JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

TEL. (808) 270-7745
FAX (808) 270-7975

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

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

TRACY TAKAMINE, P.E.
Wastewater Reclamation Division

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

JOHN D. HARDER
Solid Waste Division

BRIAN HASHIRO, P.E.
Highways Division

August 30, 2002

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

Dear Ms. Genevieve Salmonson:

Subject: Final Environmental Assessment (FEA)/
Finding of No Significant Impact
Paihi Bridge Replacement
Federal Aid Project No. BR-0900(61)
Tax Map Keys: (2) 1-5-8:6, 1-5-10:1 and 2
Hāna, Maui, Hawaii

The County of Maui Department of Public Works and Waste Management has reviewed the subject FEA and has determined that a Finding of No Significant Impact (FONSI) is appropriate. Please publish notice of availability for this project in the September 23, 2002 issue of your Environmental Notice.

Attached please find the following items:

- Four copies of the FEA;
- Completed OEQC Publication Form;
- Completed FEA Distribution Cover Letter; and
- Completed FEA Distribution List.

Please call Joe Krueger of our office at (808) 270-7745 or Laura Mau of Wilson Okamoto & Associates, Inc. at 946-2277 should you have any questions or require additional information.

Sincerely,

for David Goode, Director

DG:LL:JK(ED02-)
Enclosures

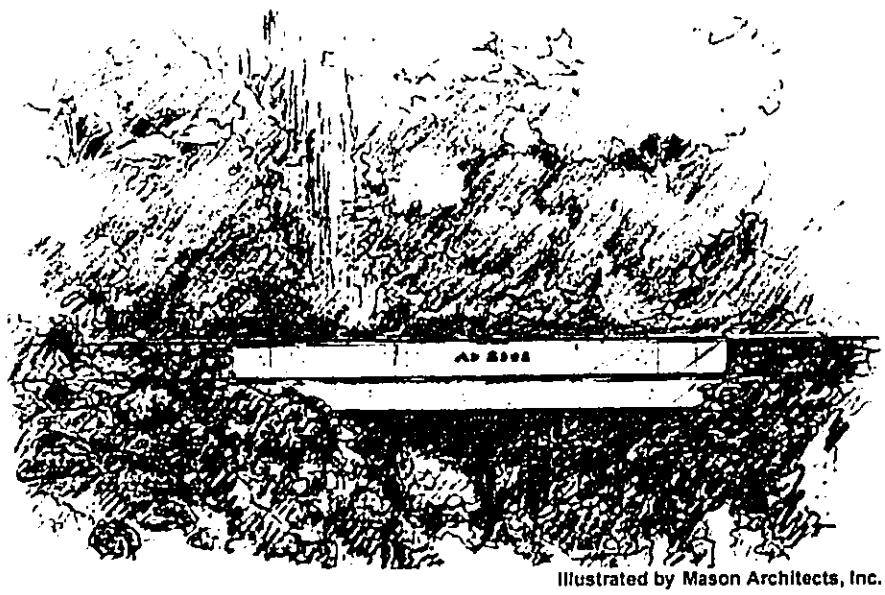
cc: Wilson Okamoto & Associates, Inc.

2002-09-23-MA-FEA-

Final Environmental Assessment and Finding of No Significant Impact

Paihī Bridge Replacement

Federal Aid Project No. BR-0900(61)



Illustrated by Mason Architects, Inc.

Prepared For:

County of Maui
Department of Public Works and Waste Management

Prepared By:

Wilson Okamoto & Associates, Inc.

August 2002

Final Environmental Assessment

Paihī Bridge Replacement
Federal Aid Project No. BR-0900(61)
Hāna, Maui, Hawaii

Prepared for:
County of Maui
Department of Public Works and Waste Management
200 South High Street
Wailuku, Hawaii 96793

Prepared by:
Wilson Okamoto & Associates, Inc.
Engineers and Planners
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

August 2002

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PREFACE

This Final Environmental Assessment (EA) has been prepared pursuant to Chapter 343, Hawaii Revised Statutes, and Title 11, Chapter 200, Administrative Rules, Department of Health, State of Hawaii. Proposed is an agency action by the County of Maui Department of Public Works and Waste Management to Paihī Bridge, located along Hāna Highway in Hāna on the Island of Maui.

The proposed Paihī Bridge replacement is based on the recommendations of the Preservation Plan for County of Maui Bridges Within the Hāna Highway Historic District (December 2001) which received the concurrence of the State Historic Preservation Division (SHPD), Department of Land and Natural Resources (DLNR) on December 3, 2001 which required the preparation of the Preservation Plan prior to any further work on County bridges within the Historic District.

SUMMARY

Applicant:	County of Maui, Dept. of Public Works and Waste Mgt.
Accepting Agency:	County of Maui, Dept. of Public Works and Waste Mgt.
Project Location:	Hāna, Maui, Hawaii
Tax Map Keys:	Portions of 1-5-8:6 (lands mauka of Hāna Highway) 1-5-10:1 and 2 (lands makai of Hāna Highway)
Area:	4,800 square feet
Recorded Fee Owner:	Site for existing & replacement bridge – No TMK - County of Maui Site for temporary bridge - TMK 1-5-10:1 - Eric H. Liljestrand TMK 1-5-10:2 - Byron K. Aikau Candace K. Aikau David Aikau James K. Aikau Jr. John Aikau Jr. Wilhelm Aikau Dawn M. Byars Charles E. Clark Clifford J. Clark Fred. E. Clark Dorothy K. Fife Sara Aikau Rego, Trust Helen H. Tanaka
Existing Use:	Single-lane concrete bridge
State Land Use Classification:	Conservation
Community Plan Designation:	Agriculture
County Zoning Designation:	Interim

Proposed Action: New single-lane concrete bridge and temporary single-lane steel panel bridge

Summary of Impacts:

Geology, Topography and Soils: Excavation and drilling will be required to accommodate the new bridge abutments and footings to be placed behind the existing abutments. Likewise, excavation and drilling will be required for the temporary bridge abutments. Grading activities are also required in and around the project site to accommodate the replacement and temporary bridges as well as their respective roadway approaches. Following construction of the abutments, excess excavation will be backfilled. Soils exposed by grading will be paved over or re-vegetated. Excavation and grading activities associated with construction of the proposed project will be regulated by Chapter 20.08 of the Maui County Code.

Noise: Noise from construction activities will be unavoidable during the *entire construction period*. Unavoidable construction noise impacts will be mitigated to some degree by the contractor's compliance with provisions of the State DOH Administrative Rules, Title 11, Chapter 46, "Community Noise Control." noise control regulations. These rules require a noise permit if the noise levels from construction activities are expected to exceed the allowable levels stated in the Chapter 46 rules. It shall be the contractor's responsibility to minimize noise by properly maintaining noise mufflers and other noise-attenuating equipment, and to maintain noise levels within regulatory limits. Also, the guidelines for the hours of heavy equipment operation and noise curfew times as set forth by the DOH noise control rules will be adhered to. In the long term, no significant noise impacts from the operation of the replacement bridge are anticipated.

Historic Resources: With the exception of the existing abutments, the bridge will be demolished and removed from the site. Prior to demolition, however, pursuant to Section 4(f) of the Department of Transportation Act, the existing bridge will be made available for an alternate use, provided that a responsible party agrees to maintain and preserve the bridge. The project will comply with the HAER requirements pertaining to photographic documentation and recordation

pursuant to Section 106 of the Historic Preservation Act. The HAER photographic documentation will be submitted to the State Historic Preservation Division of the Department of Land and Natural Resources as well as the National Park Service for review and approval.

Economic Impacts: The total direct, indirect and induced job creation during the construction period is projected to be up to 56.2 jobs, while the direct, indirect and induced income generation is projected to be up to $1,234,800.

With two periods of complete road closure spanning up to seven days for the set-up and breakdown of the temporary bridge, as well as intermittent closures lasting up to several hours, visitor related activities to the area will be impacted. Such activities would include visits to Haleakalā National Park and Hāna Town, as well as visitor accommodations. Closures will also impact business that are not visitor-related. Access to government services as well as police, fire, and emergency services will also be impacted.

Special provisions will be coordinated for health and emergency services during periods of night closure and complete closure. All closures, however, will be closely coordinated with the community including police, fire and ambulance services as well as residents, businesses, schools, and government offices. Prior to the start of construction, a telephone hotline will be established to provide information to the public regarding the status of road closures. The hotline will remain in operation throughout the construction period. Motorists will also be advised of closure schedules through the media.

Determination: Finding of No Significant Impact

Parties Consulted During Pre-Assessment:

Federal Agencies (4)

U.S. Department of Transportation, Federal Highway Administration
U.S. Department of the Army - Corps of Engineers
U.S. Department of the Interior - Fish and Wildlife Service
U.S. Department of Agriculture – Natural Resources Conservation Service

Parties Consulted During Pre-Assessment (Continued):

State of Hawaii (6)
Department of Land and Natural Resources (DLNR)
DLNR State Historic Preservation Division
DLNR Aquatic Resources Division
Department of Transportation, Highways Division
Department of Business, Economic Development and Tourism – Land Use Commission
Department of Health (DOH)

County of Maui (7)
Planning Department
Planning Commission
Hāna Advisory Committee
Cultural Resources Commission
Department of Water Supply
Police Department
Fire Department

Organizations (4)
Alliance for the Heritage of East Maui
Hāna Business Council
Hāna Community Association
Kīpahulu Community Association

Parties Consulted During Public Review Of Draft EA:

Federal Agencies (5)
U.S. Department of Transportation, Federal Highway Administration
U.S. Department of the Army - Corps of Engineers
U.S. Department of the Interior - Fish and Wildlife Service
U.S. Department of the Interior - Geological Survey
U.S. Department of Agriculture – Natural Resources Conservation Service
National Park Service – Haleakalā National Park

State of Hawaii (15)
Department of Land and Natural Resources (DLNR)
DLNR State Historic Preservation Division
DLNR Land Division
DLNR Aquatic Resources Division
DLNR Commission on Water Resources Management
DLNR Division of Forestry and Wildlife

Parties Consulted During Public Review Of Draft EA:

State (Continued)
Department of Transportation, Highways Division
Office of Hawaiian Affairs
Department of Business, Economic Development and Tourism (DBEDT) – Land Use Commission
DBEDT – Office of Planning
Department of Health (DOH)
DOH Environmental Division
Office of Environmental Quality Control
Hāna High and Elementary School
Hāna High and Elementary School Library

County of Maui (7)
Planning Department
Planning Commission
Hāna Advisory Committee
Cultural Resources Commission
Department of Water Supply
Police Department
Fire Department

Elected Officials (1)
Councilmember Robert Carroll

Organizations (14)
Alliance for the Heritage of East Maui
Hāna Business Council
Hāna Community Association
Kīpahulu Community Association
Maui Electric Co., Ltd.
Verizon Hawaii
Hotel Hāna Maui
American Medical Response – Medic 6 and 11
Ono Organic Farms
Kaupō Store
Hasegawa General Store, Inc.
Hāna Community Healthcare Center
Oheo Stables
Hāna Ranch Store

Individuals (22)
Mr. John Akana, MPD
Mr. John Blumer-Buell

Parties Consulted During Public Review Of Draft EA:

Individuals (Continued)
Ms. Geraldine Carroll
Mr. Pat V. Cockett
Mr. Byron Cook, Haleakalā National Park
Ms. Linda Domen
Mr. Steve Eminger, MFD
Mr. Pete Enriques
Ms. Lani Gomes, MFD
Ms. Lisa Hamilton
Mr. Sheldon Holokai, Maui Fire Department
Ms. Val Kalaniopio-Cook
Mr. Carl Lindquist
Mr. Douglas Ward Mardfin
Mr. Leonard Naihe
Ms. Valerie L. Park
Mr. James Perry
Lt. Hamilton Rodrigues, Maui Police Department
Ms. Nalani Shambin
Mr. Jonathan Tolentino, AMR, Medic 6
Ms. Shanye Valeho-Norikoff
Mr. J. Watanabe, MFD

1. SETTING AND PROJECT DESCRIPTION

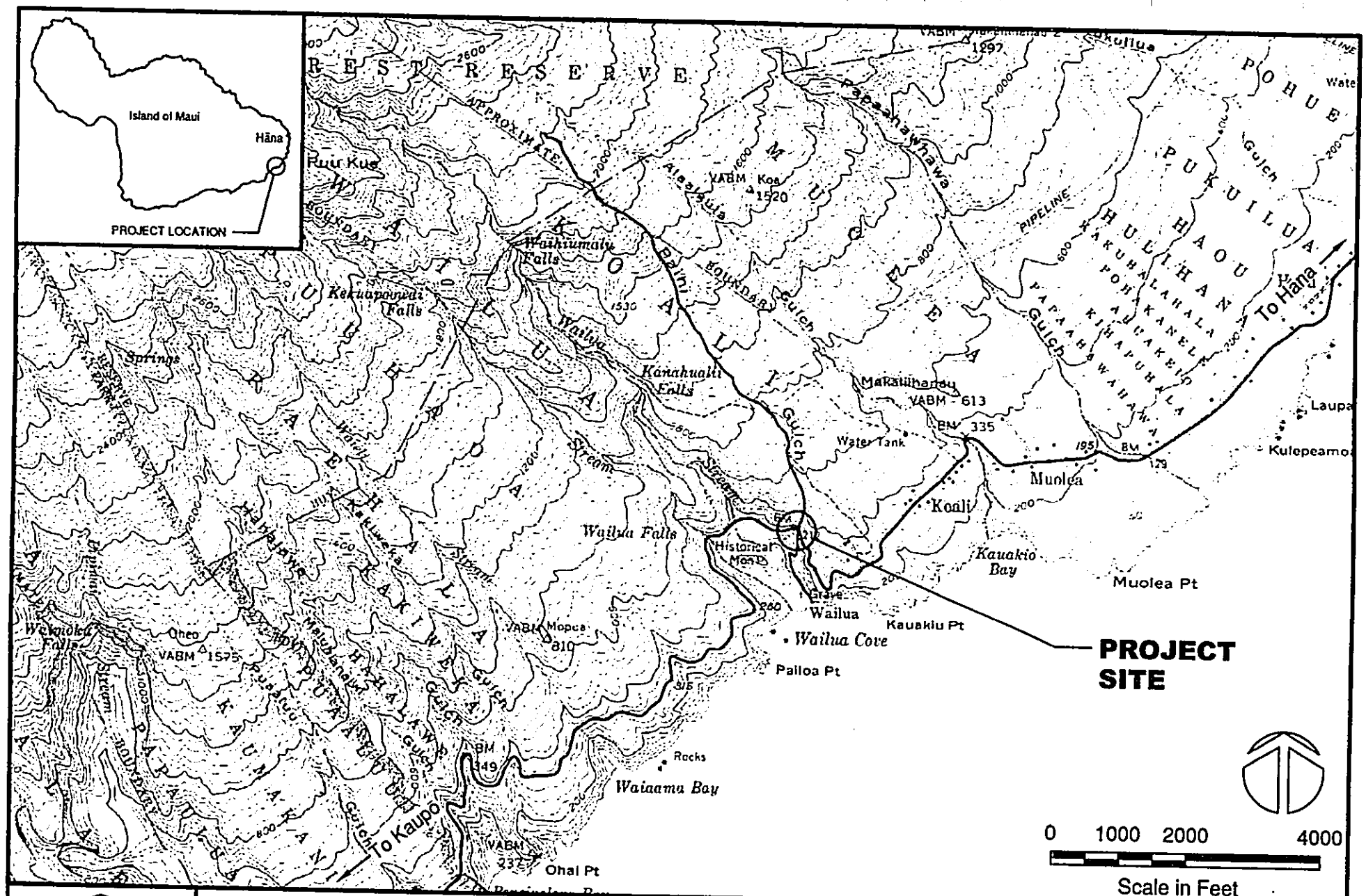
1.1 Project Background

The County of Maui Department of Public Works and Waste Management (DPWWM) is proposing to replace Paihī Bridge, which is located on the Hāna Highway, approximately 6.5 miles south of Hāna Town on the Island of Maui, Hawai'i (see Figure 1). The bridge site is not identified by a specific tax map key (TMK) parcel. The property located immediately mauka of the bridge is identified as TMK 1-5-8:6, and is owned by Hanahuli Association, Ltd. The properties located immediately makai of the bridge are identified as TMK 1-5-10:1, with the owners identified as Mr. Eric H. Liljestrand; and TMK 1-5-10:2, with owners identified as Byron K Aikau, Candace K Aikau, David Aikau, James K Aikau Jr., John Aikau Jr., Wilhelm Aikau, Dawn M Byars, Charles E Clark, Clifford J Clark, Fred E Clark, Dorothy K Fife, Sara Aikau Rego, and Helen H Tanaka (See Figure 2).

Paihī Bridge is located within the Hāna Highway Historic District, which extends from Huelo to Kīpahulu, and is listed in the National and State Register of Historic Places. Paihī Bridge is one of 14 bridges under the jurisdiction of the County of Maui within the Hāna Highway Historic District, as shown in Figure 3. To provide the County of Maui with a comprehensive approach to managing these bridges in consideration of their historic resource value, public safety concerns and Federal funding opportunities for addressing bridge deficiencies, the DPWWM prepared the *Preservation Plan for County of Maui Bridges Within the Hāna Highway Historic District* (December, 2001). The State Historic Preservation Division of Department of Land and Natural Resources concurred with the Preservation Plan on December 3, 2001.

Hāna Highway is the only roadway that provides vehicular access for residents and visitors to Hāna. It is largely a two-lane two-way road with the exception of numerous one-lane bridge and culvert crossings, such as Paihī Bridge. The portion of the highway that runs through Hāna Town up to Keawa Place is identified as Highway 360 and is under the jurisdiction of the State of Hawaii. For the next 13 miles, the Hāna Highway is identified as Route 31 and falls under the jurisdiction of the County of Maui. The 14 County bridges discussed in the *Preservation Plan for County of Maui Bridges Within the Hāna Highway Historic District* (December, 2002) are included in this portion of the highway. This County-owned portion of Hāna Highway traverses from Mile Post 51 to Mile Post 38, at Kalepa Bridge near Kipahulu. Hāna Highway then becomes Pi'ilani Highway but remains under the County's jurisdiction.

Constructed in 1911, Paihī Bridge is a single-lane, single-span reinforced concrete deck girder bridge that measures approximately 18-feet wide (13.8 feet between railings) by 36 feet long, and has a posted weight limit of 8 tons (See Photographs 1 through 4.



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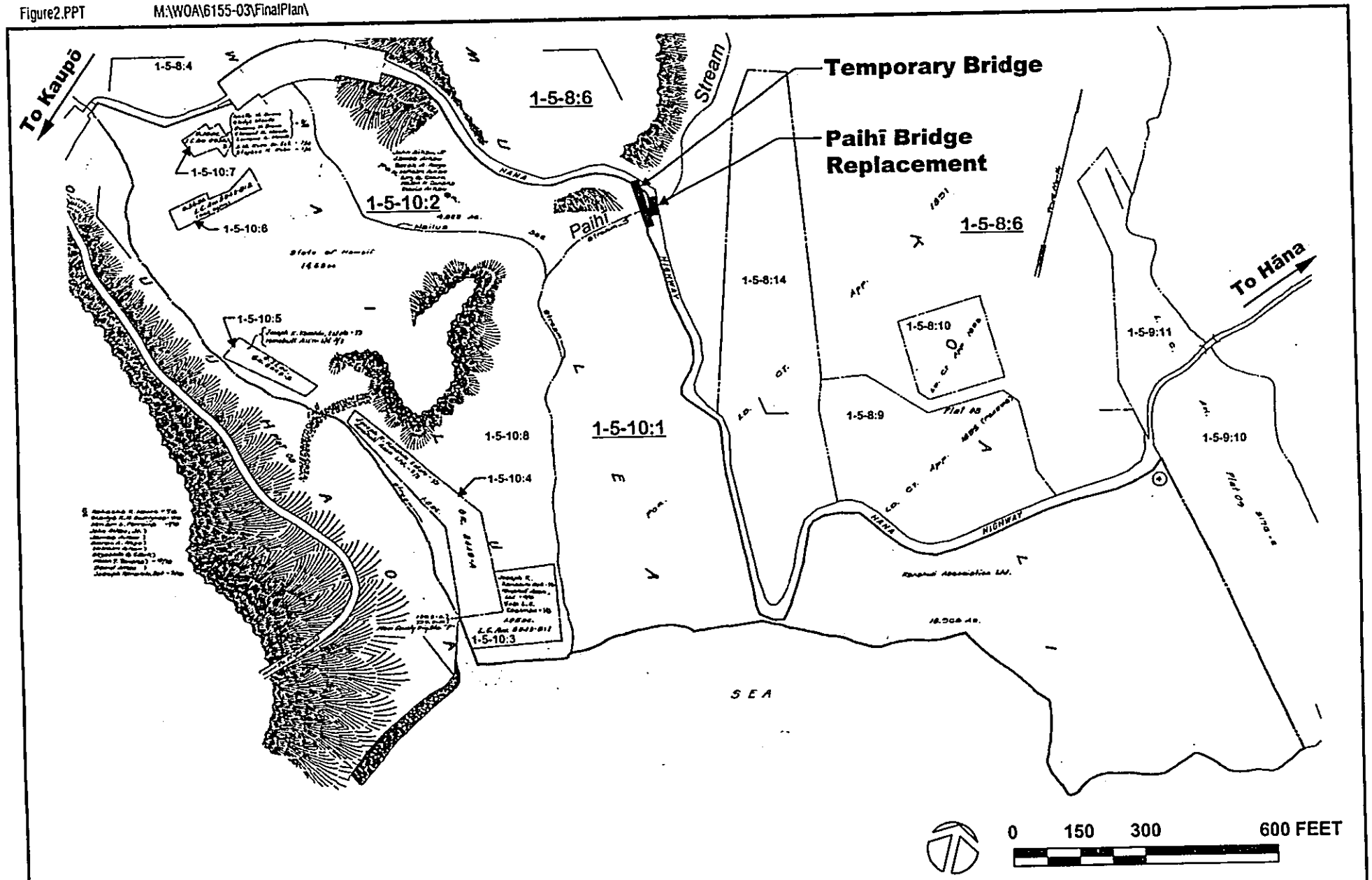
PAIHĪ BRIDGE REPLACEMENT

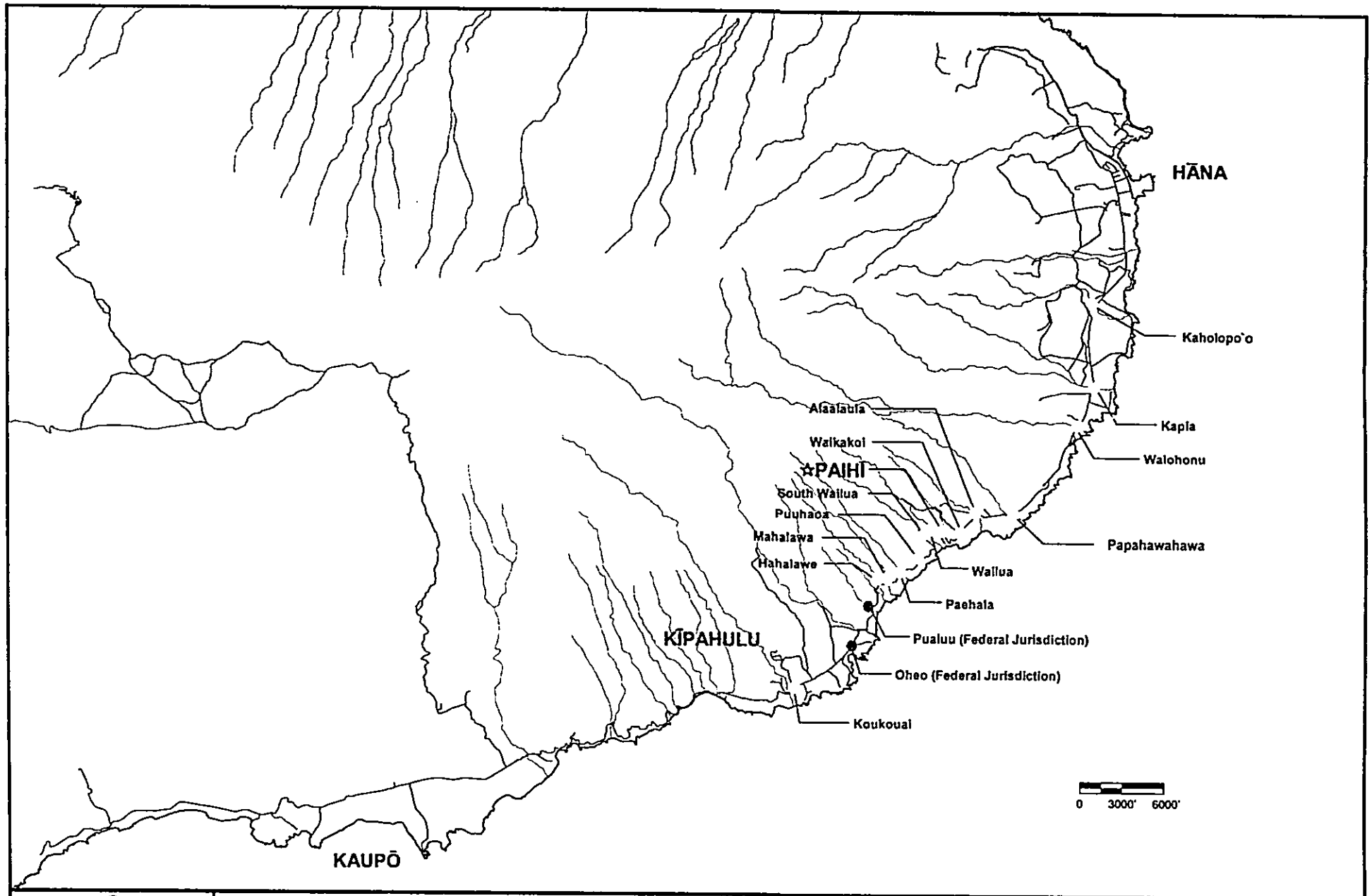
LOCATION MAP

FIGURE 1

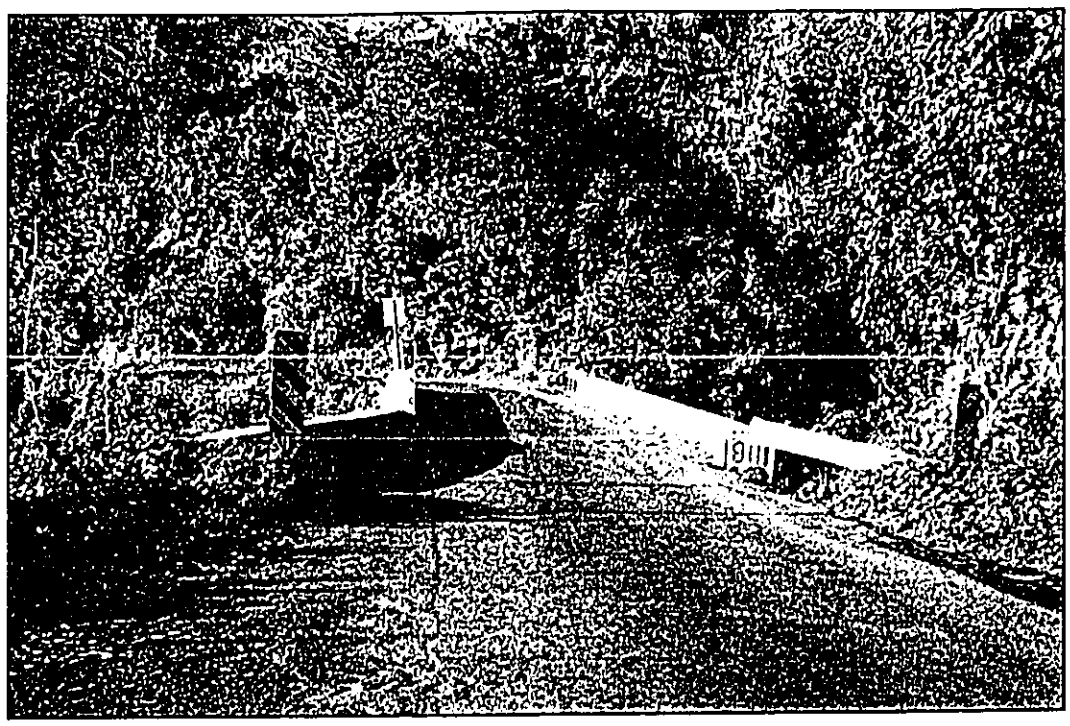
Figure2.PPT M:\WOA\6155-03\FinalPlan\



WILSON OKAMOTO & ASSOCIATES, INC. ENGINEERS - PLANNERS	PAIHĪ BRIDGE REPLACEMENT TAX MAP KEY	FIGURE 2



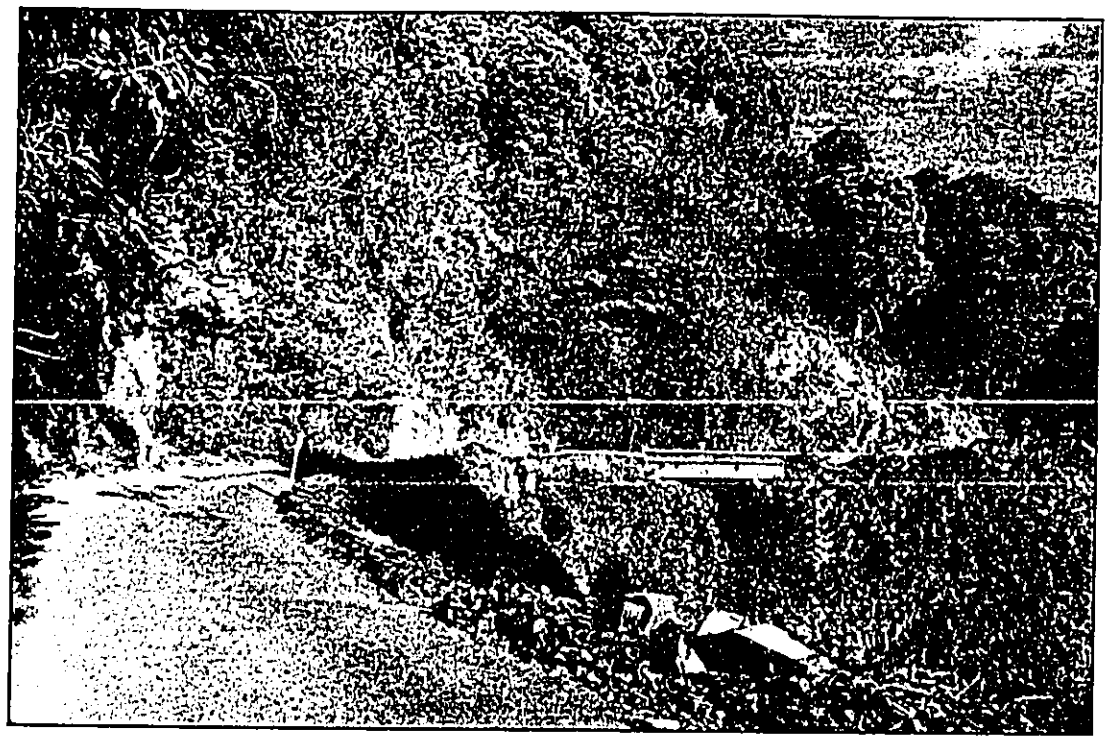
WILSON OKAMOTO & ASSOCIATES, INC. ENGINEERS - PLANNERS	PAIHĪ BRIDGE REPLACEMENT **COUNTY BRIDGES IN THE HĀNA HIGHWAY HISTORIC DISTRICT**	FIGURE 3



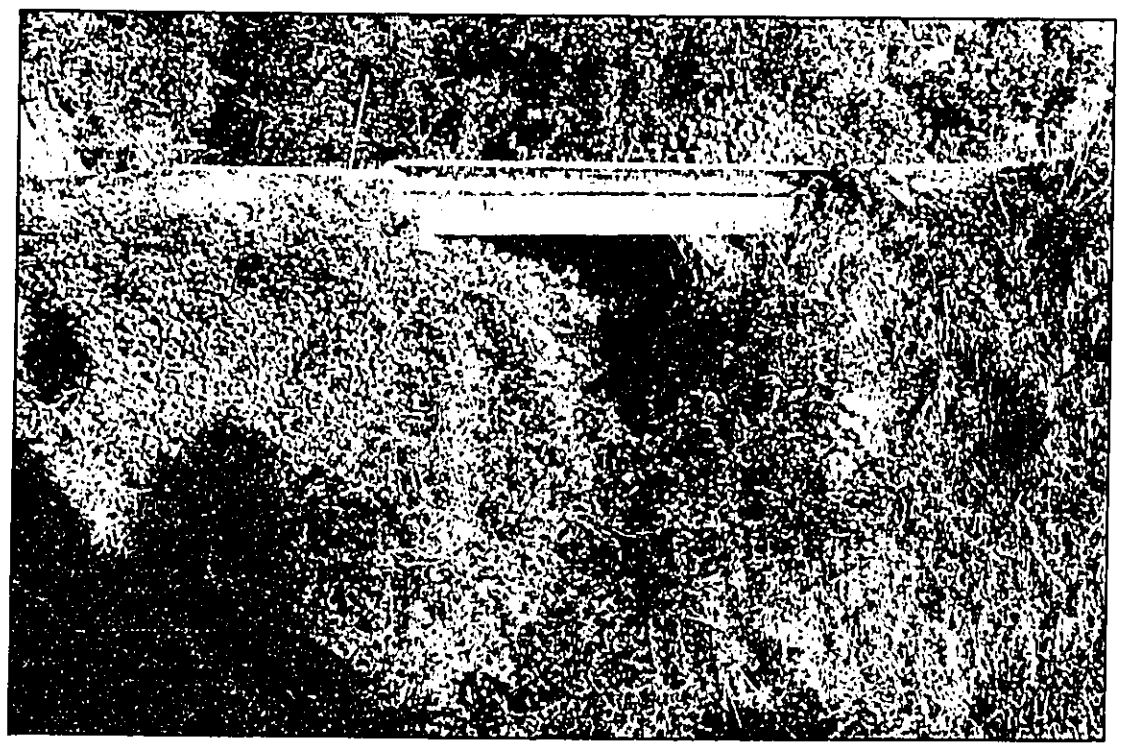
Photograph 1: Hāna (South) Approach to Existing Bridge

Photograph 2: Kaupō (North) Approach to Existing Bridge

WILSON OKAMOTO & ASSOCIATES, INC. ENGINEERS · PLANNERS	**PAIHĪ BRIDGE REPLACEMENT**
	PHOTOGRAPHS 1 & 2 EXISTING BRIDGE – HĀNA & KAUPŌ APPROACHES



Photograph 3: Kaupō (North) Approach to Existing Bridge



Photograph 4: Makai (West) Elevation of Existing Bridge

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PAIHĪ BRIDGE REPLACEMENT

PHOTOGRAPHS 3 & 4
EXISTING BRIDGE – KAUPŌ APPROACH & MAKAI ELEVATION

1.2 Project Need

The DPWWM administers a program to modify or replace functionally or structurally deficient bridges to achieve current State of Hawai'i standards for transportation facilities as specified by the *Statewide Uniform Design Manual for Streets and Highways* (October, 1980, as updated to include the American Association of State Highway and Transportation Officials' (AASHTO) 1984 *Policy on Geometric Design of Highways and Streets*), and AASHTO's *Standard Specifications for Highway Bridges* (16th Edition, 1996). In conjunction with this program, the DPWWM conducts periodic inspections of all of its bridges in compliance with National Bridge Inspection Standards (Code of Federal Regulations (CFR) 23 Highways - Part 650, Subpart C). The latest bridge inspection report for Paihī Bridge, dated June 1998, gives the bridge a Sufficiency Rating of 4 out of a possible 100.

The low sufficiency rating for Paihī Bridge reflects its functional and structural deficiencies relative to current bridge design standards. Functionally, a major deficiency is that the bridge can accommodate only one lane of traffic although it serves a two-lane roadway. Structurally, the bridge's load rating of 8 tons is well below the minimum standard of 15 tons, based on evidence such as the loss of concrete, exposed and rusted steel reinforcement, heavy water-staining indicating internal rusting of steel reinforcements, and undermining of the abutment which supports the bridge deck (see Photographs 5 through 8). It is classified as a Structurally Deficient bridge which is one that has been "restricted to lighter vehicles, requires immediate rehabilitation to remain open or has been closed." The replacement bridge has been designed to address structural requirements for a bridge load of 20 tons. To address concerns expressed by the community, however, the replacement bridge design does not meet minimum standards for geometric requirements, such as bridge, roadway and shoulder width. A design exception will be sought by the County of Maui Department of Public Works and Waste Management from the Federal Highway Administration and State of Hawaii Department of Transportation to address these issues.

1.3 Project Description

The proposed replacement bridge design is based on recommendations of the *Preservation Plan for County of Maui Bridges Within the Hāna Highway Historic District (December 2001)*. The Preservation Plan is the result of extensive consultation with the community including residents and key agencies who expressed a desire to retain the single-lane bridge design as well as other character-defining features of the existing bridge. The major elements proposed for the of the project are described below:

1. The proposed replacement bridge will operate as a 16-foot wide (railing to railing), single-lane bridge serving a two-lane roadway. Since it would not meet current design standards, concurrence by the State Department of Transportation (DOT) and the Federal Highway Administration (FHWA) of a "design exception" pursuant to (23 CFR 625) is required. During the preparation

of the Preservation Plan, the DOT and FHWA agreed to consider such a design exception on a case-by-case basis (See Figures 4 and 5).

2. The overall width of the bridge will be 18 feet, which is similar to the existing bridge, and it will cross Paihī Stream at the same location as the existing bridge within the existing County right-of-way.

3. The concrete deck will be cast-in-place atop three single-span, precast, prestressed, concrete girders. The girders will be constructed atop cast-in-place concrete abutments to be constructed behind the existing abutments, which will be left in place. Thus, the apparent length of the bridge between the existing abutments will not change. The girders will also be designed with a flat face, as opposed to an "I" beam configuration, to resemble the existing girders, as viewed from the makai-side of the bridge. The concrete deck will be topped with asphalt to resemble the existing bridge (See Figure 6).

Photograph 5: Section Loss To Rebars, Efflorescence, Spalling, and Heavy Water Stains

Photograph 6: Section Loss to Rebar, Efflorescence, and Spalling

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PAIHĪ BRIDGE REPLACEMENT

PHOTOGRAPHS 5 & 6
STRUCTURAL CONDITIONS BENEATH BRIDGE

Photograph 7: Spalling, Section Loss, Efflorescence, Water Stains & Vegetation Growing into Cracks

Photograph 8: Spalling, Section Loss, Efflorescence, Water Stains & Vegetation Growing into Cracks

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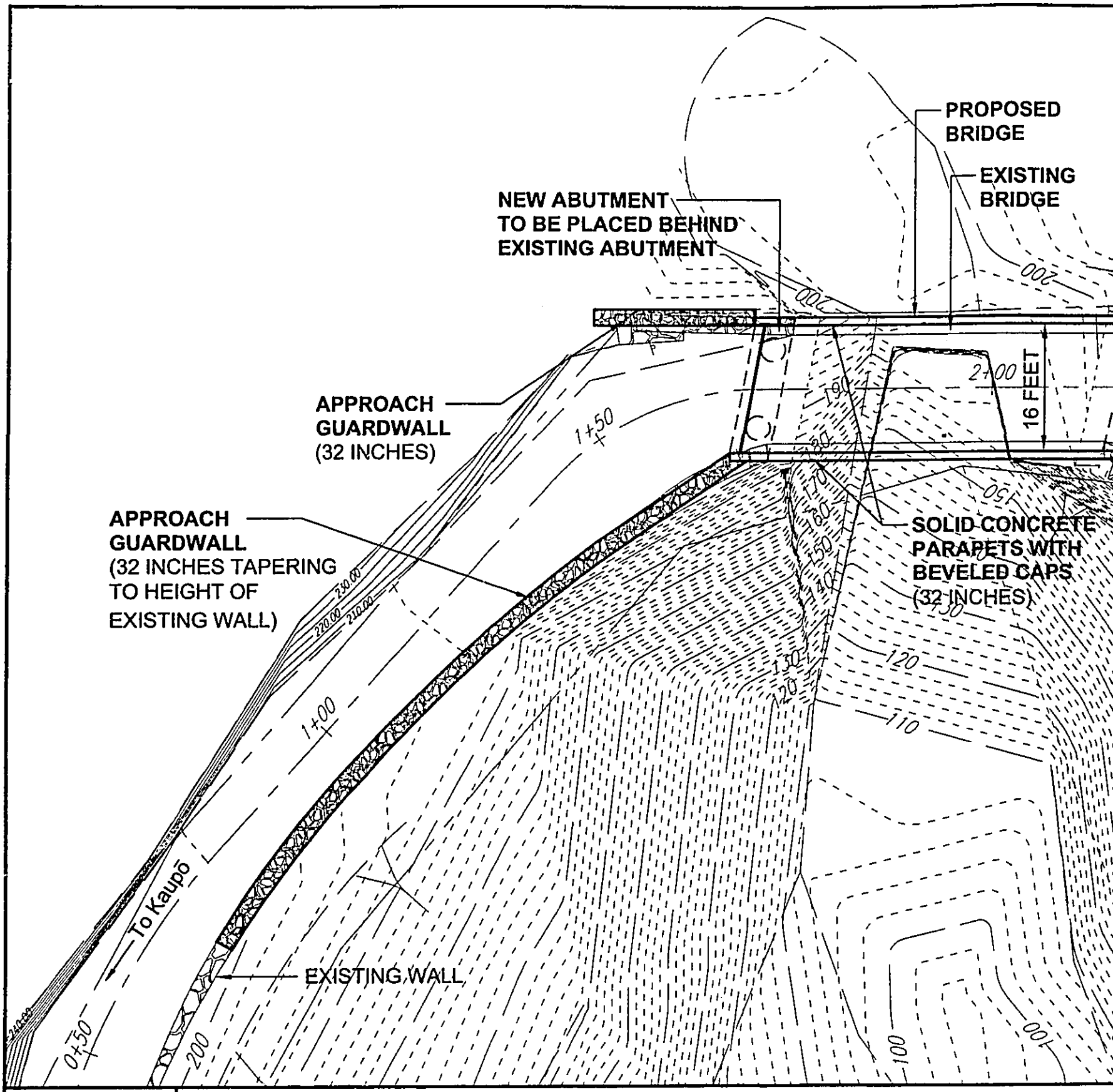
ENGINEERS - PLANNERS

PAIHI BRIDGE REPLACEMENT

PHOTOGRAPHS 7 & 8
STRUCTURAL CONDITIONS BENEATH BRIDGE



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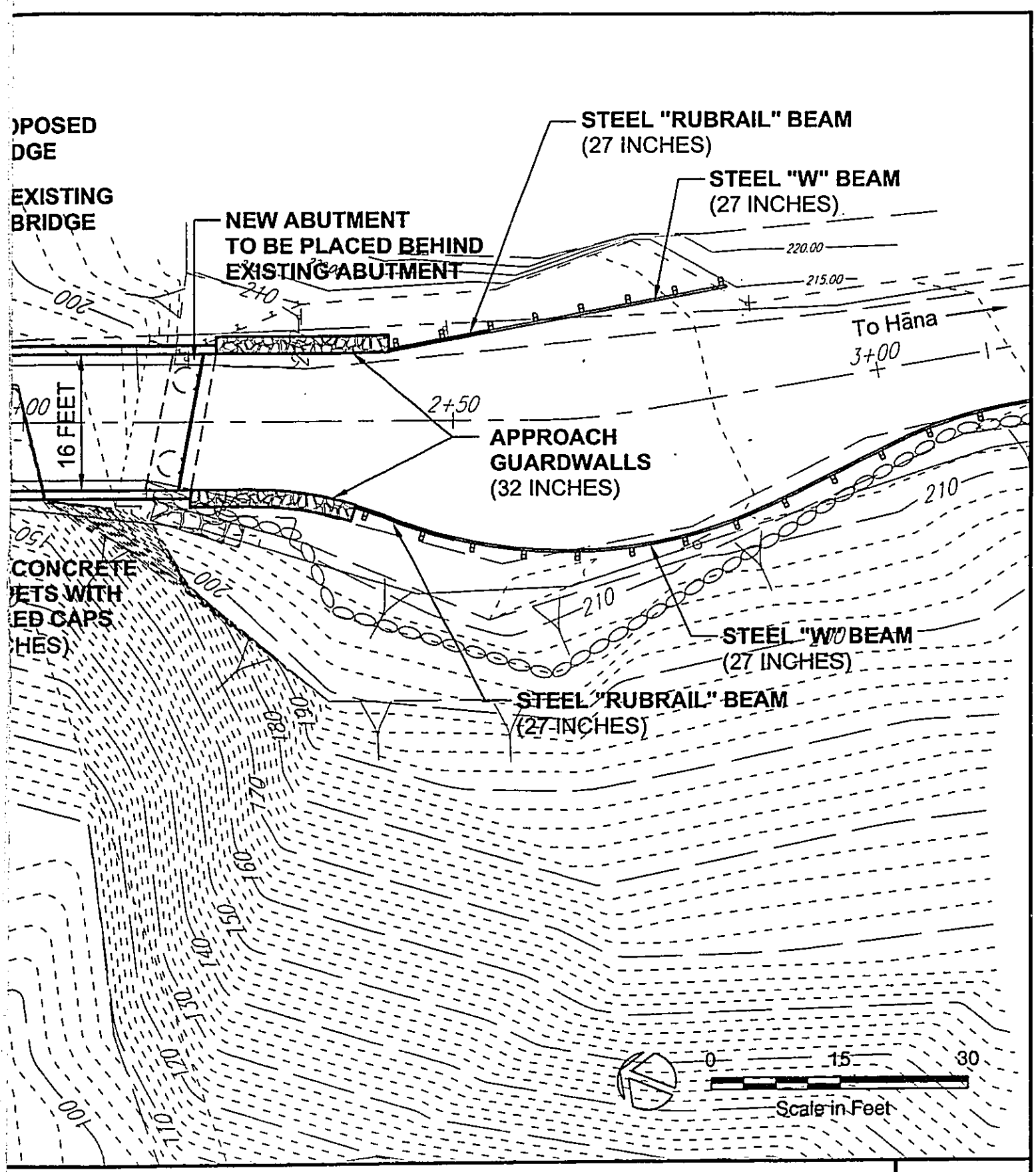
PAIHĪ BRIDGE REPLACEMENT

SITE PLAN OF PROPOSED REPLACEM



EPLACEMENT

REPLACEMENT BRIDGE

FIGURE
4

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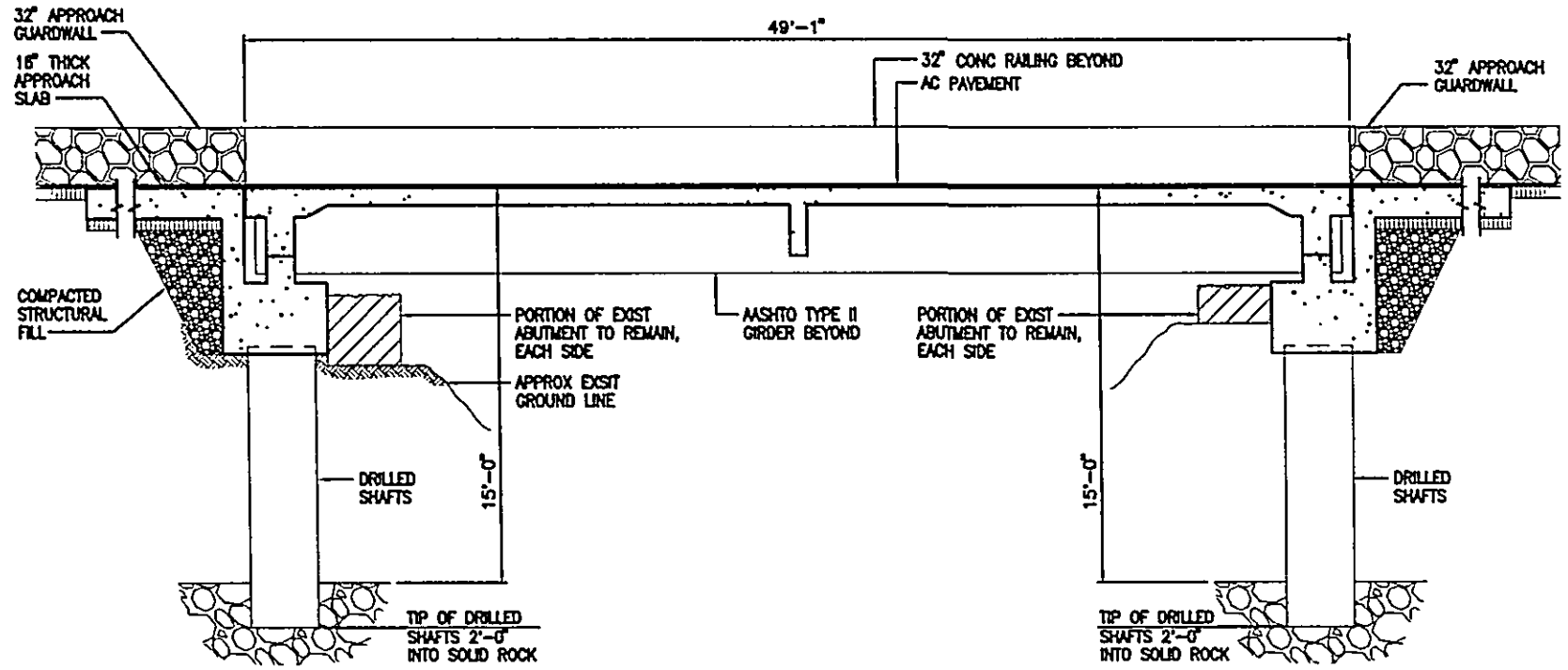

SCALE: 1/8"=1'-0"

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PAIHI BRIDGE REPLACEMENT

LONGITUDINAL SECTION OF PROPOSED BRIDGE REPLACEMENT

FIGURE 5

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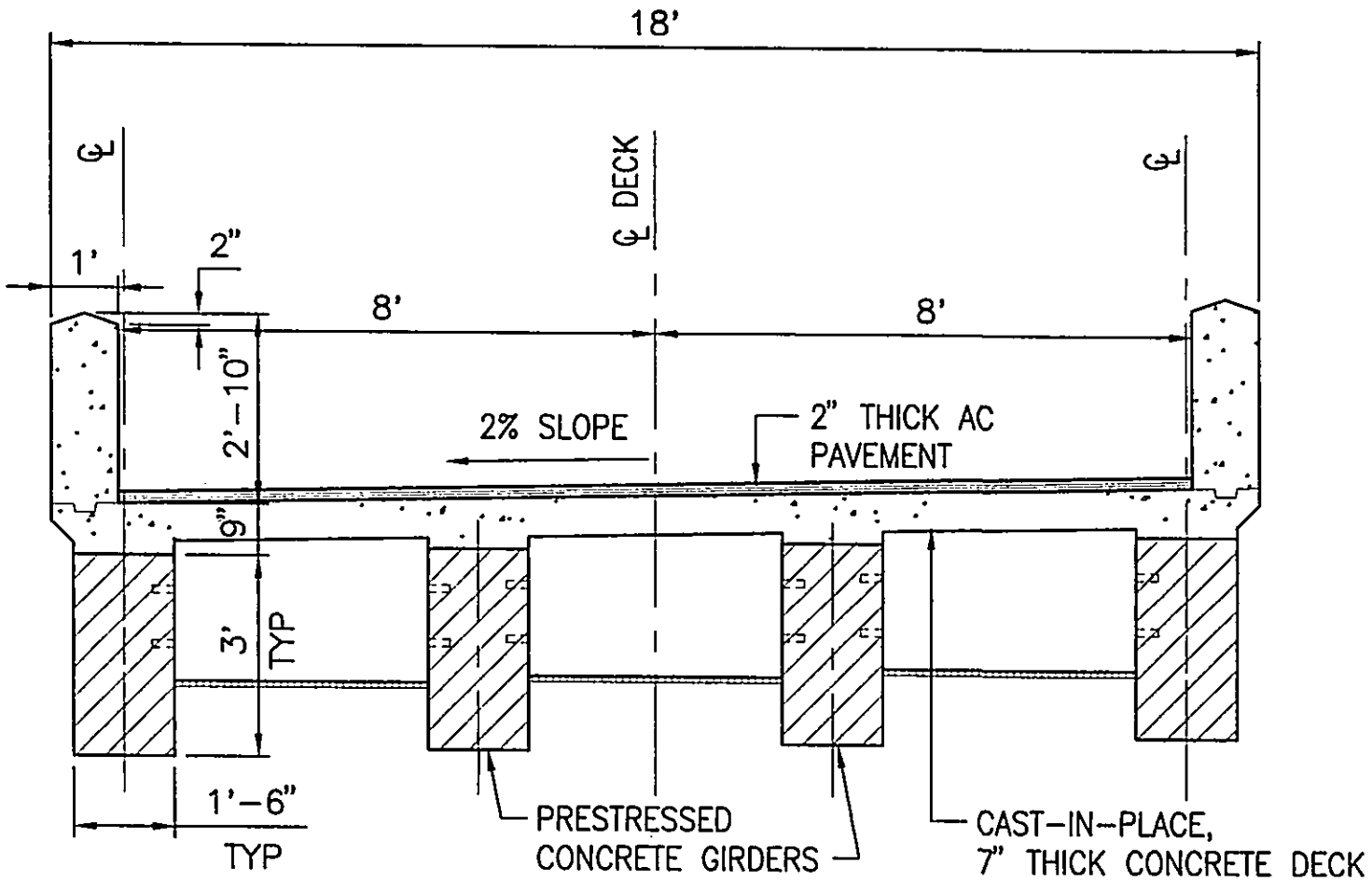

SCALE: 3/8"=1'–0"

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PAIHĪ BRIDGE REPLACEMENT

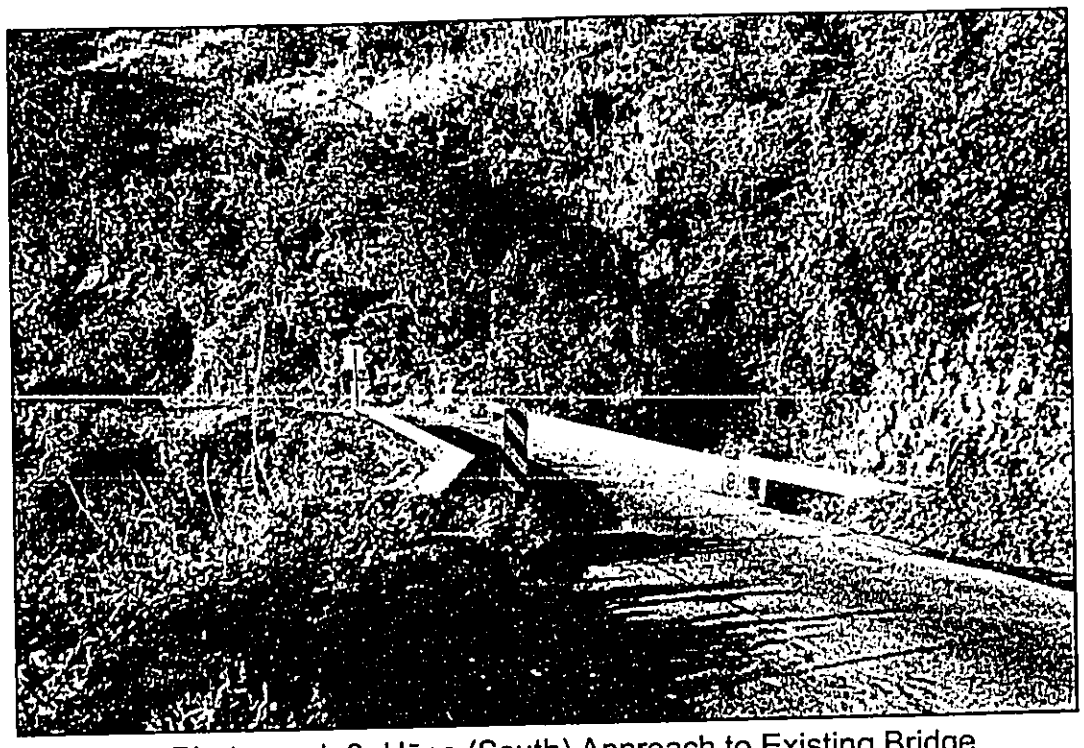
DECK SECTION OF PROPOSED BRIDGE REPLACEMENT

FIGURE 6

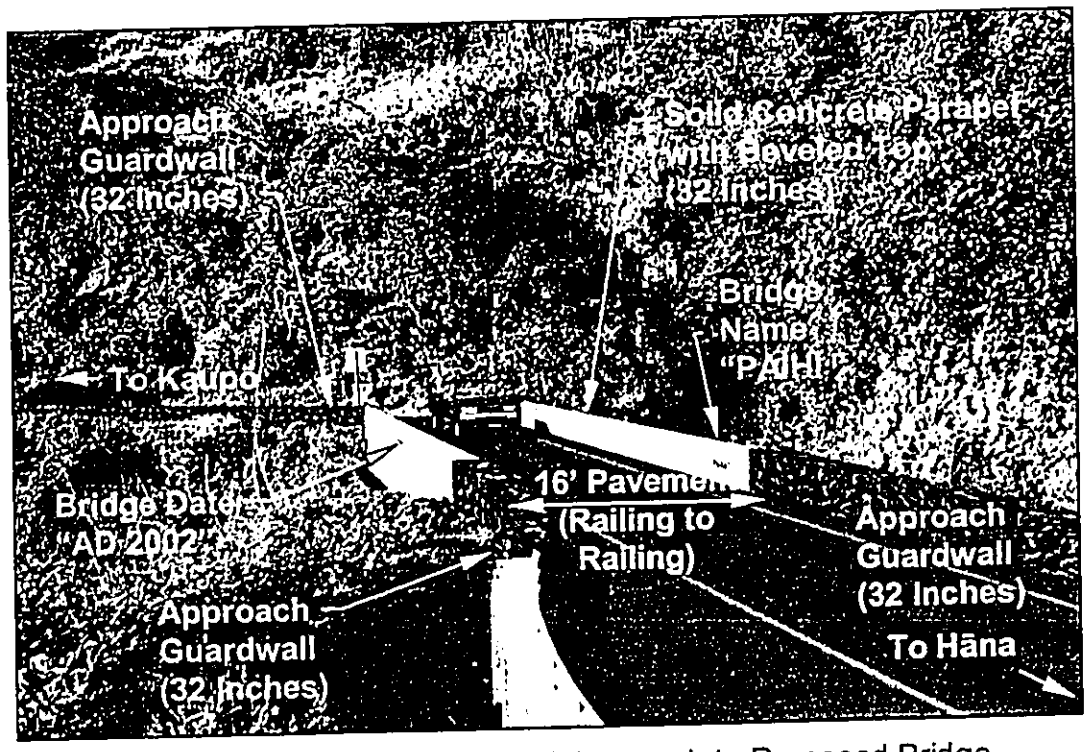
4. The existing 24-inch high by 24-inch wide solid-concrete parapet railings will be replaced with 32-inch high by 12-inch wide crash-tested solid-concrete parapet railings. (The original railings are 30 inches high but the portion of the railings above the layers of pavement that have been applied to the deck is 24 inches high). The Preservation Plan recommends 32-inch high railings resembling the existing railings. The narrower railing is proposed to accommodate the16-foot railing-to-railing deck width within the overall 18-foot width of the existing bridge. Widening of the replacement bridge on the mauka side was avoided because of the proximity of the waterfall which, during periods of very high flow, splashes onto the existing bridge deck. Widening on the makai side was avoided because the topography of the gulch flares widely immediately makai of the bridge. This would have required the makai girder to span more than 100 feet with supporting piers beneath.

   The tops of the replacement railings will have a longitudinal peak, as do the existing railings, although the narrower width would convey a different character. The name of the bridge, "PAIHĪ", will be inscribed on the inside of the mauka railing near the Hāna-end. The date of construction will be inscribed on the outside of the makai railing mid-way of the span.

5. Approach guardwalls to the bridge will be rock-faced over a reinforced concrete core. The approach guardwalls will abut and match the height of the 32-inch bridge railings to deflect errant vehicles from crashing head-on into the ends of the bridge railings. The inside faces of the approach guardwalls cannot have a relief greater than ¾-inch so as to prevent them from "snagging" and spinning a vehicle upon impact. The mauka guardwall on the Hāna approach will replace an existing steel guardrail and extend 25-feet from the bridge railing at a height of 32 inches. At its far end from the bridge railing, a steel "rubrail" (comprised of two steel "W"-beams placed one above the other) will be attached to the guardrail. The "rubrail" will extend 12 feet from the guardwall at a height of 27 inches after which a standard 27-inch high metal "W"-beam guardrail will extend along the road for an additional 23 feet and terminate at a cut slope. The makai guardwall on the Hāna approach will replace an existing rock wall and will extend approximately 25 feet from the bridge railing at height of 32 inches. At its far end from the bridge railing, a steel "rubrail" will be attached to the guardrail. The "rubrail" will extend approximately 12 feet from the guardwall at a height of 27 inches after which a standard 27-inch high metal "W"-beam guardrail will extend along the road for an additional 88 feet. On the Kaupō approach, the mauka guardwall will extend approximately 20 feet from the bridge railing, at a height of 32 inches and terminate into the existing cut slope. The makai guardwall on the Kaupō approach will extend at a height of 32 inches to approximately 86 feet from the bridge railing, tapering down and connecting to the existing rock wall. (See Photographs 9 through 12).

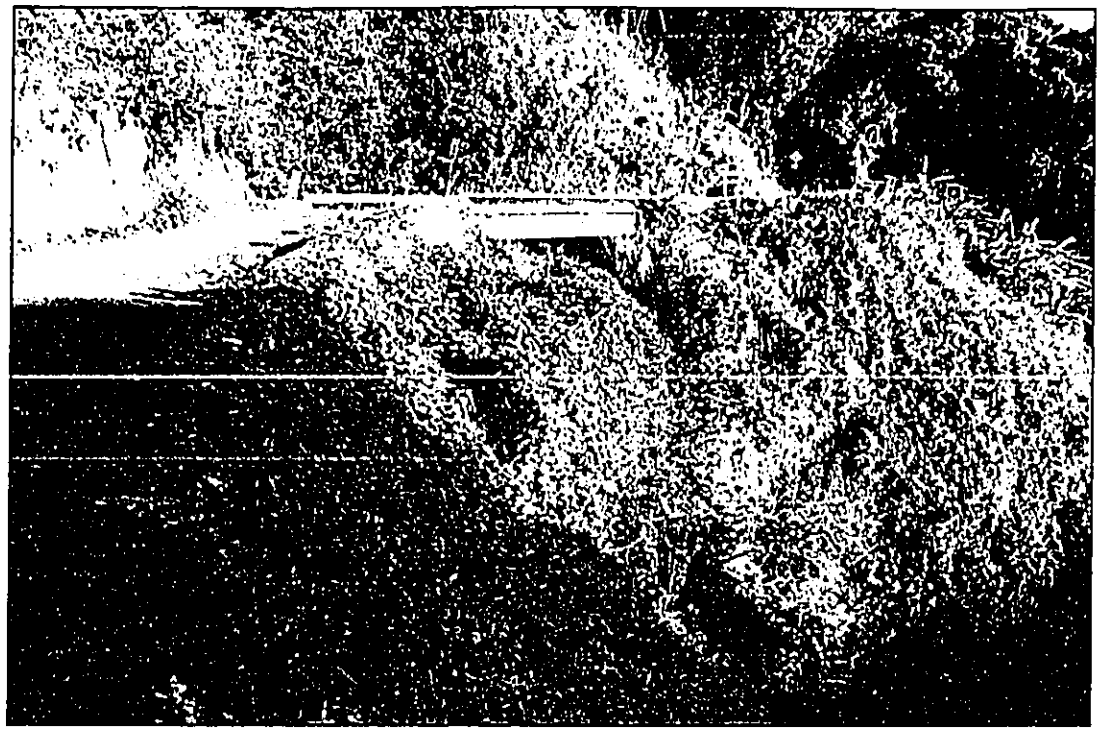


Photograph 9: Hāna (South) Approach to Existing Bridge

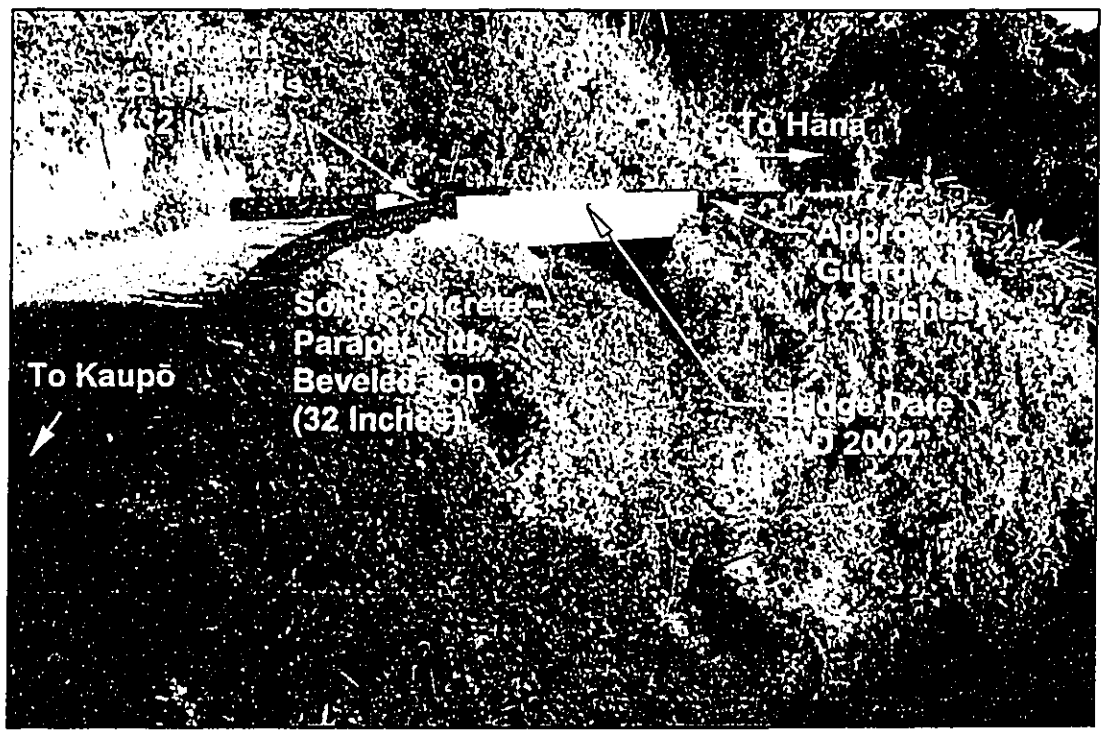


Photograph 10: Hāna (South) Approach to Proposed Bridge

WILSON OKAMOTO & ASSOCIATES, INC. ENGINEERS - PLANNERS	**PAIHĪ BRIDGE REPLACEMENT**
	PHOTOGRAPHS 9 & 10 EXISTING & PROPOSED BRIDGE – HĀNA APPROACH



Photograph 11: Kaupō (North) Approach to Existing Bridge



Photograph 12: Kaupō (North) Approach to Proposed Bridge

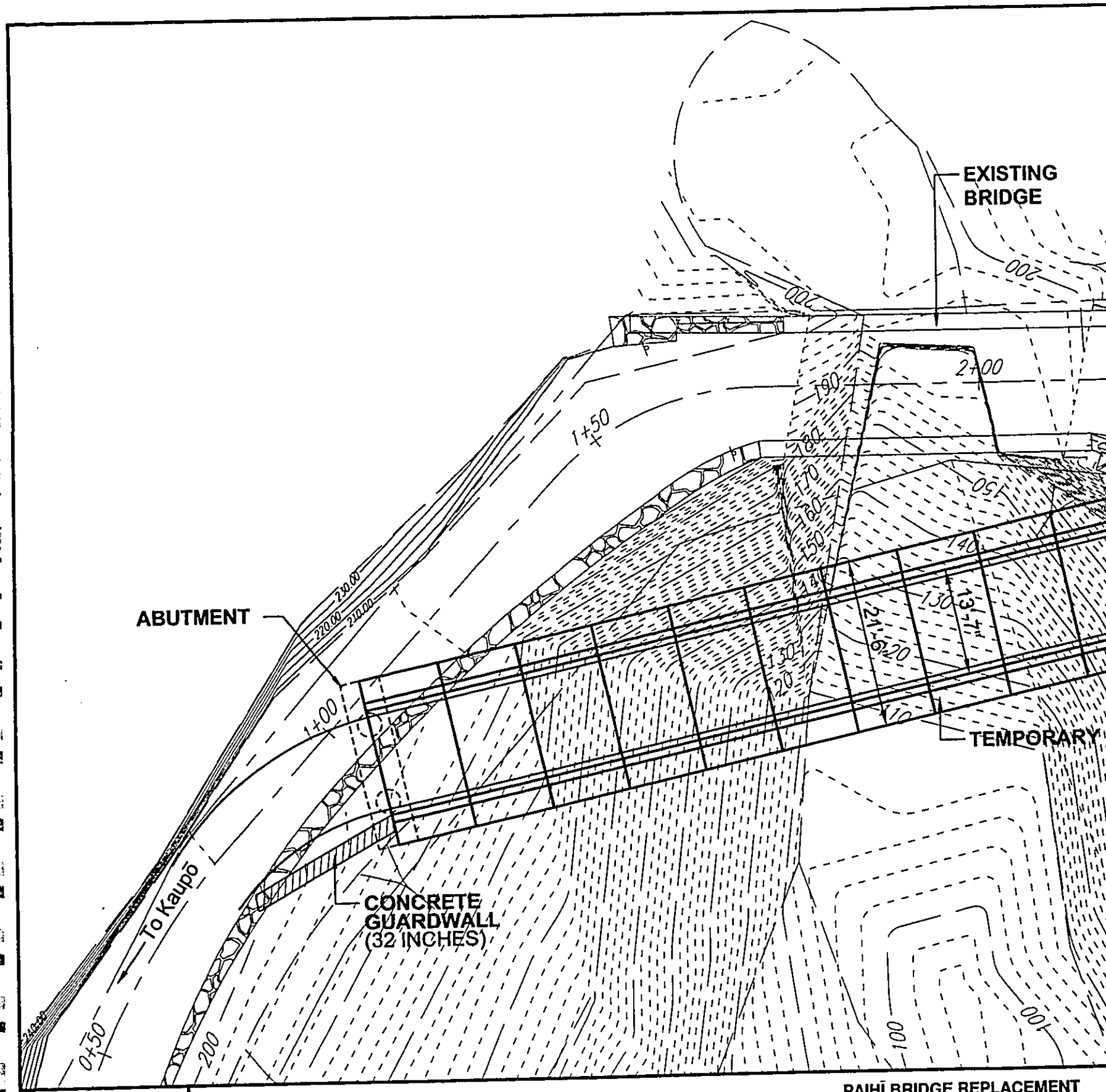
WILSON OKAMOTO & ASSOCIATES, INC. ENGINEERS - PLANNERS	**PAIHĪ BRIDGE REPLACEMENT**
	PHOTOGRAPHS 11 & 12 EXISTING & PROPOSED BRIDGE – KAUPŌ APPROACH

6. Signage complying with current roadway design standards will be provided, including those for operation of a single-lane bridge serving a two-lane roadway.

7. During construction of the replacement bridge, a temporary single-lane, steel-panel bridge will be installed makai of the existing bridge to accommodate traffic. The bridge will require twelve interlocking bays, each measuring approximately 10 feet long by 21-½ feet wide by 7-½ feet high, for an overall length of about 120 feet, and will be designed to accommodate loads of up to 20 tons. The bridge will be supported by cast-in-place concrete abutments constructed along the upper embankments of Paihī Gulch. The abutments will be constructed atop four concrete piers allowing for two piers per abutment. (See Figures 7 to 9 and Photographs 13 to 16). Each pier will be cast-in-place within a pre-drilled shaft and will measure approximately 2 feet in diameter by 40 feet in depth. Of the 40 feet, 10 feet will be visible above ground while 30 feet will be below ground. Approach slabs will also be constructed to connect the temporary bridge to Hāna Highway. Upon completion of the project, the abutments and visible portion of the piers will be removed. In addition, the temporary approach slabs will be replaced with permanent slabs.

8. Construction will require a combination of total and night closures along Hāna Highway near the project site. Construction of the abutments for the temporary bridge will require approximately one month of night closure. Once the replacement bridge is complete, an additional 2 months of night closures will be required to demolish the temporary abutments and repair the road approaches. In addition, up to seven days of complete closure will be required for the installation of the temporary bridge, as well as up to seven days of complete closure to disassemble the bridge. Vehicular access through the project site will be prohibited during periods of complete closure. As much as possible, the periods of complete closure will be scheduled during non-peak travel periods such as weekends and/or holidays to mitigate the potential inconvenience to commuters particularly those who travel during the typical Monday through Friday work week. Furthermore, temporary day closures (up to several hours) may be required intermittently during the construction of the replacement bridge to allow for placement of materials and/or mobilization of equipment. Special provisions will be coordinated for health and emergency services during periods of night closure and complete closure. All closures, however, will be closely coordinated with the community including residents, businesses, schools, government offices, as well as police, fire and ambulance services. Prior to the start of construction, a telephone hotline will be established to provide information to the public regarding the status of road closures. The hotline will remain in operation throughout the construction period. Motorists will also be advised of closure schedules through the media.

9. The preliminary cost estimate for this project is approximately $1,300,000. The construction period is anticipated to span about nine months.



PAIHĪ BRIDGE REPLACEMENT

SITE PLAN OF TEMPORARY BI

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& ASSOCIATES, INC.
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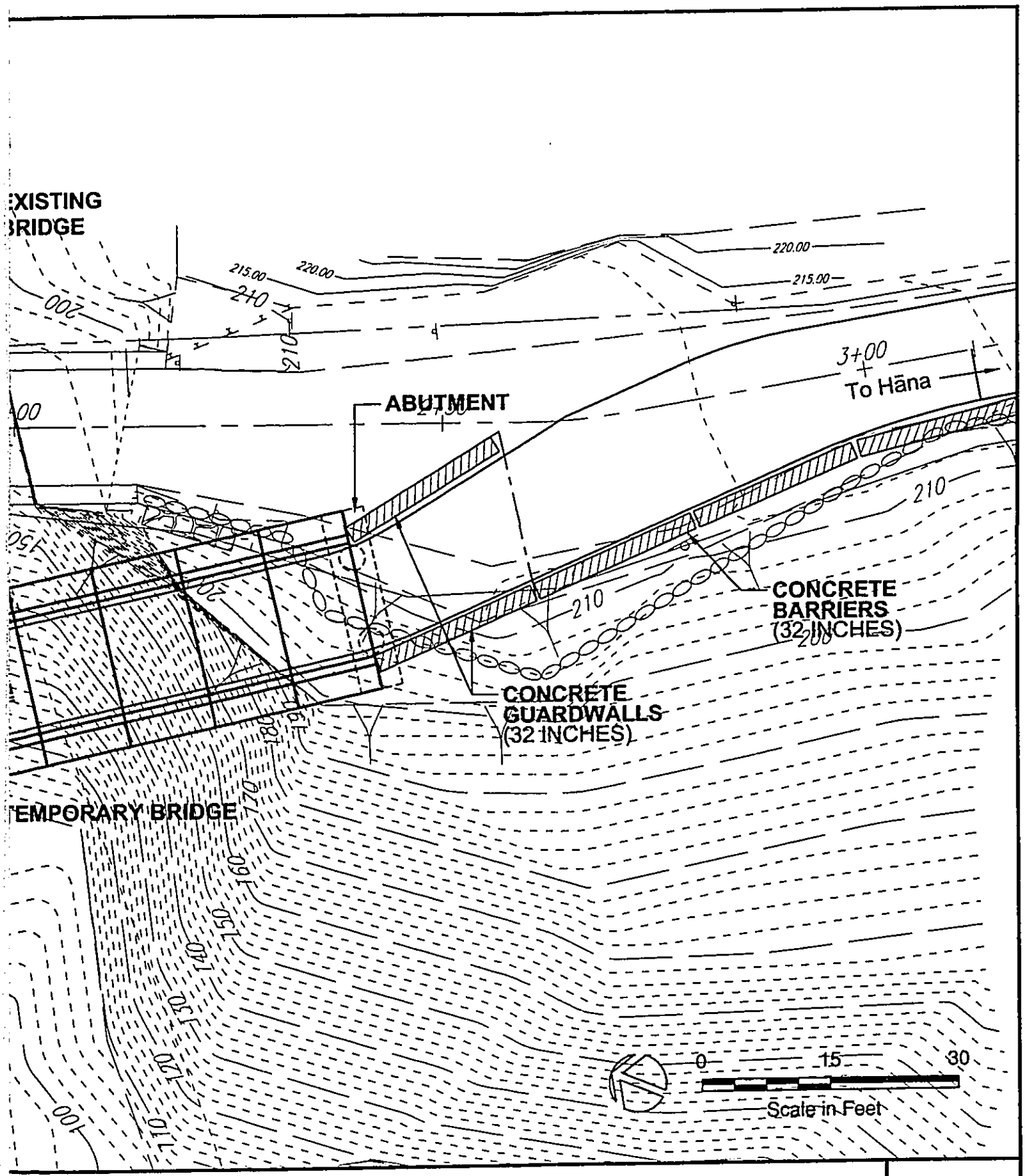
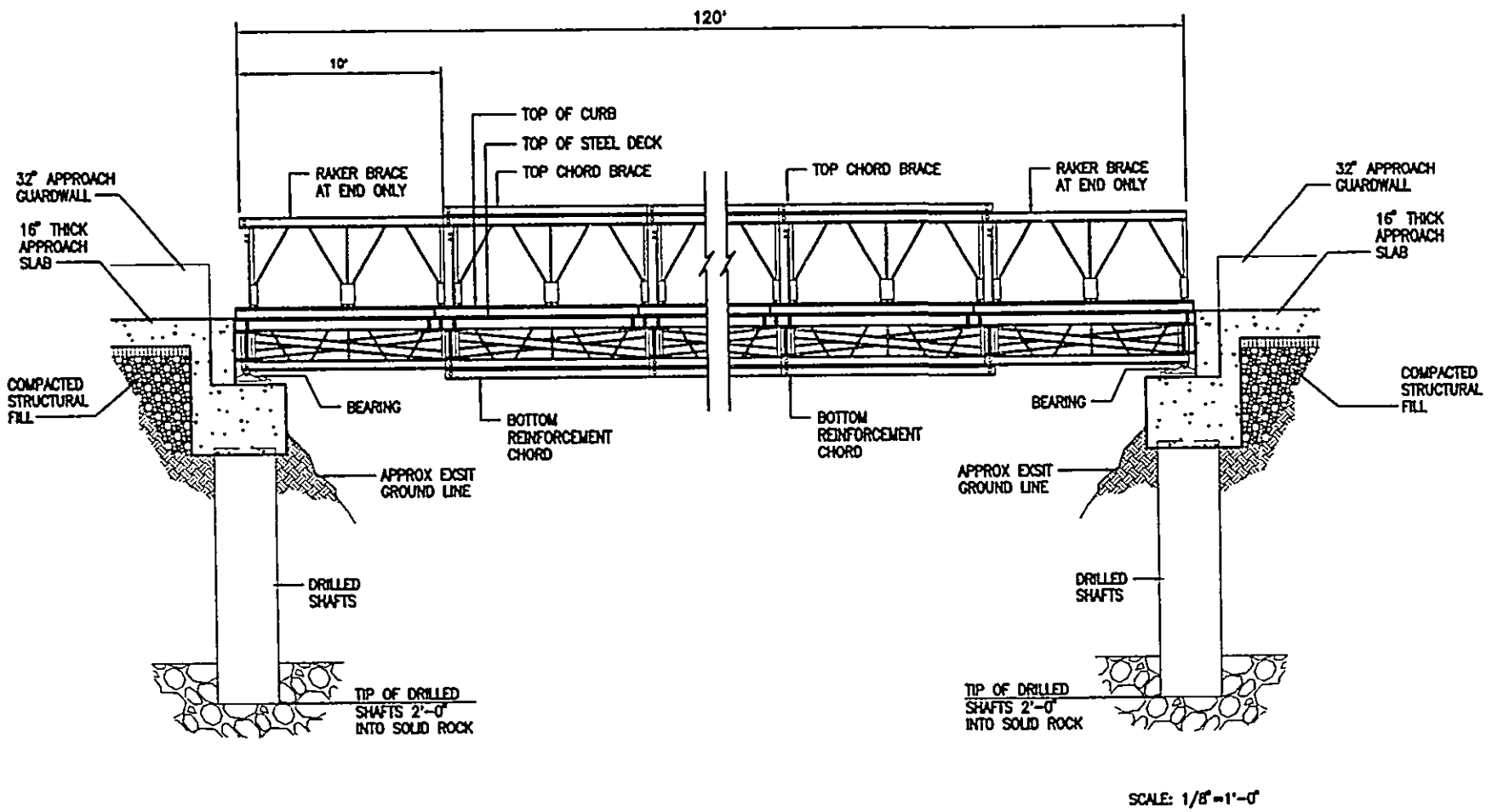


PLACEMENT

PORARY BRIDGE

FIGURE
7

6155sect_tempBridge.dwg nn/nn/nn nn:nn M:\WOA\6155-01\PLANNING



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

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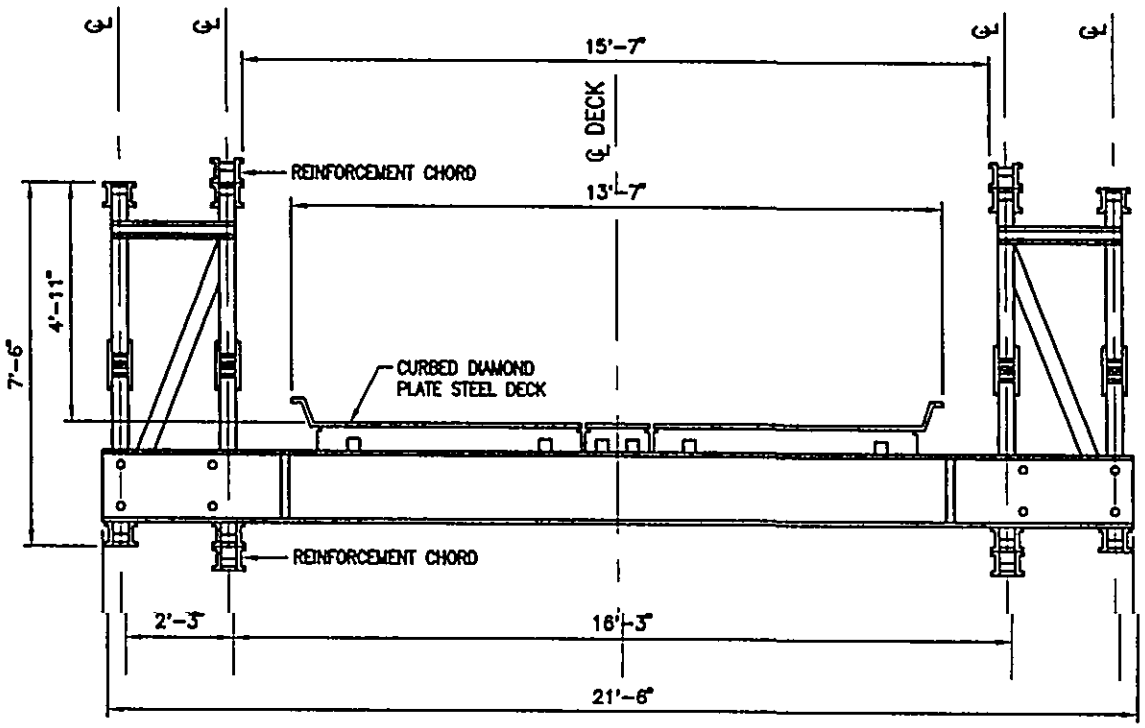
PAIHĪ BRIDGE REPLACEMENT

LONGITUDINAL SECTION OF TEMPORARY BRIDGE

FIGURE 8

6155sect_tempBridge.dwg nn/nn/nn nn:nn M:\WOA\6155-01\PLANNING



SCALE: 1/4"=1'-0"

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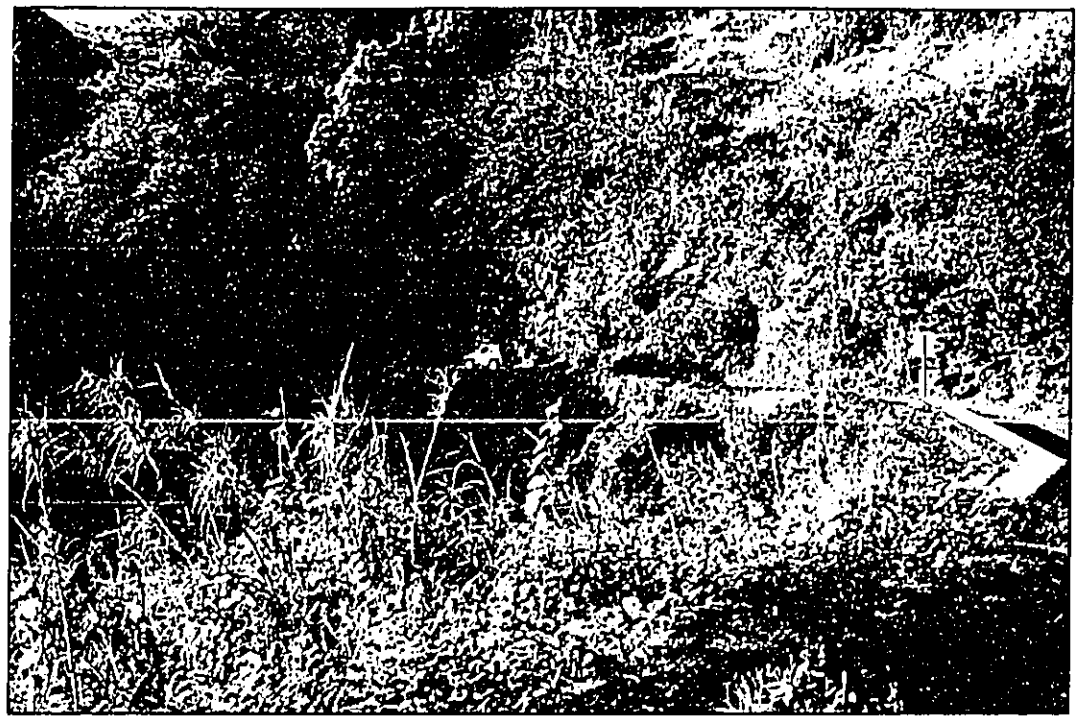
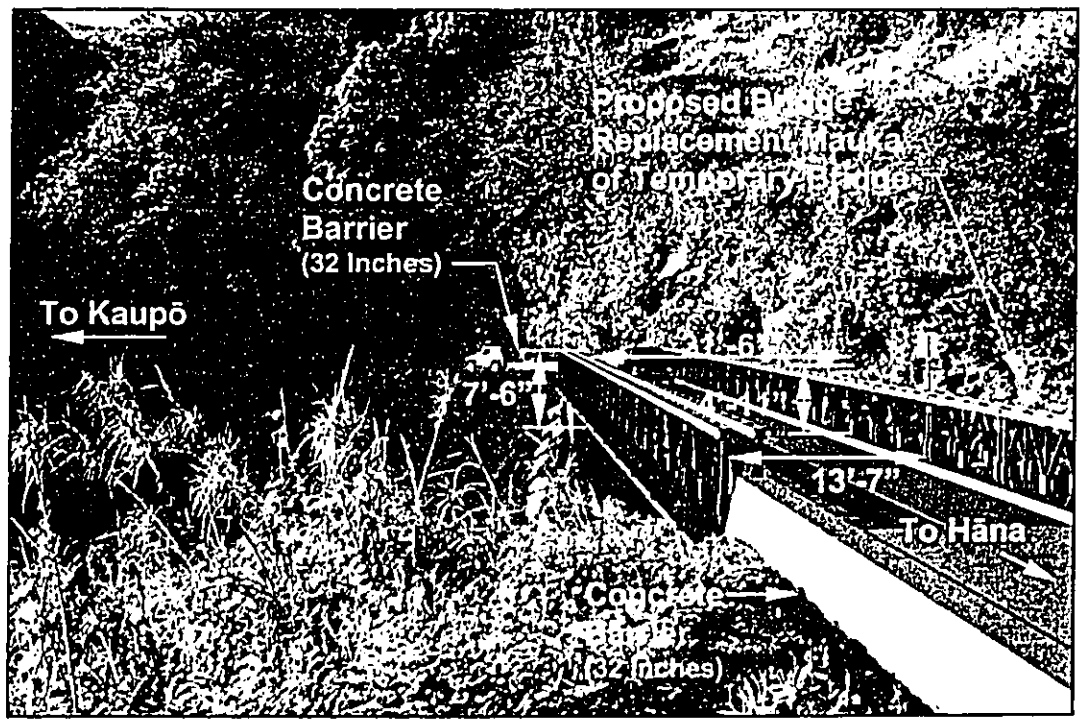
PAIHĪ BRIDGE REPLACEMENT

DECK SECTION OF TEMPORARY BRIDGE

FIGURE 9



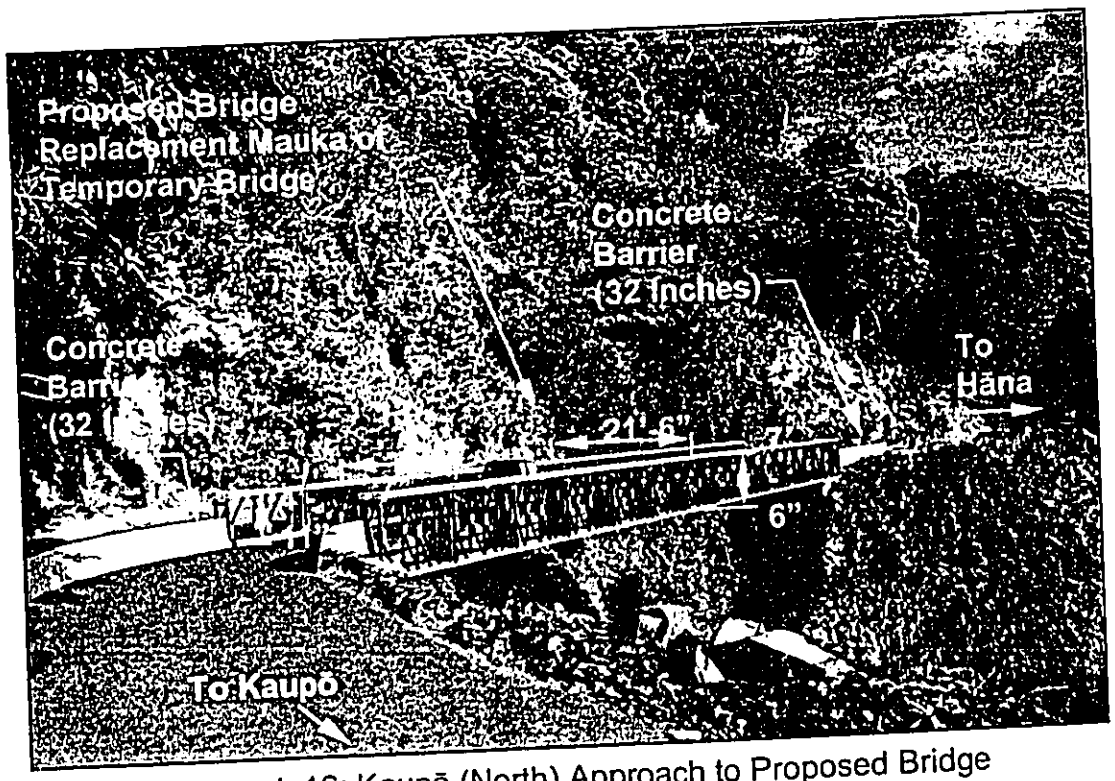
Photograph 13: Hāna (South) Approach to Temporary Bridge



Photograph 14: Hāna (South) Approach to Temporary Bridge

WILSON OKAMOTO & ASSOCIATES, INC. ENGINEERS - PLANNERS	**PAIHĪ BRIDGE REPLACEMENT**
	PHOTOGRAPHS 13 & 14 TEMPORARY BRIDGE – HĀNA APPROACH

Photograph 15: Kaupō (North) Approach to Existing Bridge



Photograph 16: Kaupō (North) Approach to Proposed Bridge

WILSON OKAMOTO & ASSOCIATES, INC.
ENGINEERS - PLANNERS

PAIHĪ BRIDGE REPLACEMENT

PHOTOGRAPHS 15 & 16
TEMPORARY BRIDGE – KAUPŌ APPROACH

2. DESCRIPTION OF THE EXISTING ENVIRONMENT, PROJECT IMPACTS AND MITIGATION MEASURES

The following is a description of the existing environment, assessment of potential project impacts and proposed mitigation measures.

2.1 Climate

Typical of windward areas in the Hawaiian islands, the climate in the area is characterized by cool temperatures, high rainfall, and persistent northeasterly trade winds. Average temperatures range from a low of approximately 71 degrees Fahrenheit (°F) in the coolest month, to a high of approximately 77 degrees in the warmest month. Annual rainfall averages about 83 inches. Northeasterly trade winds ranging from 16 to 18 knots are present most of the year.

Impacts

The proposed project will not affect regional climate.

2.2 Geology, Topography and Soils

Maui is composed of two major volcanoes; the older West Maui, and the younger East Maui or Haleakalā. The broad, gently sloping plain connecting the two volcanoes was formed when lava from Haleakalā banked against the already existing West Maui volcano. East Maui was created from three volcanic series of Haleakalā Volcano; the Honomanu, Kula and Hāna volcanic series. The project area lies along the eastern slope of Haleakalā, and is largely underlain by lava flows of the Hāna volcanic series.

Small spatter cones and larger cinder cones associated with the Hāna eruptions form prominent hills along the south and east portions of Hāna. The project site is located at an elevation of approximately 210 feet above mean sea level and is located in proximity to sheer cliffs in both mauka and makai directions. A waterfall is located approximately 30 feet mauka of the bridge and flows into a pool measuring approximately 23 feet by 30 feet. The pool extends to the bridge, beneath which is a second waterfall that plunges precipitously into a third waterfall located approximately 60 feet downstream.

According the U.S. Department of Agriculture Natural Resources Conservation Service, the soil at the project site is classified as rough mountainous land association. This association consists of very shallow soils on intermediate and high uplands on East and West Maui. The soils are steep and very steep. The association comprises about 41 percent of the island. The elevation ranges from sea level to 10,000 feet with annual rainfall ranging from 20 to 150 inches. This series has very shallow soils and local relief is generally more than 500 feet. There are many small streams throughout the area. This type is used mainly for wildlife habitat and water supply.

The *Detailed Land Classification - Island of Maui* published by the University of Hawaii Land Study Bureau (LSB), evaluates the quality or productive capacity of certain lands on Maui for selected crops and overall suitability in agricultural use. A five-class productivity rating system was established with "A" representing the class of highest productivity and "E" the lowest. Typical of the stony to rocky land of Hāna, the project site is classified as "E."

Impacts and Mitigation Measures

Excavation and drilling will be required to accommodate the new bridge abutments and footings to be placed behind the existing abutments. Likewise, excavation and drilling will be required for the temporary bridge abutments. Grading activities are also required in and around the project site to accommodate the replacement and temporary bridges as well as their respective roadway approaches. Following construction of the abutments, excess excavation will be backfilled. Soils exposed by grading will be paved over or re-vegetated.

No significant impacts on soils at the project site are anticipated. Excavation and grading activities associated with construction of the proposed project will be regulated by Chapter 20.08 of the Maui County Code.

2.3 Hydrology

2.3.1 Groundwater

The island of Maui has been divided into six aquifer sectors, one of which is the Hāna aquifer sector. The project site overlies the Waihoi aquifer system, one of four aquifer systems within the Hāna sector. Within the Waihoi aquifer system consists of two aquifer types which include a basal, unconfined horizontally extensive aquifer that is superposed by a high level, unconfined perched aquifer. The estimated sustainable yield of 20 million gallons per day (mgd) reflects high rainfall in the system.

Impacts and Mitigation Measures

No significant impacts to groundwater underlying the project site are anticipated during construction and operation of the proposed facility. Construction activities are not likely to introduce or release to the soil any materials which could adversely affect groundwater.

2.3.2 Surface Water

A Biological Reconnaissance Survey report was prepared for the project by *AECOS*, Inc. in February 2002. Excerpts from the study are included herein, while the study in its entirety is included as Appendix A.

Paihī Stream, an interrupted stream (identified as streams that flow year-round in the upper portions, and intermittently at lower elevations), is the only surface water body in

proximity to the project site. The stream arises at about the 2,240–foot elevation on the southeast slopes of Maui, above the towns of Muolea and Koali in the Hāna Forest Reserve, and flows into a waterfall located approximately 30 feet upstream from the existing bridge. Immediately upstream of the project site is a plunge pool which appears to be a perennial feature of Paihī Stream. The pool measures approximately 23 feet by 30 feet and is generally about 8 to 12 inches deep. The bottom consists primarily of boulders with a thin layer of silt. The plunge pool flows into a second waterfall directly beneath the existing bridge. The stream flows subsequently flows into a third waterfall located approximately 60 feet downstream from the project site and, thereafter, to its confluence with Wailua Stream near the mouth of Wailua Valley. The total watershed area of Wailua Stream is approximately 782 acres, of which less than 10 percent comprises the subwatershed area of Paihī Stream.

In conjunction with the Biological Reconnaissance Survey, a single water sample was collected from the plunge pool. On the basis of these results, the water quality was deemed very good. The only water quality observation indicating a potential for concern is that of turbidity. While the value of 1.41 ntu is within the expected range of values for good quality streams, a thin layer of silt covering most of the pool bottom suggests turbidity could rise quickly if flow were occurring.

The *Hawaii Stream Assessment,* compiled by the State Department of Land and Natural Resources Commission on Water Resource Management represents Hawaii's first step in an attempt to identify streams and rivers with significant natural and cultural qualities that may be appropriate for protection. One purpose of the study was to identify streams with high value stream-related "beneficial uses." These uses or "resources" were categorized into the following four units:

- Aquatic Resources
- Riparian Resources
- Cultural Resources
- Recreational Resources

Elements of these resource categories were identified and ranked as: Outstanding; Substantial; Moderate; Limited; and Unknown. Paihī Stream is not listed in the document. Wailua Stream, however, is classified as a perennial stream of substantial resource value and ranked as outstanding for resource and recreational values. These rankings, however, do not necessarily pertain to the Paihī branch, given that the stream is regarded as intermittent.

Impacts and Mitigation Measures

It is anticipated that water quality impacts during the short-term construction period will be minimal. New abutments for the replacement bridge will be placed behind the existing bridge abutments, thereby precluding the need to excavate or dredge within Paihī Stream. In addition, while the abutments for the temporary

bridge will require excavation within limited areas, such areas are located well above the water level of the stream, thus, minimizing the potential for impacting water quality. Further, there are no support piers proposed beneath the replacement or temporary bridges.

The design plans and specifications for the project will include a statement requiring the contractor to prevent cement products, oil, hydraulic fluid and other toxic substances associated with construction activities from falling or leaching into the stream.
Additionally, the design plans and specifications for the project will include measures to minimize erosion and, including:

- Minimizing time of construction;
- Retaining existing ground cover until the latest date to complete construction;
- Using temporary berms and cut-off ditches, as needed, to control erosion; and
- Sodding or replanting exposed soil areas immediately after grading work has been completed and providing irrigation, as needed, for maintenance throughout the construction period.

The State of Hawaii Department of Land and Natural Resources, Commission on Water Resources Management has indicated in a letter dated June 25, 2002 that a Stream Channel Alteration Permit will not be required for the project.

2.4 Flood Hazard

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community Panel Number 150003 0385B (Revised August 3, 1998), the project site is designated within Zone C, areas of minimal flooding. Due to its elevation and distance from shore, the project site is not subject to coastal hazards such as storm waves and tsunami inundation.

Impacts and Mitigation Measures

The new bridge will be designed to accommodate up to a 100-year storm event and is not anticipated to adversely impact the hydrology of Paihī Stream. To preserve the historic character of the bridge, the existing bridge abutments will be left in place as non-load bearing structures while the load-bearing abutments for the replacement bridge will be constructed behind the existing abutments, away from the stream (as aforementioned in Section 1.3, item 3). Since the hydrological capacity of the replacement bridge is largely determined by the existing abutments to remain in place, overall stream hydrology would not change.

The abutments for the proposed temporary bridge, as well as the bridge deck, will be constructed more than 100 feet above the stream, and will not affect its hydrology.

2.5 Flora and Aquatic Fauna

The Biological Reconnaissance Survey report prepared by *AECOS*, Inc. also included an assessment of flora and aquatic fauna resources occurring near the vicinity of the bridge. Excerpts from the survey report are included herein, while the report in its entirety is reproduced as Appendix A.

Dominant plants in the project vicinity include Pluchea (*P. oderata*), strawberry guava (*Psidium cattleianum*), day-flower (*Commelina difusa*), elephant grass (*Pennisetum purpureum*), yellow ginger (*Hedychium flavescens*), Job's tears (*Coix lachryma-jobi*), and various non-native weedy species and ornamentals. In addition, mango (*Mangifera indica*) and kukui (*Aleurites moluccana*) are prominent components of the forest in the valley downstream from the project site. Ferns (*Adiatum sp.* and *Blechnum appendiculatium*) characterize the lower face of the cliff above the plunge pool located immediately upstream of the project site. These plant species are common, mostly introduced species, characteristic of lowland areas in the Hawaiian Islands. No federally protected, threatened or endangered species of plants were found in the project area.

The plunge pool located immediately upstream of the bridge harbors a moderately dense population of the Pacific prawn (*Macrobrachium lar*), an introduced species. The population, including numerous juveniles, was estimated at 1-2 individuals per square meter. Several large 'o'opu nakea (*Awaous guamensis*) were also observed, some up to 10 centimeters (4 inches) in length. This is an indigenous species found in Hawaii as well as elsewhere in the Pacific Basin.

A complete list of aquatic animal biota observed or reported from Paihī Stream and Wailua Stream is provided in Table 3 of the report. No federally protected, threatened or endangered species of aquatic fauna were found in the project area. However, the State regulations extend protection to species of 'o'opu from net fishing activities.

Although Paihī Stream is not known as an important resource stream it is an intermittent or possibly interrupted branch of Wailua Stream, considered to have outstanding resource value and to harbor 'o'opu 'alamo'o in its upper reaches. Aquatic habitat that is present in Paihī Stream in the plunge pool may be perennial and suitable for migrating native aquatic fauna if additional suitable habitat exists further upstream in Paihī Gulch.

Impacts and Mitigation Measures

Removal of selected vegetation may be necessary to accommodate the temporary bridge abutments. Significant adverse impacts are not anticipated, however, as these plant species are common, mostly introduced species.

As the existing stream channel will not be altered, no adverse impacts on aquatic resources are anticipated as a result of the proposed project. The temporary and replacement bridges will not impair migratory (amphidromous) habits of native aquatic biota in the event that any such populations exist in more pristine areas upstream of the project site.

2.6 Noise

Typical of rural communities, noise levels in the vicinity of the project site is predominantly attributable to vehicular traffic traveling along Hāna Highway. There are no noise-sensitive land uses such as residents, in the immediate vicinity of the project site.

Impacts and Mitigation Measures

Noise from construction activities will be unavoidable during the entire construction period. Unavoidable construction noise impacts will be mitigated to some degree by the contractor's compliance with provisions of the State DOH Administrative Rules, Title 11, Chapter 46, "Community Noise Control." noise control regulations. These rules require a noise permit if the noise levels from construction activities are expected to exceed the allowable levels stated in the Chapter 46 rules. It shall be the contractor's responsibility to minimize noise by properly maintaining noise mufflers and other noise-attenuating equipment, and to maintain noise levels within regulatory limits. Also, the guidelines for the hours of heavy equipment operation and noise curfew times as set forth by the DOH noise control rules will be adhered to. In the long term, no significant noise impacts from the operation of the replacement bridge are anticipated.

2.7 Air Quality

Within the immediate vicinity, air quality is typical of rural communities. The sparsity of development and exposure to trade winds promote good air quality in the project area. The only identifiable source of emissions is the relatively light volume of traffic along Hāna Highway.

Currently, there are DOH air monitoring stations in Kihei and Paia on the island of Maui. The Kihei station is located in Hale Piilani Park and began operation in June 1996, while the Paia station is located in a residential area at 1141 Baldwin Avenue, northeast of the HC&S Co. Paia Mill and began operation in August 1996. Both were established as special sampling stations for sugarcane burning activities and monitor exclusively for particulate matter that is 10 microns or less in aerodynamic diameter (PM_{10}). Since their operation began, both stations have recorded PM_{10} levels well below the 50 $\mu g/m^3$

annual and 150 $\mu g/m^3$ 24-hour State and Federal ambient air quality standards (AAQS).

Impacts and Mitigation Measures

The proposed project will have short-term construction-related impacts on air quality, including the generation of dust and emissions from construction vehicles, equipment, and commuting construction workers. The construction contractor is responsible for complying with State DOH Administrative Rules, Title 11, Chapter 60-11.1 regarding "Air Pollution Control," specifically Section 11-60.1-33 regarding fugitive dust and the prohibition of visible dust emissions at property boundaries.

Mitigation measures to address short-term impacts include controlling the generation of fugitive dust through frequent watering of unpaved areas of exposed soil and planting landscaping as soon as possible on completed areas.

In the long term, it is not anticipated that operation of the project will adversely affect air quality, since no significant increase in traffic attributable to the project is expected.

2.8 Archaeological, Historic, and Cultural Resources

2.8.1 Archaeological Resources

An archaeological inventory survey report was prepared for the project by Pacific Legacy, Inc. in January 1999. Excerpts from the report are included herein while the report in its entirety is attached as Appendix B. An archaeological background and literature search as well as a field investigation were conducted in conjunction with the report. In addition, cultural resources were evaluated based upon the criteria of the National Register of Historic Places. No subsurface testing was undertaken. The report indicated that no archaeological resources were found at the project site.

2.8.2 Historic Resources

A Historic American Engineering Record (HAER) report including written and photographic historical and descriptive data was prepared for the project by Mason Architects in April 2002. Excerpts from the report are included herein

The Paihī Bridge was constructed in 1911 and is a contributing element of the Hāna Highway Historic District (Duensing 2000). The bridge and roadway achieve state and local significance in the areas of engineering, transportation, commerce, and social history. The Hāna Highway Historic Bridge District includes fifty-nine bridges and eight culverts constructed along the Hāna Highway (State Highway 360 and County Route 31) between 1908 and 1947. The historic district covers forty-two miles of roadway beginning at the Hoalua Stream Bridge near Huelo in the Makawao District and ending immediately after Koukou'ai Gulch Bridge near 'Ohe'o in the Kīpahulu District

(Duensing 2002). The Hāna Highway Historic Bridge District encompasses the highest concentration of unaltered and stylistically consistent historic bridges in the state. The highway and its predecessor, the footpath built by the ancient Hawaiians, served as the link between Kahului, the island's principal town, and the isolated communities along the east Maui coast.

The bridges along the Hāna Highway present a visual record and timeline of bridge construction technology and innovation on Maui and in Hawai'i. Paihī Bridge, a concrete deck bridge with duel girders supporting the 42'-0" span, is a good example of early reinforced-concrete bridge construction in Hawai'i. Concrete deck bridges, including flat slab and girder spans, are the most common County-built bridge type found in the islands. In addition, Paihī Bridge is significant for its use of vernacular materials (basalt or "lava rock") for the construction of abutments, piers and wingwalls. Paihī Bridge retains its historic character and integrity in its original alignment, and spectacular setting along Paihī Stream. The bridge is relatively unaltered, maintaining its original design and materials.

2.8.3 Cultural Resources

A cultural impact assessment was prepared for the project by Wilson Okamoto & Associates, Inc. in February 2002 to provide an overview of native Hawaiian cultural resources, practices and beliefs pertaining to the *ahupua'a within which the project site* is located, and to assess potential impacts of the proposed improvements. Excerpts from the assessment are included herein while the report in its entirety is reproduced as Appendix C.

The following summarizes the findings of the cultural impact assessment relative to the proposed Paihī Bridge replacement:

1. Based on a review of Land Commission claims and awards at the time of the Great Mahele, the project site was not claimed for house lot, agricultural, or any other use;

2. Based on the findings of the archaeological inventory survey conducted for the proposed improvements, project specific consultations, and a review of historical documentation, no religious sites, traditional use areas or burials are located within the project corridor; and

3. Based on the findings of archaeological surveys conducted for the project site, a site visit, and project specific consultations there are no continuing cultural practices occurring within the project corridor.

Archaeological Resources: No significant impacts to archaeological resources is anticipated as no such resources were found at the project site. In the unlikely event that any burials are found during construction activities all work will immediately cease pending consultation with the Department of Land and Natural Resources State Historic Preservation Division. The treatment of any remains will be in accordance with procedures approved by the Hawai'i Island Burial Council and the State Historic Preservation Division.

Historic Resources: With the exception of the existing abutments, the bridge will be demolished and removed from the site. Prior to demolition, however, pursuant to Section 4(f) of the Department of Transportation Act, the existing bridge will be made available for an alternate use, provided that a responsible party agrees to maintain and preserve the bridge. The project will comply with the HAER requirements pertaining to photographic documentation and recordation pursuant to Section 106 of the Historic Preservation Act. The HAER photographic documentation will be submitted to the State Historic Preservation Division of the Department of Land and Natural Resources as well as the National Park Service for review and approval.

Cultural Resources: Based on an assessment of the impacts of the proposed project on the resources, beliefs and practices identified, the proposed replacement of Paihī Bridge with a new one-lane bridge in the same location as the existing bridge and with a similar design will not significantly impact native Hawaiian cultural resources, beliefs and practices.

In the unlikely event that any burials are found during construction activities they should not be disturbed pending consultation with the Department of Land and Natural Resources State Historic Preservation Division. The treatment of any remains should be in accordance with procedures approved by the Hawai'i Island Burial Council and the State Historic Preservation Division.

The project site has been in use as a bridge since 1911 traversing a steep gulch. While access between ahupua'a may be affected by road closures during the construction period, access to traditional resources and sites will not be affected by the replacement bridge.

Stream flow above and below the bridge will not be obstructed or diverted. Water quality in Paihī Stream will not be significantly affected by construction activities or operation of the replacement bridge. Construction of the replacement bridge will not alter the Paihī Stream plunge pool or stream channel.

2.9 Socio-Economic Characteristics

The following summary of the socio-economic environment is based on demographic and housing data from the 1990 U.S. Census of Population and Housing. Based on this data, the project site is within the boundaries of the Hāna District Census Tract 301. This census tract encompasses the entire Hāna District extending from its northern shoreline at Makaiwa Bay, mauka along Oopuola and Waikamoi Streams, then along the boundaries of Haleakalā National Park and the Kahikinui Forest Reserve, and makai along the boundary between Auahi and Kanaio to Kanaloa Point on the southern shoreline of the region.

2.9.1 Socio-Economic Resources

2.9.1.1 Overview

The Island of Maui, in the 2000 census, had a population of 117,644, up 26,283 from 1990 figure of 91,361 persons. Its economy is based on the "export" industries of tourism, agriculture, technology and transfer payments from government and private sources. It also has significant retail, service and construction sectors. The main population, economic and civic centers are located in West Maui and Central Maui.

In the 2000 census, the Hāna District community, which encompasses East Maui from Keanae to Hāna town to Kaupō, in the 2000 census, had a population of 1,855, down slightly from the 1990 figure of 1,895 persons. The district's economy is based on tourism, agriculture and transfer payments from government and private sources. Hāna town is the main civic and commercial center of the district.

Although census figures are not available for the area south and west of the Paihī Bridge project site, interviews with knowledgeable residents of the area have provided estimates of 60 to 80 families in the Kaupō-Kīpahulu-Wailua area. The interviews also indicated that the current number of families is significantly greater than it was two to three years ago.

2.9.1.2 Economy

The region's economy is based primarily on diversified agriculture, the visitor industry, government services, and subsistence activities. Diversified agricultural activities include ranching, tropical fruit, flower and foliage, and taro cultivation. Visitor accommodations, including the Hotel Hāna-Maui, are centered in Hāna Town.

Impacts and Mitigation Measures

An Economic Impact Analysis was prepared for the project by Strategy Pacifica, Inc. in April 2002. Excerpts from the analysis are included herein while the report in its entirety is reproduced as Appendix D. The purpose of this study was to compare the potential economic and related community impacts of the proposed bridge replacement with and without the proposed mitigation measure of the temporary bridge. The two scenarios are described as follows:

Scenario One – Six Month Closure – Involves complete closure of the bridge and the road at the Paihī Bridge site during the six-month construction period.

Scenario Two – Temporary Bridge –Involves the use of a temporary bridge during the construction period for the permanent replacement bridge. Set-up of the temporary bridge would require complete closure of the road at Paihī for a four- to five-day period. After set-up, use of the temporary bridge would be on a partial daily basis with some periods of closure to accommodate construction-related activities. Removal of the temporary bridge would require complete closure of the road at Paihī for a three- to four-day period.

The study included an evaluation of: 1) Economic impacts of the project's construction expenditures; 2) Possible effects of two road closure scenarios on the island and community's economic activities; and 3) Impacts under the two scenarios on basic functions and services in the Kaupō to Wailua community that lie south and west of the Paihī Bridge project site.

The cost of the replacement bridge is estimated to be $1.0 million, with expenditures to occur over a six-month period of time, with an additional $300,000 to be spent if a temporary bridge is used. Because each scenario has a different total construction cost estimate, projected employment and income impacts are presented for each scenario. The projected impacts are on a statewide basis. Breakdowns of the projections for island or Hāna District community level impacts are not available due to limitations of the input/output model available.

Interviews with Hāna District community leaders regarding past experience with construction projects of this scale and complexity in the Hāna area indicate that it is likely that most, if not all, of the construction workers for the project would come from other parts of Maui or from other islands. Outside workers, though, often rent accommodations in the Hāna area to stay in during the workweek, and then travel back to their homes on weekends. If the project follows this pattern, the employment impacts will be felt primarily outside of the Hāna District community, but at least a portion of the indirect and induced income impacts may be felt by the Hāna District community from expenditures by the construction workers on accommodations, food, and non-food goods and services during their stay in the Hāna area.

Construction Employment Generation:

Scenario One – Six Month Closure – The total cost of the project construction under this scenario has been estimated to be $1.0 million, to be spent over a six month time period. It is projected that the project will generate 17.6 direct jobs

and 25.8 indirect and induced basis during the construction period. Therefore, on a combined basis, total direct, indirect and induced job creation during the construction period is projected to be 43.4 jobs during the six-month construction period.

Scenario Two – Temporary Bridge - The total cost of the project construction under this scenario has been estimated to be $1.3 million, to be spent over a nine month time period. It is projected that the project will generate 22.8 direct jobs and 33.4 indirect and induced basis during the construction period. Therefore, on a combined basis, total direct, indirect and induced job creation during the construction period is projected to be 56.2 jobs.

Construction Income Generation

The projected income generation effects for the Paihī Bridge replacement project reflect the impact of the construction expenditures on household income on a statewide basis. Projections for direct, *indirect and induced income generation* are provided for both scenarios.

Scenario One – Six Month Closure – Direct income projections for the project's construction period result in a direct impact of $484,615 per year, while indirect and induced income effects are projected to generate $465,231 in income on annual basis. On a combined basis, total direct, indirect and induced income generation during the construction period is projected to be $949,846.

Scenario Two – Temporary Bridge - Direct income projections for the project's construction period result in a direct impact of $630,000 per year, while indirect and induced income effects are projected to generate $604,800 in income on annual basis. On a combined basis, total direct, indirect and induced income generation during the construction period is projected to be $1,234,800.

Other Economic and Community Impacts

The analysis of the potential economic and community impacts of the project deals with two subjects which are analyzed under the two scenarios described above. The subjects include:

1) Effects related to the closure of the road at Paihī Bridge to accommodate the construction activity on the visitor and business activities in the Hāna District community; and
2) Effects related to the closure of the road at Paihī Bridge on access to government services, including schools, health care and emergency services.

1) Visitor Activity Impacts

This section addresses the potential impact of the project on visits to Haleakala National Park at Kīpahulu and other points south and west of the Paihī Bridge project site, and on visitor-related activities in Hāna Town under the two scenarios.

The impacts described below are focused on the Hāna District community. While it is anticipated that there will be significant impacts to that community from the project, visitor industry activities for the Island of Maui as a whole will not be significantly impacted by the project. The Island of Maui has a wide range of locations and activities for visitors and there are numerous possible substitutes for day visits to Kīpahulu and other areas south and west of the project site. It is not anticipated that the island will lose visitor days or expenditures as a result of the project.

a) Visits To Haleakala National Park At Kīpahulu

Scenario One - Six Month Closure - Using the estimated 600,000 to 700,000 visitors to Haleakala National Park at Kīpahulu in 2001 as a base for annualized visitor counts during the construction period, it is likely that a very large majority, perhaps as much as 90%, would not come to the park during the period if access to the park from the Hāna town direction was not available. Although there may be some visitors who travel to the park by taking the road from Ulupalakua to Kīpahulu, the relatively poor condition of the road, and the restrictions by car rental companies against driving on that road are likely to deter most visitors.

If visitation were to have normally been at a rate of 650,000 visitors per year, the Six Month Closure scenario could result in the reduction of up to 292,500 visitors to the Haleakala National Park at Kīpahulu.

Scenario Two – Temporary Bridge - The effects of the Temporary Bridge scenario on visitation to the Haleakala National Park at Kīpahulu would depend primarily on when daily closures of the temporary bridge occurred.

With two estimated seven-day closures for the set-up and breakdown of the temporary bridge, there could be a reduction of 124,932 visitors to the Haleakala National Park at Kīpahulu. Additional reductions could occur if the temporary bridge were closed during the peak daily to and from transit times of 10:00 a.m.

to 3:00 p.m. for day visitors who drive to and from the park via the northern Hāna Highway route. Closures during that period could stop nearly all of the 1,800 visitors a day from going to the park.

b) Visits To Hāna Town

Scenario One - Six Month Closure - Although difficult to quantify, the Six Month closure scenario is likely to result in significant reductions in the number of visitors who visit or drive through Hāna town. The large numbers of persons visiting Haleakala National Park at Kīpahulu and other points south and west of the Paihī Bridge project site suggest that, absent the ability to visit those areas, many of visitors to Hāna town would not take the northern Hāna Highway route if they could not go on to the park. If only half of the visitors who would have normally gone on to visit the Haleakala National Park at Kīpahulu decided to just go to the Hāna town area instead, there would be a reduction of 162,500 visitors to the Hāna town area during the six month closure period.

If these visitors were to spend an average of $5.00 per visitor on food and non-food items, this could result in a loss of $0.81 million in sales for businesses in the Hāna town area. Although the loss in sales might be partially offset by the expenditures of construction workers staying in Hāna area accommodations, their expenditures for accommodations, food and non-food services, based on calculations of eight direct employees staying in Hāna for five days a week for 26 weeks at $100 per day, would only generate $234,000 in rent and retail sales.

Scenario Two – Temporary Bridge - As with the effects on visitation to the Haleakala National Park at Kīpahulu, the effects of the Temporary Bridge scenario on the number of visitors to Hāna town will depend primarily on when temporary daily closures of the temporary bridge occurred. If Hāna town lost half of the visitors to the Haleakala National Park at Kīpahulu during the two estimated seven-day closures for the set-up and breakdown of the temporary bridge, this could result in a reduction of 12,500 visitors.

In addition, if the temporary bridge were closed during the peak daily to and from transit times of 10:00 a.m. to 3:00 p.m. for day visitors who drive to and from the park via the northern Hāna Highway route there could be further reductions. Closures during that period could stop nearly 1,800 visitors a day from going to the park, with greater disruption possible if visitors generally become

uncertain about the ability to visit the park and avoid driving to Hāna altogether.

If the temporary bridge were closed for a full day, and Hāna town lost half of the visitors who would have normally gone on to visit the Haleakala National Park at Kīpahulu, the reduction of half of the 1,800 daily visitors to Hāna town per day, with an average expenditure of $5.00 per visitor on food and non-food items could result in a loss of $4,500 in sales per day for businesses in the Hāna town area. The loss in sales might be partially offset by the expenditures of construction workers staying in Hāna area accommodations, their expenditures for accommodations, food and non-food services, based on calculations of 15 direct employees staying in Hāna for five days a week for 39 weeks at $100 per day, by generating $292,500 in rent and retail sales.

c. Hāna Visitor Accommodations

This section addresses the potential impact of the project on visitor accommodations in the Hāna area. The visitor plant inventory compiled by the State of Hawaii in 2000 listed 163 visitor accommodation units in the Hāna area. 96 were hotel units (93 of which were at the Hotel Hāna-Maui), 30 were individual vacation units, 17 were condominium hotel units, and 20 were bed & breakfast or "other" units.

Scenario One - Six Month Closure - The Six Month Closure scenario could adversely affect occupancy at Hāna area visitor accommodations. Although it is impossible to predict what percentage of overnight visitors to Hāna would forego or shorten their stays in Hāna due to the closure of the road at the Paihī Bridge project site, the inability to visit the Haleakala National Park at Kīpahulu would undoubtedly result in some reduction in occupancy.

Construction workers staying in the Hāna area during the workweek, if they each rent one of the visitor accommodation units rather than renting a house(s), could add 2,340 visitor nights to area's total visitor night count. Eighteen units represents approximately 11.0% of the total visitor plant inventory for the Hāna area.

Scenario Two - Temporary Bridge – The Temporary Bridge scenario is not likely to adversely affect occupancy at Hāna area

visitor accommodations except during the estimated seven days of closure of the road at the Paihī Bridge project site for the set-up and the seven days of takedown of the temporary bridge.

Visitors staying in Hāna area accommodations are in a better position than day trip visitors to plan their trips to the Haleakala National Park at Kīpahulu to avoid temporary daily closures, and those temporary closures should not serve as a deterrent to staying in Hāna area accommodations. Construction workers staying in the Hāna area during the workweek, if they each rent one of the visitor accommodation units rather than renting a house(s), could add 2,925 visitor nights to area's total visitor night count. Fifteen units represent slightly approximately 9.2% of the total visitor plant inventory for the Hāna area.

d) Effects On Other Business Activities

Scenario One - Six Month Closure -The Six Month Closure scenario could affect Hāna District businesses by disrupting the ability of workers living south and west of the Paihī Bridge project site to travel to their jobs. Daily commutes via Kula and the northern Hāna Highway route are infeasible, and the likely alternative would be to stay in accommodations in the Hāna District north of the road closure site during the work week. This would result in significant additional expenses to the workers and/or their employers.

Kaupō Store and any other businesses south and west of the road closure site would have to be serviced via Piilani Highway east of Ulupalakua, which, due to the condition of the road along parts of the route, would be problematic.

Scenario Two - Temporary Bridge - The Temporary Bridge scenario could affect Hāna District businesses by disrupting the ability of workers living south and west of the Paihī Bridge project site to travel to their jobs during the seven days of closure for the set-up and seven days of closure for the takedown of the temporary bridge. It is likely that affected workers would either take vacation time during that period or stay in accommodations in the Hāna District north of the road closure site during that period. This would result in some additional expenses to the workers and/or their employers.

Provision would also have to be made in the daily time periods in which closure of the temporary bridge occurred to allow workers to travel to their job sites.

e) Effects On Access To Government Services

Scenario One - Six Month Closure - The Six Month Closure scenario would effectively cut off the 60 to 80 families living to the south and west of the Paihī Bridge project site from access to Hāna town for six months.

This would affect where school children could attend school, where government services could be accessed, and the availability of emergency services.

An estimated 15 students in Kaupō and another 21 in Kīpahulu would have to attend schools other than Hāna High and Elementary School during the six month period. The 36 students represent approximately 9% of the school's student population of 402 students.

To access government services such as health care, social services, and municipal services normally available in Hāna town, residents living south and west of the Paihī Bridge project site would have to travel to Upcountry or Central Maui to access those services.

Emergency services such as police, fire and ambulance normally available from Hāna town would also have to be provided from Upcountry or Central Maui.

Scenario Two - Temporary Bridge - The Temporary Bridge scenario would effectively cut off the 60 to 80 families living to the south and west of the Paihī Bridge project site from access to Hāna town for up to seven days during the set-up of the temporary bridge and up to seven days during the breakdown of the temporary bridge.

This would affect school attendance, access to government services, and the availability of emergency services.

Because these would be relatively short time periods, the effects could be mitigated by conducting the set-up and breakdown activities during days that school is not in session, and most

government services not available, such as weekends and holidays. Special provisions would still be required, however, for health and emergency services.

Similarly, for temporary daily closures of the temporary bridge for construction purposes, special provisions would be required for emergency services.

2.9.2 Police, Fire and Medical Services

Police: The Maui County Police Department is headquartered at its Wailuku Station. The Hāna region is served by the Hāna District Police Station, which is located at the intersection of Uakea Road and Hāna Highway in Hāna Town. The service region includes the area from Kaumahina State Park (Mile Post 11 on Highway 360, located approximately 7 miles prior to Keanae when traveling from Wailuku) to Kaupō (Staff communication on April 25, 2002).

Fire: Fire protection in the Hāna District is provided by the Maui County Fire Department Hāna Station which is located at the intersection of Uakea Road and Hāna Highway in Hāna Town. The service region includes the area from Hanamanu Bay in Keanae (Mile Post 17 on Highway 360) to Kaupō Store in Kaupō (Mile Post 35 on Route 31) (Staff communication on April 25, 2002).

Emergency: Emergency services on Maui are provided by American Medical Response. Medic 6 stationed at the Hāna Community Healthcare Center services the area from Kaumahina State Park (Mile Post 11 on Highway 360) to Kaupō Store in Kaupō (Mile Post 35 on Route 31). Medic 11 which provides back-up services for Medic 6 is located in Kula at 64 B Lower Kula Highway. Medic 11 services the area from the Kaupō Store in Kaupō (Mile Post 35 on Route 31) to Haleakalā Highway in Pukalani (Staff communication on April 25, 2002).

Medical Facilities: Hāna Community Health Center provides medical and dental services to community residents from Keanae to the north and Kaupō to the south, including Nahiku, Hāna, and Kīpahulu. The Center is located which is located near the intersection of Uakea Road and Hāna Highway in Hāna Town. In addition, Maui Memorial Medical Center, located in Wailuku, is the only full-service medical facility on the island of Maui.

Impacts and Mitigation Measures

Construction will require a combination of total and night closures along Hāna Highway near the project site. Construction of the abutments for the temporary bridge will require approximately one month of night closure. Once the replacement bridge is complete, an additional 2 months of night closures will be required to demolish the temporary abutments repair the road approaches. In addition, up to seven days of complete closure will be required for the installation

of the temporary bridge, as well as up to seven days of complete closure to disassemble the bridge. Vehicular access through the project site will be prohibited during periods of complete closure. As much as possible, the periods of complete closure will be scheduled during non-peak travel periods such as weekends and/or holidays to mitigate the potential inconvenience to commuters particularly who travel during the typical Monday through Friday work week. Furthermore, temporary day closures (up to several hours) may be required intermittently during the construction of the replacement bridge to allow for placement of materials and/or mobilization of equipment. Special provisions will be coordinated for health and emergency services during periods of night closure and complete closure. All closures, however, will be closely coordinated with the community including police, fire and ambulance services as well as residents, businesses, schools, and government offices. Prior to the start of construction, a telephone hotline will be established to provide information to the public regarding the status of road closures. The hotline will remain in operation throughout the construction period. Motorists will also be advised of closure schedules through the media.

2.9.3 Traffic

Hāna Highway is the only roadway that provides vehicular access for residents and visitors to Hāna. It is largely a two-lane two-way road with the exception of numerous one-lane bridge and culvert crossings, such as Paihī Bridge. The portion of the highway that runs through Hāna Town up to Keawa Place is identified as Highway 360 and is under the jurisdiction of the State of Hawaii. For the next 13 miles, the Hāna Highway is identified as Route 31 and falls under the jurisdiction of the County of Maui. The 14 County bridges discussed in the *Preservation Plan for County of Maui Bridges Within the Hāna Highway Historic District* (December, 2002) are included in this portion of the highway. This County-owned portion of Hāna Highway traverses from Mile Post 51 to Mile Post 38, at Kalepa Bridge near Kipahulu. Hāna Highway then becomes Pi'ilani Highway but remains under the County's jurisdiction.

The scenic drive to Hāna Town is a major visitor attraction, as are Hamoa Beach, Seven Pools, and Kīpahulu Falls, which are located further south on the highway. Consequently, tourists comprise a large portion of the traffic on the highway through Hāna.

Impacts and Mitigation Measures

Access through the project site will be impacted during the construction period as residents and visitors will be temporarily inconvenienced by both night and complete closures in the immediate area of construction. Construction will require a combination of total and night closures along Hāna Highway near the project site. Construction of the abutments for the temporary bridge will require approximately one month of night closure. Once the replacement bridge is complete, an additional 2 months of night closures will be required to demolish

the temporary abutments repair the road approaches. In addition, up to seven days of complete closure will be required for the installation of the temporary bridge, as well as up to seven days of complete closure to disassemble the bridge. Vehicular access through the project site will be prohibited during periods of complete closure. As much as possible, the periods of complete closure will be scheduled during non-peak travel periods such as weekends and/or holidays to mitigate the potential inconvenience to commuters particularly who travel during the typical Monday through Friday work week. Furthermore, temporary day closures (up to several hours) may be required intermittently during the construction of the replacement bridge to allow for placement of materials and/or mobilization of equipment.

Public safety at the project site during construction will be maintained throughout all phases of construction. Signs, barricades, traffic safety personnel will be employed to inform and safely separate the public from construction activities. Special provisions will be coordinated for health and emergency services during periods of night closure and complete closure. All closures, however, will be closely coordinated with the community including residents, businesses, schools, and government offices, as well as police, fire and ambulance services. Prior to the start of construction, a telephone hotline will be established to provide information to the public regarding the status of road closures. The hotline will remain in operation throughout the construction period. Motorists will also be advised of closure schedules through the media.

3. RELATIONSHIP TO PLANS, POLICIES AND CONTROLS

This section discusses State and County of Maui land use controls, and County plans and policies relating to the proposed project.

3.1 State Land Use District

The Hawaii Land Use Law of Chapter 205, Hawaii Revised Statutes, classifies all land in the State into four land use districts: Urban, Agricultural, Conservation, and Rural. The project site lies within the conservation district. Consultation with the State of Hawaii Department of Land and Natural Resources indicated that a Conservation District Use Departmental Permit will be required for the project (Staff communication on January 14, 2002 and July 22, 2002, and letter dated June 12, 2002).

3.2 County of Maui General Plan

The General Plan for the County of Maui (adopted 1991) was amended by the Maui County Council in 1993. The Plan is a narrative document which sets forth strategies to shape the County's physical, social and economic environments. These strategies are expressed as statements of objectives and policies which are used by the County in decision-making and in developing and implementing plans and programs. The Maui County Charter, in expressing the intent of the General Plan, provides that:

> *"The purpose of preparing a general plan is to recognize and state the major problems and opportunities concerning the needs and the development of the county and the social, economic and environmental effects of such development to set forth the desired sequence, patterns and characteristics of future development."*

Furthermore,

> *"It shall contain statements of the general, social, economic, environmental and design objectives to be achieved for the general welfare and prosperity of the county through government action, county, state or federal."*
>
> The relationship of the proposed project to the relevant objectives and policies of the General Plan are as follows:

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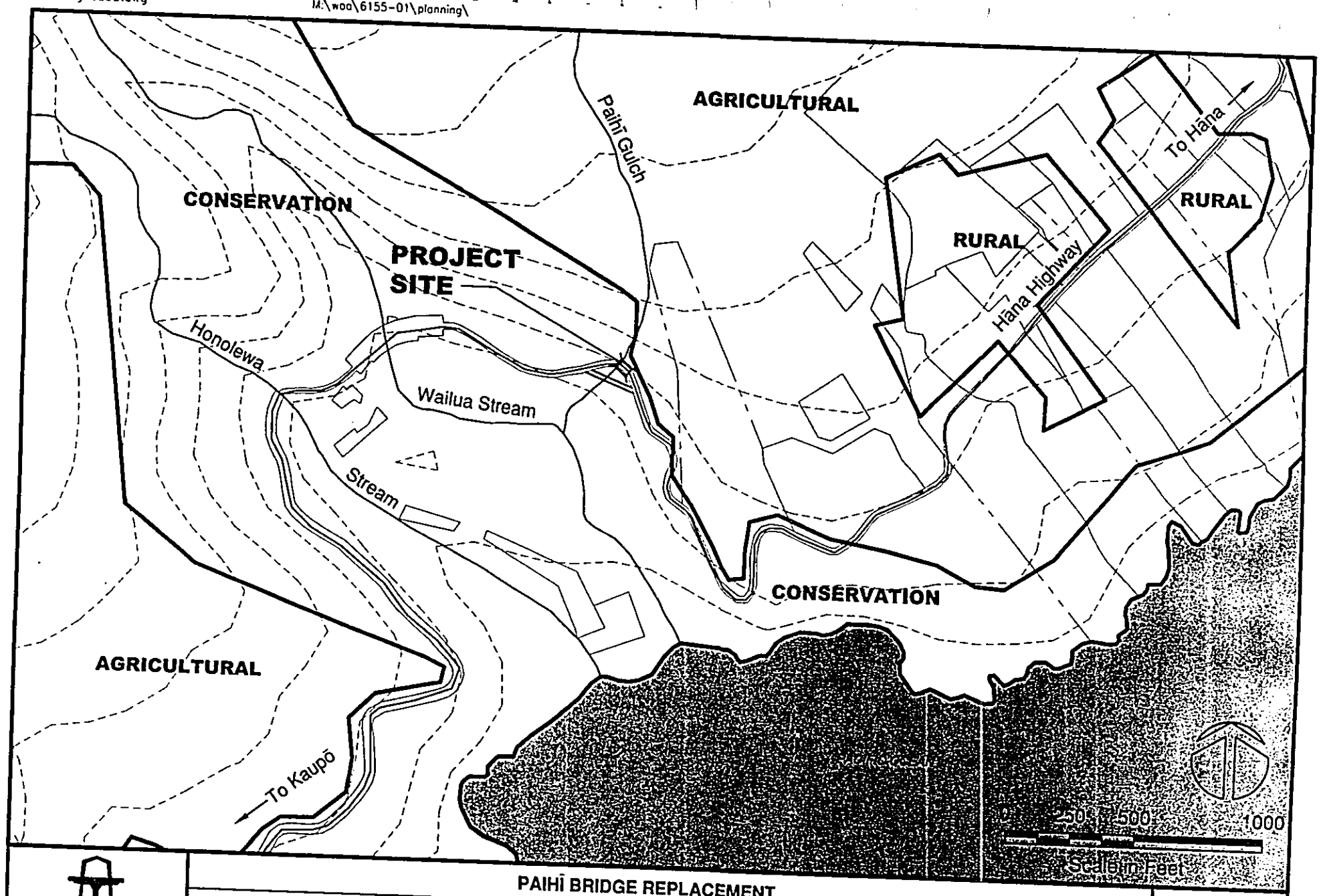


WILSON OKAMOTO & ASSOCIATES, INC.
ENGINEERS • PLANNERS

PAIHI BRIDGE REPLACEMENT

STATE LAND USE DISTRICT MAP

FIGURE 10

I. POPULATION, LAND USE, THE ENVIRONMENT AND CULTURAL RESOURCES

D. Cultural Resources

Objective

1. *To preserve for present and future generations the opportunity to know and experience the arts, culture and history of Maui County.*

Policies

a. *Encourage the recordation and preservation of all cultural and historic resources, to include culturally significant natural resources.*

Comment: The project will comply with the Historic American Engineering Record (HAER) requirements pertaining to photographic documentation and recordation pursuant to Section 106 of the Historic Preservation Act. The HAER photographic documentation has been submitted to the State Historic Preservation Division of the Department of Land and Natural Resources as well as the National Park Service for review and approval.

A cultural impact assessment was prepared for the project by Wilson Okamoto & Associates, Inc. in February 2002 to provide an overview of native Hawaiian cultural resources, practices and beliefs pertaining to the ahupua'a within which the project site is located, and to assess potential impacts of the proposed improvements. Based on the assessment the proposed project will not significantly impact native Hawaiian cultural resources, beliefs and practices.

III. HOUSING AND URBAN DESIGN

B. Urban Design

Objective

2. *To encourage developments which reflect the character and the culture of Maui County's people.*

Policies

a. *Establish urban design guidelines and standards which will reflect the unique traditional architectural values of each community plan area.*
b. *Encourage community design which establishes a cohesive identity.*

Comment: The proposed design of the replacement bridge is based on recommendations presented in the Final Preservation Plan for County of Maui Bridges Within The Hāna Highway Historic District (December 2002), which was prepared with extensive consultation with the community, interest groups, and key agencies. In consideration of the bridge's contributing role in defining the historic character of the Historic District, the current bridge design reflects

measures intended to preserve its historical character-defining features. The most significant measure in this regard is retaining its single-lane operation with a 16-foot railing-to-railing deck width. The project will obtain approvals under Section 106 of the National Historic Preservation Act and Chapter 6E, Hawai'i Revised Statutes regarding Historic Preservation, as well as Section 4(f) of the Department of Transportation Act.

3.3 County of Maui Hāna Community Plan

The Hāna Community Plan, one of nine (9) community plans for Maui County, reflects current and anticipated conditions in the Hāna region, and advances planning goals, objectives, policies and implementation considerations to guide decision making in the region through the year 2010. The Hāna Community Plan provides specific recommendations to address the goals, objectives and policies contained in the General Plan, while recognizing the values and unique attributes of Hāna, in order to enhance the region's overall living environment. The project site is consistent with the following Hāna Community Plan goals, objectives and policies:

CULTURAL RESOURCES

Goal

Identification, preservation, protection, and where appropriate, restoration of significant cultural resources and practices, that provide a sense of history and identity for the Hāna region.

Objectives and Policies

3. *Encourage community stewardship of historic sites and provide for the curation of artifacts in the Hāna region.*

Implementing Actions

3. *General site types and areas that should be flagged for preservation during development review include the following:*

Hāna/Pi'ilani Highways and historic bridges

Comment: The proposed design of the replacement bridge is based on recommendations presented in the Final Preservation Plan for County of Maui Bridges Within The Hāna Highway Historic District (December 2002), which was prepared with extensive consultation with the community, interest groups, and key agencies. In consideration of the bridge's contributing role in defining the historic character of the Historic District, the current bridge design reflects measures intended to preserve its historical character-defining features. The most significant measure in this regard is retaining its single-lane operation with a 16-foot railing-to-railing deck width. The project will obtain approvals under Section 106 of the National Historic Preservation Act and Chapter 6E, Hawai'i Revised Statutes regarding Historic Preservation, as well as Section 4(f) of the

Department of Transportation Act. In addition, pursuant to Section 4(f) of the Department of Transportation Act, the existing bridge will be made available for an alternate use, provided that a responsible party agrees to maintain and preserve the bridge.

A cultural impact assessment was prepared for the project by Wilson Okamoto & Associates, Inc. in February 2002 to provide an overview of native Hawaiian cultural resources, practices and beliefs pertaining to the ahupua'a within which the project site is located, and to assess potential impacts of the proposed improvements. Based on the assessment the proposed project will not significantly impact native Hawaiian cultural resources, beliefs and practices.

The project will comply with the Historic American Engineering Record (HAER) requirements pertaining to photographic documentation and recordation pursuant to Section 106 of the Historic Preservation Act. The HAER photographic documentation has been submitted to the State Historic Preservation Division of the Department of Land and Natural Resources as well as the National Park Service for review and approval.

ECONOMIC ACTIVITY

Goal

A balanced local economy which provides long-term viability and sustainability while meeting resident's needs and respecting the cultural and natural resources of Hāna.

Objectives and Policies

12. *Encourage contractors to employ qualified Hāna District residents when constructing facilities or other structures within the Hāna District.*

Comment: The proposed project will help to support the long-term viability and sustainability of the Hāna District by providing a reliable bridge and roadway network to its residents and visitors. In addition, short-term construction-related employment opportunities will also be created by the proposed project. These jobs will become available to qualified individuals including residents of the Hāna District. The proposed project represents a structural improvement of an existing land use that is vital to the region.

URBAN DESIGN

Goal

Harmony between the natural and man-made environments through building, infrastructure and landscaping design which ensures that the natural beauty and character of the Hāna region is preserved.

Objectives and Policies

2. *Encourage roadway, drainage, landscaping and other public improvement standards which area in harmony with an informal rural or natural environment.*
3. *Maintain the informal rural streetscape which provides character identification for Hāna Town.*

Implementing Actions

2. *Develop and implement appropriate "rural standards" for public facilities and privately sponsored building improvements, roadways and subdivisions.*

Comment: The proposed design of the replacement bridge is based on recommendations presented in the Final Preservation Plan for County of Maui Bridges Within The Hāna Highway Historic District (December 2002), which was prepared with extensive consultation with the community, interest groups, and key agencies. In consideration of the bridge's contributing role in defining the historic character of the Historic District, the current bridge design reflects measures intended to preserve its historical character-defining features. The most significant measure in this regard is retaining its single-lane operation with a 16-foot railing-to-railing deck width. The project will obtain approvals under Section 106 of the National Historic Preservation Act and Chapter 6E, Hawai'i Revised Statutes regarding Historic Preservation, as well as Section 4(f) of the Department of Transportation Act.

PHYSICAL INFRASTRUCTURE

Goal

Timely and environmentally sensitive development and maintenance of infrastructure systems which protect and preserve the safety and health of the Hāna region's residents and visitors, including the provision of domestic water, utility and waste disposal services, and effective transportation systems which meet the needs of residents and visitors while protecting the region's rural character.

Objectives and Policies

1. *Ensure community participation, including resident Hawaiian, in all long-term infrastructure planning.*
2. *Balance traffic flow and safety requirements with the preservation of the Hāna region's historic bridges.*

Public Health and Safety

4. *Improve walkways and roads within residential areas to ensure safe passage for pedestrians and vehicular traffic.*

5. *Develop appropriate and achievable rural standards for infrastructural improvements.*

Comment: The proposed design of the replacement bridge is based on recommendations presented in the Final Preservation Plan for County of Maui Bridges Within The Hāna Highway Historic District (December 2002), which was prepared with extensive consultation with the community, interest groups, and key agencies. In consideration of the bridge's contributing role in defining the historic character of the Historic District, the current bridge design reflects measures intended to preserve its historical character-defining features. The most significant measure in this regard is retaining its single-lane operation with a 16-foot railing-to-railing deck width. The project will obtain approvals under Section 106 of the National Historic Preservation Act and Chapter 6E, Hawai'i Revised Statutes regarding Historic Preservation, as well as Section 4(f) of the Department of Transportation Act.

GOVERNMENT

Goal

The provision of accessible, cost effective, and responsive government services and programs which meet the unique needs of residents and the cultural, geographic and socio-economic characteristics of the Hāna region.

Objectives and Policies

2. *Encourage improved communication between government agencies and residents in order to improve residents' understanding of the development permit process and compliance with regulatory requirements.*

Comment: The public will be afforded an opportunity to review and comment on this EA pursuant to the requirements of Chapter 343 Hawai'i Revised Statutes and Section 11-200 of Title 11 Department of Health Administrative Rules. A presentation was conducted for the Maui Cultural Resources Commission at their March 7, 2002 meeting in Wailuku, to which the public was also invited. In addition, a public information meeting was held in Hāna on the same date to apprise the public of the project. The Hāna meeting was attended by approximately 30 people, although not all completed the sign-in form (see Appendix E). A subsequent public information meeting was conducted in Hāna on June 18, 2002. The meeting was attended by approximately 15 people, although not all completed the sign-in form (see Appendix F). Additional public participation will be solicited during the processing of the SMA Permit application, which will include public notification and a public hearing.

Furthermore, public input regarding the bridge's historic resource value was solicited in conjunction with the preparation of the *Preservation Plan for County Bridges Within the Proposed Hāna Historic Bridge District.* This included a

public information meeting held in Hāna on September 6, 2000 and an opportunity to provide written comments on preliminary recommendations. On October 4, 2000, a field visit of the County's 14 bridges was conducted to discuss the preliminary recommendations with representatives of key agencies and interest groups. In addition, a presentation to the Maui Cultural Resources Commission on the preliminary recommendations was given at the December 7, 2000 meeting, for which public notification was provided and the public invited. On June 4 and 5, 2001 the Revised Draft Preservation Plan for County of Maui Bridges Within the Hāna Highway Historic District was distributed for public review to participants in the public informational meeting, field visit or from whom written correspondence was received. A subsequent public information meeting to present and discuss the Revised Draft Preservation Plan was held on June 19, 2001 in Hāna. Thereafter, the Plan was finalized in December 2001 and received concurrence from the SHPD on December 2, 2001.

As aforementioned in the section on ***Historic Resources*** the current bridge design is based on recommendations presented in the Final Preservation Plan for County of Maui Bridges Within the Hāna Highway Historic District (December 2002). In consideration of the bridge's contributing role in defining the historic character of the Historic District, the current bridge design reflects measures intended to preserve its historical character-defining features.

3.3.1 Community Plan Land Use Map

The Hāna Community Plan Land Use Map designates the project site as "AG" Agriculture. This designation indicates areas for agricultural activity which would be in keeping with the economic base of the County and the requirements and procedures of Chapter 205 HRS, as amended. The proposed project is a permitted use pursuant to Chapter 205 Section 4.5(7) which includes "Public, private, and quasi-public utility lines and roadways...". Staff communication with the Maui Planning Department on February 19, 2002 confirmed the proposed facility is consistent with the Agriculture designation.

3.4 County of Maui Zoning

The County of Maui Interim Zoning Ordinances for various districts of Maui are for the purpose of providing interim regulations pending the formal adoption of a comprehensive zoning ordinance and map. Roadways are a permitted property use designated by the interim zoning regulations. (Staff communication February 19, 2002 confirmed the proposed facility is consistent with the Interim Zoning Ordinances.) The project will comply with all interim zoning provisions pursuant to the County Zoning Code.

3.5 Coastal Zone Management Program

The State of Hawai'i Coastal Zone Management (CZM) Program, Chapter 205A, Hawai'i Revised Statutes, provides for the beneficial use, protection, and development

of Hawai'i's coastal zone. The objectives and policies of the CZM Program encompass ten areas of concern, which are discussed in relation to the proposed project as follows:

Recreational Resources

Objective: Provide coastal recreational opportunities accessible to the public.

Policy B: Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area.

Comment: The proposed replacement bridge represents a continuation of an existing use and will not adversely affect upon coastal recreation resources. Likewise, the temporary bridge will be in place to provide short-term access during the construction period and will not adversely affect coastal recreation resources.

Historic Resources

Objective: Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Policy A: Identify and analyze archaeological resources;

Policy B: Maximize information retention through preservation of remains and artifacts or salvage operations; and

Policy C: Support state goals for protection, restoration, interpretation and display of historic resources.

Comment: The project is one of 14 County bridges within the Hāna Highway Historic District, which was listed on the Hawai'i State and National Registers of Historic Places on March 19, 2001 and June 15, 2001, respectively. An archaeological assessment was prepared by Pacific Legacy, Inc. in January 1999 (see Appendix B). The assessment reported that no archaeological sites were encountered at the project site. In addition, a cultural impact assessment was prepared for the project by Wilson Okamoto & Associates, Inc. in February 2002 to provide an overview of native Hawaiian cultural resources, practices and beliefs pertaining to the ahupua'a within which the project site is located, and to assess potential impacts of the proposed improvements (see Appendix C). Based on the assessment the proposed project will not significantly impact native Hawaiian cultural resources, beliefs and practices.

The proposed design of the replacement bridge is based on recommendations presented in the Final Preservation Plan for County of Maui Bridges Within The Hāna Highway Historic District (December 2002), which was prepared with extensive consultation with the community, interest groups, and key agencies. In consideration of the bridge's contributing role in defining the historic character of the Historic District, the current bridge design reflects measures intended to preserve its historical character-defining features. The most significant measure in this regard is retaining its single-lane operation with a 16-foot railing-to-railing deck width. The project will obtain approvals under Section 106 of the National Historic Preservation Act and Chapter 6E, Hawai'i Revised Statutes regarding Historic Preservation, as well as Section 4(f) of the Department of Transportation Act.

The project will comply with Section 106 of the National Historic Preservation Act and Chapter 6E, Hawai'i Revised Statutes regarding Historic Preservation.

Scenic and Open Space Resources

Objective: Protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources.

Policy B: Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline.

Comment: The temporary bridge which will provide access through the project site during the construction period will impact views from the Kaupō approach towards the project site. The temporary bridge will be dismantled and transported off-site, however, and will not impact views once construction is completed.

The replacement bridge will impact views from vehicles in the long-term. The new bridge railings will measure approximately 32 inches. In addition, the height of the approach CRM guardwalls will measure 32 inches at their connection to the bridge rails and will taper to a height of 27 inches at a distance of about 25 feet away from the bridge. Thereafter, 27-inch metal rubrails will connect to the guardwalls.

Scenic qualities of the existing bridge associated with the historic character of the Hāna Highway Historic District are addressed as discussed above in ***Historic Resources***.

Coastal Ecosystems

Objective: Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems.

Policy C: Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs.

Comment: The proposed project will continue to promote stream flows within Paihī Gulch. Construction activities in and around the new bridge structure may result in short-term localized erosion and turbidity impacts in the gulch. No significant long-term impacts to Paihī Gulch are anticipated.

Economic Uses

Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policy B: Ensure that coastal dependent development such as harbors and ports, and coastal related development, such as visitor facilities, and energy-generating facilities are located, designed and constructed to minimize adverse social, visual and environmental impacts in the coastal zone management area.

Comment: The proposed project will facilitate the safe transport of residents, visitors and goods to and from the Hāna area, thereby positively affecting the economic viability of the region. In this regard, the proposed project is significant in maintaining and enhancing the region's long-term economic stability.

Coastal Hazards

Objective: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

Policy C: Ensure that developments comply with requirements of the Federal Flood Insurance Program.

Comment: According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community Panel Number 150003 0385B (Revised August 3, 1998), the project site is designated Zone C, areas of minimal flooding. Due to its elevation and distance from shore, the project site is not subject to coastal hazards such as storm waves and tsunami inundation.

Managing Development

Objective: Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policy B: Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements.

Comment: In compliance with the Special Management Area Rules and Regulation of the County of Maui, required documentation will be filed with the County Planning Department and will be subject to a public hearing and decision by the Maui Planning Commission. The project will comply with all applicable environmental permit requirements.

Public Participation

Objective: Stimulate public awareness, education, and participation in coastal management.

Policy B: Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal-related issues, developments, and government activities.

Comment: The public was afforded an opportunity to review and comment on the Draft EA pursuant to the requirements of Chapter 343 Hawai'i Revised Statutes and Section 11-200 of Title 11 Department of Health Administrative Rules. A presentation was conducted for the Maui Cultural Resources Commission at their March 7, 2002 meeting in Wailuku, to which the public was also invited. In addition, a public information meeting was held in Hāna on the same date to apprise the public of the project. The Hāna meeting was attended by approximately 30 people, although not all were included on the sign-in form (see Appendix E). A subsequent public information meeting was conducted in Hāna on June 18, 2002. The meeting was attended by approximately 15 people, although not all completed the sign-in form (see Appendix F). Additional public participation will be solicited during the processing of the

SMA Permit application, which will include public notification and a public hearing.

Furthermore, public input regarding the bridge's historic resource value was solicited in conjunction with the preparation of the *Preservation Plan for County Bridges Within the Proposed Hāna Historic Bridge District.* This included a public information meeting held in Hāna on September 6, 2000 and an opportunity to provide written comments on preliminary recommendations. On October 4, 2000, a field visit of the County's 14 bridges was conducted to discuss the preliminary recommendations with representatives of key agencies and interest groups. In addition, a presentation to the Maui Cultural Resources Commission on the preliminary recommendations was given at the December 7, 2000 meeting, for which public notification was provided and the public invited. Further, on June 4 and 5, 2001 the Revised Draft Preservation Plan for County of Maui Bridges Within the Hāna Highway Historic District was distributed for public review to participants in the public informational meeting, field visit or from whom written correspondence was received. A subsequent public information meeting to present and discuss the Revised Draft Preservation Plan was held on June 19, 2001 in Hāna. Thereafter, the Plan was finalized in December 2001 and received concurrence from the SHPD on December 2, 2001.

As aforementioned in the section on ***Historic Resources*** the current bridge design is based on recommendations presented in the Revised Draft Preservation Plan for County of Maui Bridges Within the Hāna Highway Historic District. In consideration of the bridge's contributing role in defining the historic character of the Historic District, the current bridge design reflects measures intended to preserve its historically defining characteristics.

Beach Protection

Objective: *Protect beaches for public use and recreation.*

Comment: The project is not anticipated to adversely impact any beaches or shoreline resources, as it is not located adjacent to the shoreline or along any public beaches or beach parks.

Marine Resources

Objective: *Implement the State's ocean resources management plan.*

Policy A: Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources.

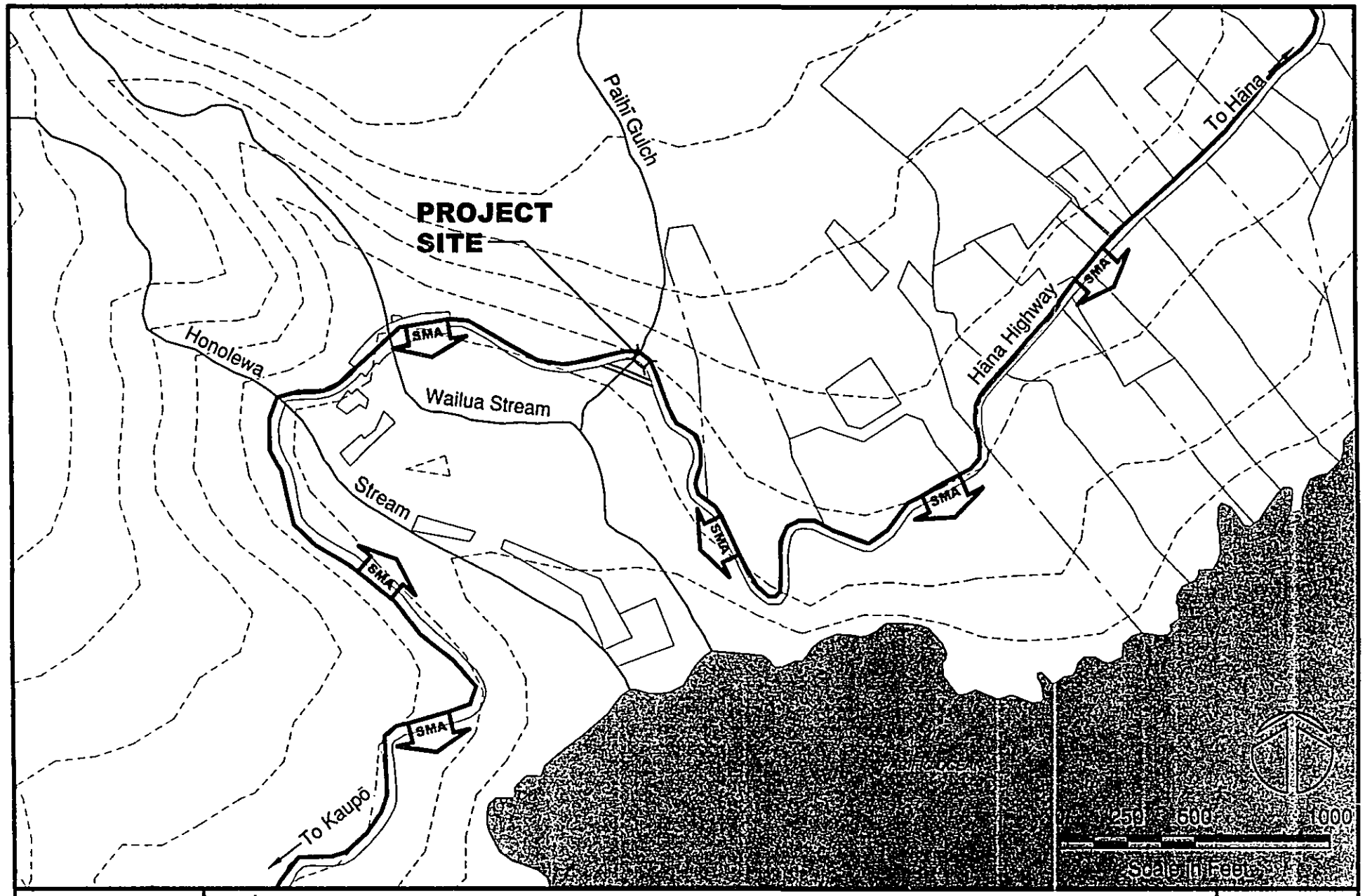
Comment: The project is not anticipated to adversely impact any marine or coastal resources, as it is not located adjacent to or in proximity to the shoreline.

3.6 County of Maui Special Management Area

The Special Management Area (SMA) Rules and Regulations of the County of Maui were established to regulate development along the shoreline in order to preserve, protect and where possible, restore the natural resources of the coastal zone.

The project is located within the boundaries established pursuant to the County of Maui's SMA rules and regulations and the State CZM Law. The SMA boundary in the project area is located along the mauka side of Hāna Highway, and, thus, includes the proposed project (See Figure 11).

6155fig11SMA.dwg M:\woo\6155-01\planning\



WILSON OKAMOTO & ASSOCIATES, INC.
ENGINEERS • PLANNERS

PAIHĪ BRIDGE REPLACEMENT

SPECIAL MANAGEMENT AREA MAP

FIGURE 11

Specific SMA guidelines are discussed as follows:

All development in the special management area shall be subject to reasonable terms and conditions set by the authority in order to ensure:

(A) Adequate access, by dedication or other means, to publicly owned or used beaches, recreation areas, and natural reserves is provided to the extent consistent with sound conservation principles.

The proposed project represents a continuation of an existing use and will not adversely affect beaches or recreation areas. While there are no parks within or adjacent to the proposed roadway right-of-way, Hāna Highway provides access to the island's southern shoreline as well as Seven Pools at 'Ohe'o Gulch.

During the short-term construction period, installation of the temporary bridge will require the complete closure of Hāna Highway for up to seven days. In addition, up to seven days will be required to disassemble the bridge. Access to Seven Pools and other recreational areas located south of the project site will be affected. As much as possible, the periods of complete closure will be scheduled during non-peak travel periods such as weekends and/or holidays to mitigate the potential inconvenience to commuters particularly who travel during the typical Monday through Friday work week. Furthermore, temporary day closures (up to several hours) may be required intermittently during the construction of the replacement bridge to allow for placement of materials and/or mobilization of equipment. All closures will be closely coordinated with the community including residents, businesses, schools, government offices, as well as police, fire and ambulance services. Prior to the start of construction, a telephone hotline will be established to provide information to the public regarding the status of road closures. The hotline will remain in operation throughout the construction period. Motorists will also be advised of closure schedules through the media.

In the long-term, the proposed project will help to provide safe public access to these resources.

(B) Adequate and properly located public recreation areas and wildlife preserves are reserved.

With the exception of short-term interruptions in vehicular access, existing public recreational areas such as Seven Pools and Maui's southern shoreline will not be adversely impacted by the proposed project.

(C) Provisions are made for solid and liquid waste treatment, disposition, and management which will minimize adverse effects upon Special Management Area resources;

A solid waste management plan will be developed in coordination with the Solid Waste Division of the DPWWM for the disposal of cleared and grubbed material from the site during construction. The completed project is not considered a direct solid waste generator.

(D) Alterations to existing land forms and vegetation except crops, and construction of structures shall cause minimum adverse effect to water resources and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation, or failure in the event of earthquake.

Earthwork operations for the proposed improvements will temporarily remove vegetative cover along the roadway in the vicinity of the project site. Exposed soils will be paved over or re-vegetated to mitigate any potential adverse effects to water resources caused by runoff. No significant long-term impacts to Paihī Gulch are anticipated.

4. DETERMINATION OF FONSI

A. Applicant

County of Maui, Department of Public Works and Waste Management

B. Accepting Authority

County of Maui, Department of Public Works and Waste Management

C. Description of the Proposed Action

The proposed project involves the replacement of an existing one-lane bridge with a new one-lane bridge along Paihī Bridge in Hāna. In addition, a temporary bridge will be constructed makai of the existing bridge to provide vehicular access through the project site during the short-term construction period. Potential impacts of the proposed project have been evaluated in accordance with the significance criteria of Section 11-200-12 of the Department of Health's Administrative Rules. Discussion of the project's conformance to the criteria is presented as follows:

D. Determination and Reasons Supporting Determination

Potential impacts of the proposed project have been evaluated in accordance with the significance criteria of Section 11-200-12 of the Department of Health's Administrative Rules. In general, replacement of the existing Paihī Bridge will not:

(1) Involve an irrevocable commitment to loss or destruction of any natural or cultural resource;

An archaeological assessment was prepared by Pacific Legacy, Inc. in January 1999 (See Appendix B). The assessment reported that no archaeological sites were encountered at the project site. Should any archaeological resources be encountered during construction, however, all work in the immediate vicinity will cease and the State Historic Preservation Division contacted at once.

A Cultural Impact Assessment was prepared by Wilson Okamoto & Associates, Inc. in February 2002 (See Appendix C). The assessment reported that the project will not significantly impact native Hawaiian cultural resources, beliefs and practices.

(2) Curtail the range of beneficial uses of the environment;

The proposed project will not curtail the beneficial uses of the environment. Use of the project site for the proposed project would be consistent with its current use as bridge.

In addition, the proposed project involves the redevelopment of a site within a rural area with uses that are consistent with the Maui General Plan and Hāna Community Plan objectives, as well as Hāna Community Plan Land Use and zoning designations.

(3) Conflict with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;

The proposed project does not conflict with long-term environmental policies, goals, and guidelines of the State of Hawaii. As presented in this EA, the project's potential adverse impacts are associated only with short-term construction-related activities and can be mitigated through adherence to standard construction mitigation practices.

(4) Substantially affect the economic or social welfare of the community or state;

The proposed project would provide short-term economic benefits in the form of construction jobs. The proposed project would positively impact the welfare of the region by providing a reliable roadway with improved design standards that reflects the rural character of Hāna.

(5) Substantially affect public health;

No impacts to the public's health and welfare are anticipated.

(6) Involve substantial secondary impacts, such as population changes or effects on public facilities;

No secondary effects are anticipated with the construction or operation of the proposed project. The project, in and of itself, is not anticipated to affect the population of the Hāna District. Rather, the facility is proposed to fulfill an essential community need to provide safe access to and from the region.

(7) Involve a substantial degradation of environmental quality;

Construction activities associated with the proposed project are anticipated to result in relatively insignificant short-term impacts to noise, air quality, water quality and traffic in the immediate project vicinity. With the incorporation of mitigation measures during the construction period, the project will not result in long-term degradation to the environmental quality.

(8) Individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

No cumulative effects are anticipated, inasmuch as the proposed project involves the replacement of an existing bridge within a rural area with uses that are consistent with the County land use plans and designations. The cumulative impact of the bridge replacement project in the Hāna Highway Historic District was addressed in the Preservation Plan.

(9) Substantially affect a rare, threatened, or endangered species, or its habitat;

There are no known rare, threatened or endangered species of flora or fauna or associated habitat that have been identified on the project site that could be adversely affected by the construction and operation of the proposed project.

(10) Detrimentally affect air or water quality or ambient noise levels;

Operation of construction equipment would temporarily elevate ambient noise and concentrations of exhaust emission in the immediate vicinity of the project site. Operation of the proposed project will have no significant long-term impact on air or water quality or ambient noise levels in the vicinity.

(11) Affect 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;

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community Panel Number 150003 0385B (Revised August 3, 1998), the project site is designated Zone C, areas of minimal flooding. Due to its elevation and distance from shore, the project site is not subject to coastal hazards such as storm waves and tsunami inundation. The new bridge will be designed to accommodate up to a 100-year storm event and is not anticipated to adversely impact the hydrology of Paihī Stream. The temporary bridge will not adversely impact the hydrology of the stream.

(12) Substantially affect scenic vistas and viewplanes identified in county or state plans or studies; or,

The temporary bridge which will provide access through the construction site during the construction period will impact views from the towards the project site. The temporary bridge will be dismantled and transported off-site, however, and will not impact views once construction is completed.

The replacement bridge will impact views from vehicles in the long-term. The new bridge railings will measure approximately 32 inches, approximately 2 inches higher than the existing bridge railings. In addition, the height of the approach CRM guardwalls will measure 32 inches at their connection to the bridge rails and will taper to a height of 27 inches at a distance of about 25 feet away from the bridge.

(13) Require substantial energy consumption.

Construction and operation of the project will not require substantial increases in energy consumption.

5. ALTERNATIVES TO THE PROPOSED ACTION

5.1 No Action Alternative

Under the no action alternative, no new bridge replacement or repair would be pursued. Environmental impacts would be avoided, construction costs spared, and the need for permits precluded. The traffic will remain limited to the existing capacity of the one-lane bridge carrying two-way traffic. The bridge would continue to degrade, and in time, may need to be closed should it no longer provide safe vehicular support.

5.2 Alternative 1: Bridge Renovation

Rehabilitation of the existing bridge in its current location was considered. In this alternative the bridge would remain substandard with regard to structural and load capacity. Rehabilitation of the existing bridge in its current location was considered, however, the extent of work required to bring the bridge up to an acceptable standard of design addressing the County's public safety and tort liability concerns would be infeasible.

5.3 Alternative 2: No Temporary Access

Under this alternative, the temporary bridge would not be constructed. Construction costs associated with the temporary bridge would be spared and the construction period would be shortened from nine to six months. This alternative would not be feasible, however, as the community south of the project site would be virtually be cut off from Hāna Town and would be required to take the arduous drive around the island to reach the town from its north approach. Businesses located south of the project site as well as the Hāna economy as a whole would also suffer severe revenue losses because of the lack of visitor and resident traffic to the area.

6. PERMITS AND APPROVALS

The following is a list of permits and approvals, which may be required prior to construction of the proposed project:

Federal

Section 4(f) Consultation – Federal Highway Administration
Section 106 Consultation – National Park Service

State of Hawaii

- Conservation District Use Permit – Department of Land and Natural Resources
- Coastal Zone Management Federal Consistency Review – Office of Planning
- Noise Variance Permit – Department of Health
- Permit for Air Emissions – Department of Health

County of Maui

- Special Management Area Permit – Planning Department
- Grubbing and/or Grading Permits

7. CONSULTATION

7.1 Parties Consulted During The Pre-Ea Consultation Period

The following agencies and organizations were consulted during the pre-assessment consultation phase of the Draft EA. Of the 14 parties that formally replied during the review period, some had no comments while other provided substantive comments as indicated by the ✓ and ✓✓, respectively. All written comments are reproduced herein.

Federal Agencies (4)
- U.S. Department of Transportation, Federal Highway Administration
- U.S. Department of the Army - Corps of Engineers
- U.S. Department of the Interior - Fish and Wildlife Service
- U.S. Department of Agriculture – Natural Resources Conservation Service ✓

State of Hawaii (10)
- Department of Land and Natural Resources (DLNR)
- DLNR State Historic Preservation Division ✓✓
- DLNR Aquatic Resources Division ✓✓
- DLNR Land Division ✓
- DLNR Division of Forestry and Wildlife ✓
- DLNR Commission on Water Resources Management ✓✓
- Department of Transportation, Highways Division, Bridge Design Section
- Department of Transportation, Highways Division, Highway Design Section ✓✓
- Department of Business, Economic Development and Tourism – Land Use Commission ✓✓
- Department of Health (DOH) ✓✓

County of Maui (7)
- Planning Department ✓✓
- Planning Commission
- Hāna Advisory Committee
- Cultural Resources Commission ✓✓
- Department of Water Supply ✓✓
- Police Department ✓✓
- Fire Department

Organizations (4)
- Alliance for the Heritage of East Maui ✓✓
- Hāna Business Council
- Hāna Community Association
- Kīpahulu Community Association

NRCS Natural Resources Conservation Service

USDA United States Department of Agriculture

P.O. Box 50004
Honolulu, HI 96850
Phone: 808-541-2600
FAX: 808-541-1335

Our People...Our Islands...In Harmony

January 31, 2002

RECEIVED
FEB 04 2002
WILSON OKAMOTO & ASSOC, INC

Mr. Earl Matsukawa, AICP, Project Manager
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Subject: Environmental Assessment (EA) Pre-Assessment Consultation – Paihi Bridge Replacement, Hana, Maui, Hawaii

We have reviewed the above mentioned document and have no comments to offer at this time.

Thank you for the opportunity to review this document.

Sincerely,

KENNETH M. KANESHIRO
State Conservationist

The Natural Resources Conservation Service works hand-in-hand with the American people to conserve natural resources on private lands.

AN EQUAL OPPORTUNITY EMPLOYER

6155-02
May 24, 2002

WILSON OKAMOTO & ASSOCIATES, INC

ENGINEERS
PLANNERS
1907 S. BERETANIA ST
SUITE 400
HONOLULU, HI 96826
PH (808) 946-2277
FAX (808) 946-2253

Mr. Kenneth M. Kaneshiro, State Conservationist
U.S. Department of Agriculture
Natural Resources Conservation Service
P.O. Box 50004
Honolulu, Hawaii 96850

Subject: Pre-Environmental Assessment (EA) Consultation
Paihi Bridge Replacement, FAP No. BR-0900(61)
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion), and 2 (portion)
Hāna, Maui, Hawaii

Dear Mr. Kaneshiro:

Thank you for your letter dated January 31, 2002 responding to the subject Pre-Assessment Consultation in which you indicate that you do not have any comments to offer at this time.

Your participation in the Pre-Assessment Consultation process is appreciated.

Sincerely,

Earl K. Matsukawa, AICP
Project Manager

cc: Lloyd Lee, County of Maui, Department of Public Works and Waste Mgt.

BENJAMIN J. CAYETANO
GOVERNOR

ANTHONY J.H. CHING
EXECUTIVE OFFICER

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
P.O. Box 2359
Honolulu, HI 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

January 15, 2002

RECEIVED
JAN 22 2002
WILSON OKAMOTO & ASSOC., INC.

Mr. Earl Matsukawa
Project Manager
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Subject: Environmental Assessment (EA) Pre-Assessment Consultation
Paihi Bridge Replacement, Hana, Maui, Hawaii

We are in receipt of your letter dated January 4, 2002, requesting comments on the subject project. Based on review of the summary description, location maps, and photographs of the project site, we find that the project site is generally located within the boundaries of the State Land Use Agricultural and Conservation District. We understand that a boundary interpretation request will be filed with our office to more precisely determine the location of the project site relative to the district boundaries.

We have no further comments to offer at this time. Thank you for the opportunity to provide comments on the project during the pre-assessment consultation phase. Please feel free to contact Bert Saruwatari of my office at 587-3822, should you require clarification or any further assistance.

Sincerely,

ANTHONY J.H. CHING
Executive Officer

c: Office of Environmental Quality Control

6155-02
May 24, 2002

WILSON OKAMOTO & ASSOCIATES, INC.
ENGINEERS
PLANNERS
1907 S. BERETANIA ST
SUITE 400
HONOLULU, HI 96826
PH. (808)946-2277
FAX (808)946-2253

Mr. Anthony Ching, Executive Officer
Land Use Commission
Department of Business, Economic Development and Tourism
State of Hawaii
P.O. Box 2359
Honolulu, Hawaii 96804-2359

Subject: Pre-Environmental Assessment (EA) Consultation
Paihī Bridge Replacement, FAP No. BR-0900(61)
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion), and 2 (portion)
Hāna, Maui, Hawaii

Dear Mr. Ching

Thank you for your letter dated January 15, 2002 commenting on the subject Pre-Assessment Consultation. Preliminary consultation with the State of Hawaii Department of Land and Natural Resources confirmed that the project site is within the State Conservation District and that a Conservation District Use Departmental Permit will be required for the project (Staff communication on January 14, 2002). A formal determination will be sought from the department.

Your participation in the Pre-Assessment Consultation process is appreciated.

Sincerely,

Earl K. Matsukawa, AICP
Project Manager

cc: Lloyd Lee, County of Maui, Department of Public Works and Waste Mgt.

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

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

January 25, 2001

RECEIVED
JAN 29 2002
WILSON OKAMOTO & ASSOC., INC

LD-NAV
Ref.: PAIHIBRIDGE.RCM

Mr. Earl Matsukawa, AICP
Project Manager
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

SUBJECT: Environmental Assessment Pre-Consultation for Paihi Bridge Replacement, Hana, Maui, Hawaii

Thank you for your Environmental Assessment Pre-Consultation letter dated January 4, 2002, informing us of the proposed project.

A copy of your letter was transmitted to the following Department of Land and Natural Resources' Divisions for their review and comment.

- Division of Aquatic Resources
- Division of Forestry and Wildlife
- Commission on Water Resource Management
- Land Division Engineering Branch
- Land Division Planning and Technical Services
- Land Division Maui District Land Office

Attached herewith is a copy of the Commission on Water Resource Management comment.

The Department has no other comment to offer at this time. Please provide to us three (3) copies of the Draft Environmental Assessment when they become available for review.

Should you have any questions, please contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 1-808-587-0438.

Very truly yours,

HARRY M. YADA
Acting Administrator

c: Maui Land Office

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Land Division
Honolulu, Hawaii

RECEIVED
LAND DIVISION
2002 JAN 15 P 2:32
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

January 11, 2002

LD/NAV/LOG125
Ref.: PAIHIBRIDGE.COM

Suspense Date: 1/21/02

MEMORANDUM:

TO:
XXX Division of Aquatic Resources
XXX Division of Forestry & Wildlife
Division of State Parks
Division of Boating and Ocean Recreation
Historic Preservation Division (RD)
XXX Commission on Water Resource Management
Land Division Branches of:
XXX Planning and Technical Services
XXX Engineering Branch
XXX Maui District Land Office

FROM: Harry M. Yada, Acting Administrator
Land Division

SUBJECT: Environmental Assessment Pre-Consultation for Paihi Bridge Replacement, Hana, Maui, Hawaii
Wilson Okamoto & Associates, Inc. (consultant)

Please review the attached Wilson Okamoto & Associates, Inc., letter (summary) covering the Paihi Bridge Replacement project and submit your comments (if any) on Division letterhead (signed and dated) within the time requested above. Should you need more time to review the subject matter, please contact Nick Vaccaro at ext.: 7-0438.

If this office does not receive your comments on or before the suspense date, we will assume there are no comments.

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

Signed: for
Date: JAN 15 2002

ANDREW M. MONDEN, CHIEF ENGINEER

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Land Division
Honolulu, Hawaii

RECEIVED
LAND DIVISION
2002 JAN 16 P 4:24

January 11, 2002

DEPT OF LAND & NATURAL RESOURCES
STATE OF HAWAII

LD/NAV/LOG125
Ref.: PAIHIBRIDGE.COM

Suspense Date: 1/21/02

MEMORANDUM:

TO: XXX Division of Aquatic Resources
XXX Division of Forestry & Wildlife
Division of State Parks
Division of Boating and Ocean Recreation
Historic Preservation Division (RD)
XXX Commission on Water Resource Management
Land Division Branches of:
XXX Planning and Technical Services
XXX Engineering Branch
XXX Maui District Land Office

FROM: Harry M. Yada, Acting Administrator
Land Division

SUBJECT: Environmental Assessment Pre-Consultation for Paihi Bridge Replacement, Hana, Maui, Hawaii
Wilson Okamoto & Associates, Inc. (consultant)

Please review the attached Wilson Okamoto & Associates, Inc., letter (summary) covering the Paihi Bridge Replacement project and submit your comments (if any) on Division letterhead (signed and dated) within the time requested above. Should you need more time to review the subject matter, please contact Nick Vaccaro at ext.: 7-0438.

If this office does not receive your comments on or before the suspense date, we will assume there are no comments.

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

Signed:

Date: DOFAW Administrator
1/14/02

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

GILBERT S. COLOMA-AGARAN
CHAIRPERSON

BRUCE S. ANDERSON
MEREDITH J. CHING
CLAYTON W. DELA CRUZ
BRIAN C. NISHIDA
HERBERT M. RICHARDS, JR.

LINNEL T. NISHIOKA
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

January 22, 2002

RECEIVED
LAND DIVISION
2002 JAN 24 A 8:

DEPT OF LAND & NATURAL RESOURCES
STATE OF HAWAII

TO: Mr. Harry Yada, Administrator
Land Division

FROM: Linnel T. Nishioka, Deputy Director
Commission on Water Resource Management (CWRM)

SUBJECT: Paihi Bridge Replacement, Hana, Maui

FILE NO.: PAIHBRIDGE.COM

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas, which are important for the maintenance of streams and the replenishment of aquifers.

[ ] We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.

[ ] We recommend coordination with the Land Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

[ ] We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

[ ] A Well Construction Permit and/or a Pump Installation Permit from the Commission would be required before ground water is developed as a source of supply for the project.

[ ] The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the Commission would be required prior to use of this source.

[ ] Groundwater withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

[ ] We are concerned about the potential for degradation of instream uses from development on highly erodible slopes adjacent to streams within or near the project. We recommend that approvals for this project be conditioned upon a review by the corresponding county's Building Department and the developer's acceptance of any resulting requirements related to erosion control.

[ ] If the proposed project includes construction of a stream diversion, the project may require a stream diversion works permit and amend the instream flow standard for the affected stream(s).

[x] If the proposed project alters the bed and banks of a stream channel, the project may require a stream channel alteration permit.

[ ] OTHER:

If there are any questions, please contact David Higa at 587-0249.

6155-02
May 24, 2002

WILSON
OKAMOTO
& ASSOCIATES, INC.

ENGINEERS
PLANNERS
1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HI 96826
PH (808)946-2277
FAX (808)946-2253

Mr. Harry Yada, Acting Administrator
Land Division
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Subject: Pre-Environmental Assessment (EA) Consultation
Paihī Bridge Replacement, FAP No. BR-0900(61)
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion), and 2 (portion)
Hāna, Maui, Hawaii

Dear Mr. Yada:

Thank you for your letter dated January 25, 2002 (LD-NAV Ref.: PAIHIBRIDGE.RCM) transmitting memoranda from your department commenting on the subject Pre-Assessment Consultation. We offer the following responses to the respective comments:

Engineering Branch – Memo dated January 25, 2002

We acknowledge that you have no comments to offer at this time.

Division of Forestry and Wildlife – Memo dated January 14, 2002

We acknowledge that you have no comments to offer at this time.

Commission on Water Resource Management – Memo dated January 22, 2002

Mr. David Higa of your office indicated during a meeting on January 11, 2002 with Ms. Laura Mau of our office that a Stream Channel Alteration Permit will not be required for the project. A formal determination will be sought from the department during the Draft EA comment period.

Your participation in the Pre-Assessment Consultation process is appreciated.

Sincerely,

Earl K. Matsukawa, AICP
Project Manager

cc: Lloyd Lee, County of Maui, Department of Public Works and Waste Mgt.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

January 29, 2002

GILBERT S. COLOMA-AGARAN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

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CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS

RECEIVED
JAN 30 2002
WILSON OKAMOTO & ASSOC., INC.

Mr. Earl Matsukawa, AICP
Project Manager
Wilson Okamoto & Associates, Inc.
1907 S. Beretania Street
Honolulu, Hawaii 96826

Subject: Environmental Assessment (EA) Pre-Assessment Consultation, Paihi Bridge Replacement, Hana, Maui, Hawaii

Dear Mr. Matsukawa:

This letter responds to your correspondence dated 4 January 2002, soliciting comments for an Environmental Assessment for the proposed Paihi Bridge Replacement in Hana, Maui.

We note that a temporary modular steel bridge will be installed to allow traffic flow to continue during most of the construction period. The existing bridge superstructure will be demolished and the new bridge will be constructed in the same location as the existing bridge. Drilled concrete piers placed behind the existing abutments, which will be left in place, will support the bridge. This will eliminate the need for instream work, thereby minimizing impacts to water quality and stream fauna.

We have no objection to the proposed project, provided appropriate mitigative measures are taken to minimize erosion and prevent cement products, fuel, oil, hydraulic fluid and other toxic substances associated with the construction of the new bridge from falling or leaching into the stream.

Thank-you for providing us with an opportunity to comment on this matter.

Sincerely,

William S. Devick
Administrator

6155-02
May 24, 2002

WILSON
OKAMOTO
& ASSOCIATES, INC.

ENGINEERS
PLANNERS
1907 S. BERETANIA ST
SUITE 400
HONOLULU, HI 96826
PH (808) 946-2277
FAX (808) 946-2253

Mr. William S. Devick, Administrator
Division of Aquatic Resources
Department of Land and Natural Resources
State of Hawaii
1151 Punchbowl Street
Honolulu, Hawaii 96813

Subject: Pre-Environmental Assessment (EA) Consultation
Paihi Bridge Replacement, FAP No. BR-0900(61)
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion), and 2 (portion)
Hāna, Maui, Hawaii

Dear Mr. Phillips:

Thank you for your letter dated January 29, 2002 commenting on the subject Pre-Assessment Consultation. We acknowledge that you have no objection to the proposed project, provided appropriate mitigation measures are taken to minimize erosion and to prevent cement products, oil, hydraulic fluid and other toxic substances associated with construction activities from falling or leaching into the stream. The Draft EA will discuss the inclusion of such mitigation measures as specifications in the contract bid documents.

Your participation in the Pre-Assessment Consultation process is appreciated.

Sincerely,

Earl K. Matsukawa, AICP
Project Manager

cc: Lloyd Lee, County of Maui, Department of Public Works and Waste Mgt.

Laura Mau

From: Earl Matsukawa
Sent: Tuesday, January 29, 2002 8:08 AM
To: Laura Mau
Subject: FW: Environmental Assessment (EA) Pre-Assessment Consultation

-----Original Message-----
From: Duane_Taniguchi@exec.state.hi.us
[mailto:Duane_Taniguchi@exec.state.hi.us]
Sent: Tuesday, January 29, 2002 8:03 AM
To: Earl Matsukawa
Cc: Sean_Hiraoka@exec.state.hi.us
Subject: Environmental Assessment (EA) Pre-Assessment Consultation

As a general comment, we have no major concerns at this time but reserve further comments until the EA is formally distributed.

Specific Comments/Concerns to the Pre-Assessment Consultation Documents are as follows:

It's noted that the project is in the Hana Highway Historic District, and that the bridge design is based on recommendations presented in the proposed Final Preservation Plan for County of Maui Bridges within the Hana Highway Historic District, December 2001. Will you request for design exceptions to the Final Preservation Plan, and 4f properties requirements? (If so, the Historic structure and District will be impacted).

What environmental impacts will the detour road have and how will the impacts be mitigated and addressed, i.e. will excavation, fill and slope protection be constructed for the modular steel bridge detour road? (Flora and Fauna Impacts, Stream Impacts, and Impacts to the Historic District).

6155-02
May 24, 2002

WILSON
OKAMOTO
& ASSOCIATES, INC.
ENGINEERS
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1907 S. BERETANIA ST
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HONOLULU, HI 96826
PH (808)946-2277
FAX (808)946-2253

Mr. Duane Taniguchi
Department of Transportation
State of Hawaii
601 Kamokila Blvd.
Kapolei, Hawaii 96707

Subject: Pre-Environmental Assessment (EA) Consultation
Paihi Bridge Replacement, FAP No. BR-0900(61)
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion), and 2 (portion)
Hāna, Maui, Hawaii

Dear Mr. Taniguchi:

Thank you for your email of January 29, 2002 commenting on the subject Pre-Assessment Consultation. As recommended in the Final Preservation Plan for County of Maui Bridges in the Hana Highway Historic District, the County of Maui DPWWM will be requesting a Design Exception for a single-lane bridge with a deck width of 16-feet (railing to railing) for the Paihi replacement bridge. The project will comply with Section 4(f) of the Department of Transportation Act. The Draft EA will discuss the impacts and mitigation measures for the proposed temporary bridge.

Your participation in the Pre-Assessment Consultation process is appreciated.

Sincerely,

Earl K. Matsukawa, AICP
Project Manager

cc: Lloyd Lee, County of Maui, Department of Public Works and Waste Mgt.

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

BENJAMIN J. CAYETANO, GOVERNOR
SEIJI F. NAYA, Ph.D., DIRECTOR
SHARON S. HARIMATSU, DEPUTY DIRECTOR
DAVID W. BLANE, DIRECTOR, OFFICE OF PLANNING

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

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

Ref. No. P-9352

January 29, 2002

RECEIVED
FEB 01 2002
WILSON OKAMOTO & ASSOC., INC.

Mr. Earl Matsukawa
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Subject: Pre-Assessment Consultation for Proposed Paihi Bridge Replacement in Hana, Maui

Dear Mr. Matsukawa:

The Office of Planning, Department of Business, Economic Development and Tourism, has reviewed the brief, descriptive material on a proposed replacement for the Paihi Bridge in Hana, Maui. The County of Maui Department of Public Works and Waste Management would like to replace the cement, single-lane, single-span bridge that was built in 1911.

The State Land Use Commission will be asked to determine whether the bridge is located in the State Agricultural District or the State Conservation District. The bridge is also located within the Hana Highway Historic District. The design of the replacement bridge is based on the Preservation Plan for County of Maui Bridges within the Hana Highway Historic District, December 2001.

The Office of Planning does not have any comments or questions concerning the bridge replacement, at this time. Thank you for the opportunity to review the proposed project. Should you have any questions, please call Heidi Meeker at 587-2802.

Sincerely,

David W. Blane, AICP
Director
Office of Planning

6155-02
May 24, 2002

WILSON OKAMOTO & ASSOCIATES, INC.
ENGINEERS
PLANNERS
1907 S. BERETANIA ST
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HONOLULU, HI 96826
PH. (808)946-2277
FAX (808)946-2253

Mr. David Blane, AICP, Director
Office of Planning
Department of Business, Economic Development & Tourism
State of Hawaii
P.O. Box 2359
Honolulu, Hawaii 96804

Subject: Pre-Environmental Assessment (EA) Consultation
Paihi Bridge Replacement, FAP No. BR-0900(61)
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion), and 2 (portion)
Hāna, Maui, Hawaii

Dear Mr. Blane:

Thank you for your letter dated January 29, 2002 (Ref. No. P-9352) responding to the subject Pre-Assessment Consultation in which you indicate that you do not have any comments or questions concerning the proposed bridge replacement at this time.

Your participation in the Pre-Assessment Consultation process is appreciated.

Sincerely,

Earl K. Matsukawa, AICP
Project Manager

cc: Lloyd Lee, County of Maui, Department of Public Works and Waste Mgt.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

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

GILBERT COLOMA-AGARAN, CHAIRPERSON
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CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION DIVISION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

February 5, 2002

LOG NO: 29115
DOC NO: 0201CD37

RECEIVED
FEB 15 2002
WILSON OKAMOTO & ASSOC., INC.

Earl Matsukawa, AICP Project Manager
Wilson Okamoto & Associates, Inc.
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa,

SUBJECT: National Historic Preservation Act Section 106 Review Pertaining to an Information Request as part of the Pre-Assessment Consultation Process Pursuant to an Environmental Assessment for the Proposed Paihi Bridge Replacement Project
Wailua Ahupua'a, Hana District, Island of Maui
TMK: (2) 1-5-008:001, 002, 004

Thank you for the opportunity to respond to your information request as part of the pre-consultation process pursuant to the preparation of an environmental assessment for the proposed Paihi Bridge replacement project.

A search of our records indicates an archaeological inventory survey has not been conducted of the subject parcels. The general area seems likely to have once been the location of pre-Contact farming, perhaps with scattered houses.

However, the submitted information request does not provide all of the information that we need in order to conduct our review. Therefore, we are unable to provide comments at this time. We will need a clear description of the construction methods for the access to and egress from both the temporary bridge and the permanent replacement bridge. Please provide us with this additional information so that we may adequately address your information request.

Regarding the design of the new bridge, since you will be following the Preservation Plan, we concur with the new single lane design and appreciate your efforts at maintaining the historic character of Hana Highway.

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

Aloha,

Gilbert Coloma-Agaran
State Historic Preservation Officer

CD:jen

6155-02
May 24, 2002

WILSON OKAMOTO & ASSOCIATES, INC.

ENGINEERS
PLANNERS
1907 S. BERETANIA ST
SUITE 400
HONOLULU, HI 96826
PH (808)946-2277
FAX (808)946-2253

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

Subject: Pre-Environmental Assessment (EA) Consultation
Paihī Bridge Replacement, FAP No. BR-0900(61)
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion), and 2 (portion)
Hāna, Maui, Hawaii

Dear Dr. Hibbard:

Thank you for your letter dated February 5, 2002 (LOG NO:29115 DOC NO:0201CD37) commenting on the subject Pre-Assessment Consultation. The Draft EA will include an archaeological inventory survey conducted for the Paihī Bridge Replacement project for your review. The Draft EA will also describe the construction requirements for the replacement bridge as well as the temporary bridge. Construction access and staging activities will be confined to the existing paved roadway and unpaved shoulders.

We acknowledge your concurrence with the proposed single-lane design. The description of the proposed bridge will discuss how it follows the Preservation Plan recommendations.

Your participation in the Pre-Assessment Consultation process is appreciated.

Sincerely,

Earl K. Matsukawa, AICP
Project Manager

cc: Lloyd Lee, County of Maui, Department of Public Works and Waste Mgt.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

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

In reply, please refer to
File:

02-013/epo

February 8, 2002

Mr. Earl Matsukawa, AICP, Project Manager
Wilson Okamoto & Associates, Inc.
1907 S. Beretania St., Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Subject: Pre-Assessment Consultation, Environmental Assessment (PEA)
Paihi Bridge Replacement, Hana, Maui, Hawaii

Thank you for the opportunity to review and comment on the subject proposal. The PEA was routed to the various branches of the Environmental Health Administration. We have the following comments.

Clean Water Branch (CWB)

1. The applicant should contact the Army Corps of Engineers to identify whether a federal permit (including a Department of Army permit) is required for this project. A Section 401 Water Quality Certification is required for "Any applicant for 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 the navigable waters...", pursuant to Section 401(a)(1) of the Federal Water Pollution Act (commonly known as the "Clean Water Act");

2. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for the following discharges to waters of the State:

   a. Discharge of storm water runoff associated with industrial activities, as define in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi);

   b. Discharge of storm water runoff associated with construction activities that involve the disturbance of five (5) acres or greater, including clearing, grading, and excavation;

   c. Discharge of treated effluent from leaking underground storage tank remedial activities;

   d. Discharge of once through cooling water less than one million gallons per day;

   e. Discharge of hydro-testing water;

   f. Discharge of construction dewatering effluent;

   g. Discharge of treated effluent from petroleum bulk stations and terminals; and

   h. Discharge of treated effluent from well drilling activities.

   Any person requesting to be covered by a NPDES general permit for any of the above activities should file a Notice of Intent with the Department of Health, Clean Water Branch (CWB) at least thirty (30) days prior to commencement of any discharges to State waters;

3. If construction activities involve the disturbance of one acre or greater, including clearing, grading, and excavation, and will take place or extend after March 10, 2003, an NPDES general permit coverage is required for discharges of storm water runoff into State waters; and

4. The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters.

If you have any questions, please contact the Clean Water Branch at (808) 586-4309.

Clean Air Branch (CAB)

It is recommended that a dust control management plan be developed which identifies and addresses activities having a potential to generate fugitive dust. Implementation of adequate dust control measures during all phases of construction is warranted.

Construction activities must comply with provisions of Hawaii Administrative Rules, Chapter 11-60.1, "Air Pollution Control", Section 11-60.1-33, Fugitive Dust.

Fugitive Dust Control:

The contractor should provide adequate measures to control dust from the road areas and during the various phases of construction. These measures include, but are not limited to:

a. Planning the different phases of construction, focusing on minimizing the amount of dust generating materials and activities, centralizing on-site vehicular traffic routes, and locating potentially dusty equipment in areas of the least impact;

b. Providing an adequate water source at the site prior to start up of construction activities;

c. Landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase;

d. Controlling of dust from shoulders and access roads;

e. Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities;

f. Controlling of dust from debris being hauled away from the project site; and

g. Controlling of dust during all phases of demolition and construction so as to prevent fugitive dust from impacting the surrounding natural areas and stream located below the project site.

If you have any questions please contact the Clean Air Branch at 586-4200.

Solid & Hazardous Waste Branch (SHWB)

The contractor is advised to consult with the Department of Transportation concerning the transporting of debris from the project site. The contractor shall ensure that all solid waste generated as a result of demolition and construction activities are directed to a permitted solid waste facility.

If you have any questions, please contact the Solid and Hazardous Waste Branch at (808) 586-4240.

Sincerely,

GARY GILL
Deputy Director
Environmental Health Administration

c: CWB
CAB
SHWB

6155-02
May 24, 2002

WILSON
OKAMOTO
& ASSOCIATES, INC

ENGINEERS
PLANNERS
1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HI 96826
PH: (808) 946-2277
FAX: (808) 946-2253

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

Subject: Pre-Environmental Assessment (EA) Consultation
Paihī Bridge Replacement, FAP No. BR-0900(61)
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion), and 2 (portion)
Hāna, Maui, Hawaii

Dear Mr. Gill:

Thank you for your letter dated February 8, 2002 (02-013/epo) commenting on the subject Pre-Assessment Consultation. We offer the following responses in the respective order of comments from the various branches of your Environmental Health Administration:

Clean Water Branch

1. The DPWWM has consulted with the U. S. Army Corps of Engineers to determine if a Department of Army permit is required for the proposed project. A formal determination will be sought from the department during the Draft EA comment period.

2. It is not anticipated that the proposed project will require a National Pollutant Discharge Elimination System (NPDES) general permit as it will not involve any of the activities cited.

3. The proposed project will not involve the disturbance of one acre or greater; hence, would not be covered under the criteria for NPDES general permit applicable to actions taking place after March 10, 2003.

4. The project does not involve activities that will discharge wastewater into State waters; hence, and individual NPDES permit will not be required.

Clean Air Branch

The DPWWM will require the construction contractor to comply with the provisions of Hawaii Administrative Rules, Chapter 11-60.1, "Air Pollution Control", Section 11-60.1-33, Fugitive Dust. Mitigation measures such as those you have cited will be included in the Draft EA.

Solid and Hazardous Waste Branch

The DPWWM will advise the construction contractor to consult with the Department of Transportation concerning the transporting of debris from the project site on highways under State jurisdiction. The construction contractor will be required to properly dispose of demolition and construction-related debris, including disposal to a permitted solid waste facility.

Your participation in the Pre-Assessment Consultation process is appreciated.

Sincerely,

Earl K. Matsukawa, AICP
Project Manager

cc: Lloyd Lee, County of Maui, Department of Public Works and Waste Mgt.

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109
Telephone (808) 270-7816 • Fax (808) 270-7199

January 18, 2002

Mr. Earl Matsukawa, AICP
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Re: Environmental Assessment (EA) Pre-Assessment Consultation
Paihi Bridge Replacement, Hana, Maui, Hawaii

Dear Mr. Matuskawa,

Thank you for the opportunity to provide comments in preparation of this EA. The closest Department of Water Supply water line is located approximately 1980 ft East of the proposed project.

The project overlies the Waihoi aquifer and crosses the Wailua Stream. The Department of Water Supply strives to protect the integrity of both surface water and groundwater resources by encouraging the use of best management practices (BMPs) relevant to potentially polluting project activities. We encourage the applicant to build BMPs into the design and implementation of the bridge replacement project. There are many BMP references available. We have attached sample BMP for road and bridge construction and a reference list of BMP resources. Additional information can be obtained from the State Department of Health.

Should you have any questions, please call our Water Resources and Planning Division at 270-7199.

Sincerely,

David Craddick
Director
emb

cc: engineering
applicant w/attachments

Selected BMPs from "Guidance Specifying Management Measures For Sources of Nonpoint Pollution In Coastal Waters." U.S.EPA.
References for Further Reading from "The Megamanual - Nonpoint Source Management Manual." Commonwealth of Massachusetts

C:\WPdocs\EAs EISs\Paihi Bridge Replace pre-EA.WPD

By Water All Things Find Life

6155-02
May 24, 2002

WILSON
OKAMOTO
& ASSOCIATES, INC.
ENGINEERS
PLANNERS
1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HI 96826
PH (808)946-2277
FAX (808)946-2253

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

Subject: Pre-Environmental Assessment (EA) Consultation
Paihi Bridge Replacement, FAP No. BR-0900(61)
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion), and 2 (portion)
Hana, Maui, Hawaii

Dear Mr. Craddick:

Thank you for your letter dated January 18, 2002 commenting on the subject Pre-Assessment Consultation. We appreciate the information regarding the closest Department of Water Supply waterline to the project site. We also acknowledge your effort to protect surface water and groundwater resources by encouraging the use of best management practices (BMP) in project design and implementation. The design plans and specifications for the project will discuss the application of measures to mitigate potential impacts to water quality.

Your participation in the Pre-Assessment Consultation process is appreciated.

Sincerely,

Earl K. Matsukawa, AICP
Project Manager

cc: Lloyd Lee, County of Maui, Department of Public Works and Waste Mgt.

JAMES "KIMO" APANA
MAYOR

OUR REFERENCE
tv
YOUR REFERENCE

POLICE DEPARTMENT
COUNTY OF MAUI

55 MAHALANI STREET
WAILUKU, HAWAII 96793
(808) 244-6400
FAX (808) 244-6411

THOMAS M. PHILLIPS
CHIEF OF POLICE

KEKUHAUPIO R. AKANA
DEPUTY CHIEF OF POLICE

January 24, 2002

RECEIVED
JAN 29 2002
WILSON OKAMOTO & ASSOC., INC.

Mr. Earl Matsukawa, AICP
Project Manager
Wilson Okamoto & Associates, Inc.
1907 S. Beretania St., Suite 400
Honolulu, HI 96826

Dear Mr. Matsukawa:

SUBJECT: Environmental Assessment (EA) Pre-Assessment Consultation
Paihi Bridge Replacement
Hāna, Maui, Hawai'i

Thank you for your letter of January 4, 2002, requesting comments on the above subject.

We have reviewed the proposed summary and have enclosed our comments and recommendations. Thank you for giving us the opportunity to comment on the proposed project.

Very truly yours,

Assistant Chief Robert Tam Ho
for: Thomas M. Phillips
Chief of Police

Enclosure

c: John E. Min, Planning Department

COPY

TO : THOMAS PHILLIPS, CHIEF OF POLICE, MAUI COUNTY POLICE DEPARTMENT

VIA : CHANNELS

FROM : HAMILTON RODRIGUES, LIEUTENANT, HANA DISTRICT

SUBJECT : PAIHI BRIDGE REPLACEMENT PROJECT

A-4
1/15/02

WILSON OKAMOTO and Associates, Inc. is requesting written comments from the police pertaining to a project to replace Paihi Bridge, which is located on Hana Highway, approximately 6 miles south of Hana Town in Hana, Maui.

Construction will commence with the installation of a temporary modular steel bridge, makai of the existing bridge, which will allow traffic flow to continue during most of the construction period. Paihi Bridge's superstructure will be demolished and a new bridge will be constructed at the same location as the existing bridge.

Construction of the temporary bridge will require the closure of Hana Highway while this bridge is being assembled and disassembled. Short term closures will also be required intermittently during construction of the new bridge. Construction will begin upon receipt of all required permits and approvals and will last for approximately nine months.

The police concerns for this project are that the emergency services agencies, police, fire and medics are informed, as soon as possible, when the construction is scheduled to begin. Public notification of the upcoming project should be done through the media. Traffic and construction area signs should be properly placed advising motorists of this project. Traffic control personnel should be utilized to insure that motorist will be guided safely through the construction area. The last issue recommended is that access for emergency services vehicles to proceed through the construction project, even when the roadway is completely closed, should be included in the plan. It is vitally important that emergency services agencies be able to proceed through the project with minimal delay should emergency services be necessary for someone located further south of the project.

This report is submitted for your perusal.

Respectfully,

Lt. Hamilton RODRIGUES E-7442
Hana Commander
01/16/02 @ 1200 Hours

6155-02
May 24, 2002

WILSON
OKAMOTO
& ASSOCIATES, INC.

ENGINEERS
PLANNERS
1907 S. BERETANIA ST
SUITE 400
HONOLULU, HI 96826
PH (808)946-2277
FAX (808)946-2253

Mr. Thomas M. Phillips, Chief of Police
Police Department
County of Maui
55 Mahalani Street
Wailuku, HI 96793

Subject: Pre-Environmental Assessment (EA) Consultation
Paihi Bridge Replacement, FAP No. BR-0900(61)
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion), and 2 (portion)
Hāna, Maui, Hawaii

Dear Mr. Phillips:

Thank you for your letter dated January 24, 2002 transmitting a memorandum from Lt. Hamilton Rodrigues of your Hana District dated January 16, 2002 on the subject Pre-Assessment Consultation. We offer the following responses to Lt. Rodrigues' comments:

We acknowledge your concerns regarding the provision of emergency services and public notification of road closures during the construction phase of the proposed bridge replacement project. The DPWWM will coordinate with providers of emergency services to minimize the potential for disrupting such services during the construction period. Motorists will be advised of closure schedules through the media. Traffic and construction area signs will be properly placed advising motorists of roadway conditions and traffic control personnel will be provided, as necessary, to guide traffic through the construction area. While every effort will be made to keep at least one lane of traffic open during construction, certain phases of construction cannot be safely conducted without closing the road entirely. The DPWWM will discuss contingency plans for such periods of closure with providers of emergency services

Your participation in the Pre-Assessment Consultation process is appreciated.

Sincerely,

Earl K. Matsukawa, AICP
Project Manager

cc: Lloyd Lee, County of Maui, Department of Public Works and Waste Mgt.

JAMES "KIMO" APANA
Mayor
JOHN E. MIN
Director
CLAYTON I. YOSHIDA
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

February 6, 2002

RECEIVED
FEB 08 2002
WILSON OKAMOTO & ASSOC., INC.

Mr. Earl Matsukawa, AICP
Wilson Okamoto and Associates
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

RE: **Environmental Assessment (EA) Pre-Assessment Consultation for Paihi Bridge Replacement, Hana, Maui (LTR 2002/0197)**

Thank you for the opportunity to provide you with pre-assessment comments on this project. We concur that the primary impact of the project will be the temporary closures of Hana Highway. Please discuss the following:

1. The duration of the closures and how many.

2. Possible measures to get people to work or school.

3. The parties to be notified and how they will be notified.

If you have any questions, please contact Mr. William Spence, Staff Planner, of this office at 270-7735.

Very truly yours,

JOHN E. MIN
Planning Director

JEM:WRS:smb
c: Clayton Yoshida, AICP, Deputy Planning Director
William Spence, Staff Planner
General File
(S:\ALL\WILL\AACORESP\2002\pahibridge.wpd)

250 SOUTH HIGH STREET, WAILUKU, MAUI, HAWAII 96793
PLANNING DIVISION (808) 270-7735; ZONING DIVISION (808) 270-7253; FACSIMILE (808) 270-7634

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6155-02
May 24, 2002

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& ASSOCIATES, INC
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PLANNERS
1907 S. BERETANIA ST
SUITE 400
HONOLULU, HI 96826
PH (808)946-2277
FAX (808)946-2253

Mr. John E. Min, Director
Department of Planning
County of Maui
2200 Main Street
Wailuku, Hawaii 96793

Subject: Pre-Environmental Assessment (EA) Consultation
Paihi Bridge Replacement, FAP No. BR-0900(61)
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion), and 2 (portion)
Hana, Maui, Hawaii

Dear Mr. Min:

Thank you for your letter dated February 6, 2002 commenting on the subject Pre-Assessment Consultation. We acknowledge your concurrence that the primary impact of the proposed project will be the temporary closures of Hana Highway. As recommended, the forthcoming Draft EA will estimate the duration and number of road closures required, possible measures to accommodate schools and work commuters and proposed means of notifying the affected public.

Your participation in the Pre-Assessment Consultation process is appreciated.

Sincerely,

Earl K. Matsukawa, AICP
Project Manager

cc: Lloyd Lee, County of Maui, Department of Public Works and Waste Mgt.

Earl Matsukawa

From: Dawn Duensing [historiandawn@hotmail.com]
Sent: Thursday, January 31, 2002 2:03 PM
To: Earl Matsukawa
Cc: Laura Mau; keems@maui.net
Subject: RE: Paihi Bridge

Preliminary Comments regarding the Draft EA for Paihi Bridge:

Overall, the county's preservation plan for the Hana Belt Road bridges remains flawed due to its emphasis on replacement bridges rather than rehabilitation. The county needs to work with the state for obtaining rehabilitation funding, perhaps with ISTEA or a similar program. While I recognize that this funding may be limited and difficult to obtain, that does not mean that the County of Maui should not try to get funding for rehabilitation and any design exemptions that may be required to use the funding.

As for your project description, it is good, if the bridge must be replaced, that the concrete abutments will remain. New bridge walls, as with Papahawahawa should be replicated. It is absolutely necessary that the "rock wall" being designed be presented for review. We have heard about it, but have yet to see what it will look like.

I urge the county to proceed with caution. I remain hesitant about moving ahead with bridge demolitions until we can see the Papahawahawa "final product." Maintaining the overall integrity of the Hana Belt Road and its bridges is critical.

Thank you for this opportunity to comment.

Dawn Duensing

6155-02
May 24, 2002

WILSON OKAMOTO & ASSOCIATES, INC.
ENGINEERS PLANNERS
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HONOLULU, HI 96826
PH (808)946-2277
FAX (808)946-2753

Ms. Dawn Duensing
Cultural Resources Commission
County of Maui
P.O. Box 888
Makawao, Hawaii 96768

Subject: Pre-Environmental Assessment (EA) Consultation
Paihi Bridge Replacement, FAP No. BR-0900(61)
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion), and 2 (portion)
Hāna, Maui, Hawaii

Dear Ms. Duensing:

Thank you for your e-mail of January 31, 2002 commenting on the subject Pre-Assessment Consultation. We offer the following responses in the respective order of your comments:

1. While we acknowledge your opinion regarding the *Final Preservation Plan for County of Maui Bridges within the Hana Highway Historic District*, the State Historic Preservation Division has concurred with the plan.

2. The source of federal funding for the proposed bridge replacement is the Highway Bridge Replacement and Rehabilitation Program (HBRRP) which, as the name implies, can also be used for bridge rehabilitation. As explained in Section 5.1 of the Preservation Plan, the pertinent limitation for using any federal funding source for bridge rehabilitation is established by federal law. All Federal-aid projects, including bridge rehabilitation need to be *"designed, constructed, operated, and maintained in accordance with State laws, regulations, directives, safety standards, design standards, and construction standards."* (23 U.S.C. 109 (p)) This applies to all Federal-aid sources, including sources under the Transportation Equity Act for the 21st Century (TEA-21, which is the most recent reauthorization of the Intermodal Surface Transportation Efficiency Act of 1991, aka ISTEA).

   As further explained in Section 5.1 of the Preservation Plan, there is a provision under the federal regulations for obtaining design exceptions from State standards on a case-by-case basis for special circumstances, including mitigation of impacts on historic values. Working with the State and the Federal Highway Administration (FHWA), the County succeeded in getting these agencies to consider,

on a case-by-case basis, a significant departure from the minimum standard for lanes and width applicable to the County's bridges in the historic district. This design exception would allow a single-lane configuration with a minimum width of 16-feet for bridge replacement or rehabilitation using federal funds. All other standards would be applicable.

Because the bridges are so far below current standard, however, rehabilitating them to current standards, even with the aforementioned design exception, would be much more costly than replacement and, in some cases, infeasible. Therefore, the recommendation for rehabilitation vs. replacement for each bridge took into account its historic resource value based on existing historic bridge inventories and evaluations reviewed in Section 2, as well their individual historic character-defining features, as inventoried in Section 3. The rationale for the recommendations is documented in Section 7.

We concur that the aesthetic quality of the new rock wall approach guardrails is an important character-defining element. The DPWWM will consult with the CRC regarding the selection of materials and finish to be used for the rock wall on the Papahawahawa Bridge replacement project. Follow-up consultation with the CRC will assess the final product as a basis for improving its use on subsequent bridge projects.

Your participation in the Pre-Assessment Consultation process is appreciated.

Sincerely,

Earl K. Matsukawa, AICP
Project Manager

cc: Lloyd Lee, County of Maui, Department of Public Works and Waste Mgt.

Laura Mau

From: Earl Matsukawa
Sent: Tuesday, January 15, 2002 3:05 PM
To: Laura Mau
Subject: FW: Paihi Bridge Replacement

Is this pursuant to pre-assessment consultation that he saw the plans?
-----Original Message-----
From: Hana Coast Realty [mailto:hanaland@maui.net]
Sent: Tuesday, January 15, 2002 1:08 PM
To: Earl Matsukawa
Subject: Paihi Bridge Replacement

Aloha Mr. Matsukawa:

And thank you for the opportunity of commenting on the proposed plans for this project. I was particularly pleased to see that a temporary bridge will be built to allow for traffic flow during construction, and that a "rock wall design" will replace the existing metal and CRM approach guardrails.

My only question has to do with the timing and duration of the road closure which will be necessary, both for the construction of the temporary bridge, and during the building of the replacement structure itself. In addition to the economic concerns involving visitors being able to access Haleakala National Park at Ohe'o, I am also worried about access to and from Hana by employees needing to get to and from work, school buses, emergency vehicles, etc.

Any clarification will be greatly appreciated.

Mahalo Nui,

Carl Lindquist

1/15/02

6155-02
May 24, 2002

WILSON
OKAMOTO
& ASSOCIATES, INC

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PLANNERS
1907 S. BERETANIA ST
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HONOLULU, HI 96826
PH (808)946-2277
FAX (808)946-2253

Mr. Carl Lindquist
Alliance for the Heritage of East Maui
P.O. Box 507
Hāna, Hawai'i 96713

Subject: Pre-Environmental Assessment (EA) Consultation
Paihi Bridge Replacement, FAP No. BR-0900(61)
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion), and 2 (portion)
Hāna, Maui, Hawaii

Dear Mr. Lindquist:

Thank you for your email of January 15, 2002 commenting on the subject Pre-Assessment Consultation. Based on concerns expressed by the Hana community during the preparation of the Preservation Plan for County of Maui Bridges in the Hana Highway Historic District, maintaining traffic flow during the construction period has been an important consideration for bridge design. The forthcoming Draft EA discusses the anticipated duration of total road closure for installing and dismantling the temporary bridge to be up to 14 days. Other temporary closures will be scheduled during night-time construction, mostly prior to installing the temporary bridge. Temporary closures of up to several hours may also be required during some phases of construction. Efforts to minimize impacts on essential access needs, including commuters, school children and emergency vehicles will also be discussed in the Draft EA.

Your participation in the Pre-Assessment Consultation process is appreciated.

Sincerely,

Earl K. Matsukawa, AICP
Project Manager

cc: Lloyd Lee, County of Maui, Department of Public Works and Waste Mgt.

BENJAMIN J. CAYETANO, GOVERNOR
SELIN F. NAYA, Ph.D., DIRECTOR
SHARON S. NARIMATSU, DEPUTY DIRECTOR
DAVID W. BLANE, DIRECTOR, OFFICE OF PLANNING

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

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

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

Ref. No. P-9352

January 29, 2002

Mr. Earl Matsukawa
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Subject: Pre-Assessment Consultation for Proposed Paihi Bridge Replacement in Hana, Maui

Dear Mr. Matsukawa:

The Office of Planning, Department of Business, Economic Development and Tourism, has reviewed the brief, descriptive material on a proposed replacement for the Paihi Bridge in Hana, Maui. The County of Maui Department of Public Works and Waste Management would like to replace the cement, single-lane, single-span bridge that was built in 1911.

The State Land Use Commission will be asked to determine whether the bridge is located in the State Agricultural District or the State Conservation District. The bridge is also located within the Hana Highway Historic District. The design of the replacement bridge is based on the Preservation Plan for County of Maui Bridges within the Hana Highway Historic District, December 2001.

The Office of Planning does not have any comments or questions concerning the bridge replacement, at this time. Thank you for the opportunity to review the proposed project. Should you have any questions, please call Heidi Meeker at 587-2802.

Sincerely,

David W. Blane, AICP
Director
Office of Planning

6155-02
May 24, 2002

WILSON OKAMOTO & ASSOCIATES, INC.
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FAX (808) 946-2253

Mr. David Blane, AICP, Director
Office of Planning
Department of Business, Economic Development & Tourism
State of Hawaii
P.O. Box 2359
Honolulu, Hawaii 96804

Subject: Pre-Environmental Assessment (EA) Consultation
Paihī Bridge Replacement, FAP No. BR-0900(61)
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion), and 2 (portion)
Hāna, Maui, Hawaii

Dear Mr. Blane:

Thank you for your letter dated January 29, 2002 (Ref. No. P-9352) responding to the subject Pre-Assessment Consultation in which you indicate that you do not have any comments or questions concerning the proposed bridge replacement at this time.

Your participation in the Pre-Assessment Consultation process is appreciated.

Sincerely,

Earl K. Matsukawa, AICP
Project Manager

cc: Lloyd Lee, County of Maui, Department of Public Works and Waste Mgt.

Laura Mau

From: Earl Matsukawa
Sent: Tuesday, January 29, 2002 8:08 AM
To: Laura Mau
Subject: FW: Environmental Assessment (EA) Pre-Assessment Consultation

-----Original Message-----
From: Duane_Taniguchi@exec.state.hi.us
[mailto:Duane_Taniguchi@exec.state.hi.us]
Sent: Tuesday, January 29, 2002 8:03 AM
To: Earl Matsukawa
Cc: Sean_Hiraoka@exec.state.hi.us
Subject: Environmental Assessment (EA) Pre-Assessment Consultation

As a general comment, we have no major concerns at this time but reserve further comments until the EA is formally distributed.

Specific Comments/Concerns to the Pre-Assessment Consultation Documents are as follows:

It's noted that the project is in the Hana Highway Historic District, and that the bridge design is based on recommendations presented in the proposed Final Preservation Plan for County of Maui Bridges within the Hana Highway Historic District, December 2001. Will you request for design exceptions to the Final Preservation Plan, and 4f properties requirements? (If so, the Historic structure and District will be impacted).

What environmental impacts will the detour road have and how will the impacts be mitigated and addressed, i.e. will excavation, fill and slope protection be constructed for the modular steel bridge detour road? (Flora and Fauna Impacts, Stream Impacts, and Impacts to the Historic District).

1

6155-02
May 24, 2002

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ENGINEERS
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1907 S. BERETANIA ST
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HONOLULU, HI 96826
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FAX (808)946-2253

Mr. Duane Taniguchi
Department of Transportation
State of Hawaii
601 Kamokila Blvd.
Kapolei, Hawaii 96707

Subject: Pre-Environmental Assessment (EA) Consultation
Paihī Bridge Replacement, FAP No. BR-0900(61)
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion), and 2 (portion)
Hāna, Maui, Hawaii

Dear Mr. Taniguchi:

Thank you for your email of January 29, 2002 commenting on the subject Pre-Assessment Consultation. As recommended in the Final Preservation Plan for County of Maui Bridges in the Hana Highway Historic District, the County of Maui DPWWM will be requesting a Design Exception for a single-lane bridge with a deck width of 16-feet (railing to railing) for the Paihī replacement bridge. The project will comply with Section 4(f) of the Department of Transportation Act. The Draft EA will discuss the impacts and mitigation measures for the proposed temporary bridge.

Your participation in the Pre-Assessment Consultation process is appreciated.

Sincerely,

Earl K. Matsukawa, AICP
Project Manager

cc: Lloyd Lee, County of Maui, Department of Public Works and Waste Mgt.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

GILBERT S. COLOMA-AGARAN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY DIRECTOR
ERIC T. HIRANO

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

January 29, 2002

RECEIVED
JAN 30 2002
WILSON OKAMOTO & ASSOC., INC.

Mr. Earl Matsukawa, AICP
Project Manager
Wilson Okamoto & Associates, Inc.
1907 S. Beretania Street
Honolulu, Hawaii 96826

Subject: Environmental Assessment (EA) Pre-Assessment Consultation, Paihi Bridge Replacement, Hana, Maui, Hawaii

Dear Mr. Matsukawa:

This letter responds to your correspondence dated 4 January 2002, soliciting comments for an Environmental Assessment for the proposed Paihi Bridge Replacement in Hana, Maui.

We note that a temporary modular steel bridge will be installed to allow traffic flow to continue during most of the construction period. The existing bridge superstructure will be demolished and the new bridge will be constructed in the same location as the existing bridge. Drilled concrete piers placed behind the existing abutments, which will be left in place, will support the bridge. This will eliminate the need for instream work, thereby minimizing impacts to water quality and stream fauna.

We have no objection to the proposed project, provided appropriate mitigative measures are taken to minimize erosion and prevent cement products, fuel, oil, hydraulic fluid and other toxic substances associated with the construction of the new bridge from falling or leaching into the stream.

Thank-you for providing us with an opportunity to comment on this matter.

Sincerely,

William S. Devick
Administrator

6155-02
May 24, 2002

WILSON
OKAMOTO
& ASSOCIATES, INC

ENGINEERS
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1907 S. BERETANIA ST
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PH (808)946-2277
FAX (808)946-2253

Mr. William S. Devick, Administrator
Division of Aquatic Resources
Department of Land and Natural Resources
State of Hawaii
1151 Punchbowl Street
Honolulu, Hawaii 96813

Subject: Pre-Environmental Assessment (EA) Consultation
Paihi Bridge Replacement, FAP No. BR-0900(61)
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion), and 2 (portion)
Hāna, Maui, Hawaii

Dear Mr. Phillips:

Thank you for your letter dated January 29, 2002 commenting on the subject Pre-Assessment Consultation. We acknowledge that you have no objection to the proposed project, provided appropriate mitigation measures are taken to minimize erosion and to prevent cement products, oil, hydraulic fluid and other toxic substances associated with construction activities from falling or leaching into the stream. The Draft EA will discuss the inclusion of such mitigation measures as specifications in the contract bid documents.

Your participation in the Pre-Assessment Consultation process is appreciated.

Sincerely,

Earl K. Matsukawa, AICP
Project Manager

cc: Lloyd Lee, County of Maui, Department of Public Works and Waste Mgt.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

GILBERT COLOMA-AGARAN, CHAIRPERSON
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CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION DIVISION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

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

February 5, 2002

Earl Matsukawa, AICP Project Manager
Wilson Okamoto & Associates, Inc.
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

RECEIVED
FEB 15 2002
WILSON OKAMOTO & ASSOC., INC.

LOG NO: 29115
DOC NO: 0201CD37

Dear Mr. Matsukawa,

SUBJECT: **National Historic Preservation Act Section 106 Review Pertaining to an Information Request as part of the Pre-Assessment Consultation Process Pursuant to an Environmental Assessment for the Proposed Paihi Bridge Replacement Project**
Wailua Ahupua`a, Hana District, Island of Maui
TMK: (2) 1-5-008:001, 002, 004

Thank you for the opportunity to respond to your information request as part of the pre-consultation process pursuant to the preparation of an environmental assessment for the proposed Paihi Bridge replacement project.

A search of our records indicates an archaeological inventory survey has not been conducted of the subject parcels. The general area seems likely to have once been the location of pre-Contact farming, perhaps with scattered houses.

However, the submitted information request does not provide all of the information that we need in order to conduct our review. Therefore, we are unable to provide comments at this time. We will need a clear description of the construction methods for the access to and egress from both the temporary bridge and the permanent replacement bridge. Please provide us with this additional information so that we may adequately address your information request.

Regarding the design of the new bridge, since you will be following the Preservation Plan, we concur with the new single lane design and appreciate your efforts at maintaining the historic character of Hana Highway.

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

Aloha,

Gilbert Coloma-Agaran
State Historic Preservation Officer

CD:jen

6155-02
May 24, 2002

WILSON OKAMOTO & ASSOCIATES, INC.

ENGINEERS
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1907 S. BERETANIA ST
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HONOLULU, HI 96826
PH (808)946-2277
FAX (808)946-2253

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

Subject: Pre-Environmental Assessment (EA) Consultation
Paihi Bridge Replacement, FAP No. BR-0900(61)
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion), and 2 (portion)
Hāna, Maui, Hawaii

Dear Dr. Hibbard:

Thank you for your letter dated February 5, 2002 (LOG NO:29115 DOC NO:0201CD37) commenting on the subject Pre-Assessment Consultation. The Draft EA will include an archaeological inventory survey conducted for the Paihi Bridge Replacement project for your review. The Draft EA will also describe the construction requirements for the replacement bridge as well as the temporary bridge. Construction access and staging activities will be confined to the existing paved roadway and unpaved shoulders.

We acknowledge your concurrence with the proposed single-lane design. The description of the proposed bridge will discuss how it follows the Preservation Plan recommendations.

Your participation in the Pre-Assessment Consultation process is appreciated.

Sincerely,

Earl K. Matsukawa, AICP
Project Manager

cc: Lloyd Lee, County of Maui, Department of Public Works and Waste Mgt.

8. REFERENCES

Chris Hart & Partners. *Hāna Community Design Guidelines.* November 1997.

County of Maui. *Hāna Community Plan.* July 1994.

Macdonald, Gordon A., etal. *Volcanoes in the Sea, The Geology of Hawaii, Second Edition.* 1986.

State of Hawaii Department of Land and Natural Resources Commission on Water Resource Management. *State Water Resources Protection Plan, Volume I.* March 1992.

Stearns, Harold T. *Geology of the State of Hawaii, Second Edition.* 1985.

United States Department of Agriculture Soil Conservation Service. *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii.* August 1972.

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

University of Hawaii Land Study Bureau. *Detailed Land Classification - Island of Maui.* May 1967.

Meeting with Mr. David Higa, Department of Land and Natural Resources, January 11, 2002.

Meeting with Mr. Sam Lemmo, Department of Land and Natural Resources, January 14, 2002.

Correspondence from Mr. Will Spence, County of Maui, Planning Department, February 19, 2002.

Telephone discussion with Lieutenant Hamilton Rodrigues, Hana Police Station, April 25, 2002.

Telephone discussion with Captain Paul Mallo, Hana Fire Station, April 25, 2002.

Telephone discussion with Mr. Kurt Morimoto, American Medical Response, April 25, 2002.

7.2 Parties Consulted During The Draft EA Review Period

The following agencies and organizations were consulted during the Draft EA review period. Of the 11 parties that formally replied during the review period, some had no comments while other provided substantive comments as indicated by the ✓ and ✓✓, respectively. All written comments are reproduced herein.

Federal Agencies (6)

- U.S. Department of Transportation, Federal Highway Administration ✓✓
- U.S. Department of the Army - Corps of Engineers
- U.S. Department of the Interior - Fish and Wildlife Service
- U.S. Department of the Interior - Geological Survey
- U.S. Department of Agriculture – Natural Resources Conservation Service ✓
- National Park Service – Haleakalā National Park

State of Hawaii (15)

- Department of Land and Natural Resources (DLNR)
- DLNR State Historic Preservation Division
- DLNR Land Division ✓✓
- DLNR Aquatic Resources Division
- DLNR Commission on Water Resources Management ✓✓
- DLNR Division of Forestry and Wildlife ✓
- Department of Transportation, Highways Division
- Office of Hawaiian Affairs ✓✓
- Department of Business, Economic Development and Tourism (DBEDT) – Land Use Commission
- DBEDT – Office of Planning
- Department of Health (DOH) ✓✓
- DOH Environmental Division ✓✓
- Office of Environmental Quality Control ✓✓
- Hāna High and Elementary School
- Hāna High and Elementary School Library

County of Maui (7)

- Planning Department
- Planning Commission
- Hāna Advisory Committee
- Cultural Resources Commission
- Department of Water Supply ✓✓
- Police Department ✓✓
- Fire Department

Elected Officials (1)

- Councilmember Robert Carroll

Organizations (14)

Alliance for the Heritage of East Maui
Hāna Business Council
Hāna Community Association
Kīpahulu Community Association
Maui Electric Co., Ltd.
Verizon Hawaii
Hotel Hāna Maui
American Medical Response – Medic 6 and 11
Ono Organic Farms
Kaupō Store
Hasegawa General Store, Inc.
Hāna Community Healthcare Center
Oheo Stables
Hāna Ranch Store

Individuals (22)

Mr. John Akana, MPD
Mr. John Blumer-Buell
Ms. Geraldine Carroll
Mr. Pat V. Cockett
Mr. Byron Cook, Haleakalā National Park
Ms. Linda Domen
Mr. Steve Eminger, MFD
Mr. Pete Enriques
Ms. Lani Gomes, MFD
Ms. Lisa Hamilton
Mr. Sheldon Holokai, Maui Fire Department
Ms. Val Kalaniopio-Cook
Mr. Carl Lindquist
Mr. Douglas Ward Mardfin
Mr. Leonard Naihe
Ms. Valerie L. Park
Mr. James Perry
Lt. Hamilton Rodrigues, Maui Police Department
Ms. Nalani Shambin
Mr. Jonathan Tolentino, AMR, Medic 6
Ms. Shanye Valeho-Norikoff
Mr. J. Watanabe, MFD

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

REPLY TO ATTENTION OF

Regulatory Branch

June 17, 2002

RECEIVED
JUN 18 2002
WILSON OKAMOTO & ASSOC., INC.

Mr. Earl Matsukawa
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Thank you for the opportunity to review the Draft Environmental Assessment (EA) for the Paihi Bridge Replacement project located in Hana, Maui.

The Corps jurisdiction is limited to the discharge of fill material into waters of the U.S., to include wetlands. Based on the information in the Draft EA, it is unclear if Paihi Gulch is considered to be a water of the U.S. However, it appears all work to include the construction of the abutments and the cast-in-place pre-drilled shaft is being conducted on the bank slopes, high above the gulch bed. Being that there will be no placement of fill material into the gulch bed below, a Department of the Army permit will not be required.

File number 200200212 is assigned to this project. If you have any questions, you may contact Ms. Lolly Silva of my staff at 438-7023 or by FAX at 438-4060.

Sincerely,

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

Copy Furnished:
State Department of Health, Clean Water Branch, P.O. Box 3378, Honolulu, Hawaii 96801
Office of Planning, Department of Business, Economic Development & Tourism, P.O. Box 2359, Honolulu, Hawaii 96804
Mr. Joe Krueger, County of Maui, Dept. Of Public Works and Waste Management, 200 South High Street, Wailuku, Hawaii 96793
Ms. Genevieve Salmonson, Office of Environmental Quality Control, 235 Beretania Street, Suite 702, Honolulu, Hawaii 96813

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

TEL. (808) 270-7745
FAX (808) 270-7975

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

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

TRACY TAKAMINE, P.E.
Wastewater Reclamation Division

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

JOHN D. HARDER
Solid Waste Division

BRIAN HASHIRO, P.E.
Highways Division

August 06, 2002

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

Subject: Draft Environmental Assessment (EA)
Paihi Bridge Replacement, FAP No. BR-0900(61)
Hāna, Maui, Hawaii
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion) and 2 (portion)

Dear Mr. Young:

Thank you for your letter of June 17, 2002 commenting on the subject Draft Environmental Assessment (EA).

We confirm that the proposed project (File No. 200200212) will not involve any construction activity requiring the placement of fill material below the ordinary high water mark within the stream. All construction work will be conducted on the bank slopes, well above the gulch bed. Hence, we understand that a Department of the Army permit will not be required.

We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

David Goode, Director
Department of Public Works and
Waste Management

LL/LM:jk(ED02- 845)
cc: Earl Matsukawa, Wilson Okamoto & Associates, Inc.

United States Department of Agriculture

NRCS Natural Resources Conservation Service

P.O. Box 50004
Honolulu, HI 96850
Phone: 808-541-2600
FAX: 808-541-1335

RECEIVED
JUN 19 2002
WILSON OKAMOTO & ASSOC., INC.

Our People...Our Islands...In Harmony

June 17, 2002

Mr. Earl Matsukawa, Project Manager
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Subject: Draft Environmental Assessment (DEA) Paihi Bridge Replacement, Federal Aid Project No. BR-0900(61), Tax Map Keys: (2) 1-5-8:6 (por.), 1-5-10:1 (por.) and 2 (por.), Hana, Maui, Hawaii

We have reviewed the above mentioned document and have no comments to offer at this time.

Thank you for the opportunity to review this document.

Sincerely,

KENNETH M. KANESHIRO
State Conservationist

Cc:
Mr. Joe Krueger, Project Engineer, County of Maui, Department of Public Works and Waste Management, Engineering Division, 200 South High Street, Wailuku, Hawaii 96793
Ms. Genevieve Salmonson, Director, State of Hawaii, Office of Environmental Quality Control, 235 Beretania Street, Suite 702, Honolulu, Hawaii 96813

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

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COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
AND WASTE MANAGEMENT
ENGINEERING DIVISION
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WAILUKU, MAUI, HAWAII 96793

August 06, 2002

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

TRACY TAKAMINE, P.E.
Wastewater Reclamation Division

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

JOHN D. HARDER
Solid Waste Division

BRIAN HASHIRO, P.E.
Highways Division

Mr. Kenneth M. Kaneshiro, State Conservationist
Natural Resources Conservation Service
United States Department of Agriculture
P.O. Box 50004
Honolulu, Hawaii 96850

Subject: Draft Environmental Assessment (EA)
Paihi Bridge Replacement, FAP No. BR-0900(61)
Hāna, Maui, Hawaii
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion) and 2 (portion)

Dear Mr. Kaneshiro:

Thank you for your letter of June 17, 2002 indicating that you have no comments to offer on the subject Draft Environmental Assessment (EA).

We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

David Goode, Director
Department of Public Works and
Waste Management

LL/LM:jk(ED02- 906)
cc: Earl Matsukawa, Wilson Okamoto & Associates, Inc.

EM

BENJAMIN J. CAYETANO
GOVERNOR

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENT QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

July 8, 2002

Mr. David Goode, Director
Department of Public Works and Waste Management
County of Maui
200 South High Street
Wailuku, Hawai'i 96793

Dear Mr. Goode:

Subject: Paihī Bridge Replacement, Maui

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

1. Please list the details of the mitigation measures to prevent soil erosion from the grading and drilling activities from contaminating the stream.

2. Please check with the Department of Health concerning the need for a dewatering permit for the drilling activity.

3. This project should comply with sections 103D-407 and 408 of Hawaii Revised Statutes concerning the use of indigenous plants and recycled glass.

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

Sincerely,

Genevieve Salmonson
Director

c: Wilson Okamoto & Associates, Inc.

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

TEL. (808) 270-7745
FAX (808) 270-7975

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

August 06, 2002

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

TRACY TAKAMINE, P.E.
Wastewater Reclamation Division

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

JOHN D. HARDER
Solid Waste Division

BRIAN HASHIRO, P.E.
Highways Division

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
State of Hawaii
235 South Beretania StreetP.O. Box 3378
Honolulu, Hawaii 96801-3378

Subject: Draft Environmental Assessment (EA)
Paihi Bridge Replacement, FAP No. BR-0900(61)
Hāna, Maui, Hawaii
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion) and 2 (portion)

Dear Ms. Salmonson:

Thank you for your letter of July 8, 2002 commenting on the subject Draft Environmental Assessment (EA). We offer the following responses in the respective order of your numbered comments:

1. The proposed method of construction for the proposed replacement bridge and the temporary bridge, as described in Section 1.3 of the Draft EA minimizes the area of soil disturbance and avoids disturbing soils in areas where the water quality of Paihi Stream could be adversely affected.

   The design plans for the proposed construction will include Best Management Practices such as:
   - Minimizing time of construction;
   - Retaining existing ground cover until the latest date to complete construction;
   - Using temporary berms and cut-off ditches, as needed, to control erosion; and
   - Sodding or replanting exposed soil areas immediately after grading work has been completed and providing irrigation, as needed, for maintenance throughout the construction period.

   These BMPs will be included in Section 2.3.2 of the Final EA.

2. The proposed project will not involve dewatering activities.

3. The proposed project does not include landscape planting. The proposed project will comply with Section 103D-408, Hawaii Revised Statutes regarding the use of recycled glass.

We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

David Goode, Director
Department of Public Works and
Waste Management

LL/LM:jk(ED02- 905)
cc: Earl Matsukawa, Wilson Okamoto & Associates, Inc.

PHONE (808) 594-1888

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

FAX (808) 594-1865

HRD02-631

June 25, 2002

Mr. Earl Matsukawa
Project Manager
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street ~ Suite 400
Honolulu, HI 96826

SUBJECT: DEA – PAIHI BRIDGE REPLACEMENT

Dear Mr. Matsukawa:

Thank you for the opportunity to review the above referenced project which will replace the Paihi Bridge based on the recommendations of the Preservation Plan for County of Maui Bridges.

The Office of Hawaiian Affairs (OHA) has no comments at this point in time. However, we note that federal funds are being used for this project, which requires a National Historic Preservation Act (NHPA) Section 106 Consultation. A formal consultation does not begin until a written Request for Consultation is made by the respective Federal agency to OHA. The request should be sent by mail to the following address:

Attn: Request for Section 106 Consultation
Administrator
Office of Hawaiian Affairs
711 Kapiolani Blvd. – Suite 500
Honolulu, HI 96813-5249

If you have any questions, please contact Jerry B. Norris at 594-1847 or email him at jerryn@oha.org.

Sincerely,

Jalna S. Keala
Acting Director, Hawaiian Rights Division

cc: OHA Board of Trustees
Clyde W. Namu'o, OHA Administrator
Thelma Shimaoka, MAU CRC

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

TEL. (808) 270-7745
FAX (808) 270-7975

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

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

TRACY TAKAMINE, P.E.
Wastewater Reclamation Division

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

JOHN D. HARDER
Solid Waste Division

BRIAN HASHIRO, P.E.
Highways Division

August 06, 2002

Ms. Jalna K. Keala, Acting Director
Hawaiian Rights Division
Office of Hawaiian Affairs
State of Hawaii
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment (EA)
Paihi Bridge Replacement, FAP No. BR-0900(61)
Hāna, Maui, Hawaii
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion) and 2 (portion)

Dear Ms. Keala:

Thank you for your letter of June 25, 2002 (Reference No. HRD02-631) commenting on the subject Draft Environmental Assessment (EA).

We acknowledge that, due to the use of federal funds, the proposed project requires Section 106 Consultation pursuant to the National Historic Preservation Act. A Request for Consultation will be sent to the Office of Hawaiian Affairs at the address you provided.

We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

David Goode, Director
Department of Public Works and
Waste Management

LL/LM:jk(ED02- 906)
cc: Earl Matsukawa, Wilson Okamoto & Associates, Inc.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

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

In reply, please refer to
File:
02-146/epo

July 3, 2002

RECEIVED
JUL 09 2002
WILSON OKAMOTO & ASSOC., INC.

Mr. Earl Matsukawa, Project Planner
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96814

Dear Mr. Matsukawa:

Subject: Draft Environmental Assessment (DEA)
Paihi Bridge Replacement, Hana, Maui
Tax Map Keys: 1-5-008:6 (por.), 1-5-010:1 (por.) and 2 (por.)

Thank you for the opportunity to review and comment on the subject proposal. The DEA was routed to the various branches of the Environmental Health Administration. We have the following comments.

Environmental Planning Office (EPO)

The Total Maximum Daily Load program reviews projects involving water bodies currently listed as "impaired" under §303(d) of the Clean Water Act. The impaired status of these waters requires that the Department of Health (DOH) establish Total Maximum Daily Loads (TMDLs) suggesting how much the existing pollutant loads should be reduced in order to attain water quality standards.

Although the proposed project in the Paihi/Wailua watershed does not involve impaired waters, we are concerned that demolition, excavation, drilling, grading, backfilling, paving, and revegetation in and around the project site could result in the discharge of pollutants to the stream, particularly if storms occur during the construction period. We therefore suggest that the Environmental Assessment (EA) include a project timeline and a more detailed discussion of how best management practices would be designed, planned, specified, installed, inspected, and maintained over the project's life cycle to assure, as stated on page 2-3 of the DEA, "that water quality impacts during the short-term construction period will be minimal."

We also note that the operation of highways in general often results in the discharge of pollutants to streams. The Hana Highway is operated by the State of Hawaii, Department of Transportation (DOT Route 360 according to a list and map available at the State Highways website, http://www.state.hi.us/dot/highways/maui/mauiroad.htm). We therefore suggest that the EA also include a discussion of water quality impacts and their minimization by DOT over the long-term highway operation period.

Page 2-3 of the DEA reports "a single water sample was collected from the plunge pool. On the basis of these results, the water quality was deemed very good." In fact, these results are insufficient for assessing in stream water quality. For most water quality parameters, multiple samples are required in order to allow computation of a geometric mean that is comparable with the specific water column criteria for streams established in the State of Hawaii water quality standards (Hawaii Administrative Rules Chapter 11-54). We suggest that statistical analysis of at least five samples (which may include historic data) and comparison of the results with water quality standards are necessary to provide viable assessments of water column quality in this stream. This level of sampling corresponds with the sampling criteria established for Listing Priority 2 in the DOH "Clean Water Act §303(d) – Listing & Delisting Criteria For Hawaii State Surface Waters" dated May 2002.

Page 2-4 of the DEA reports, "The new bridge will be designed to accommodate up to a 100-year storm event and is not anticipated to adversely impact the hydrology of Paihi Stream. The temporary bridge will not adversely impact the hydrology of the stream." We suggest that this passage be revised to explain why there may not or will not be adverse impacts to stream hydrology. This explanation may benefit from summarizing the data used to support this conclusion.

The Cultural Impact Assessment (Appendix C) includes a finding that "Stream flow above and below the bridge will not be obstructed or diverted. Water quality in Paihi Stream will not be significantly affected by construction activities or operation of the replacement bridge. Construction of the replacement bridge will not significantly alter the Paihi Stream plunge pool or stream channel" (p. 22). It is unclear how this finding is supported by the evidence presented in the Cultural Impact Assessment (although this finding may be supported by other components of the DEA) and we suggest more explicit discussion of the criteria used to evaluate (1) the occurrence of stream flow obstruction and diversion and (2) the level of significance of water quality effects and stream pool/channel alterations. While this finding is "Based on an assessment of the impacts of the proposed project on the resources, beliefs, and practices identified" (p. 23), the beliefs and practices associated with water resource management (e.g. maintenance of adequate stream flow, water quality, and channel structure) are not clearly identified for a general audience.

The Cultural Impact Assessment also includes a finding that "Based on the findings of archaeological surveys conducted for the project site, a site visit, and project specific consultations there is no continuing cultural practices occurring with the project corridor"

(p. 22). Because "continuing cultural practices" may include designated and existing uses of the stream protected under federal and state water quality law, we are concerned that the basis for this finding appears flawed. For example, the Scope of Work for the Archaeological Inventory Survey (Appendix B) does not include the identification of continuing cultural practices and this subject is not addressed in the Survey. A site visit is not listed in the Cultural Impact Assessment Methodology and Tasks (Appendix C, pages 1 and 2) and is not discussed elsewhere in Appendix C. While the summary of the project specific consultation (Appendix A in Appendix C) identifies discontinued cultural practices, it is silent on the subject of continuing cultural practices. We suggest that this section of the EA be revised to correct or otherwise resolve the apparent discrepancies.

If you have any questions, please contact David Penn at (808) 586-4337.

Wastewater Branch (WWB)

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems". We reserve the right to review the detailed wastewater plans for conformance to applicable rules.

If you have any questions, please contact the Wastewater Branch at (808) 586-4294.

Sincerely,

GARY GILL
Deputy Director
Environmental Health Administration

c: EPO
WWB

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

TEL. (808) 270-7745
FAX (808) 270-7975

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

August 06, 2002

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

TRACY TAKAMINE, P.E.
Wastewater Reclamation Division

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

JOHN D. HARDER
Solid Waste Division

BRIAN HASHIRO, P.E.
Highways Division

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

Subject: Draft Environmental Assessment (EA)
Paihi Bridge Replacement, FAP No. BR-0900(61)
Hāna, Maui, Hawaii
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion) and 2 (portion)

Dear Mr. Gill:

Thank you for your letter of July 3, 2002 (Reference No. 02-146/epo) commenting on the subject Draft Environmental Assessment (EA). We offer the following responses in the respective order of your comments:

Environmental Planning Office

1. We appreciate your clarification that the proposed project, which is in the Paihi/Wailua watershed, does not involve "impaired waters" as listed under Section 303(d) of the Federal Clean Water Act. We also acknowledge your concern regarding potential construction impacts on water quality. The proposed method of construction for the proposed replacement bridge and the temporary bridge, as described in Section 1.3 of the Draft EA minimizes the area of soil disturbance and avoids disturbing soils in areas where the water quality of Paihi Stream could be adversely affected. The U S. Army Corps of Engineers has indicated that a Department of the Army Permit will not be required. As such, a Water Quality Certification will likewise not be required. In addition, the Department of Land and Natural Resources, Commission on Water Resources Management has determined that a Stream Channel Alteration Permit will not be required.

   Nevertheless, the design plans for the proposed construction will include Best Management Practices such as:

- Minimizing time of construction;
- Retaining existing ground cover until the latest date to complete construction;
- Use of temporary berms and cut-off ditches, as needed, to control erosion; and
- Sodding or replanting exposed soil areas immediately after grading work has been completed and providing irrigation, as needed, for maintenance throughout the construction period.

These BMPs will be included in Section 2.3.2 of the Final EA.

2. As stated in Section 2.9.3 of the Draft EA, the proposed project is located on a portion of Hana Highway under the jurisdiction of the County of Maui. This will be reiterated in 1.1 of the Final EA. Inasmuch as the proposed project replaces an existing transportation facility, it is not anticipated to have any positive or negative long-term impact on water quality associated with the use of the highway. Your comment regarding water quality impacts on the long-term use of Hana Highway under the jurisdiction of the State Department of Transportation should be directed to that agency.

3. The water quality sample mentioned in Section 2.3.2 of the Draft EA is intended to characterize water quality within the context of determining if the proposed project would have a "significant effect" pursuant to Section 11-20012(b) Hawaii Administrative Rules. Within the regulatory context discussed in item 1, above, we do not feel that an assessment of water quality according to the Department of Health's (DOH) water column criteria for streams is necessary to make this determination.

4. To preserve the historic character of the bridge, the existing bridge abutments will be left in place as non-load bearing structures while the load-bearing abutments for the replacement bridge will be constructed behind the existing abutments, away from the stream (as described in Section 1.3, item 3 of the Draft EA). Since the hydrological capacity of the replacement bridge is largely determined by the remaining abutments, overall stream hydrology would not change. Section 2.4 of the Final EA will be revised to make this clarification.

   The abutments for the proposed temporary bridge, as well as the bridge deck, will be constructed more than 100 feet above the stream, and will not affect its hydrology. This will also be clarified in Section 2.4 of the Final EA.

5. With regard to your comments on the Cultural Impact Assessment, we offer the following responses in the respective order of your comments:

- The Cultural Impact Assessment is incorporated in the Draft EA by reference and is based on the project description and discussion of impacts provided in the Draft EA and other appended studies. We do not feel that it is necessary to repeat discussions contained elsewhere in the EA to establish the basis for the Cultural Impact Assessment.
- The absence of adverse impacts on the stream is a viable basis for finding that there would be no adverse impact on cultural practices and beliefs associated with those aspects of the stream.
- The Archaeological Inventory Survey was reviewed as a basis for identifying potential continuing cultural practices that could be associated with its findings.
- The statement that a site visit was conducted speaks for itself. That it was not specifically mentioned in the methodology is inconsequential.
- Clearly, the finding that "there is no continuing cultural practices occurring within the project corridor..." is based on the absence of continuing cultural practices identified in the consultation.

Wastewater Branch

There are no existing wastewater lines in the project vicinity, nor are any proposed as part of the project.

We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

David Goode, Director
Department of Public Works and
Waste Management

LL/LM:jk(ED02- 904)
cc: Earl Matsukawa, Wilson Okamoto & Associates, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

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

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

In reply, please refer to
EMO / C-9

07022CEC.02

July 8, 2002

RECEIVED
JUL 12 2002
WILSON OKAMOTO & ASSOC., INC.

Mr. Earl Matsukawa
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Subject: Proposed Paihi Bridge Replacement Construction Project
Hana, Island of Maui, Hawaii
Army File No. 200200212

Reference is made to a letter, dated June 17, 2002, from Mr. George P. Young, Chief of the Regulatory Branch of the Honolulu Engineer District, U.S. Army Corps of Engineers (COE), to you regarding the Department of the Army permit requirements determination for the subject project.

Please be informed that Section 342D-50(a) of the Hawaii Revised Statutes (HRS), requires that, "No person, including any public body, shall discharge any water pollutants into state waters, or cause or allow any water pollutant to enter state waters except in compliance with this chapter, rules adopted pursuant to this chapter, or a permit or variance issued by the director."

You are also reminded that pursuant to Section 11-54-3 of the Hawaii Administrative Rules (HAR), State 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." Best Management Practices (BMPs) and effective water pollution control measures shall be properly implemented to isolated and confine the construction activity, and to contain and prevent the potential pollutant(s) discharges from adversely impacting the State water quality. Pursuant to HRS, Section 342D-55, applicable monitoring and assessment measures shall also be established and properly implemented to evaluate the adequacy of the implemented BMPs and water pollution control measures and to ensure the compliance of applicable requirements as specified in HAR, Chapter 11-54.

The Department of Health (Department), Clean Water Branch (CWB) is given the responsibility of managing the certification and permitting programs authorized under Sections 401 and 402 of the Federal Clean Water Act (CWA). A National Pollutant Discharge Elimination System (NPDES) permit issued by the Department under the authorization of CWA, Section 402, HRS,

Chapter 342D, and HAR, Chapters 11-54 and 11-55, is required for any point sources discharges resulting from the following, but not limited to, project construction-related activities:

a. Storm water discharges associated with construction activity, if the total land disturbance area is five (5) acres or more. Effective March 10, 2003, an NPDES permit will be required for storm water discharges associated with small construction activities that will disturb a total land area of one (1) acre or more.

b. Treated dewatering effluent associated with construction activity.

c. Treated hydrotesting effluent.

Definition of the term "discharge" can be found in CWA, Section 502, and HAR, Section 11-54-9.1. Permit processing time will depend on the types of the discharges to be authorized under the NPDES permit program. The detailed requirements can be found in HAR, Sections 11-55-04 and 11-55-34.

Information regarding HAR, Chapters 11-54 & 11-55; forms required for an NPDES permit and a WQC; and guidelines for completing the forms; can be located at the Department's web site: http://www.state.hi.us/health/eh/cwb/forms/index.html.

Should you have any questions or need additional assistance, please contact Mr. Edward Chen of the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

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

EC:nk

c: Regulatory Branch, HED/COE
Commission on Water Resource Management, DLNR
Coastal Zone Management Program, Office of Planning/DBEDT
Chief, DEHP/Maui

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

TEL. (808) 270-7745
FAX (808) 270-7975

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
AND WASTE MANAGEMENT
ENGINEERING DIVISION
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WAILUKU, MAUI, HAWAII 96793

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

TRACY TAKAMINE, P.E.
Wastewater Reclamation Division

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

JOHN D. HARDER
Solid Waste Division

BRIAN HASHIRO, P.E.
Highways Division

August 06,2002

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

Subject: Draft Environmental Assessment (EA)
Paihi Bridge Replacement, FAP No. BR-0900(61)
Hāna, Maui, Hawaii
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion) and 2 (portion)

Dear Mr. Lau:

Thank you for your letter of July 8, 2002 (Reference No. 07022CEC.02) commenting on the subject Draft Environmental Assessment (EA). We offer the following responses in the respective order of your comments:

1. We acknowledge the requirements of Section 342D-50(a), Hawaii Revised Statutes (HRS) and Section 11-54-3, Hawaii Administrative Rules (HAR) regarding the discharge of pollutants into state waters. The proposed method of construction for the proposed replacement bridge and the temporary bridge, as described in Section 1.3 of the Draft EA minimizes the area of soil disturbance and avoids disturbing soils in areas where the water quality of Paihi Stream could be adversely affected. Hence, as you are aware, the U.S. Army Corps of Engineers has determined that a Department of the Army permit is not required for the project.

   Nevertheless, the design plans for the proposed construction will include Best Management Practices such as:
   - Minimizing time of construction;
   - Retaining existing ground cover until the latest date to complete construction;
   - Use of temporary berms and cut-off ditches, as needed, to control erosion; and
   - Sodding or replanting exposed soil areas immediately after grading work has been completed and providing irrigation, as needed, for maintenance throughout the construction period.

   These BMPs will be included in Section 2.3.2 of the Final EA.

2. It is anticipated that an NPDES permit will not be required as the proposed project will not involve:
   - Total land disturbance of one (1) acre or more;
   - Discharge of dewatering effluent; and,
   - Discharge of hydrotesting effluent. Nevertheless, we acknowledge that Section 343D-50(a), Hawaii Revised Statutes.

We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

David Goode, Director
Department of Public Works and
Waste Management

LL/LM:jk(ED02- 907)
cc: Earl Matsukawa, Wilson Okamoto & Associates, Inc.

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

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

July 10, 2001

RECEIVED
JUL 12 2002
WILSON OKAMOTO & ASSOC., INC.

LD-NAV
L-3314/3624/3766
PAIHIBRIDGE.RCM2

Mr. Earl Matsukawa, AICP
Project Manager
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

SUBJECT: Draft Environmental Assessment for Paihi Bridge Replacement, Hana, Island of Maui, Hawaii - Federal Aid Project No. BR-0900 County of Maui Department of Public Works
TMK 2nd/ 1-5-8: portion of 006 and 1-5-10: portion of 001 & 002

Thank you for the opportunity to review and comment on the Draft Environment Assessment covering the Paihi Bridge Replacement project.

A copy of the Draft Environmental Assessment was made available to the following Department of Land and Natural Resources' Divisions for their review and comment.

- Division of Aquatic Resources
- Division of Forestry and Wildlife
- Division of State Parks
- Commission on Water Resource Management
- Land Division Engineering Branch
- Land Division Planning and Technical Services
- Land Division Maui District Land Office

Attached herewith is a copy of the Commission on Water Resource Management's letter dated June 25, 2002, addressed to your office.

The Department of Land and Natural Resources has no other comment to offer on the subject matter.

Should you have any questions, please contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 1-808-587-0438.

Very truly yours,

Charlene E. Unoki

DIERDRE S. MAMIYA
Administrator

c: Maui District Land Office

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809
JUN 25 2002

GILBERT S. COLOMA-AGARAN
CHAIRPERSON

BRUCE S. ANDERSON
MEREDITH J. CHING
CLAYTON W. DELA CRUZ
BRIAN C. MINAMI
HERBERT M. RICHARDS, JR.

LINNEL T. N. SHIOKA
DEPUTY DIRECTOR

RECEIVED
JUN 26 2002
WILSON OKAMOTO & ASSOC., INC.

Mr. Earl Matsukawa, Project Manager
Wilson Okamoto & Associates
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

County of Maui, Department of Public Works
Paihi Bridge Replacement, Hana, Maui

This is in response to your letter dated June 7, 2002, requesting whether a stream channel alteration permit will be required for the subject project.

Based on Figures 4, 5 and 7 of the Draft Environmental Assessment for the new bridge structure and the temporary by-pass bridge, a stream channel alteration permit will not be required for the bridge replacement.

If you have any questions regarding this letter, please call David Higa at 587-0249.

Sincerely,

LINNEL T. NISHIOKA
Deputy Director

DH:sd

c. Land Divison

G:\WORK\WilsonOkamotoPaihiBridge rfd doc

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

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

July 17, 2002

LD-NAV
L-3314/3624/3766/3564/3432
PAIHIBRIDGE.RCH3

RECEIVED
JUL 18 2002
WILSON OKAMOTO & ASSOC., INC.

Mr. Earl Matsukawa, AICP
Project Manager
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

SUBJECT: Draft Environmental Assessment for Paihi Bridge Replacement,
Hana, Island of Maui, Hawaii - Federal Aid Project No. BR-0900
County of Maui Department of Public Works
TMK 2nd/ 1-5-8: portion of 006 and 1-5-10: portion of 001 & 002

This is a follow-up to our letter (Ref.: PAIHIBRIDGE.RCH2) to you dated July 10, 2002, pertaining to the subject matter.

Attached herewith is a copy of the Land Division Engineering Branch and Land Division Planning and Technical Services' comment.

The Department of Land and Natural Resources has no other comment to offer on the subject matter based on the attached responses. If we receive additional comments, they will be forwarded to your office at that time.

Should you have any questions, please contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 1-808-587-0438.

Very truly yours,

Charlene E. Unoki
for DIERDRE S. MAMIYA
Administrator

c: Maui District Land Office

2002 JUN 12 A 8:19

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

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

June 7, 2002

LD/NAV
Ref.: PAIHIBRIDGEDEA.CMT2

L-3313
Suspense Date: 7/1/02

MEMORANDUM:

TO:
XXX Division of Aquatic Resources
XXX Division of Forestry & Wildlife
XXX Division of State Parks
Division of Boating and Ocean Recreation
Historic Preservation Division (RD)
XXX Commission on Water Resource Management
Land Division Branches of:
✓ XXX Planning and Technical Services
XXX Engineering Branch
XXX Maui District Land Office

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment
Project: Federal Aid Project No. BR-0900 (61)
Proposed: Paihi Bridge Replacement
Consultant: Wilson Okamoto & Associates, Inc.
Applicant: County of Maui Department of Public Works
TMK: 2nd/ 1-5-8: portion of 006 & 1-5-10: portion of 001 and portion of 002, Hana, Maui, Hawaii

Please review the Draft Environmental Assessment (May 2002) prepared by Wilson Okamoto & Associates, Inc., covering the proposed Paihi Bridge Replacement and submit your comments (if any) on Division letterhead (signed and dated) within the time requested above. Should you need more time to review the subject matter, please contact Nicholas A. Vaccaro at ext.: 7-0438.

NOTE: One copy of the subject Draft Environmental Assessment is available for review in the Land Division Office, room 220.

If this office does not receive your comments on or before the suspense date, we will assume there are no comments.

( ) We have no comments.

(X) Comments attached.

Signed:

Date: 6-12-02

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

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

File No.: Corr. MA-02-132

MEMORANDUM

To: Dierdre S. Mamiya, Administrator
Land Division

From: Traver Carroll
Planning Branch

SUBJECT: Paihi Bridge Replacement, Draft Environmental Assessment (DEA)

We have reviewed the DEA for replacement of the bridge over Paihi Stream on the Hana Highway. The DEA appears to be quite thorough. Because the bridge is located in the Conservation District, a Conservation District Use Application (CDUA) will be required. We look forward to reviewing the CDUA.

RECEIVED
2002 JUN 18 P 3:10

'02 JUN 07 A8:40 WATER & LAND

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

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

June 7, 2002

LD/NAV
Ref.: PAIHIBRIDGEDEA.CMT2

L-3313
Suspense Date: 7/1/02

MEMORANDUM:

TO:
XXX Division of Aquatic Resources
XXX Division of Forestry & Wildlife
XXX Division of State Parks
Division of Boating and Ocean Recreation
Historic Preservation Division (RD)
XXX Commission on Water Resource Management
Land Division Branches of:
✓ XXX Planning and Technical Services
XXX Engineering Branch
XXX Maui District Land Office

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment
Project: Federal Aid Project No. BR-0900 (61)
Proposed: Paihi Bridge Replacement
Consultant: Wilson Okamoto & Associates, Inc.
Applicant: County of Maui Department of Public Works
TMK: 2nd/ 1-5-8: portion of 006 & 1-5-10: portion of 001 and portion of 002, Hana, Maui, Hawaii

Please review the Draft Environmental Assessment (May 2002) prepared by Wilson Okamoto & Associates, Inc., covering the proposed Paihi Bridge Replacement and submit your comments (if any) on Division letterhead (signed and dated) within the time requested above. Should you need more time to review the subject matter, please contact Nicholas A. Vaccaro at ext.: 7-0436.

NOTE: **One copy of the subject Draft Environmental Assessment is available for review in the Land Division Office, room 220.**

If this office does not receive your comments on or before the suspense date, we will assume there are no comments.

( ) We have no comments.

(X) Comments attached.

Signed:

Date:

DEPARTMENT OF LAND AND NATURAL RESOURCES
Land Division
Engineering Branch

COMMENTS

For the proposed construction of a bridge replacement and temporary bridge, and their 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. A scour analysis should be conducted to ensure that the design of the structure will minimize erosion at the foundation. If the channel opening at the structure is widened, the downstream reaches should be evaluated to provide for adequate capacity and mitigation of stream bank erosion.

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

We confirm that the proposed project site, according to FEMA Community-Panel Number 150003 0385 B, is located in Zone C. Zone C is an area minimal flooding.

Signed: Andrew M. Monden
ANDREW M. MONDEN, CHIEF ENGINEER

Date: 6/18/02

N:\WLD\MAKAI\DENNIS\WORD\PaihiBridgeReplace_DEA_com_M12.doc

RECEIVED

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

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

June 7, 2002

LD/NAV L-3313
Ref.: PAIHIBRIDGEDEA.CHT2 Suspense Date: 7/1/02

MEMORANDUM:

TO:
XXX Division of Aquatic Resources
✓XXX Division of Forestry & Wildlife
XXX Division of State Parks
Division of Boating and Ocean Recreation
Historic Preservation Division (RD)
XXX Commission on Water Resource Management
Land Division Branches of:
XXX Planning and Technical Services
XXX Engineering Branch
XXX Maui District Land Office

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment
Project: Federal Aid Project No. BR-0900 (61)
Proposed: Paihi Bridge Replacement
Consultant: Wilson Okamoto & Associates, Inc.
Applicant: County of Maui Department of Public Works
TMK: 2nd/ 1-5-8: portion of 006 & 1-5-10: portion of 001 and portion of 002, Hana, Maui, Hawaii

Please review the Draft Environmental Assessment (May 2002) prepared by Wilson Okamoto & Associates, Inc., covering the proposed Paihi Bridge Replacement and submit your comments (if any) on Division letterhead (signed and dated) within the time requested above. Should you need more time to review the subject matter, please contact Nicholas A. Vaccaro at ext.: 7-0438.

NOTE: One copy of the subject Draft Environmental Assessment is available for review in the Land Division Office, room 220.

If this office does not receive your comments on or before the suspense date, we will assume there are no comments.

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

Signed: DOFAW Administrator

Date: 6/12/02

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

GILBERT S. COLOMA-AGARAN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

Eric T. Hirano
DEPUTY

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

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

June 6, 2002

Mr. Earl Matsukawa
Project Manager
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Subject: Draft Environmental Assessment for Paihi Bridge Replacement, Hana Maui, Hawaii.

We appreciate your efforts to include us in the review of the subject matter above. The Department of Land and Natural Resources, Division of Forestry and Wildlife has no objections to this project as it will not impact any of our core program management. Thank you for the opportunity to comment on this project.

Sincerely,

Michael G. Buck
Administrator

C: DOFAW Maui Branch
County of Maui
OEQC

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

TEL. (808) 270-7745
FAX (808) 270-7975

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

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

TRACY TAKAMINE, P.E.
Wastewater Reclamation Division

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

JOHN D. HARDER
Solid Waste Division

BRIAN HASHIRO, P.E.
Highways Division

August 06, 2002

Ms. Diedre S. Mamiya, Administrator
Land Division
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Subject: Draft Environmental Assessment (EA)
Paihi Bridge Replacement, FAP No. BR-0900(61)
Hāna, Maui, Hawaii
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion) and 2 (portion)

Dear Ms. Mamiya:

Thank you for your letters of July 10, 2002 from the Land Division (Reference No. LD-NAV, L-3314/3624/3766, PAIHIBRIDGE.RCM2) transmitting comments from the Commission on Water Resource Management, and July 17, 2002 from the Land Division (Reference No. LD-NAV, L-3314/3624/3766/3564/3432 PAIHIBRIDGE.RCM3) transmitting comments from the Land Division branches of Planning and Technical Services and Engineering as well as the Division of Forestry and Wildlife regarding the subject Draft Environmental Assessment. We also received a separate comment letter from the Division of Forestry and Wildlife dated June 6, 2002. We offer the following responses to each of the commenting agencies:

Commission on Water Resource Management (June 25, 2002)

We appreciate your determination, based on the project description provided in the Draft EA, that a Stream Channel Alteration Permit will not be required for either the temporary bridge or the proposed replacement bridge.

Land Division – Planning & Technical Svcs. Branch (File No.: Corr.MA-02-132

We understand that while the limit of construction area for the proposed replacement bridge is not within the Conservation District, a portion of the construction area for the proposed temporary bridge is within the District. Therefore, a Conservation District Use Application (CDUA) will be required for the temporary bridge. Based on a meeting with Mr. Sam Lemmo on January 14, 2002, and telephone conversation with Mr. Travor Carroll on

July 22, 2002, we understand that the project will be processed under a Departmental Permit pursuant to Chapter 13-5-22, Hawaii Administrative Rules, as the project is characterized under Item P-9 "Structures, Existing", C-1 "Demolition, removal, or alteration of existing structures, facilities and equipment."

Land Division – Engineering Branch (June 18, 2002)

1. No utilities are proposed to be suspended or otherwise installed in conjunction with the proposed replacement bridge.

2. To preserve the historic character of the bridge, the existing bridge abutments will be left in place as non-load bearing structures while the load-bearing abutments for the replacement bridge will be constructed behind the existing abutments, away from the stream (as described in Section 1.3, item 3 of the Draft EA). Hence, the replacement abutments will not be exposed to the stream flow. A scour analysis has been conducted to evaluate the need for erosion protection for the existing bridge abutments. The analysis concluded that erosion control measures will not be required since the water surface elevation would be lower than the bridge's proposed footing elevation.

   As discussed above, the existing abutments will be left in place as non-load bearing structures; hence, the channel opening will remain the same as would stream flow conditions downstream.

3. An analysis of the proposed replacement bridge, with the existing abutments left in place, determined that there is sufficient capacity to accommodate a 100-year storm flow event (as discussed in Section 2.4 of the Draft EA).

We appreciate your confirmation that the proposed project site is located in Zone C an area of minimal flooding according to FEMA Community Panel Number 150003 0385 B. This is consistent with the information provided in Section 2.4 of the Draft EA.

Division of Forestry and Wildlife (June 6, 2002)

We acknowledge that you have no objection to the proposed project as it will not impact any of your core program management. We appreciate your interest and participation in the public review phase of the Draft EA. All comment letters and memoranda received from the DLNR, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

David Goode, Director
Department of Public Works and
Waste Management

LL/LM:jk(ED02- 903)
cc: Earl Matsukawa, Wilson Okamoto & Associates, Inc.

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109
Telephone (808) 270-7816 • Fax (808) 270-7833

June 20, 2002

Mr. Earl Matsukawa, Project Manager
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Subject: Draft Environmental Assessment
Paihi Bridge Replacement, Hana, Maui,Hawaii
TMK: (2)1-5-8:6(por), 1-5-10:1(por), and 2(por)

Dear Mr. Matsukawa:

Thank you for the opportunity to review this draft EA. The comments we provided in our January 18, 2002 letter would still apply. A copy of this letter is attached for your reference

Should you have any questions, please contact our Water Resources and Planning Division at 270-7199.

Sincerely,

David Craddick
Director

eam
cc: engineering division
Dept of Public Works and Waste Management
Office of Environmental Quality Control
applicant
encl: January 18, 2002 letter

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109
Telephone (808) 270-7816 • Fax (808) 270-7199

January 18, 2002

Mr. Earl Matsukawa, AICP
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Re: Environmental Assessment (EA) Pre-Assessment Consultation
Paihi Bridge Replacement, Hana, Maui, Hawaii

Dear Mr. Matuskawa,

Thank you for the opportunity to provide comments in preparation of this EA. The closest Department of Water Supply water line is located approximately 1980 ft East of the proposed project.

The project overlies the Waihoi aquifer and crosses the Wailua Stream. The Department of Water Supply strives to protect the integrity of both surface water and groundwater resources by encouraging the use of best management practices (BMPs) relevant to potentially polluting project activities. We encourage the applicant to build BMPs into the design and implementation of the bridge replacement project. There are many BMP references available. We have attached sample BMP for road and bridge construction and a reference list of BMP resources. Additional information can be obtained from the State Department of Health.

Should you have any questions, please call our Water Resources and Planning Division at 270-7199.

Sincerely,

David Craddick
Director
emb

cc: engineering
applicant w/attachments:

Selected BMPs from "Guidance Specifying Management Measures For Sources of Nonpoint Pollution In Coastal Waters." U.S.EPA.
References for Further Reading from "The Megamanual - Nonpoint Source Management Manual." Commonwealth of Massachusetts

C:\WPdocs\EAs EISs\Paihi Bridge Replace pre-EA.WPD

By Water All Things Find Life

8-30-2002 3:43PM FROM COM*DPW*ENGINEERING 8082707975 P. 2

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

TEL. (808) 270-7745
FAX (808) 270-7975

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

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

TRACY TAKAMINE, P.E.
Wastewater Reclamation Division

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

JOHN D. HARDER
Solid Waste Division

BRIAN HASHIRO, P.E.
Highways Division

August 06, 2002

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

Subject: Draft Environmental Assessment (EA)
Paihi Bridge Replacement, FAP No. BR-0900(61)
Hāna, Maui, Hawaii
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion) and 2 (portion)

Dear Mr. Craddick:

Thank you for your letter of June 20, 2002 commenting on the subject Draft Environmental Assessment (EA). We acknowledge that your previous comments, received by letter dated January 18, 2002 during Pre-Assessment Consultation, remain applicable. As stated in a previous response letter from Wilson Okamoto & Associates, Inc. dated May 24, 2002, the design plans and specifications for the project will discuss the application of measures to mitigate potential impacts to water quality. A copy of this letter is attached for your reference. Section 2.3.2 of the Final EA will include a listing of Best Management Practices (BMP) to be included in the project design plans to minimize the potential for soil erosion.

We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

for David Goode, Director
Department of Public Works and
Waste Management

LL/LM:jk(ED02- 901)
Attachment
cc: Earl Matsukawa, Wilson Okamoto & Associates, Inc.

6155-02
May 24, 2002

WILSON
OKAMOTO
& ASSOCIATES, INC.

ENGINEERS
PLANNERS
1907 S. BERETANIA ST
SUITE 400
HONOLULU, HI 96826
PH (808)946-2277
FAX (808)946-2253

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

Subject: Pre-Environmental Assessment (EA) Consultation
Paihī Bridge Replacement, FAP No. BR-0900(61)
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion), and 2 (portion)
Hāna, Maui, Hawaii

Dear Mr. Craddick:

Thank you for your letter dated January 18, 2002 commenting on the subject Pre-Assessment Consultation. We appreciate the information regarding the closest Department of Water Supply waterline to the project site. We also acknowledge your effort to protect surface water and groundwater resources by encouraging the use of best management practices (BMP) in project design and implementation. The design plans and specifications for the project will discuss the application of measures to mitigate potential impacts to water quality.

Your participation in the Pre-Assessment Consultation process is appreciated.

Sincerely,

Earl K. Matsukawa, AICP
Project Manager

cc: Lloyd Lee, County of Maui, Department of Public Works and Waste Mgt.

JAMES "KIMO" APANA
MAYOR

OUR REFERENCE TY
YOUR REFERENCE

POLICE DEPARTMENT
COUNTY OF MAUI

55 MAHALANI STREET
WAILUKU, HAWAII 96793
(808) 244-6400
FAX (808) 244-6411

THOMAS M. PHILLIPS
CHIEF OF POLICE

KEKUHAUPIO R. AKANA
DEPUTY CHIEF OF POLICE

June 25, 2002

RECEIVED
JUN 28 2002
WILSON OKAMOTO & ASSOC., INC.

Mr. Earl Matsukawa, AICP
Project Manager
Wilson Okamoto & Associates, Inc.
1907 S. Beretania St., Suite 400
Honolulu, HI 96826

Dear Mr. Matsukawa:

SUBJECT: Draft Environmental Assessment (DEA)
Paihī Bridge Replacement
Federal Aid Project No. BR-0900(61)
Tax Map Keys: (2) 1-5-8:6 (por.), 1-5-10:1 (por.) and 2 (por.)
Hāna, Maui, Hawai'i

Thank you for your letter of June 3, 2002, requesting comments on the above subject.

We have reviewed the proposed summary and have enclosed our comments and recommendations. Thank you for giving us the opportunity to comment on the proposed project.

Very truly yours,

Assistant Chief Robert Tam Ho
for: Thomas M. Phillips
Chief of Police

Enclosure

c: John E. Min, Maui County Planning Department
Joe Krueger, Maui County Dept. of Public Works
Genevieve Salmonson, State Office of Environmental Quality Control

COPY

TO : THOMAS PHILLIPS, CHIEF OF POLICE, MAUI COUNTY POLICE DEPARTMENT

VIA : CHANNELS A-4 1/29/02

FROM : HAMILTON RODRIGUES, LIEUTENANT, HANA DISTRICT

SUBJECT : PAIHI BRIDGE REPLACEMENT PROJECT

This report pertains to the Paihi Bridge, located in Hana, replacement project. Wilson OKAMOTO and Associates, Incorporated, the engineers and planners for this project, is requesting comments regarding their Draft Environmental Assessment report.

On January 16, 2002, I submitted written comments pertaining to this project. A copy of this To-From is attached for your reference. All the police concerns will be addressed except the issue of providing access through the project for emergency services vehicles during complete closure of the roadway. The report reflects that special provisions will be coordinated for health and emergency services during periods of night and complete closure of the roadway.

On Tuesday, June 18, 2002, at 1600 hours, I attended an informational meeting conducted by Wilson OKAMOTO and Associates, Incorporated. This meeting was held within the Hana High and Elementary School Cafeteria. Personnel from the Maui County Fire Department, Public Works and other community members were in attendance. I again raised the concern about access through the project for emergency services vehicles with Laura MAU of Wilson OKAMOTO and Associates, Incorporated. She related that the specifics of an access for emergency services would need to be discussed and coordinated with the contractor for this project after a contractor has been selected. Presently, the selection process for a contractor is underway. LAU further related that this bridge replacement project probably would not begin until the year 2003. Other informational meetings will be held in the future to update interested citizens and agencies in the Hana community about this bridge replacement project.

This communication is submitted for your perusal.

Respectfully,

Lt. Hamilton RODRIGUES E-7442
Hana District Commander
06-19-02 @ 1030 hours

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

TEL. (808) 270-7745
FAX (808) 270-7975

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

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

TRACY TAKAMINE, P.E.
Wastewater Reclamation Division

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

JOHN D. HARDER
Solid Waste Division

BRIAN HASHIRO, P.E.
Highways Division

August 06,2002

RECEIVED
AUG 14 2002
WILSON OKAMOTO & ASSOC., INC.

Mr. Thomas M. Phillips, Chief of Police
Police Department
County of Maui
55 Mahalani Street
Wailuku, Maui, Hawaii 96793
Attention: Assistant Chief Robert Tam Ho

Subject: Draft Environmental Assessment (EA)
Paihi Bridge Replacement, FAP No. BR-0900(61)
Hana, Maui, Hawaii
Tax Map Keys: 1-5-8:6 (portion), 1-5-10:1 (portion) and 2 (portion)

Dear Chief Phillips:

Thank you for your letter of June 25, 2002 (Reference ty) transmitting a report from Lt. Hamilton Rodrigues E-7442, Hana District Commander dated June 19, 2002 regarding the proposed project.

We acknowledge Lt. Rodrigues' concern regarding access for emergency services vehicles during the construction period and appreciate the input he has provided at the public informational meetings we held on March 7, 2002 and June 18, 2002 in Hana. As reported by Lt. Rodrigues, more detailed information on partial and total road closure requirements, and measures to accommodate emergency services vehicles, will become available after the contractor for the project is selected. At that time, the selected contractor and the County of Maui Department of Public Works and Waste Management (DPWWM) will pursue further consultation with providers of emergency services and conduct a public notification program on road closure, which will include informational meetings in Hana. We note that while Lt. Rodrigues indicated that the contractor selection process is currently underway, this is not the case. Rather, the selection process will commence once the design plans have been finalized and the required permits are approved.

We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

David Goode, Director
Department of Public Works and
Waste Management

LL/LM:jk(ED02-902)
cc: Earl Matsukawa, Wilson Okamoto & Associates, Inc.

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Meeting with Mr. David Higa, Department of Land and Natural Resources, January 11, 2002.

Meeting with Mr. Sam Lemmo, Department of Land and Natural Resources, January 14, 2002.

Correspondence from Mr. Will Spence, County of Maui, Planning Department, February 19, 2002.

Telephone discussion with Lieutenant Hamilton Rodrigues, Hāna Police Station, April 25, 2002.

Telephone discussion with Captain Paul Mallo, Hāna Fire Station, April 25, 2002.

Telephone discussion with Mr. Kurt Morimoto, American Medical Response, April 25, 2002.

Appendix A

Biological Reconnaissance Survey of Paihi Stream at Hana Highway on the Island of Maui

Prepared By *AECOS*, Inc.

February 2002

Biological reconnaissance survey of Paihi Stream at Hana Highway on the Island of Maui[1]

February 5, 2002

AECOS No. 906B

Eric B. Guinther
AECOS, Inc. 45-939 Kamehameha Highway, No. 104
Kaneohe, Hawai'i 96744
Phone: (808) 234-7770 Fax: (808) 234-7775 Email: guinther@aecos.com

Introduction

This report provides a description of Paihi Stream at Hana Highway south of Hana in East Maui. The purpose of the report is to assess impacts of replacement or repair of the narrow highway bridge crossing Paihi Stream along the margin of Wailua Gulch. The site was visited by biologists from *AECOS*, Inc. on August 18, 1998. A reconnaissance survey of the plunge pool located just on the upstream side of the existing bridge was undertaken, using small nets and mask and snorkel gear. No other part of this stream was easily accessible, although a trailhead near the bridge provides access to the ocean shore at the mouth of Wailua Valley. A reconnaissance was made of Wailua stream in the vicinity of the highway bridge. Paihi Stream is a tributary of Wailua Stream. Representative specimens of aquatic biota that could not be readily identified in the field were collected for later taxonomic work. Water samples for water quality measurements were also made.

Stream Description

Paihi Stream arises at around the 685 m (2240 ft) elevation on the Southeast Maui slopes above the villages of Muolea and Koali in the Hana Forest Reserve. Paihi Gulch is a narrow and not deeply incised feature that drains the slopes above the north wall of Wailua Valley. Paihi Stream drops precipitously over this wall in two or three high vertical drops (and perhaps several smaller ones) before flowing into Wailua Stream near the mouth of Wailua Valley. The stream is probably an interrupted, perennial stream. The plunge pool immediately upslope of the project area appears to be a perennial feature. Total area of the Wailua watershed (Figure 1) is estimated at 316 ha (782 ac) by Geographic Decision Systems

[1] Report prepared for Wilson Okamoto and Associates for their project: "Paihi Stream Bridge Replacement." This report will become part of the public record.

International and E. P. Dashiell (1994). However, the subwatershed for Paihi Gulch comprises only a small fraction (under 10%) of this watershed.

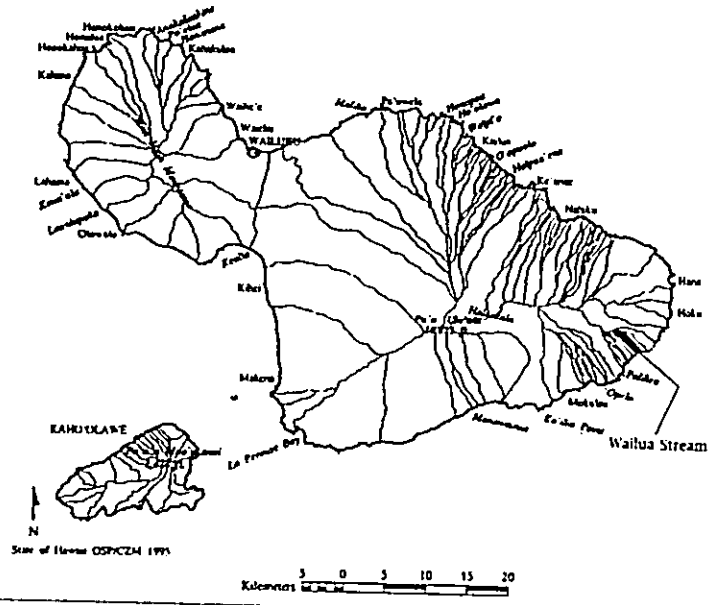

Figure 1. Map of Maui watersheds with Wailua Stream watershed (includes Paihi Stream) indicated. Stippled watersheds are all those in the inventory given as Table 1 in this report.

Table 1 shows the relationships between the various streams and gulches and provides additional information on each for watersheds between Kapia and 'Ohe'o, streams inclusive. Every stream and gulch that appears as a blue line on the USGS topographic map (Kipahulu and Hana Quadrangles, USGS, 1983 and 1957) is listed. In the first column of the table, streams appear in italics and gulches appear in regular type (a style adapted from USGS topographic maps). Although gulches and ravines are generally considered dry much of the time, whereas streams might be

Table 1. Summary of stream relationships, characteristics, and other aquatic features for a segment of the coast south of Hana, Island of Maui.

Stream / Gulch		State Code	Stream Class[1]	"Headwaters" Elevation[2] or feature name	F[3]	F elev.	RANK[4]	Survey Data[5]
Kawaipapa Gulch to Hana								
Hamoa								
Kapia		6-5-03	Pi	⇒		90	O	*AECOS* 1999
unnamed	*l*		*I*	2920				
Kapia			*Pi*	(3040)				*AECOS* 1992; DLNR 1980
unnamed	*n*		*I*	4260				
unnamed	*s*		*I*	3760				
Waiohonu		6-5-04	Pi	(1990)				
north fork	*n*		*I*	4480				
south fork	*s*		*I*	(3090)				
unnamed	*n*		*I*	~4400				
unnamed	*s*		*I*	3600				
Pukuilua			*I*	1740				
Papahawahawa		6-5-05	Pi	~2100				*AECOS* 1995
Ala`alaula		6-5-06	Pc	2440				
Wailua		6-5-07	Pc	~3150			O	DLNR 1980
Paihi	*l*		Pi	~2280				*this report*
Honolewa		6-5-08	Pc	~3350			O	DLNR 1980
Wai`eli		6-5-09	Pc	~3520			O	DLNR 1980
Kakiweka		6-5-10	Pc	~3240			O	DLNR 1990
Hahalawe		6-5-11	Pc	(30)			O	DLNR 1990
Hahalawe	n			~3320				
Maluhianaiwi	s			1600				
Pua`alu`u		6-5-12	Pc	~2000			O	DLNR 1983
`Ohe`o		6-5-13	Pc	(470)			O	DLNR 1980
Pipiwai	n	6-5-13.01	P	~3400				
Palikea	s	6-5-13.02	P	~6200				
to KOpahuku *Kalena Str.*								

FOOTNOTES:

1 - P= perennial; I = intermittent; c = continuous; i = interrupted. Where given in *italics*, the class is inferred from topographic sheet by solid, dash-dotted, or no blue line. Otherwise, class is inferred from observation or as indicated in the Hawaii Stream Assessment. P,I indicates a stream segment that is intermittent above a perennial part.

Table 1 (continued)

2 - In feet, estimated (from topographic maps) upper elevation of stream channel; generally somewhat higher than headwaters shown on topographic map, but may be lower than drainage basin boundary. Elevation in () indicates top of stream segment and point of significant branch or name change to tributary in next row.

3 - F: Natural or man-made aquatic features, such as wetlands, reservoirs, and irrigation ditch systems, which capture flow from the natural stream or feed water into the natural stream. The following codes are used: Di - diversion in; discharge into stream from a ditch or auwai (includes overflow from ditch system), Do - diversion out, from a stream into an auwai, flume, or ditch; Gc - USGS crest-stage gaging station; Gp - USGS partial-record gaging station; M - marsh; R - reservoir; RD - reservoir with diversion to a ditch. The actual or estimated elevation (in feet) of the feature is provided in Column 7. Multiple features are listed from lowest to highest on branch. The feature name (if known) is given in Column 5.

4 - Summary from the Hawaii Stream Assessment (Hawaii Cooperative Park Service Unit, 1990); aquatic rankings: M = moderate; O = outstanding; S = substantial; U = unknown. If blank, then stream was not ranked.

5 - Lists any references which provide biological or water quality data for the indicated stream segment.

flowing much or all of the time, the distinction here is simply one established by USGS in mapping and is not meant to imply a particular class (see Column 4). A sans serif font (TrueType® "Arial") is used to indicate non-aquatic features, such as towns and place names. The listing of aquatic and non-aquatic features is from west to east (clockwise around the island). The letters "*l*" or "*r*" appear in Column 2 to indicate a branch entering on the left or right bank, respectively. Segments representing the confluence of two branches account for stream or gulch names being repeated (different segments represented).

Column 2 provides vertical and horizontal bars that show the relationships between tributaries. A vertical double line identifies the root stream that discharges into the sea. Tributaries are then joined by a solid or dotted vertical line. A dotted line indicates that more tributaries of a particular branch or segment are listed further down in the table. Column 3 (State Code) lists the State code for perennial streams. Codes have been assigned by DLNR only to perennial streams and not to intermittent streams.

Column 4 (Stream Class) presents the type of stream feature: "P" for perennial stream and "I" for intermittent stream. A lower case "i" (as in Pi) indicates an interrupted stream, usually one which is perennial at higher elevations but intermittent at lower elevations. A lower case "c" (as in Pc) indicates a stream continuous flowing to the sea. Class designation comes from the Hawaii Stream Assessment (Hawaii Cooperative Park Service Unit, 1990) or field observation in most cases (see Table 1 footnotes).

Column 5 gives the elevation of headwaters in feet above sea level. The value is estimated by examination of the topographic map, and represents an attempt to determine the highest elevation at which a distinct channel for the stream is probably present. Where this value is particularly difficult to determine from the map, the value is preceded by a "~" meaning "about." An number in parentheses indicates the upper elevation of the particular segment, the stream continuing as two or more branches to headwaters at a higher elevation.

Natural or man-made aquatic features (Column 5, 6, and 7), such as wetlands, reservoirs, and irrigation ditch systems, which capture flow from, or feed water into, the natural stream are each given a line under the associated stream branch. Multiple features are listed from lowest to highest on a branch. The feature name (if known) is given in Column 5 and the feature type in Column 6 (see Table 1 footnotes). Column 7 gives the approximate elevation (usually on the stream branch) of the feature.

Column 8 provides ranking information (see Table 1 footnote). Column 9 gives references to other studies on each stream, stream segment, or branches. Complete references are given in the bibliography at the end of the report. Water quality station locations and other information about a particular branch may also appear in this column. Horizontal, dashed lines divide watersheds.

From Figure 1 it is evident that in terms of watershed area or hydrographic relationship, all of the watersheds covered by Table 1 are relatively small drainages. Paihi is but a portion of the Wailua watershed. These watersheds are small because Waiho'i Stream has pirated the upper drainage area on the southeast slope of Haleakala, extending nearly to the top of the 1500 m (4000 ft) ridge north of Waihoi Valley on the east end of Haleakala. All of Paihi Stream above the 600 m (1970 ft) elevation is within the Hana Forest Reserve.

The elevation in the project area is approximately 65 m (212 ft). An existing bridge is present on Hana Highway (State Route 31) at this location. This bridge is embossed with the date "1911". In the project area, Paihi Stream plunges nearly vertically some 20 m (66 ft) into a plunge pool only about 8 m (26 ft) from the upstream rail of the bridge. The top of the valley wall is around the 122 m (400 ft) elevation, or nearly 60 m (190 ft) vertically above the highway at Paihi Stream.

The plunge pool in the project area is about 7 by 9 m (23 x 30 ft) and is mostly about 20-25 cm (8-12 in) deep but slopes down to a depth of 1 m (3 ft) or so close to the cliff. The bottom consists mostly of blocky boulders with a thin coating of silt. The stream flows out of the pool around and between some large boulders and plunges again straight down just beneath the bridge.

The Hawaii Stream Assessment (Hawaii Cooperative Park Service Unit, 1990) provides some information on Wailua Stream, indicating that it is a perennial stream of substantial resource value, ranked in that document as outstanding ("O") for resource value and outstanding for recreational value. These rankings do not necessarily pertain to the Paihi branch, given that it is not listed (regarded as intermittent). An "O" ranking for resource value is dependent upon the stream harboring certain native species, in the case of Wailua Stream: ʻoʻopu alamoʻo (*Lentipes concolor*) and an abundance of either ʻoʻopu nakea (*Awaous guamensis*), hihiwai (*Neritinia granosa*), or ʻoʻopu nopili (*Sicyopterus stimpsoni*). A high recreational resource value is given to streams that provide opportunities for hiking, swimming, fishing, etc. For this project and Paihi Stream it is best to consider these

opportunities with regard to the reach in the project area, which is characterized by waterfalls in a flute extending down the steep face of Wailua Valley. Paihi would rank high for scenic value but not much else, as fishing and swimming could be hazardous activities in the plunge pool and no other access is really possible in this area. The fact that there is a trail head in this area (which does not, however follow the stream) may be considered a hiking "opportunity."

Water Flow and Water Quality

Although only a small amount of flow was observed in the project area during the field visit, the plunge pool just above the highway bridge is a perennial feature given the biological inhabitants observed (see Biota below and Table 3). It seems most prudent to classify this branch of Wailua Stream as interrupted[2] rather than intermittent, although exploration of more of the stream above the valley would be necessary to make a definitive classification.

A single water sample was collected on August 18 from the pool immediately upstream of the highway bridge. Results are presented in Table 2. The water quality is deemed very good on the basis of these results, which should be accepted cautiously given that only a single sample, representing one point in time, is provided. Perhaps the only water quality observation indicating a potential for concern is that of turbidity. The value of 1.41 ntu is within an expected range of values for good quality streams, but the thin film of silt covering most of the bottom of the pool suggests turbidity could rise quickly if flow were occurring. Visibility was impaired once the diving commenced in the pool.

Table 2. Water quality characteristics of lower Paihi Stream, August 18, 1998.

	Time sampled	Temp. (°C)	DO (mg/l)	DO (% sat)	Cond. (µmhos/cm)	pH (pH units)	Turbidity (ntu)
08-18-98 Sta. 1	1030	23.1	8.02	94	132.9	8.00	1.41

		TSS (mg/l)	Ammonia (µg N/l)	Nitrate + nitrite (µg N/l)	Total N (µg N/l)	Total P (µg P/l)
08-18-98 Sta. 1	1030	1.6	5	9	285	30

[2] Meaning a stream that flows all of the time at higher elevation, but is intermittent close to the coast according to Timbol and Maciolek (1978).

Biota

The surveyed plunge pool is located part way down the cliff of the north wall of steep-sided Wailua valley. While the bottom consists of loose material (fine sediment and basalt boulders, the pool itself is likely carved by the falling water and suspended material out of solid rock and therefore retains its water level during periods when there is no or little flow in Paihi Stream.

Dominant plants in the project vicinity include Pluchea (P. oderata), strawberry guava (*Psidium cattleianum*), day-flower (*Commelina diffusa*), elephant grass (*Pennisetum purpureum*), yellow ginger (*Hedychium flavescens*), Job's tears (*Coix lachryma-jobi*), and a number of non-native weedy species as well as some ornamentals. Mango (*Mangifera indica*) and kukui (*Aleurites moluccana*) are prominent components of the forest in the valley below. Ferns (*Adiatum* sp. and *Blechnum appenduculatum*) characterize the lower face of the cliff above the plunge pool. These plants are all common, mostly introduced species, characteristic of mesic to wet lowland areas in the Hawaiian Islands.

The plunge pool harbors a moderately dense population of the Pacific prawn (*Macrobrachium lar*). The population, including numerous juveniles, was estimated at 1-2 individuals per meter square in the 60+ m² pool. This crustacean is an introduced species. Several large 'o'opu nakea (*Awaous guamensis*) were also observed, some up to 10 cm (4 in) in length. This is a native (indigenous) species found in Hawaii as well as elsewhere in the Pacific Basin. It is amazing to consider that these fish ascended the waterfall below the highway bridge to take up residence in the plunge pool.

Table 3. Checklist of aquatic biota observed or reported from Paihi Stream and Wailua Stream nearby.

Species	Common name	Status	QC Code	Abundance
INVERTEBRATES				
MOLLUSCA, GASTROPODA				
NERITIDAE				
Neritinia granosa Sowerby	hihiwai	end.	20	W
ARTHROPODA, CRUSTACEA				
Macrobrachium lar	Pacific prawn	nat.	10	A
ARTHROPODA, INSECTA				
DIPTERA, SYRPHIDAE				
indet.	bee-fly, larva		10	W
ODONATA, AESHNIDAE				
Anax junius (Drury)	green darner, adult	nat	10	W

VERTEBRATA, PISCES				
GOBIIDAE				
Awaous guamensis (Eydoux & Souleyet)	'o'opu nakea	ind	10	C
Lentipes concolor (Gill)	'o'opu 'alamo'o	end	01	note 1
Sicyopterus stimpsoni	'o'opu nopili	end	20	W

KEY TO TABLE SYMBOLS:
Status column:
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 column:
01 - Reported in previous, unpublished reports.
10 - Observed and identified in the field on August 18, 1998.
20 – Collected on Aug.18; identified in the laboratory; specimen(s) not saved.
21 - Collected; identified in the laboratory; voucher specimen(s) saved.
Abundance column:
A - abundant; numerous in most habitat places visited
C - common; numerous individuals seen
P - present; not common, but unable to assess abundance.
R - rare; only one or two individuals seen.
U - uncommon; several individuals seen, in some habitat places visited.
W – Wailua Stream only (not seen in Paihi where surveyed)
note 1: reported in Hawaii Stream Assessment database (for Wailua Stream) by DLNR.

Assessment

Paihi Stream in the vicinity of the highway crossing drops vertically in several steps over the east wall of Wailua Gulch. The bridge, built in 1911, arches over a substantial vertical drop (waterfall). The stream joins (is a minor branch of) Wailua Stream in the valley below. The latter, a perennial stream, was visited briefly on August 18 at the highway bridge crossing. It was easily observed that there exists a population of 'o'opu nopili immediately under and upstream of the bridge. Also present here are hihiwai and Pacific prawns.

East Maui is known to be a part of the Islands where native fishes, shrimp, molluses, and insects occur in fresh water aquatic environments (Kinzie and Ford, 1977). Many of these native species are diadromous: eggs are laid in the stream and the larvae which hatch from these eggs move down stream and out into the ocean, where they develop for a time before migrating back into fresh water to grow to maturity. Because of this life style, all of the length of a stream may be significant habitat in the support of these native species, even where the lower reaches lack water flow for much of the time. Hawaii's diadromous stream animals are well adapted to moving upstream against strong currents and past the seemingly impassable barriers presented by waterfalls (Kinzie and Ford, 1977).

Although Paihi Stream is not known as an important resource stream, it is an intermittent or possibly interrupted branch of Wailua Stream, considered to have outstanding resource value

and to harbor `o`opu `alamo`o in it's upper reaches. Aquatic habitat that is present on Paihi Stream in the project area (plunge pool) may be perennial and suitable for migrating native fauna if additional suitable habitat exists further upslope in Paihi Gulch. It is not expected that a new bridge structure will cause problems for any stream resources, including migrating native species, as long as the existing stream channel is not altered.

None of the species observed in Paihi Stream or lower Wailua Stream is listed as federally protected, threatened or endangered (Federal Register, 1999, 2001). However, State regulations (DLNR, 1989) extend protection to species of `o`opu from net fishing activities.

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_____. 1995. Environmental reconnaissance survey for the Papaahawahawa Bridge on Piilani Highway, Hana, Maui. Prep. for Wilson Okamoto & Associates. *AECOS* No. 805B: 16 pp.

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Appendix B

Archaeological Inventory Survey for the Kawaiokapia, Paihi and Kaukauai Bridges Hana and Kipahulu District, Island of Maui, Hawaii

Prepared by Pacific Legacy, Inc.

January 1999 (Updated May 2002)

ARCHAEOLOGICAL INVENTORY SURVEY FOR PAIHI BRIDGE, HĀNA DISTRICT, ISLAND OF MAUI, HAWAII

(TMK:1-5-08; 6; and, 1-5-10:1 and 2)

Prepared for:

Wilson Okamoto and Associates
1907 S. Beretania Street, Suite 400
Honolulu, Hawai'i 96826

Prepared by:

Paul L. Cleghorn, Ph.D.
and
James McIntosh, B.A.

Pacific Legacy, Inc.
332 Uluniu Street
Kailua, Hawai'i 96734
phone (808) 263-4800
fax (808) 263-4300

January 1999
(Updated May 2002)

ABSTRACT

At the request of Wilson Okamoto and Associates, Pacific Legacy, Inc., conducted an archaeological investigation for Paihi Bridge located in the Hāna District, County of Maui, Hawai'i. Paihi Bridge is incorporated into the Hāna Highway Historic District, which is listed in the State of Hawai'i and National Register of Historic Places.

The survey identified no archaeological resources in the vicinity of Paihi Bridge. No subsurface testing was under taken.

TABLE OF CONTENTS

LIST OF FIGURES

1.0 INTRODUCTION

At the request of Wilson Okamoto and Associates, *Pacific Legacy, Inc.*, conducted an archaeological investigation Paihi Bridge located in the Hāna District, County of Maui, Hawai'i (Figure 1). The bridge is being proposed for replacement by the County of Maui. The purpose of this project was to determine the presence/absence of any potentially significant cultural resources that may be present in the proximity of the bridge.

This investigation satisfies Historic Preservation requirements found at HRS 6E. The State Historic Preservation Division (SHPD) requires an archaeological inventory survey as part of the environmental assessment process. An archaeological inventory survey the necessary first step in treating archaeological resources that may be present is in a project area. The purpose of an archaeological inventory survey is to determine if potentially significant archaeological resources are present on a specific parcel of land prior to development activities. If potentially significant resources are present, then a set of procedures must be implemented to manage these resources and to mitigate any adverse effects of proposed development. These procedures are generally developed in a Historic Preservation Plan (HPP) after the completion of the archaeological inventory survey.

1.1 SCOPE OF WORK

The following scope of work (SOW) provided a framework for the archaeological investigation.

1) conduct an archaeological background and literature search, summarizing the history of Paihi Bridge,

2) conduct limited archaeologial field investigations in the area of Paihi Bridge,

3) evaluate cultural resources based upon National Register of Historic Places (NRHP) criteria, and

4) prepare a clear and concise report summarizing findings and presenting recommendations.

The cultural resources discussed in this report were evaluated based upon the National Historic Preservation Act of 1966 (as amended). Any resources meeting the criteria may be determined eligible for inclusion to the National Register of Historic Places (NRHP).

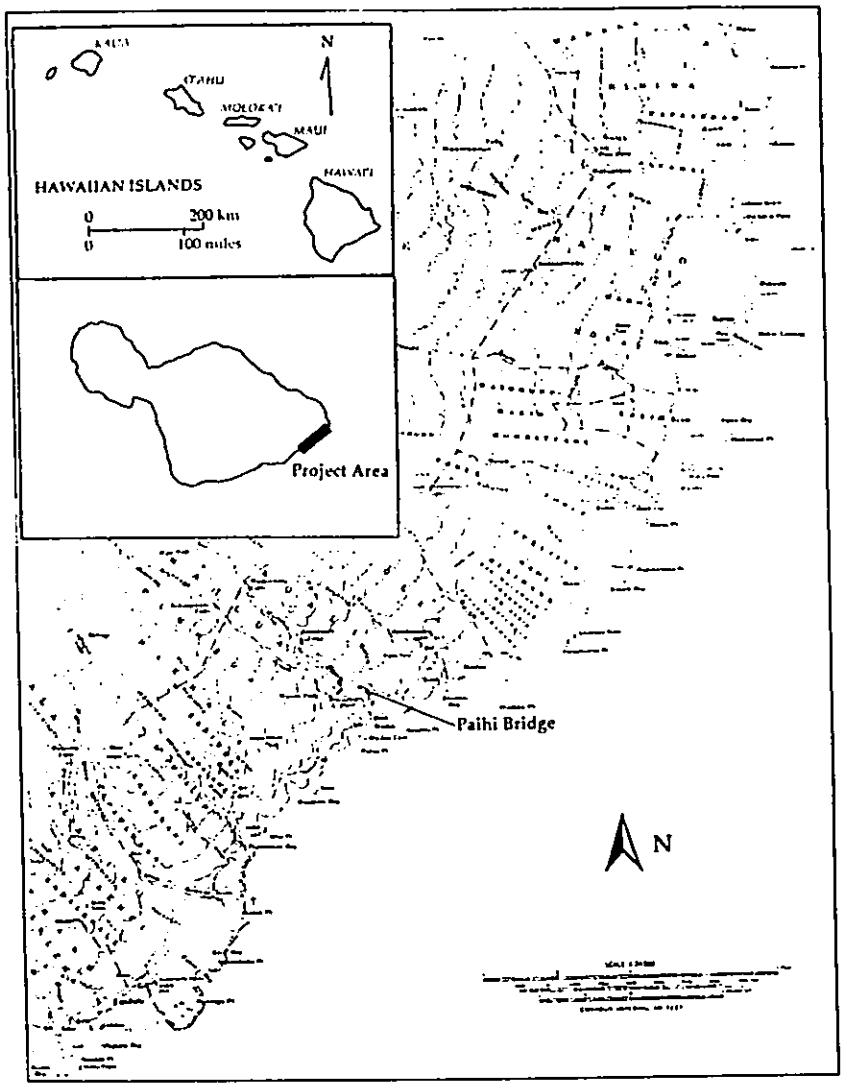

Figure 1. Location of Project Area

1.2 PROJECT LOCATION

The project area is located in the Hāna District on the island of Maui, Hawaii. Paihi Bridge is situated along south east side of east Maui. Paihi Bridge (TMK: 1-5-8 and 1-5-10) is located along Piilani Highway, south of Hāna, approximately 3.99 miles south the road to Hamoa. Paihi Bridge crosses Paihi Stream and is within Wailua *ahupua' a*.

1.3 ENVIRONMENT

Geologically, Maui was created when the lava from two separate volcanic eruptions (West Maui and Haleakala) were joined together over time by an isthmus. The first and the oldest of the volcanoes formed the West Maui Mountains. The lava from Haleakala (a giant dome volcanoe) formed East Maui (Macdonald and Abbott 1977), where the current project was undertaken.

Soils in the project area are described by Foote et al. (1972) as being Makaalae silty clay (MID), Makaalae extremely stoney clay (MJD) and Rough mountainous land (rRt). Each is described in detail below.

Soils in the Makaalae series consist of well-drained soils on the uplands that were developed in volcanic ash. They are moderate to steep sloping and range in elevation from sea level to nearly 1,500 feet (Foote et al. 1972:87). Soils in this series are commonly used for pastureland, water supply, and wildlife habitat.

Makaalae silty clay is found on rough low mountain slopes with 7 to 25 percent slopes. The soil is strongly acidic in the surface layer and medium to slightly acidic in the subsoil. Permeability is moderate and runoff is slow to medium with a slight to moderate erosion hazard (Foote et al. 1972:87).

Makaalae extremely stoney clay is similar to the silty clay with 7 to 25 percent slopes, except that stones cover 3 to 15 percent of the surface. Aa lava is common in places along drainages. This soil is used for water supply, pasture land and wildlife habitat (Foote et al. 1972:87).

Rough mountainous land occurs in mountainous areas and consists of very steep land broken by intermittent drainage channels, in most places it is not stony. Elevations range from nearly sea level to 6,000 feet. Over much of the area, the soil is very thin and ranges from 1 inch to 10 inches. This type of land is typically used for water supply, recreation and wildlife habitat (Foote et al 1972:119).

The vegetation within the project area consists mainly of exotic foreign plant species. Flora observed include mango (*Mangifera indica*); Christmasberry (*Schinus terebinthefolius*); guava (*Psidium guajava*); ti (*Cordyline terminalis*) false *kamani* (*Terminalia*

catappa), Java plum (*Eugenia* sp.), guava (*Psidium guajava*), ti (*Cordyline terminalis*), *awapuhi*, or wild ginger (*Zingiber zerumbet*), and various ferns and grasses.

Rainfall in the area averages approximately 100 inches per year with the wettest months being December and January and the driest being May through August (Armstrong 1983:62). Elevation in the project area ranges from 80 feet to 220 feet above mean sea level (amsl). Temperature in the project area ranges from approximately 62° to 83° with the coolest temperatures occurring in December and the warmest occurring in August (Armstrong 1983: 64).

2.0 METHODOLOGY

Fieldwork was conducted on April 23, 1998. Paul Cleghorn, Ph.D. served as the Principal Investigator and main point of contact, Tom Cleghorn assisted in the survey and site recording.

The project area was surveyed by pedestrian transects. Approximately 50 m around the bridge (including gulches) was surveyed. Spacing between the two surveyors ranged from 10-20 m depending on the density of the vegetation (spacing was closer in areas of dense vegetation, and further apart in areas of sparse vegetation).

Any cultural remains encountered would be recorded with notes, sketch maps, and black-and-white photographs.

No subsurface testing was undertaken.

3.0 HISTORIC BACKGROUND

Archival research consisting of background and literature searches was conducted at the State Historic Preservation Division's library, the State of Hawai'i Main Library, the Department of Land and Natural Resources Survey Office, Bureau of Conveyances, State of Hawai'i Archives, and the Hawaiian Historical Society.

Reports detailing previous archaeological studies both within and adjacent to the current project area were reviewed. Landownership, as illustrated by Land Commission Awards (LCA) was researched. Other historical sources were reviewed in order to provide a brief summary of the history and land use of the general area.

3.1 LEGENDARY HISTORY

Hāna, Maui is rich in cultural heritage. Indeed, there are numerous myths and legends associated with this part of East Maui. However, there are too many to be discussed in length, here. Included below is a brief discussion of the history and legends associated with the east coast of Maui. An excellent summary of the history and legends of the area can be found in Cleghorn and Rogers (1987). The reader is referred to this document for more information.

Six of the most prominent gods and goddesses in Hawaii are associated with Hāna. They are: Pele, Kāne, Māui, Kanaloa, Pu'uhele, and Ku'ula (Cleghorn and Rogers 1987:4). Additionally, Hāna was said to have been a favorite place of many Maui chiefs, many of whom chose Hāna as their residence (Cleghorn and Rogers 1987: 8).

Beckwith (1976) writes that the goddess Pele was killed by her older sister Na-maka-o-kaha'i on the island of Maui near Kahikinui. Her body was "torn apart and the fragments heaped up to form the hill called Ka-iwi-o-Pele (The bones of Pele) near Kauiki, while her spirit takes flight to the island of Hawaii" (Beckwith 1976: 170). Ka-iwi-o-Pele is located in Hāna.

Beckwith also relates tales of "Maui the Trickster" and some of the myths and legends associated with him. In the legend below, Maui attempts to unite the islands into one.

> While Maui was still a child, he goes fishing with his brothers and gets them to go far out to the fishing ground called Po'o directly seaward from Kipahulu and in line with the hill called Ka-iwi-o-Pele. Here with his hook called Manai-a-ka-lani (Come from heaven) he catches the big ulua of Pimoe. For two days they pull at it before it comes to the surface and is drawn close to the canoe. The brothers are warned not to look back. They do so. The cord breaks, and the fish vanishes. That is why the islands are not united into one (Beckwith 1976: 230).

Another god associated with Hāna is Ku'ula. Ku'ula gave the octopus lure (*lū hu'e*), the fishpond (*loko i'a*), and the fishook (*makau*) to humans by way of his son Ai'ai (Beckwith 1976: 19-20). It was Ai'ai who went to the different islands and established the first fishing shrines (*ko'a*) and fishing grounds (*ko'a aina*). He also constructed altars (*kuula*) upon which the first fish from each catch would be offered.

Pukui et al. (1976) writes that Kipahulu was the home of Laka, the god worshipped by canoe makers and that it literally means "to fetch from [exhausted] gardens" (Pukui et al. 1976: 112).

In Pukui et al. (1976:92), the name Kaukau'ai is translated literally to mean food prayer. According to Kinser (in Masterson et al. 1998:18) that was not the original name of the stream. "The name was changed (from Maulili) because the many victims of the measles epidemic of 1848 and the smallpox epidemic of 1853 bathed in the stream to cool their feverish bodies, and kaukau was a chant of lamentation of the dead" (in Masterson et al. 1998:18).

After Kamehameha took the island of Maui, some of the Hawai'i Island chiefs came to live at Hāna and Kipahulu. Kamehameha's brother, Ka-lani-malokuloku-i-Kepo o-o-ka-lani, was one of these chiefs. He looked over the commoners and protected their rights.

> ...while he lived in Kipahulu and Hana there was no sugar cane broken off, no potatoes dug up, no pigs roasted. The common people loved him and called him "The good chief" (Ke-ali i-maika'i) in praise of his deeds, and that is why his life was spared when he was about to be made prisoner of war... Now chiefs from Hawaii often made their home in Kipahulu...This is how the Kipahulu people came to know the chiefs of Hawaii and why "The good chief" lived at Kapo'ookalani (Kamakau 1992:143-144).

3.2 LAND COMMISSION AWARDS

Land use in Hāna has changed drastically during the last two centuries. The Māhele (land division) which began in 1848 allowed those who traditionally lived and worked on properties to own the land. For the Native Hawaiians, ownership of the land was obtained through LCA's. There are no LCA in the vicinity of Paihi Bridge.

4.0 PREVIOUS ARCHAEOLOGY

A review of available literature from the State Historic Preservation Division (SHPD), indicates that no previous studies have been undertaken in the current project area. The literature review indicated that a numerous studies have been undertaken in and around Hāna Town. However, the amount of studies decreases outside of Hāna proper. Below is a brief summary of studies that have occurred around Paihi Bridge.

The first work conducted on Maui was performed by Thrum in the early 1900's. His findings, originally published in Thrum's Hawaiian Annual (1909), revealed the presence of numerous *heiau* (temple) sites on the island.

In the 1920's Winslow Walker (1931), of the Bishop Museum conducted an island-wide survey of Maui Island. Walker identified and recorded archaeological sites across the island. Although his findings have never been published by the Bishop Museum, his manuscript provides a glimpse of the preservation of archaeological sites on Maui after the widespread expansion of areas cultivated for sugarcane.

Lloyd Soehren (1963), of the Bishop Museum conducted an archaeological survey of portions of East Maui in 1962. The purpose of the survey was to relocate and re-record sites from a previous Bishop Museum survey 35 years earlier. The idea being, to better record details of each site and accurately plot their locations. Focusing mostly on Kipahulu, Haleakala Crater and Kaupo, Soehren identified one site near the current project area. Site A24-3, which Soehren describes as being:

> On a small bench above a cobble beach west of the mouth of Maulili stream are the remains of a platform, stone walls and an impressive terrace facing of waterworn stones rising over 14 feet in two steps. The general appearance of the site corresponds in many ways to Walker's description of Maulili heiau (A24-1) but differs in minor respects, and considerably in location. The identity of the two structures is probable, however.
>
> The site has recently been cleared of a dense growth of hibiscus and extensive repairs have been made to the stone work, obscuring the original features to a large extent. A guest cottage has subsequently been built at the east end of the site, together with a pavilion on the central platform and a barbecue pit at the west end (Soehren 1963: 63).

Between 1969 and 1970, Lynn Nakkim (1970) conducted an independent archaeological survey at various parcel in and around Hāna. Nakkim identified numerous unknown sites and relocated a number of sites previously identified. She provides a rather frank discussion of the state of archaeological sites in Hāna and their destruction.

In January of 1987, State Archaeologist Agnes Griffin conducted a field inspection at Site 50-50-13-1795, Moake Cove (Griffin 1987). Griffin identified an area along the beach that had undergone previous construction of park facilities. While there she talked with an informant who had worked on the construction project. He notified her that numerous burials were uncovered during construction activities, two years earlier. Apparently, SHPD was not notified of the inadvertent finds. While inspecting a push-pile, she recovered numerous bone fragments.

Also in 1987, the Bishop Museum undertook archaeological and historical investigations for the Hana Ranch Lands (Cleghorn and Rogers 1987). They reidentified 32 sites that were previously recorded. "The majority of these are heiau or religious structures (N=20; 62.5%), many of which are now destroyed" (Cleghorn and Rogers 1987:i). Previously identified sites included five fishponds, various habitation sites, pictographs, and the fortress of Ka'uiki. An additional 16 archaeological sites were recorded during the subsequent survey and are associated with agricultural or habitation activities (Cleghorn and Rogers 1987:ii). Of the 48 sites identified on Hāna Ranch Lands, approximately 20 have been destroyed. Recommendations included a full survey of all 4,500 acres of Hāna Ranch Lands, excavation in selected areas and the recording of oral histories for the area.

In 1991, State Archaeologist Theresa Donham, conducted archaeological investigations at the Koholaiki Burial Site (50-13-2835), Mokae, Hāna Maui (Donham 1991). The investigations centered on a group of remains apparently erroding out of an embankment along the beach. Burial 1 was a single burial which was uncovered and determined to be a secondary bundle burial. Burials 2 and 3 were located approximately 10 m north of Burial 1 and were in poor condition (Donham 1991:4). Donham speculates that more burials may be present in the dune and recommends that the dune and embankment be preserved.

In 1992, Cultural Surveys Hawaii (Borthwick et al. 1992), conducted an archaeological inventory survey with limited subsurface testing for the proposed Hana Ranch Country Club, Hāna Maui. The survey covered approximately 400 acres of former sugar cane lands and identified 51 sites. "The majority of sites observed are of probable historic age and are site remnants" (Borthwick et al. 1992: i). Site types identified were a religious feature (Koahaepali Heiau, Site 117, originally recorded by Walker [1931] in the 1920s), two probable burials, agricultural terraces and walls, a historic railroad grade and road system, and habitation sites. Subsurface testing conducted at 13 sites resulted in the recovery of three radiocarbon samples, two of which resulted in modern dates (1425-1950 and 1648-1950) and one with the prehistoric range of 1345-1650 (Site 50-50-13-2712, a remnant of a habitation terrace).

In 1995, Scientific Consultant Services, Inc., conducted an archaeological inventory survey with limited subsurface testing at a 2.24 acre parcel of agricultural land in

Kipahulu, Hāna Maui (Burgett et al. 1995). The survey identified three sites (50-50-17-4149 through 4151) comprised of seven features. Recorded features included: habitation terraces, an enclosure and a modified outcrop. One radiocarbon sample was collected during excavations at Site 4149 and yielded a date of AD 1446 to 1668, indicating that "Site 4149 was utilized during the late pre-Contact Period of Hawaiian History"(Burgett et al. 1995:28). The sites were deemed significant under Criterion D (Burgett et al. 1995:28). The property owners have stated their desire to preserve the sites as is.

Xamanek Researchers conducted an archaeological inventory survey on a half-acre portion of a 2.597 acre parcel (TMK:1-4-10:16) in Kakio, Maui (Fredericksen et al. 1996). The parcel contains a previously recorded site(50-50-13-3528) comprised of C-shapes, a historic burial, possible burial mounds, and historic features. A total of eight agricultural features (clearing piles and low-rock alignments) were recorded on the parcel (Fredericksen et al. 1996). Xamanek also conducted data recovery procedures on a second area within the same parcel (Fredericksen and Fredericksen 1996). Data recovery centered on a northern boundary rock wall which is part of Site 50-50-13-3528. It was concluded that the wall is of post-contact construction (core-filled, stacked on both sides). Preservation and reconstruction of the wall were recommended.

In October of 1997, Cultural Surveys Hawaii (Masterson et al. 1998) conducted an archaeological inventory survey with subsurface testing on a ca. 20-acre parcel in Kipahulu Maui. The project area was adjacent to the Kaukau ai Gulch (one of the bridges in the current study). A total of seven sites (four previously known [Soehren 1963] and three recently identified) were recorded and all were recommended for preservation. The sites consist of: three rockshelters (one with pictographs), one cave, a religious/habitation complex, a offshore islet, and two stones (possible burials). The stones are associated with the legend of Ai'ai, the fisherman and the cave is associated with the legends of *mo'oauhine*. Excavation at several sites uncovered marine shell midden, pig and dog bones, charcoal, *kukui nut*, volcanic glass flakes, basalt flakes, and historic period glass and ceramics. The results of radiocarbon analysis at several sites are still pending.

4.1 TRADITIONAL SITES

Although traditional sites have been recorded near and around the current project area, no traditional Hawaiian sites have been recorded within the current study area.

4.2 HISTORIC SITES

Paihi Bridge was previously evaluated for the State of Hawaii, Department of Transportation, Highways Division (DOT). Spencer Mason Architects (1996) evaluated the bridges in Hāna and assessed their condition and significance. The Hawaii Heritage Center (1990) also conducted an inventory and assessment study for DOT. Paihi Bridge is within the Hāna Highway Historic Bridge District.

> The Hāna Highway Historic Bridge District includes fifty-nine bridges and eight culverts constructed along the Hāna Highway (State Highway 360) between 1908 and 1937. The district covers more than fifty miles of roadway beginning at the Hoalua Stream Bridge near Huelo in the Makawao District and ending immediately after Koukou'ai Stream Bridge near 'Ohe'o in the Kipahulu District. The Hāna Highway Historic Bridge District encompasses the highest concentration of unaltered and stylistically consistent historic bridges in the state (Spencer Mason Architects 1996:VI-191).

Each of the bridges in the district have been recorded and the district itself was subsequently listed in the State of Hawaii and National Register of Historic Places.

Paihi Bridge (Figures 2, 3, and 4), was constructed in 1911. The architect is unknown. Paihi Bridge, which extends over Paihi Stream, is a concrete deck girder type that has a maximum length of 43.3 feet. A concrete girder bridge is described as:

> Concrete deck girder, including simple girder and tee-beam spans, are the most common bridge types constructed by the Territory and County along the Hāna Highway. As their strength and economy became apparent, concrete deck girder structures replaced concrete arches and timber bridges for short spans (Alvarez 1987: 73). Many of these inexpensive bridges were built by the county governments between 1911 and 1928. Like their contemporary flat slab bridges, early concrete deck girder bridges (constructed prior to 1916) tend toward solid paneled reinforced-concrete parapet and a peaked concrete rail cap, and little or no ornamentation. Bridges built after approximately 1916 feature an open reinforced-concrete parapet with simple vertical concrete balusters and a square concrete rail cap (Spencer Mason Architects 1996:VI-195).

Appendix A presents technical drawings of Paihi Bridge.

Figure 2. Overview of Paihi Bridge (view to E).

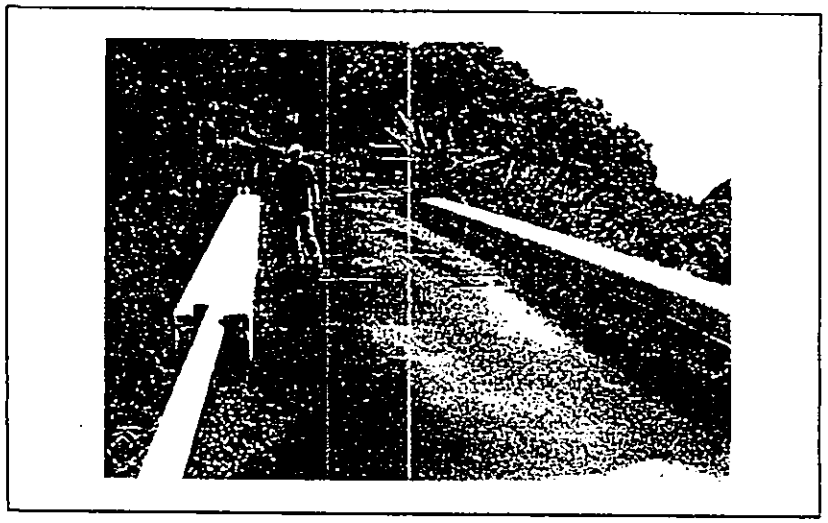

Figure 3. Top View of Paihi Bridge (view to S).

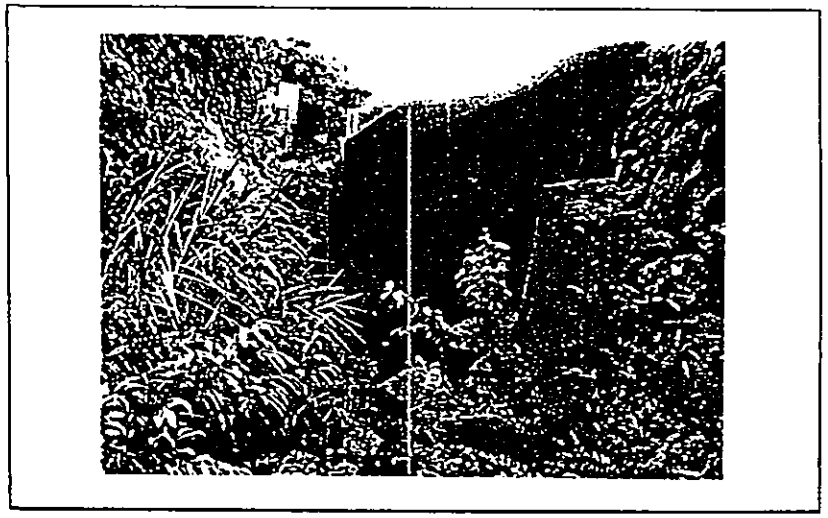

Figure 4. Bottom View of Paihi Bridge (view to S).

5.0 RESULTS

No archaeological resources were identified at Paihi Bridge. No artifacts were observed on the surface during the survey.

6.0 HISTORIC SIGNIFICANCE ASSESSMENTS

The National Historic Preservation Act of 1966 (as amended) authorizes the Secretary of Interior to expand and maintain a National Register of Historic Places (NRHP) that contains a listing of districts, sites, buildings, structures and objects significant in American history, architecture, archaeology, engineering and culture. A property may be listed in the NRHP if it meets criteria for evaluation defined at 36 CFR §60.4:

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and
>
> (a) That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (b) That are associated with the lives of persons significant in our past; or
>
> (c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (d) That have yielded, or may be likely to yield, information important in prehistory or history.

Paihi Bridge is a contributing resource as part of the Hāna Historic Bridge District, which was assessed as significant under Criterion A and C (Spencer Mason Architects 1996: VI-199) and potentially eligible for inclusion on the NRHP. The Hāna Highway Historic District was subsequently listed in the State of Hawaii and National Register of Historic Places and the NHRP.

7.0 DISCUSSION AND RECOMMENDATIONS

Paihi Bridge is a contributing resource within the Hāna Highway Historic District, which is listed in the State of Hawaii and National Register of Historic Places. Replacement of the bridge obviously has a potential impact to this District. Close coordination must be maintained with the State Historic Preservation Division to ensure that appropriate measures are taken to mitigate any adverse effects caused by the bridge replacement activities.

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APPENDIX B.

Paihi Bridge: Technical Drawings

Appendix C

Cultural Impact Assessment
Paihi Bridge Replacement
Wailua, Hana, Maui

Prepared by Wilson Okamoto & Associates, Inc.

February 2002

Cultural Impact Assessment

Paihi Bridge Replacement
Federal Aid Project No. BR-09000(61)

Koali, Hāna, Maui

Prepared For:

County of Maui
Department of Public Works
and Waste Management

Prepared By:

Wilson Okamoto & Associates, Inc.

February 2002

CULTURAL IMPACT ASSESSMENT

Paihi Bridge Replacement
Federal Aid Project No. BR-0900(61)

Koali, Hāna, Maui

Prepared by

Wilson Okamoto & Associates, Inc.

1907 South Beretania Street, Suite 400

Honolulu, Hawai'i 96826

February 2002

TABLE OF CONTENTS

1. INTRODUCTION

This cultural impact assessment was prepared in conjunction with the Environmental Assessment for the County of Maui Department of Public Works and Waste Management proposal to replace Paihi Bridge. The purpose of the assessment is to satisfy the requirements of Hawaii Revised Statutes Section 343-2 which was amended by Act 50 and approved on April 26, 2000 to include cultural practices. This assessment provides an overview of native Hawaiian cultural resources, practices and beliefs pertaining to the ahupua'a within which the project site is located, and an assessment of potential impacts of the proposed improvements.

2. METHODOLOGY AND TASKS

This cultural impact assessment was prepared in accordance with the methodology and content protocol provided in the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, November 19, 1997). This included examining cultural resources, practices and beliefs of the ahupua'a within which the project site is located by conducting documentary research, and consulting individuals with knowledge of the general surrounding area.

A literature review was conducted which included archaeological and anthropological studies and reports, historical and anthropological texts, published and recorded interviews and/or oral histories, land use records relating to Land Commission (Mahele) Awards, historical maps, and environmental and cultural assessments prepared for surrounding properties. Materials available at the Bishop Museum Archives and Library, University of Hawai'i Mānoa Hamilton Library Hawaiian Collection, State Survey Office, State Department of Land and Natural Resources Land Division, State Archives, and State Historic Preservation Division were reviewed. A listing of references used in the preparation of this assessment is provided in the bibliography at the end of this report. This assessment does not repeat or include all that has been previously documented about the Hāna District, or the ahupua'a of Koali and Wailua. It does however attempt to provide the Hawaiian perspective of the historical traditions and cultural resources in the vicinity of the proposed project.

One oral interview and one informal consultation were conducted for the preparation of this assessment. The interview was not recorded, but a summary compiled from diligent note taking was prepared and transmitted to the interviewee for review. The interview

summary and signed verification form is included in Appendix A. Interviews and consultations previously conducted in conjunction with published archaeological, anthropological, historical and environmental review reports and texts were also reviewed.

Throughout this assessment the use and spelling of Hawaiian words with 'okina and kahakō for the most part follows the *Hawaiian Dictionary* by Mary Kawena Pukui and Samuel H. Elbert, and are not italicized. The spelling of place names and use of 'okina and kahakō is primarily based on *Place Names of Hawaii* by Mary Kawena Pukui, Samuel H. Elbert, and Esther T. Mookini. As for direct quotations, the orthography of Hawaiian words and place names, and the use of italics are reproduced as they appear in the original source. If the orthography for a particular word was uncertain, diacritics were not used.

For the purposes of this report the name of the bridge and stream in question will be spelled without orthographic markings as Paihi. The following is a list of the variant spellings of Paihi with diacritics gathered from written references, historical maps and personal consultations.

Paihī	Trickling water, as down the face of a cliff.
Pa'ihi	Clear, bright, cloudless, to honor.
Pāhihi	To stream, as water over a cliff.
Wai'ihi	Sacred water, sacred blood as of royalty.

3. PROJECT LOCATION AND GEOGRAPHICAL EXTENT

This assessment was prepared for the proposed replacement of Paihi Bridge situated in the ahupua'a of Koali[1], in the moku of Hāna, Island of Maui. Constructed in 1911, Paihi Bridge is a one-lane bridge that measures approximately 13.8 feet wide by 36 feet long and is the Hāna Highway crossing of Paihi Stream.

While the Paihi Bridge crossing of Paihi Stream is located within the ahupua'a of Koali, Paihi Stream at its lower reaches merges with Wailua Stream which serves as the

[1] Koali is also spelled Kowali. For the purpose of this report it will be spelled as Koali, consistent with *Place Names of Hawai'i* however, for many residents Kowali is the preferred spelling.

boundary with the neighboring ahupua'a of Wailua. Historical maps also identify Wailua Stream as the ahupua'a boundary however, interviews conducted with residents of Hāna in the 1960s identified Paihi as belonging to the ahupua'a of Wailua. The ahupua'a of Koali and Wailua, and principally the cultural history, resources and practices associated with the wao 'ama'u (upland agriculture/lowland wet forest) region of the ahupua'a was the focus of this assessment. Situated on the southeast coast of East Maui, Koali and Wailua lie on the lower southeastern slopes of Haleakalā. Koali is bounded by the adjoining ahupua'a of Mū'olea to the east and Wailua is bounded by the ahupua'a of Pu'uhaoa to the west.

4. A CULTURAL PERSPECTIVE

Surviving for generations isolated on a few small islands, Hawaiians amassed a wealth of knowledge about their environment, their land, and the creatures with which they shared these islands. The gods in their elemental forms directed the seasons, the nights of the moon, and the life cycle that ensured prosperity for the land and the people. There were specific times for planting, growing, fishing, harvesting, and times of kapu, or prohibition, ensuring that the resources of the land and sea would be sustained. The foundation for resource management and the value system that dictates the relationship to the gods which includes the land is recorded in lines of chant, passed from one generation to the next in an oral tradition.

4.1 Mai Ka Pō Mai – From Out Of The Darkness: The Kumulipo

Various cosmogonic genealogies including 'Ōpu'ukahonua (also referred to as 'Ōpūkahonua), Welawahilani, Palikū, and the well-known Kumulipo trace the emergence of these islands and their inhabitants. Composed many generations ago, the Kumulipo is a creation chant and genealogy, more than 2,000 lines long, that records generations of knowledge and understanding of the world. Not only a record of natural evolution and the origin of the Hawaiian people, this chant also contains the link of the chiefly lineages to the deities, the social and natural ordering, the traditional kapu system, and the value system which dictates the relationships between the myriad of life forms on the earth.

From out of the night, the time or darkness, born is the coral polyp, a simple life form and the beginning of the food chain for sea creatures. Born are the plants of the ocean, guarded by their plant counterparts of the land, establishing the relationship between that which is of the ocean and that which is on the land. Born are the creatures that swim in

the ocean and born are the larger forest growth plants. The Kumulipo continues with generations of complexity. Born are the winged creatures, the crawling creatures, the walking creatures, the rat, and the dog. Then begins the second time period, and with the dawning of light it is the time for the birth of the gods and the deity forms. The Kumulipo orders the heavens and identifies the celestial bodies, and establishes social and political order, born are the chiefs, and born are priestly lineages. Then comes the time of Papa the Earth Mother and Wākea the Sky Father and the foundations of laws. Born is Hāloa the elder, and from where he is buried grows forth the kalo, the food staple. Born is Hāloa the younger, the first ali'i and the progenitor of the Hawaiian people. The Kumulipo is clear, the kalo and the preceding generations are akua; deities to be respected. The following excerpted lines of the Kumulipo show the increasing complexity of the creation chant and the connection of the Hawaiian to the environment.

1	'O ke au i kahuli wela ka honua	When space turned around, the earth heated,
2	'O ke au i ka huli lole ka lani	When space tuned over, the sky reversed,
3	'O ke au i kūka'iaka ka lā	When the sun appeared standing in shadows
4	E ho'omālamalama i ka malama	To cause light to make bright the moon,
5	'O ke au o Makali'i ka pō	When the Pleiades are small eyes in the night,
6	'O ka walewale ho'okumu honua ia	From the source in the slime earth formed
12	Hānau ka pō	Did night give birth.
13	Hānau Kumulipo i ka pō he kāne	Born Kumulipo in the night, a male;
14	Hānau Pō'ele i ka pō he wahine.	Born Pō'ele in the night, a female;
15	Hānau ka 'Ukuko'ako'a,	Born the coral polyp
	Hānau kana, he 'Ako'ako'a, puka	Born of him a coral colony emerged
47	Hānau ka 'A'ala-'ula noho i kai	Born the fragrant red seaweed living in the sea
48	Kia'i 'ia e ka 'Ala'ala-wai-nui noho i uka	Kept by the succulent mint living on land
138	Hānau ka i'a, hānau ka Nai'a i ke kai la holo	Born the fish, born the porpoise swimming there in the sea,
139	Hānau ka Manō, hānau ka Moano i ke kai la holo	Born the shark, born the goatfish swimming there in the sea,
293	Hānau ka Naio ka makua	Born the larva parent
294	Puka kāna keīki he Nalo, lele	Came his child a fly, and flew;
295	Hānau ka Hualua ka makua	Born the egg parent
296	Puka kāna keiki he Manu, lele	Came his child a bird and flew;
1792	'O Papa-huli-honua	Papa-earth-placenta-turning,
1793	'O Papa-huli-lani	Papa-sky-turning,
1794	'O Papa-nui-hānau-moku	Great-Papa-giving-birth-to-lands,
1795	'O Papa i noho iā Wākea	Papa who lived with Wākea,
1804	Kapu ka 'ai lani makua	Taboo the food sacred to the elders;
1807	Kapu ka 'auhuhu ka mulemulea	Taboo the anesthetic 'auhuhu plant
1808	Kapu ka 'uhaloa no ke ola loa	Taboo the 'uhaloa medicine plant for long life
1809	Kapu ka lā'alo ka mānewanewa	Taboo the leaves spiraling to the side of the taro stalk,
1810	Kapu ka hāloa kū ma ka pe'a	Taboo the long stalk rising from the inner branching,

1811	Kanu'ia Hāloa ulu hahaloa	Hāloa the long-breathing stem of the lauloa taro planted,
1812	'O ka lau o Hāloa i ke ao lā	The leaf of Hāloa in the sunlight of day there,
1813	Puka.	Came forth.

(Note: The above lines and translation are compiled from *Mo'olelo Kumulipo-Kumuhonua o Hawai'i* by Joseph M. Poepoe, *The Kumulipo Mind: A Global Heritage In the Polynesian Creation Myth* by Rubelite Kawena Kinney Johnson and *The Kumulipo: A Hawaiian Creation Chant* by Martha Warren Beckwith. The numbering of the lines is provided as a frame of reference for the reader to understand the development of the Kumulipo from the simple to the complex. The lines are numbered following the Kalākaua Text included in *The Kumulipo: A Hawaiian Creation Chant* and may differ from other publications.)

Through Hāloa the relationship between the junior lineage and the senior lineage is clearly displayed, or more specifically, between man (junior) and the 'āina (senior). The junior lineage cares for and serves the senior, and the senior lineage provides food and shelter. It is a symbiosis. The universe is ordered into parts, and each part is needed to complete the whole. Through this common genealogy, the value system is established whereby the 'āina, or the land is a deity and an ancestor to be cherished and respected as a grandparent. This culturally prescribed behavior is exhibited through the concepts of aloha 'āina and mālama 'āina, love and caring for the land. For many native Hawaiians their conviction and cultural attachment to these islands stems from the lessons of Hāloa, this common genealogy which is manifested in the contemporary concepts of aloha 'āina and mālama 'āina.

5. THE NATURAL LANDSCAPE OF HĀNA

Hāna, mai Ko'olau a Kaupō
Hāna, from Ko'olau to Kaupō.
(The extent of the district of Hāna, Maui.) (Pukui, p. 55)

Situated on the southeastern slopes of Haleakalā, within the district of Hāna, Wailua extends from Kaumakani at an elevation of 4,576 feet above sea level, to the coast of Wailua Cove. Pu'u Kū'ē is another hill in the ahupua'a of Wailua that rises to 2,925 feet. Along Wailua Stream that establishes the ahupua'a boundary with Koali, a are the waterfalls of Kanahuali'i and Waihuimalu (also shown as Kanahuaki'i and Waiahuilmalo on maps). Situated to the east of Wailua, the ahupua'a of Koali extends from Pu'u Ho'olī'ō at 3,464 feet above sea level to Kauakiu Point along the coast. Above Kaumakani, the ahupua'a of Koali and Wailua are cut off from the summit of Haleakalā by the other larger ahupua'a of Hāna. The lands of Hāna are typified as lush, productive lands that are well watered and endowed with ample rainfall. Along the coast all types of

fishing and ocean gathering practices provided an important source of protein to supplement the staple crops of kalo and 'uala grown in the rich soil.

Atmospheric conditions were an important element in Hawaiian society and in Hāna the wind and the rain were vital to the prosperity of the people. The sun, wind, rain, rainbows and clouds were an integral part of the Hawaiian culture and were kino lau (physical manifestations) of the deities and portents of future events. Additionally, atmospheric conditions displayed the character of a place or district and were bestowed with human characteristics and personalities. A wind could be jealous, and the rain fickle.

Considered one of the highest forms of cultural expression, 'ōlelo no'eau or traditional sayings offer a basis for understanding traditional Hawaiian values and observations in relation to their homeland. 'Ōlelo no'eau also provide an insight into the depth of the traditional Hawaiian relationship with the elemental forces of nature. Compiled and translated by Mary Kawena Pukui and published in *'Ōlelo No'eau* by the Bishop Museum Press, these 'ōlelo no'eau serve as short reminders of sometimes complex historical occurrences, they record the characteristics of natural and elemental forces, and they hold lessons of long-standing values. But, an 'ōlelo no'eau is rarely what it appears on the surface. There is typically an underlying message, and these deeper layers of meaning impart the humor, wisdom, and genius of the traditional poetry. The following two 'ōlelo no'eau provide the traditional names of two rains of Hāna and perhaps provide insight to the character and the personality of the land.

Ka Uakea o Hāna
The white rain of Hāna.
(Refers to the misty rain of Hāna, Maui,
that comes from the sea) (Pukui, p. 169)

The Uakea rain is sometimes coupled with the Mālualua wind in this phase commonly found in chants and songs of Hāna:

Noenoe Uakea o Hāna,	Misty white rain of Hāna,
Hoapili o ka Mālualua.	Close friend of the Mālualua wind. (A north wind.)

Another descriptive rain of Hāna is the Laniha'aha'a. In one tradition, the young warrior chief Ka'eokulani ran to a banana grove to escape a sudden squall. As he stood safe and

dry in the shelter of the banana leaves he lifted his spear. It accidentally pierced through the leaves and a trickle of water came through. He remarked that the sky where he stood was so low he had pierced it.

Ka ua Laniha'aha'a o Hāna.
The Rain-of-the-low-sky of Hāna. (Pukui, p. 170)

The following excerpts recounting the winds and atmospheric descriptions of the Hāna come from the lengthy wind chants found in the tradition of Kūapāka'a and the winds of La'amaomao. The story of Kūapāka'a and this particular wind chant has been recorded in a number of sources including the Hawaiian language newspaper *Ke Au Okoa* in 1867, a 1902 Hawaiian language reader, and the *Fornander Collection* originally published in 1918 and 1919. The different versions vary slightly, but the names of the winds remain the same.

Aia la, aia la, ke kau mai la ke ao makani.	There it is, there it is, the winds blown clouds are appearing.
He makani kō Hāna he 'Aimaunu,	Hāna has a wind, bait eating
He Kaomi, he Kāpae,	A northeast trade (suppressed), a tradewind (set aside),
He Ho'olua, he Lau'awa'awa,	A strong northwind (do twice), a gentle wind and rain ('awa leaf)
He Kiu, he Kona.	A strong, cold northeasterly wind (spy), a leeward wind (leeward).

Nakuina, *Mo'olelo Hawai'i O Pāka'a A Me Kūapāka'a*, 1902 and Kanahele, *Maui Chants*, 1988.

6. TRADITIONAL LAND USE PATTERNS

Because of this great understanding of their environment, the land and the creatures that shared the land, Hawaiians devised a harmonious and prosperous existence with the land through various divisions of the land and ocean. One such division of land followed ecological zones, rainfall patterns, soil types and natural vegetation. These specific zones could vary from island to island, and by district depending on rainfall, vegetation, and areas of use. The following list of land divisions is compiled from various sources including, *Hawaiian Antiquities* by David Malo, *Hawaiian Dictionary* by Mary Kawena Pukui and Samuel Elbert, and *The Works of the People of Old* by Samuel Kamakau.

Kuahiwi	Mountains at the center of an island, backbone
Kualono	Peaks or ridges which form the summits of mountains
Lua pele	Craters
Kuamauna	Belt adjoining the rounded swell of the mountain, the mountainside,

	part directly in back of and front of the summit
Kuahea	Belt below the kuamauna in which small trees grow
Wao nahele or Wao lā'au	Belt below the kuahea where the larger sized forest trees grow, inland forest region, timber land
Wao koa	Inland region where koa trees grow
Wao lipo	Makai of the wao nahele, the trees are tall
Wao 'eiwa	Inland region
Wao ma'ūkele or Wao kele	Belt below the wao eiwa in which the monarchs of the forest grew, rain belt, upland forest
Wao lani	Mountain area occupied by gods
Wao akua	Belt below the wao ma'ūkele in which again trees of smaller size grew; distant mountain region, inhabited by akua
Wao kanaka	Inland region where people may live or occasionally frequent, usually considered below the wao akua, the area that people cultivate
Wao 'ama'u or (Ma'u)	Belt below the wao akua where grows the 'ama'u fern and where men cultivate the land
Wao 'ilima or 'Āpa'a	Arid, hard, baked region below the 'ama'u, grassland
Pahe'e	Slippery, smooth, possibly named for a species of grass
Kula	Plain, open country, near to the habitations of people
Kahakai	Sea coast, or land near the ocean
Kahaone	Sandy beach
Kālawa	Curve of the beach
'Ae kai	Water's edge, where the sea and land meet

Within each zone, depending on the island and the district a variety of plants were available to the inhabitants for occupational, medicinal, and spiritual uses. Since the ahupua'a of Wailua and Koali are cut off from the upper slopes and summit of Haleakalā by other ahupua'a there may be five distinct vegetation zones that correspond with rainfall and elevation. The listing of plants in each zone is by no means exhaustive, but is provided to help identify the different use areas.

Kahakai (Coastal Vegetation) – A primary habitation and gathering region were naupaka, koali, pā'ūohi'iaka, 'ākulikuli, hala, hau, milo, niu, and kamani plants can be found. In some areas of Maui, the forest extended to the shoreline and was dominated by kukui, hau and hala. These plants were very important and heavily used in everyday life by the Hawaiian.

Kula/Wao 'Ama'u (Upland Agriculture/Lowland Wet Forest) – Situated near the habitation zone, this was a primary cultivation and gathering region. In some areas of the island this kula region or grassland is large and is dominated by pili, ma'o, kou, noni and

'ilima. In some areas, a lowland wet forest was dominant on the windward side of the islands. This region was dominated by 'ōhi'a lehua and other vegetation included 'ama'u, hala, hau, kukui, and laua'e.

Wao Kanaka (Lower Forest) – Also dominated by 'ōhi'a lehua, this region was a primary gathering zone of hard woods including large koa trees and plants for occupational, medicinal and spiritual purposes. Other plants that can be found in this zone include kōpiko, 'ie'ie, hāpu'u, 'awa, wauke, and 'uluhe. This zone was heavily utilized and provided woods for building, olonā and 'ie'ie fibers for cordage and basketry, māmaki for kapa and various food plants were grown along the streams or in cleared patches. Among other bird species the 'i'iwi, 'apapane and 'amakihi were trapped and their tiny feathers collected for lei, cloaks, helmets and feather gods for the ali'i.

Wao Akua (Rain Forest) – Entering into the realm of the gods, gathering in this forested region was infrequent. Gathering may have been limited to necessity, if the needed tree, or needed size of the tree was not available in the wao kanaka, or for ceremonial purposes. The large hard wood trees such as 'ōhi'a lehua and koa could be found in this zone along with loulu, hāpu'u, 'ōlapa and many of the other species also found in the wao kanaka. This zone is also the home for the valuable 'ō'ō and mamo birds whose tiny yellow feathers were greatly desired to produce feather cloaks, capes, helmets, war gods and lei for the chiefly class.

Wao Ma'ukele (Sub-Alpine/Montane Zone) – Similarly, this zone is dominated by 'ōhi'a lehua and koa however much larger in size. Other plants that can be found are 'a'ali'i, 'ōhelo 'ai and pūkiawe. Above or near this zone the ahupua'a may be cut off by the ahupua'a of Kakio and Wakio to the north that extend along the slopes of Haleakalā to Pōhaku Pālaha at the summit.

The ocean was similarly distinguished and named in bands from the water's edge along the coast, out to the sea, and the deep ocean. The naming of the ocean's zones could differ between islands and between districts of the islands depending on a number of factors such as whether the coast was rocky or sandy. A few of the many zones include:

'Ae kai or Lihi kai	Water's edge, where the sea and land meet
Pāhola, Hohola or Pālaha	Where the sea washes over the land
Pu'e one or Po'ina nalu	Where the sea breaks and spreads towards land

Kai kohola or Kohola	General term for shallow seas within the reef
Kai hele kū	Sea for wading, or where footing could be obtained
Papa he'e	Octopus grounds
Kai 'ōhua	Feeding grounds of young fishes
Kai lu'u	Sea for diving
Kai paeaea	Sea for pole fishing
Kai lawai'a	Sea for deep fishing
Kai mālolo	Where the sea is very dark blue
Moana	Ocean beyond
Kai pōpolohua mea a Kāne	The dark blue-purple sea of Kāne that extends to the clouds on the horizon

Identifying that ecological resource zones are typically distributed in bands or belts around the islands, land divisions for resource management extended from the ocean fisheries to the mountains following natural ridgelines and topographical features. The following list of land divisions is compiled from the *Indices of Awards* compiled and published by the Office of the Commissioner of Public Lands, *Hawaiian Dictionary* by Mary Kawena Pukui and Samuel Elbert, *The Works of the People of Old* by Samuel Kamakau and *Hawaiian Antiquities* by David Malo.

Moku	The islands were each divided into large districts called moku.
Kalana	Division of land smaller than a moku, comprised of ahupua'a.
'Okana	District or subdistrict, usually comprising several ahupua'a.
Poko	A smaller division within an 'okana.
Ahupua'a	Land division smaller than a moku, kalana or 'okana extending from the sea to the mountains and containing a sea fishery and sea beach, a stretch of kula or open cultivatable land and higher up its forest. Ahupua'a had definite boundaries, usually of natural features, such as gulches, ridges and streams. Perhaps the most vital resource management unit.
'Ili	Many ahupua'a were subdivided into smaller management units called 'ili.
'Ili kūpono	Nearly independent 'ili land division within an ahupua'a, paying tribute to the ruling chief and not to the chief of the ahupua'a. Transfer of the ahupua'a from one chief to another did not include the 'ili kūpono.
Lele	A feature of the 'ili which often consisted of several distinct sections of land, one along the sea shore, another in the kula lands, another in the terraced and watered taro patch section, and still another in the forest section.
Mo'o	The arable portions of the 'ili were divided into small tracts or fields called mo'o or mo'o 'āina; a smaller division than lele primarily for

	cultivation purposes.
Paukū	Land division smaller than mo'o.
Kihapai	Smaller than a paukū, this was a cultivated patch, a field or garden belonging to and cultivated by the tenants.
Kō'ele	Small unit of land farmed by a tenant for the chief.
Pō'alima	Same as kō'ele. In later years were worked for the chiefs by tenants on Fridays only, named after the Hawaiian word for Friday.
Kuleana	Small areas of an ahupua'a which the tenants had improved or cultivated and used for their own purposes, and to which they substantiated their claims and perfected their rights, securing from the Land Commission an Award of Title in Fee Simple.
Konohiki	The person who had charge of an ahupua'a, an agent who managed a chiefs lands. The word konohiki in time came to be applied to the land under such agent's care, thus the land held by a chief, and ahupua'a or 'ili was known as "konohiki land."

Other less familiar terms for small pieces of arable land include: kuakua, hakupa'a, mālua, nana'e, kīpoho, puluwai, and pā'eli.

Koali and Wailua are two smaller ahupua'a within the moku of Hāna. One of the early accounts regarding the traditional system of land subdivision was recorded in the *Hawaiian Annual for 1891* and describes the division of East Maui lands.

> "Although [the] system of land tenure has radically changed... yet the *ancient subdivisions* of land remain unchanged to the present day... On East Maui the principal lands all radiate from a large rock on the northeast brink of the crater of Haleakala, called Palaha. Eight ahupuaas, one in each district of East Maui, meet at this rock. The Ahupuaas are extremely unequal. In several districts a few larger ahupuaas, widening as they extend inland, cut off all the smaller lands and take the whole mountain to themselves. The same lands generally monopolize the deep sea fisheries, leaving to the smaller ahupuaas only the fishery along their shores, where the water was not more than five feet deep." (Sterling, p. 3)

7. SETTLEMENT PATTERNS

The settlement patterns of the maka'āinana, cultivation practices and relationship to the environment has been studied in detail by E.S. Craighill Handy. The following excerpts from his early publication describe locations and cultivation methods of kalo in South Hāna, Koali and Wailua.

> "**South Hana.** South of Hamoa the land is less rugged and streams more plentiful. The Hawaiian homesteads at Makaalae, Waiohonu, Puuiki, Pohue, Pukuilua, Haou, Hulihana, Muolea, and Koali have extensive

plantations but only a small portion of the cultivation is devoted to dry taro. There is no evidence of wet taro cultivation in the Hana district north of Koali. Here, however, both above and below the road, there are small groups of terraces, some of which are still used for wet taro. The group nearest Wailua is a picturesque example of high terracing with stone facing on a steep slope.

Wailua. Beyond Koali the deep little valley of Wailua, plenteously watered by three converging streams falling from the slopes of Kaumakani, harbors the most extensive wet plantations on the eastern end of Maui. Altogether there are about as many old terraces as at Keanae, though fewer are now under cultivation. The wet patches at Wailua are at four levels. Now abandoned are groups above the falls between the two main streams. Immediately below the falls, behind the small rocky hill in the center of the valley, is an extensive plantation of well-watered terraces in which taro flourishes today. At a slightly lower level, beneath the southwest wall of the central hill is a group of half a dozen patches which were brought back into cultivation in 1934. In the valley bottom, almost at sea level, is the most extensive area of terraces in Wailua, extending from the beach to the mountain and up into the little valleys on either side. These patches are no longer used and are covered by heavy brush and trees." (Handy, p. 112)

Regarding the cultivation of 'uala or sweet potato, another staple crop, Handy similarly describes the cultivation methods and location in Hāna.

> "In Hana, at Helani, there are a number of Hawaiian plantations in rich soil of decomposed lava and humus. Here dry taro and sweet potato appear to grow equally well. Before the era of sugar plantations there must have been many localities over this whole rich country where sweet potatoes were planted with other Hawaiian crops. There are today a few potato patches at Honokalani and in the neighborhood of Hana town. Here the little cinder mountain named Kauiki was, and still is, a famous place for planting sweet potatoes. Southward from Hana town on the high slopes along the coast, including those above Hamoa, Makaalae, Waiohonu, Puuiki, Pohue, Pukuilua, Haou, Hulihana, Muolea, and Koali, there are still many Hawaiian homesteaders who have small patches. Hana is a little too wet for sweet potatoes, but this coast seems ideal." (Handy, p. 160)

8. HISTORICAL ACCOUNTS

Maui was the home of the blue-blood ali'i, the important chiefly lineages that were much sought after by the chiefs of the other islands. These chiefs and chiefesses include Kāka'e, Pi'ilani, Kekaulike, Kahekili, Ka'ahumanu and Keōpūolani. In the early history

of Maui's ali'i families two political and ruling centers were established on Maui. West Maui was ruled from Wailuku and Lahaina, while Hāna was the ruling center for East Maui. Ka'uiki hill became a stronghold for the East Maui ali'i and was the site of heiau constructed to ensure victory and the right to rule.

8.1 Kihapi'ilani and 'Umialīloa: 1500s to 1600s

In the 1500s and 1600s the unification of the East and West Maui chiefly lineages was solidified through the important marriage of Kihapi'ilani, son of Pi'ilani chief of West Maui, to Kōleamoku, the daughter of Ho'olaemakua chief of East Maui.

But this period of unification was not without turmoil and intrigue. Kōleamoku had been betrothed by her father to Lonoapi'ilani, elder brother of Kihapi'ilani and heir to the West Maui kingdom. Ho'olaemakua was angered by his daughter's breech of the betrothal agreement and that his daughter had married what he believed was a commoner. After some time had passed Kihapi'ilani entreated Kōleamoku to take their son to visit her parents, for surely a grandchild would ensure the return of her parents affection and favor. Her parents were overjoyed by the return of their daughter and their grandson.

> "After the feast, Ho'olae-makua asked, 'After living in the house of a commoner, what quest brought you here?' She answered, 'My husband sent me to ask you to give us some farm lands.' Ho'olae said, 'Here is the district of Hana, extending from Pu'ualu'u to 'Ula'ino. You two may have it.' The daughter replied, 'Let us have only a small portion, and you keep the rest.' 'Which lands would you have?' he questioned. 'The lands my husband told me to ask for are Honoma'ele, Ka'eleku, Kawaipapa, the two Wananalua and Koali.' When Ho'olae-makua heard his daughter's words he bowed his head in silence. Then raising it, he said, 'Your husband is no commoner. He is a chief, Kiha-a-Pi'ilani. Your child is a chief. I shall not take Kiha's part. I shall remain loyal to his older brother till these bones perish. Your husband does not want farm lands for the two of you, but is seeking means to rebel against the kingdom. The lands of Honoma'ele and Ka'eleku supply the *'ohi'a* wood and *'ie'ie* vines of Kealakona to build ladders to the fortress. Kawaipapa supplies the stones of Kanawao that are used in battle, and then the fortress will be well supplied. The Wananalua lands hold the Ka'uiki fortress and the places below it. Koali is the fortress of Kue. I shall not take your husband's side.'" (Kamakau, p. 27)

Kihapi'ilani petitioned Hawai'i Island chief 'Umialīloa for assistance in deposing his brother and Hāna was embroiled in battle. Kihapi'ilani and 'Umialīloa were victorious

uniting the East and West kingdoms of Maui, and perhaps titillating the Hawai'i Island chiefs to the one day possess Maui.

8.2 Late 1700s: Kahekilinui'ahumanu and Kalani'ōpu'u

In the mid 1700s Kalani'ōpu'u became the ruler of Hawai'i Island. A famous warrior and powerful leader, Kalani'ōpu'u attacked and took command of Ka'uiki making Hāna and KIpahulu a part of his Hawai'i Island kingdom. Many chiefs from Hawai'i moved to Maui and settled in the Hāna and KIpahulu area.

> "The hill of Ka'uiki was the fortified ground for the Hawaiian forces, a fortress celebrated in ancient days for its strength as a refuge in time of danger. It was ascended by a ladder, the body of which was made of *'ohi'a* wood from Kealakomo, fastened with withes of *'ie* vine from Paiolopawa. The summit was covered with *kanawao* plants from Kawaipaka [to serve as bedding]. The contents of the fishponds of Kihahale were heaped like an ocean on Ka'uiki. Big 'awa roots of Kualakila delighted the nostrils of the precious first-born chiefs with their aroma. Wananalua was the battlefield and the fortified walls of Ka'uiki. From Mokuhana came the whistle warning where to strike the leaping whales [their opponents]. Hana was a land beloved by chiefs because of the fortress of Ka'uiki and the ease of living there." (Kamakau, p. 80)

The battle between the Maui chiefs and Kalani'ōpu'u was long, and encompassed all the districts of Maui. In the late 1700s Kahekilinui'ahumanu a fierce Maui chief ascended to the throne upon the death of his older brother. The battles between Kahekilinui'ahumanu and Kalani'ōpu'u were continual and are legendary, displaying the excellent skills and tactics of the warrior arts. When Kahekilinui'ahumanu heard of Kalani'ōpu'u's death, he was determined to retake the eastern peninsula of Maui, the part taken by Kalani'ōpu'u under the rule of Hawai'i Island. In 1781 Kahekili made war upon Hāna and the Hawai'i Island chiefs at the fortress of Ka'uiki. The fortified hill of Ka'uiki was a safe and secure stronghold for the chiefs of Hawai'i, reinforced and well supplied with an abundance of food. The battle continued for a year with heavy losses to both sides. Kahekilinui'ahumanu learned of a way to take Ka'uiki hill without any loss of life and he cut off the springs of Punahoa, Waika'akihi, Waikoloa, and the ponds from Kawaipapa to Honokalani on the north side and the ponds from Kalaniawāwa to Haneo'o on the south side. Soon after the wailing for the dead began, canoes were lowered from Ka'uiki and the Hawai'i chiefs attempted to escape and sail for Hawai'i Island. Some were successful, others were slaughtered. Kahekilinui'ahumanu was victorious, and in 1782

with the end of the war, Kahekilinui'ahumanu, his chiefs, war leaders, and warriors retired to Makali'ihānau, the wide plain mauka of Mu'ōlea and adjoining Koali where they cultivated the land. (Kamakau, p. 116)

The following poetic account records the prosperity of Hāna, a much desired land by both Maui and Hawai'i Island chiefly classes.

> "Hana was in those days a noted place famous for the fortified hill Ka'uiki, the surf at Puhele, the fresh-water bathing pool of Kumaka, the diving at Waiohinu, the flying spray of Kama, the changing color of the fronds of the *ama'u* fern, the yellow-leafed 'awa of Lanakila, the delicious poi of Kuakahi, the fat shell fish (*'opihi*) of Kawaipapa, the fat soft *uhu* fish of Haneo'o, and the juicy pork and tender dog meat dear to the memory of chiefs of that land, moistened by the *'apuakea* rain that rattles on the hala trees from Wakiu to Honokalani." (Kamakau, p. 385)

After the death of Kahekilinui'ahumanu, the famed Hawai'i Island chief and warrior Kamehameha rose to power conquering Maui and the other islands of the archipelago to establish a united kingdom.

9. THE MAHELE OF 1848

In the 1840s during the reign of Kauikeaouli Kamehameha III, son of Kamehameha I, land tenure in Hawai'i entered a transitional period terminating in the "Great Mahele" of 1848. King Kamehameha III who inherited from his brother control of all the lands with the kingdom chose to provide the opportunity for fee simple ownership of land to his chiefs and people. The maka'āinana, the native tenants, were able to make claims for and receive title to their kuleana, the areas of land which they personally used. Kauikeaouli Kamehameha III after reserving certain lands for himself as his own private property, surrendered the majority of the lands to his chiefs and people. The lands of Wailua became part of the Crown Lands, set aside for the prosperity of the kingdom and the lands of Koali became Government Lands. The State of Hawai'i is the majority landowner in the ahupua'a of Wailua.

Within the ahupua'a of Wailua the *Indices of Awards* indicates that two native tenants made claims to lands however, some maps of Wailua identify that other Land Commission Awards may also have been located in Wailua. A review of those Awards in the *Indices of Awards* identified those lands as within the ahupua'a of Koali. The *Indices* record a total of 11 claims for land in Koali of which 6 were awarded. None of

the awarded lands however are situated within the project area. The claims are recorded in the *Native and Foreign Registers* which typically includes information regarding the location of the claim, and sometimes information regarding the type of use. Additional information regarding the claims and use of the land can also be found in *Native and Foreign Testimony* records.

A review of Native and Foreign Register and Testimony records revealed that many claimants made registered for kalo cultivation lands in Wailua, and also claimed lands for house lots or other gathering and cultivation areas in other neighboring ahupua'a. It is not unusual that a person making a claim for a house lot, multiple cultivation lands, and other gathering areas would only receive and award for the house lot and one lo'i kalo. Claimants and witnesses identified the following land uses in the Native and Foreign Register and Testimony records for the ahupua'a of Koali and Wailua; numerous lo'i kalo, house lots, and kīhāpai or cultivated lots. It is interesting to note that testimony recorded for two Awards identified Paihi as an 'ili of Koali.

10. HISTORY OF HĀNA HIGHWAY

The following history of the development of Hāna Highway was compiled from the *National Register of Historic Places Registration Form* prepared by Dawn E. Duensing of the Maui County Cultural Resources Commission, and the *Historic American Buildings Survey for Papaahawahawa Bridge* (Draft) prepared by Spencer Mason Architects.

Prior to the reign of Pi'ilani (ca. 1450 AD), two political and ruling centers were established on Maui. West Maui was ruled from Wailuku and Lahaina, while Hāna was the ruling center for East Maui. In the 16th century, Pi'ilani, chief of West Maui, conquered East Maui uniting Maui under his rule and solidifying the chiefly lineages through the important marriage of his son Kihapi'ilani to Kōleamoku, the daughter of Ho'olaemakua chief of East Maui. During his reign Pi'ilani made frequent tours of his dominion, enforcing order and promoting the industry of the people. He was also notable for his public works projects which included a network of unpaved roads and the building of the Alaloa, a main road which began in West Maui. Pi'ilani's son, Kihapi'ilani, extended the road beyond Hāna, through Kaupō Gap, and across Haleakalā Crater eventually encircling the island with a paved footpath.

> "The predecessor trail of the Hāna Belt Road was built by Pi'ilani's son, Kihapi'ilani, in the sixteenth century. The trail was paved with hand-fitted basalt (lava) rocks. The 1848 account of Moses Manu noted, 'This road was treacherous and difficult for the stranger, but when it was paved by Kihapi'ilani this road became a fine thing.' When completed, the road was 4' to 6' wide, 138 miles long, and encircled the entire island. With the completion of Kihapi'ilani's East Maui trail, known as the King's Highway, Maui became the only island in the Hawaiian chain to have a 'belt' road that completely encircled it." (Duensing, p. 11)

This route to Hāna was well maintained for the next 250 years, and served as the only link between the two ends of the island. In the mid 1700s, Kalani'ōpu'u the alil'i of Hawai'i Island attacked and took command of Ka'uiki making Hāna and Kīpahulu a part of his Hawai'i Island kingdom. Many chiefs from Hawai'i moved to Maui and settled in the Hāna and Kīpahulu area. During this time, the road fell into disrepair and may have been purposely closed to thwart incursions from the Maui island chiefs.

In the late 1700s Kahekilinui'ahumanu a fierce Maui chief ascended to the throne and spent many years in battle with Kalani'ōpu'u. After the death of Kalani'ōpu'u, Kahekilinui'ahumanu successfully returned Hāna and Kīpahulu to the Maui Kingdom and reopened the "belt" road, which by then needed extensive repairs. The road was cleared and wooden bridges were built to replace the old, treacherous staircases painstakingly carved into the cliffs in prior centuries. Nonetheless, the road could support no more than foot traffic; it served that capacity until 1900, by which time Hāna had become a thriving sugar plantation community. (Spencer Mason Architects, p. 7)

> "...East Maui's potential tourism value gave the county an incentive to promote a belt highway to Hāna. As early as 1900 the *Maui News* editorialized in favor of a good wagon road connecting Hāna and central Maui. This prompted the building of the first stretch of improved roadway, which followed the old unpaved road from Ke'anae to Nāhiku. The ancient footpath was widened to sixteen feet, to accommodate horse-drawn wagons, and was surfaced with cinders...
>
> ...The new road segment functioned so well that there were soon calls to extend it from Kailua all the way to Kīpahulu, well past Hāna. In 1903, the Territorial legislature refused to fund the project.. Undaunted, commercial entrepreneurs from Pā'ia to Hāna lobbied the legislature heavily, resulting in the improvement of another stretch from Kailua to Ke'anae, in 1904. This stretch met significant construction problems including jungle encroachment, torrential streams and landslides, all of which doubled the original $50,000 cost.

> Between 1905 and 1908, the county built a series of reinforced-concrete bridges near Nāhiku. Bridge building on Maui surged in 1911, when the Territorial Legislature established a Loan Fund Commission to oversee a special fund for belt roads. Out of the $1,270,000 appropriated by the Commission in 1911, Maui received $370,000. This made possible the building of twenty-one Maui bridges: four on the Hāna Belt Road... Work on the belt road continued depending on the extent of funding...
>
> Inspired by the dramatic expansion of the sugar industry at Hāna, the Maui County Board of Supervisors pressed the Territorial Legislature for funding to improve the rest of the old road as far as Kīpahulu, and entertained a vision of a Belt Road that would eventually circle the entire island. Territorial Governor Lucius Pinkham was adamantly opposed to the project, consequently in took until 1923 until belt road planning was resurrected and modifications to the ancient route were given serious consideration..." (Spencer Mason Architects, p. 7)

11. CONSULTATION

Interviews or consultation with kama'āina confirm many important cultural practices and values. Interviews also demonstrate how cultural knowledge is passed down through the ages from one generation to the next. Further, interviews acknowledge the permanence of the cultural value system and the continuity of cultural practice and use. Finally, interviews show the individual relationship to people and places, and exhibit the personal value. Technical studies and historical texts are typically compiled by those not of the land or culture who are unable to understand or convey cultural value or significance. Because of this inability to understand cultural value, the significance of cultural areas, traditional uses and practices are for the most part diminished in historical studies and texts. By including the words of the kama'āina, the people of the land, an interview can begin to reveal the cultural attachment that is usually difficult to communicate. Interviews and oral histories compiled by various sources over many generations make it possible to understand the cultural fabric of a place, genealogical connections, cultural attachments and the relationships between people, each other and their environment.

During the 1960's Mary Kawena Pukui traveled around the Hawaiian Islands, particularly to rural communities interviewing kama'āina to capture traditional knowledge that was being lost with the passing of that generation. These interviews were typically conducted in the Hawaiian language and the recordings are kept at the Bishop Museum. Recordings of three interviews with 6 individuals were reviewed during the

preparation of this report. The interviewees were Joseph Pu and Moewale Pu, Agnes Mailou and Daisy Mailou Lind, and Elizabeth Haia and Mary Ann Kini Olivera.

In the interview with Joseph Pu and Moewale Pu of Koali, they described the lands of Wailua and Koali as being a place where kalo was cultivated. Mr. Pu remembered the days when there were many people living in Koali and Wailua planting kalo. At the time of the interview however there wasn't much kalo cultivation. Mr. Pu also described the stream and waterfalls of Wailua also noting how they caught and ate the plentiful 'o'opu and 'ōpae kuahiwi.

It appears from the recording of the interview with Agnes Mailou and Daisy Mailou Lind that the interviewees were referring to a map and identifying geographical features of Hāna. They identified Paihi as a stream of Wailua with a pool below a waterfall, and through repeated questioning by the interviewer clarified that for them, the pronunciation of the name was "Pa'ihi." From the forest they gathered pohole also known as hō'i'o, a well-known edible fern and ala'alai another fern variety.

The final interview with Elizabeth Haia and Mary Ann Kini Olivera focused on the families of Hāna and where they lived. Identification of localities and residences did not include Koali or Wailua.

In conjunction with the preparation of this report an oral interview and informal consultation was conducted. The interview was not recorded, but a summary compiled from diligent note taking was prepared and transmitted to the interviewee for review. The interview summary and signed verification form is included in Appendix A. Interviews and consultations previously conducted in conjunction with published archaeological, anthropological, historical and environmental review reports and texts were also reviewed.

The interview conducted with Ms. Valerie Pu Park demonstrates how traditional knowledge is passed from one generation to the next and displays a continuum of cultural connection, use and practice on the lands of Koali and Wailua. Her uncle and aunt, Joseph and Moewale Pu participated in the 1960 interview conducted by Mary Kawena Pukui. Joseph Pu, born in 1898 is the elder brother of James Kalei Pu, born in 1899 who is Ms. Valerie Pu Park's father. Informal consultations also revealed some information on cultural use areas in the area as well as some discussion of the bridge replacement

project. The following is a summary of the information pertaining to cultural resources, practices and beliefs related to the Koali and Wailua area.

- Kowali is another way of spelling Koali. Some long time residents prefer the spelling with the "w" and consider it the older, correct form.
- Long time residents also referred to Paihi as Pahihi and Pa'ihi.
- The ahupua'a of Wailua and Koali had extensive taro patches, both mauka and makai of the road. The area is also fed by spring water which supported the extensive cultivation of the land.
- Families used to access the shoreline for fishing and gathering of ocean resources. Access today has been impeded by private property ownership and the posting of "private" and "keep out" signs.
- The diet of Koali and Wailua residents was supplemented with stream and forest resources including 'ōpae kuahiwi, 'o'opu and pohole (hō'i'o).
- Along Hāna Highway there is an 'alaea vein that was used in past generations. The 'alaea was dark red. Prior to gathering the 'alaea a pule was offered. Access to the vein has been blocked and the location has been kept a secret to prevent exploitation. The location however, is not within or near the project site.

Information shared related to the bridge replacement project focused on the need to keep the replacement bridges in the same size and style as the existing bridges. Informants recognize the safety and liability issues that the County of Maui faces, but also feel that this concern is primarily for those not from Hāna. People who visit or who have recently moved to Hāna may have forgotten their reason for going to Hāna. It is the rural character and the dominating beauty of the natural environment that draws so many to Hāna.

12. IDENTIFIED CULTURAL RESOURCES, PRACTICES AND BELIEFS

The following traditional and customary resources and practices relating to the upper kula lands and lower wao 'ama'u of Koali and Wailua were identified through the consultations and literature review:

- Three heiau were identified within the ahupua'a of Koali. Haleokāne heiau is located on a high bluff above Alaalaula Gulch at the mouth on the west. Koali heiau is located on the hill mauka of the road on the east side of Wailua Gulch. Haleolono heiau is located at Wainai east of Koali heiau mauka of the road. (Sterling, p. 154)
- 'O'opu nākea were observed in the plunge pool located at the Paihi Stream bridge. 'O'opu are endemic fresh-water fishes of the goby family that were favored for eating. Also present in the stream above and below this pool were 'o'opu nāpili (also known as nōpili), another variety of the endemic goby, and hīhīwai, an endemic grainy snail that can be eaten either raw or cooked.
- Koali and the well-watered lands of Wailua were extensively cultivated in kalo. Historical accounts also record that chief Kahekilinui'ahumanu cultivated the upper lands of this region. Some of the lo'i kalo are being restored and put back into production.
- Within the Koali ahupua'a 'alaea was gathered by the kama'āina of this land. The locations of these sites are protected by family members to ensure that the resource is not exhausted or used for commercial gain.

13. FINDINGS AND ASSESSMENT

On every island, native Hawaiian cultural beliefs and practices are continually affected by the loss of land to development that intrudes into the natural setting, disturbs traditional sites, cuts off the traditional access network, eliminates resource areas, and changes the landscape. As people with a strong cultural attachment to this 'āina, with the understanding that this 'āina is the elder sibling of the Hawaiian, the loss of land results in a feeling of loss, regret and alienation for many Hawaiians.

In addition to this attachment to the 'āina, many residents of Hāna desire to preserve the rural character of the district. The famous winding road and narrow bridges for many residents compels visitors to adjust to the country lifestyle. The existing road and bridges are part of the charm of Hāna allowing the natural beauty of the land and lush surroundings to be the focal point.

Based on an assessment of the impacts of the proposed project on the resources, beliefs and practices identified, the proposed replacement of Paihi Bridge with a new one-lane

bridge in the same location as the existing bridge and with a similar design will not significantly impact native Hawaiian cultural resources, beliefs and practices. The following summarizes the findings of the Cultural Impact Assessment relative to the proposed Paihi Bridge replacement:

1. Based on a review of Land Commission claims and awards at the time of the Great Mahele, the project site was not claimed for house lot, agricultural, or any other use.

2. Based on the findings of the archaeological inventory survey conducted for the proposed improvements, project specific consultations, and a review of historical documentation, no religious sites, traditional use areas or burials are located within the project corridor.

   In the unlikely event that any burials are found during construction activities they should not be disturbed pending consultation with the Department of Land and Natural Resources State Historic Preservation Division. The treatment of any remains should be in accordance with procedures approved by the Hawai'i Island Burial Council and the State Historic Preservation Division.

3. The project site has been in use as a bridge since 1911 traversing a steep gulch. While access between ahupua'a may be affected by road closures during the construction period, access to traditional resources and sites will not be affected by the replacement bridge.

4. Based on the findings of archaeological surveys conducted for the project site, a site visit, and project specific consultations there are no continuing cultural practices occurring within the project corridor.

5. Stream flow above and below the bridge will not be obstructed or diverted. Water quality in Paihi Stream will not be significantly affected by construction activities or operation of the replacement bridge. Construction of the replacement bridge will not significantly alter the Paihi Stream plunge pool or stream channel.

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15. GLOSSARY

For the most part the following definitions follow the *Hawaiian Dictionary* by Mary Kawena Pukui and Samuel H. Elbert. As with many Hawaiian words, there can be numerous and varied definitions for a single word. The definitions provided in this glossary correspond to the use of the words in this report.

Ahupua'a	Land division usually extending from the sea to the mountains and containing a sea fishery and sea beach, a stretch of kula or open cultivatable land and higher up its forest.
'Āina	Land, earth.
Akua	God, goddess, deity, supernatural.
Ala'alai	A kind of large coarse endemic fern.
'Alaea	Water-soluble colloidal ocherous earth, used for coloring salt, for medicine, for dye, and in purification ceremonies.
Alaloa	Highway, main road, belt road around an island, a long road.
Ali'i	Chief, chiefess, ruler.
Aloha 'āina	Love of the land or of one's country, patriotism. Hawaiian value and concept illustrating deep love of the land.
Heiau	Place of worship, temple, shrine.
Hīhīwai	Endemic grainy snail, in both fresh and brackish water, eaten both cooked and raw.
Hō'i'o	A large native fern. The young fronds are eaten raw. More contemporarily, immigrants to Hawai'i also cook this fern.
'Ili	Land section, next in importance to ahupua'a. Many ahupua'a were subdivided into smaller management units called 'ili.
Kahakai	Beach, seashore, seacoast, seaside, strand.
Kahakō	Macron; a mark placed above a vowel to indicate a long sound.

Kalo	Taro; a staple crop in Hawai'i.
Kama'āina	Native born, one born in a place.
Kapu	Prohibited, forbidden, sacred.
Kīhāpai	Small land division, cultivated patch, garden, small farm.
Kino lau	Many forms taken by a deity or supernatural body.
Kula kai	Lowlands, coastal plains.
Kuleana	Property, claim, ownership, tenure, small piece of property as within an ahupua'a.
Lei	Any adornment worn around the head or neck. Necklace of flowers, shells, feathers, or ivory.
Lo'i kalo	Irrigated terrace, especially for taro. Plot cultivated in taro.
Mahele	Land division of 1848, the Great Mahele.
Maka'āinana	Commoner, citizen. *Lit.*, people that attend the land.
Makai	Ocean, towards the ocean.
Mālama 'āina	Protect and care for the land. Another Hawaiian value and concept illustrating deep love and care for the land.
Mauka	Inland, towards the uplands.
Moku	District. The islands were each divided into large districts called moku.
'Okina	Glottal stop; a speech sound.
'Ōlelo no'eau	Proverb, wise or traditional saying.
'O'opu	General name for endemic fresh-water fishes of the goby family. Eggs are laid in the stream and the larvae which hatch from these eggs move down stream and out into the ocean, where they develop for a time before migrating back into fresh water to grow to maturity.

APPENDIX A

Ms. Valerie Pu Park
Verification and Acknowledgement Form
Interview Summary

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VERIFICATION AND ACKNOWLEDGEMENT

The attached is a summary of an interview conducted by Ulalia Woodside of Wilson Okamoto & Associates, Inc. for a cultural assessment prepared in conjunction with the Paihi Bridge Replacement Environmental Assessment.

Interviewee: Valerie Pu Park

Interview Date: January 10, 2002

I have reviewed the attached summary and have made the necessary corrections on the attached copy. I acknowledge that the information therein may be used in conjunction with the cultural assessment prepared for the Paihi Bridge Replacement Environmental Assessment report which is to be made public.

Valerie Pu Park
Valerie Pu Park

Feb. 15, 02
Date

Interview With: Valerie Pu Park
Interview Date: January 10, 2002
Location: Kowali[1], Hāna, Maui
Interviewer: Ulalia Woodside

This interview was conducted without recording device. The following summary was prepared from notes taken during the interview and is intended to capture the discussion topics and the interviewee's genealogical and generational connection to Kowali. Permission to include the information in the cultural impact assessment report was received during the interview.

Ms. Valerie Pu Park's family has been residing in Kowali for four generations on the same kuleana land. She is a hula dancer who dances in the flat-footed, low 'ai ha'a style of some Maui hula traditions. She also studied under George Na'ope and Kamuela Nae'ole. She has fond recollections of her father and his love for playing the guitar. After her mother's passing at an early age, her father worked hard and other family members helped to raise their seven children. Her grandfather took primary responsibility for her upbringing.

Family history on the land

- Most residents can only share a connection with the land from the 1900s. The Pu family has four generations of residence in Kowali dating back to the 1800s.
- Their family kuleana land was given to them by Kamehameha III through Land Commission Award 5072 and confirmed by Royal Patent 4060. The Land Commission Award identifies the land as Wailena. That was their taro patch.
- Her great-grandfather Pekelo Kapu was the konohiki of Kowali. His father was from Honokohau.
- Most of the families that came to Kowali in the early years were from Kaupō through a transfer of lands from Eliphaet Whittlesey to S. Kamakahiki and 32 other shareholders.
- Her father is James Kalei Pu and was born in Hāmoa. The name was shortened from Kapu to Pu.

[1] Kowali is also spelled Koali. For the purpose of this summary it will be spelled as Kowali in respect of the interviewee's preference.

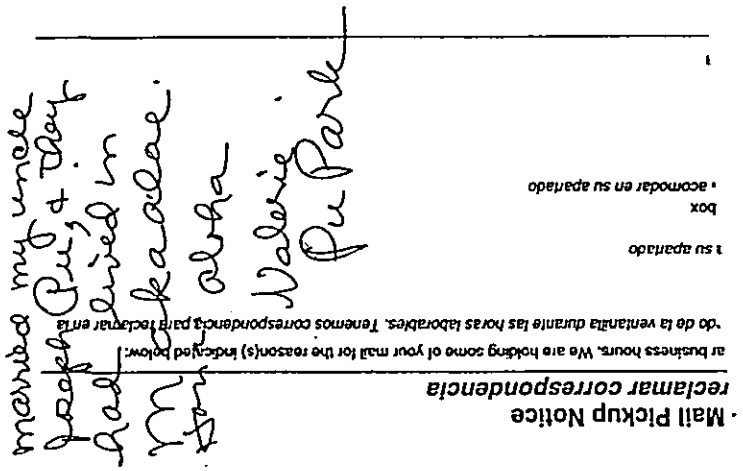
- Her brother Eddie Pu also lives on their family property. He is the oldest life-long resident of Kowali at 72 years old.

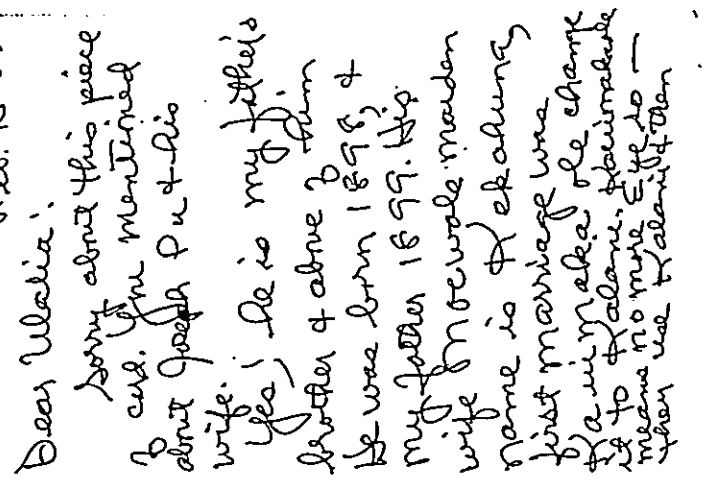
Sites, resources, practices and beliefs associated with Kowali and Paihi

- Kowali is now spelled as Koali, but the old way of spelling had the "w".
- Growing up they also referred to Paihi and Pahihi.
- All the stone walls that can be seen along Hāna Highway were built by hand.
- The lands of Kowali to Paihi and Wailua had extensive taro patches, both mauka and makai of the road. The area is fed by spring water which supported the extensive cultivation of the land.
- The Haleokāne heiau is located in Kowali on the makai side of Hāna Highway.
- The families used to access the shoreline for fishing and gathering of ocean resources. But nowadays there are "private" and "keep out" signs.
- Her grandfather would collect 'alaea from a vein along the roadway. The 'alaea was dark red. Her grandfather always offered a pule before gathering the 'alaea. Access to the vein has been blocked and she hasn't shared the location of the vein with anyone. It might get exploited for commercial gain.

Regarding the replacement of Hāna District bridges

- Most of the residents feel they have no choice. The bridges are old.
- Contrary to what is being said about the bridge replacement project, it must be understood that the replacement of the bridges is not for the safety of the people of Hāna. The bridge replacement is for the benefit of outside people and visitors to Hāna.
- The old bridge can be replaced, just be honest about the reasons for replacing it.
- The situation should be honestly presented and not made to seem like the replacement is for the safety of Hāna people.
- Some outsiders don't have respect for the traditional ways, they change the names of places, create stories, pile stones here and there, and are passing on this wrong information to others.
- People need to slow down and pay attention when they are driving. Many people have been killed along the road and it can be very dangerous. People need to have consideration for other drivers, for the people of Hāna, and for the residents that live along the road.





Appendix D

Economic Impact Analysis for the Paihi Bridge Replacement Project Hana Highway, Hana District, Island of Maui

Prepared by Strategy Pacifica, Inc.

April 2002

ECONOMIC IMPACT ANALYSIS
FOR THE PAIHI BRIDGE REPLACEMENT PROJECT
FEDERAL AID PROJECT NO. 0900(61)
HANA HIGHWAY
HANA DISTRICT, ISLAND OF MAUI

PREPARED FOR:

WILSON OKAMOTO & ASSOCIATES
APRIL 2002

Prepared by:

STRATEGY PACIFICA, INC.

DRAFT: April 22, 2002

ECONOMIC IMPACT ANALYSIS
FOR THE PAIHI BRIDGE REPLACEMENT PROGRAM
FEDERAL AID PROJECT NO. 0900(61)
HANA HIGHWAY
HANA DISTRICT, ISLAND OF MAUI

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EXECUTIVE SUMMARY

This section provides a summary of the potential impacts of the Paihi Bridge replacement project on Hana Highway on the Hana district community in relation to construction-related employment and income generation, economic impacts on the local economy, and access to government services by residents living to the south and west of the project site.

Project Description

The County of Maui's Department of Public Works and Waste Management has initiated planning for the replacement of Paihi Bridge on Hana Highway on the Island of Maui between Kipahulu and Hana. Construction of the replacement bridge will take an estimated six months to complete. Construction costs for the replacement of the Paihi Bridge are estimated at $1.0 million, with additional costs of $300,000 if a temporary bridge is used.

Construction Employment And Income Impacts

The projected construction employment and income impacts of the Paihi Bridge reconstruction project relate to statewide job and income generation during the project's construction period.

The potential construction employment and income impacts of the Paihi Bridge project are analyzed under the two scenarios described below – Six Month Closure and Temporary Bridge - which deal with different total construction costs.

Scenario One – Six Month Closure

The first scenario is complete closure of the bridge and the road at the Paihi Bridge site with a six month construction period, with total estimated construction expenditures of $1.0 million.

Scenario Two – Temporary Bridge

The second scenario involves the use of a temporary bridge during a nine month construction period for the permanent replacement bridge. Set-up of the temporary bridge would require complete closure of the road at Paihi for a seven day period. After set-up, use of the temporary bridge would be on a daily basis with some periods of closure, lasting from a few hours to one day, to accommodate construction-related activities. Breakdown of the temporary bridge would require complete closure of the road at Paihi for a seven day period. Total construction expenditures are estimated to be $1.3 million.

The potential employment and income impacts of the Six Month Closure scenario are summarized below.

- The total cost of the Paihi Bridge replacement project construction under the Six Month Closure scenario has been estimated to be $1.0 million, to be spent over a six month time period. To adjust those figures to a 1992 basis, the construction price index for 2000 was divided by the 1992 construction price index for an inflation factor of 1.26[1]. The projected annual expenditure, on an inflation-adjusted basis will be $793,651. With a coefficient of 11.09 total jobs for every $1 million in inflation-adjusted expenditures, it is projected that the Paihi Bridge replacement project will generate 8.8 direct jobs on an annual basis. For a six month construction period this would double to 17.6 jobs. It is projected that the Paihi Bridge replacement project will generate 12.9 jobs annually on an indirect and induced basis, or 25.8 jobs during the six month construction period. On a combined basis, total direct, indirect and induced job creation during the six month construction period is projected to be 43.4 jobs. It is projected that the Paihi Bridge replacement project will generate 16.7 jobs annually on an indirect and induced basis, or 33.4 jobs during the six month construction period. On a combined basis, total direct, indirect and induced job creation during the six month construction period is projected to be 56.2 jobs.

- Direct, indirect and induced income generation from the project is estimated to total $949,846 during the construction period.

The potential employment and income impacts of the Temporary Bridge scenario are summarized below.

- The total cost of the Paihi Bridge replacement project construction under the Temporary Bridge scenario has been estimated to be $1.3 million, to be spent over a nine month time period. To adjust those figures to a 1992 basis, the construction price index for 2000 was divided by the 1992 construction price index for an inflation factor of 1.26[2]. The projected annual expenditure, on an inflation-adjusted basis will be $1,031,746. With a coefficient of 11.09 total jobs for every $1 million in inflation-adjusted expenditures, it is projected that the Paihi Bridge replacement project will generate 11.4 direct jobs on an annual basis. For a nine month construction period this would translate to 15.2 jobs.

- Direct, indirect and induced income generation during the construction period is projected to be $1,234,800.

[1] State of Hawaii Data Book, 2000, Table 21.08.
[2] State of Hawaii Data Book, 2000, Table 21.08.

Economic Impacts On The Community

The analysis of the potential economic and community impacts of the Paihi Bridge project addresses two subjects.

1. Effects related to the closure of the road at Paihi Bridge to accommodate the construction activity on the visitor and business activities in the Hana district community; and
2. Effects related to the closure of the road at Paihi Bridge on access to government services, including schools, health care and emergency services.

These subjects are analyzed under the two scenarios described above – Six Month Closure and Temporary Bridge - which deal with different time periods and levels of road closure.

The potential impacts of the Six Month Closure scenario are summarized below.

- Using the estimated 600,000 to 700,000 visitors to Haleakala National Park at Kipahulu in 2001 as a base for annualized visitor counts during the construction period, it is likely that a very large majority, perhaps as much as 90%, would not come to the park during the period if access to the park from the Hana town direction was not available. Although there may be some visitors who travel to the park by taking the road from Ulupalakua to Kipahulu, the relatively poor condition of the road, and the restrictions by car rental companies against driving on that road are likely to deter most visitors. If visitation were to have normally been at a rate of 650,000 visitors per year, the Six Month Closure scenario could result in the reduction of up to 292,500 visitors to the Haleakala National Park at Kipahulu.[3]

- Although difficult to quantify, the Six Month closure scenario is likely to result in significant reductions in the number of visitors who visit or drive through Hana town. The large numbers of persons visiting Haleakala National Park at Kipahulu and other points south and west of the Paihi Bridge project site suggest that absent the ability to visit those areas, many of visitors to Hana town would not take the northern Hana Highway route if they could not go on to the park. The closure of the road to Haleakala National Park at the Paihi Bridge project site. If only half of the visitors who would have normally gone on to visit the Haleakala National Park at Kipahulu decided to just go to the Hana town area instead, there would be a reduction of 162,500 visitors to the Hana town area during the six month closure period..[4] If these visitors were to spend an average of $5.00 per visitor on food and non-food items, this could result in a loss of $0.81 million in sales for businesses in the Hana town area.

- The Six Month Closure scenario could adversely affect occupancy at Hana area visitor accommodations. Although it is impossible to predict what percentage of overnight visitors to Hana would forego or shorten their stays in Hana due to the closure of the road at the Paihi Bridge project site, the inability to visit the Haleakala National Park at Kipahulu would undoubtedly result in some reduction in occupancy.

- The Six Month Closure scenario could affect Hana district businesses by disrupting the ability of workers living south and west of the Paihi Bridge project site to travel to their jobs. Daily commutes via Kula and the northern Hana Highway route are infeasible, and the likely alternative would be to stay in accommodations in the Hana district north of the road closure site during the work week. This would result in significant additional expense to the workers and/or their employers. Kaupo Store and any other businesses south and west of the road closure site would have to be serviced via Piilani Highway east of Ulupalakua, which, due to the condition of the road along parts of the route, would be problematic.

- The Six Month Closure scenario would effectively cut off the 60 to 80 families living to the south and west of the Paihi Bridge project site from access to Hana town for six months. This would affect where school children could attend school, where government services could be accessed, and the availability of emergency services.

- An estimated 15 students in Kaupo and another 21 in Kipahulu would have to attend schools other than Hana High and Elementary School during the six month period. The 36 students represent approximately 9% of the school's student population of 402 students

- To access government services such as health care, social services, and municipal services normally available in Hana town, residents living south and west of the Paihi Bridge project site would have to travel to Upcountry or Central Maui to access those services. Emergency services such as police, fire and ambulance normally available from Hana town would also have to be provided from Upcountry or Central Maui.

The potential impacts of the Temporary Bridge scenario are summarized below.

- The effects of the Temporary Bridge scenario on visitation to the Haleakala National Park at Kipahulu would depend primarily on when daily closures of the temporary bridge occurred. With 14 days for the set-up and breakdown of the temporary bridge, there could be a reduction of 24,932 visitors to the Haleakala

[3] Based on a calculation of 650,000 x 90% x (6 months/12 months), 650,000 x 0.9 x 0.5 = 292,500
[4] Based on a calculation of 650,000 / 12 months x 6 months x 0.5 = 162,500

National Park at Kipahulu.[5] Additional reductions could occur if the temporary bridge were closed during the peak daily to and from transit times of 10:00 a.m. to 3:00 p.m. for day visitors who drive to and from the park via the northern Hana Highway route. Closures during that period could stop nearly all of the 1,800 visitors a day from going to the park.

- As with the effects on visitation to the Haleakala National Park at Kipahulu, the effects of the Temporary Bridge scenario on the number of visitors to Hana town will depend primarily on when temporary daily closures of the temporary bridge occurred. If Hana town lost half of the visitors to the Haleakala National Park at Kipahulu during the estimated fourteen days of closure for the set-up and breakdown of the temporary bridge, could result in a reduction of approximately 12,500 visitors.[6] In addition, if the temporary bridge were closed during the peak daily to and from transit times of 10:00 a.m. to 3:00 p.m. for day visitors who drive to and from the park via the northern Hana Highway route there could be further reductions. Closures during that period could stop nearly 1,800 visitors a day from going to the park, with greater disruption possible if visitors generally become uncertain about the ability to visit the park and avoid driving to Hana altogether.

- If the temporary bridge were closed for a full day, and Hana town lost half of the visitors who would have normally gone on to visit the Haleakala National Park at Kipahulu, the reduction of half of the 1,800 daily visitors to Hana town per day, with an average expenditure of $5.00 per visitor on food and non-food items could result in a loss of $4,500 in sales per day for businesses in the Hana town area.

- The Temporary Bridge scenario is not likely to adversely affect occupancy at Hana area visitor accommodations except during the estimated four to five days of closure of the road at the Paihi Bridge project site for the set-up and the three to four days of takedown of the temporary bridge. Visitors staying in Hana area accommodations are in a better position than day trip visitors to plan their trips to the Haleakala National Park at Kipahulu to avoid temporary daily closures, and those temporary closures should not serve as a deterrent to staying in Hana area accommodations.

- The Temporary Bridge scenario could affect Hana district businesses by disrupting the ability of workers living south and west of the Paihi Bridge project site to travel to their jobs during the seven days of closure for the set-up and the seven days of closure for the takedown of the temporary bridge. It is likely that affected workers would either take vacation time during that period or stay in accommodations in the Hana district north of the road closure site during that period. This would result in some additional expense to the workers and/or their employers. Provision would also have to be made in the daily time periods in

[5] Based on a calculation of 650,000 / 365 x 14 = 24,932
[6] Based on a calculation of 650,000 / 365 x 14 x 0.5 = 12,465

which closure of the temporary bridge occurred to allow workers to travel to their job sites.

- The Temporary Bridge scenario would effectively cut off the 60 to 80 families living to the south and west of the Paihi Bridge project site from access to Hana town for seven days during the set-up of the temporary bridge and for seven days during the breakdown of the temporary bridge. This would affect school attendance, access to government services, and the availability of emergency services. Because these would be relatively short time periods, the effects could be mitigated by conducting the set-up and breakdown activities during days that school is not in session, and most government services were not available, such as weekends and holidays. Special provisions would though, still be required for health and emergency services. Similarly, for temporary daily closures of the temporary bridge for construction purposes, special provisions would be required for emergency services.

PROJECT DESCRIPTION

The County of Maui's Department of Public Works and Waste Management has initiated planning for the replacement of Paihi Bridge[3] on Hana Highway on the Island of Maui between Kipahulu and Hana. Construction of the replacement bridge will take an estimated six to nine months to complete. Construction costs for the replacement of the Paihi Bridge are estimated at $1.0 million, with additional costs of $300,000 if a temporary bridge is used.

STUDY PURPOSE

The purpose of this study is to analyze the potential economic and related community impacts of the replacement of the bridge under two scenarios. The two scenarios are described below.

Scenario One – Six Month Closure

The first scenario is complete closure of the bridge and the road at the Paihi Bridge site with a six-month construction period.

Scenario Two – Temporary Bridge

The second scenario involves the use of a temporary bridge during a nine-month construction period for the permanent replacement bridge. Set-up of the temporary bridge would require complete closure of the road at Paihi for a seven-day period for set-up of the temporary bridge. After set-up, use of the temporary bridge would be on a daily basis with some periods of closure, lasting from a few hours to one day to accommodate construction-related activities. Breakdown of the temporary bridge would require complete closure of the road at Paihi for a seven-day period.

The impacts analyzed in this study include: 1) the economic impacts of the project's construction expenditures; 2) possible effects of the two road closure scenarios on the island and community's economic activities; and 3) the impacts under the two scenarios on basic functions and services in the Kaupo to Wailua community that lie south and west of the Paihi Bridge project site.

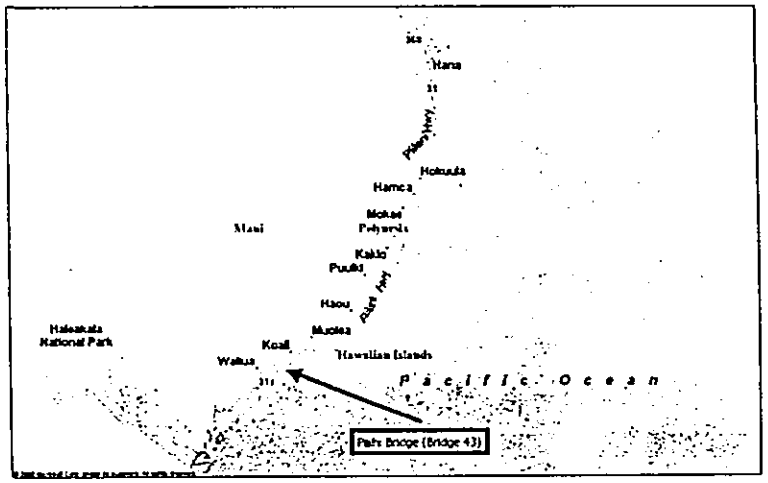
This study will be used as part of an Environmental Assessment (EA) for the bridge replacement project.

[3] Bridge 43 on the Road Maintenance Map, Hana to Ulupalakua, County of Maui

LOCATION

Paihi Bridge (Bridge 43) is located on Hana Highway in the Hana District, Island of Maui, between the Koali and Wailua areas south of Hana town. Figure 1 below shows the location of Paihi Bridge in relation to the Hana – Kipahulu area.

Figure 1.
Paihi Bridge, Hana Highway
Hana District, Island of Maui



COMMUNITY DESCRIPTION

The Island of Maui, in the 2000 census, had a population of 117,644, up 26,283 from 1990 figure of 91,361 persons. Its economy is based on the "export" industries of tourism, agriculture, technology and transfer payments from government and private sources. It also has significant retail, service and construction sectors. The main population, economic and civic centers are located in West Maui and Central Maui.

In the 2000 census, the Hana district community, which encompasses East Maui from Keanae to Hana town to Kaupo, in the 2000 census, had a population of 1,855 persons,

down 40 from the 1990 figure of 1,895 persons. Its economy is based on tourism, agriculture and transfer payments from government and private sources. Hana town is the main civic and commercial center of the district.

Although census figures are not available for the area south and west of the Paihi Bridge project site, interviews with knowledgeable residents of the area have provided estimates of 60 to 80 families in the Kaupo-Kipahulu-Wailua area. The interviews also indicated that the current number of families is significantly greater than it was two to three years ago.

CONSTRUCTION EMPLOYMENT AND INCOME

This section provides a summary description of the projected employment and income impacts for the Paihi Bridge reconstruction project during its construction period. The cost of the bridge reconstruction project is estimated to be $1.0 million, with expenditures to occur over a six month period of time, with an additional $300,000 to be spent if a temporary bridge is used. Because each scenario has a different total construction cost estimate, projected employment and income impacts are presented for each scenario. The projected impacts are on a statewide basis. Breakdowns of the projections for island or Hana district community level impacts are not available due to limitations of the input/output model available.

Interviews with Hana district community leaders regarding past experience with construction projects of this scale and complexity in the Hana area indicate that it is likely that most, if not all, of the construction workers for the project would come from other parts of Maui or from other islands. Outside workers, though, often rent accommodations in the Hana area to stay in during the workweek, and then travel back to their homes on weekends. If the Paihi Bridge project follows this pattern, the employment impacts will be felt primarily outside of the Hana district community, but at least a portion of the indirect and induced income impacts may be felt by the Hana district community from expenditures by the construction workers on accommodations, food, and non-food goods and services during their stay in the Hana area.

Employment

The direct employment effects of the Paihi Bridge replacement project during the construction period are measured by the product of the total funds to be spent on the Paihi Bridge replacement project during a given annual period, and by applying a direct employment coefficient to those funds on a number of total-jobs-per-$1 million (in 1992 construction dollars) basis. The direct employment coefficient for "Road Construction"

is 11.09[8]. Indirect and induced employment effects are measured using a multiplier in relation to the direct employment effects.

Six Month Closure

The total cost of the Paihi Bridge replacement project construction under the Six Month Closure scenario has been estimated to be $1.0 million, to be spent over a six month time period. To adjust those figures to a 1992 basis, the construction price index for 2000 was divided by the 1992 construction price index for an inflation factor of 1.26[9]. The projected annual expenditure, on an inflation-adjusted basis will be $793,651. With a coefficient of 11.09 total jobs for every $1 million in inflation-adjusted expenditures, it is projected that the Paihi Bridge replacement project will generate 8.8 direct jobs on an annual basis. For a six month construction period this would double to 17.6 jobs.

Indirect and induced job creation effects result from the changes in the economy created by the direct construction-related expenditures. Using the Type II direct effect total employment multiplier of 2.46 (less the direct effect employment figures) it is projected that the Paihi Bridge replacement project will generate 12.9 jobs annually on an indirect and induced basis, or 25.8 jobs during the six month construction period.

On a combined basis, total direct, indirect and induced job creation during the six month construction period is projected to be 43.4 jobs.

Temporary Bridge

The total cost of the Paihi Bridge replacement project construction under the Temporary Bridge scenario has been estimated to be $1.3 million, to be spent over a nine month time period. To adjust those figures to a 1992 basis, the construction price index for 2000 was divided by the 1992 construction price index for an inflation factor of 1.26[10]. The projected annual expenditure, on an inflation-adjusted basis will be $1,031,746. With a coefficient of 11.09 total jobs for every $1 million in inflation-adjusted expenditures, it is projected that the Paihi Bridge replacement project will generate 11.4 direct jobs on an annual basis. For a nine month construction period this would translate to 15.2 jobs.

Indirect and induced job creation effects result from the changes in the economy created by the direct construction-related expenditures. Using the Type II direct effect total employment multiplier of 2.46 (less the direct effect employment figures) it is projected that the Paihi Bridge replacement project will generate 16.7 jobs annually on an indirect and induced basis, or 22.3 jobs during the nine month construction period.

On a combined basis, total direct, indirect and induced job creation during the nine month construction period is projected to be 37.5 jobs.

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[8] "The Hawaii Input-Output Study 1992 Benchmark Report," State of Hawaii, Department of Business Economic Development and Tourism, December 1998.
[9] State of Hawaii Data Book, 2000, Table 21.08.
[10] State of Hawaii Data Book, 2000, Table 21.08.

Income Generation

The projected income generation effects for the Paihi Bridge replacement project reflect the impact of the construction expenditures on household income on a statewide basis. Projections for direct, indirect and induced income generation are provided for both scenarios.

Six Month Closure

Direct income projections for the Paihi Bridge replacement project's construction period use a labor income coefficient of 0.48[11] for a direct impact of $484,615 on an annual basis.

Indirect and induced income effects during the Paihi Bridge replacement project's construction period, using a Type II multiplier (less the direct effect income figures), are projected to generate $465,231 in income on annual basis.

On a combined basis, total direct, indirect and induced income generation during the construction period is projected to be $949,846.

Table 1 below shows the projected construction period job and income effects by annual period for the Six Month Closure scenario.

Temporary Bridge

Direct income projections for the Paihi Bridge replacement project's construction period use a labor income coefficient of 0.48[12] for a direct impact of $630,000 on an annual basis.

Indirect and induced income effects during the Paihi Bridge replacement project's construction period, using a Type II multiplier (less the direct effect income figures), are projected to generate $604,800 in income on annual basis.

On a combined basis, total direct, indirect and induced income generation during the construction period is projected to be $1,234,800.

Table 2 below shows the projected construction period job and income effects by annual period for the Temporary Bridge scenario.

[11] "The Hawaii Input-Output Study 1992 Benchmark Report," by the State of Hawaii's Department of Business Economic Development and Tourism., December 1998
[12] "The Hawaii Input-Output Study 1992 Benchmark Report," by the State of Hawaii's Department of Business Economic Development and Tourism., December 1998

Table 1.

Employment And Income Impacts
Six Month Closure Scenario

Construction Costs	
Total Construction Expenditures	$1,000,000
Inflation Factor 2000/1992[13]	1.26
1992 Adjusted Construction Expenditures	$793,651
Employment	
Direct Employment Coefficient[14]	11.09
Direct Employment	8.8
Add'l Indirect, Induced Multiplier[15]	1.46
Indirect, Induced Employment	12.9
Total Direct, Indirect and Induced Employment	21.7
Income	
Total Construction Expenditures	$1,000,000
Direct Income Coefficient[16]	0.48
Direct Income Impact	$484,615
Add'l Indirect, Induced Multiplier[17]	0.96
Indirect, Induced Income Impact	$465,231
Total Direct, Indirect and Induced Income Impact	$949,846

[13] State of Hawaii, DBEDT, Data Book, 2000, Table 21.08
[14] State of Hawaii, DBEDT, Hawaii Inpur/Output Mode Study, 1992 I/O Study, employment per $1.0 million road construction
[15] State of Hawaii, 1992 I/O Study, Type II direct-effect employment multiplier less direct-effect (2.46-1.00)
[16] State of Hawaii, 1992 I/O Study, labor income coefficient, road construction
[17] State of Hawaii, 1992 I/O Study, direct-effect income multiplier less direct-effect (1.96-1.00)

Table 2.

Employment And Income Impacts
Temporary Bridge Scenario

Construction Costs	
Total Construction Expenditures	$1,300,000
Inflation Factor 2000/1992[18]	1.26
1992 Adjusted Construction Expenditures	$1,031,746
Employment	
Direct Employment Coefficient[19]	11.09
Direct Employment	11.4
Add'l Indirect, Induced Multiplier[20]	1.46
Indirect, Induced Employment	16.7
Total Direct, Indirect and Induced Employment	28.1
Income	
Total Construction Expenditures	$1,300,000
Direct Income Coefficient[21]	0.48
Direct Income Impact	$630,000
Add'l Indirect, Induced Multiplier[22]	0.96
Indirect, Induced Income Impact	$604,800
Total Direct, Indirect and Induced Income Impact	$1,234,800

[18] State of Hawaii, DBEDT, Data Book, 2000, Table 21.08
[19] State of Hawaii, DBEDT, Hawaii Input/Output Mode Study, 1992 I/O Study, employment per $1.0 million road construction
[20] State of Hawaii, 1992 I/O Study, Type II direct-effect employment multiplier less direct-effect (2.46-1.00)
[21] State of Hawaii, 1992 I/O Study, labor income coefficient, road construction
[22] State of Hawaii, 1992 I/O Study, direct-effect income multiplier less direct-effect (1.96-1.00)

OTHER ECONOMIC AND COMMUNITY IMPACTS

The analysis of the potential economic and community impacts of the Paihi Bridge project on the Hana district community deals with two subjects:

1. Effects related to the closure of the road at Paihi Bridge to accommodate the construction activity on the visitor and business activities in the Hana district community; and
2. Effects related to the closure of the road at Paihi Bridge on access to government services, including schools, health care and emergency services.

These subjects are analyzed under the two scenarios described above – Six Month Closure and Temporary Bridge - which deal with different time periods and levels of road closure.

Visitor Activity Impacts

This section addresses the potential impact of the project on visits to Haleakala National Park at Kipahulu and other points south and west of the Paihi Bridge project site, and on visitor-related activities in Hana Town under the two scenarios.

The impacts described below are focused on the Hana district community. While it is anticipated that there will significant impacts to that community from the project, visitor industry activities for the Island of Maui as a whole will not be significantly impacted by the project. The Island of Maui has a wide range of locations and activities for visitors and there are numerous possible substitutes for day visits to Kipahulu and other areas south and west of the project site. It is not anticipated that the island will lose visitor days or expenditures as a result of the project.

Visits To Haleakala National Park At Kipahulu

This section addresses the potential impact of the project on visits to Haleakala National Park at Kipahulu under the two scenarios.

Six Month Closure

Using the estimated 600,000 to 700,000 visitors to Haleakala National Park at Kipahulu in 2001 as a base for annualized visitor counts during the construction period, it is likely that a very large majority, perhaps as much as 90%, would not come to the park during the period if access to the park from the Hana town direction was not available.

Although there may be some visitors who travel to the park by taking the road from Ulupalakua to Kipahulu, the relatively poor condition of the road, and the restrictions by car rental companies against driving on that road are likely to deter most visitors.

If visitation were to have normally been at a rate of 650,000 visitors per year, the Six Month Closure scenario could result in the reduction of up to 292,500 visitors to the Haleakala National Park at Kipahulu.[23]

Temporary Bridge

The effects of the Temporary Bridge scenario on visitation to the Haleakala National Park at Kipahulu would depend primarily on when daily closures of the temporary bridge occurred.

With two seven-day closure periods for the set-up and breakdown of the temporary bridge, there could be a reduction of 24,932 visitors to the Haleakala National Park at Kipahulu.[24] Additional reductions could occur if the temporary bridge were closed during the peak daily to and from transit times of 10:00 a.m. to 3:00 p.m. for day visitors who drive to and from the park via the northern Hana Highway route. Closures during that period could stop nearly all of the 1,800 visitors a day from going to the park.

Visits To Hana Town

This section addresses the potential impact of the project on visits to Hana town.

Six Month Closure

Although difficult to quantify, the Six Month closure scenario is likely to result in significant reductions in the number of visitors who visit or drive through Hana town. The large numbers of persons visiting Haleakala National Park at Kipahulu and other points south and west of the Paihi Bridge project site suggest that absent the ability to visit those areas, many of visitors to Hana town would not take the northern Hana Highway route if they could not go on to the park. If only half of the visitors who would have normally gone on to visit the Haleakala National Park at Kipahulu decided to just go to the Hana town area instead, there would be a reduction of 162,500 visitors to the Hana town area during the six month closure period.[25]

If these visitors were to spend an average of $5.00 per visitor on food and non-food items, this could result in a loss of $0.81 million in sales for businesses in the Hana town area. Although the loss in sales might be partially offset by the expenditures of construction workers staying in Hana area accommodations, their expenditures for accommodations, food and non-food services, based on calculations of 18 direct employees staying in Hana for five days a week for 26 weeks at $100 per day, would only generate $234,000 in rent and retail sales.

[23] Based on a calculation of 650,000 x 90% x (6 months/12 months), 650,000 x 0.9 x 0.5 = 292,500
[24] Based on a calculation of 650,000 / 365 x 14 = 24,392
[25] Based on a calculation of 650,000 / 12 months x 6 months x 0.5 = 162,500

Temporary Bridge

As with the effects on visitation to the Haleakala National Park at Kipahulu, the effects of the Temporary Bridge scenario on the number of visitors to Hana town will depend primarily on when temporary daily closures of the temporary bridge occurred. If Hana town lost half of the visitors to the Haleakala National Park at Kipahulu during the fourteen days of closure for the set-up and breakdown of the temporary bridge, could result in a reduction of approximately 12,500 visitors.[26]

In addition, if the temporary bridge were closed during the peak daily to and from transit times of 10:00 a.m. to 3:00 p.m. for day visitors who drive to and from the park via the northern Hana Highway route there could be further reductions. Closures during that period could stop nearly 1,800 visitors a day from going to the park, with greater disruption possible if visitors generally become uncertain about the ability to visit the park and avoid driving to Hana altogether.

If the temporary bridge were closed for a full day, and Hana town lost half of the visitors who would have normally gone on to visit the Haleakala National Park at Kipahulu, the reduction of half of the 1,800 daily visitors to Hana town per day, with an average expenditure of $5.00 per visitor on food and non-food items could result in a loss of $4,500 in sales per day for businesses in the Hana town area. The loss in sales might be partially offset by the expenditures of construction workers staying in Hana area accommodations, their expenditures for accommodations, food and non-food services, based on calculations of 15 direct employees staying in Hana for five days a week for 39 weeks at $100 per day, by generating $292,500 in rent and retail sales.

Hana Visitor Accommodations

This section addresses the potential impact of the project on visitor accommodations in the Hana area. The visitor plant inventory compiled by the State of Hawaii in 2000 listed 163 visitor accommodation units in the Hana area. 96 were hotel units (93 of which were at the Hotel Hana-Maui), 30 were individual vacation units, 17 were condominium hotel units, and 20 were bed & breakfast or "other" units.

Six Month Closure

The Six Month Closure scenario could adversely affect occupancy at Hana area visitor accommodations. Although it is impossible to predict what percentage of overnight

[26] Based on a calculation of 650,000 / 365 x 14 x 0.5 = 12,465

visitors to Hana would forego or shorten their stays in Hana due to the closure of the road at the Paihi Bridge project site, the inability to visit the Haleakala National Park at Kipahulu would undoubtedly result in some reduction in occupancy.

Construction workers staying in the Hana area during the workweek, if they each rent one of the visitor accommodation units rather than renting a house(s), could add 2,340 visitor nights to area's total visitor night count. 18 units represent approximately 11.0% of the total visitor plant inventory for the Hana area.

Temporary Bridge

The Temporary Bridge scenario is not likely to adversely affect occupancy at Hana area visitor accommodations except during the seven days of closure of the road at the Paihi Bridge project site for the set-up and the seven days for takedown of the temporary bridge.

Visitors staying in Hana area accommodations are in a better position than day trip visitors to plan their trips to the Haleakala National Park at Kipahulu to avoid temporary daily closures, and those temporary closures should not serve as a deterrent to staying in Hana area accommodations.

Construction workers staying in the Hana area during the workweek, if they each rent one of the visitor accommodation units rather than renting a house(s), could add 2,925 visitor nights to area's total visitor night count. 15 units represent approximately 9.2% of the total visitor plant inventory for the Hana area.

Effects On Other Business Activities

This section addresses potential impacts of the project on other, non-visitor business activities under the two scenarios.

Six Month Closure

The Six Month Closure scenario could affect Hana district businesses by disrupting the ability of workers living south and west of the Paihi Bridge project site to travel to their jobs. Daily commutes via Kula and the northern Hana Highway route are infeasible, and the likely alternative would be to stay in accommodations in the Hana district north of the road closure site during the work week. This would result in significant additional expense to the workers and/or their employers.

Kaupo Store and any other businesses south and west of the road closure site would have to be serviced via Piilani Highway east of Ulupalakua, which, due to the condition of the road along parts of the route, would be problematic.

Temporary Bridge

The Temporary Bridge scenario could affect Hana district businesses by disrupting the ability of workers living south and west of the Paihi Bridge project site to travel to their jobs during the seven days of closure for the set-up and the seven days of closure for the takedown of the temporary bridge. It is likely that affected workers would either take vacation time during that period or stay in accommodations in the Hana district north of the road closure site during that period. This would result in some additional expense to the workers and/or their employers.

Provision would also have to be made in the daily time periods in which closure of the temporary bridge occurred to allow workers to travel to their job sites.

Effects On Access To Government Services

This section addresses the potential impact of the project on access to government services, including schools, health care and emergency services under the two scenarios.

Six Month Closure

The Six Month Closure scenario would effectively cut off the 60 to 80 families living to the south and west of the Paihi Bridge project site from access to Hana town for six months.

This would affect where school children could attend school, where government services could be accessed, and the availability of emergency services.

An estimated 15 students in Kaupo and another 21 in Kipahulu would have to attend schools other than Hana High and Elementary School during the six month period. The 36 students represent approximately 9% of the school's student population of 402 students

To access government services such as health care, social services, and municipal services normally available in Hana town, residents living south and west of the Paihi Bridge project site would have to travel to Upcountry or Central Maui to access those services.

Emergency services such as police, fire and ambulance normally available from Hana town would also have to be provided from Upcountry or Central Maui.

Temporary Bridge

The Temporary Bridge scenario would effectively cut off the 60 to 80 families living to the south and west of the Paihi Bridge project site from access to Hana town for seven days during the set-up of the temporary bridge and for seven days during the breakdown of the temporary bridge.

This would affect school attendance, access to government services, and the availability of emergency services.

Because these would be relatively short time periods, the effects could be mitigated by conducting the set-up and breakdown activities during days that school is not in session, and most government services were not available, such as weekends and holidays. Special provisions would though, still be required for health and emergency services.

Similarly, for temporary daily closures of the temporary bridge for construction purposes, special provisions would be required for emergency services.

Appendix E

Attendance Sheet For
Public Information Meeting
March 7, 2002

PUBLIC INFORMATION MEETING
PAIHÍ BRIDGE REPLACEMENT – FAP. BR-0900(61)

County Of Maui, Department Of Public Works And Waste Management
Hana High and Elementary School Cafeteria, 4111 Hana Highway
Thursday, March 7, 2002, 4:00 p.m.

First and Last Name	Home Phone	Work Phone	Fax No.	Organizational Affiliation	Mailing Address
Jimmy Perry	248-8278	248-8154	248-7490	County of Maui (Districts)	P.O. Box 204 Hana Hi 96713
BYRON COOK	248-7375	248-7375	248-7367	HALEAKALĀ NAT'L PARK	HCR 147 Hana Hi 96713
JOHN BLUMER-BUELL	248-8972	Same	Same	Self SR 111 HANA 96713 / Hana Community Association	P.O. BOX 202 HANA 96713
GERALDINE CARROLL	248-8269	248-4815 ~~270-7246~~			P.O. Box 157 Hana HI
Carol Lindquist	249-7002			Alliance for The Heritage of East Maui	P.O. Box 507 Hana 96713
ROBERT CARROLL	248-8269	270-7246		Maui County Council	200 S High St Wailuku, Maui HI
Nalani Shamblin	248-8252	—	—		P.O. Box 319 Hana Hi 96713
Linda Domen	248-7732	248-8054	i fully support railings w/open spacings!	Kaupo General Store / Kaupo Commty Assoc	HCR 217 Hana Hi 96713 / HCR 243 " " "
Sheldon Holokai	248-7525 →			MFD	P.O. Box 961 Hana, HI 96713
J. WATANABE	"	"		"	" "

PUBLIC INFORMATION MEETING
PAIHÍ BRIDGE REPLACEMENT – FAP. BR-0900(61)

County Of Maui, Department Of Public Works And Waste Management
Hana High and Elementary School Cafeteria, 4111 Hana Highway
Thursday, March 7, 2002, 4:00 p.m.

First and Last Name	Home Phone	Work Phone	Fax No.	Organizational Affiliation	Mailing Address
Lani Gomes		249-7525		MFD	P.O. Box 961 Hana HI 96713
Steve Eminger	553-9056	"		"	" "
[illegible]	[illegible]	248 8311		Maui Police	Hana, HI
Pastor Douglas WARD MARDFIN	248-4061	248-4815		Teacher, Hana School	P.O. Box 547, Hana 96713
Jonathan Tolentino	248-8209	248-8201	SAME	AMR - MEDIC 6	P.O. Box 293 Hana, 96713
Michele Tompkins	572-6672	248-8201		AMR - Medic 6	P.O. Box 724 Makawao 96768
Leonard Hiba	2487552	2488912			PO Box 415 Hana 96713
Shanye Valdez-Noriko	248-7174	248-4815	248-4819	D.O.E. - State (teacher)	P.O. Box 573 96713
Pete Enriques	269-3149	248-8211	248-7264	Hotel Hana-Maui	
Valerie L. Park	248-7070	—		Retired	S.R. 119 Koali Hana 96713

PUBLIC INFORMATION MEETING
PAIHI BRIDGE REPLACEMENT – FAP. BR-0900(61)

County Of Maui, Department Of Public Works And Waste Management
Hana High and Elementary School Cafeteria, 4111 Hana Highway
Thursday, March 7, 2002, 4:00 p.m.

First and Last Name	Home Phone	Work Phone	Fax No.	Organizational Affiliation	Mailing Address
Pat V. Cockett	248-7287	248-4815		Ku Kula Kumuhana Hana School	P.O. Box 413 Hana 96713
JOHN AKANA	248-7015	248-8311	248-7400	MPD DIST-III HANA	PO BOX 739 HANA HI

Appendix F

Attendance Sheet For
Public Information Meeting
June 18, 2002

PUBLIC INFORMATION MEETING
PAIHĪ BRIDGE REPLACEMENT – FAP. BR-0900(61)

County Of Maui, Department Of Public Works And Waste Management
Hana High and Elementary School Cafeteria, 4111 Hana Highway
Tuesday, June 18, 4:00 p.m.

First and Last Name	Home Phone	Work Phone	Fax No.	Organizational Affiliation	Mailing Address
HOLD LEE	871-7611	270-7145	270-7975	COUNTY OF MAUI DPWWM	200 SOUTH HIGH ST. WAILUKU, MAUI, HAWAII 96793
JOE KRUEGER		"	"	"	"
James P. Perry	248-8278	248-8254	248-7490	County of Maui Public Works thru	P.O. Box 204 Hana, Maui 96713
PAUL MALLO	879-9154	248-7525		M.F.D.	P.O. Box 961 HANA. Hi. 96713
KAPALA NOVIKOFF	2487874	2487525		M.F.D.	"
Scott Perry	248-8989	248-7525		M.F.D.	" "
DAN MURPHY	2641450	248 7525		MFD	" "
PAUL SACNES	N/A	248-7525		MFD	PO BOX 961 HANA. HI 96713
Carl Lindquist	248-7002	Same	248-7270	Hana Business Council	P.O. Box 507
HAMILTON PODESTA	N/A	248-8711	248-7400	MAUI POLICE	P-O-Box 781, Hana, Hi 96713
VALERIE L. PARK 248-7070				Retired	S. R. 119 Kaeli Hana 96713