or bulldozer during the archaeological inventory survey.

It is unfortunate that you did not choose to help identify specific locations that would help us to know where we could show sensitivity to or special treatment to the ground. Because of this it is not possible nor is it reasonable to conduct all inventory work using hand tools and no construction equipment. We note that we have asked you to coordinate your family information (privileged and confidential) on the location of ancestral burials and important cultural sites with the State Historic Preservation Division and/or O'ahu Island Burial Council in order that they might direct us to conduct the work to avoid such places while keeping the information you provide confidential.

The geotechnical work you are referring to was completed several months ago on land under jurisdiction of the DOT. As we have notified you, the project archaeologists found no human remains during the geotechnical work. Because you are now requesting the return of these soils, we have undertaken the following: (1) We consulted with the soils engineer to determine if the soil samples are still in their possession. We have been advised that the core samples are under analyses that are being conducted as part of a geotechnical soils report. It is standard soils engineering practice for these samples to be retained until after the completion of construction. This is to ensure that should further analyses be required that the samples are readily available; and (2) We forwarded your request for these soils to DOT. We will provide you with their response once we are notified.

> *"Our family wants to know which firm is doing the Archaeological Inventory Survey work, and we have personal knowledge of sites in the area. We want to be notified of the time and place of the proposed testing. Prior to the commencement of such testing, we want to over see and insure the cultural integrity and sensitivity of the Inventory Survey. Furthermore we recommend no Back-hoe equipment be used for survey testing, and again all test materials be returned to our family site."*

On May 31, 2005, during an on-site meeting where you were present we informed you that Cultural Surveys Hawai'i would be conducting the archaeological work. The planned schedule for start-up of the survey will be from August 29th to September 1st. The actual time on-site and locations will vary depending on weather and work requirements. All work will be conducted during the normal work day and it will not be difficult to observe where the archaeologists will be since the area is relatively open and can be viewed from along Farrington Highway in the area of the Mākaha Beach Park. Although you have asked to oversee this work please be advised that all work will be undertaken in accordance with applicable rules and regulations governing archaeological field investigations including exercising cultural sensitivity for and respect of, any culturally significant remains that may be inadvertently discovered to ensure cultural integrity of the site. In the event of an inadvertent discovery the archaeologists are required to report any discoveries to SHPD, who will determine the subsequent steps that will be taken.

Your request that all materials recovered are returned to the site will be forwarded to the appropriate landowners and parties involved. We will provide you with a response once we have been notified.

> *"Criterion for information, significance and content evaluation, association with events of prehistory and method of construction for traditional Hawaiian sites affiliated with ceremonial functions, aqua and agriculture, habitation and relationships evaluates potential eligible sites for traditional cultural property recognition and for the National Register of Historic Sites. Criterion also embodies the distinctive characteristics of a type period and/or location such as Kahaloko (land, inshore fishpond) and Ka'anani'au (temple), dividing fish and sacred sites associated with lives of persons significant in our family and past. You were served notice these are National Treasures, and you ignored it."*

We do not agree with your assertion that you have been ignored. The purpose for conducting the archaeological survey is to examine the project site in accordance with law and to prepare a report for review by SHPD for a significance determination. Based on the determination that is issued by SHPD, the project work that is required will be reviewed and appropriate steps taken to ensure proper treatment of significant archaeological and/or culturally important sites. The taking of these steps rather than ignoring, instead recognizes the importance of properly treating, showing respect for, and understanding the history of use at the project site.

> *"Additionally we recommend you survey the portion of the Kahaloko (fishpond), particularly the areas near the mauka side of the Bridges and fishpond where additional sites or features are likely to be present. In the event that project sites will be adversely affected, all sites are recommended for avoidance and protection in place. If construction cannot avoid cultural sacred sites, additional substantive consultation among our family and regulators parties will be initiated."*

> *"Hawaii Supreme Court ruling **Ka Pa'akai** clearly provides a frame work to lawfully mitigate adverse affects as noticed in our 16th June and other letters to you and the SHPD. Yours and SHPD's series of extermination will not be tolerated. Additional destruction of our sacred cultural sites including those containing our beloved kupuna, will be considered as deliberate, wanton and irreparable harm. Which may be resolved in an International Court, FM 27-10, Article 56. Mahalo."*

We do not anticipate the Kahaloko (fishpond) area will need to be surveyed for this project. Locations that are adjacent to Kahaloko may be surveyed, however, to ensure against the potential for disturbance to cultural remains during construction.

We recognize your right to claim the subject locations as culturally important sites and have previously advised you that the appropriate party to assign the designation you are seeking should be the SHPD and/or the O'ahu Island Burial Council. Accordingly, until such designation is given we have notified and coordinated the work for this project with the Hawaiian and Native Hawaiian community in the area (including yourself), community groups and organizations, and appropriate governmental agencies. These actions are to ensure that we fulfill all required regulations while remaining culturally sensitive to the project area. This clearly contrasts with your incorrect characterization that there has been "extermination" and "...deliberate, wanton and irreparable harm."

We close by adding that we will continue to adhere to the rules, regulations, and requirements of law. This will include our continuing efforts to provide notification to the public and to seek further consultation concerning work for this important project.

Sincerely,

Brian Takeda

Brian Takeda
Planning Project Coordinator

Attachments

cc: KK FHWA/EB DOT-H/MC/NN/MC SHPD
Councilman Todd Apo, Honolulu City Council
Chairperson Cynthia Rezentes, Waianae Neighborhood Board
State Senator Colleen Hanabusa
Senator Daniel Akaka

* * * Transmission Result Report (Aug. 24. 2005 2:57PM) * * *

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Reason for Error
1) Hang up or line fail
2) Busy
3) No answer
4) No facsimile connection

420 Waiakamilo Road
Suite 411
Honolulu Hawaii 96817-4950
Telephone 808 842 1133
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August 19, 2005

Mr. Alika Silva
Koa Mana
85-140 Maiuu Road
Wai'anae, Hawai'i 96792

Dear Mr. Silva:

Section 106 Consultation Regarding
Mākaha Bridge No. 3 and No. 3A Replacements
Federal Aid Project No. BR-093-1(20)

We acknowledge receipt of your letter dated August 11, 2005 transmitted by facsimile. A copy has been forwarded to the Department of Transportation (DOT) to provide them with a record of your correspondence. The following has been prepared in response (your comments are cited verbatim in italics):

"Re: Takeda's intentional violations of Supreme Court ruling, Ka Pa'akai, which set forth a frame work

* * * Transmission Result Report (Aug. 24. 2005 2:13PM) * * *

File	Mode	Option	Address (Group)	Result	Page
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2681	SAF_TX		6960041	E-3) 3) 3) 3) 3)	P. 0/3

Reason for Error
1) Hang up or line fail
2) Busy
3) No answer
4) No facsimile connection

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696-0041
3 PGS.

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85-140 Maiau Road
Wai'anae, Hawai'i 96792

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* * * Transmission Result Report (Aug. 24. 2005 4:08PM) * * *

File	Mode	Option	Address (Group)	Result	Page
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2688	SAF_TX		6960041	E-3) 3) 3) 3) 3)	P. 0/3

Reason for Error
1) Hang up or line fail
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3) No answer
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"[illegible] violations of Supreme Court ruling Ka Pa'akai, which set forth a frame work

20

RM Towill
Brian Takeda

August 25, 2005

Re: Takeda's fraudulent statements in his response letter, i.e. **ignoring our plea for preservation and protection** for a culturally **significant historic site**, a national treasure, Kahaloko, is on 1855 map

Ano'ai Mr. Takeda:

You make us very concerned for our national treasure of the Hawaiian Kingdom, and family sacred sites as you know by now are at Kahaloko as we showed you on the 1855-1884 circa map. As I told you on many occasions and in writing concerning cultural sensitivity and the actions necessary to preserver and protect the only **surviving** and **significant** historic site of it kind, remaining in Waianae today and known by the kupukaaina as "Kahaloko (shoreline and in-land fishpond)." Largely still intact, and maybe the only one remaining on the entire leeward side of O'ahu. Your decision to ignore our notices of **significant historic sites** is your choice, you are responsible for it, and for legal redress.

Regarding your August 19, 2005, response letter you sounded so hypocritical by stating what you want us to do, but on the contrary it's what you don't do, which is to follow the law such as your Ka Pa'akai, Hawaii Supreme Court Ruling, land mark decision, giving frame work for **you** to follow. Oh but take our concerns to SHPD you say. Nonetheless you skid and state," *please be advised that all work will be undertaken in accordance with applicable rules and regulations governing archeological field investigation including exercising cultural sensitivity for and respect of,* **any culturally significant remains** *that may be inadvertently discovered to ensure cultural integrity of the sites."* You call finding a site, and how significant it was, after you destroy it, an inadvertent act, but we put you on notice of the **existence** of this site. We consider it an intentional desecration subject to civil and criminal penalty. An easy question, can a site be significant by it's self? Can our **Kahaloko** and **Ka'anani'au** be given a sensitive and proper level of cultural **respect.** Is it possible to you since I shown you a **1850th map** circa identifying **Kahaloko** and it's **valuable significance.**

Your Makaha Bridge Replacement Project, as I told you, is in the middle of a national treasure. Your conning adolescence and immature slippery responses conveniently omitted addressing my concerns expressed in paragraphs 2 and 3. Since I first spoke with you on 11.4.04, I requested that you check with SHPD and it's data-base regarding **site significance**, maps, return of iwi to this site by Koa Mana, and burial recognition request, unanswered by SHPD/BSP since 1.7.04, for this site. You do not quote our concerns to SHPD in writing or reflect any guidance from them in your letter response. Your response letter (8.19.05) puts our concerns as insignificant. Also you subtly and shamelessly ignore the Ka Pa'akai required frame work for **you** to adhere to and follow. Also, you recommended that we take our concerns to SHPD, yet you don't, because you know they are incompetent, and have no staff. You told me on our May 31 meeting that SHPD was not able to attend and had no response from them to date. I informed you of the findings and recommendations of the state Audit 04-15, Dec. 2004, which was critical of SHPD, not having staff, and being haphazard and incompetent. You are intentionally taking advantage of that, besides being a shameless liar, you also are a criminal guilty of war crimes.

Nonetheless on September 4, 2005, Ho'olokahi at Kukaniloko, will be a celebration of indigenous Hawaiian people and supporters and a proclamation will be read and a petition will be signed acknowledging your involvement in the intentional crime of genocide. When we have at least five thousand signatures, we will be calling a meeting/press release with the proper media and you'll be included on the agenda. Remember national treasures can be called significant and significant national treasures, by law, shall be required to be culturally monitored and protected. FM 27-10. Mahalo.

Alika Poe Silva 8.25.05

Alika Poe Silva, Kahu kulaiwi, Koa Mana, Kupukaaina o Waianae Moku, O'ahu

c.

Tom Lenchanko, Kahu Kolaila, spokesperson Aha Kukaniloko O'ahu