CONSERVATION DISTRICT USE APPLICATION (CDUA)

Kamehameha Highway South Kahana Stream Bridge Replacement
District of Koolauloa. Island of Oahu. Hawaii,
Project No. BR-083-1(55)

Tax Map Key(s): 5-2-002:001; 5-2-005:001;
5-2-005; 5-2-005:021; 5-2-005:022; 5-2-005:023

Applicant
State of Hawaii
Department of Transportation, Highways Division
601 Kamokila Blvd., Room 609
Kapolei, Oahu, Hawaii 96707

Landowner
State of Hawaii
Department of Land and Natural Resources
State Parks Division
P.O. Box 621
Honolulu, Hawaii 96809

Agent
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

May 2018

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Applicant
State of Hawaii
Department of Transportation, Highways Division
601 Kamokila Blvd., Room 609
Kapolei, Oahu, Hawaii 96707
Telephone: 808.692.7572

Landowner
State of Hawaii Department of Land and Natural Resources State Parks Division
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1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826
Telephone 808.946.2277

May 2018

Contents

Appendices

CONSERVATION DISTRICT USE APPLICATION (CDUA)

File No:	
Acceptance Date:	180-Day Expiration Date:
Assigned Planner:	

for DLNR Use

PROJECT NAME: ***Kamehameha Highway South Kahana Stream Bridge Replacement District of Koolauloa. Island of Oahu. Hawaii, Project No. BR-083-1(55)***

Conservation District Subzone: ***Resource***

Identified Land Use: ***P-6 Public Purpose Use; D-1 Public Road***

Project Address: ***Approximately 9 miles north of Kahaluu, mile marker 26.44***

Tax Map Key(s): ***:5-2-002:001; 5-2-005:001; 5-2-005; 5-2-005:022; 5-2-005:023***

Ahupua`a: ***Kahana***

District: ***Koolauloa***
Island: ***Oahu***

County: ***Honolulu***

Proposed Commencement Date: January 2020

Proposed Completion Date: June 2022

Estimated Project Cost: $40.0 million

TYPE OF PERMIT SOUGHT: ☒ **Board Permit** ☐ **Departmental Permit**

- ☐ Boundary Determination *(ref §13-5-17)*
- ☐ Emergency Permit *(ref §13-5-35)*
- ☐ Temporary Variance *(ref §13-5-36)*
- ☐ Site Plan Approval *(ref §13-5-38)*

Note: The four items on the left do not require that a full CDUA be filled out; please complete the first three pages of this application, and refer to the relevant HAR sections for the required documentation.

ATTACHMENTS *(where applicable)*

- $ N/A Application Fee *(ref §13-2-33 through 34)*
- $ _____ Public Hearing Fee *($250 plus publication costs; ref §13-5-40)*
- ☒ 20 copies of CDUA for Board and Departmental Permits *(5 hard + 15 hard or digital copies)*
- ☐ Management Plan *or* Comprehensive Management Plan *(ref §13-5-39 and §13-5 Exhibit 3)*
- ☐ Draft / Final Environmental Assessment *or* Draft / Final Environmental Impact Statement
- ☐ Special Management Area Determination *(ref Hawai`i Revised Statutes (HRS) 205A)*
- ☐ Shoreline Certification *(ref §13-5-31(a)(8))* if land use is subject to coastal hazards.
- ☐ Kuleana documentation *(ref §13-5-31(f))* if applying for a non-conforming kuleana use.
- ☐ Boundary Determination *(ref §13-5-17)* if land use lies within 50 feet of a subzone boundary.

REQUIRED SIGNATURES

Applicant
Name / Agency: State of Hawaii Department of Transportation
Street Address: 869 Punchbowl Street, Room 509
Honolulu, Hawaii 96813
Contact Person & Title: Ford N. Fuchigami, Director
Phone: :(808) 587.2150/808.692-7572 Fax: 808.587.3652
Email:

Interest in Property: None

Signature: _____ **Date:** 7/13/17
Signed by an authorized officer if for a Corporation, Partnership, Agency or Organization

---

Landowner (if different than the applicant)
Name: Suzanne D. Case, Chairperson
Title; Agency: State of Hawaii Department of Land and Natural Resources
Mailing Address: P.O. Box 621
Honolulu, Hawaii 96809
Phone: 808.587.0400 Fax: 808.587.0311
Email:

Signature: _____ **Date:** 6/22/17
For State and public lands, the State of Hawai`i or government entity with management control over the parcel shall sign as landowner.

Agent
Agency: Wilson Okamoto Corporation
Contact Person & Title: Brian A. Lock, PE Project Manager/John L. Sakaguchi, AICP, Senior Planner
Mailing Address: 1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826
Phone: 808.946.2277 Fax: 808.946.2253
Email: balock@wilsonokamoto.com/jsakaguchi@wilsonokamoto.com

Signature: _____ **Date:** June 12, 2017

For DLNR Managed Lands NOT APPLICABLE

State of Hawai`i
Chairperson, Board of Land and Natural Resources
State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809-0621

Signature _____ **Date:**

PROPOSED USE

Please provide an executive summary of the proposed land use. Attach any site plans, landscaping plans, photographs, maps, and construction plans as needed.

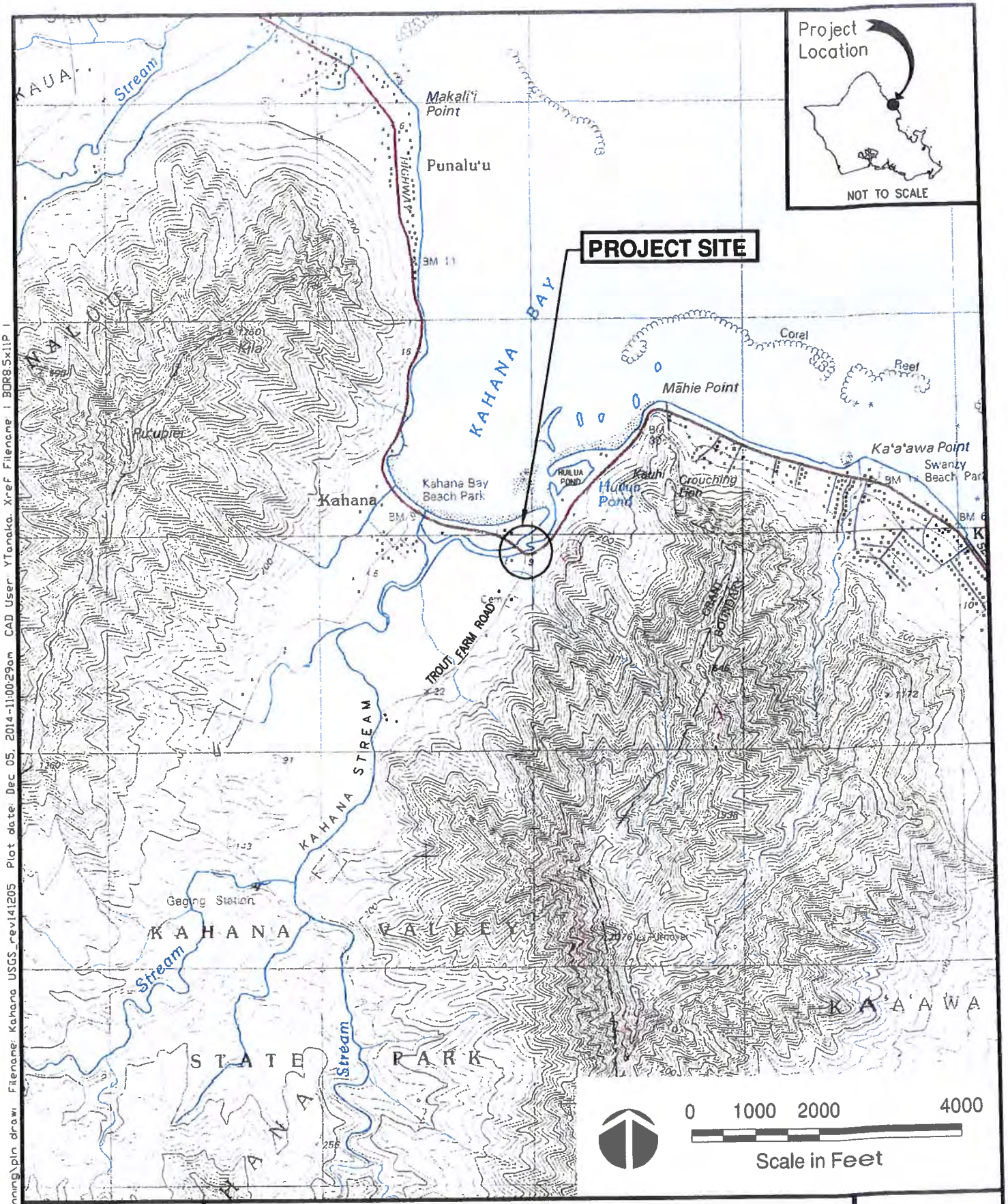
Proposed Land Use

The South Kahana Stream Bridge Replacement project site lies within the Resource subzone of the Conservation District. The temporary bypass bridge and associated improvements outside of the right-of-way; the temporary auxiliary home, and subdivision of land requires the filing of a Conservation District Use Application (CDUA) pursuant to the Hawai'i Administrative Rules (HAR) § 13-5-22, *P-6 PUBLIC PURPOSE USE (D- 1) Not for profit land uses undertaken in support of a public service by an agency of the county, state, or federal government, or by an independent nongovernmental entity, except that an independent non-governmental regulated public utility may be considered to be engaged in a public purpose use. Examples of public purpose uses may include but are not limited to public roads, marinas, harbors, airports, trails, water systems and other utilities, energy generation from renewable sources, communication systems, flood or erosion control projects, recreational facilities, community centers, and other public purpose uses, intended to benefit the public in accordance with public policy and the purpose of the conservation district for a Board permit.*

Project Description

The State of Hawaii Department of Transportation (HDOT), using funds provided by the Federal Highway Administration (FHWA), is proposing to replace the existing South Kahana Stream Bridge and realign both approaches to the replacement bridge. South Kahana Stream Bridge is located at mile marker 26.44 on Kamehameha Highway (Route 83), 9 miles north of Kahaluu and 0.32 miles (1,700 feet) east of the entrance to Ahupua 'a 'O Kahana State Park. Kamehameha Highway is the roadway the public uses to access the windward coast of Oahu. South Kahana Stream Bridge provides the sole means for vehicles traveling on Kamehameha Highway to cross South Kahana Stream. Figure 1 shows the project location map.

The purpose of the South Kahana Stream Bridge Replacement project is to replace the existing bridge with a bridge which meets current HDOT design guidelines. The existing bridge together with the east approach have been rated as functionally obsolete as the existing bridge exhibits deficiencies related to roadway width, hydraulic capacity, structural capacity and seismic standards. The South Kahana Stream Bridge Replacement project is needed to provide the public with a bridge, which will allow continued public access to the windward coast of Oahu. Portions of the replacement bridge and both approaches, the pre-fabricated temporary bypass bridge, and the related construction parcels will be located outside of the existing HDOT 50-foot right of way. The portions of the approaches located outside the right-of-way will be withdrawn from Ahupua 'a 'O Kahana State Park and transferred to the HDOT by an easement for highway purposes. Once construction of the replacement bridge is completed, the temporary bypass bridge will be removed and the area restored. Similarly, the equipment, material and structures, would be removed from the related construction parcels and the areas restored for Park use. Figure 2 shows the replacement/bypass bridge plan.



ENGINEERS PLANNERS
WILSON OKAMOTO CORPORATION

KAMEHAMEHA HIGHWAY, REPLACEMENT OF SOUTH KAHANA STREAM BRIDGE

PROJECT LOCATION MAP

FIGURE 1

Path: V:\7068-01\Planning\pln draw Filename: Kahana USGS_rev141205 Plot date: Dec 05, 2014-11:00:29am CAD User: YTanaka. Xref Filename 1 BOR8.5x11P 1

Path: W:\7068-01\Civil\Exhibits\ Filename: FIGURE 1 - REPLACEMENT BYPASS BRIDGE PLAN Plot date: Mar 03, 2017-09:30:26am CAD User: AAko Xref Filename: bor01_11x17 | X-BRIDGE-ULTIMATE | WDC-SITE-ULTIMATE | X-TOPO | X-BRIDGE-TEMP | WDC-SITE-BYPASS |

TMK: 5-2-002:040

TMK: 5-2-002:039

AHUPUA'A 'O KAHANA STATE PARK

TMK: 5-2-002:001

REALIGNED HIGHWAY AND NEW BRIDGE

Kamehameha Highway

CONSTRUCTION PARCEL FOR STAGING

TMK: 5-2-002:001

KAHANA STREAM

True North
Scale: 1"=200'

TARO PATCH

NEW MHHW=+1.07 ELEV.

R/W

EDGE STREAM

AHUPUA'A 'O KAHANA STATE PARK

SOUTH KAHANA STREAM

EDGE STREAM

approx. r/w

TMK: 5-2-005

R/W

TMK: 5-2-002:001

NORTH KAHANA STREAM

approx. r/w

RIPRAP REVETMENT

SOUTH KAHANA STREAM

Kamehameha Highway

TEMPORARY BRIDGE BYPASS

APPROXIMATE LOCATION TEMPORARY RESIDENTIAL UNIT

TMK: 5-2-005:003

Kamehameha Highway

AHUPUA'A 'O KAHANA STATE PARK

TMK: 5-2-005:001

EDGE STREAM

TMK: 5-2-005:023

TEMPORARY ACCESS ROAD

TMK: 5-2-005:022

RIPRAP REVETMENT

KAHANA BAY

exist. North Kahana Stream Bridge

Kamehameha Highway

STAGING AREA

LEGEND

- STREAM FLOW DIRECTION
- r/w EXISTING RIGHT OF WAY
- R/W NEW RIGHT OF WAY
- TEMPORARY ACCESS
- DETOUR ROADWAY
- NEW BRIDGE

GRAPHIC SCALES:

10' 50' 0 100' 200'

SCALE: 1" = 200'

WILSON OKAMOTO CORPORATION

KAMEHAMEHA HIGHWAY, SOUTH KAHANA STREAM BRIDGE REPLACEMENT, PROJECT NO. BR-083-1 (55)

REPLACEMENT/BYPASS BRIDGE PLAN

FIGURE 2

Figure 3 shows project site photographs.

Areas of Use – State Parks Lands/Set Aside/Construction Parcels
In the vicinity of the bridge, Ahupua 'a 'O Kahana State Park occupies most of the lands on both sides of the 50-foot HDOT-owned highway right-of-way. The majority of the area adjacent to the Bridge Replacement project site is under the control of the Department of Land and Natural Resources (DLNR), Division of State Parks, with the remainder under the control of DLNR Land Division. Lands controlled by the Division of State Parks are TMK: 5-2-002:001; 5-2-005:001; 5-2-005:022; and 5-2-005:023; and by the DLNR Land Division TMK: 5-2-005. The DLNR Land Division lands are not considered part of the Ahupua 'a 'O Kahana State Park. See Figure 2.

The State Parks lands are considered public park lands covered by Section 4(f) of the Department of Transportation Act of 1966 (which has been later revised and recodified but still referred to as Section 4(f). The intent of the Section 4(f) Statute, 49 U.S.C. Section 303, and the policy of the FHWA is to avoid transportation use of historic sites and publicly owned recreational areas, parks, and wildlife and waterfowl refuges.

Ahupua 'a 'O Kahana State Park occupies a total of 5,240.521 acres on both sides of the replacement bridge as shown below.

Ahupua 'a 'O Kahana State Park Land Areas

TMK	Location	Owner	Total Area (ac)
5-2-001:001	Mauka	State Parks	3,881.94
5-2-001:002 (*)	Mauka	State Parks	1,338.67
5-2-005:001	Makai	State Parks	4.970
5-2-005:020	Makai	State Parks	1.480
5-2-005:021	Makai	State Parks	12.868
5-2-005:022(**)	Makai	State Parks	0.312
5-2-005:023(**)	Makai	State Parks	0.2812
Total			**5,240.521**

(*) Lease lots included.
(**) Lot leased to resident.

The replacement bridge and realignment of approaches would use four (4) areas of Ahupua 'a 'O Kahana State Park for the right-of-way. The State Parks areas of use totals about 41,776 square feet (SF) (0.96 acres), including a total approximately 30,180 SF (0.69 acres) of South Kahana Stream located north (makai) of the replacement bridge. Most of the land 10,054 SF is a long tapered shaped area (about 410 feet long by 20 feet wide at its widest), located on TMK: 5-2-002:001 adjacent to the HDOT 50-foot right-of-way south (mauka) of the highway and west of the stream. The remaining areas are a small triangular shape area (about 70 feet long, 1,180 SF) located on TMK: 5-2-005:001 north (makai) of the highway and west of the stream and an area (362 SF) near the roadway access to Huilua Fishpond on TMK: 5-2-005:021. On March 10, 2017, the Board of Land and Natural Resources approved withdrawal of these lands from Ahupua 'a 'O Kahana State Park and use of the these areas of as part of the HDOT right-of-way.

East approach to bridge looking south

East approach looking north

Existing bridge support piers looking south

Residents from house to be relocated to temporary unit

FIGURE 3 Project Site Photographs

HDOT would use the areas outside of the existing right-of-way under an easement and incorporate them into the highway right-of-way.

Appendix A shows the Land Board documents. The table below shows the areas of use outside of right-of-way. Figure 4 shows the areas of use.

Areas of Use

No	TMK	Location	Owner	Land Area (SF)	Stream Area (SF)	Total (SF)
1	5-2-002:001	Mauka	State Parks	10,054	n/a	10,054
2	5-2-005:001	Makai	State Parks	1,180	n/a	1,180
3	5-2-002 (*)	Makai	State Parks	n/a	30,180	30,180
4	5-2-005:021	Makai	State Parks	362	n/a	362
	Total			**11,596**	**30,180**	**41,776**
	5-2-005 (**)	Makai	Land Division	11,302	0	11,302

(*) Stream area.
(**) Land Division lands not part of State Park.

The area of use of about 0.96 acres (41,776 SF) is a minor portion of the State Park. As part of the Section 4(f) documentation, the FHWA has requested State Parks concurrence on the finding that incorporating a portion the Park into the HDOT right-of-way is not anticipated to adversely affect the activities, features, or attributes that make the Park eligible for Section 4(f) protection. The FHWA and HDOT evaluation will be undertaken through the use a Nationwide Programmatic Section 4(f) Evaluation and Approval for Minor Takes of Public Parks, Recreation Lands and Wildlife and Waterfowl Refuges.

State Parks Division parcels TMK: 5-2-002:001, 5-2-005:001 and 5-2-005:021 contain no occupied structures. TMK: 5-2-005:022 and 5-2-005:023 are lease parcels located makai of the highway both of which contain residences.

The area controlled by the Land Division (TMK: 5-2-005) contains a bus stop shelter located at the edge of the west bound (to Kahuku) travel lane. The realigned east approach area of use is about 11,302 square feet, north (makai) of the highway. This Land Division area is not considered part of Ahupua ‘a ‘O Kahana State Park. See Figure 4.

In addition, to the areas of use, a total of 7 construction parcels will be used during the 2-year construction period. The 7 construction parcels are all located within the boundaries of the State Park. The construction parcels will be fenced to secure the parcels, including a dust screen along the portions facing the highway. Once construction is complete, any material or equipment will be removed and the parcel restored to existing conditions, including, where appropriate, planting of trees and vegetation which will help ensure the privacy of nearby residential units and other uses.

Information on the construction parcels is shown in the following table. Figures 4 and 5 show the construction parcels.

Construction Parcels

No.	TMK	Area (sq. ft.)	Purpose
C1	5-2-002: por 001	37,379	Construction ROE
C2	5-2-002: por 001	15,620	Construction ROE
C3	5-2-002: por 001	18,870	Construction ROE
C4	5-2-002:por 001	2,041	Construction ROE
C5	5-2-002: por 001	41,133	Construction ROE
C5A	5-2-005: por 001	2,098	Construction ROE
C6	5-2-005:por 022	3,196	Construction ROE
C7	5-2-005: por 023	12,249	Construction ROE

One of the construction parcels will be used for a temporary residential unit. The temporary residential unit will be used by the resident/lessee in TMK: 5-2-005:023. The temporary bypass bridge approach will be so close to the existing residence that the resident could not remain during there during the construction period. Once construction is complete, the temporary bypass bridge, equipment/material will be removed from the construction parcels, including the temporary residential unit, and the areas restored for Park use.

As previously discussed, on March 10, 2017, the Board of Land and Natural Resources approved the areas use and the construction parcels. The project would require funds provided by the FHWA, and as such, the FHWA has required the HDOT to comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (2006). Compliance with Section 106 requires the identification and approval of an Area of Potential Effect (APE) which is generally defined as .the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE for this project would occupy approximately 6.5 acres and includes the South Kahana Stream footprint, land along both sides of Kamehameha Highway and two staging areas. See Appendix C.

On June 3, 2016, the HDOT requested SHPD concurrence on the APE which would occupy a total of about 6.5 acres. On August 18, 2016, the SHPD concurred on the on the APE.

The APE follows the areas of use and the 7 construction parcels approved by the Board of Land and Natural Resources. Use of additional lands would involve compliance with Section 106, including re-consultation with the State Historic Preservation Division (SHPD), lessees within the park and various Native Hawaiian organizations, approval of a new APE by the SHPD, and later by the Board of Land and Natural Resources.

Bridge Construction

The pre-fabricated temporary bypass bridge would be constructed first so that, once completed, traffic can be diverted onto it to maintain traffic flow without interruption while the existing bridge is removed, and the replacement bridge constructed. Once the pre-fabricated temporary bypass bridge has been completed, the stream channel would be dredged and then the existing bridge would be removed, including cutting the existing concrete piers at the mudline.

Area of Use - Set Aside

FIGURE 4
AREAS OF USE

Source: LAND BOARD; mar 10, 2017

NOTES:
Origin of Azimuths: "KAHANA BASE"
Coordinates referred to: "KAHANA BASE"

TMK: 5-2-005

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
RIGHT OF WAY MAP
KAMEHAMEHA HIGHWAY
REPLACEMENT OF SOUTH KAHANA STREAM BRIDGE
FEDERAL AID PROJECT NO. BR-083-1 (55)
AT KAHANA, KOOLAULOA, OAHU, HAWAII

HONOLULU, HAWAII
September 2, 2016

SCALE

APPROVED:
FOR ADMINISTRATOR, HIGHWAYS DIVISION

GARY S. TAKAMOTO
LICENSED PROFESSIONAL LAND SURVEYOR
No. 7946
HAWAII, U.S.A.

This work was prepared by me or under my direct supervision

By: Gary S. Takamoto
Licensed Professional Land Surveyor
Certificate Number 7946
License Expires 4/18

NO.	REVISION	APPROVED:	DATE

SHEET NO. 3 OF 3 SHEETS

MAP SHOWING CONSTRUCTION PARCELS

22" x 34" = 5.5 SQ. FT.

P.H. 828

TAX MAP KEY: 5-2-02: 01 and 5-2-05: 01
Job No. 03214-A Drawing: 03214-A.dwg

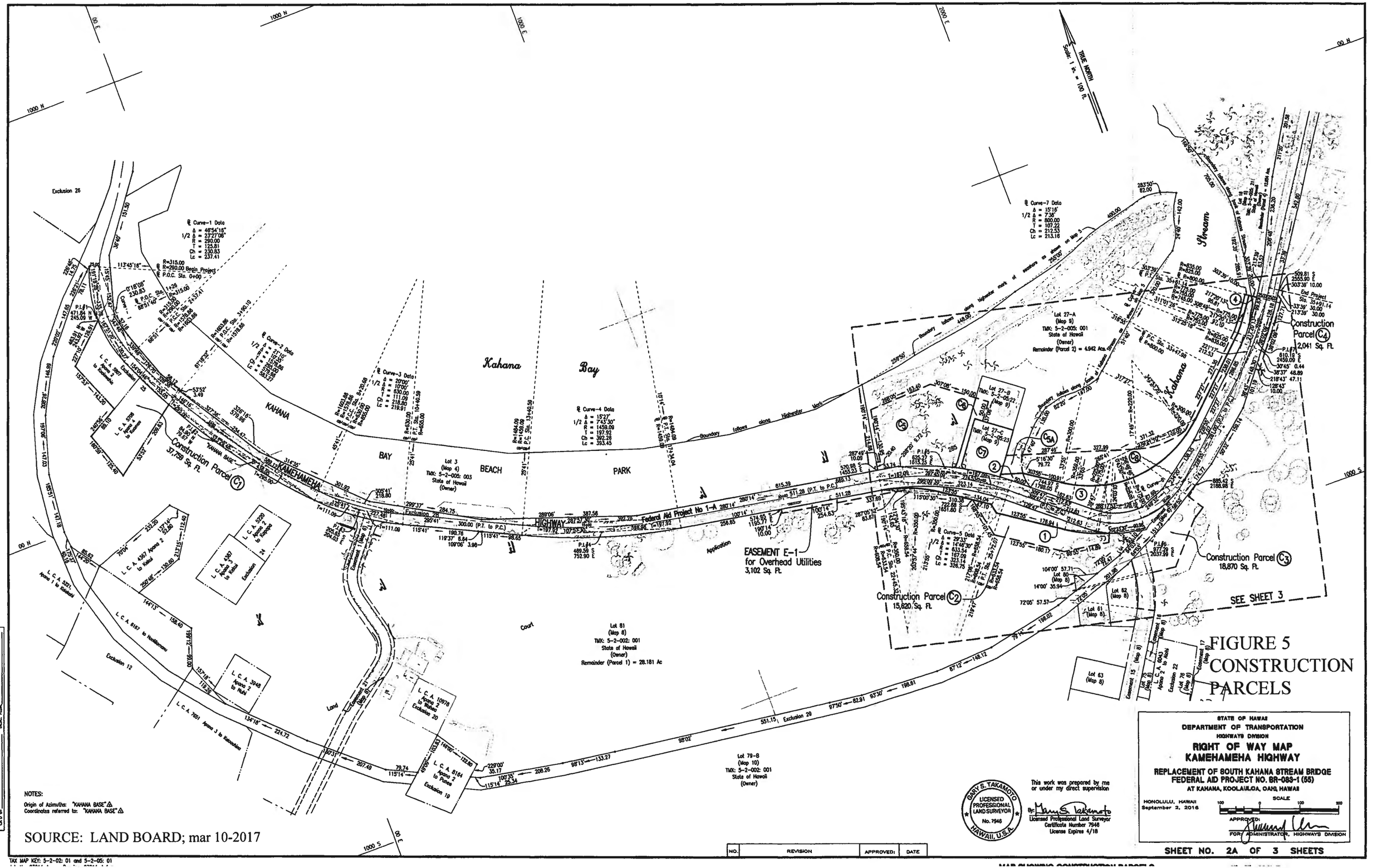


FIGURE 5
CONSTRUCTION PARCELS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
RIGHT OF WAY MAP
KAMEHAMEHA HIGHWAY
REPLACEMENT OF SOUTH KAHANA STREAM BRIDGE
FEDERAL AID PROJECT NO. BR-083-1 (55)
AT KAHANA, KOOLAULOA, OAHU, HAWAII

HONOLULU, HAWAII
September 2, 2016

SCALE: 100 0 100 200

APPROVED:
FOR ADMINISTRATOR, HIGHWAYS DIVISION

GARY S. TAKAMOTO
LICENSED PROFESSIONAL LAND SURVEYOR
No. 7946
HAWAII, U.S.A.

This work was prepared by me or under my direct supervision

By: Gary S. Takamoto
Licensed Professional Land Surveyor
Certificate Number 7946
License Expires 4/18

NO.	REVISION	APPROVED:	DATE

TAX MAP KEY: 5-2-02: 01 and 5-2-05: 01

The pre-fabricated temporary bypass bridge would be located outside of the existing right-of-way about 80 feet north (makai) of the replacement bridge. The pre-fabricated temporary bypass bridge would be 30'-6" wide; (2 12-foot travel lanes; 2 8-foot shoulders; 2 2'-4" bridge rails). The temporary bypass bridge would have a total length of 400 feet consisting of 3 spans (60 feet; 200 feet; and 140 feet) supported by 60 24-inch diameter steel pipe piles driven into place within the stream. The vertical clearance would be 3'-10' at mid-span (approximate). See Figure 2.

The replacement bridge would be designed to meet current HDOT design guidelines. At this time, the design plans show the replacement bridge would be a multiple span bridge with concrete plank deck and cast-in-place topping. The bridge would be 43 feet wide; with 2 11-foot travel lanes; 2 8-foot shoulders; 2 1'-6" concrete bridge rails, and would be a total length of about 396 feet with a stream opening of approximately 170 feet, which is an increase from existing opening of about 90 feet. The bridge super structure would be supported by a total of 27 4-foot diameter concrete drilled shafts with cast in place pile caps spaced at 50'-0" on center. (Note, 12 shafts would be within the widened stream and the remaining 15 shafts above the stream banks.) The widened stream channel would be dredged to match the existing sub-surface conditions at the current elevation (-10 feet) found near the center of the channel. Ungrouted rip rap consisting of armor stone rock would be placed in the channel and on the banks for stabilization purposes. The replacement bridge vertical clearance would be 5'-6" at mid-span (approximate). Also, utility lines would be relocated, including a 30-inch transmission water line and 2-inch water distribution lines. The east approach would be realigned to 300-foot radius curve to provide a smoother transition to the replacement bridge. See Figure 2.

The existing bridge and highway approaches would be used as the land base and staging area for the majority of the construction work. Designated storage areas located adjacent to the south side (mauka) of the highway would be used to store material, supplies, and equipment. Vehicle and equipment fueling sites within these areas would be identified and absorbent pads and containment booms would be stored on-site to facilitate the clean-up in case of an accidental petroleum release. The designated storage areas would also have gravel ingress/egress pads to prevent vehicles and equipment from tracking debris onto adjacent areas. See Figure 2.

Silt fences would be placed at the top of bank along the water edge to contain surface flows, fluids, and other materials from flowing into nearby waters. In addition, land-side silt fences would be placed along construction areas and stream banks for runoff and erosion control. Exposed banks would be mulched to prevent silt and debris from flowing into the stream.

Land based cranes or equivalent pieces of equipment would be used to remove material to widen the stream channel, to dredge the channel to match existing subsurface conditions at the current elevation (-10 feet) found near the center of the channel, and to construct the drilled shafts.

No construction materials or equipment would be staged or stored in the stream channel or Kahana Bay. The stream channel and Kahana Bay are too shallow to stage construction using large boats, barges, or floating platforms. Only a small

work boat would be used for certain work tasks.

The small construction boat would be used to lay a floating boom with weighted silt curtain around the in-water work area as construction progresses. The floating boom would be repositioned as construction progresses. The remaining stream areas would be kept open to allow passage of fish. A floating or fixed platform placed below the bridge deck may be used to capture/contain debris during demolition of the existing bridge superstructure and during construction of the replacement bridge.

A portion of the pre-fabricated temporary bypass bridge would be located less than 5 feet from the corner of the residential unit located on the makai side of the west approach. As a result, a temporary residential unit of about 1,200 square feet would be constructed for use by the resident who will need to relocate during the construction period. The temporary residential unit would be located adjacent to the existing residence makai of the highway on DLNR Division of State Parks land within TMK: 5-2-005:001. A temporary driveway access will be provided to the highway. A connection to the relocated 2-inch waterline would be provided. The temporary residential unit would be connected to the existing individual wastewater system located adjacent to the existing residence on TMK: 5-2-005:023. Also, electrical and cable television service would be provided. See Figure 2.

The temporary residential unit and access driveway occupy about 8,298 square feet on TMK: 5-2-005:001. This area would be used under a construction easement which would expire after the replacement bridge had been completed and the residential unit removed and the area restored.

The construction would start in 2020 and is expected to be completed in 2022, or in about 30 months.

Historic Structure

Originally constructed in 1927, the existing South Kahana Stream Bridge is one of a number of similar reinforced concrete slab bridges built along the windward coast of Oahu around that time.

In August 2006, HDOT consulted with the State of Hawaii Department of Land Natural Resources State Historic Preservation Division (SHPD) at which time they requested that HDOT prepare photographic documentation of the existing South Kahana Stream Bridge in compliance with the National Park Service Standards for Photographic Reproduction Historic American Engineering Record (HAER). At the time, the bridge was determined not eligible for the National Register. In May 2007, the HDOT submitted the HAER photographs to the SHPD.

In 2013, as part of the update to the HDOT's *Hawaii State Historic Bridge Inventory and Evaluation,* the HDOT determined existing South Kahana Steam Bridge eligible for listing on the National Register of Historic Places under Criterion C for its association with early developments in concrete bridge construction in Hawaii. According to the *Historic Bridge Inventory*, it is a good example of a 1920's reinforced concrete bridge that is typical of its period in its use of materials, method of

construction, craftsmanship, and design. Appendix B shows the Historic Bridge Inventory.

Since construction of the replacement bridge would require removal of the existing bridge and the project would require funds provided by the FHWA, the FHWA has required the HDOT to comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (2006). As part of this compliance, on December 2, 2016, the FHWA requested the SHPD's concurrence on the adverse effect determination for the project. On January 31, 2017, SHPD concurred with the adverse effect determination. Since the HDOT will be removing what is considered a National Register eligible historic resource, a Memorandum of Agreement between SHPD and HDOT will be required. Appendix C shows the SHPD documents. The HDOT will prepare a Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges.

Other State Approvals:
On June 3, 2015 the US Coast Guard Fourteenth District determined that the project will not require a Coast Guard bridge permit.

The South Kahana Stream Bridge Replacement project is included in SB 3010 SD 2 HD1 signed by the Governor on July 5, 2012 as Act 218, which exempted the Bridge Replacement project from the requirements of the provisions of the Hawaii Revised Statutes including the following, among others:

- Chapter 6E, Hawaii Revised Statutes, historic preservation;
- Chapter 174C, Hawaii Revised Statutes, state water code;
- Chapter 183, Hawaii Revised Statutes, forest reserves, water development and zoning;
- Chapter 183D, Hawaii Revised Statutes, wildlife;
- Chapter 184, Hawaii Revised Statutes, state parks and recreation areas;
- Chapter 195D, Hawaii Revised Statutes, conservation of aquatic life, wildlife, and land plants;
- Chapter 205, Hawaii Revised Statutes, land use commission;
- Chapter 205A, Hawaii Revised Statutes, coastal zone;
- Chapter 342D, Hawaii Revised Statutes, water pollution control;
- Chapter 342E, Hawaii Revised Statutes, nonpoint source pollution management and control;
- Chapter 342F, Hawaii Revised Statutes, noise pollution;
- Chapter 343, Hawaii Revised Statutes, environmental impact statement;
- Chapter344, HawaiiRevisedStatutes,state environmental policy.

Other Federal permits and approvals:
1) FHWA/NEPA Categorical Exclusion: To be submitted.
2) Corps of Engineers Nationwide No. 14 Pre-Construction Notification: Pending.
3) Coastal Zone Management Consistency Determination: To be submitted.
4) Section 106 SHPD concurrence: Complete January 31, 2017 (Appendix C).
5) Section 106 SHPD Memorandum of Agreement: To be submitted.

6) Section 7 US Fish and Wildlife Service concurrence: Complete February 16 2017 (Appendix D).
7) Section 7 NOAA Protected Species concurrence: Complete January 12, 2017 (Appendix E).
8) Essential Fish Habitat NOAA concurrence: Complete June 16, 2016 (Appendix E).
9) National Pollution Discharge Elimination System (NPDES): To be submitted.
10) Nationwide Programmatic Section 4(f) Evaluation and Approval for Minor Takes of Public Parks, Recreation Lands and Wildlife and Waterfowl Refuges: To be submitted.
11) Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges: To be submitted.

EXISTING CONDITIONS

Please describe existing conditions on the parcel (geology, ecology, cultural and recreational resources, historic resources, structures, landscaping, etc). Attach maps, site plans, topo maps, biological or archaeological surveys as appropriate.

Geology

The Bridge Replacement project site is at the southern edge of Kahana Valley, one of the largest valleys along the Koolau Mountain Range. The Koolau range is the remnant of a major shield volcano that has been transformed by the forces of wind, water and gravity. The Koolau Volcano is estimated to be late Pliocene to early Pleistocene (Ice Age) in age and forms the majority of the eastern two-thirds of Oahu.

Kahana Valley displays a characteristic erosional architecture common in the Hawaiian Islands, termed an amphitheater-headed valley. This type of formation occurs as a youthful gorge matures and a master stream and its tributaries begin to plunge down a steep headwall. The headward (inland) growth of the valley is the result of erosion by these waterfalls. The crest of the Ko'olau Range rises as high as 2,700 feet elevation, while the ridges on either side range between 1,000 to 2,000 feet.

During the long period of volcanic quiescence, deep layers of sediment were deposited on the valley floor due to erosion and changes in sea level. These deposits have formed a wide, relatively flat floodplain at the makai end of the valley, where the South Kahana Bridge is located. Slopes on the valley floor vary from 0 to 10 percent. Slopes outside the floodplain rise quickly to 30 percent or more, which is evident immediately southeast of the project site where the steep sided cliffs of the valley rise to 1,000 feet elevation over less than one-half mile distance.

The coastal area of Kahana lies within the Coastal Plain province of Oahu and is to the northeast of the Koolau Mountain province. As a result, much of the generally flat land area in the vicinity is underlain by unconsolidated coastal sediments (coralline sands and silts) with pockets of hard, cemented sand dunes (sandstone) and coral/limestone rock formation.

The subsurface conditions along the replacement bridge site and the approaches were explored by drilling and sampling eight borings extending to depths of about 11.5 feet to 158 feet below the existing ground or bridge surface. The borings generally encountered a surface fill layer about 1 to 11 feet thick underlain by lagoonal and recent alluvial deposits to about 51 to 74 feet below the existing ground or bridge surface. Below the lagoonal and recent alluvial deposits, older alluvial and saprolitic soils were encountered extending to the maximum depth explored of about 158 feet below the existing bridge surface. Beach sand was encountered below the surface fill layer in two of the drilled borings.

The surface fill layer generally consisted of loose to dense silty sand and sand, and hard silty clay. The lagoonal deposits were composed of very loose to medium dense gravels and sands with some silt and clay, and very soft to hard silty/sandy clay and clayey/sandy silt. The recent alluvium consisted of very soft to stiff silts and clays with sand and

gravel, and loose to dense sands and gravels with clay, silt, and cobbles. The older alluvium had a consistency ranging from medium stiff to very stiff and medium dense to very dense, and consisted of clays and silts with sand and gravel, and sands and gravels with silt and clay. In addition, hard to very hard cobbles and boulders were encountered in the older alluvium. The saprolite was composed of stiff to very stiff clayey silt with highly weathered gravel.

Ground water was encountered in the borings drilled at about 3 to 11 feet below the existing ground or bridge surface at the time of the field exploration. The ground water levels encountered generally correspond to about -2.5 to +4 feet mean sea level. Due to the proximity of the project site to the Pacific Ocean, ground water levels are expected to vary with tidal fluctuations. Ground water levels may also vary with seasonal rainfall, time of year, and other factors.

Ecology

In the lower part of the valley, Kahana Stream forms a long estuary. The shore of the estuary in this area is mostly sand, derived from the Bay, as the former has built seaward. The banks support dense stands of hau (*Hibiscus tiliaceus*) and red mangrove (*Rhizophora mangle*).

Kahana Stream Mouth

At the mouth of Kahana Stream, the bottom is boulders and silt; underwater visibility is poor (1-2 ft). In this area, juvenile flagtail (*aholehole, Kuhlia xenura*), surgeonfishes (*Acanthuridae*), and blacktail snapper (*Lutjanus fulvus*) are common. Also occurring in small numbers are portunid crabs and a glass shrimp (*Palaemon debilis*). Appendix F contains the Biological Evaluation and Essential Fish Habitat Assessment (April 3, 2016).

Kahana Bay

The bottom of Kahana Bay is a shallow platform of marine and river derived sediments. Water depth is shallow in the Bay, not exceeding 1.5 m (5 feet). The reef flats that border both sides of the Bay transition to a soft bottom of riverine deposited material fronting Kahana Stream mouth. Reef frontal slopes descend steeply to a sand-bottom channel running through the middle of the Bay. Back reef flats are sand and rubble. Consolidated limestone predominates across the outer portion of each reef flat. Off Pu'u Mahie Point (northeast), large blocks of limestone occur on the nearshore reef flat. Boulders and rubble characterize the nearshore bottom on the reef flat off Kaluapiileho Point.

Huilua Fishpond

The 7-acre (2.8-hectares) Huilua Fishpond is located in the east side of the Bay and receives subterranean flow from the Kahana watershed. In 1962, the fishpond was designated a National Historic Landmark. It is presently under restoration. The fishpond is home to salt and freshwater fishes and is an integral part of Ahupua ‘a ‘O Kahana State Park.

Silt predominates on the bottom seaward of the stream mouth, with numerous invertebrate burrows in evidence. Sand and loose rubble make up the bottom adjacent to the fishpond rock wall. On the exposed boulders of the wall occur barnacles (*Balanus*

trigonus), Hawaiian mussel (*Brachiodontes crebristriatus*), and black nerite snail (*pipi pi*; *Nerita picea*). Other invertebrates observed on or near the fishpond wall include cowry (*Cypraeidae)* and woven top shell (*Trochus intextus*). Schools of juvenile flagtail and Hawaiian sergeant or mamo (*Abudefduf abdominalis*) are common. Other fishes associated with the fishpond wall include juvenile manini (*Acanthurus triostegus*), blacktail snapper, saddle wrasse (*Thalassoma duperrey*), and small schools of yellowfin goatfish (*M ulloidichthys vanicolensis*).

Inside the fishpond, the bottom is sand and loose rubble. This rubble hosts algae (*Padina* sp., *Hypnea* sp., *Dictyota acutiloba, Hydrolithion reinboldii, and Acanthophora spicifera*) with coverage at 50-90%. Presence of *Acanthophora spicifera* increases towards the north side of the pond. Tufts of cyanobacteria (*Lyngbya majuscule and Symploca hydnoides*) occur in small amounts. Numerous burrows in the sand host the Hawaiian shrimp goby (*Psilogobius mainlandl*) and commensal shrimp (*Alpheus rapax*). Less common larger burrow are probably maintained by portunid crabs. Other invertebrates encountered include sea cucumber (*Opheodesoma spectablis*) and variable worm snail (*Serpulorbis variabilis*). Coralline algae (*Uania* sp. *and Hydrolithion reinboliddl)* are also present. Cyanobacteria (*Lyngbya majuscule*) is abundant and covers most of the hard bottom in about 1.5 m (5 feet) water depth, near the center of the fishpond.

A total of 13 species of fishes were observed in the fishpond. Juvenile fishes common in the pond include manini, blacktail snapper, Hawaiian sergeant, wrasses (*Stethojulis balteata* and *T. duperrey*), Hawaiian flagtail, raccoon butterflyfish (*Chaetodon lunula*), and yellowfin goatfish. Other fishes encountered include ringtail surgeonfish (*Acanthurus blochii*), barred jack (*Carangoide ferdau*), square-spot goatfish (*Mulloidichthys flavolineatus*), snowflake moray (*Echidna nebulosa*), and an unidentified goby (*Gobidae*).

Kahana Bay Seaward of Huilua Fishpond

Offshore of the fishpond, across the reef flat, the bottom is mostly sand with algae-covered rubble. Common green algae encountered include *Neomeris spp., Codium spp., Dictyosphaeria versluys, Ulva spp.,* and *Halimeda opuntia*. Brown algae are represented by *Dictyota spp., Padina sanctae-crucis, Turbinaria ornata,* and *Martensia fragilis*. Red algae are dominant with two introduced invasive species - *Acanthophora spicifera* and *Gracilaria Salicornia* - comprising the bulk of seaweeds observed.

Corals are uncommon in the backreef flat. Four taxa were observed: *Porites lutea, Porites compressa, Pocillopora damicornis,* and *Pocillopora meandrina*. Coral colonies here are mostly small (generally 2 to 20 cm across). Few other non-coral invertebrates are seen here: ashy sea cucumber (*Holothuria cinerascens*) and Edward's portunid crab (*Thalamita edwardsi*) being exceptions.

Juvenile fishes are common around boulders and coral colonies and include square-spot goatfishes, manini, Hawaiian domino damsel (*Dascyllus albisella*), raccoon butterflyfish, wrasses (*Novaculichthys taeniourus* and *T. duperrey*), and file fish (*Cantherhines sp.*). Adult fishes encountered in the area include Hawaiian sergeant, stripebelly puffer (*Arothron hispidus*), brown surgeonfish (*Acanthurus nigrofuscus*), threadfin butterflyfish

(Chaetodon auriga), wrasses *(Stethojulius balteata* and *T. duperrey),* and bluespotted cornetfish *(Fistularia commersonil).* A total of 13 fish species were observed associated with the reef flat area.

Federal Compliance–Listed Species

Use of federal funding requires the project comply with certain requirements in the Endangered Species Act of 1973 (ESA) (16 USC 1531-1544) and Magnuson-Stevens Fishery Conservation and Management Act (MSFCA). A combined Biological Evaluation (BE) and Essential Fish Habitat Assessment (EFHA) was prepared to address the impact of the South Kahana Stream Bridge Replacement project on Endangered Species Act (ESA) listed and proposed to be listed as threatened and endangered species and designated critical habitats. (See Appendix F).

The replacement bridge project includes work that will be completed in and over Kahana Stream and has the potential to impact the following ESA-listed species that occur in the area: green sea turtle (*Chelonia mydas*), hawksbill turtle (*Eretmochelys imbricata*), Hawaiian monk seal (*Monachus schauinslandii*), and humpback whale (*Megaptera novaeangliae*) and their habitats.

Green sea turtles are distributed across the Pacific, Indian, and Atlantic oceans as well as in the Mediterranean Sea. All green turtle populations are listed as threatened under the ESA in 1978, except for the breeding populations in Florida and on the Pacific Coast of Mexico, which are listed as endangered. Globally, most green sea turtle nesting populations declined substantially during the 20th century. Conservation efforts over the past 25 years appear to have produced positive results. However, threats and impacts persist for many green sea turtle populations. No green sea turtles were observed in the area of the Bridge Replacement project site in previous surveys conducted in 2006 or 2014, although preferred foraging species occur in the area.

Hawksbill turtles are distributed across the Pacific, Indian, and Atlantic oceans. All hawksbill turtles were listed as endangered under the ESA in 1978. The global population has declined by more than 80 percent over the last 30 years. Hawksbill turtles face many of the same threats affecting green sea turtles. In addition, there remains a commercial market for hawksbill shell products, despite protections afforded this species under U.S. law and international conventions.

Nearly all hawksbill nesting and foraging in Hawai'i occurs in the Main Hawaiian Islands, although the full extent of hawksbill nesting in Hawaii is undetermined. Females nest in a variety of habitats including black and white sand beaches, small pocket coves covered in cobbles or rugged lava, and up in beach vegetation. Since monitoring began in 1989, hawksbill nesting activity has been confirmed at 22 sites in the main Hawaiian Islands; 13 on the Island of Hawaii, 8 on Maui, and 1on Molokai. There also may be occasional nesting on the windward coast of Oahu. Over percent of the documented hawksbill nesting activity in Hawai'i occurs along the Kau Coast of the Island of Hawaii. Regular nesting also occurs on Maui and Molokai. According to satellite tracking, the Hamakua Coast of the Island of Hawaii appears to be an important foraging area for hawksbill sea turtles.

No hawksbill turtle nesting has been documented in the area of the Bridge Replacement project site. Data are insufficient to estimate hawksbill density in Hawaiian waters and within the action area. However, hawksbill sea turtles are much less common than green sea turtles.

Hawaiian monk seals consist of a single population that is distributed throughout the Hawaiian Archipelago and Johnston Atoll. They are found primarily in the Northwest Hawaiian Islands, but sightings are becoming increasingly common in the Main Hawaiian Islands, and births have been documented on most of the major islands. Hawaiian monk seals were listed as endangered under the ESA in 1976. The Hawaiian monk seal population has been in decline for more than 20 years. The 2007 recovery plan estimated the population at about 1,200 individuals, and stated that there is concern for the long term maintenance of genetic diversity. The recovery plan further reported the annual rate of decline at 3.9 percent. In 2008, the population was estimated at 1,161 seals, with minimum population estimates of 913 seals in the Northwest Hawaiian Islands and 113 seals in the Main Hawaiian Islands.

No specific information is available to quantify the number of monk seals in the area of the Bridge Replacement project site. The majority of Hawaiian monk seal sighting information collected in the Main Hawaiian Islands is reported by the general public and is highly biased by location and reporting effort. The only truly systematic monk seal count data available are from aerial surveys conducted by the Pacific Islands Fisheries Science Center in 2000-2001 and 2008..One complete survey of Oahu was conducted for each of these years. The 2000 survey was conducted from an airplane, and the 2001 and 2008 surveys of Oahu were both conducted by helicopter. No Hawaiian monk seals were sighted at Kahana Bay during the three aerial surveys. Reports by the general public, which are non-systematic and not representative of overall seal use of the Main Hawaiian Island shorelines, have been collected in the main Hawaiian Islands since the early 1980s. One monk seal sighting has been reported at Kahana Bay between the years 2005 to 2014. This single sighting occurred in September 2013 at Kahana Beach Park, and the seal was identified as an adult male monk seal.

On August 21, 2015, the National Marine Fisheries Service issued a final rule to revise the critical habitat for the Hawaiian monk seal *(Neomonachus schauinslandi)* pursuant to the Endangered Species Act. The final rule included the designation of the waters surrounding the Main Hawaiian Islands as critical habitat for the Hawaiian monk seal. The critical habitat for the Bridge Replacement project extends from the shoreline out to the 200 meter depth contour, but including only the seafloor and marine habitat to 10 meter in height. Terrestrial critical habitat (for pupping and nursing and hauling out) has been designated in this final rule, but does not include the area for the Bridge Replacement project.

Federal funding requires the project comply with certain requirements in the Endangered Species Act (ESA) and the Magnuson-Stevens Fishery Conservation and Management Act (MSFCA). A combined Biological Evaluation (BE) and Essential Fish Habitat Assessment (EFHA) was prepared to address the impact of the South Kahana Stream Bridge Replacement project on ESA listed and proposed to be listed as threatened and endangered species and designated critical habitat and the requirements of the MSFCA.

Based on the analysis of the possible impacts on ESA-listed species and critical habitat provided above, the BE/EFH Analysis concluded the potential stressors posed by the proposed improvements would result in insignificant impacts, or the likelihood of impacts would be discountable, for ESA-listed sea turtles and marine mammals and on critical habitat for Hawaiian monk seals.

The BE/EFH Analysis also concluded the physical and acoustical impacts created during construction of the temporary bypass bridge and replacement bridge would be localized and temporary; and that the piles of the replacement bridge would provide additional physical complexity for fish resources.

Based on the information provided by the BE/EFH analysis, the nature of the proposed work, and the implementation of construction mitigation measures and project BMPs, on May 11, 2016, the FHWA determined that, based on the information provided by the BE/EFH Analysis, the nature of the proposed work, and the minimal short term impcts created during construction, the may affect, but is not likely to adversely affect and threatened or endangered species and Hawaiian monk seal critical habitat. On June 2, 2016, NOAA concurred with the FHWA determination. Appendix E contains the FHWA and NOAA documents.

As part of the determination, the FHWA stated, in an effort to minimize impacts to the EFH, HDOT would implement the following measures during construction:

1. The existing bridge and highway approaches would be used as the land base and staging area for the majority of the construction work. Designated storage areas located adjacent to the south side of the highway would be used to store material, supplies, and equipment. Vehicle and equipment fueling sites within these areas would be identified and absorbent pads and containment booms would be stored on-site, if appropriate, to facilitate the clean-up of accidental petroleum releases. Silt fences would be placed at the top of bank along the water edge to contain surface flows, fluids, and other materials from flowing into nearby waters. The designated storage areas would also have gravel ingress/egress pads to prevent vehicles and equipment from tracking debris onto adjacent areas.

2. No construction materials or equipment would be staged or stored in the stream channel or Kahana Bay. The stream channel and Kahana Bay are too shallow to stage construction using large boats, barges, or floating platforms. Only small work boats would be used for certain work tasks.

3. A land based crane or equivalent piece of equipment would be used to remove material to widen the stream channel, to dredge the channel to match existing conditions, and to construct the drilled shafts. Exposed banks would be mulched to prevent silt and debris from flowing into the stream.

4. A small construction boat would be used to lay a floating boom with weighted silt curtain around the in-water work area as construction progresses. The floating boom and silt curtain would be repositioned as construction progresses. The remaining stream areas would be kept open to allow passage of fish. Land-side silt fences would be placed along construction areas and stream banks for runoff and erosion control. A floating or fixed platform placed below the bridge deck may be used to capture/contain debris during demolition of the existing bridge superstructure and during construction of the replacement bridge.

5. Implementation of the project Best Management Practices (BMPs) as listed on pages 6-7 of the BE/EFH Analysis.

On June 16, 2016, NOAA replied to the FHWA and concurred that the bridge replacement project will have minimal effects on Essential Fish Habitat, if all of the proposed and the following additional construction measures and BMPs are implemented and adhered to: (See Appendix E)

1. Conduct work from land and avoid in-water work as much as possible. When in-water work must be conducted, construction activities should take place during a time of year that would have the least environmental impacts to aquatic species (low flow season). Also, ensure that materials used for the bridge are nontoxic to aquatic organisms (avoid pressure treated lumber).

2. Design the structure to maintain or replicate natural stream channel and flow conditions to the greatest extent practicable. The structure should be able to pass peak flows in accordance with state and federal regulations. Ensure sufficient hydrologic data have been collected.

3. Minimize introduction of sediments, road materials and pollutants into receiving waters. Specify construction, stormwater, and erosion prevention BMPs in construction plans. If BMPs are found to be ineffective, i.e. sediment re-suspension and turbidity is detected outside of silt curtains and barriers immediately adjacent to bridge project area, the contractor should halt construction and re-initiate construction only when water quality and conditions have reached ambient levels and effective BMPs have been implemented.

4. Clearly document erosion and sediment control BMPs for dredging activities in construction plans and communicate to contractor. When/if stored on land, ensure that dredge spoils are covered and that appropriate BMPs are implemented to prevent erosion and sedimentation into receiving waters.

5. Ensure that dredge spoils are properly disposed of according to state and federal regulations.

6. Use only native vegetation for stabilization plantings and maintain or stabilize upstream and downstream channel and bank conditions if the structure causes erosion or accretion problems.

7. Avoid impervious surfaces in wetlands and consider low impacts development stormwater practices to retain storm flows and pollutants on-site and maintain roadway and associated stormwater collection systems properly.

8. Ensure that the hydrodynamics and sedimentation patterns of the stream and new bridge are properly modeled and that the design avoids erosion to adjacent properties when/if "hard" stabilization is deemed necessary.

9. Reduce acoustical impacts as much as possible and specify techniques in construction plan.
   a. Drive piles during low tide periods.
   b. Implement "soft starts" to minimize potential impacts to fish.
   c. Use a vibratory hammer to install piles, when possible. Under those conditions where impact hammers are required for reasons of seismic stability or substrate type, it is recommended that the pile be driven as deep as possible with a vibratory hammer prior to the use of the impact hammer.
   d. Implement measures to attenuate the sound or minimize impacts to aquatic resources during piling installation. Methods include, but are not limited to, surrounding the pile with dewatered cofferdams (to the mudline) and/or air bubble curtain system.

10. Ensure the integrity of erosion control/prevention measures in the case of predicted high rainfall. Halt activities in periods of high and extended rainfall.

Waterbirds

In addition to the information regarding the South Kahana Stream and Kahana Bay, in December 2012, a biological survey was conducted on the land area for 100 m (328 feet) in all directions from the center of the replacement bridge site to determine the presence of listed waterbirds, and signs of their nesting activity. The survey used one avian count station on each side of the bridge. A single 30-minute time dependent waterbird count was made at each station. Field observations were made with the aid of binoculars and by listening for vocalizations. Appendix G contains the December 13, 2012 letter report.

During the December 2012 survey, no listed waterbird species were detected, nor were any nests recorded near the Bridge Replacement project site. The habitat present along the stream banks within the surveyed area is not suitable for nesting by any of the three extant endangered waterbird species Hawaiian Stilt (Himantopus mexicanus knudseni); Hawaiian Coot (Fulica alai), and Common Gallinule (Gallinula galeata sandvicensis), known from the windward side of the Island of Oahu. A possible exception is a small area of grass and weedy material along the east side of the stream approximately 50

meter (164 feet) northeast of the bridge that could theoretically provide nesting substrate for Hawaiian Coot. However, given the paucity of suitable vegetation and the location adjacent to the highway, this would be an unlikely place to find nesting coots.

The habitat in the upland areas is also not suitable for nesting by endangered waterbirds. Most of the upland is comprised of lawns and gardens associated with human habitation.

Cultural and Recreational Resources

As previously discussed, the South Kahana Stream Bridge Replacement project will use funding provided by the FHWA. As such, it would be considered a federal action and undertaking, as defined by the Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (2006). Further, Section 106 requires the identification an Area of Potential Effect (APE) for the project which is defined as "the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The area of potential effect is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking."

The APE for this project would occupy a total of 6.5 acres in two separated areas, and includes about 1.2 acres or 49,204 square feet of the 22-foot wide travelway of Kamehameha Highway where no construction activities would occur. The first APE (APE 1) is 5.6 acres and extends along and on both sides of Kamehameha Highway. The boundaries are approximately 1,300 feet long by 310 feet wide at its widest point. About 58,100 square feet or 24 percent of the 5.6 acres are within the footprint of South Kahana Stream. The land area of this APE, on both sides of the stream, is about 4.3 acres or 185,000 square feet and is mostly of fill material from the construction of the existing South Kahana Bridge. The second APE is located approximately 1,800 feet west of the western edge of APE l, south of Kamehameha Highway. It is a rectangular area of 0.9 acres and was previously used for construction staging during construction of the North Kahana Stream Bridge.

The project would incorporate a small portion of Ahupua 'a 'O Kahana State Park as part of the HDOT right-of-way for realignment of the roadway approaches to the replacement bridge. A temporary detour road and bypass bridge would be installed north or downstream of the existing bridge for the duration of construction. In addition, a temporary access driveway would be provided to the two residential parcels affected by the temporary bypass. Temporary construction staging areas are also included in the described APE.

A summary of the historical, cultural, and archaeological background for the APE follows.

> It is likely that this Koolau region of Oahu was settled early and was an area of dense population (Handy & Handy 1972:271). Kirch (1985:69) comments that:
>
> "For the early Polynesians with their mixed horticultural and fishery subsistence base, the windward Oahu valleys were an

ideal locus in which to establish permanent settlements."

Elspeth Sterling (1978) describes the vicinity of the project area as follows:
"Nearer the sea, a group of small terraces, apparently watered by springs, is under cultivation between the highway and the mountain east of Huilua Fishpond. From this point up the mouth of the valley for some distance there appear to be ten-ace flats under the guava and remains of cane plantings. (Sterling and Summers, 1978)."

Based on their chronometric analysis, Hommon and Bevacqua (1973) concluded that cultural deposits within a sand dune locality near Huilua fishpond, along the eastern shore of Kahana Bay (State Site 50-80-06-1546), date back to the 8th Century AD. Early dates are being re-evaluated but few would doubt early settlement at Kahana.

Based on available documents and research, no known historic properties have been identified within the APE (other than the bridge itself as previously discussed), on November 2, 2015, as part of the Section 106 requirements, the HDOT consulted with the SHPD; on December 2, 2016 the FHWA requested concurrence that the project will have an adverse effect on historic properties. On January 31, 2017, the SHPD concurred. (See Appendix C).

The east side of the mouth of Kahana Valley is, however, relatively rich in archaeological sites. Huilua Fishpond (SIHP # 50-80-06-0301), approximately 650 feet to the northeast of the replacement bridge project, has been declared a National Historic Landmark. There have been burial finds on the *makai* side of Kamehameha Highway to the northeast.

On August 2015, a Section 106 notice regarding the undertaking was included in the Office of Hawaiian Affairs *Ka Wai Ola o OHA* (See Appendix H-1) and, on October 1, 2015, a Section 106 notice/advertisement placed in the *Honolulu Star Advertiser*. (See Appendix H-2). Native Hawaiian organizations and Native Hawaiian descendants with ancestral lineal or cultural ties to, cultural knowledge or concerns for, and cultural or religious attachment to the proposed project area were requested to contact Christine Yamasaki, Project Manager, via email at christine.yamasaki@hawaii.gov or by U.S. Postal Service to Hawaii Department of Transpo ltation, 601 Kamokila Boulevard, Room 609, Kapolei, Hawaii 96707. On October 22, 2015, one e-mail comment was submitted to HDOT. (See Appendix H-3) On October 27, 2015, HDOT responded to the comment. (See Appendix H-4).

On November 2, 2015, the HDOT consulted with the Department of Land and Natural Resources (DLNR) State Historic Preservation Division (SHPD) by letter. (See Appendix H-5) In addition, on November 23, 2015, Section 106 consultation letters were sent to the 75 lessees, Native Hawaiian organizations, other organizations, and individuals. (See Appendix H-6 and Appendix H-7). On December 29, 2015, a comment letter was received from the Office of Hawaiian Affairs. (See Appendix H-8). On February 25, 2016, the

HDOT responded. (See Appendix H-9). On February 19, 2016, a Section 106 consultation letter was sent to the Historic Hawaii Foundation. See Appendix H-10).
A lo'i kalo (taro patch) is located on the mauka side of the highway on the east approach. The lo'i kalo has been used by the Kahana community for a number of years to grow taro and to teach the public and school children about growing taro. The lo'i is irrigated by a spring and 'auwai (ditch) that leads into the lo'i from the hillside above. The replacement bridge project has been designed to avoid any improvements or changes which would affect or disrupt the lo'i.

Historic Resources, Structures
Originally constructed in 1927, the existing South Kahana Stream Bridge is one of a number of similar reinforced concrete slab bridges built along the windward coast of Oahu around that time. In May 2007, at the request of the Department of Land and Natural Resources, State Historic Preservation Division (SHPD), the HDOT prepared photo documentation of the existing South Kahana Stream Bridge in compliance with the National Park Service Standards for Photographic Reproduction Historic American Engineering Record (HAER). On May 30, 2007 the photographs were submitted to the SHPD. On September 17, 2012, at the request of SHPD, a disk with the photographs was submitted to SHPD.

In 2013, as part of the update to the HDOT's *Hawaii State Historic Bridge Inventory and Evaluation,* the existing South Kahana Steam Bridge was determined to be eligible for listing on National Register of Historic Places under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1920's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. (See Appendix B).

FHWA Determination
On December 2, 2016, the FHWA stated, "in August 2016, the SHPD determined that since the HDOT is removing what is considered a National Register eligible historic resource, a Memorandum of Agreement (MOA) needs to be prepared. Further, the FHWA stated " based on our analysis, site observations and consultation the SHPD, the Office of Hawaiian Affairs, the Hawaii Historic Foundation, the Kahana Community Associations, lessees of Ahupua 'a 'O Kahana State Park, Native Hawaiian Organizations, and other interested parties, the FHWA has determined the project will have an adverse effect of historic properties.". On January 31, 2017 the SHPD concurred. (See Appendix C).

The MOA will document that the project will be implemented in accordance with stipulations to take into account the effect of the project on the historic bridge. In addition, the MOA will include that documentation will be required of the existing bridge in accordance to HAER standards. The HDOT completed this documentation in May 2007:

Landscaping
The south side of highway, between Kahana Stream and Trout Farm Road, is a mixed wet forest that consists of an assemblage of tropical almond (*Terminalia catappa*),

umbrella plant (*Schefflera actinophylla*), gunpowder tree (*Trema orientalis*), coconut (*Cocos nucifera L*), and False Kamani, (*Terminalia Catappa)*. This assemblage of trees merges with the riparian forest vegetation along the stream, which consists primarily of red mangrove or *Rhizophora mangle* (located below the high tide line) and hau (*Hibiscus tiliaceus)* (located above the high tide line). The ground layer is composed of a variety of grasses and weeds. None of this vegetation is a US Fish and Wildlife Service or DLNR listed species.

North of the highway on the east approach the vegetation includes a large tropical almond (*Terminalia catappa*) tree near the bus stop. The ground cover is mostly herbaceous growth with a mix of Hilo grass (*Paspalum conjugatum*) and Bermuda grass (*Cynodon dactylon)* which transitions to seashore paspalum (*Paspalum vaginatum*), hau (*Hibiscus tiliaceus*), and wedelia (*Sphagneticola trilobata*) growing along the water's edge. None of this vegetation is a US Fish and Wildlife Service or DLNR listed species.

Hau (*Hibiscus tiliaceus*) is the primary vegetation along the highway west of the replacement bridge in the area of the connecting access driveway to the temporary residential unit. A small section of the vegetation will need to be removed to construct the access driveway.

The replacement bridge project does not include decorative or accent landscaping. Construction of the replacement bridge will require removal of the existing vegetation north of the highway on the east approach to construct the replacement bridge and realign the east approach. Rip rap will also be placed in the area north of the highway to provide scour protection for the stream bank and replacement bridge.

There will be no vegetation removal south (mauka) of the highway between the stream and Trout Farm Road.

EVALUATION CRITERIA

The Department or Board will evaluate the merits of a proposed land use based upon the following eight criteria *(ref §13-5-30 (c)):*

1. **The purpose of the Conservation District is to conserve, protect, and preserve the important natural and cultural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare. *(ref §13-5-1)* How is the proposed land use consistent with the purpose of the conservation district?**

The replacement bridge has been designed to minimize use of lands outside of the existing highway 50-foot right-of-way. The design plans show the total land area outside of the right-of-way, including the stream and temporary residential unit, used by the replacement bridge project will be about 29,781 square feet, (0.68 acres), and, excluding the temporary residential unit, about 21,481 square feet, (0.49 acres).

Lands outside of the right-of-way are controlled by the Division of State Parks and Land Division and do not contain occupied structures. Similarly, the land to be used for the temporary residential unit does not contain occupied structures. Thus, the Bridge Replacement project would preserve and protect the land and natural resources surrounding the replacement bridge.

The Bridge Replacement project also includes realignment of the east approach, which along with the existing bridge, have been rated as functionally obsolete. Realignment of the approach would provide a smoother transition for drivers thereby enhancing public health and welfare.

As previously discussed, based on available documents and research, no known historic properties have been identified within the Area of Potential Effect (APE), other than the bridge itself.

A lo'i kalo (taro patch) is located on the mauka side of the highway on the east approach. The lo'i kalo has been used by the Kahana community for a number of years to grow taro and to teach the public and school children about growing taro. The lo'i is irrigated by a spring and 'auwai (ditch) that leads into the lo'i from the hillside above. The Bridge Replacement project has been designed to avoid any improvements or changes which would affect or disrupt the lo'i.

Based on the above, the replacement bridge project will preserve the natural and cultural resources of the area surrounding the highway and bridge. Further, the minimum use of lands outside of the highway right-of-way will be consistent with the purpose of the conservation district.

1. **How is the proposed use consistent with the objectives of the subzone of the land on which the land use will occur? *(ref §13-5-11 through §13-5-15)***

The Bridge Replacement project is an identified use in Hawai'i Administrative Rules (HAR) §13-5-22, P-6 PUBLIC PURPOSE USE (D-1), defined as: *not for profit land uses undertaken in support of a public service by an agency of the county, state, or federal government, or by an independent non- governmental entity, except that an independent non-governmental regulated public utility may be considered to be engaged in a public purpose use. Examples of public purpose uses may include but are not limited to public roads, marinas, harbors, airports, trails, water systems and other utilities, energy generation from renewable sources, communication systems, flood or erosion control projects, recreational facilities, community centers, and other public purpose uses, intended to benefit the public in accordance with public policy and the purpose of the conservation district.*

The use of adjacent State Park and Land Division lands is needed to provide a replacement bridge which meets HDOT current design guidelines, which also includes realignment of the east approach curve with a larger radius curve to provide a smoother transition. The existing bridge together with its approaches have been rated as functionally obsolete. The existing bridge exhibits deficiencies related to roadway width, hydraulic capacity, structural capacity and seismic standards. Thus, the replacement bridge will benefit the public by providing a replacement bridge and realigned approaches, which will improve traffic flow along the windward coast of Oahu. The replacement bridge stream opening will be increased from about 90 feet to about 170 feet to improve stream flow which will benefit residences living upstream by decreasing the flood hazard to their homes and properties.

The temporary bypass bridge is needed to maintain traffic flow without interruption during the construction period. Once the replacement bridge is completed, the temporary bypass bridge will be removed, including cutting the temporary steel pipe piles at the mudline. Thus, the temporary bypass will benefit the public by allowing uninterrupted traffic flow while the replacement bridge is constructed.

A portion of the temporary bypass bridge will be located less than 5 feet from the corner of the residential unit located on the west approach. A temporary residential unit would be constructed for use by the resident who will need to relocate during the construction period. Given the need to provide temporary comparable temporary housing at a location along the windward coast for the 24-month construction period and the adverse effect on the property and resident, and the extensive comments provided at a public meeting held in Ahupua 'a 'O Kahana State Park, HDOT determined that providing temporary housing on adjacent land was the preferable method to accommodate the relocated resident. The temporary residential unit would be located on DLNR Division of State Parks land located adjacent to the existing residence.

The area of the temporary residential unit occupies about 8,298 square feet on TMK: 5-2-005:003, which is DLNR Division of State Parks land adjacent to the existing residence. HDOT would use the land under a construction easement which would expire after the replacement bridge had been completed and residential unit removed and the area restored.

2. **Describe how the proposed land use complies with the provisions and guidelines contained in chapter 205A, HRS, entitled "Coastal Zone Management"** ***(see 205A objectives on p. 8).***

Land uses are required to comply with the provisions and guidelines contained in Chapter 205A, Hawaii Revised Statutes (HRS), entitled "Coastal Zone Management," as described below:

- **Recreational resources: Provide coastal recreational opportunities accessible to the public.**

The South Kahana Stream Bridge Replacement project is not located adjacent to shoreline and would not affect coastal recreation opportunities accessible to the public.

There are no State Park facilities or improvements adjacent to either side of the highway in the vicinity of the replacement bridge. There is an open grassy area makai of the east approach to the bridge. This open grassy area can be used to access to the stream and estuary. A City and County of Honolulu bus stop shelter is the only structure on this open grassy area. There are no State Park improvements or facilities on this grassy area.

South Kahana Stream and the estuary have been used for fishing, laying net, crabbing, and other subsistence and recreation uses. Pole-fishermen cast off from the separated wooden walkway attached to the mauka side of the existing bridge.

The replacement bridge will have 2 8-foot shoulders, one on each side, for emergency use. The replacement bridge does not have a separated walkway.

The east approach realignment to the replacement bridge would remove the grassy open area makai of the highway to provide a smooth transition to the bridge. A 28-5/8 inch high W-beam metal guardrail would be constructed on the makai side of the east approach to meet HDOT design guidelines. Although the estuary adjacent to the grassy area is so shallow such that under low tide conditions the area becomes exposed, the grassy area has been used for fishing and other subsidence and recreation uses. Ungrouted rip rap consisting of armor stone rocks would be placed along this section of the steam/estuary to protect the stream bank and the piers of the replacement bridge. The estuary area could still be accessible for subsistence and recreation use.

As a part of the environmental review process, the FHWA has responsibilities to comply with Section 4(f) of the Department of Transportation Act of 1966 (which has been later revised and recodified but still referred to as Section 4(f). The intent of the Section 4(f) Statute, 49 U.S.C. Section 303, and the policy of the FHWA is to avoid transportation use of historic sites and publicly owned recreational areas, parks, and wildlife and waterfowl refuges. Ahupua'a O Kahana State Park qualifies as a Section 4(f) property.

Ahupua'a O Kahana State Park occupies a total of about 5,240.521 acres. The replacement bridge and realignment of approaches would use four areas of the State Parks which total about 41,776 SF (0.96 acres) as follows:

TMK: 5-2-002:001	10,054 SF - south of the highway;
TMK: 5-2-005:001	1,180 SF - north of the highway;
TMK: 5-2-005:021	362 SF - north of the highway.
TMK: 5-2-002	30,180 SF - north of the highway (all stream)

The land area used for the right-of-way, about 0.96 acres, comprises small percentage of the total 5,234.80 acres occupied by Ahupua'a O Kahana State Park.

On February 21, 2017, a request for comment was posted in the *Honolulu Star Advertiser* to afford the public an opportunity to review and comment on the effects of the project, including that the project will be covered by a Programmatic Section 4(f) Evaluation and Approval for Minor Takes of Public Parks, Recreation Lands and Wildlife and Waterfowl Refuges. FHWA received no comments on the anticipated recreation impacts. Appendix I shows the request for comment.

The FHWA will prepare a Programmatic Section 4(f) Evaluation for this project to address improvements the existing highway and to use minor amounts publicly owned public parks, recreation lands, or wildlife and waterfowl refuges that are adjacent to existing highways. The Programmatic Section 4(f) Evaluation satisfies the requirements of Section 4(f). No individual Section 4(f) analysis will need be prepared for this project.

- **Historic resources: 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.**

An Area of Potential Effect (APE) was assessed for this project. The APE for this project would occupy a total of 6.5 acres in two separated areas, and includes about 1.2 acres or 49,204 square feet of the 22-foot wide travelway of Kamehameha Highway where no construction activities would occur. The first APE (APE 1) is 5.6 acres and extends along and on both sides of Kamehameha Highway. The boundaries are approximately 1,300 feet long by 310 feet wide at its widest point. About 58,100 square feet or 24 percent of the 5.6 acres are within the footprint of South Kahana Stream. The land area of this APE, on both sides of the stream, is about 4.3 acres or 185,000 square feet and is mostly of fill material from the construction of the existing South Kahana Bridge. The second APE is located approximately 1,800 feet west of the western edge of APE l, south of Kamehameha Highway. It is a rectangular area of 0.9 acres and was previously used for construction staging during construction of the North Kahana Stream Bridge.

The project would incorporate a small portion of Ahupua 'a 'O Kahana State Park as part of the HDOT right-of-way for realignment of the roadway approaches to the replacement bridge. A temporary detour road and bypass bridge would be installed north or downstream of the existing bridge for the duration of construction. In addition, a temporary access driveway would be provided to the two residential parcels affected by the temporary bypass. Temporary construction staging areas are also included in the described APE.

Based on available documents and research, no known historic properties have been identified within the APE (other than the bridge itself as discussed below).

Originally constructed in 1927, the existing South Kahana Stream Bridge is one of a number of similar reinforced concrete slab bridges built along the windward coast of Oahu around that time. In May 2007, at the request of the Department of Land and Natural Resources, State Historic Preservation Division (SHPD), the HDOT prepared photo documentation of the existing South Kahana Stream Bridge in compliance with the National Park Service Standards for Photographic Reproduction Historic American Engineering Record (HAER). On May 30, 2007 the photographs were submitted to the SHPD. On September 17, 2012, at the request of SHPD, a disk with the photographs was submitted to SHPD.

In 2013, as part of the update to the HDOT's *Hawaii State Historic Bridge Inventory and Evaluation,* the existing South Kahana Steam Bridge was determined to be eligible for listing on National Register of Historic Places under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1920's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. (See Appendix B).

On December 2, 2016, the FHWA stated, "in August 2016, the SHPD determined that since the HDOT is removing what is considered a National Register eligible historic resource, a Memorandum of Agreement (MOA) needs to be prepared. Further, the FHWA stated " based on our analysis, site observations and consultation the SHPD, the Office of Hawaiian Affairs, the Hawaii Historic Foundation, the Kahana Community Associations, lessees of Ahupua 'a 'O Kahana State Park, Native Hawaiian Organizations, and other interested parties, the FHWA has determined the project will have an adverse effect of historic properties." On January 31, 2017, the SHPD concurred. (See Appendix C).

The MOA will document that the project will be implemented in accordance with stipulations to take into account the effect of the project on the historic bridge. In addition, the MOA will include that documentation will be required of the existing bridge in accordance to HAER standards. The HDOT completed this documentation in May 2007:

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

The Bridge Replacement project will leave scenic and open space views largely unaffected. The replacement bridge solid concrete railings will be 42 inches high to meet HDOT design guidelines for vehicle and bicycle travel. The new W-beam metal guardrail on the makai side of the east approach will be 28-5/8 inches high. These will be the only above ground structures associated with the Bridge Replacement project. The dimensions of the bridge railings and the guardrail are established by design guidelines,

which, for the most part, have been designed to protect the safety of drivers, bicyclists, and pedestrians using the highway and the bridge. The bridge railings and guardrail will not affect open space resources.

- **Coastal ecosystems: Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.**

The existing bridge and highway approaches will be used as the land base/staging area by the contractor for the majority of the construction work. Kahana Bay and the stream channel are too shallow to stage construction using large boats, barges, or floating platforms. Only small work boats will be used for certain work tasks.

Land based crane or equivalent piece of equipment will be used to remove material to widen the stream channel, to dredge the channel to match existing conditions, and to construct the drilled shafts and pile caps, place the concrete plank deck and pour the cast-in-place concrete topping.

A small construction boat will be used to lay a floating boom with weighted silt curtain around the in-water work area to control silt and debris. The floating boom and silt curtain will be repositioned as construction progresses. The remaining stream areas will be kept open to allow passage of fish. Land-side silt fences will be placed along construction areas and stream banks for runoff and erosion control. A floating or fixed platform placed below the bridge deck may be used to capture/contain debris from falling into the stream during demolition of the existing bridge superstructure and during construction of the replacement bridge.
These measures will protect coastal ecosystems, including the reefs from adverse impacts during the construction period.

- **Economic uses: Provide public or private facilities and improvements important to the State's economy in suitable locations.**

Kamehameha Highway, including the replacement bridge, is a public facility which provides the sole means of public access along this portion of the windward coast of Oahu. The replacement bridge is located to allow vehicles to cross South Kahana Stream and will continue to allow public access to this area of the windward coast.
The Bridge Replacement project will be a public facility used for public purposes. Travel along the windward coast of Oahu is necessary to promote the State's economy.

- **Coastal hazards: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.**

South Kahana Bridge is located in a drainageway of the floodplain that covers the base of the valley. The Federal Emergency Management Agency's (FEMA's) Flood Insurance Rate Maps (FIRMs) Community Panel 15003C0165F, September 30, 2004, indicates, the Bridge Replacement project site is within Zone AE, defined as areas subject to inundation by the 1 percent annual chance flood event with base flood elevation determined. The FIRM map shows the base elevation as +8.0 feet in the area of the replacement bridge. A

small portion of the area east of the replacement bridge is within Zone X, defined as areas of 0.2 percent annual chance flood event.

The Flood Insurance Study (Flood Insurance Study, City and County of Honolulu, Hawaii, Vol. 1 of 4, 2014) stated that flooding at the project area is caused by sand dunes obstructing the bridges, which outlet the flow into the ocean. Further upstream, flooding occurs in the overbank due to inadequate capacity of the existing natural channel section to convey the flow.

The replacement bridge stream opening will be about 170 feet compared to the existing stream opening of about 90 feet. This will increase the hydraulic capacity of the stream opening to carry flows during storm events thereby reducing hazards to nearby areas, including the residential areas upstream of the replacement bridge.

The project site is within the tsunami zone, as are almost all coastal areas on Oahu. Historically, Kahana Bay has not suffered any major damage from tsunamis, although an 8-foot runup was recorded at the bay in 1960. It is possible that the bay is somewhat protected, due to its fringing reef and long, gently sloping bottom.

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

There have been two public meetings regarding the Bridge Replacement project. The purpose of the meetings was to notify the public about the project and to discuss the purpose and need for the project, including various alternatives for placement of the temporary bypass bridge. First, the HDOT requested to be placed on the agenda of the Kahana Community Association monthly meeting which was held on April 14, 2015 at the Kahana Community Center. A total of three broad members and five community members attended. (See Appendix H-11) Second, the HDOT mailed public meeting notices to the lessees in the State Park. The second meeting was held on June 4, 2015 at the Kahana Community Center and attended by 15 members of the public. (See Appendix H-12) At both meetings, the attendees provided questions and comments and the HDOT responded during the meeting. One of the main points of discussion at both meetings was the siting of the temporary bypass bridge and its effect on nearby residents.

In addition to the public meetings, as previously discussed, the Bridge Replacement project will be considered a federal action (an undertaking), as defined by Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (2006). In August 2015, a public notice was published in the Office of Hawaiian Affairs (OHA) newsletter *Ka Wai Ola o OHA*. (See Appendix H-1). In addition, on October 1, 2015 a legal notice was published in the *Honolulu Star Advertiser*. (See Appendix H-2). In both notifications, Native Hawaiian organizations and Native Hawaiian descendants with ancestral lineal or cultural ties to, cultural knowledge or concerns for, and cultural or religious attachment to the proposed project area were requested to contact Christine Yamasaki, Project Manager, via email at christine.yamasaki@hawaii.gov or by U.S. Postal Service to Hawaii Department of Transpo ltation, 601 Kamokila Boulevard,

Room 609, Kapolei, Hawaii 96707. On October 22, 2015, one e-mail comment was submitted to HDOT. (See Appendix H-3) On October 27, 2015, HDOT responded to the comment. (See Appendix H-4).

On November 2, 2015, the HDOT consulted with the Department of Land and Natural Resources (DLNR) State Historic Preservation Division (SHPD) by letter. (See Appendix H-5) No response was received by HDOT. In addition, on November 23, 2015, Section 106 consultation letters were sent to the 75 lessees, Native Hawaiian organizations, other organizations, and individuals. (See Appendix H-6 and Appendix H-6). On December 29, 2015, one comment letter was received from the Office of Hawaiian Affairs. (See Appendix H-8). On February 25, 2016, the HDOT responded. (See Appendix H-9). On February 19, 2016, a Section 106 consultation letter was sent to the Historic Hawaii Foundation. See Appendix H-10)

- **Public participation:Stimulate public awareness, education, and participation in coastal management.**

There have been two public meetings regarding the replacement bridge project. The purpose of the meetings was to notify the public about the project and to discuss the purpose and need for the project, including various alternatives for placement of the temporary bypass bridge. First, the HDOT requested to be placed on the agenda of the Kahana Community Association monthly meeting which was held on April 14, 2015 at the Kahana Community Center. A total of three Community Association board member and five community members were in attendance. (See Appendix H-11) Second, on June 4, 2015, the HDOT conducted a meeting following a notification by mail to 39 lessees in living in Ahupua 'a 'O Kahana State Park and others. A total of 15 public members attended the meeting. (See Appendix H-12). At both meetings, the attendees provided questions and comments and the HDOT responded during the meeting. One of the main points of discussion at both meetings was the siting of the temporary bypass bridge and its effect on nearby residents.

In addition to the public meetings, as previously discussed, the Bridge Replacement project will be considered a federal action and undertaking, as defined by Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (2006). In August 2015, a public notice was published in the Office of Hawaiian Affairs (OHA) newsletter *Ka Wai Ola o OHA.* (See Appendix H-1). In addition, on October 1, 2015 a legal notice was published in the *Honolulu Star Advertiser.* (See Appendix H-2). notifications, Native Hawaiian organizations and Native Hawaiian descendants with ancestral lineal or cultural ties to, cultural knowledge or concerns for, and cultural or religious attachment to the proposed project area were requested to contact Christine Yamasaki, Project Manager, via email at christine.yamasaki@hawaii.gov or by U.S. Postal Service to Hawaii Department of Transpo ltation, 601 Kamokila Boulevard, Room 609, Kapolei, Hawaii 96707. On October 22, 2015, one e-mail comment was submitted to HDOT. (See Appendix H-3) On October 27, 2015, HDOT responded to the comment. (See Appendix H-4).

On November 2, 2015, the HDOT consulted with the Department of Land and Natural Resources (DLNR) State Historic Preservation Division (SHPD) by letter. (See

Appendix H-5) No response was received by HDOT. In addition, on November 23, 2015, Section 106 consultation letters were sent to the 75 lessees, Native Hawaiian organizations, other organizations, and individuals. (See Appendix H-6 and Appendix H-7). On December 29, 2105, one comment letter was received from the Office of Hawaiian Affairs. (See Appendix H-8). On February 25, 2016, the HDOT responded. (See Appendix H-9).

- **Beach protection: Protect beaches for public use and recreation.**

The Bridge Replacement project is located on South Kahana Stream. The closest beach area is located about 800 feet north of the replacement bridge and 700 feet north of the temporary bypass bridge. The replacement bridge project will not affect beaches for public use and recreation.

- **Marine resources: Promote the protection, use, and development of marine and coastal resources to assure their sustainability.**

The existing bridge and highway approaches will be used as the land base/staging area by the contractor for the majority of the construction work. Kahana Bay and the stream channel are too shallow to stage construction using large boats, barges, or floating platforms. Only small work boats will be used for certain work tasks.

Land based crane or equivalent piece of equipment will be used to remove material to widen the stream channel, to dredge the channel to match existing conditions, and to construct the drilled shafts and pile caps, place the concrete plank deck and pour the cast-in-place concrete topping.

A small construction boat will be used to lay a floating boom with weighted silt curtain around the in-water work area to control silt and debris. The floating boom and silt curtain will be repositioned as construction progresses. The remaining stream areas will be kept open to allow passage of fish. Land-side silt fences will be placed along construction areas and stream banks for runoff and erosion control. A floating or fixed platform placed below the bridge deck may be used to capture/ contain debris from falling into the stream during demolition of the existing bridge superstructure and during construction of the replacement bridge. These measures will protect coastal ecosystems and marine resources, including the reefs from adverse impacts during the construction period.

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

The Bridge Replacement project is located within the highway right-of-way, portions of adjacent lands, South Kahana Stream, and its adjacent banks. Construction will be staged from the existing bridge and highway approaches. In addition, areas adjacent to the highway will be used to store construction equipment and materials, including one area west of the State Park entrance previously used for construction of North Kahana Stream

bridge. These measures are designed to minimize use of lands outside of the existing highway right-of-way and will ensure that the Bridge Replacement project will not cause substantial adverse impacts to existing natural resources within the surrounding area, community or region.

4. **Describe how the proposed land use; including buildings, structures and facilities, is compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels.**

This section of Kamehameha Highway is classified as a rural principal arterial, one of several roadway classifications established by the Federal Highway Administration (FHWA) and which sets forth design guidelines for highways and bridges.

The replacement bridge railings will be 42 inches high to meet design guidelines for bicycle travel on a rural principal arterial highway. The new guardrail on the makai side of the east approach will be a W-beam metal guardrail and will be 28-5/8 inches high. These bridge railings and the guardrail will be the only above ground structures associated with the replacement bridge project. The dimensions of the bridge railings and the guardrail are established by design guidelines, which, for the most part, have been designed to protect the safety of drivers and bicyclists using the highway and the bridge. The bridge railings and guardrail will be appropriate be the rural setting of the replacement bridge.

5. **Describe how the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon.**

The Bridge Replacement project is located within the highway right-of-way, South Kahana Stream, and its adjacent banks. Construction will be staged from the existing bridge and highway approaches. In addition, areas adjacent to the highway will be used to store construction equipment and materials, including one area west of the State Park entrance previously used for construction of North Kahana Stream bridge. These measures are designed to minimize use of lands outside of the existing highway right-of-way and will preserve the natural beauty and open space characteristics of the area of the replacement bridge project.

6. **If applicable, describe how subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District.**

The area of use outside of the right-of-way will not be subdivided. HDOT will use these areas outside of the existing right-of-way under an easement and incorporate them into the highway right-of-way. The area of the temporary residential unit would be used under a construction easement which would expire after the replacement bridge had been completed and residential unit removed and the area restored.

The total land area of use outside of the existing highway right-of-way is 11,596 square feet. Of this total, 10,054 square feet mauka of the highway and a total of 1,542 square feet makai of the highway is control of the Division of State Parks. Also, an area of 11,302 square feet makai of the highway is under the control of DLNR Land Division and not considered as part of Ahupua 'a 'O Kahana State Park. These areas will become part of the HDOT right-of-way and a portion will be used for the travel way of Kamehameha Highway. These areas will not significantly increase the intensity of the land used for highway purposes.

7. **Describe how the proposed land use will not be materially detrimental to the public health, safety and welfare.**

The replacement bridge railings will be 3'-6" high to meet design guidelines for vehicle and bicycle traffic on a rural principal arterial highway. The new guardrail on the makai side of the east approach will be a W-beam metal guardrail and will be 28-5/8 inches high. These bridge railings and the guardrail will be the only above ground structures associated with the replacement bridge project. The dimensions of the bridge railings and the guardrail are established by design guidelines, which, for the most part, have been designed to protect the safety of drivers and bicyclists using the highway and the bridge. Thus, the replacement bridge project will not be materially detrimental to the public health, safety and welfare.

CULTURAL IMPACTS

Articles IX and XII of the State Constitution, other state laws, and the courts of the State require government agencies to promote and preserve cultural beliefs, practices, and resources of Native Hawaiians and other ethnic groups.

Please provide the identity and scope of cultural, historical and natural resources in which traditional and customary native Hawaiian rights are exercised in the area.

As required by Section 106 of the National Historic Preservation Act of 1966, as amended (2006), an Area of Potential Effect (APE) has been determined for the project which is defined as "the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking."

An Area of Potential Effect (APE) was assessed for this project. The APE for this project would occupy a total of 6.5 acres in two separated areas, and includes about 1.2 acres or 49,204 square feet of the 22-foot wide travelway of Kamehameha Highway where no construction activities would occur. The first APE (APE 1) is 5.6 acres and extends along and on both sides of Kamehameha Highway. The boundaries are approximately 1,300 feet long by 310 feet wide at its widest point. About 58,100 square feet or 24 percent of the 5.6 acres are within the footprint of South Kahana Stream. The land area of this APE, on both sides of the stream, is about 4.3 acres or 185,000 square feet and is mostly of fill material from the construction of the existing South Kahana Bridge. The

second APE is located approximately 1,800 feet west of the western edge of APE 1, south of Kamehameha Highway. It is a rectangular area of 0.9 acres and was previously used for construction staging during construction of the North Kahana Stream Bridge.

The project would incorporate a small portion of Ahupua 'a 'O Kahana State Park as part of the HDOT right-of-way for realignment of the roadway approaches to the replacement bridge. A temporary detour road and bypass bridge would be installed north or downstream of the existing bridge for the duration of construction. In addition, a temporary access driveway would be provided to the two residential parcels affected by the temporary bypass. Temporary construction staging areas are also included in the described APE.

A summary of the historical, cultural, and archaeological background for the APE follows.

> It is likely that this Koolau region of Oahu was settled early and was an area of dense population (Handy & Handy 1972:271). Kirch (1985:69) comments that:
>
> > "For the early Polynesians with their mixed horticultural and fishery subsistence base, the windward Oahu valleys were an ideal locus in which to establish permanent settlements."
>
> Elspeth Sterling (1978) describes the vicinity of the project area as follows:
> "Nearer the sea, a group of small terraces, apparently watered by springs, is under cultivation between the highway and the mountain east of Huilua Fishpond. From this point up the mouth of the valley for some distance there appear to be ten-ace flats under the guava and remains of cane plantings. (Sterling and Summers, 1978)."
>
> Based on their chronometric analysis, Hommon and Bevacqua (1973) concluded that cultural deposits within a sand dune locality near Huilua fishpond, along the eastern shore of Kahana Bay (State Site 50-80-06-1546), date back to the 8th Century AD. Early dates are being re-evaluated but few would doubt early settlement at Kahana.

Based on available documents and research, no known historic properties have been identified within the APE (other than the bridge itself as previously discussed).

The east side of the mouth of Kahana Valley is, however, relatively rich in archaeological sites. Huilua Fishpond (SIHP # 50-80-06-0301), approximately 650 feet to the northeast, has been declared a National Historic Landmark. There have been burial finds on the *makai* side of Kamehameha Highway to the northeast.

A lo'i kalo (taro patch) is located on the mauka side of Kamehameha Highway on the east approach. The lo'i kalo has been used by the Kahana community for a number of years to teach the public and school children about growing taro. The lo'i is irrigated by

a spring and 'auwai (ditch) that leads into the lo'i from the hillside above. The Bridge Replacement project has been designed to avoid any improvements or changes which would affect or disrupt the lo'i.

Historic Resources, Structures
Originally constructed in 1927, the existing South Kahana Stream Bridge is one of a number of similar reinforced concrete slab bridges built along the windward coast of Oahu around that time. In May 2007, at the request of the Department of Land and Natural Resources, State Historic Preservation Division (SHPD), the HDOT prepared photo documentation of the existing South Kahana Stream Bridge in compliance with the National Park Service Standards for Photographic Reproduction Historic American Engineering Record (HAER). On May 30, 2007 the photographs were submitted to the SHPD. On September 17, 2012, at the request of SHPD, a disk with the photographs was submitted to SHPD.

In 2013, as part of the update to the HDOT's *Hawaii State Historic Bridge Inventory and Evaluation,* the existing South Kahana Steam Bridge was determined to be eligible for listing on National Register of Historic Places under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1920's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. (See Appendix B).

Based on available documents and research, no known historic properties have been identified within the APE (other than the bridge itself as previously discussed), on November 2, 2015, as part of the Section 106 requirements, the HDOT consulted with the SHPD; on December 2, 2016 the FHWA requested concurrence that the project will have an adverse effect on historic properties. On January 31, 2017, the SHPD concurred. (See Appendix C).

Identify the extent to which those resources including traditional and customary Native Hawaiian rights, will be affected or impaired by the proposed action.

The realigned east approach to the replacement bridge would remove the grassy open area to provide a smooth transition to the bridge. A 28-5/8 inch high W-beam metal guardrail would be constructed on the makai side of the east approach to meet design guidelines. Although the estuary adjacent to the grassy area is so shallow such that under low tide conditions the area becomes exposed, the grassy area has been used for fishing and other subsidence and recreation uses. Rip rap consisting of armor stone rocks would be placed along this section of the steam/estuary to protect the stream bank and the replacement bridge. The estuary area could still be accessible for subsistence and recreation use.

A lo'i kalo (taro patch) is located on the mauka side of Kamehameha Highway on the east approach. The lo'i kalo has been used by the Kahana community for a number of years to teach the public and school children about growing taro. The lo'i is irrigated by a spring and 'auwai (ditch) that leads into the lo'i from the hillside above. The Bridge

Replacement project has been designed to avoid any improvements or changes which would affect or disrupt the lo'i.

What feasible action, if any, could be taken by the BLNR in regards to your application to reasonably protect native Hawaiian rights?

As discussed above, the replacement bridge has been designed to maintain existing subsistence and recreation uses found in the area. This will ensure these existing practices are maintained without interruption.

OTHER IMPACTS

Does the proposed land use have an effect (positive/negative) on public access to and along the shoreline or along any public trail?

No. The Bridge Replacement project is not located along the shoreline or along a public trail. Pedestrian access will be allowed along the both shoulders of the replacement bridge.

Does the proposed use have an effect (positive/negative) on beach processes?

No. The Bridge Replacement project is not located along the shoreline. As such, the proposed use will have no effect on beach processes.

Will the proposed use cause increased runoff or sedimentation?

No. As previously discussed, during construction, land-side silt fences will be placed along construction areas and stream banks for runoff and erosion control.

Will the proposed use cause any visual impact on any individual or community?

No. The replacement bridge project will use 42-inch high solid concrete railings to meet design guidelines for vehicle and bicycle travel. The new W-beam metal guardrail on the makai side of the east approach will be 28-5/8 inches high. These will be the only above ground structures associated with the replacement bridge project. The dimensions of the bridge railings and the guardrail are established by design guidelines, which, for the most part, have been designed to protect the safety of drivers, bicyclists, and pedestrians using the highway and the bridge. The replacement bridge project will not cause any visual impact on any individual or the community will leave scenic and open space views largely unaffected.

Please describe any sustainable design elements that will be incorporated into the proposed land use ***(such as the use of efficient ventilation and cooling systems; renewable energy generation; sustainable building materials; permeable paving materials; efficient energy and water systems; efficient waste management systems; et al.).***

The replacement bridge is a structure. No sustainable design elements will be incorporated into its design.

If the project involves landscaping, please describe how the landscaping is appropriate to Conservation District ***(e.g. use of indigenous and endemic species; xeriscaping in dry areas; minimizing ground disturbance; maintenance or restoration of the canopy; removal of invasive species; habitat preservation and restoration; et al.).***

The replacement bridge project does not include decorative or accent landscaping. Construction of the replacement bridge will require removal of the existing vegetation

north of the highway on the east approach to construct the replacement bridge and realign the east approach. Rip rap will also be placed in the area north of the highway to provide scour protection for the stream bank and replacement bridge.

Please describe the Best Management Practices that will be used during construction and implementation of the proposed land use.

Above the stream banks, land-side silt fences will be placed along the construction areas and stream banks for runoff and erosion control. Land based crane or equivalent piece of equipment will be used to remove material to widen the stream channel, to dredge the channel to match existing conditions, and to construct the drilled shafts and pile caps, place the concrete plank deck, and pour the cast-in-place concrete topping.

A small construction boat will be used to lay a floating boom with weighted silt curtain around the in-water work area to control silt and debris. The floating boom and silt curtain will be repositioned as construction progresses. The remaining stream areas will be kept open to allow passage of fish.

A floating or fixed platform placed below the bridge deck may be used to capture/contain debris from falling into the stream during demolition of the existing bridge superstructure and during construction of the replacement bridge.

Please describe the measures that will be taken to mitigate the proposed land use's environmental and cultural impacts.

The Bridge Replacement project is located within and adjacent to the highway right-of-way, South Kahana Stream, and its adjacent banks. Construction will be staged from the existing bridge and highway approaches. In addition, areas adjacent to the highway will be used to store construction equipment and materials, including one area west of the State Park entrance previously used for construction of North Kahana Stream bridge. These measures are designed to minimize use of lands outside of the existing highway right-of-way and will preserve the natural beauty and open space characteristics of the area of the replacement bridge project.

A lo'i kalo (taro patch) is located on the mauka of the highway and east of the bridge and Trout Farm Road. The lo'i kalo has been farmed by the Kahana community for many generations. The lo'i is irrigated by a spring and 'auwai (ditch) that leads into the lo'i from the hillside above. The Bridge Replacement project has been designed to avoid any improvements or changes which would affect or disrupt the lo'i.

SINGLE FAMILY RESIDENTIAL STANDARDS

Single Family Residences must comply with the standards outlined in §13-5 Exhibit 4.

Size of Lot:

	Existing	Proposed	Total
Proposed building footprint			
Paved areas / impermeable surfaces			
Landscaped areas			
Unimproved areas			

Setbacks Front: Sides: Back:

Shoreline Properties

Average Lot Depth (ALD): Average annual coastal erosion rate: Minimum shoreline setback based on Exhibit 4:

Actual shoreline setback of proposed structure:

Maximum Developable Area

The maximum developable area computation shall include all floor areas under roof, including first, second, and third story areas, decks, pools, saunas, garage or carport, and other above ground structures.

Maximum Developable Area based on Exhibit 4: Actual Developed Area of proposed residence:

Actual height of the proposed building envelope as defined in Exhibit 4:

Compatibility

Provide justification for any proposed deviation from the established residential standards. How is the design of the residence compatible with the surrounding area?

If grading is proposed include a grading plan which provides the amount of cut and fill. Has grading or contouring been kept to a minimum?

CERTIFICATION

I hereby certify that I have read this completed application and that, to the best of my knowledge, the information in this application and all attachments and exhibits is complete and correct. I understand that the failure to provide any requested information or misstatements submitted in support of the application shall be grounds for either refusing to accept this application, for denying the permit, or for suspending or revoking a permit issued on the basis of such misrepresentations, or for seeking of such further relief as may seem proper to the Land Board.

I hereby authorize representatives of the Department of Land and Natural Resources to conduct site inspections on my property. Unless arranged otherwise, these site inspections shall take place between the hours of 8:00 a.m. and 4:30 p.m.

Signature of authorized agent(s) or if no agent, signature of applicant

AUTHORIZATION OF AGENT

I hereby authorize N/A to act as my representative and to bind me in all matters concerning this application.

N/A

Signature of applicant(s)

APPENDIX A

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 14, 2017

Ref: 16OD-174

MEMORANDUM

TO: Ford N. Fuchigami, Director
Department of Transportation

FROM: Suzanne D. Case, Chairperson
Department of Land and Natural Resources

SUBJECT: Withdrawal from Governor's Executive Order No. 3518 and Reset Aside to Department of Transportation for Highway Purposes, Issuance of Right-of-Entry Permit for Construction Parcels; Kahana, Koolauloa, Oahu, Tax Map Key: (1) 5-2-002: portions of 001, (1) 5-2-005: portions of 001, 021, 022, and 023, and portions of Kahana Stream.

We are pleased to inform you that at its meeting of March 10, 2017, under agenda item D-8 (copy enclosed), the Board of Land and Natural Resources (Board) approved, as amended, the above-referenced request. The Board added Recommendation 4 to the submittal which states that "The Department of Transportation shall negotiate in good faith and enter into a letter of agreement with the affected lessee, Carol Soga, about her lease on Parcel 22."

Pursuant to the same Board approval, the Department of Transportation ("DOT"), its consultants, contractors and/or persons acting for or on its behalf, are hereby granted a right-of-entry permit to utilize the subject properties identified and shown on the maps attached as Exhibit A1 and A2 of the enclosed submittal, subject to the following terms and conditions:

1. The right-of-entry shall be effective upon acceptance of the terms and conditions herein and expire upon issuance of the executive order.

2. DOT shall ensure its consultants, contractors and/or persons acting for or on its behalf shall procure, at their own cost and expense, and maintain during the entire period of this right-of-entry, from an insurance company or companies licensed or authorized to do business in the State of Hawaii with an AM Best rating of not less than "A-" or other comparable and equivalent industry rating, a policy or policies of comprehensive public liability insurance or its equivalent, in an amount of at least $1,000,000 for each occurrence and $2,000,000 aggregate, and with coverage terms

acceptable to the Chairperson of the Board. The policy or policies of insurance shall name the State of Hawaii as an additional insured and a copy shall be filed with the State of Hawaii, Department of Land and Natural Resources. The insurance shall cover the entire premises, including all buildings, improvements, and grounds and all roadways or sidewalks on or adjacent to the premises in the use or control of DOT and it's consultants, contractors and/or persons acting for or on its behalf. DOT shall ensure that its consultants, contractors and/or persons acting for or on its behalf shall furnish the Department with a certificate(s) showing the policy(s) to be initially in force, keep certificate(s) on deposit during the entire period and furnish a like certificate(s) upon each renewal of the policy(s). This insurance shall not be cancelled, limited to scope of coverage, or nonrenewed until written notice has been given to the Department. The Department shall retain the right at any time to review the coverage, form, and amount of the insurance required. If, in the opinion of the Department, the insurance provisions in this right-of-entry do not provide adequate protection for the Department, the Department may require DOT's consultants, contractors and/or persons acting for or on its behalf to obtain insurance sufficient in coverage, form, and amount to provide adequate protection. The Department's requirements shall be reasonable but be designed to assure protection for and against the kind and extent of the risks which exist at the time a change in insurance is required. The Department shall notify DOT in writing of changes in the insurance requirements and DOT's consultants, contractors and/or persons acting for or on its behalf shall deposit copies of acceptable insurance policy(s) or certificate(s) thereof, with the Department incorporating the changes within receipt of the notice. The procuring of the required policy(s) of insurance shall not be construed to limit DOT's consultants, contractors and/or persons acting for or on its behalf, liability under this right-of-entry nor to release or relieve the DOT consultants, contractors and/or persons acting for or on its behalf of the indemnification provisions and requirements of this right-of-entry. Notwithstanding the policy(s) of insurance, DOT's consultants, contractors and/or persons acting for or on its behalf shall be obligated for the full and total amount of any damage, injury, or loss caused by DOT's consultants, contractors and/or persons acting for or on its behalf negligence or neglect connected with this right-of-entry.

3. At all times herein, DOT, its consultants, contractors and/or persons acting for or on its behalf shall keep the right-of-entry area or premises in a strictly clean, sanitary and orderly condition.

4. DOT, its consultants, contractors and/or persons acting for or on its behalf comply with all of the requirements of all municipal, state, and federal authorities and observe all municipal, state and federal laws applicable to the right-of-entry area or premises, now in force or which may be in force.

5. DOT shall ensure its consultants, contractors and/or persons acting for or on its behalf shall indemnify, defend, and hold the State of Hawaii, Department of Land and Natural Resources harmless from and against any claim or demand for loss, liability, or damage, including claims for bodily injury, wrongful death, or property damage,

arising out of or resulting from: (1) any act or omission on the part of DOT, its consultants, contractors and/or persons acting for or on its behalf relating to DOT, its consultants, contractors and/or persons acting for or on its behalf use, occupancy, maintenance, or enjoyment of the right-of-entry area or premises; (2) any failure on the part of DOT, its consultants, contractors and/or persons acting for or on its behalf to maintain the right-of-entry area or premises and areas adjacent thereto in DOT, its consultants, contractors and/or persons acting for or on its behalf use and control, and including any accident, fire or nuisance, growing out of or caused by any failure on the part of DOT, its consultants, contractors and/or persons acting for or on its behalf to maintain the area or premises in a safe condition; and (3) from and against all actions, suits, damages, and claims by whomsoever brought or made by reason of DOT, its consultants, contractors and/or persons acting for or on its behalf non-observance or non-performance of any of the terms, covenants, and conditions of this right-of-entry or the rules, regulations, ordinances, and laws of the federal, state, municipal or county governments.

6. DOT, its consultants, contractors and/or persons acting for or on its behalf shall not cause or permit the escape, disposal or release of any hazardous materials except as permitted by law. DOT and its consultants, contractors and/or persons acting for or on its behalf shall not allow the storage or use of such materials in any manner not sanctioned by law or by the highest standards prevailing in the industry for the storage and use of such materials, nor allow to be brought onto the right-of-entry area or premises any such materials except to use in the ordinary course of DOT, its consultants, contractors and/or persons acting for or on its behalf business, and then only after written notice is given to the State of Hawaii, Department of Land and Natural Resources of the identity of such materials and upon the Department's consent which consent may be withheld at the Department's sole and absolute discretion. If any lender or governmental agency shall ever require testing to ascertain whether or not there has been any release of hazardous materials by DOT, its consultants, contractors and/or persons acting for or on its behalf, then the DOT, its consultants, contractors and/or persons acting for or on its behalf shall be responsible for the cost thereof. In addition, DOT, its consultants, contractors and/or persons acting for or on its behalf shall execute affidavits, representations and the like from time to time at the Department's request concerning DOT, its consultants, contractors and/or persons acting for or on its behalf best knowledge and belief regarding the presence of hazardous materials on the right-of-entry area or premises placed or released by DOT, its consultants, contractors and/or persons acting for or on its behalf.

7. DOT shall ensure its consultants, contractors and/or persons acting for or on its behalf agree to indemnify, defend and hold the State of Hawaii, Department of Land and Natural Resources harmless, from any damages and claims resulting from the release of hazardous materials on the right-of-entry area or premises occurring while DOT, its consultants, contractors and/or persons acting for or on its behalf is/are in possession, or elsewhere if caused by DOT, its consultants, contractors and/or persons

acting for or on its behalf. These covenants shall survive the expiration or earlier termination of this right-of-entry.

For purposes of this right-of-entry, "hazardous material" shall mean any pollutant, toxic substance, hazardous waste, hazardous material, hazardous substance, or oil as defined in or pursuant to the Resource Conservation and Recovery Act, as amended, the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, the Federal Clean Water Act, or any other federal, state, or local environmental law, regulation, ordinance, rule, or by-law, whether existing as of the date hereof, previously enforced, or subsequently enacted.

8. DOT, its consultants, contractors and/or persons acting for or on its behalf in the exercise of this right-of-entry shall use appropriate precautions and measures to minimize inconveniences to surrounding residents, landowners, and the public in general.

9. All costs associated with the construction within the right-of-entry area or premises shall be the sole responsibility of DOT, its consultants, contractors and/or persons acting for or on its behalf

10. DOT, its consultants, contractors and/or persons acting for or on its behalf shall maintain and employ debris, pollution and contamination control measures, safeguards and techniques to prevent debris, pollution or contamination to the ocean waters, streams or waterways resulting from DOT, its consultants, contractors and/or persons acting for or on its behalf use, maintenance, repair and operation of the right-of-entry area or premises, and shall take immediate corrective action in the event of such pollution or contamination to immediately remove the cause of such pollution or contamination, and shall immediately clean the right-of-entry area or premises and its surrounding waters of such pollutant or contaminant and restore to the State of Hawaii, Department of Land and Natural Resources satisfaction the areas affected by such pollution or contamination, all at DOT, its consultants, contractors and/or persons acting for or on its behalf own cost and expense.

11. Excavated material (sand) shall be placed on the shoreline and not removed from the shoreline.

12. Best management practices shall be employed to avoid having silt or dirt enter the ocean.

13. In the event any unanticipated sites or remains such as bone or charcoal deposits, human burials, rock or coral alignments, pavings or walls are encountered, DOT, its consultants, contractors, and/or persons acting for or on its behalf shall stop work and contact the State Historic Preservations Division in Kapolei at (808) 692-8015 immediately.

14. This right-of-entry or any rights hereunder shall not be sold, assigned, conveyed, leased, let, mortgaged or otherwise transferred or disposed.

15. The Department of Land and Natural Resources reserves the right to impose additional, but reasonable terms and conditions as it deems necessary while this right-of-entry permit is in force.

16. All disputes or questions arising under this right-of-entry shall be referred to the Chairperson of the Board of Land and Natural Resources for a determination and resolution of the dispute or question. The Chairperson's decision shall be final and binding on the parties herein.

Should you accept the above terms and conditions, kindly submit a signed copy of this memorandum to us. If you have any questions, please contact Barry Cheung of Oahu District Land Office at 587-0430.

ACCEPT:
Department of Transportation

Its Director of Transportation

Date

MAR 23 2017

Enclosure

AMENDED

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Land Division
Honolulu, Hawaii 96813

March 10, 2017

Board of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii

PSF No.: 16OD-174

OAHU

Withdrawal from Governor's Executive Order No. 3518 and Reset Aside to Department of Transportation for Highway Purposes, Issuance of Right-of-Entry Permit for Construction Parcels; Kahana, Koolauloa, Oahu, Tax Map Key: (1) 5-2-002:Portions of 001, (1) 5-2-005:Portions of 001, 021, 022, and 023, and portions of Kahana Stream.

CONTROLLING AGENCY (of subject executive order):

Department of Land and Natural Resources, Division of State Parks

APPLICANT (requesting set aside):

Department of Transportation, Highways Division

LEGAL REFERENCE:

Section 171-11 and 55, Hawaii Revised Statutes, as amended.

LOCATION:

Portion of Government lands situated at Kahana, Koolauloa, Oahu, Tax Map Key: (1) 5-2-002:Portions of 001, 5-2-005:Portions of 001, 021, 022, 023, and portions of Kahana Stream, as shown on the attached maps labeled **Exhibit A1** and **A2**.

AREA:

Parcel No.	Tax Map Key	Area (sq. ft.)	Purposes
1	5-2-002:por. 001	10,054	Set aside
2	5-2-005:por. 001	1,180	Set aside
3	5-2-002:Kahana Stream*	30,180	Set aside
4	5-2-005:por. 021	362	Set aside
C1	5-2-002:por. 001	37,379	Construction ROE
C2	5-2-002:por. 001	15,620	Construction ROE
C3	5-2-002:por. 001	18,870	Construction ROE

as amended
APPROVED BY THE BOARD OF LAND AND NATURAL RESOURCES AT ITS MEETING HELD ON March 10, 2017 (29.

C4	5-2-002:por. 001	2,041	Construction ROE
C5	5-2-002:por. 001	41,133	Construction ROE
C5A	5-2-005:por. 001	2,098	Construction ROE
C6	5-2-005:por. 022	3,196	Construction ROE
C7	5-2-005:por. 023	12,249	Construction ROE
C8	5-2-005:Kahana Stream*	29,885	Construction ROE

*Portions of Kahana Stream not encumbered by EO 3518

Proposed Set aside 41,776 square feet
Construction ROE 162,471 square feet

ZONING:

State Land Use District: Conservation
City and County of Honolulu LUO: P-1

TRUST LAND STATUS:

Acquired after Statehood, i.e. non-trust lands (for parcels noted above); and Section 5(b) lands of the Hawaii Admission Act (for Kahana Stream)

DHHL 30% entitlement lands pursuant to the Hawaii State Constitution: No

CURRENT USE STATUS:

Other than the portions of Kahana Stream, the rest of the requested parcels are encumbered by Governor's Executive Order No. 3518 setting aside to Department of Land and Natural Resources, Division of State Parks for Kahana Valley State Park purposes.

PURPOSE OF SET ASIDE:

Highway purposes.

CHAPTER 343 - ENVIRONMENTAL ASSESSMENT:

Act 218, Session Laws of Hawaii 2012 (**Exhibit B**) exempts the project from State requirements under Chapter 343, Hawaii Revised Statutes.

APPLICANT REQUIREMENTS:

Applicant shall be required to:

1) Process and obtain subdivision at Applicant's own cost;
2) Conservation District Use Permit; and

3) Provide survey maps and descriptions according to State DAGS standards, including Land Court maps and at Applicant's own cost.

REMARKS:

The requested parcels have been set aside to Division of State Parks under EO 3518 for Kahana Bay State Parks purposes since 1991.

Department of Transportation, Highways Division (DOT), in relation to the Federal Aid Project No. BR-083-1(55) for the replacement of South Kahana Stream Bridge, requests the withdrawal of certain portions of the State Parks area and re-set aside for highway purposes. In addition, other portions of the same State Parks will be required during the construction stage. Therefore, a right-of-entry permit during the construction period for parcels is also required.

For the Board's information, the utility company will send in separate request pertaining to the proposed easement area on Exhibits A1 and A2 at a later date.

Department of Planning and Permitting (DPP) recommend a subdivision application be filed in addition to a Conservation District Use Application required by the Office of Conservation and Coastal Lands. Furthermore, DOT will also provide certification of "no-rise" determination indicating that there will be no increase in the base flood elevation as required by DPP.

State Parks Division (see **Exhibit C**), Department of Health, Department of Forestry and Wildlife, and Department of Parks and Recreation have no objections/comments to the subject request. State Historic Preservation Division, Division of Aquatic Resources, Commission on Water Resource Management, Department of Hawaiian Homelands, Office of Hawaiian Affairs, Department of Facility Maintenance, and Board of Water Supply have not responded to solicitation for comments before the response deadline.

There are no other pertinent issues or concerns and staff does not have any objection to the request.

RECOMMENDATION: That the Board, subject to the Applicant fulfilling all of the Applicant Requirements listed above:

1. Approve of and recommend to the Governor issuance of an executive order withdrawing 41,776 square feet, more or less from the Governor's Executive Order No. 3518 and subject to the following:

   A. The standard terms and conditions of the most current executive order form, as may be amended from time to time;

   B. Disapproval by the Legislature by two-thirds vote of either the House of Representatives or the Senate or by a majority vote by both in any regular

or special session next following the date of the setting aside;

C. Review and approval by the Department of the Attorney General; and

D. Such other terms and conditions as may be prescribed by the Chairperson to best serve the interests of the State.

2. Approve of and recommend to the Governor the issuance of an executive order setting aside the subject lands to Department of Transportation under the terms and conditions cited above, which are by this reference incorporated herein and subject further to the following:

A. The standard terms and conditions of the most current executive order form, as may be amended from time to time;

B. Disapproval by the Legislature by two-thirds vote of either the House of Representatives or the Senate or by a majority vote by both in any regular or special session next following the date of the setting aside;

C. Review and approval by the Department of the Attorney General; and

D. Such other terms and conditions as may be prescribed by the Chairperson to best serve the interests of the State.

3. Issuance of an immediate right-of-entry permit to Department of Transportation under the terms and conditions cited above, which are by this reference incorporated herein and subject further to the following:

A. The standard terms and conditions of the most current right-of-entry permit form, as may be amended from time to time;

B. The right-of-entry permit shall expire upon issuance of the executive order;

C. Such other terms and conditions as may be prescribed by the Chairperson to best serve the interests of the State.

Respectfully Submitted,

Barry Cheung
District Land Agent

APPROVED FOR SUBMITTAL:

Suzanne D. Case, Chairperson

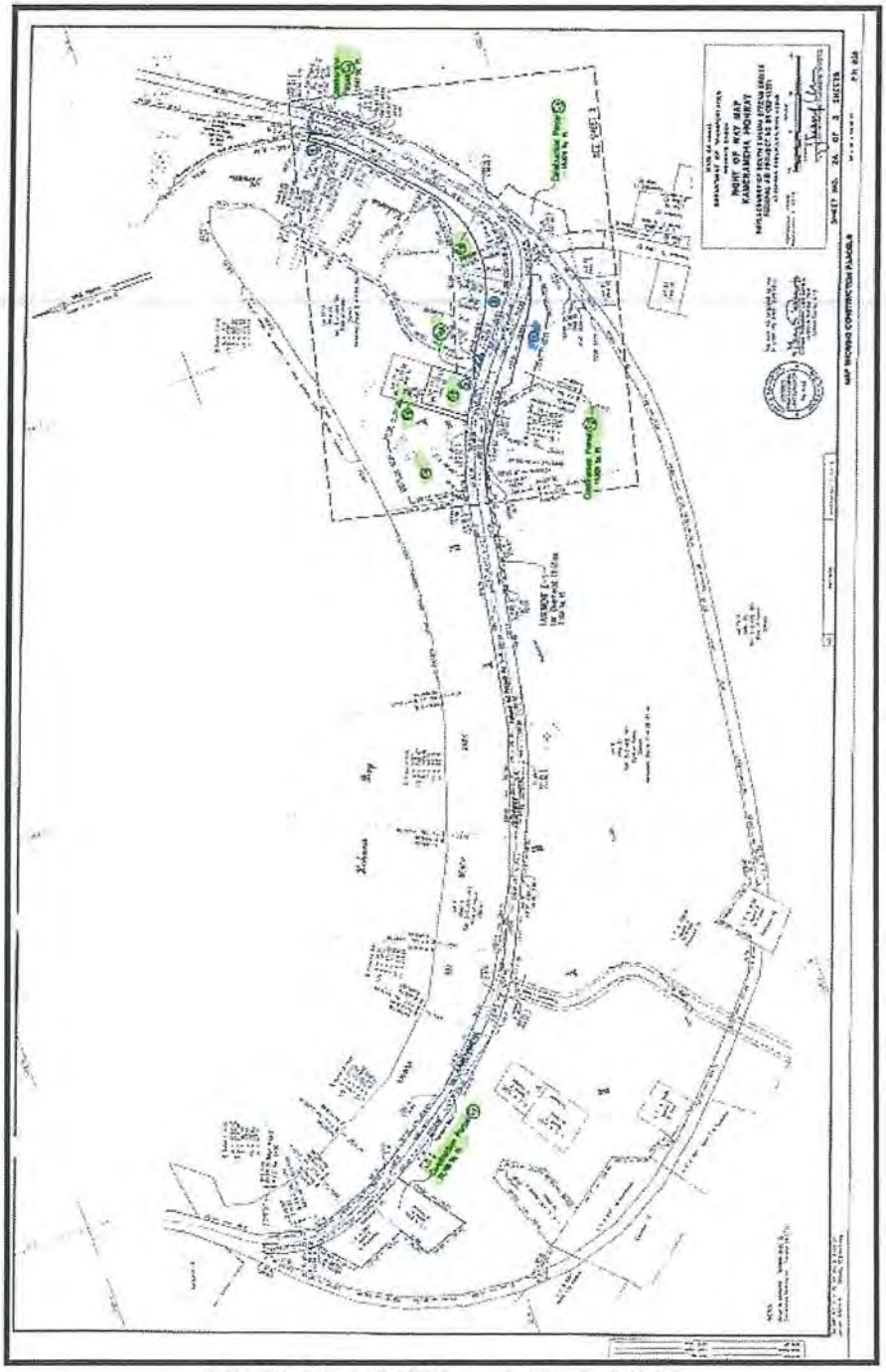
Land Board Meeting: March 10, 2017; D-8: Approved as amended.

Approved as amended. See attached page.

Land Board Meeting: March 10, 2017; D-8: Approved as amended.

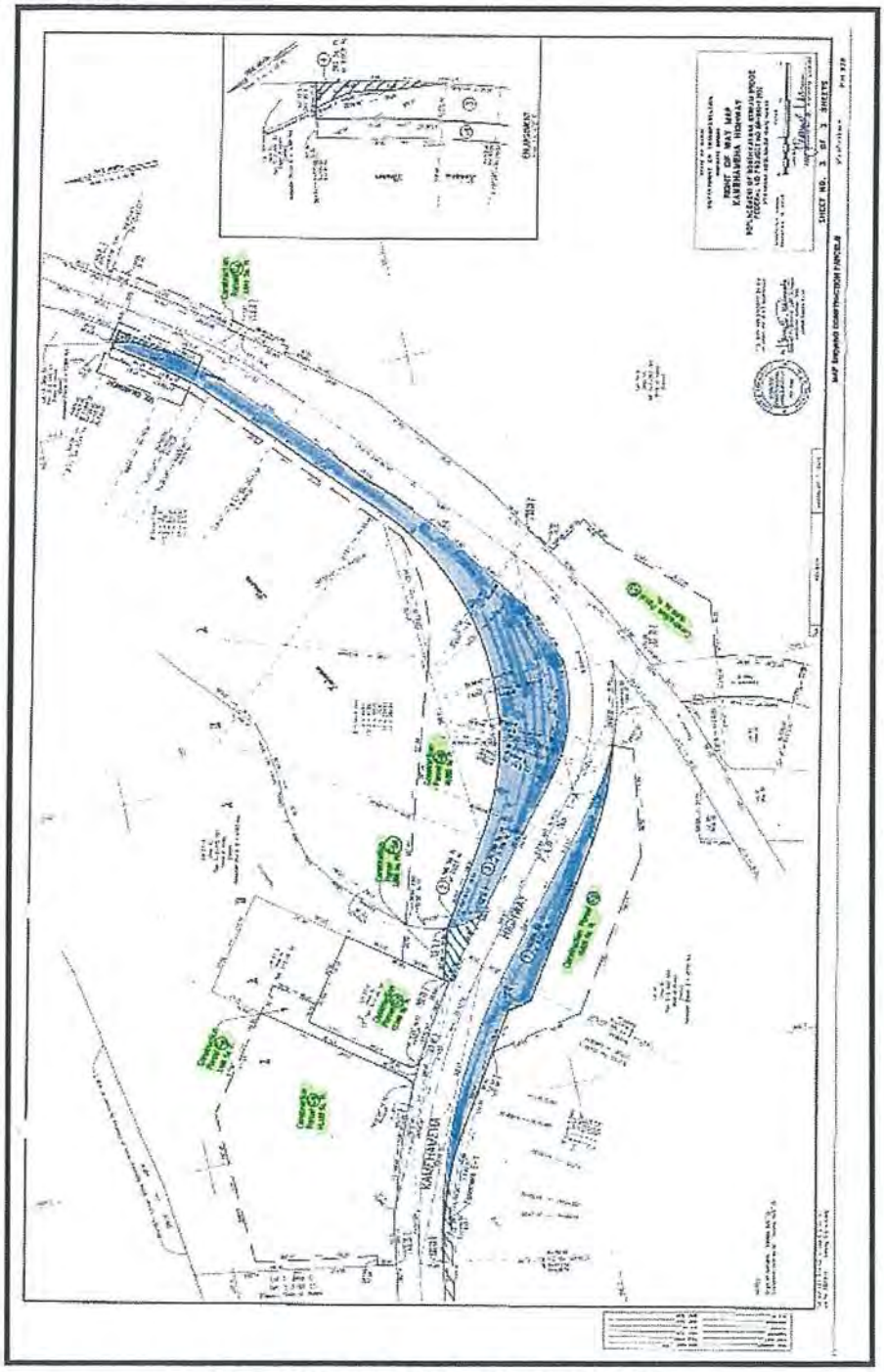
Approved as amended. The Board added into the recommendation section a number 4 as follows:

"4. The Department of Transportation shall negotiate in good faith and enter into a letter of agreement with the affected Lessee Carol Soga about her lease on parcel 22."



TMK (1) 5-2-002 and (1) 5-2-005

EXHIBIT A1



TMK (1) 5-2-002 and (1) 5-2-005

EXHIBIT A2

Approved by the Governor
on JUL 5 2012
THE SENATE
TWENTY-SIXTH LEGISLATURE, 2012
STATE OF HAWAII

ACT 218
S.B. NO. 3010 S.D. 2 H.D. 1

A BILL FOR AN ACT

RELATING TO TRANSPORTATION.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. The legislature finds that the department of transportation is charged with the implementation of the bridge rehabilitation and replacement program for bridges with a sufficiency rating of less than eighty to be designed and constructed. There are currently seven hundred fifty-six state-owned bridges, of which two hundred fifty-six are functionally obsolete and thirty-nine are structurally deficient. Functionally obsolete bridges are defined as bridges with geometric deficiencies such as being too narrow. Structurally deficient bridges are defined as bridges with a poor assessment of the structural condition of the bridge, including the waterway opening adequacy.

There are currently thirty bridges under the jurisdiction of the department of transportation that are either functionally obsolete or structurally deficient and that are in the design phase that are planned for rehabilitation and replacement, in addition to the Hana highway bridge preservation plan, which needs to move forward for construction.

SB3010 HD1 HMS 2012-3444

EXHIBIT B

The purpose of this Act is to expedite construction projects for the bridge rehabilitation and replacement program by providing temporary exemptions from certain state and county requirements.

SECTION 2. Beginning July 1, 2012, and ending June 30, 2017, the department of transportation and any of its contractors shall be exempt from state requirements under the following, but only to the extent necessary to expedite the projects enumerated under section 3 of this Act:

(1) Chapter 6E, Hawaii Revised Statutes, historic preservation;

(2) Part II of chapter 171, Hawaii Revised Statutes, public lands;

(3) Chapter 174C, Hawaii Revised Statutes, state water code;

(4) Chapter 180, Hawaii Revised Statutes, soil and water conservation districts;

(5) Chapter 180C, Hawaii Revised Statutes, soil erosion and sediment control;

(6) Chapter 183, Hawaii Revised Statutes, forest reserves, water development, and zoning;

(7) Chapter 183D, Hawaii Revised Statutes, wildlife;

(8) Chapter 184, Hawaii Revised Statutes, state parks and recreation areas;

(9) Chapter 195, Hawaii Revised Statutes, natural area reserves system;

(10) Chapter 195D, Hawaii Revised Statutes, conservation of aquatic life, wildlife, and land plants;

(11) Chapter 198D, Hawaii Revised Statutes, Hawaii statewide trail and access system;

(12) Chapter 205, Hawaii Revised Statutes, land use commission;

(13) Chapter 205A, Hawaii Revised Statutes, coastal zone management;

(14) Chapter 341, Hawaii Revised Statutes, environmental quality control;

(15) Chapter 342B, Hawaii Revised Statutes, air pollution;

(16) Chapter 342D, Hawaii Revised Statutes, water pollution;

(17) Chapter 342E, Hawaii Revised Statutes, nonpoint source pollution management and control;

(18) Chapter 342F, Hawaii Revised Statutes, noise pollution;

(19) Chapter 343, Hawaii Revised Statutes, environmental impact statements; and

(20) Chapter 344, Hawaii Revised Statutes, state environmental policy.

SECTION 3. The following bridges and projects shall be exempt from the requirements specified under section 2 of this Act:

(1) Farrington highway, replacement of Maipalaoa bridge, on Oahu;

(2) Farrington highway, replacement of Makaha bridges numbers 3 and 3A, on Oahu;

(3) Kalanianaole highway, Inoaole stream bridge replacement, in Waimanalo, Oahu;

(4) Kamehameha highway, Kaipapau stream bridge, on Oahu;

(5) Hawaii belt road, Umauma stream bridge, on Hawaii;

(6) Waiehu beach road, Iao stream bridge rehabilitation, vicinity of Wailuku, on Maui;

(7) Kaumualii highway, Omao bridge rehabilitation, on Kauai;

(8) Kuhio highway, Kapaia bridge replacement, on Kauai;

(9) Kamehameha highway, south Kahana stream bridge replacement, on Oahu;

(10) Hana highway bridge preservation plan and projects, on Maui; and

(11) Kamehameha Highway, Franklin D. Roosevelt Bridge rehabilitation, on Oahu.

SECTION 4. If the construction of a project granted an exemption under this Act is not completed by June 30, 2017, the governor may authorize in writing before that date the continuation of construction of the project until completion. If so authorized, the project shall continue to be exempt as provided under this Act.

SECTION 5. If any part of this Act is found to be in conflict with federal requirements that are a prescribed condition for the allocation of federal funds to the State, the conflicting part of this Act is inoperative solely to the extent of the conflict and with respect to the agencies directly affected, and this finding shall not affect the operation of the remainder of this Act in its application to the agencies concerned. The rules under this Act shall meet federal requirements that are a necessary condition to the receipt of federal funds by the State.

SECTION 6. This Act shall take effect on July 1, 2012.

S.B. NO. 3010 S.D. 2 H.D. 1

APPROVED this 5 day of JUL , 2012

GOVERNOR OF THE STATE OF HAWAII

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

January 10, 2017

Ref. No.: 16OD-174

MEMORANDUM

TO:

State Agencies:
- x DOH (Environmental Planning)
- x DHHL
- x DLNR-Aquatic Resources
- x DLNR-Forestry & Wildlife
- x DLNR-Historic Preservation
- ✓x DLNR-State Parks
- x DLNR-Conservation and Coastal Lands
- x DLNR-Water Resource Management
- x Office of Hawaiian Affairs

City Agencies:
- x Planning & Permitting
- x Parks & Recreation
- x Facility Maintenance
- x Board of Water Supply

RECEIVED
2017 FEB -8 AM 11:01
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

FROM: Barry Cheung, District Land Agent

SUBJECT: Withdrawal from Governor's Executive Order No. 3518 and Reset Aside to for Highway Purposes, Issuance of Right-of-Entry Permit for Construction Parcels.

LOCATION: Kahana, Koolauloa, Oahu, Tax Map Key: (1) 5-2-002: portions of 001, (1) 5-2-005: portions of 001, 021, 022, and 023, and portions of Kahana Stream.

APPLICANT: Department of Transportation, Highways Division.

Transmitted for your review and comment is a copy of the draft Land Board submittal for the above referenced request involving State lands. We would appreciate your comments on this application. Please submit any comments by **February 10, 2017**. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0430. Thank you.

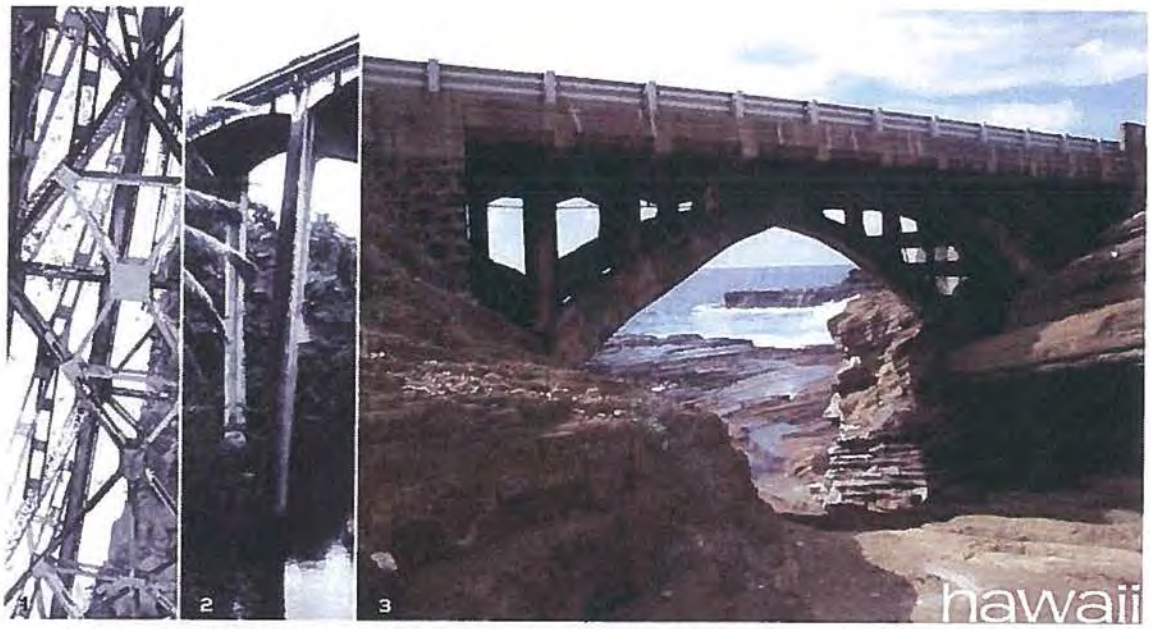
Enclosure

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

Signed:
Date: 1-18-17

EXHIBIT C

APPENDIX B



STATE HISTORIC BRIDGE INVENTORY & EVALUATION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HAWAII STATE
HISTORIC BRIDGE INVENTORY AND EVALUATION

Prepared for
STATE OF HAWAII
Department of Transportation
Highways Division

Prepared by
MKE Associates LLC
Fung Associates, Inc.

November, 2013

Title Page Images:
1. Umauma Bridge (Hawaii Island)
2. Honolii Stream Bridge (Hawaii Island)
3. Ihiihilauakea Stream (Oahu Island)
4. Kealakaha Stream Bridge (Hawaii Island)
5. Koukouai Gulch Bridge (Maui Island)

Glenn M. Okimoto, Ph.D.
Director of Transportation
State of Hawaii
Department of Transportation

FEB 13 2014
Date

Abraham Wong
Division Administrator
Federal Highway Administration
U.S. Department of Transportation

3/13/14
Date

II. METHODOLOGY

PROJECT PERSONNEL

This project was prepared under the direction and supervision of Tonia S. Moy, AIA, who meets the standards for Architectural Historian and Historic Architect as outlined in National Park Service Standard 36 CFR 61 Appendix A.

Preparation of the original 2008 draft report, which included fieldwork, research, and report writing, was conducted in two phases. The first phase of research spans the period of development and bridge construction from 1894 until 1941 and was completed by Spencer Leineweber, Barbara Shideler, and Ann Yoklavich. The second phase of research details mid-century infrastructure development in Hawaii from 1941 until 1959 and was completed by Spencer Leineweber and graduate assistants from The Heritage Center at the University of Hawaii at Manoa.

Fieldwork and research for the 2013 project report and inventory update was conducted by HDOT, Don Hibbard, Tonia Moy, Mayu Ohama, Michelle Cheang, and Alison Chiu. Data input was led by Mayu Ohama and Michelle Cheang from Fung Associates, Inc. and Neil Hasegawa from HDOT.

INVESTIGATION METHODS

The methodology of work for this project falls into three major categories: background research, data analysis, and community outreach as discussed below.

BACKGROUND RESEARCH/DATA COLLECTION

- Reviewed Sample Bridge Inspection Reports and previous bridge inventory for adequate information. The team also assessed existing information in previous community meeting minutes.
- Provided direction for evaluating and protecting significant historic resources with a statewide approach.
- Only information obtained through HDOT records was collected. Extensive archival research was not conducted.
- The majority of photographs were provided from HDOT records.

DATA ANALYSIS

- Some field work was completed for identification, historic assessment and documentation of basic character defining features of those that may be considered a district, such as Pali Highway or Kamehameha Highway and are not already listed on the Hawaii or National Registers of Historic Places. Fieldwork was performed and verified by HDOT in 2012. The primary purpose of field investigations was to photograph bridges for evaluation (except those that were unsafe to photograph) and to experience the connection between bridges in historic districts.

- Developed Inventory Data sheets from Bridge Inspection Reports for 708 bridges built before 1968 (i.e., those bridges over 45-years-old in 2013). Appropriate information includes the following:
    - Year Built/Builder/Designer
    - Map location/Tax Map Key (TMK) adjacent to include stream and road names
    - Federal Bridge identification number
    - Color photographs
    - Sketch plan and elevations, if available
    - Date(s) of renovations/repairs

- Character defining features include (but are not limited to):
  - Type of Construction
  - Deck
  - Railings
  - Setting
  - Historic integrity

COMMUNITY OUTREACH

- The project team worked with various oversight and CLG groups to establish bridge committees for each island or one committee with representatives from each county. Consultation involved a myriad of input from committee members, and/or island and County members depending on the focused outreach activity. Approvals were sought at several steps along the way, including: methodology, inventory sheet format, matrix development, and validation regarding which bridges are considered to have high preservation values.
- Members of the committees included individuals from:
  - HDOT
  - County DPWs
  - FHWA
  - SHPD
  - HHF
  - KHPRC
  - MCRC
  - Big Island community member
- A list of participating members involved with the Historic Bridge Committee may be found at the end of section 1.2. Approval from these committee members is documented in a sign-off sheet and meeting minutes

DOCUMENTARY RESEARCH METHODS

The following depositories were researched for materials specific to the bridges:

- State of Hawaii, Department of Transportation, Highways Division
- State of Hawaii, Department of Land and Natural Resources (DLNR), SHPD
  - Previous Inventory Reports
  - Nominations to the Hawaii and National Registers of Historic Places
- Resources provided by the HDOT and FHWA
- Internet Resources

Because the goal of this report is ultimately to provide an updated bridge inventory, the extent of additional research was limited to developing a brief historic context on bridges built after 1959, notably development of Interstate H-1 and Pali Highway. The bulk of historical context that appears in this report was provided by and should be attributed to past reports prepared by Spencer Mason Architects. See past reports for references and footnotes.

Field notes, maps, plans and other relevant materials used in the compilation of this report will be on file with the HDOT.

HISTORIC BRIDGE COMMITTEE

The Historic Bridge Committee was convened to act in an advisory position for this project. Members include the following individuals:

OVERALL

- Misako Mimura, *Project Manager*, HDOT, Environmental Permitting and Project Compliance Section, Highways Division
- Paul Santo, HDOT, Bridge Design Section, Highways Division
- Neil Hasegawa, HDOT, Bridge Design Section, Highways Division
- Domingo Galicinao, Federal Highway Administration Hawaii Division
- Meesa Otani, Federal Highway Administration Hawaii Division
- Kiersten Faulkner, Historic Hawaii Foundation
- Angie Westfall, DLNR, State Historic Preservation Division
- Michael Gushard, DLNR, State Historic Preservation Division
- PROJECT TEAM
    - Glenn Miyasato, MKE Associates LLC
    - Brian Kung, MKE Associates LLC
    - Tonia Moy, *Project Manager*, Fung Associates Inc
    - Mayu Ohama, Fung Associates Inc
    - Michelle Cheang, Fung Associates Inc
    - Alison Chiu, Fung Associates Inc

CITY AND COUNTY OF HONOLULU

- Chris Takashige, City and County of Honolulu, Department of Design and Construction, Civil Division
- Mark Yonamine, City and County of Honolulu, Department of Design and Construction, Civil Division
- Michael K.H. Yee, City and County of Honolulu, Department of Design and Construction, Civil Division
- Stanley Katsura, City and County of Honolulu, Department of Design and Construction, Civil Division, Design Branch Bridges and Structures Section
- Pratt Kinimaka, HDOT, Highways Division, Oahu District
- George Abcede, HDOT, Highways Division, Oahu District

COUNTY OF HAWAII

- Salvador Panem, HDOT, Highways Division, Hawaii District
- Robert Yanabu, County of Hawaii, Department of Public Works, Engineering Division
- Cres Rambayon, County of Hawaii, Department of Public Works, Engineering Division
- Geoffery S. Mowrer, Community Member
- Ron Terry, Community Member
- Carolyn Witcher, Pulama ia Kona Heritage Preservation Council

COUNTY OF MAUI

- Ferdinand Cajigal, HDOT, Highways Division, Maui District
- Fred Gutierrez, HDOT, Highways Division, Maui District
- Annalise Kehler, County of Maui, Department of Planning, Cultural Resources Commission
- Cary Yamashita, County of Maui, Department of Public Works Engineering Division
- Ty Takeno, County of Maui, Department of Public Works Engineering Division

COUNTY OF KAUAI

- Raymond J. McCormick, HDOT, Highways Division, Kauai District
- Fred Reyes, HDOT, Highways Division, Kauai District
- Stanford Iwamoto, HDOT, Highways Division, Kauai District
- Edmond Renaud, County of Kauai, Department of Public Works, Roads Division
- Wallace Kudo, County of Kauai, Department of Public Works, Engineering Division
- Kuppusamy Venkatesan, County of Kauai, Department of Public Works, Engineering Division
- Lee Steinmetz, County of Kauai, Planning Department
- Barbara Robeson, Hanalei Roads Committee
- Pat Griffin, Kauai Historic Preservation Review Commission

Sign Off Sheets

Members were asked to sign an agreement to the findings of the report. The signed sheets are noted in Addendum A. Ron Terry from the County of Hawaii, cited a conflict of interest and resigned from the committee on January 9, 2014.

Oahu State Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)	Page No.
003000640400150	Sand Island Bascule Bridge	Harbor (Bascule Bridge)	Sand Island Parkway	1962	Steel Stringer	Concrete Solid	No	High Preservation Value	• Longest steel bridge with the longest steel span built post-war (1945) on the island of Oahu in the historic study period prior to 1969 • Uncommon use of steel material in Hawaii's extreme marine environment • Good example of a 1960's steel stringer and reinforced concrete bridge	4 - 229
003000920400592	Slip Cover No. 1-Honolulu Harbor	Honolulu Harbor	Nimitz Highway	1952	Concrete Slab	Concrete and Metal Decorative	No	Program Comments	This is a typical post-war bridge and falls under Program Comments.	n/a
003000920400603	Slip Cover No. 2-Honolulu Harbor	Honolulu Harbor	Nimitz Highway	1952	Concrete Slab	Concrete and Metal Decorative	No	Program Comments	This is a typical post-war bridge and falls under Program Comments.	n/a
003000920400609	Slip Cover No. 3-Honolulu Harbor	Honolulu Harbor	Nimitz Highway	1952	Concrete Slab	Concrete and Metal Decorative	No	Program Comments	This is a typical post-war bridge and falls under Program Comments.	n/a
003000920400617	Slip Cover No. 4-Honolulu Harbor	Honolulu Harbor	Nimitz Highway	1952	Concrete Tee Beam	Concrete and Metal Decorative	No	Program Comments	This is a typical post-war bridge and falls under Program Comments.	n/a
003000920400580	Slip Cover-Honolulu Harbor	Honolulu Harbor	Nimitz Highway	1952	Concrete Tee Beam	Concrete and Metal Decorative	No	Program Comments	This is a typical post-war bridge and falls under Program Comments.	n/a
003000830302637	South Kahana Stream	South Kahana Stream	Kamehameha Highway	1927	Concrete Slab	Concrete Solid Panel with Cap	No	Eligible	• Associated with early developments in concrete bridge construction in Hawaii • Good example of a 1920's reinforced concrete bridge	4 - 232
003000830302442	South Punaluu Stream	South Punaluu Stream	Kamehameha Highway	2011	Concrete Tee Beam	Concrete Open Decorative	No	Not Eligible	This bridge has lost integrity due to the complete replacement of the original 1926 bridge in 2011.	n/a
003000930400640	Ulehawa Stream	Ulehawa Stream	Farrington Highway	1963	Concrete Tee Beam	Concrete and Metal	No	Program Comments	This is a typical post-war bridge and falls under Program Comments.	n/a
003000720000030	Ulupil Pedestrian Overpass	Kalanianaole Highway (Ulupil Pedestrian Overpass)	Pedestrian	1967	Concrete Girder	Concrete Solid Decorative	No	Program Comments	This is a typical post-war bridge and falls under Program Comments. The bridge is also associated with the development of H-1 Freeway.	n/a
003000830303396	Unnamed Stream (North Waiahole)	Unnamed Stream (North Waiahole)	Kamehameha Highway	1928	Concrete Slab	Concrete Solid Panel with Cap	No	Eligible	• Associated with early developments in concrete bridge construction in Hawaii • Good example of a 1920's reinforced concrete bridge	4 - 235
003000930301279	Unnamed Stream-Makaha No. 2A	Unnamed Stream	Farrington Highway	1937	Concrete Box Culvert	Metal Horizontal	No	Not Eligible	This culvert does not have distinctive engineering or architectural features that depart from standard culvert design.	n/a
003000930301404	Unnamed Stream-Makaha No. 3	Unnamed Stream	Farrington Highway	1937	Timber Stringer	Wood	No	Eligible	• Associated with early developments in concrete bridge construction in Hawaii • Good example of a 1930's reinforced concrete tee beam bridge • The bridge is scheduled for replacement; MOA complete as of Summer 2013	4 - 238
003000930301412	Unnamed Stream-Makaha No. 3A	Unnamed Stream	Farrington Highway	1937	Timber Stringer	Wood	No	Eligible	• Associated with early developments in concrete bridge construction in Hawaii • Good example of a 1930's reinforced concrete tee beam bridge • The bridge is scheduled for replacement; MOA complete as of Summer 2013	4 - 241
003000990300562	Upper Poamoho Stream-Brodie Camp 2 Bridge	Upper Poamoho Stream	Kamehameha Highway	1937	Concrete Slab	Concrete and Metal	No	Not Eligible	The bridge has lost integrity due to the replacement of the railings in 1965.	n/a
003098001400160	Vineyard Blvd.-Lunalilo No. 2 On Ramp (Ramp B1)	Vineyard Boulevard	Vineyard Boulevard - H-1 On Ramp	1968	Concrete Girder	Concrete Solid	No	Program Comments	This is a typical post-war bridge and falls under Program Comments.	n/a
003000830303459	Waiahole Stream (County)	Waiahole Stream	Kamehameha Highway	1922	Concrete Tee Beam	Concrete Solid Panel with Cap	No	Eligible	• Associated with early developments in concrete bridge construction in Hawaii • Good example of a 1920's reinforced concrete bridge	4 - 244
003000H11202503	Waialae Road Separation	H-1	Old Waialae Road	1967	Concrete Girder	Concrete Solid	No	Program Comments	This is a typical post-war bridge and falls under Program Comments. The bridge is also associated with the development of H-1 Freeway.	n/a

*High Preservation Value: Has unique or exemplary characteristics of a bridge type and exhibits high degrees of historic integrity.
Eligible: Not unique or the best example of a type, but may become a rare example of a bridge type in the future; reflects characteristics of its bridge type.
Not Eligible: Has lost historic integrity through significant alteration or does not reflect characteristics from its time period.
Program Comments: Common post-war bridges built after 1945 covered by Advisory Council program comments.
Non-Contributing: The bridge/culvert is non-contributing to the historic district.

Inventory Form
(State)

General Information

Bridge Number: 003000830302637 **Route No:** 83

Popular Name: South Kahana Stream

Feature Crossed: South Kahana Stream

Feature Carried: Kamehameha Highway

Milepost: 26.65 mi. **Island:** Oahu

Longitude: 157d-52m-14.63s **Latitude:** 21d-33m-15.98s

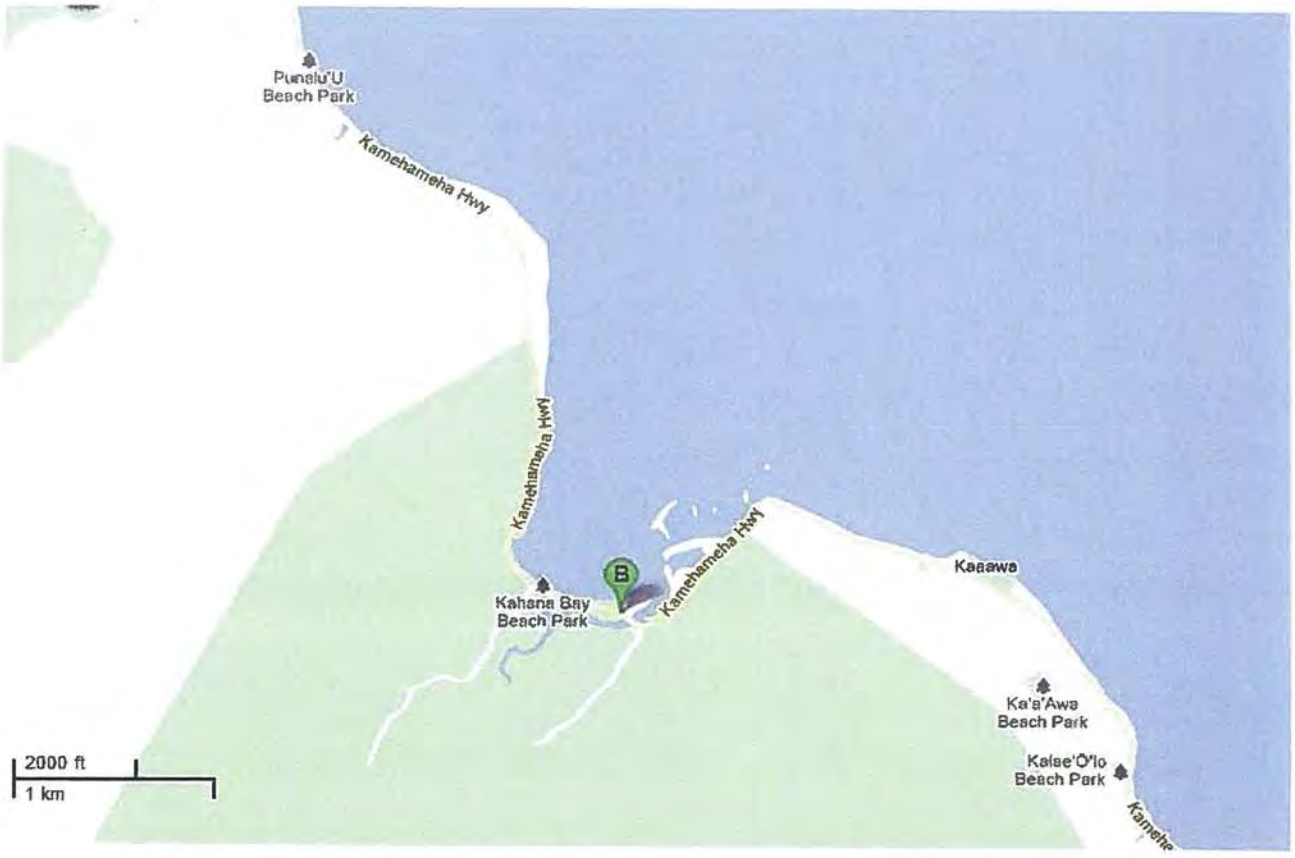
Location: 3.78 Miles Southeast of Sacred Falls Road

Historic Name: South Kahana Stream

Designer/Engineer:

Builder/Contractor:

Location Map:



Construction Information

Bridge Type: Concrete Slab **Construction Date:** 1927 **Replaced?** No

Altered? Yes **Alteration Date(s):** 1972

Alteration Type(s):

Alteration Description(s): Wood pedestrian bridge added in 1972.

Bridge Information

Number of Spans: 5 **Max Span:** 18.0 ft. **Total Length:** 89.9 ft. **Deck Width:** 26.2 ft.

Superstructure: Concrete Slab

Substructure: Concrete Abutment Wall and Concrete Pile Bent

Floor/Decking: Concrete Deck with AC Overlay

Parapets/Railings: Concrete Solid Panel with Cap

Setting:

Other Features:

Historic Association

Eligibility Status: Eligible **Criteria:** C **State/National Registered?** No

Current Function: Bridge **Historic Function:** Bridge

Area of Significance: Engineering

Narrative Description:

The South Kahana Stream Bridge carries Kamehameha Highway across the Kahana Stream. This concrete slab bridge is in its original location, is generally in good condition, and its material remain intact. The bridge has concrete solid panel parapets with flat caps and end posts with the bridge name engraved. The reinforced concrete slab deck is supported by the concrete abutments. A wood pedestrian walkway with wood horizontal railing was added to the upstream side of the bridge in 1972. The new concrete parapet were extended to the end posts to secure the thrie beams, therefore the workmanship of the bridge has not been obscured. The simple design of the parapet retains its historic feeling.

Significance Statement:

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1920's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

APPENDIX C

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

JEFFREY T. PEARSON
DEPUTY DIRECTOR - WATER

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

7028.01
2/24/17

RECEIVED
FEB 1 [illegible]
HAWAII DIVISION

cc: CSH

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD, STE 555
KAPOLEI, HAWAII 96707

January 31, 2017

IN REPLY REFER TO:
LOG: 2016.02807
DOC: 1701JLP23
Architecture

Meesa Otani
Environmental Engineer
Federal Highway Administration
300 Ala Moana Blvd. Room 3-306
Box 50206
Honolulu, HI 96850

Dear Ms. Otani:

RE: National Historic Preservation Act Section 106 Cultural Resources Management Consultation
Agency: Federal Highway Administration
South Kahana Stream Bridge Replacement Project
Ahuapuaa of Kahana, District of Koolauloa, Island of Oahu, Hawaii
TMK: (1) 5-2-002:001; 5-2-005:001; 5-2-005; 5-2-005:022; 5-2-005:023

Thank you for the opportunity to comment on this request from the Federal Highway Administration (FHWA) for consultation and concurrence with the determination of **adverse effect** for the proposed South Kahana Stream Bridge project. FHWA has determined that this project is an undertaking, as defined in 36 CFR § 800.16(y), and that the Area of Potential Effects (APE) includes 6.5 acre area which includes the South Kahana Stream footprint, land along both sides of Kamehameha Highway, and two staging areas. The State Historic Preservation Division (SHPD) received this submittal on December 2, 2016.

The proposed project includes replacing the existing South Kahana Stream Bridge with a new bridge in order to meet current design guidelines. The proposed bridge will be a multi-span structure with a concrete plank deck and cast-in-place topping; it will be 43 feet wide and 396 feet long. The super structure will be supported by 27 four foot diameter concrete drilled shafts. The drilled shafts will be placed in rows, 50 feet apart, with cast in place concrete pile caps. The stream channel opening will be widened to approximately 170 feet and the channel dredged to match the existing sub-surface conditions. Un-grouted rip-rap consisting of armor stone rocks will be placed in the channel and on the banks for stabilization purposes. The vertical clearance of the new bridge at mean sea level will be approximately 5'8" at mid span. A pre-fabricated temporary bypass bridge will be erected north of the proposed bridge and will be used to maintain traffic flows during construction of the new bridge. The temporary bridge will be 30'-6" wide and 400 feet long, supported by 60 two-foot diameter steel pipe piles driven into place within the stream. The temporary bypass bridge will be removed upon completion of the new bridge.

South Kahana Stream Bridge is eligible for listing in the National Register of Historic Places under Criterion C for its association with early developments in concrete bridge construction in Hawaii [Hawaii Department of Transportation, Historic Bridge Inventory; 2013]. It is a good example of a 1920's reinforced concrete bridge that is typical of its period and use of materials, method of construction, craftsmanship, and design.

Based on the information provided, the Hawaii State Historic Preservation Officer (SHPO) has reviewed the undertaking, pursuant to 36 CFR § 800.5(a) and the SHPO **concurs** with the determination of FHWA that the effects of the proposed undertaking will have an **adverse effect** on historic properties within the APE.

FHWA is the office of record for this undertaking. Please maintain a copy of this letter with your environmental review record. If you have any questions about this undertaking or if there is a change to the scope of work, please contact Jessica Puff, Architectural Historian, at (808) 692-8023 or by email at jessica.l.puff@hawaii.gov.

Sincerely,

Dr. Alan S. Downer
Deputy State Historic Preservation Officer
Administrator, State Historic Preservation Division

In the event that historic resources, including human skeletal remains, cultural layers, cultural deposits, features, artifacts, or sinkholes, lava tubes or lava blisters/bubbles are identified during construction activities, all work should cease in the immediate vicinity of the find, the find should be protected from additional disturbance, and the State Historic Preservation Division should be contacted immediately at (808) 692-8015.

CC: Christine Yamasaki, HDOT, christine.yamasaki@hawaii.gov
Misako Mimura, HDOT, misako.k.mimura@hawaii.gov
Kiersten Faulkner, HHF, kiersten@historichawaii.org

U.S.Department
of Transportation
Federal Highway Administration

Hawaii Federal-Aid Division

300 Ala Moana Blvd, Rm 3-306
Box 50206
Honolulu, Hawaii 96850
Phone: (808) 541-2700
Fax: (808) 541-2704

December 2, 2016

In Reply Refer To:
HDA-HI

Ms. Suzanne Case
Chairperson and State Historic Preservation Officer
Department of Land and Natural Resources
601 Kamokila Boulevard, Suite 555
Kapolei, HI 96707

Subject: National Historic Preservation Act Section 106 Effect Determination
Kamehameha Highway, South Kahana Stream Bridge Replacement
District of Koolauloa, Island of Oahu, Ahupuaa of Kahana
Federal-Aid Project No. BR-083-1(055)
Tax Map Key(s): [1] 5-2-002:001; 5-2-005:001; 5-2-005; 5-2-005:022; 5-2-005:023

Dear Ms. Case:

In accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (2006), the Federal Highway Administration (FHWA) requests the State Historic Preservation Officer's concurrence on the effect determination for the proposed improvements. The FHWA is rendering an adverse effect determination for the subject project.

The FHWA intends to provide funds for the proposed improvements. Therefore, the FHWA has required the State of Hawaii Department of Transportation (HDOT) to comply with the National Environmental Policy Act, NHPA, and other federal requirements. The FHWA has authorized the HDOT, to act on behalf of the FHWA regarding the NHPA Section 106 notification and consultation.

Overview of the Undertaking

The project consists of replacing the existing South Kahana Stream Bridge with a new bridge which meets current design guidelines. The proposed bridge would be a multiple span structure with a concrete plank deck and cast-in-place topping. It would be 43 feet wide and 396 feet long. The super structure over the stream would be supported by a total of 27 four-foot diameter concrete drilled shafts. The drilled shafts would be spaced in rows, 50 feet apart, with cast in place concrete pile caps. The stream channel opening would be widened to approximately 170 feet and the channel dredged to match the existing sub-surface conditions. Ungrouted rip rap consisting of armor stone rocks would be placed in the channel and on the banks for stabilization purposes. The vertical clearance under the replacement bridge at mean sea level would be approximately 5'-8" at mid-span. Figure 1 shows the proposed bridge site plan.

A pre-fabricated temporary bypass bridge would be erected north of the proposed bridge and would be used to maintain traffic flows during construction of the new bridge. The temporary bypass bridge would be 30'-6" wide. It would have a total length of 400 feet and would be supported by 60 two-foot diameter steel pipe piles driven into place within the stream. The vertical clearance under the temporary bypass bridge at mean sea level would be approximately 4'-5" at mid-span. The temporary bypass bridge would be removed upon completion of the new bridge.

The Area of Potential Effect (APE) for this project would occupy approximately 6.5 acres. It includes the South Kahana Stream footprint, land along both sides of Kamehameha Highway and two staging areas. The APE was approved by the Department of Land and Natural Resources, State Historic Preservation Division (SHPD) by letter dated August 18, 2016. Figure 2 shows the current APE.

Consultation Overview

Two public meetings were conducted for this project. First, on April 15, 2015, a presentation about the project was made at the Kahana Community Association general membership meeting. A total of three Community Association board members and five community members were in attendance. (See Exhibit A) Second, on June 4, 2015, the HDOT conducted a meeting following a notification by mail to 39 lessees living in Ahupuaa O Kahana State Park and others. A total of 15 public members attended the meeting. See enclosed Exhibit B. At both meetings, the attendees posed questions and comments and the HDOT responded during the meeting. The main point of discussion at both meetings was the location of the temporary bypass bridge and its effect on nearby residents.

In August 2015, a Section 106 notice/advertisement regarding the undertaking was included in the Office of Hawaiian Affairs *Ka Wai Ola o OHA* (See enclosed Exhibit C) and, on October 1, 2015, a Section 106 notice/advertisement was placed in the *Honolulu Star Advertiser.* (See enclosed Exhibit D). On October 22, 2015, an e-mail comment was submitted to HDOT. On October 27, 2015, HDOT responded to the comment. (See enclosed Exhibit E).

On November 2, 2015, HDOT consulted with the SHPD by letter regarding the project undertaking. (See enclosed Exhibit F) In addition, on November 23, 2015, Section 106 consultation letters were sent to the 75 lessees, Native Hawaiian organizations, other organizations, and individuals. (See enclosed Exhibit G and Exhibit H). On December 29, 2015, one comment letter was received from the Office of Hawaiian Affairs. (See enclosed Exhibit I). On February 25, 2016, the HDOT responded. (See enclosed Exhibit J).

On February 19, 2016, the Historic Hawaii Foundation was consulted. (See enclosed Exhibit K).

On June 3, 2016, HDOT consulted with SHPD on the project's APE. (See enclosed Exhibit L). SHPD approved the APE on August 18, 2016. (See enclosed Exhibit M).

Historical, Cultural, and Archaeological Background

It is likely that this Koolau region of Oahu was settled early and was an area of dense population (Handy & Handy 1972:271). Kirch (1985 :69) comments that:

> "For the early Polynesians with their mixed horticultural and fishery subsistence base, the windward Oahu valleys were an ideal locus in which to establish permanent settlements."

Elspeth Sterling (1978) describes the vicinity of the project area as follows:

> "Nearer the sea, a group of small terraces, apparently watered by springs, is under cultivation between the highway and the mountain east of Huilua Fishpond. From this point up the mouth of the valley for some distance there appear to be ten-ace flats under the guava and remains of cane plantings. (Sterling and Summers, 1978)."

> Based on their chronometric analysis, Hommon and Bevacqua (1973) concluded that cultural deposits within a sand dune locality near Huilua fishpond, along the eastern shore of Kahana Bay (State Site 50-80-06-1546), date back to the 8th Century AD. Early dates are being re-evaluated but few would doubt early settlement at Kahana.

The east side of the mouth of Kahana Valley is relatively rich in archaeological sites (See enclosed Figure 2). Huilua Fishpond (SIHP # 50-80-06-0301), approximately 650 feet to the northeast, has been declared a National Historic Landmark. There have been burial finds on the *makai* side of Kamehameha Highway to the northeast.

Historic Resources, Structures

Originally constructed in 1927, the existing South Kahana Stream Bridge is one of a number of similar reinforced concrete slab bridges built along the windward coast of Oahu around that time.

In August 2006, HDOT consulted with SHPD and they requested that HDOT prepare photo documentation of the existing South Kahana Stream Bridge in compliance with the National Park Service Standards for Photographic Reproduction Historic American Engineering Record (HAER). At the time, the bridge was determined not eligible for the National Register. The HDOT submitted the photographs to the SHPD in May 2007.

In 2013, as part of the update to the HDOT's *Hawaii State Historic Bridge Inventory and Evaluation,* the existing South Kahana Steam Bridge was determined to be eligible for listing on the National Register of Historic Places under Criterion C for its association with early developments in concrete bridge construction in Hawaii. According to the Historic Bridge Inventory, it is a good example of a 1920's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

Summary of Historic Properties within the APE

Based on available documents and research, no known historic archaeological properties have been identified within the APE.

However, the bridge itself is considered historic because it is eligible for listing on the National Register of Historic Places. In August 2016, SHPD determined that since HDOT is removing what is considered a National Register eligible historic resource, a Memorandum of Agreement (MOA) needs to be prepared.

Effect Determination

Based on our analysis, site observations, and consultation with the SHPD, the Office of Hawaii Affairs, the Hawaii Historic Foundation, the Kahana Community Association, lessees of Ahupuaa O Kahana State Park, Native Hawaii Organizations, and other interested parties, the FHWA has determined the project will have an adverse effect on historic properties.

Mitigation Policies

A Section 106 MOA will be prepared for the subject project. The MOA will document that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on the historic bridge.

- SHPD review and concurrence of the new bridge plans; and
- Documentation of the existing bridge according to HAER standards (which was completed in May 2007).

FHWA requests the State Historic Preservation Officer's concurrence with the adverse effect determination.

If you have any questions, please feel free to contact me at (808)541-2316 or by email at meesa.otani@dot.gov. Thank you for your assistance.

Sincerely yours,

Meesa Otani
Environmental Engineer

Enclosures

cc: Christine Yamasaki, HDOT, HWY-DD
Brian Lock, Wilson Okamoto
Misako Mimura, HDOT, HWY-DE Kapolei

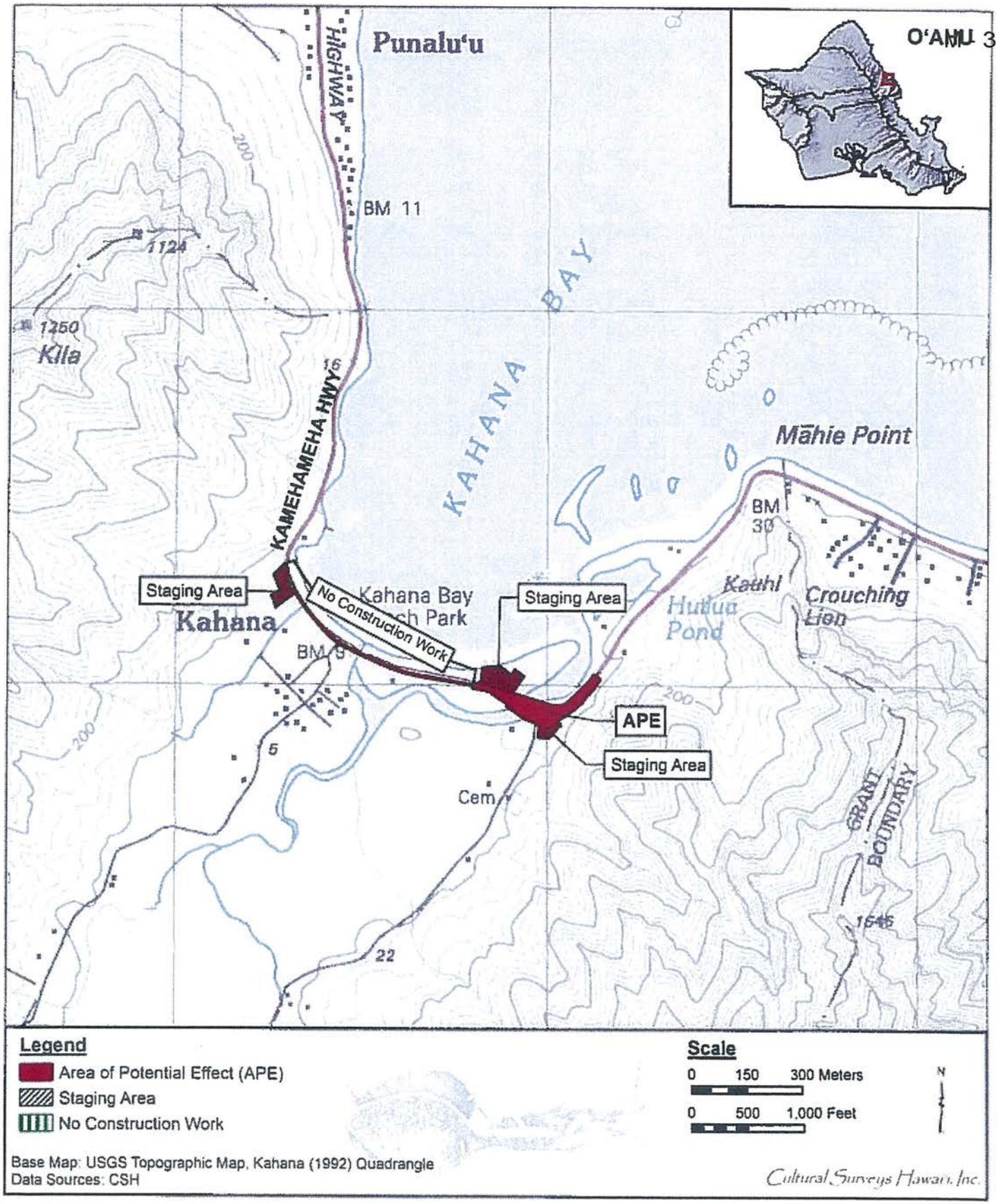
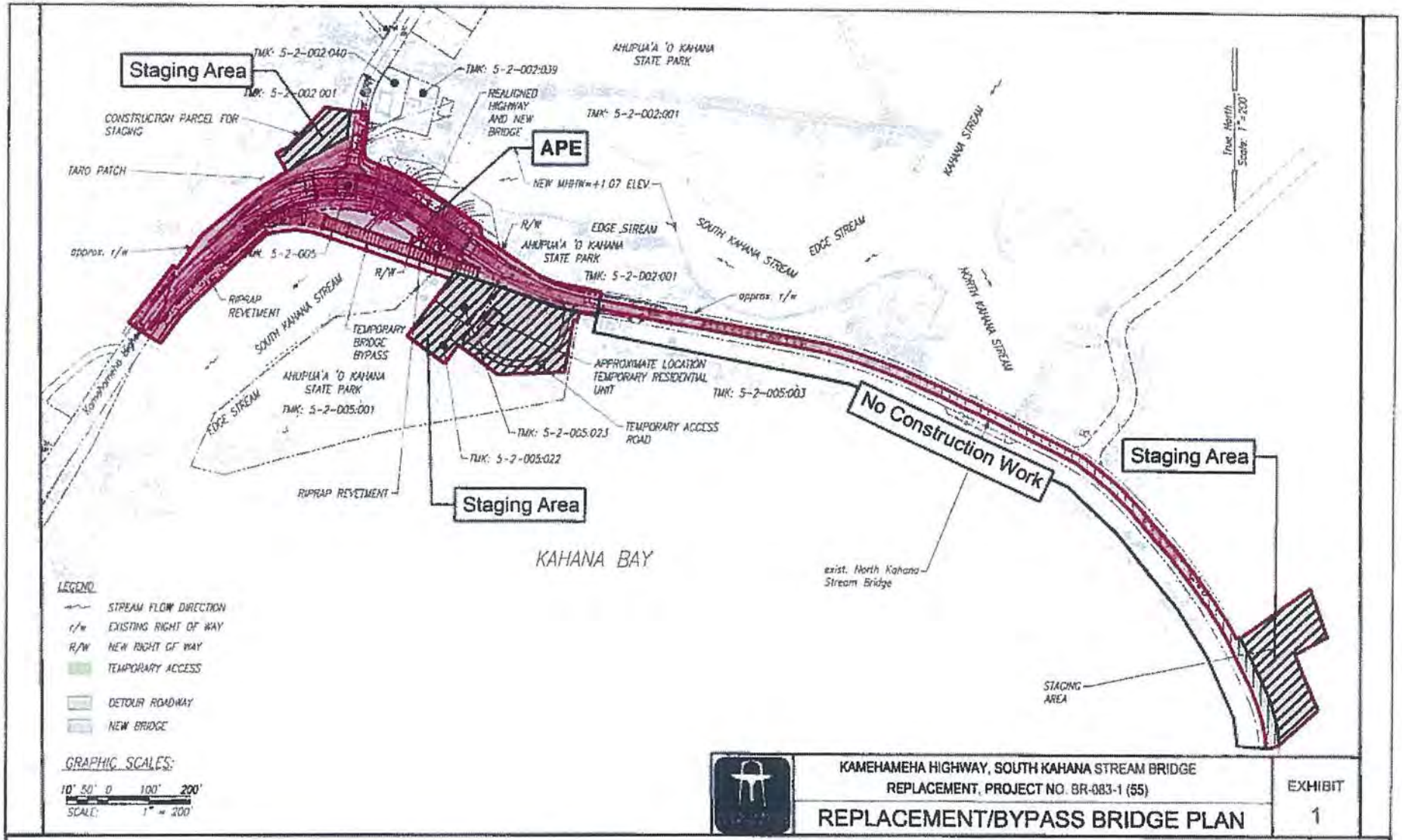

Punalu'u
HIGHWAY
BM 11
1124
1250
Kila
KAMEHAMEHA HWY
KAHANA BAY
Māhie Point
BM 30
Kauhi
Crouching Lion
Hulua Pond
Staging Area
Kahana
No Construction Work
Kahana Bay
Park
BM 9
Staging Area
APE
Staging Area
Cem
GRANT BOUNDARY
1645
22
O'AHU
Legend
Area of Potential Effect (APE)
Staging Area
No Construction Work
Scale
0 150 300 Meters
0 500 1,000 Feet
N
Base Map: USGS Topographic Map, Kahana (1992) Quadrangle
Data Sources: CSH
Cultural Surveys Hawai'i, Inc.

Figure 1



Legend

- Area of Potential Effect (APE)
- Staging Area
- No Construction Work

Base Map: South Kahana Stream Replacement/Bypass Bridge Plan
Data Sources: CSH

Scale

0 75 150 Meters

0 250 500 Feet

N

Cultural Surveys Hawai'i

Figure 2

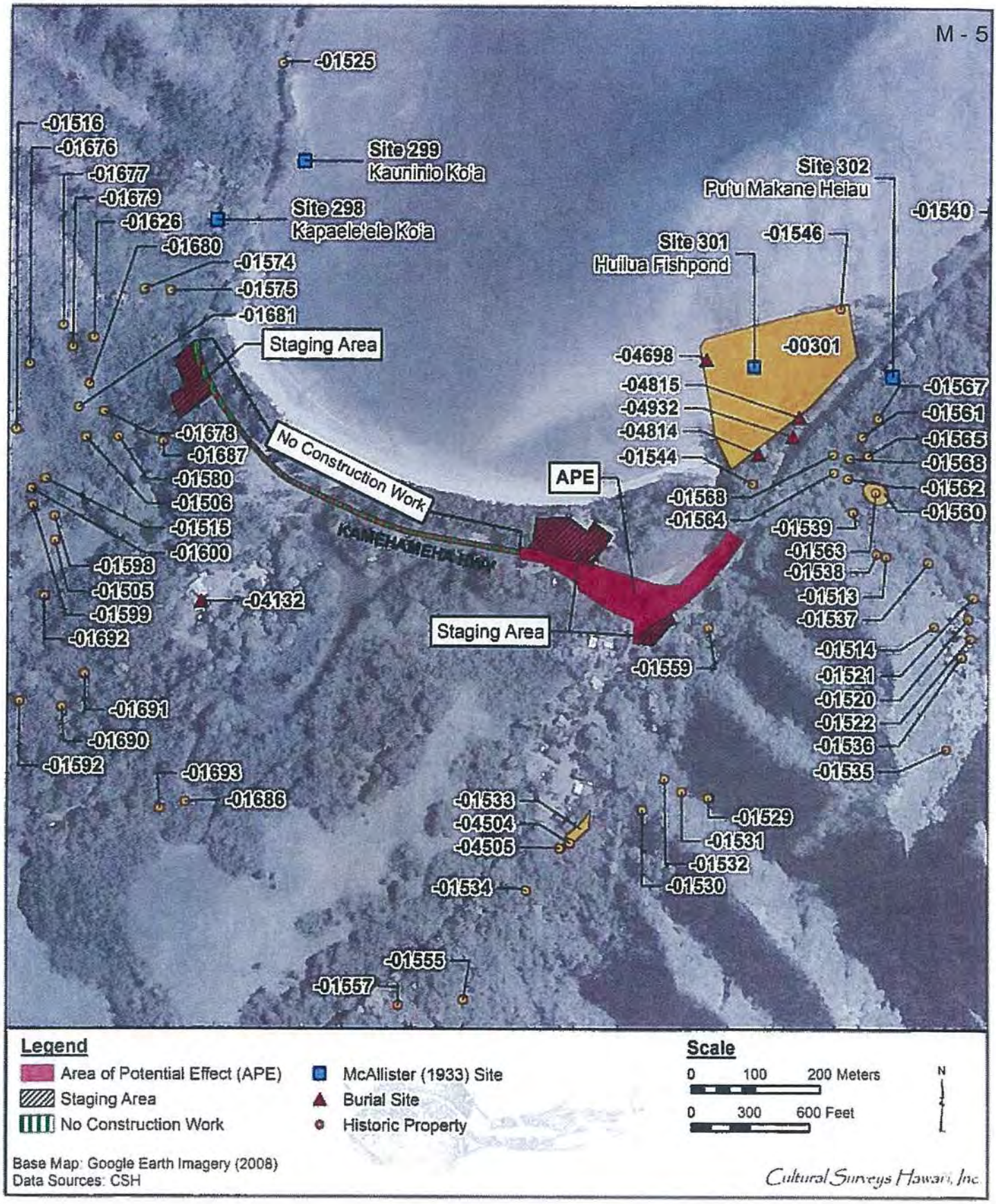

M - 5
-01525
-01516
-01676
-01677
-01679
-01626
-01680
-01574
-01575
-01681
Site 299
Kauninio Ko'a
Site 298
Kapaele'ele Ko'a
Site 302
Pu'u Makane Heiau
-01540
Site 301
Huilua Fishpond
-01546
Staging Area
-04698
-00301
-04815
-04932
-04814
-01544
-01567
-01561
-01565
-01568
-01562
-01560
-01678
-01687
-01580
-01506
-01515
-01600
No Construction Work
APE
-01568
-01564
-01539
-01563
-01538
-01513
-01537
-01598
-01505
-01599
-01692
-04132
Staging Area
-01559
-01514
-01521
-01520
-01522
-01536
-01535
-01691
-01690
-01592
-01693
-01686
-01533
-04504
-04505
-01534
-01529
-01531
-01532
-01530
-01555
-01557
Legend
Area of Potential Effect (APE)
Staging Area
No Construction Work
McAllister (1933) Site
Burial Site
Historic Property
Scale
0 100 200 Meters
0 300 600 Feet
N
Base Map: Google Earth Imagery (2008)
Data Sources: CSH
Cultural Surveys Hawai'i, Inc.

Figure 3

DAVID Y. IGE
GOVERNOR

FORD N. FUCHIGAMI
DIRECTOR

Deputy Directors
JADE T. BUTAY
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

IN REPLY REFER TO:
HWY-DD 2.9134

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

November 2, 2015

TO: THE HONORABLE SUZANNE CASE, CHAIRPERSON
DEPARTMENT OF LAND AND NATURAL RESOURCES

ATTN: ALAN S. DOWNER, PH.D.
ADMINISTRATOR AND DEPUTY STATE HISTORIC PRESERVATION OFFICER
STATE HISTORIC PRESERVATION DIVISION

FROM: FORD N. FUCHIGAMI
For DIRECTOR OF TRANSPORTATION Jade T. Butay

SUBJECT: NATIONAL HISTORIC PRESERVATION ACT, SECTION 106
RE-CONSULTATION
KAMEHAMEHA HIGHWAY, SOUTH KAHANA STREAM BRIDGE
REPLACEMENT, DISTRICT OF KOOLAULOA, ISLAND OF OAHU
AHUPUAA OF KAHANA, FEDERAL-AID PROJECT NO. BR-083-1(55)
TAX MAP KEYS: [1] 5-2-002:001, 5-2-005:001, 5-2-005, 5-2-005:022, and 5-2-005:023

On behalf of the Federal Highway Administration (FHWA), the State of Hawaii Department of Transportation (HDOT) would like to invite you to participate in re-consultation for the proposed bridge replacement project. The reason for this re-consultation is a change from an upstream temporary bypass bridge to a downstream temporary bypass bridge, which affects the Area of Potential Effect (APE).

The proposed project calls for the replacement of the South Kahana Stream Bridge and realignment of both approaches to the replacement bridge (the APE is depicted in Figure 1 and an overview of project plans is presented in Figure 2). The project site is on Kamehameha Highway at the southeast corner of Kahana Bay. In the vicinity of the bridge, Ahupuaa O Kahana State Park occupies both sides of the highway right-of-way which is state-owned land under the control of the Department of Land and Natural Resources (DLNR), Hawaii State Parks. The entrance to the state park lands is about 300 feet west of the bridge.

The proposed project will utilize federal funds and, as such, will be considered a federal action and undertaking, as defined by the Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (2006). Therefore, the FHWA will require compliance with the National Environmental Policy Act, NHPA, and other federal requirements. The FHWA has authorized the HDOT to act on behalf of the FHWA regarding the NHPA Section 106 notification and consultation. We would like to invite you to participate in the Section 106 re-consultation for the proposed project in accordance with Title 36 of the *Code of Federal Regulations,* Section 800.3. Changes to the project APE, including a change from an upstream temporary bypass to a downstream temporary bypass, have resulted in a decision to re-consult under Section 106 of the NHPA.

Originally constructed in 1927, the existing South Kahana Stream Bridge is one of a number of similar reinforced concrete slab bridges built along the windward coast of Oahu around that time.

In May 2007, at the request of the DLNR State Historic Preservation Division (SHPD), the HDOT prepared photo documentation of the existing South Kahana Stream Bridge in compliance with the National Park Service Standards for Photographic Reproduction Historic American Engineering Record. The HDOT submitted the photographs to the SHPD. In 2013, as part of the update to the HDOT's *Hawaii State Historic Bridge Inventory and Evaluation,* the existing South Kahana Steam Bridge was determined to be eligible for listing on National Register of Historic Places.

Overview of the undertaking

The APE for this project would occupy about 3.6 acres or 156,000 square feet. It extends along and on both sides of the Highway and is approximately 1,100 feet long by 290 feet wide, at its widest point. About 39,400 square feet of the APE (25% of the total) lies within the boundaries of South Kahana Stream. The landside area of the APE on both sides of the stream is about 2.7 acres or 130,000 square feet and consists mostly of fill material which was placed there during construction of the existing bridge. The project would incorporate a small portion of Ahupuaa O Kahana State Park as part of the HDOT right-of-way for realignment of the roadway approaches to the replacement bridge. A temporary detour road and bypass bridge would be installed north or downstream of the existing bridge for the duration of construction. In addition, a temporary access driveway would be provided to the two residential parcels affected by the temporary bypass.

Historical, Cultural, and Archaeological Background

It is likely that this Koolau region of Oahu was settled early and was an area of dense population (Handy & Handy 1972:271). Kirch (1985:69) comments that:

> "For the early Polynesians with their mixed horticultural and fishery subsistence base, the windward Oahu valleys were an ideal locus in which to establish permanent settlements."

Elspeth Sterling (1978) describes the vicinity of the project area as follows:

> "Nearer the sea, a group of small terraces, apparently watered by springs, is under cultivation between the highway and the mountain east of Huilua Fishpond. From this point up the mouth of the valley for some distance there appear to be ten-ace flats under the guava and remains of cane plantings. (Sterling and Summers, 1978)."

Based on their chronometric analysis, Hommon and Bevacqua (1973) concluded that cultural deposits within a sand dune locality near Huilua fishpond, along the eastern shore of Kahana Bay (State Site 50-80-06-1546), date back to the 8111 Century AD. Early dates are being re-evaluated but few would doubt early settlement at Kahana.

Summary of Historic Properties within the APE

Based on available documents and research, no known historic properties have been identified within the APE (other than the bridge itself previously discussed).

The east side of the mouth of Kahana Valley is, however, relatively rich in archaeological sites (see Figure 3). Huilua Fishpond (SIHP # 50-80-06-0301), approximately 650 feet to the northeast, has been declared a National Historic Landmark. There have been burial finds on the *makai* side of Kamehameha Highway to the northeast.

Consultations

A Section 106 notice/advertisement will be included in the *Honolulu Star Advertiser* and Office of Hawaiian Affairs *Ka Wai Ola o OHA.* Native Hawaiian organizations and Native Hawaiian descendants with ancestral, lineal or cultural ties to, cultural knowledge or concerns for, and cultural or religious attachment to the proposed project area are asked to provide a response within 30 days of notification.

Section 106 consultation letters have also been sent to organizations or individuals that might attach significance to this area and invited them to participate in the process. See enclosed list.

We welcome any comments you have on this project's proposed improvements. We are particularly interested in any information you may have on the historic and cultural sites that have been recorded in the area or any other historic or cultural sites about which you may have knowledge. In addition, if you are acquainted with any persons or organization that is knowledgeable about the proposed project area, or any descendants with ancestral, lineal or cultural ties to or cultural knowledge or concerns for, and cultural or religious attachment to the proposed project area, we would appreciate receiving their names and contact information.

We would appreciate a written response within 30 days from date of receipt, to Christine Yamasaki, Project Manager, via email at christine.yamasaki@hawaii.gov or by U.S. Postal Service to Hawaii Department of Transportation, 601 Kamokila Boulevard, Room 609, Kapolei, Hawaii 96707.

Please feel free to contact Christine Yamasaki by telephone at (808) 692-7572, if you have any questions. We look forward to working with SHPD on these needed improvements.

Enclosures

hy/

c: FHWA (M. Otani), Wilson Okamoto Corp. (B. Lock)

bc: DIR, DEP-HWY, HWY, HWY-DD (CY), HWY-DE

References Cited

Handy, E.S. Craighill and Elizabeth G. Handy

1972 *Native Planters in Old Hawaii: Their Life, Lore, and Environment*, B.P. Bishop Museum Bulletin 233, B.P. Bishop Museum, Honolulu, HI.

Hommon, Robert and Robert Bevaqua

1973 *Excavations in Kahana Valley, Oahu*, 1972, Departmental Report Services 73-2, B.P. Bishop Museum, Honolulu, HI.

Kirch, Patrick V.

1985 *Feather Gods and Fishhooks: An Introduction to Hawaiian Archaeology and Prehistory*, University of Hawaii Press, Honolulu, HI.

Sterling, Elspeth P. and Catherine C. Summers

1978 *Sites of Oahu*, Bishop Museum Press, Honolulu, HI.

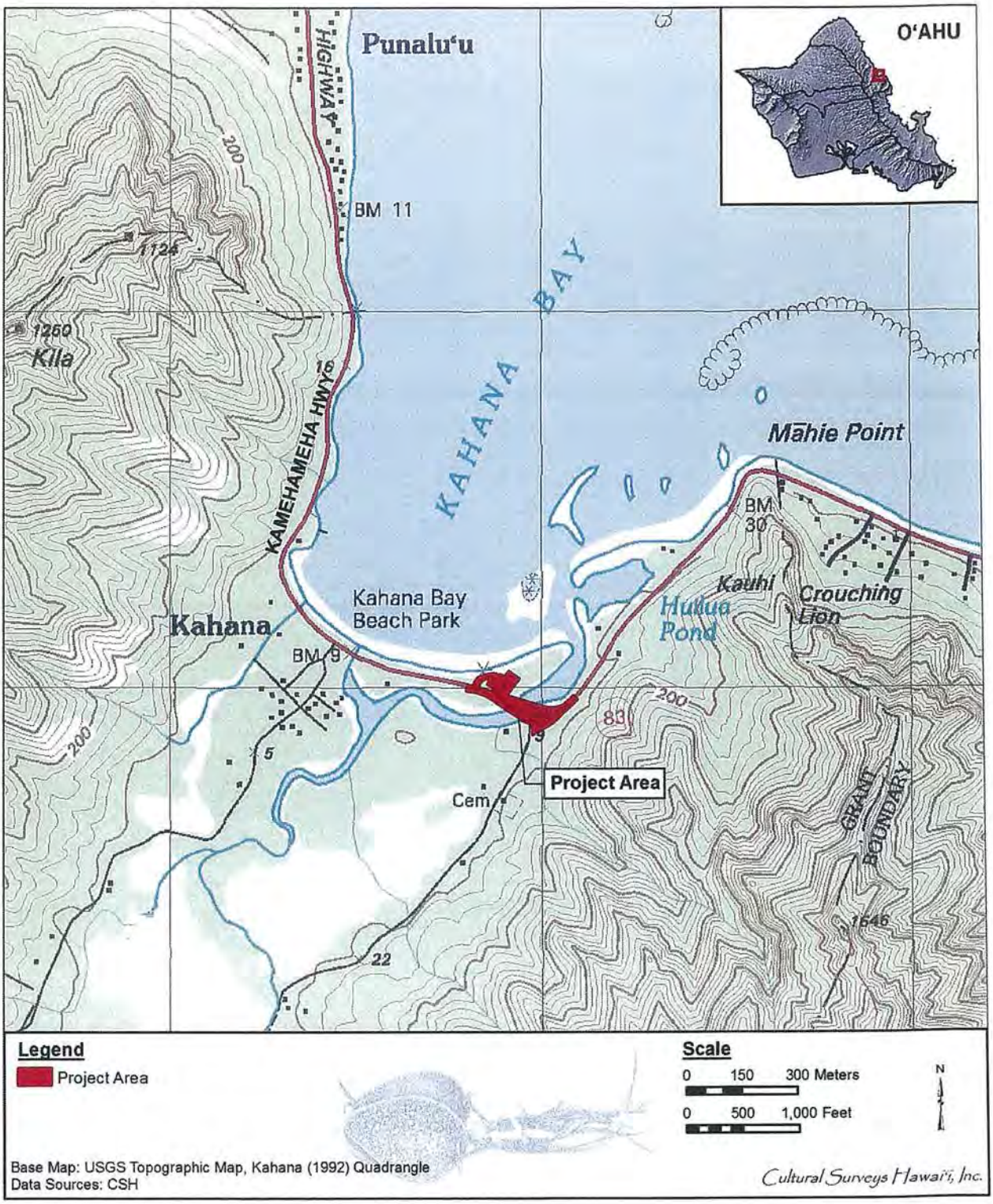


Figure 1. 1992 Kahana U.S. Geological Survey 7.5-minute topographic quadrangle showing the project Area of Potential Effect

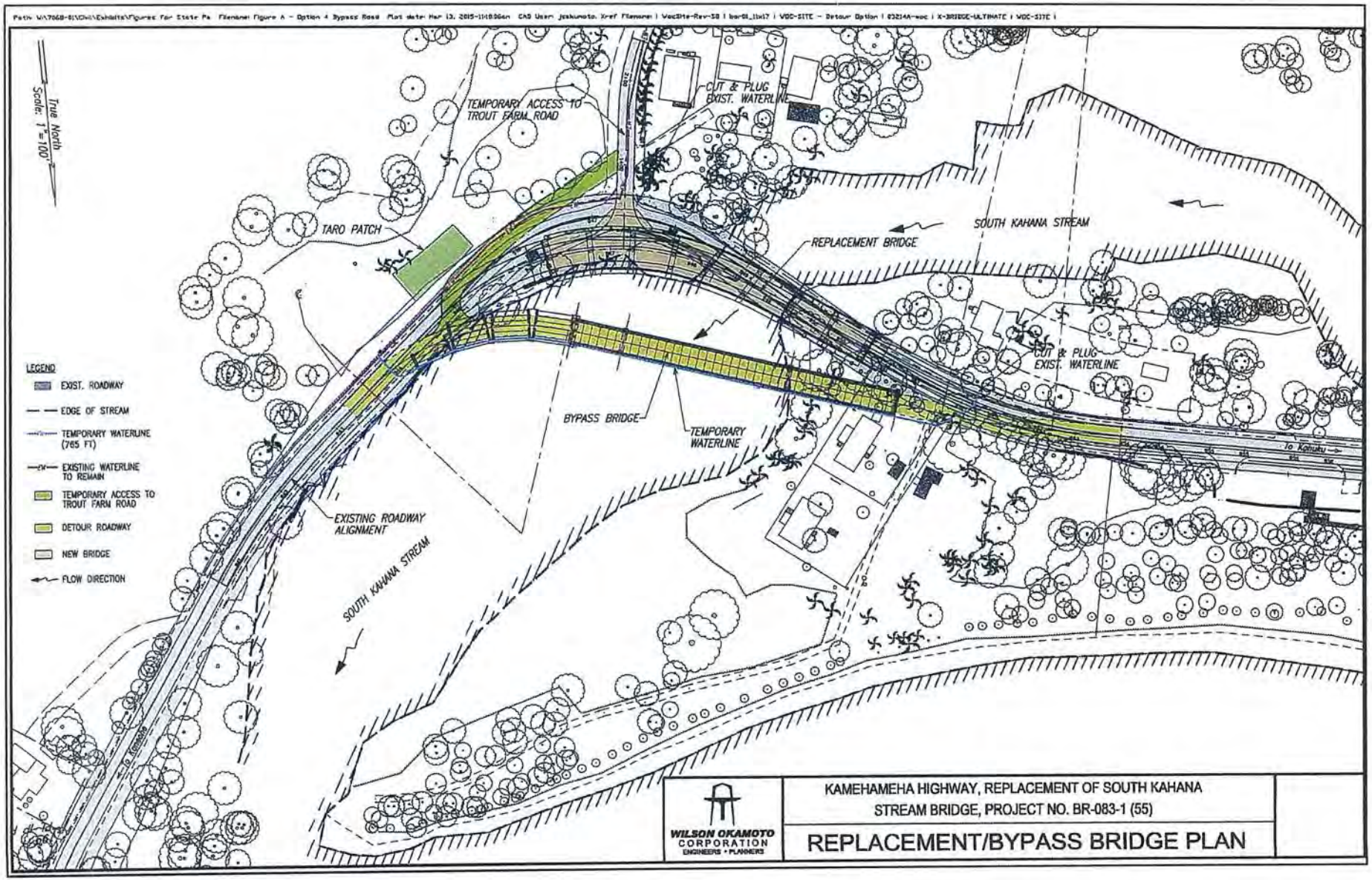


Figure 2. Map showing proposed temporary bypass road and bridge at South Kahana Stream

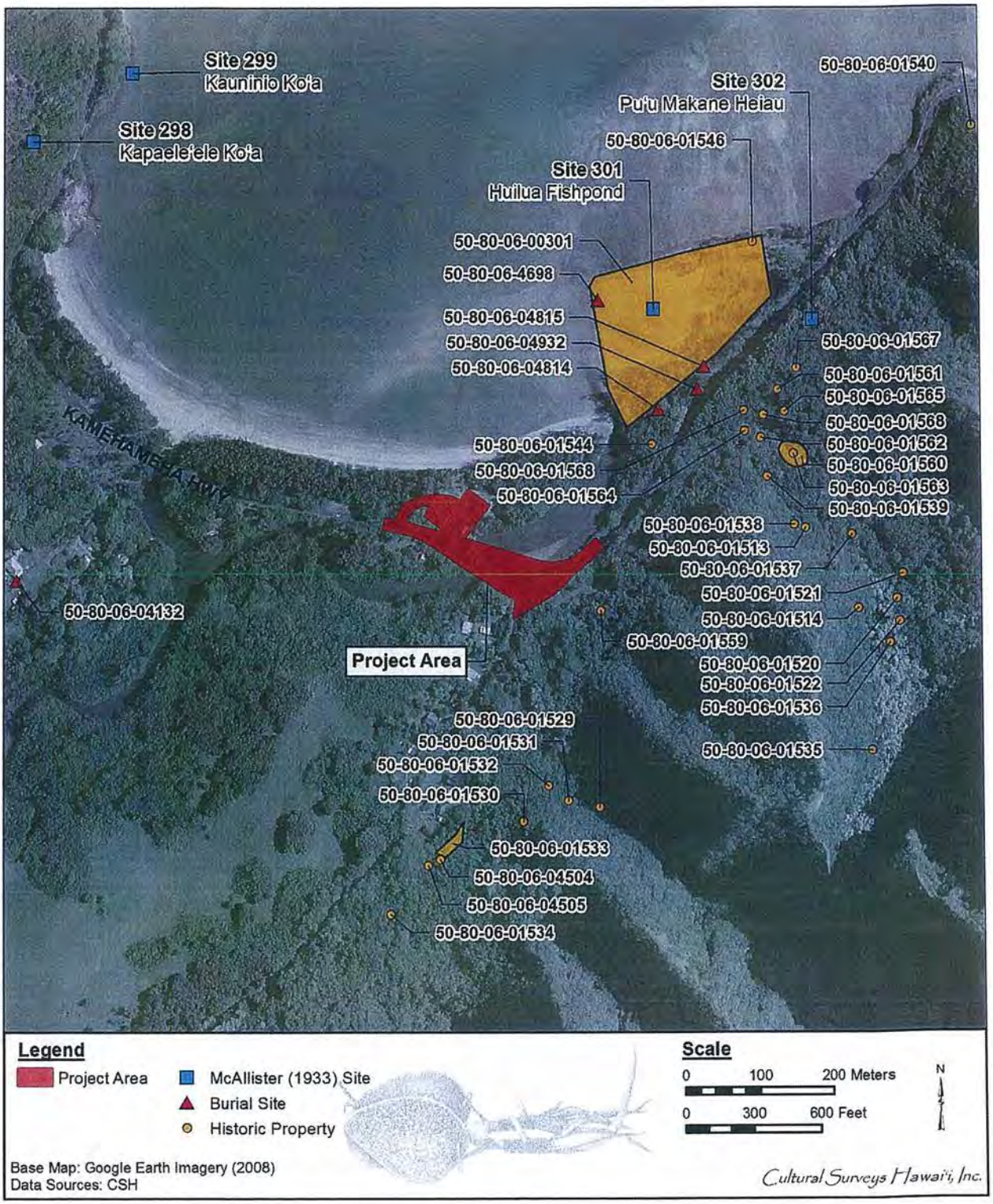


Figure 3 Aerial photograph showing the location of historic properties and burial finds in the immediate vicinity of proposed South Kahana Stream Bridge improvements

APPENDIX D

7066-01
2/24/17 GS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawai'i 96850

MO

RECEIVED
FEB 16 2017
FEDERAL HIGHWAY ADMINISTRATION
HAWAII DIVISION

cc: AECOS

In Reply Refer To:
01EPIF00-2017-I-0122
HAD-HI

FEB 16 2017

Ms. Meesa Otani
Environmental Engineer
U.S. Department of Transportation
Federal Highway Administration
300 Ala Moana Boulevard, Room 3-306
Box 50206
Honolulu, Hawai'i 96850

Subject: Informal Consultation for the Proposed Kamehameha Highway, South Kahana Stream Bridge Replacement Project, O'ahu

Dear Ms. Otani:

The U.S. Fish and Wildlife Service (Service) received your letter on January 25, 2017, requesting our concurrence with your determination that the proposed Kamehameha Highway, South Kahana Stream Bridge Replacement Project [Federal-Aid Project No. BR-083-1(55)] located on the island of O'ahu, may affect, but is not likely to adversely affect the federally threatened Newell's shearwater (*Puffinus auricularis newelli*), endangered Hawaiian petrel (*Pterodroma sandwichensis*), endangered band-rumped storm-petrel (*Oceanodroma castro*) (collectively referred to as Hawaiian seabirds); endangered Hawaiian stilt (*Himantopus mexicanus knudseni*), endangered Hawaiian gallinule (*Gallinula chloropus sandvicensis*), endangered Hawaiian coot (*Fulica alai*), endangered Hawaiian duck (*Anas wyvilliana*) (collectively referred to as Hawaiian waterbirds); endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*); and threatened green sea turtle (*Chelonia mydas*). We understand you have consulted with the National Marine Fisheries Service on sea turtles, in off-shore and open ocean habitats, and other trust species under their jurisdiction.

The findings and recommendations in this consultation are based on (1) your letter; (2) previous correspondence between our office and the State of Hawai'i Department of Transportation (HDOT) (Service File No. 01EPIF00-2016-SL-0468); and (3) other information available to us. A complete administrative record is on file in our office. This response is in accordance with section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*).

Project Description

The Federal Highway Administration, in cooperation with the HDOT, is planning to undertake the Kamehameha Highway, South Kahana Stream Bridge Replacement Project. The work for the proposed project includes the removal and replacement of the South Kahana Stream Bridge

and realignment of both approaches to the replacement bridge. A temporary bypass bridge would be placed north or downstream of the existing bridge to maintain traffic flow during construction. The project site is on Kamehameha Highway at the southeast corner of Kahana Bay. Kahana Valley State Park borders both sides of the bridge. At this time, construction is expected to occur from September 2018 to September 2020.

Conservation Measures
The following measures identified in your letter and enclosures will be implemented at the project site to avoid and minimize effects to Hawaiian seabirds, Hawaiian waterbirds, Hawaiian hoary bat, and green sea turtle. These conservation measures are considered part of the project description. Any changes to, modifications of, or failure to implement these conservation measures may result in the need to reinitiate this consultation.

- The project site will be surveyed for any federally listed species, Hawaiian waterbirds and/or nests before the start of construction and after any delay in work of three or more days.

- If any Hawaiian waterbirds and/or nests are found within the project site, the USFWS will be notified within 48 hours and a biological monitor will be hired to ensure no bird or nest is adversely impacted by the construction activities. A 100-foot buffer will be established around any bird or active nest until the waterbirds leave the area on their own accord.

- Temporary lighting used during construction will be cut-off style, positioned low to the ground and not visible from the beach.

- Night-time construction will be avoided from September 15 through December 15.

- Woody plants greater than 15 feet will not be trimmed or removed from June 1 through September 15.

Conclusion
Hawaiian seabirds may transit over and within the vicinity of the proposed project site. The proposed project may impact Hawaiian seabirds if while transiting within the vicinity seabirds were attracted to artificially lighted areas which could result in disorientation and subsequent fallout due to exhaustion or collision with objects. Once grounded, they would be vulnerable to predators or could be struck by vehicles along roadways. By incorporating the above avoidance and minimization measures (*e.g.* night-time construction will be avoided from September 15 through December 15) for Hawaiian seabirds, the threat of artificial light attraction for seabirds flying overhead is not probable, and therefore discountable. Because effects from the action are discountable, the proposed project is not likely to adversely affect Hawaiian seabirds.

Hawaiian waterbirds may nest and/or forage within the proposed project area. The proposed project may impact Hawaiian waterbirds if nests are present and the parents are flushed from the nest for extended periods of time causing the nest to fail (*e.g.*, exposed to predation) or eggs or chicks are crushed by humans or equipment. By incorporating the above avoidance and

minimization measures (*e.g.*, nest surveys prior to work being conducted, maintaining a 100 foot buffer around any nests found, presence of biological monitor during construction or earthmoving activities) for Hawaiian waterbirds, crushed eggs or chicks, and adults leaving nests for extended periods or nests failing are not probable, and therefore discountable. Because effects from the action are discountable, the proposed project is not likely to adversely affect Hawaiian waterbirds.

The proposed project will avoid Hawaiian hoary bats since potential roost trees will not be trimmed or removed during the bat pupping season. Based on the avoidance of potential roost trees, it is not probable that your project would impact bats. Therefore, the Service has determined any effects are discountable and not likely to adversely affect the Hawaiian hoary bat.

The proposed project may impact the green sea turtle if turtles were present and disoriented by artificial lighting from the project. By incorporating the above conservation measures (*e.g.*, cut-off style, temporary lighting used during construction positioned low to the ground and not visible from the beach) for green sea turtles, disorientation by lighting is not probable, and therefore discountable. Because effects from the action are discountable, the proposed project is not likely to adversely affect the green sea turtle.

Conclusion

Based upon the above, we concur that the proposed project may affect, but is not likely to adversely affect, the Newell's shearwater, Hawaiian petrel, band-rumped storm-petrel, Hawaiian stilt, Hawaiian gallinule, Hawaiian coot, Hawaiian duck, Hawaiian hoary bat, and green sea turtle. Unless the project description changes, or new information reveals that the proposed project may affect listed species in a manner or to an extent not considered, or a new species or critical habitat is designated that may be affected by the proposed action, no further action pursuant to section 7 of the ESA is necessary.

We appreciate your efforts to conserve endangered species. If you have questions regarding this consultation, please contact Jiny Kim, Fish and Wildlife Biologist (phone: 808-792-9400, email: jiny_kim@fws.gov). We have assigned log number 01EPIF00-2017-I-0122 to this consultation. Please refer to that number in future correspondence on this consultation.

Sincerely,

Aaron Nadig
Island Team Manager
O'ahu, Kaua'i, Northwestern Hawaiian Islands, and American Samoa

U.S. Department of Transportation
Federal Highway Administration

Hawaii Federal-Aid Division

300 Ala Moana Blvd, Rm 3-306
Box 50206
Honolulu, Hawaii 96850
Phone: (808) 541-2700
Fax: (808) 541-2704

January 23, 2017

In Reply Refer To:
HDA-HI

Ms. Mary Abrams
Field Supervisor, Pacific Islands Fish and Wildlife Office
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawaii 96850

Dear Ms. Abrams:

Subject: Section 7, Endangered Species Act Informal Consultation
Kamehameha Highway, South Kahana Stream Bridge Replacement
Federal-aid Project No. BR-083-1(055)

The State of Hawaii Department of Transportation (HDOT), in cooperation with the Federal Highway Administration (FHWA), is planning to undertake the Kamehameha Highway, South Kahana Stream Bridge Replacement project. The FHWA and HDOT are requesting concurrence from the U.S. Fish and Wildlife Service (USFWS) that the proposed project is not likely to adversely affect the federally threatened green sea turtle (*Chelonia mydas*), endangered Hawaiian petrel (*Pterodroma sandwichensis*), threatened Newell's shearwater (*Puffinus newelli*), endangered band-rumped storm petrel (*Oceanodroma castro*), endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), endangered Hawaiian stilt (*Himantopus mexicanus knudseni*), endangered Hawaiian gallinule (*Gallinula chloropus sandvicensis*), endangered Hawaiian coot (*Fulica alai*), and endangered Hawaiian duck (*Anas wyvilliana*).

Project Overview

The proposed work includes removal and replacement of the South Kahana Stream Bridge and realignment of both approaches to the replacement bridge. A temporary bypass bridge would be placed north or downstream of the existing bridge to maintain traffic flow during construction. The project site is on Kamehameha Highway at the southeast corner of Kahana Bay. Kahana Valley State Park borders both sides of the bridge. At this time, construction is expected to occur from September 2018 to September 2020. A map of the project area is enclosed.

Coordination with USFWS

Based on the information provided by the U.S. Fish and Wildlife Service (USFWS) in a letter dated August 30, 2016, the following species may occur within the project vicinity: the federally threatened green sea turtle (*Chelonia mydas*); endangered Hawaiian petrel (*Pterofoma*

sandwichensis); threatened Newell's shearwater (*Puffinus newelli*); endangered band-rumped storm petrel (*Oceanodroma castro*); a seabird species protected under the Migratory Bird Treaty Act, the wedge-tailed shearwater (*Puffinus pacificus*) (collectively referred to as Hawaiian seabirds); endangered Hoary bat (*Lasiurus cinereus semotus*), endangered Hawaiian stilt (*Himantopus mexicanus knudseni*), endangered Hawaiian gallinule (*Gallinula chloropus sandvicensis*), endangered Hawaiian coot (*Fulica alai*), and the endangered Hawaiian duck (*Anas wyvilliana*) (collectively referred to as Hawaiian waterbirds). No federally listed critical habitat is located in the project vicinity.

Potential Impacts to ESA Protected Species

Green sea turtle

Sea turtles are susceptible to artificial lighting that can disorient turtles away from the ocean. Sea turtles come ashore to nest on beaches from May through September, peaking in June and July. Optimal nesting habitat is a dark beach free of barriers that restrict their movement. Nesting turtles may be deterred from approaching or laying successful nests on lighted or disturbed beaches. If they do come ashore, they may become disoriented by artificial lighting, leading to exhaustion and placement of a nest in an appropriate location (such as at or below the high tide line where nests are unlikely to be successful). Hatchlings that emerge from unprotected nests may be disoriented by artificial lighting.

Seabirds

Hawaiian petrels, band-rumped storm-petrels, Newell's shearwaters, and wedge-tailed shearwaters (collectively known as seabirds) may transit over the project area when flying between the ocean and nesting sites in the mountains during the breeding season (March through November). Seabird fatalities resulting with artificial structures that extend above the surrounding vegetation have been documented in Hawaii where high densities of transiting seabirds occur. The potential impact that the construction and operation of the proposed project poses to the shearwaters is the impacts from nighttime work lighting and street lights. The seabirds fly at night and are attracted to artificially lighted areas which can cause disorientation and subsequent fallout from exhaustion or collision with objects. Once downed, the seabirds are vulnerable to predators or are often struck by vehicles along roadways.

Hawaiian Hoary Bat

The potential impact that the construction and operation of the proposed project poses to the bats is the clearing and grubbing of vegetation. The removal of vegetation within the project site may temporarily displace individual bats and roosting locations. During the pupping season, female bats will at times leave the roost to forage, leaving the pups unattended and unable to flee if the tree were felled. Additionally, Hawaiian hoary bats forage for insects from as low as three feet to higher than 500 feet above the ground.

Coordination with National Marine Fisheries Service

AECOS, Inc. performed a Biological Evaluation/Essential Fish Habitat Analysis dated April 3, 2016. It concluded that the proposed construction activities are not likely to negatively impact any Endangered Species Act (ESA) listed marine species under the National Marine Fisheries Service jurisdiction or critical habitats within the project area.

FHWA has consulted with the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA/NMFS). According to NOAA/NMFS, the following management unit species (MUS) may be affected by the proposed project: bottomfish, pelagics, coral reef ecosystem and crustaceans. NOAA/NMFS has concurred that the project will have minimal adverse effects on the Essential Fish Habitat and any MUS if all construction minimization measures and best management practices (BMPs) are implemented. See enclosed NOAA email dated June 15, 2016. In addition, NOAA/NMFS has also identified ESA listed green sea turtles, hawksbill sea turtles and Hawaiian monk seals as possibly occurring in the project area. NOAA/NMFS concurred with a not likely to adversely affect determination in the enclosed letter dated January 12, 2017.

Minimization measures and BMPs include:

- Regularly monitoring the project site for ESA listed marine species.
- Halting all work when ESA listed species are found within the project area.
- Conducting as much work as possible from land to avoid in-water work. No construction materials or equipment will be stored or staged in the stream or Kahana Bay.
- Minimizing sediment and pollutants from entering receiving waters by using silt fences, absorbent pads, and floating platforms to contain debris.
- Reducing acoustical impacts as much as possible by using vibratory pile driving.

Minimization Measures

The following measures will be incorporated into the project to avoid and minimize impacts to USFWS federally listed species:

- The project site will be surveyed for any federally listed species, Hawaiian waterbirds and/or nests before the start of construction and after any delay in work of three or more days.
- If any Hawaiian waterbirds and/or nests are found within the project site, the USFWS will be notified within 48 hours and a biological monitor will be hired to ensure no bird or nest is adversely impacted by the construction activities. A 100-foot buffer will be established around any bird or active nest until the waterbirds leave the area on their own accord.
- Temporary lighting used during construction will be cut-off style, positioned low to the ground and not visible from the beach.
- Woody plants greater than 15 feet will not be trimmed or removed from June 1 through September 15.

- Nighttime construction will be avoided from September 15 through December 15.

NLAA Determination

With the implementation of avoidance and minimization measures described above, FHWA and HDOT have determined that the subject project may affect, but is not likely to adversely affect the federally threatened green sea turtle (*Chelonia mydas*), endangered Hawaiian petrel (*Pterodroma sandwichensis*), threatened Newell's shearwater (*Puffinus newelli*), endangered band-rumped storm petrel (*Oceanodroma castro*), endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), endangered Hawaiian stilt (*Himantopus mexicanus knudseni*), endangered Hawaiian gallinule (*Gallinula chloropus sandvicensis*), endangered Hawaiian coot (*Fulica alai*), and endangered Hawaiian duck (*Anas wyvilliana*). We request your concurrence with our may affect, not likely to adversely affect determination. We respectfully request your response within 30 days of receipt of this letter.

If you have any questions, please feel free to contact me at (808)541-2316 or by email at meesa.otani@dot.gov. Thank you for your assistance.

Sincerely yours,

Meesa Otani
Environmental Engineer

Enclosures

cc: Christine Yamasaki, HDOT, HWY-DD
Misako Mimura, HDOT, HWY-DE Kapolei
Brian Lock, Wilson Okamoto

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

IN REPLY REFER TO:
HWY-DD 2.2060

August 5, 2016

Ms. Mary Abrams
Field Supervisor
U.S. Department of the Interior
Fish & Wildlife Service
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Box 50088
Honolulu, Hawaii 96850

Dear Ms. Abrams:

Subject: Notification of Intent to Construct Kamehameha Highway
South Kahana Stream Bridge Replacement
Federal-Aid Project No. BR-083-1(55)
Request for Species and Critical Habitat List under Section 7
Endangered Species Act (ESA)

The Hawaii Department of Transportation (HDOT), in cooperation with the Federal Highways Administration (FHWA) is planning to undertake the Kamehameha Highway South Kahana Stream Bridge Replacement project. A map of the project area is enclosed.

The proposed work includes removal and replacement of the South Kahana Stream Bridge and realignment of both approaches to the replacement bridge. A temporary bypass bridge will be placed north or downstream of the existing bridge to maintain traffic flow during construction. The project site is on Kamehameha Highway at the southeast corner of Kahana Bay. Kahana Valley State Park borders both sides of the bridge. At this time, construction is expected to occur from September 2018 to September 2020.

In accordance with Section 7 of the Endangered Species Act, HDOT and FHWA are requesting a list of threatened and endangered plant and animal species, and critical habitats within the vicinity of the project to enable an appropriate determination for this project.

Furthermore, to assist us in our assessment, we also respectfully ask for the U.S. Fish and Wildlife Service's opinion on the likely impact of the project based on the potential issues of the location considering the proposed construction activities and schedule. Survey reports dated December 31, 2012; November 4, 2014; and April 3, 2016 are enclosed for your use.

Your response within 30 calendar days of receipt of this letter, as outlined in the ESA Consultation Handbook, would be appreciated.

Should you have any questions, please call Christine Yamasaki at 692-7572 of our Highways Design Section, Design Branch, Highways Division or via email at Christine.Yamasaki@hawaii.gov or by U.S. Postal Service to State of Hawaii Department of Transportation, 601 Kamokila Blvd., Room 609, Kapolei, Hawaii 96707 and reference letter number HWY-DD 2.2060 as noted above.

Very truly yours,

BRYAN J. KIMURA
Acting, Highways Administrator

Enclosure

c: FHWA (M. Otani)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawai'i 96850

In Reply Refer To:
2015-SL-0107
HWY-DD 2.8029

Alvin A. Takeshita
Highways Administrator
State of Hawai'i, Department of Transportation
Design Branch, Highways Division
869 Punchbowl Street
Honolulu, Hawai'i 96813-5097

Subject: Species List for the Kamehameha Highway, South Kahana Stream Bridge Replacement Project, O'ahu

Dear Mr. Takeshita:

The U.S. Fish and Wildlife Service (Service) received your letter on December 29, 2014, requesting information regarding the presence of federally listed and proposed endangered or threatened species and critical habitat within the vicinity of the proposed South Kahana Stream Bridge Replacement Project, O'ahu. We understand the Hawai'i Department of Transportation (HDOT), in cooperation with the Federal Highways Administration (FHWA), is planning to undertake the proposed project located along Kamehameha Highway to remove and replace the South Kahana Stream Bridge and realign both approaches to the replacement bridge. A temporary bypass bridge will be placed south or upstream of the existing bridge to maintain traffic flow during construction. The proposed constructed is expected to occur from June 2016 to June 2018.

We have reviewed the information you provided and pertinent information in our files, including data compiled by the Hawai'i Biodiversity and Mapping Program. Our data indicate the federally threatened green sea turtle (*Chelonia mydas*), federally endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), and Hawaiian waterbirds: the Hawaiian stilt (*Himantopus mexicanus knudseni*), Hawaiian gallinule (*Gallinula chloropus sandvicensis*), Hawaiian coot (*Fulica alai*), and Hawaiian duck (*Anas wyvilliana*) may occur within the vicinity of the proposed project site. There is no federally listed critical habitat in the project vicinity.

Green sea turtle

If you determine the project may affect sea turtles in the water, we recommend that you contact the National Marine Fisheries Service as this would be their jurisdiction. If you determine the project may affect nesting or hauled out sea turtles, please contact us so we may assist you with ESA compliance.

Hawaiian hoary bat
The endangered Hawaiian hoary bat may be present within the proposed project area. The Hawaiian hoary bat roosts in both exotic and native woody vegetation and will leave young unattended in "nursery" trees and shrubs when they forage. If trees or shrubs suitable for bat roosting are cleared during the breeding season, there is a risk that young bats could inadvertently be harmed or killed. To minimize impacts to the endangered Hawaiian hoary bat, woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15).

Hawaiian waterbirds
Our records indicate there is a high probability that Hawaiian waterbirds may occur in the vicinity of the proposed project. If you determine the project may affect Hawaiian waterbirds, please contact us so we may assist you with ESA compliance.

The proposed project may cause soil erosion and sedimentation. We are attaching the Service's recommended Best Management Practices regarding sedimentation and erosion in aquatic environments. We encourage you to incorporate the relevant practices into your project design.

We appreciate your efforts to conserve endangered species. If you have questions regarding these comments, please contact Jiny Kim, Fish and Wildlife Biologist (phone: 808-792-9400, email: jiny_kim@fws.gov).

Sincerely,

1/27/2015

X Vickie Caraway

Vickie Caraway (for)

Signed by: U.S. Fish and Wildlife Service

Aaron Nadig
Island Team Manager
O'ahu, Kaua'i, North Western Hawaiian Islands, and American Samoa

Best Management Practices (BMPs) for In-Water Work

April 7, 2010

NMFS Protected Resources Division recommends implementation of the following BMPs to reduce potential adverse affects on protected marine species. These BMPs are in no way intended to supersede or replace measures required by any other agency including, but not limited to the ACOE, USFWS, USEPA, or NMFS Habitat Conservation Division.

A. Constant vigilance shall be kept for the presence of ESA-listed marine species during all aspects of the proposed action, particularly in-water activities such as deploying the buoys' anchors and mooring lines, boat operations, or diving.

1. The project manager shall designate a competent observer to survey the marine areas adjacent to the proposed action for ESA-listed marine species.
2. Surveys shall be made prior to the start of work each day, and periodically during the day, including prior to resumption of work following any break of more than one half hour.
3. All in-water work will be postponed or halted when ESA-listed marine species are within 50 feet of the proposed work, and will only begin/resume after the animals have voluntarily departed the area. If ESA-listed marine species are noticed after work has already begun, that work may continue only if there is no way for the activity to adversely affect the animal(s).
4. When piloting vessels, vessel operators shall alter course to remain at least 100 yards from whales, and at least 50 yards from other marine mammals and sea turtles.
5. Reduce vessel speed to 10 knots or less when piloting vessels in the proximity of marine mammals and turtles. If practicable, reduce vessel speed to 5 knots or less when piloting vessels in areas of known or suspected turtle activity.
6. If approached by a marine mammal or turtle, put the engine in neutral and allow the animal to pass.
7. Marine mammals and sea turtles should not be encircled or trapped between multiple vessels or between vessels and the shore.
8. Do not attempt to feed, touch, ride, or otherwise intentionally interact with any ESA-listed marine species.

B. No contamination of the marine environment will result from project-related activities.

9. A contingency plan to control petroleum products accidentally spilled during the project will be developed. Appropriate materials to contain and clean potential spills will be stored at the work site, and be readily available.
10. All project-related materials and equipment placed in the water will be free of pollutants. The project manager and heavy equipment operators will perform daily pre-work equipment inspections for cleanliness and leaks. All heavy equipment operations will be postponed or halted should a leak be detected, and will not proceed until the leak is repaired and equipment cleaned.
11. A plan will be developed to prevent debris and other wastes from entering or remaining in the marine environment during the project.

APPENDIX E

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Pacific Islands Regional Office
1845 Wasp Blvd., Bldg. 176
Honolulu, Hawaii 96818
(808) 725-5000 · Fax: (808) 725-5215

JAN 12 2017

Meesa Otani
Environmental Engineer
Federal Highway Administration
Hawaii Federal-Aid Division
300 Ala Moana Boulevard, Room 3-306
Honolulu, HI 96850

Dear Ms. Otani:

This letter responds to your May 16, 2016 letter, your biological evaluation (BE), electronic mail messages, and other correspondence regarding your proposed Kamehameha Highway South Kahana Stream Bridge Replacement Project on Oahu. In the letter, the Federal Highway Administration (FHWA) determined that the proposed project is not likely to adversely affect (NLAA) endangered or threatened species under our jurisdiction, and requested our concurrence under section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. §1531 *et seq.*), with that determination.

Proposed Action

In summary, the FHWA in cooperation with the Hawaii Department of Transportation (HDOT) is planning to replace the existing South Kahana Stream Bridge with a new bridge meeting current design guidelines. The FHWA proposes to fund the construction of a bridge that will measure 43 feet wide with two 11-foot travel lanes, two 8-foot shoulders and two 1.5-foot bridge rails. The total replacement bridge measures 170 feet long at the stream opening.

The proposed bridge replacement includes: 1) construction of a bypass bridge, 2) demolition of the existing bridge, 3) construction of the replacement bridge, and 4) demolition of the temporary bypass bridge.

A temporary bypass bridge will be placed north or downstream of the existing bridge to maintain traffic flow during construction. The temporary bypass bridge measures 30.5 feet wide, and 400 feet long, supported by a three 50-ft (15-m) span. The temporary bypass bridge will be located approximately 80 feet north of the existing bridge. Piles will be installed using land-based vibratory and impact pile drivers. The HDOT will drive up to 70 cylindrical 24-inch diameter steel piles, which will be surrounded by silt curtains during installation.

The HDOT will remove the existing bridge by placing a floating and or fixed platform below the bridge deck and dismantle the deck and superstructure. Using a pneumatic saw or similar mechanical equipment, the HDOT will cut the existing concrete piers at mud line and remove them with a crane.

The HDOT will use a land based crane or equivalent piece of equipment to remove material to widen and dredge the stream channel to match approximate existing stream channel conditions. The dredge area is approximately 200 linear feet, about 100 feet upstream and 100 feet downstream from existing bridge. Total area to be dredged is approximately 12,000 square feet. The HDOT will dispose the dredged material in approved locations.

The HDOT will install concrete piers for the new bridge using a land based drill or equivalent piece of equipment to construct 15 (5 sets with 3 shafts each) concrete drilled shafts with concrete pier caps. Shafts are 4 feet in diameter, which will occupy a total area of 188.4 square feet.

The HDOT will construct a cast-in-place concrete transition beam wall for the east approach, construct cast-in-place concrete wing walls and abutments, place precast concrete planks on the drilled shafts pier caps for the travel surface, add cast-in-place topping on travel surface, and place rock revetment for shore protection. The revetment would be placed to protect the new abutments, extending no further than the dredged channel banks 100 feet up and downstream of the abutment locations. Since the new bridge abutments will be further inland from the existing bridge's abutments, the riprap would be placed further back from the existing banks, thereby not constricting the stream further.

The HDOT will use a floating boom and silt curtain to surround sections of the work area during most phases of placement and removal of temporary, existing, and new bridges. The HDOT is also proposing to monitor the work area prior to construction activities, and during any break of over half an hour, and will halt work if sea turtles or monk seals enter the work area. Since sounds from pile driving carry long distances, the HDOT will extend monitoring to the stream from the mouth of the stream with Kahana Bay and will halt pile driving activities if a listed animal enters the stream, and will not restart construction until it has left the stream. The HDOT will develop and implement contingency plans and equipment on site to deal with accidental spills or debris.

Action Area

The action area for this project includes all areas affected by noise, turbidity, and general construction-related disturbance where it extends from project limits. The action area is determined by the area affected by noise generated by pile driving, which extends to the mouth of the stream with Kahana Bay approximately 700 feet away from the bridge site. The action area includes Hawaiian monk seal critical habitat.

Listed Species

The FHWA determined that the ESA-listed threatened and endangered species under NMFS jurisdiction listed in Table (1) are known to occur, or could reasonably be expected to occur at the transect sites or transit routes, and may be present in the action area.

Table (1) - ESA listed species considered in this consultation.

ESA Species	Listing Status	Listing Date and Federal Register Notice	Critical Habitat Date and Federal Register Notice (if applicable)
Central North Pacific Green sea turtle Distinct Population Segment (DPS) (*Chelonia mydas*)	Threatened	05/06/2016 81 FR 20057	N/A
Hawksbill sea turtle (*Eretmochelys imbricata*)	Endangered	06/02/1970 35 FR 8491	09/02/1998 63 FR 46693 Not in action area
Hawaiian monk seal (*Neomonachus schauinslandi*)	Endangered	11/23/1976 41 FR 51611	08/21/2015 80 FR 50925

Detailed information about the biology, habitat, and conservation status of sea turtles and monk seal and their critical habitat can be found in their status reviews, recovery plans, federal register notices, and other sources at http://www.nmfs.noaa.gov/pr/species/esa/.

Critical Habitat

Critical Habitat was designated for Hawaiian monk seals in 1988 (53 FR 18990, May 26 1988) which included areas in the northwestern Hawaiian Islands, and revised in 2015 to also include areas within the Main Hawaiian Islands (MHI).

In designated areas of the MHI, critical habitat for monk seals includes the marine environment with a seaward boundary that extends from the 200-m depth contour line (relative to mean lower low water), including the seafloor and all subsurface waters and marine habitat within 10 m of the seafloor, through the water's edge 5 m into the terrestrial environment. Detailed information on Hawaiian monk seal critical habitat can be found at:
http://www.fpir.noaa.gov/PRD/prd_critical_habitat.html.

Analysis of Effects

In order to determine that a proposed action is NLAA listed species, NMFS must find that the effects of the proposed action are expected to be insignificant, discountable, or beneficial as defined in the joint USFWS-NMFS Endangered Species Consultation Handbook: (1) insignificant effects relate to the size of the impact and should never reach the scale where take occurs; (2) discountable effects are those that are extremely unlikely to occur; and (3) beneficial effects are positive effects without any adverse effects (USFWS & NMFS 1998). This standard, as well as consideration of the probable duration, frequency, and severity of potential interactions, was applied during the analysis of effects of the proposed action on ESA-listed marine species, as is described in detail in the FHWA's consultation request.

The HDOT may affect listed species by direct impact, human disturbance, exposure to elevated noise levels, turbidity, wastes and discharges, and changes to the action area. NMFS evaluated all of these effects in the April 3, 2016 BE, and concluded that they were either discountable or insignificant to proposed or listed species and proposed critical habitats. Direct physical impact, human disturbance, and elevated noise levels are expected to be discountable for ESA-listed sea turtles and Hawaiian

monk seals; and exposure to elevated noise levels, turbidity, wastes and discharges, and changes to the action area would result in insignificant effects on those species, and critical habitat.

The existing bridge is more than 700 feet upstream of Kahana Bay and marine water where the three listed species are most likely to occur. Green sea turtles have been observed as far as 2 miles upriver in the Hawaiian Islands. Hawaiian monk seals are rare but have a growing population in the main Hawaiian Islands, and hawksbill sea turtles are similarly rare but nothing prevents them from entering the action area. All three listed species may occur in the action area.

The HSOT could potentially affect sea turtles and Hawaiian monk seals by directly contacting them during in-water construction, namely pile installation, pile removal, dredging, and rock installation. Neritic sea turtles and Hawaiian monk seals are large and agile, and capable of swimming away safely from any disturbance that would harm them. The placement of steel piles is a noisy and disruptive process, which should give listed species enough time to leave the area where they could be affected by direct contact. The HDOT will implement several BMPs listed in the project description to avoid or minimize interactions with sea turtles or monk seals. The HDOT will have lookouts to monitor for sea turtle and Hawaiian monk seal presence and protocols to halt activities when they are in the action area. We expect effects on listed species from direct physical impact and human disturbance to be discountable.

The HDOT may affect listed species exposed to construction related noises. Man-made sounds can affect animals exposed to them in three ways: non-auditory damage to gas-filled organs, hearing loss expressed in permanent threshold shift (PTS) or temporary threshold shift (TTS), and behavioral responses or changes. All noises generated by construction in this project will be too low to cause non-auditory injury. The sounds generated during construction include intense sounds from pile driving that carry for long distances, to noises from dredging and heavy equipment that are less intense. The HDOT is minimizing the amount of impact pile driving by limiting it to proofing, and after refusal by vibratory pile driving.

The FHWA will install piles for the temporary structures primarily by vibrating them into the sediment with a vibratory hammer. Vibratory pile driving creates continuous noises that can have different levels of effects than impulse sounds to marine mammals and other marine organisms, at different frequencies and intensities. Vibratory pile driving 24-inch piles were recorded at 165 dB_{RMS} at a depth of 15 meters (Rodkin and Pommerink, 2014). We have no data on similar recordings at shallower depths. Assuming eight hours of pile driving per day, vibratory pile driving could create cumulative sound exposure levels (SEL) that could cause PTS. However those levels would dissipate to the 181 SEL_{cum} TTS threshold for phocid pinnipeds within 77 feet from the source. Similarly, sea turtles may be exposed to their thresholds for TTS at 200 SEL_{cum}, but those sounds dissipate within a feet from the source. Furthermore, we do not expect listed animals to be exposed continuously for 8 hours because the HDOT will restrict working when Hawaiian monk seals or sea turtles are in the South Kahana Stream.

Impact pile driving creates a distinctly different sound than vibratory pile driving, which are described as impulse sounds with high wave forms that spike and fall rapidly. These impulsive sounds from impact pile driving are what is commonly associated with fish kills in pile driving by barotrauma or rupturing of gas-filled organs. This mechanism of injury can occur to any animal with gas filled organs, including lungs and ear drums. Pile driving is not likely to create sound intensities great enough to rupture lungs or ear drums in sea turtles and monk seals, but could cause PTS and TTS, and behavioral responses.

The HDOT is minimizing the effects of impact pile driving by limiting their impact pile driving to proofing and after refusal by vibratory pile driving. Impact pile driving 36-inch piles were recorded as high as 203 dB_{peak} at 5 meters (Rodkin and Pommerink, 2014, Caltrans 2009). A peak measurement of 203 dB will not cause PTS (or TTS) to Hawaiian monk seals or sea turtle on a single strike, but could create SEL that is high enough to cause TTS. NOAA guidance has identified a TTS threshold of 181 SEL_{cum} for phocid pinnipeds, including Hawaiian monk seals, and 189 SEL_{cum} TTS threshold for sea turtles. Assuming four hours of pile driving per day (using a rough assumption for proofing and impact driving after refusal), impact pile driving could create cumulative sound exposure levels (> 181 SELcum) that could cause TTS in Hawaiian monk seals, but not for sea turtles. Using a practical spreading model, those sounds would carry for up to 344 meters from the source, but we are predicting the zone of influence to end at the mouth of the stream which is about 700 feet from the bridge site. The river is relatively shallow with bends and meanders, and has constant flow, which increases absorption, refraction, and dissipation of sounds. A constriction at the mouth further restricts sound from traveling out through the mouth and into Kahana Bay. The HDOT will monitor for Hawaiian monk seal and sea turtle presence and will not drive piles while they are in the stream. This reduces their risk of noise injury, and long exposures to sounds which would be necessary to cause TTS.

NMFS has suggested behavior response thresholds of 120 dB_{RMS} threshold for continuous sounds and 160 dB_{RMS} for impulsive sounds for marine mammals and 160 dB_{RMS} for all types of sounds for sea turtles. Both vibratory and impact pile driving will generate sounds louder than those respective threshold, which could affect listed species in their zone of influence. According to the practical spreading model, the zone of influence could extend up to 344 meters from the source. However due to channel conditions in South Kahana Stream and the constriction with Kahana Bay, we predict the zone of influence to end at the mouth of the stream. Although the NOAA acoustic threshold exists, it is less understood or studied than hearing loss and non-acoustic injury. Hawaiian monk seals or sea turtles may respond to noises by avoiding, halting their activities, experience reduced hearing by masking, or attraction to source noises. Hawaiian monk seal presence in the stream would be unusual. Avoidance is most likely, and considering hearing loss or interaction with construction materials or activity is worse, we consider avoidance of the construction area to be a common natural reaction by listed species and considered low risk. Hawaiian monk seals and sea turtles are large and agile, and capable of swimming away safely from any disturbance that would harm them. Streams provides little value as habitat for forage or any other behavior, nor predators that could benefit from masking. Temporary avoidance of these areas during construction, and masking will have little effect on them. Attraction to sounds are unusual but sometimes happen. With the BMPs in place, the HDOT will avoid affects associated with attraction by halting work when they are in the South Kahana Bay Stream, and will not restart until the animal is no longer observed in the river. We expect minimal risk from behavioral changes by Hawaiian monk seals and sea turtles exposed to sounds generated during construction.

The HDOT will have wildlife monitors on site (above water) and will halt work when Hawaiian monk seals and sea turtles are observed within South Kahana Stream. This will reduce their exposure and risk to hearing loss and behavior response, and we expect the sounds generated by vibratory or impact pile driving will have discountable and insignificant effects to sea turtles and Hawaiian monk seals.

The HDOT may expose listed species to elevated turbidity or sedimentation. Some turbidity is expected to leave the work site but not at levels that would harm listed species. Listed sea turtles and

monk seals are highly mobile and capable of avoiding turbid areas. Sea turtles are often observed in turbid waters, and any sea turtle or monk seal that would enter turbid waters in the action area will be there by their choice and are assumed to be unharmed. The HDOT will adhere to BMPs such as halting construction when listed species are in the action area which would further minimize their exposure, use of silt curtains to isolate suspended sediments to work areas during construction, and protocols to stop work during inclement weather or flow conditions to minimize sedimentation. We expect turbidity from the project activities would have insignificant effects to listed species.

The HDOT may expose listed species to waste and discharge associated with heavy equipment and vehicles. However, all equipment and vehicles will be checked prior to the start of each day's activities and maintained in proper working condition. In addition, the HDOT will strictly adhere to the BMPs listed in reference (FHWA 2016), a contingency plan, and conservation measures which include BMPs for fueling sites, hazardous waste management and disposal, spill kits and absorption pads on site, and recovery of spilled materials. This will reduce the likelihood of a discharge or accidental release of wastes. Discharges and spills could occur but they are expected to be infrequent, small, and quickly cleaned. Based on properly maintaining all vessels and equipment, and adherence to proposed BMPs, we expect waste or discharge from the project activities would have insignificant effects to listed species.

The HDOT is replacing the existing bridge with a new bridge which will be wider but longer. The existing bridge is 92 feet long and 24 feet wide. The replacement bridge will be about 120 feet long, 43 feet wide, which will increase overwater structure by 2,952 square feet. Since the increase in width account for bike lanes, sidewalks, and rails, none of the increased square footage is pollution generating impervious surface. Most, if not all, increases in impervious surfaces will be over water, and precipitation that runs off of the impervious surfaces would drop into the channel directly and not into sediments that would percolate water slowly. The increase in impervious surface as a result will not significantly change base flow or peak flow conditions, which could alter the hydrology of the system. The new bridge will also provide more "freeboard", which will reduce the constriction that exists at the crossing. Stream habitat 700 feet from the mouth of the bay provide little direct habitat value for sea turtles and especially for Hawaiian monk seals. While sea turtles are sometimes observed in streams, streams provide little value for forage or any other behavior, and are not necessary. The increase in length and width of the bridge, and the dredging of channel to match the footprint would reduce constriction of the channel. This could have a long-term improvement of water flow regimes and water quality entering the bay. Any physical changes to the stream habitat would have little effect to sea turtles or Hawaiian monk seals, and would have an insignificant effect on listed species in the action area.

All of the activities described above will be conducted outside of Hawaiian monk seal critical habitat because they are much further than 5 meters from the highest splash zone. Because of the long distances that noise generated from pile driving, the action area extends into designated critical habitat. Noises are the only stressors that affect the water column in the particular area that is designated critical habitat. Since sound is not considered a feature of habitat, the HDOT will likely have little effect on the habitat itself. The physical changes that could occur by increasing structure in the stream, and reducing constriction at the crossing will have little direct or indirect effect on the conservation value of critical habitat and The HDOT's activities on critical habitat are temporary, and will have no long-term effect on the conservation value of Hawaiian monk seal critical habitat. We expect temporary increases in noise, and changes to the physical environment at the crossing will have an insignificant effect on Hawaiian monk seal critical habitat.

ESA Consultation must be reinitiated if: 1) take occurs; 2) new information reveals effects of the action that may affect listed species or designated critical habitat in a manner or to an extent not previously considered; 3) the identified action is subsequently modified in a manner causing effects to listed species or designated critical habitat not previously considered; or 4) a new species is listed or critical habitat designated that may be affected by the identified action.

If you have further questions please contact Joel Moribe on my staff at (808) 725-5142 or joel.moribe@noaa.gov. Thank you for working with NMFS to protect our nation's living marine resources.

Sincerely,

Ann M. Garrett
Assistant Regional Administrator for Protected Resources

NMFS File No. (PCTS): PIR-2017-10052
PIRO Reference No.: I-PI-16-1405-AG

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7068.01

John Sakaguchi

Subject: FW: EFH-A Response: South Kahana Bridge Replacement Project

6/17/16 JS

cc: COE

From: Brian A. Lock
Sent: Thursday, June 16, 2016 10:47 AM
To: John Sakaguchi
Subject: FW: EFH-A Response: South Kahana Bridge Replacement Project
From: Holly.Yuen@hawaii.gov [mailto:Holly.Yuen@hawaii.gov]
Sent: Thursday, June 16, 2016 10:16 AM
To: Brian A. Lock
Subject: Fw: EFH-A Response: South Kahana Bridge Replacement Project

FYI
----- Forwarded by Holly Yuen/HWY/HIDOT on 06/16/2016 10:15 AM -----

From: Stuart Goldberg - NOAA Affiliate <stuart.goldberg@noaa.gov>
To: "Otani, Meesa (FHWA)" <meesa.otani@dot.gov>,
Cc: christine.yamasaki@hawaii.gov, Holly.Yuen@hawaii.gov, "Kaneshiro, Wayne (FHWA)" <Wayne.KANESHIRO@dot.gov>, Todd.Niskioka@hawaii.gov, Danielle Jayewardene - NOAA Affiliate <danielle.jayewardene@noaa.gov>, Gerry Davis - NOAA Federal <gerry.davis@noaa.gov>
Date: 06/15/2016 02:31 PM
Subject: EFH-A Response: South Kahana Bridge Replacement Project

---

Dear Meesa,

NOAA Fisheries (NMFS) has reviewed the Essential Fish Habitat (EFH) assessment for the Federal Highway Administration (FHWA) funded Hawai'i Department of Transportation (HI-DOT) Kamehameha Highway South Kahana Stream Bridge Replacement project pursuant to the EFH provision §305(b) of the Magnuson Stevens Fishery Conservation and Management Act (MSA;16 U.S.C. 1855(b)). The proposed action includes in- and over-water work to replace an existing bridge crossing at Kahana Stream (Kamehameha Highway) on the windward side of O'ahu, Hawai'i. The project includes: 1) construction of a bypass bridge, 2) demolition of the existing bridge, 3) construction of the replacement bridge, 4) demolition of the temporary bypass bridge, and 5) stream dredging.

The MSA defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity". Adverse effects on EFH are defined further as "any impact that reduces the quality and/or quantity of EFH," and may include "site-specific or habitat-wide impacts, including individual, cumulative or synergistic consequences of actions." 50 C.F.R. § 600.810(a). The water column and bottom area of Kahana Bay are designated as EFH and support various life stages for the following management unit species (MUS): coral reef ecosystem, pelagics, bottomfish, and crustaceans.

NMFS is concerned about the potential adverse impacts that pollutants, including petroleum, sediments and road and cement particles, may have on EFH and MUS if they enter into receiving waters and via erosion, runoff and storm drains. NMFS is also concerned about the potential acoustical impacts on MUS from pile driving/impact hammering steel piles, driving cement piles, and sawing of concrete. Increases in these parameters may collectively stress fish, coral, invertebrates and algae potentially leading to mortality, behavioral impairment and loss of habitat.

The FHWA has determined that the project will have minimal adverse effects on EFH and MUS in Kahana Bay, and NMFS concurs if all of the proposed and following additional construction measures and BMPs are implemented and adhered to:

1. Conduct work from land and avoid in-water work as much as possible. When in-water work must be conducted, construction activities should take place during a time of year that would have the least environmental impacts to aquatic species (low flow season). Also, ensure that materials used for the bridge are

nontoxic to aquatic organisms (avoid pressure treated lumber).
2. Design the structure to maintain or replicate natural stream channel and flow conditions to the greatest extent practicable. The structure should be able to pass peak flows in accordance with state and federal regulations. Ensure sufficient hydrologic data have been collected.
3. Minimize introduction of sediments, road materials and pollutants into receiving waters. Specify construction, stormwater, and erosion prevention BMPs in construction plans. If BMPs are found to be ineffective, i.e. sediment re-suspension and turbidity is detected outside of silt curtains and barriers immediately adjacent to bridge project area, the contractor should halt construction and re-initiate construction only when water quality and conditions have reached ambient levels and effective BMPs have been implemented.
4. Clearly document erosion and sediment control BMPs for dredging activities in construction plans and communicate to contractor. When/if stored on land, ensure that dredge spoils are covered and that appropriate BMPs are implemented to prevent erosion and sedimentation into receiving waters.
5. Ensure that dredge spoils are properly disposed of according to state and federal regulations.
6. Use only native vegetation for stabilization plantings and maintain or stabilize upstream and downstream channel and bank conditions if the structure causes erosion or accretion problems.
7. Avoid impervious surfaces in wetlands and consider low impacts development stormwater practices to retain storm flows and pollutants on-site and maintain roadway and associated stormwater collection systems properly.
8. Ensure that the hydrodynamics and sedimentation patterns of the stream and new bridge are properly modeled and that the design avoids erosion to adjacent properties when/if "hard" stabilization is deemed necessary.
9. Reduce acoustical impacts as much as possible and specify techniques in construction plan.
   a. Drive piles during low tide periods.
   b. Implement "soft starts" to minimize potential impacts to fish.
   c. Use a vibratory hammer to install piles, when possible. Under those conditions where impact hammers are required for reasons of seismic stability or substrate type, it is recommended that the pile be driven as deep as possible with a vibratory hammer prior to the use of the impact hammer.
   d. Implement measures to attenuate the sound or minimize impacts to aquatic resources during piling installation. Methods include, but are not limited to, surrounding the pile with dewatered cofferdams (to the mudline) and/or air bubble curtain system.
10. Ensure the integrity of erosion control/prevention measures in the case of predicted high rainfall. Halt activities in periods of high and extended rainfall.

Thanks, and don't hesitate to contact me with any questions or concerns.

Best,
Stu

--
Stuart Goldberg, PhD
Natural Scientist IV
Contractor - Ocean Associates, Inc.

Habitat Conservation Division
NOAA Fisheries, Pacific Islands Regional Office
Inouye Regional Center
1845 Wasp Blvd.
Honolulu, HI 96818
808-725-5093

U.S. Department of Transportation
Federal Highway Administration

Hawaii Federal-Aid Division

300 Ala Moana Blvd, Rm 3-306
Box 50206
Honolulu, Hawaii 96850
Phone: (808) 541-2700
Fax: (808) 541-2704

May 11, 2016

In Reply Refer To:
HDA-HI

Mr. Michael Tosatto
Regional Administrator, Pacific Islands Regional Office
U.S. Department of Commerce
National Oceanic and Atmospheric Administration
NOAA Inouye Regional Center (IRC), NMFS/PIRO
1845 Wasp Boulevard, Building 176
Honolulu, HI 96818

Dear Mr. Tosatto:

Subject: Endangered Species Act Section 7 Consultation
Kamehameha Highway South Kahana Stream Bridge Replacement
Federal-aid Project No. BR-083-1(055)

The Federal Highway Administration (FHWA), in cooperation with the State of Hawaii Department of Transportation (HDOT) is planning to undertake the Kamehameha Highway, South Kahana Stream Bridge Replacement project. The proposed project includes replacing the existing South Kahana Stream Bridge with one that meets current design guidelines. The proposed bridge would be a multiple span structure with a concrete plank deck and cast-in-place topping. It would be 43 feet wide and 396 feet long. The super structure over the stream would be supported by a total of 27 four-foot diameter concrete drilled shafts. The drilled shafts would be spaced in rows, 50 feet apart, with cast in place concrete pile caps. The stream channel opening would be widened to approximately 170 feet and the channel dredged to match the existing sub-surface conditions. Ungrouted rip rap consisting of armor stone rocks would be placed in the channel and on the banks for stabilization purposes. The vertical clearance under the replacement bridge at mean sea level would be approximately 5'-8" at mid-span. Enclosed Figure A shows the proposed bridge site plan.

A pre-fabricated temporary bypass bridge located north of the proposed bridge would be used to maintain traffic flows during construction. The temporary bypass bridge would be 30'-6" wide. It would have a total length of 400 feet and would be supported by 60 two-foot diameter steel pipe piles driven into place within the stream. The vertical clearance under the temporary bypass bridge at mean sea level would be approximately 4'-5" at mid-span. The temporary bypass bridge would be removed upon completion of the proposed bridge. Construction is expected to occur from 2017 to 2019.

According to the Biological Evaluation/Essential Fish Habitat (BE/EFH) Analysis, the green sea turtle, hawksbill sea turtle, Hawaiian monk seal and the humpback whale have been identified as Endangered Species Act (ESA) listed marine species that may occur in Kahana Bay. While the BE/EFH Analysis identifies the project as occurring in designated Hawaiian monk seal marine critical habitat area, the project area is far enough from the terrestrial critical habitat designation and extends far inland that it would not be of concern.

These animals are mobile and will actively avoid any direct impacts from the proposed project and its construction activities such as suspended sediments and noise emissions. Thus the BE/EFH Analysis concluded that any adverse effects created by this project would be temporary and minimal. Please see the enclosed BE/EFH Analysis for further information.

In an effort to minimize impacts to the ESA listed marine species, HDOT shall implement the following conservation measures during construction:

- The existing bridge and highway approaches would be used as the land base and staging area for the majority of the construction work. Designated storage areas located adjacent to the south side of the highway would be used to store material, supplies, and equipment. Vehicle and equipment fueling sites within these areas would be identified and absorbent pads and containment booms would be stored on-site, if appropriate, to facilitate the clean-up of accidental petroleum releases. Silt fences would be placed at the top of bank along the water edge to contain surface flows, fluids, and other materials from flowing into nearby waters. The designated storage areas would also have gravel ingress/egress pads to prevent vehicles and equipment from tracking debris onto adjacent areas.

- No construction materials or equipment would be staged or stored in the stream channel or Kahana Bay. The stream channel and Kahana Bay are too shallow to stage construction using large boats, barges, or floating platforms. Only small work boats would be used for certain work tasks.

- A land based crane or equivalent piece of equipment would be used to remove material to widen the stream channel, to dredge the channel to match existing conditions, and to construct the drilled shafts. Exposed banks would be mulched to prevent silt and debris from flowing into the stream.

- A small construction boat would be used to lay a floating boom with weighted silt curtain around the in-water work area as construction progresses. The floating boom and silt curtain would be repositioned as construction progresses. The remaining stream areas would be kept open to allow passage of fish. Land-side silt fences would be placed along construction areas and stream banks for runoff and erosion control. A floating or fixed platform placed below the bridge deck may be used to capture/contain debris during demolition of the existing bridge superstructure and during construction of the replacement bridge.

- HDOT would also implement the best management practices recommended in the BE/EFH Analysis such as constant monitoring of the construction area for ESA listed

marine species, no in-water work when ESA listed marine species are within 50 feet of the work site and reducing the speed of all vessels and altering their course at least 50 yards from marine mammals and sea turtles.

Based on the information provided by the BE/EFH Analysis, the nature of the proposed work, and the minimal short term impacts created during construction; the FHWA has determined that this project may affect, but is not likely to adversely affect any threatened or endangered species, and Hawaiian monk seal critical habitat within the project limits. Please refer to the enclosed BE/EFH Analysis.

We are seeking concurrence with our may affect, not likely to adversely affect determination. We respectfully request your response within 30 days of receipt of this letter.

If you have any questions or require additional information, please feel free to contact me at (808) 541-2316 or by email at meesa.otani@dot.gov.

Sincerely yours,

Meesa Otani
Environmental Engineer

Enclosures: HDOT letter December 24, 2014
Figure A Replacement/Bypass Bridge Plan
NMFS e-mail message 01/05/2015
AECOS, Inc., Water Quality and Biological Surveys of Kahana Stream, November 4, 2014
AECOS, Inc., Biological Evaluation/Essential Fish Habitat Analysis, April 3, 2016

cc: Christine Yamasaki, HDOT, HWY-DD
Todd Nishioka, HDOT, HWY-DE

DAVID Y. IGE
GOVERNOR

FORD N. FUCHIGAMI
DIRECTOR

Deputy Director
ROSS M. HIGASHI

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

IN REPLY REFER TO:
HWY-DD 2.8036

December 24, 2014

Protected Species Division
NOAA Fisheries
Pacific Islands Regional Office
NOAA Inouye Regional Center (NMFS/PIRO)
1845 Wasp Boulevard, Building 176
Honolulu, Hawaii 96818

Dear Sir/Madam:

Subject: Notification of Intent to Construct Kamehameha Highway,
South Kahana Stream Bridge Replacement
Federal-aid Project No. BR-083-1(55)
Request for Assistance under the Endangered Species Act and Essential Fish Habitat under the Magnuson-Stevens Fishery Conservation and Management Act

The Hawaii Department of Transportation (HDOT), in cooperation with the Federal Highways Administration (FHWA) is planning to undertake the Kamehameha Highway South Kahana Stream Bridge Replacement project. A map of the project area is enclosed.

The proposed work includes removal and replacement of the South Kahana Stream Bridge and realignment of both approaches to the replacement bridge. A temporary bypass bridge will be placed south or upstream of the existing bridge to maintain traffic flow during construction. The project site is on Kamehameha Highway at the southeast corner of Kahana Bay. Kahana Valley State Park borders both sides of the bridge. At this time, construction is expected to occur from June 2016 to June 2018.

In accordance with Section 7 of the Endangered Species Act, HDOT and FHWA are requesting a list of threatened and endangered species and critical habitats within the vicinity of the project to enable an appropriate determination for this project.

Furthermore, to assist us in our assessment, we also respectfully ask for NOAA's opinion on the likely impact of the project based on the potential issues of the location considering the proposed construction activities and schedule. Biological and Water Quality surveys have been conducted and a copy of the November 4, 2014, report is enclosed for your use.

Your response within 30 calendar days of receipt of this letter, as outlined in the ESA Consultation Handbook, would be appreciated.

Should you have any questions, please call Christine Yamasaki at 692-7572 or Holly Yamauchi at 692-8428 of our Design Section, Design Branch, Highways Division or email at christine.yamasaki@hawaii.gov or holly.yamauchi@hawaii.gov and reference letter number HWY-DD 2.8036 as noted above.

Sincerely,

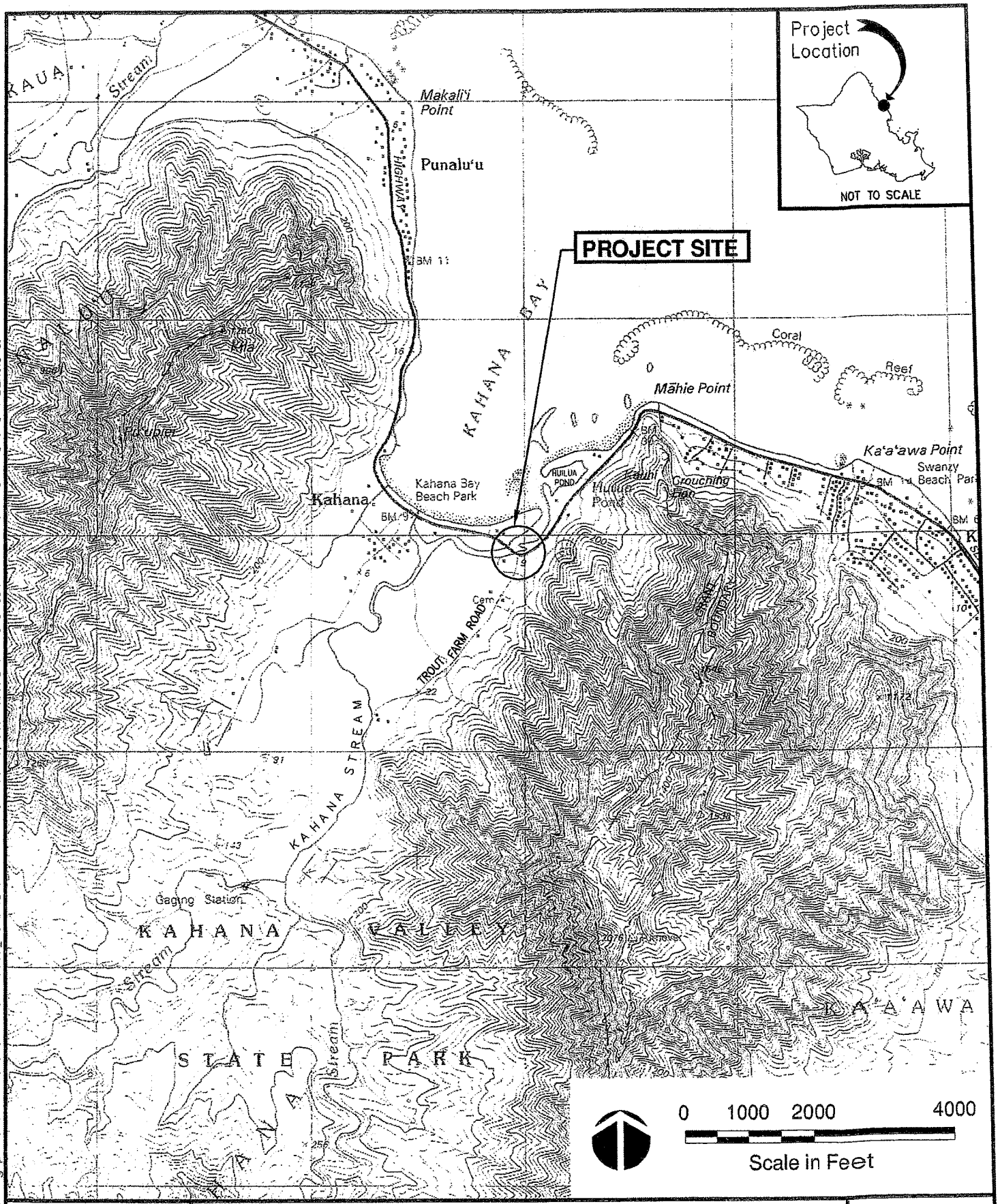
for Alvin A. Takeshita
Highways Administrator

Enclosure

HY:amk

c: FHWA (M. Otani)

bc: HWY-DD (CY)

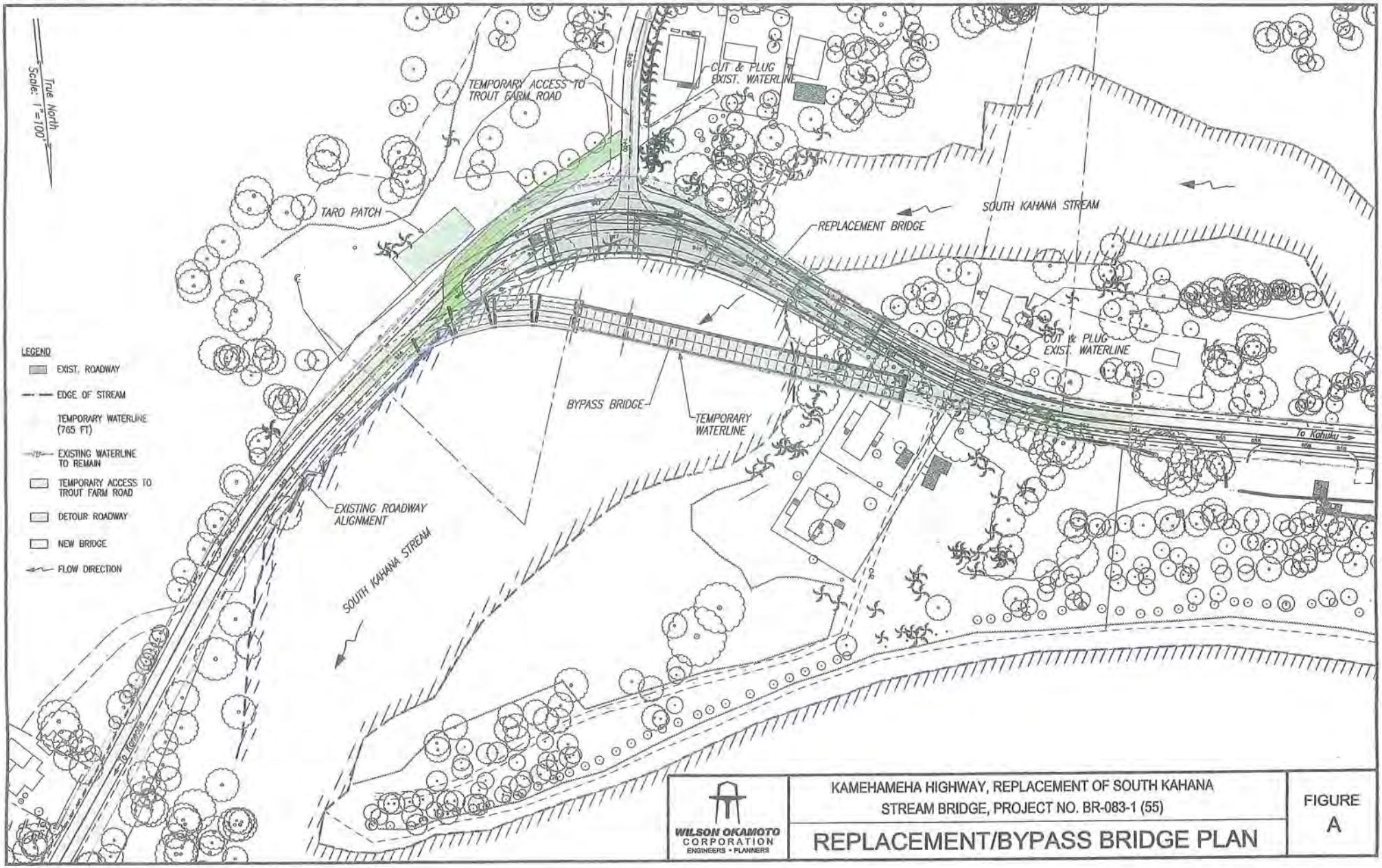


ENGINEERS PLANNERS
WILSON OKAMOTO CORPORATION

KAMEHAMEHA HIGHWAY, REPLACEMENT OF SOUTH KAHANA STREAM BRIDGE

PROJECT LOCATION MAP

FIGURE 1



WILSON OKAMOTO CORPORATION
ENGINEERS • PLANNERS

KAMEHAMEHA HIGHWAY, REPLACEMENT OF SOUTH KAHANA STREAM BRIDGE, PROJECT NO. BR-083-1 (55)

REPLACEMENT/BYPASS BRIDGE PLAN

FIGURE A

APPENDIX F

Biological Evaluation and Essential Fish Habitat Assessment, South Kahana Stream Bridge Replacement, Oʻahu, Hawaiʻi

Prepared for:
State of Hawaiʻi
Department of Transportation
Highways Division
601 Kamokila Blvd., Room 609
Kapolei, Oʻahu, Hawaiʻi 96707

Prepared by:
AECOS, Inc.
45-939 Kamehameha Hwy, Suite 104
Kāneʻohe, Hawaiʻi 96744-3221

July 20. 2015
Revised April 3, 2016

TABLE OF CONTENTS

1.0 Background/History

1.1 Purpose

The purpose of this combined Biological Evaluation (BE) and Essential Fish Habitat Assessment (EFHA) is to address the impact of the South Kahana Stream Bridge replacement (the "Project") on Endangered Species Act (ESA)-listed and proposed to be listed as threatened and endangered species and designated critical habitats. The Federal Highways Administration proposes to fund the Project for the State of Hawai'i, Department of Transportation (HDOT). Federal funding requires that HDOT comply with certain requirements in the ESA and Magnuson-Stevens Fishery Conservation and Management Act (MSFCA) and complete a BE and EFHA.

The purpose of the proposed action is to replace the existing bridge at Kahana Stream. The Project includes work that will be completed in and over Kahana Stream and has the potential to impact the following ESA-listed species that occur in the area: green sea turtle (*Chelonia mydas*), hawksbill turtle (*Eretmochelys imbricata*), Hawaiian monk seal (*Monachus schauinslandii*), and humpback whale (*Megaptera novaeangliae*) and their habitats.

1.2 Early coordination and preconsultation

Early coordination and preconsultation with the National Oceanographic and Atmospheric Administration, National Marine Fisheries Service (NOAA-NMFS) and U. S. Fish and Wildlife Service (USFWS) was conducted through a series of email/mail communications and response letters including: response letter and recommended best management practices from USFWS (January 27, 2015), response email from NOAA-NMFS Protected Resources Division (January 5, 2015), response email from NOAA-NMFS Habitat Conservation Division (January 22, 2015), and early consultation on the draft BE/EFHA (March and April, 2015).

This BE/EFHA addresses the proposed action in compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, for species under the jurisdiction of the NMFS. Section 7 of the ESA assures that, through consultation (or conferencing for proposed species) with NMFS and/or the USFWS, federal actions do not jeopardize the continued existence of any threatened, endangered, or proposed for listing species, or result in the destruction or adverse modifications to critical habitat.

2.0 Description of the Action and Action Area

2.1 Project description

The Project includes in- and over-water work to replace an existing bridge crossing at Kahana Stream (Kamehemeha Highway) on the windward side of O'ahu, Hawai'i. The Project includes: 1) construction of a bypass bridge, 2) demolition of the existing bridge, 3) construction of the replacement bridge, and 4) demolition of the temporary bypass bridge, as follows (Figure 1):

The existing bridge and highway approaches will be used as the land base/staging area by the contractor for the majority of the construction work. Kahana Bay and the stream channel are too shallow to stage construction using large boats, barges, or floating platforms. Only small work boats will be used for certain work tasks.

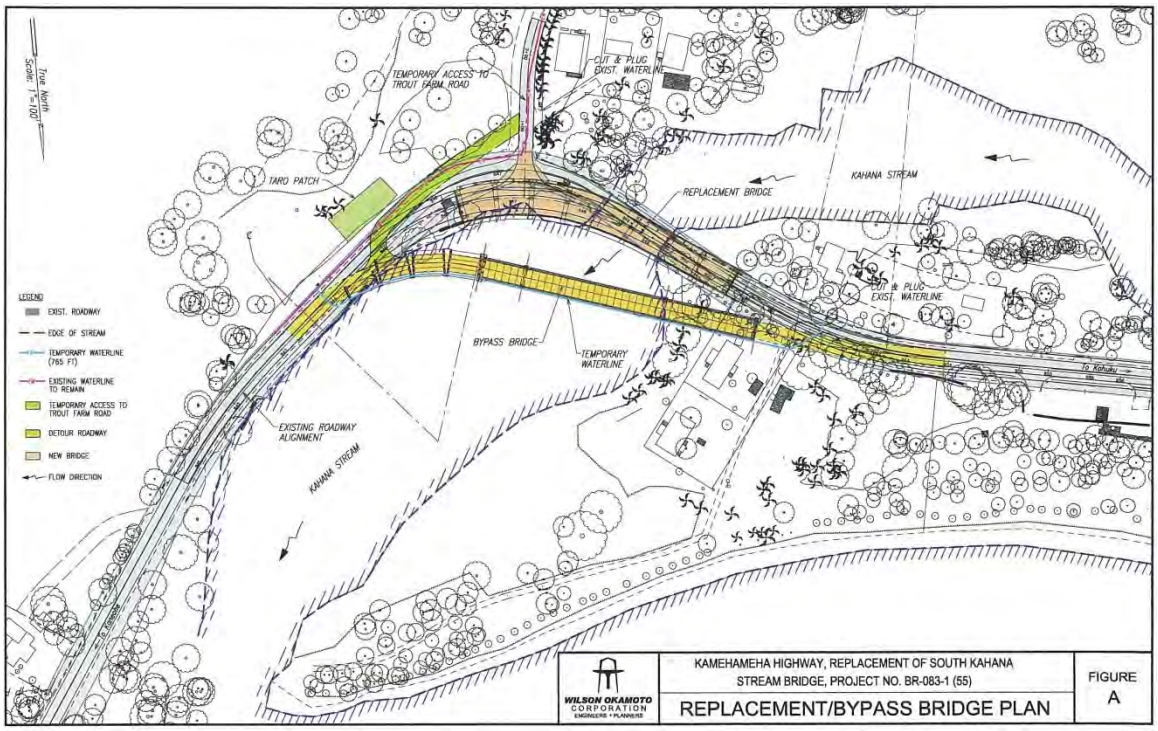


Figure 1. South Kahana Stream bridge replacement and bypass bridge plan.

A temporary bypass bridge will be placed north or downstream of the existing bridge to maintain traffic flow during construction. The temporary bypass bridge measures 30.5 ft (9.3 m) wide, with 2 12-ft (4-m) travel lanes and 2-8-ft (2.4-m) shoulders and 2 2.4-ft (0.7-m) bridge rails. The total length measures 400 ft (122 m), supported by a 3 50-ft (15-m) span. The temporary bypass bridge will be located approximately 80 ft (24 m) north of the existing bridge. Piles will be placed with a crane mounted pile driver. No predrilling will occur for the pile installation.

"Temporary Bypass Bridge In-water Work" (estimated duration 12 weeks)

- Place floating boom with weighted silt curtain using a small work boat. Silt curtain to be moved as construction progresses to each work area. Non-work areas to be kept open to allow passage of fishes.
- For the east approach, place 45 steel pipe piles with steel plate pile caps for the pre-fabricated steel beam bridge using a crane. For the west approach, 25 hollow steel pipe piles will be placed. These pipe piles will be driven into place to the required depths with a crane mounted pile driver. The temporary bridge will be constructed in segments from pier to pier. The crane will be land based and will stage from the bridge as each segment is constructed. Piles are 2 ft (0.61 m) in diameter (3.14 ft^2 [0.29 m^2] each), for a total area of 219.8 ft^2 (20.3 m^2).

"Temporary Bypass Bridge Above-water Work" (estimated duration 24 weeks)

- Place land-side silt fences around construction areas and on stream banks for erosion control.
- Place prefabricated steel beam bridge using crane for the east approach.
- Launch and pull into place prefabricated steel truss bridge for the west approach.

"Demolition of Existing Bridge In-water Work" (estimated duration 18 months)

- Place floating boom with weighted silt curtain using a small work boat. Silt curtain will be moved as construction progresses to each work area, and non-work areas will be kept open to allow passage of fishes.
- Remove existing bridge. Place a floating and or fixed platform below the bridge deck above the water to capture/contain debris during demolition of the bridge deck and superstructure.
- Remove existing bridge: Saw cut existing 14 inch by 14 inch concrete piers at mud line using a pneumatic saw or equivalent piece of equipment. Crane or other land based equipment will be used to extract the piers from the water.

"Replacement Bridge In-water Work" (estimated duration 18 months)

- Place floating boom with weighted silt curtain using a small work boat. Silt curtain will be moved as construction progresses to each work area, and non-work areas will be kept open to allow passage of fishes.
- Channel grading: Use land based crane or equivalent piece of equipment to remove material to widen the stream channel.
- Channel grading: Use land based crane or equivalent piece of equipment to dredge stream channel to match approximate existing stream channel conditions. Dredge area approximately 200 linear feet, about 100 ft (30.5) upstream and 100 ft (30.5 m) downstream from existing bridge. Total area to be dredged is approximately12,000 ft^2 (1,114.8 m^2). Dredged material to be removed to approved off-site disposal site.
- Place channel rock revetment for slope protection.
- Use land based drill or equivalent piece of equipment to construct 15 (5 sets with 3 shafts each) concrete drilled shafts with concrete pier caps. Shafts are 4 ft (1.2 m) in diameter (12.6 ft^2 [1.17 m^2] each), for a total area of 188.4 ft^2 (17.5 m^2). No piles will be drilled below drill shafts.

"Replacement Bridge Above Water Work" (estimated duration 24 months)

- Placement of floating boom with weighted silt curtain using a small work boat. Silt curtain to be moved as construction progresses to each work area. Non-work areas to be kept open to allow passage of various fishes.
- Placement of a floating and or fixed platform below the bridge deck above the water to capture/contain debris during superstructure work.
- Construct cast-in-place concrete transition beam wall for east approach. Transition beam used as grade adjustment and approach slab transition.
- Use land based drill or equivalent piece of equipment to construct 15 (5 sets with 3 shafts each) concrete drilled shafts with concrete pier caps. Shafts are 4 ft (1.2 m) in diameter (12.6 ft^2 [1.17 m^2] each), for a total area of 188.4 ft^2 (17.5 m^2). No piles will be drilled below drill shafts.
- Construct cast in place concrete wing walls and abutments.
- Place precast concrete planks on the drilled shafts pier caps for the travel surface.
- Add cast-in-place topping on travel surface.
- Place rock revetment for shore protection.

The replacement bridge will measure 43 ft (13 m) wide with 2 11-ft (3.4-m) travel lanes, 2 8-ft (2.4 m) shoulders and 2 1.5-ft (0.5-m) bridge rails. The total replacement bridge measures 170 ft (52 m) long at the stream opening. After completion of the replacement bridge, the bypass bridge will be removed.

"Demolition of Bypass Bridge In-water Work" (estimated duration 8 weeks)

- Placement of floating boom with weighted silt curtain using a small work boat. Silt curtain to be moved as construction progresses to each work area. Non-work areas will be kept open to allow passage of fishes.
- Placement of a floating and or fixed platform below the bridge deck above the water to capture/contain debris during demolition work.
- Demolish/remove the east and west bypass bridge.
- Saw cut bypass bridge steel pipe piles at mud line.

2.2 Potential impacts

Potential impacts to ESA-listed species associated with the Project include:

- collision with vessels;
- direct physical impact from pile removal;
- disturbances from human activity and equipment operation;
- exposure to wastes and discharges;
- exposure to elevated turbidity;
- exposure to elevated noise.

2.3 Best Management Practices (BMPs)

The following best management practices (BMPs) are recommended in the Project specifications for the bridge replacement to avoid/minimize potential impacts to ESA-listed species and EFH. Constant vigilance shall be kept for the presence of ESA-listed marine species during all aspects of the proposed action, particularly in-water activities such as boat operations, diving, and deployment of anchors and mooring lines.

1. The Project manager shall designate a competent observer to survey the marine areas adjacent to the proposed action for ESA-listed marine species.
2. Surveys shall be made prior to the start of work each day, and periodically during the day, including prior to resumption of work following any break of more than one half hour.
3. All in-water work will be postponed or halted when ESA-listed marine species are within 50 ft (15 m) of the proposed work site, and will only begin/resume after the animals have voluntarily departed the area. If ESA-listed marine species are noticed after work has already begun, that work may continue only if there is no clear way for the activity to adversely affect the animal(s).
4. When piloting vessels, vessel operators shall alter course to remain at least 100 yds (100 m) from whales, and at least 50 yds (50 m) from other marine mammals and sea turtles.

5. Reduce vessel speed to 10 knots or less when piloting vessels in the proximity of marine mammals and turtles. If practicable, reduce vessel speed to 5 knots or less when piloting vessels in areas of known or suspected turtle activity.
6. If approached by a marine mammal or turtle, put the engine in neutral and allow the animal to pass.
7. Marine mammals and sea turtles should not be encircled or trapped between multiple vessels or between vessels and the shore.
8. Do not attempt to feed, touch, ride, or otherwise intentionally interact with any ESA-listed marine species.

No contamination of the marine environment will result from Project-related activities.

1. A contingency plan to control petroleum products accidentally spilled during the Project will be developed. Appropriate materials to contain and clean potential spills will be stored at the work site, and be readily available.
2. All Project-related materials and equipment placed in the water will be free of pollutants. The Project manager and heavy equipment operators will perform daily prework equipment inspections for cleanliness and leaks. All heavy equipment operations will be postponed or halted should a leak be detected, and will not proceed until the leak is repaired and equipment cleaned.
3. A plan will be developed to prevent debris and other wastes from entering or remaining in the marine environment during the Project.

3.0 Listed Species and Critical Habitat in the Action Area

The following ESA-listed marine species may occur within the action area and may be affected by the proposed action:

- Green sea turtle or *honu* (*Chelonia mydas*) – threatened
- Hawksbill sea turtle or *honu* (*Eretmochelys imbricata*) – endangered
- Hawaiian monk seal (*Monachus schauinslandi*) – endangered
- Humpback whale or *koholā* (*Megaptera novaeangliae*) – endangered

3.1 Green Sea Turtle

Green sea turtles are distributed across the Pacific, Indian, and Atlantic oceans as well as in the Mediterranean Sea. All green turtle populations are listed as threatened under the ESA in 1978, except for the breeding populations in Florida and on the Pacific Coast of Mexico, which are listed as endangered (USFWS, 1978, 2001). Globally, most green sea turtle nesting populations

declined substantially during the 20th century. Conservation efforts over the past 25 years appear to have produced positive results. However, threats and impacts persist for many green sea turtle populations (NMFS & USFWS, 2007a). No green sea turtles were observed in the Project-area 2006 or 2014 surveys, although preferred foraging species occur there (*AECOS*, 2006, 2014; Fitzsimons et al., 2005).

Following hatching at their natal beaches, green turtle hatchlings spend several years of early development in the oceanic (pelagic) zone followed by recruitment to coastal areas where postrecruitment juveniles and adults forage and mature in shallow coastal waters, feeding primarily on algae and seagrasses. While in nearshore waters, the majority of sea turtles spend their time at depths less than 16 ft (5 m) below the surface (Schofield et al., 2010; Hazel et al., 2009). When on foraging grounds, postrecruitment green turtles are often referred to as residents. Most green turtles show strong long-term site fidelity (over years) to preferred nearshore foraging and sheltering habitats, often until the habitat can no longer support their increasing size (Balazs and Chaloupka, 2004; Balazs et al., 1987, 1998; Chaloupka and Limpus, 2001; Godley et al., 2003; Grant et al., 1997; Seminoff et al., 2003). Upon reaching sexual maturity, adult green sea turtles typically undertake long migrations between their resident foraging grounds and their natal nesting areas, where they mate and females nest. Nesting females are referred to as "nesters," which distinguishes them from "resident" turtles that regularly forage in an area. Males making mating migrations do not haul out on a beach as the females do and are nearly impossible to distinguish from resident males.

Unlike most other green turtle populations, greens that forage within the Hawaiian Archipelago nest exclusively within the Hawaiian Archipelago, with over 90% of the nesting occurring at French Frigate Shoals (FFS) in the Northwestern Hawaiian Islands (NWHI). Adults migrate more than 621 miles (1,000 km) between foraging areas in the Main Hawaiian Islands (MHI) and the FFS nesting area (Balazs et al., 1994). Long-term monitoring and tagging studies show that green turtles in Hawai'i reside with a strong degree of island fidelity (Balazs, 1976, 1980, 1983; Dutton et al., 2008).

Annual nesting activity has increased at FFS since nesting surveys began, from less than 70 nesters in 1973 to just over 800 nesters observed in 2011, with an annual increase of about 5.7 percent (Chaloupka et al., 2008). The long-term positive trend in nesting can be attributed to increased survivorship (since harvesting of turtles in foraging grounds became prohibited in the mid-1970s) and cessation of habitat damage at the FFS rookery since the early 1950s (Balazs and Chaloupka, 2004). In-water abundance of green turtles is consistent with the increased nesting (Balazs, 1996; Balazs and Chaloupka,

2004), and there has been a dramatic increase in the number of basking turtles in the MHI and throughout the NWHI (Balazs 1996; Balazs and Whittow, 1982; Parker and Balazs, 2011).

No green turtle nesting has been documented for the Project action area (NOAA-NMFS, 2010). Postrecruitment juvenile and adult green turtles sheltering and foraging in and near Kahana Bay are the life stages most likely to be affected by the proposed action. Although the number of green sea turtles around the MHI appears to be increasing, and resident juveniles and adults are considered ubiquitous in local waters, data are insufficient to estimate their density within the action area.

The major global threats to the species are alteration of nesting and foraging habitat, fishing bycatch, and direct harvest. Climate change also appears to be a growing threat to this species. Destruction and alteration of green turtle nesting and foraging habitats is occurring throughout the species' global range, especially by coastal development, beach armoring, beachfront lighting, vehicular/pedestrian traffic, invasive species, and pollution from discharges and runoff. Coastal development increases artificial lighting, which may disorient emerging hatchlings, causing them to crawl inland towards lights instead of seaward. Coastal development improves beach access for humans, resulting in more vehicular and foot traffic on beaches, causing compaction of nests and reducing emergence success. Adult green turtles forage in shallow nearshore areas and coral reefs. Contamination from effluent discharges and runoff has degraded these habitats, and invasive species may reduce native algae species preferred by green turtles or could exacerbate susceptibility to, or development of disease (NMFS & USFWS, 2007a; Guimaraes dos Santos et al., 2010). Fibropapillomatosis, a disease characterized by the presence of internal and/or external tumors that may grow large enough to hamper swimming, vision, feeding, and potential escape from predators continues to be a major threat to green sea turtles. Extremely high incidence has been reported in Hawai'i, where affliction rates peaked at 47-69% in some foraging areas (Murakawa et al., 2000).

Green turtles are susceptible to fisheries bycatch, particularly in nearshore artisanal fisheries such as long-lining, drift gillnet, set-nets, pound-nets, and trawls (NMFS & USFWS, 2007a). Harvest of green turtles for their meat, shells, and eggs has been a major factor in past declines of green turtles. Although reduced from previous levels, legal and illegal harvest of adults and eggs continues in many areas of the Pacific.

3.2 Hawksbill Sea Turtle

Hawksbill turtles are distributed across the Pacific, Indian, and Atlantic oceans. All hawksbill turtles were listed as endangered under the ESA in 1978. The global population has declined by more than 80% over the last 30 years. Hawksbill turtles face many of the same threats affecting green sea turtles. In addition, there remains a commercial market for hawksbill shell products, despite protections afforded this species under U.S. law and international conventions (NMFS and USFWS, 2007b).

Similar to green turtles, hawksbills hatch at natal beaches, and spend several years of early development in the oceanic zone. At about 14 in (35 cm) carapace length, juveniles recruit to coastal waters where postrecruitment juveniles and adults forage and mature, feeding primarily on sponges, but also on other benthic invertebrates, coral, and algae. Hawksbill turtles in Hawai'i have been documented feeding on a variety of prey, including octopus, various algal species, fire worms, black sponges, fish roe, and urchins (King, 2011). Upon reaching sexual maturity, adult hawksbills typically undertake long migrations between their resident foraging grounds and their natal nesting areas, where they mate and females nest. Males also make mating migrations, but because they do not crawl out on the beach as the females do, males are nearly impossible to distinguish from resident males.

As with green turtles, hawksbill forage grounds and natal nesting areas are frequently located in different island groups, and residents at a given island group may originate from multiple natal nesting areas (NMFS & USFWS, 2007b). However, tagging studies suggest that hawksbills nesting in Hawai'i remain within the MHI to forage. Genetic samples collected and analyzed suggest that Hawai'i's hawksbill sea turtles may be genetically and geographically distinct from other populations in the Pacific (Dutton and Leroux, 2008). Parker et al. (2009) report that the tracks of nine postnesting tagged females have all remained within the MHI, further supporting the possibility that Hawai'i's hawksbill sea turtles may be a discrete central Pacific population.

Nearly all hawksbill nesting and foraging in Hawai'i occurs in the MHI, although the full extent of hawksbill nesting in Hawai'i is undetermined. Females nest in a variety of habitats including black and white sand beaches, small pocket coves covered in cobbles or rugged lava, and up in beach vegetation. Since monitoring began in 1989, hawksbill nesting activity has been confirmed at 22 sites in the MHI; 13 on the Island of Hawai'i, 8 on Maui, and 1 on Moloka'i. There also may be occasional nesting on the windward coast of O'ahu. Over 90% of the documented hawksbill nesting activity in Hawai'i occurs along the Ka'ū Coast of the Island of Hawai'i. Regular nesting also occurs on Maui and Moloka'i.

According to satellite tracking, the Hamakua Coast of the Island of Hawai'i appears to be an important foraging area for hawksbill sea turtles.

No hawksbill turtle nesting has been documented in the Project area. Post-recruitment juvenile and adult hawksbills sheltering and foraging in and near Kahana Bay are the life stages most likely to be affected by the proposed action. Data are insufficient to estimate hawksbill density in Hawaiian waters and within the action area. However, hawksbill sea turtles are much less common than green sea turtles.

As with green turtles, destruction and alteration of habitat, as well as direct harvest are considered the major threats to hawksbills. Climate change also appears to be a growing threat. Destruction and alteration of hawksbill nesting and foraging habitats is occurring throughout the species' global range, especially through coastal development, beach armoring, beachfront lighting, vehicular/pedestrian traffic, invasive species, and pollution from discharges and runoff. The adverse impacts of these threats described for green sea turtles are the same for hawksbill sea turtles (NMFS & USFWS, 2007b). Although hawksbills interact with some fisheries, the bycatch rates are much lower than for the other sea turtle species. Harvest of hawksbill shells and eggs continues to be a major threat. Due to the beauty of their shells, hawksbill adults may be harvested more heavily than other sea turtle species. Despite protections under CITES, the "tortoise shell" trade continues in many areas. As with other sea turtle species, egg harvest continues unabated in parts of the Pacific, including Southeast Asia, Melanesia, and Polynesia (NMFS & USFWS, 2007b).

3.3 Hawaiian Monk Seal

Hawaiian monk seals consist of a single population that is distributed throughout the Hawaiian Archipelago and Johnston Atoll (NMFS-NOAA, 2011a). They are found primarily in the NWHI, but sightings are becoming increasingly common in the MHI, and births have been documented on most of the major islands (NMFS, 2007). Hawaiian monk seals were listed as endangered under the ESA in 1976. The Hawaiian monk seal population has been in decline for more than 20 years. The 2007 recovery plan estimated the population at about 1,200 individuals, and stated that there is concern for the long term maintenance of genetic diversity (NMFS, 2007). The recovery plan further reported the annual rate of decline at 3.9%. In 2008, the population was estimated at 1,161 seals, with minimum population estimates of 913 seals in the NWHI and 113 seals in the MHI (NMFS, 2009).

Hawaiian monk seals spend the majority of their time in the ocean, and may remain at sea for several consecutive days or more. They utilize the marine

aquatic environment to forage, socialize, mate, rest, and travel. They can travel hundreds of miles in a few days (Littnan et al., 2006) and can dive to depths of more than 1,600 feet (500 m; Parrish et al., 2002). They also rely on terrestrial habitats to rest, avoid predators, molt, give birth (pup), and nurse young. Unlike many other pinnipeds that often haul out in large groups, Hawaiian monk seals are considered solitary, both on land and in the water, most often hauling out singly or in small groups. Their life span in the wild is about 30 years. Adults can reach a length of 7.5 feet (2.3 m) and weigh up to 600 pounds (273 kg), with males typically smaller than females (NMFS, 2007). Adult monk seals undergo annual catastrophic molts, where the entire pelage layer (skin and hair) is shed. They stay ashore for 10 to 14 days during molting. The first molt occurs for pups at about the same time as weaning.

Hawaiian monk seals mate at sea, and gestation lasts about 11 months. Females give birth on land, bearing single pups, most commonly between February and August, but pupping has been documented during all times of the year. Pups are able to swim at birth, but normally stay on land for the first few days. Mothers stay in close proximity to their pups during nursing, which occurs on land. Mothers and pups gradually begin swimming together in protected shallows, and mothers are protective of their young. Mother-pup pairs spend increasing amounts of time swimming and venturing farther from shore as weaning approaches. After about 6 weeks, mothers leave their pups and return to the sea to forage. Pups typically spend several more weeks near the nursing area before they venture out into deeper forage areas. Weaned pups live off their fat stores while they learn to forage for themselves, during which time they experience considerable weight loss. Juveniles in the NWHI are typically 2 years old before they regain their post-weaning weight (Johanos et al., 1994).

Hawaiian monk seals consume a wide range of prey species, including small eels, wrasses, cephalopods, and other benthic species that are usually less than 8 inches (20 cm) long. They forage at depths up to 1640 ft (500 m), but a large portion of their effort is spent in bank and slope habitats between 164 and 984 ft (50 and 300 m). Preferred forage habitat appears to be low relief substrates such as sand and talus areas where prey are afforded limited shelter once flushed (Parrish and Littnan, 2007). Juveniles appear to feed in shallow atoll lagoons at 30 to 100 ft (10 to 30 m), as well as on sandy deep reef slopes between 160 and 325 ft (50 to 100 m). Juveniles are capable of similar dive depths as adults, but seem to lack the strength and experience to successfully engage in the large talus forage behaviors of adults (Parrish et al., 2005).

The main sites for reproduction are in the NWHI, where the population is declining at an annual rate of 4.5% (NMFS, 2009). The current population decline in the NWHI seems to be driven by food limitation and other sources of

mortality that disproportionately impact the survivorship of juvenile seals. This in turn affects recruitment to the breeding age classes, and is expected to result in NWHI declines for at least the next decade (Baker et al., 2011). Sightings confirm at least occasional monk seal presence in the MHI since 1900, and a small naturally occurring population has been confirmed in the MHI since the mid-1990s. Since then, documented sightings and annual births continue to rise as the MHI portion of the population increases (Baker and Johanos, 2004). Based on systematic surveys or sightings of uniquely identified individuals, the estimated seal population within the MHI was 45 in 2000, 77 in 2005, and 113 in 2008 (NMFS, 2007, 2009), suggesting an annual increase of about 5.6%. Unpublished NMFS data for 2011, estimates the MHI population at about 150 monk seals.

Recent tagging studies have shown individuals sometimes travel between breeding populations in the NWHI, between islands in the MHI, and on rare occasions, between the NWHI and the MHI (NMFS, 2009; Littnan et al., 2006). However, since regular tagging was started in the 1980s, only 5 seals have been documented to migrate to the MHI from the NWHI (Baker et al., 2010). This supports the understanding that increases in the MHI population is mostly the result of increased births and dispersal of individuals from under-documented areas, such as Ni'ihau (Baker and Johanos, 2004). In general, monk seals in the MHI are in better physical condition than those in the NWHI; with earlier years of first birth and higher birth rates (Baker et al., 2010), more robust pups (Baker and Johanos, 2004; Baker et al., 2006), and a higher estimated rate of survival from weaning to age 1 (77% in the MHI vs. 42-57% in the NWHI; Baker et al., 2010).

No specific information is available to quantify the number of monk seals in the Project action area. The majority of Hawaiian monk seal sighting information collected in the main Hawaiian Islands is reported by the general public and is highly biased by location and reporting effort. The only truly systematic monk seal count data available are from aerial surveys conducted by the Pacific Islands Fisheries Science Center (PIFSC) in 2000-2001 and 2008.

Aerial surveys of all the main Hawaiian Islands were conducted in 2000, 2001 and in 2008 (Baker and Johanos 2004, PIFSC unpublished data). One complete survey of Oahu was conducted for each of these years. The 2000 survey was conducted from an airplane, and the 2001 and 2008 surveys of Oahu were both conducted by helicopter. No Hawaiian monk seals were sighted at Kahana Bay during the three aerial surveys (PIFSC, 2015). Reports by the general public, which are non-systematic and not representative of overall seal use of main Hawaiian Island shorelines, have been collected in the main Hawaiian Islands since the early 1980s. One monk seal sighting has been reported at Kahana Bay

between the years 2005 to 2014. This single sighting occurred in September 2013 at Kahana Bay Beach Park, and the seal was identified as an adult male monk seal (PIFSC, 2015).

Based on the description of the proposed action on the life history characteristics of Hawaiian monk seals, and the reported uniquely identifiable monk seals in LSBH (PIFSC, 2014), adult and juvenile life stages could be affected by the proposed action. Due to their very small population, Hawaiian monk seals are severely vulnerable to natural and anthropogenic threat factors. The 2007 recovery plan grouped threats according to their severity. Food limitation, entanglement, and shark predation are considered crucial. Infectious diseases, habitat loss, fishery interactions, male aggression, and human interaction are considered serious; and biotoxins, vessels groundings, and contaminants are considered moderate threats.

Food limitation plays a primary role in the population decline in the NWHI, most importantly through the failure of sufficient numbers of pups surviving to recruit into the reproductive age classes. Monk seals also have one of the highest rates of entanglement. Derelict fishing gear, such as nets, lines, straps, and rings are the material most commonly involved with monk seal entanglement, but many other sources of marine debris also cause entanglement. Proportionally, newly weaned pups are the age class most commonly observed entangled (NMFS, 2007). Injuries and scars of past shark attacks have been observed on seals of all age classes, and occasionally, active predation has been observed directly. Most of the attacks have been attributed to tiger sharks. In recent years, there has been a marked increase in the observed targeting of preweaned pups by Galapagos sharks at French Frigate Shoals (FFS). This may be a "learned behavior", and appears to be limited to FFS (NMFS, 2007). Pup mortality peaked between 1997 and 1999, at 18 to 28 probable annual mortalities.

Disease effects on Hawaiian monk seal demographic trends are uncertain, and no infectious disease epidemics have yet been documented. However, there is concern that monk seals may be vulnerable to infectious diseases for which they may have no natural resistance. Diseases of most concern include leptospirosis, toxoplasmosis, and West Nile virus, all of which may be spread by domestic and feral animals, and by humans (NMFS, 2007).

Loss of terrestrial habitat is an issue of concern. Many of the islands, atolls, and sand bars used by monk seals are low-lying and vulnerable to erosion. Recent loss of Whaleskate Island ("Islet") in FFS reduced available parturition sites, dramatically increasing the density of mother-pup pairs at Trig Island ("Islet"). Environmental factors such as storms and sea level rise could further

exacerbate this problem (NMFS, 2007). Most of the MHI beaches that would be used by monk seals are now used to some degree by humans for recreational purposes. Additionally, many coastal areas are being developed or are under consideration for development. Although a small number of monk seals have successfully pupped at popular MHI beaches, Hawaiian monk seals typically avoid areas where human disturbance occurs regularly. This could limit available preferred habitat for monk seals in the MHI, and displace them to less optimal areas (NMFS, 2007).

Monk seals are injured and killed as the result of direct interactions with fisheries, predominantly in the MHI. Between 1982 and 2006, 48 hookings, 5 gillnet entanglements, 1 entanglement with a lobster pot, and 1 bait stealing were recorded in the Hawaiian archipelago. Thirty-eight hookings and all 5 gillnet entanglements occurred in the MHI; since the creation of the Papahānaumokuākea Marine National Monument (PMNM) in 2006, virtually all commercial and recreational fishing has been eliminated in the NWHI. A response system is in place to respond to hooked and entangled seals in the MHI. However, injury and mortality due to hooking and net entanglement continues to occur in the MHI (NMFS, 2007).

Male aggression has caused the injury and death of adult females and pups of both sexes in the NWHI. Multiple-male-aggression or "mobbing" is thought to result from the imbalance in the adult sex ratio, where males outnumber females. The attacks involve a number of males repeatedly attempting to mount and mate with a single seal (an adult female or a juvenile of either sex), often resulting in the death of the assaulted animal. Attacks by single adult males range from normal adult male pinniped harassment of younger animals to aberrant levels of focused aggression directed toward weaned pups, and have resulted in several mortalities, most notably at FFS (NMFS, 2007).

Human interactions have ranged from unintentional disturbances at haul-out sites, to the deliberate injuring and killing of Hawaiian monk seals. As mentioned above, monk seals are prone to abandon or avoid preferred haul-out or pupping areas if sufficiently disturbed (NMFS, 2007). In the MHI, unintentional disturbance is increasingly common due to co-occurrence at beaches used as haul-out or pupping habitat, and numerous malicious interactions including shootings have been documented and continue. Vessel strikes of monk seals are uncommon, but have also been documented in the MHI. Biotoxin-induced mortality has not been confirmed in monk seals, and is considered a less serious threat. However, both ciguatoxin and maitotoxin have been detected in the tissues of dead monk seals (NMFS, 2007).

3.4 Humpback Whale

Humpback whales are distributed in all ocean basins of the world. All humpback whales were listed as endangered under the ESA in 1970. Humpback whales in the North Pacific migrate seasonally between warmer, tropical or sub-tropical waters in winter months (where they socialize, give birth, and mate) and cooler, temperate or sub-Arctic waters in summer months (where they feed on small crustaceans and small fish). In their summer foraging areas and winter calving areas, humpback whales tend to occupy shallow, coastal waters; during their seasonal migrations, humpback whales disperse widely in deep, pelagic waters. Breeding areas in the North Pacific Ocean include regions offshore of mainland Central America, Baja California, and Mexico; Hawai'i; and Asia. About half of the humpback whales in the North Pacific Ocean breed and calve in the U.S. territorial waters off Hawai'i, and more than half feed in U.S. territorial waters (NMFS, 2011a). In the North Pacific Ocean, population structure is complex with mixing between feeding grounds and breeding grounds.

Stock structure of humpback whales is defined based on feeding areas, and at least three stocks make up the north Pacific population(s). These stocks are: 1) the California, Oregon, Washington, and Mexico stock, consisting of winter/spring populations in coastal Central America and Mexico which migrate to California and British Columbia; 2) the central North Pacific (CNP) stock that migrates between the Hawaiian Islands and northern British Columbia/Southeast Alaska, Gulf of Alaska, and the Bering Sea/Aleutian Islands; and 3) the western North Pacific stock, consisting of winter/spring populations off Asia which migrate primarily to Russia and the Bering Sea/Aleutian Islands (NMFS, 2011b). The annual growth rate for the North Pacific population over the last several decades is estimated at 4.9 to 6.8 percent, depending on which area and time frame are considered (Calambokidis et al., 2008). In 2010, the North Pacific population was estimated at about 21,000 individuals, with 7,500 to 10,100 humpback whales in the central North Pacific stock (NMFS, 2011a).

In Hawai'i, humpback whales have been sighted as early in the season as October and as late as June, with most mating and calving occurring from December to April. They are generally found in water less than 600 ft (182 m) deep, and cow-calf pairs appear to prefer even shallower water. The waters of Kahana Bay are within the Hawaiian Islands Humpback Whale National Marine Sanctuary (HIHWNMS, 2012).

Current threats include fishing interactions, ship strikes, tourism, noise, and potentially the effects of anthropogenic climate change. Humpback whales are likely hooked or entangled by fishing gear throughout their global range, but data are scarce outside the U.S., especially in the Pacific. Reports of entangled

humpback whales found swimming, floating, or stranded with fishing gear attached have increased in recent years in both Alaskan and Hawaiian waters. A total of 95 entanglement reports were confirmed in Hawai'i from 2002 to 2011. Thirty-eight confirmed reports occurred during the 2008-2009 and 2009-2010 field seasons alone (Lyman, 2011). Many of the entangled whales that are reported in Hawaiian waters most likely brought the gear with them from higher latitude feeding grounds.

While the whales are not typically at risk from drowning or immediate death, they are at increased risk of starvation, infection, physical trauma from the gear, and ship strikes as a result of entanglement. Available evidence from entangled humpback whales indicates that many are able to extricate themselves from the gear. A study of the CNP humpback whale stock in southeast Alaska estimated that about 71% showed evidence of past entanglement that was survived, which exceeds the number of reported disentanglements (Neilson et al., 2009). However, from 2003 through 2007, a total of 17 confirmed serious injuries and mortalities (16 in Alaska, 1 in Hawai'i) resulted from interactions between commercial fishing operations and the CNP stock, resulting in an annual average take of 3.6 animals. Nine whales were observed entangled in Hawaiian waters with injuries that could be serious. The gear entangling these whales did not originate in Hawaiian waters, so some of these whales may be included among the entangled humpback whales seen and documented in Alaska. Based on this information it is estimated that there were 5.6 commercial fishery-caused mortalities or serious injuries of CNP humpback whales per year over the period 2003-2007 (NMFS, 2010). Interactions with humpback whales in the Hawai'i-based shallow-set fishery accounted for 0.2 of the 5.6 mortalities during that time period (NMFS, 2011b).

Many humpback whales are killed by ship strikes throughout the world, including along both coasts of the U.S. On the Pacific coast, one humpback whale is killed about every other year by ship strikes. Worldwide records of vessel collisions and stranding information indicate that humpback whales are one of the species more commonly struck by ships (Jensen and Silber, 2003; Laist et al., 2001). Humpback whales, especially calves and juveniles, are highly vulnerable to ship strikes and other interactions with non-fishing vessels. Younger whales tend to be closer to shore, spend more time at the surface, and are less visible than adults, thereby making them more susceptible to collisions. Humpback whale distribution overlaps significantly with the transit routes of large commercial vessels in Alaskan waters. Records of vessel collisions with large whales in Alaska indicate that strikes have involved cruise ships, recreational cruisers, whale watching catamarans, fishing vessels, and skiffs. Vessel lengths associated with these records ranged from approximately 20 ft (6 m) to over 250 ft (76 m), indicating that all types and sizes of watercraft pose

a threat of collision for whales. Between 2001 and 2005, reports of vessel collisions with humpback whales indicate an average of five whales struck per year in Alaska, whereas in Hawai'i three to four vessel collisions with humpback whales were reported per year for 2001 through 2006. Reported vessel collisions with humpback whales in Hawai'i between 2007 and 2011 increased to an average of 6.8 whales struck annually. During the 2009 humpback whale season in Hawai'i, 13 ship-strikes with humpbacks were reported; ten of these reports were confirmed (Lyman, 2011).

Several other threats affect humpback whales throughout their range. For example, the CNP stock is the focus of a large whale watching industry in both Hawai'i and Alaska. The growth of the whale watching industry is a concern because harassment may occur, preferred habitats may be abandoned, and fitness or survivability may be compromised if disturbance levels become too high. Also humpback whales seem to respond to moving sound sources, such as whale-watching vessels, fishing vessels, recreational vessels, and low-flying aircraft. Their responses to noise are variable and have been correlated with the size and behavior of the whales when the noise occurs. Anthropogenic sound has increased in all oceans over the last 50 years and it is thought to have doubled each decade in some areas of the ocean over the last 30 years. Low-frequency sound comprises a significant portion of this and stems from a variety of sources including shipping, hydrographic research, naval activities, and oil and gas exploration (NMFS, 2006; NMFS, 2008; NMFS, 2011a).

3.5 Critical Habitat

Critical habitat for Hawaiian monk seals has been designated (NOAA-NMFS, 2015) and includes the seafloor and marine habitat to 10 m above the seafloor from the 200 m depth contour through the shoreline and extending into terrestrial habitat 5 m inland from the shoreline between identified boundary points. These terrestrial boundary points define preferred pupping areas and significant haul-out areas (NOAA-NMFS, 2015). Kahana Bay does not fall within assigned boundary points, therefore is excluded from terrestrial critical habitat designation. However, critical habitat starts at the waterline and extends from there out to the 200-m depth contour, including the seafloor and marine habitat 10 m in height (NOAA-NMFS, 2015). The Project occurs in a designated marine critical habitat area.

The action area for the Project is adjacent to a portion of the Hawaiian Islands Humpback Whale National Marine Sanctuary, but the effects of the action are not expected to radiate into sanctuary waters.

4.0 Environmental Baseline Conditions

The watershed of Kahana Valley is large, comprising some 5,345 ac (2,163 ha; Geographic Decision Sys. Int. & Dashiell, 1994). The offshore bottom extends seaward from the base of the beach as a shallow platform (reef flat) that is continuous with the reef flat off Punalu'u northwest along the coast and Ka'a'awa to the southeast. This reef bends along the coast into Kahana Bay where it is bisected by a large channel. This channel is a remnant of the ancient valley that formed during a lower stand of the sea. Because of the large size of Kahana Stream, down-cutting in the geological past was much more than anywhere else along this coastline, resulting in a deep notch in the coastline. The lower valley flooded as sea level rose to the present stand, forming Kahana Bay. Outflow of freshwater from the stream over the centuries has maintained the channel through the reef against the tendency of coral and algae growth to plug it.

Kahana Stream drains Kahana Valley and is a continuously flowing, perennial stream given state ID 3-1-18. In the lower part of the valley, Kahana Stream forms a long estuary. The shore of the estuary in this area is mostly sand derived from the Bay, as the former has built seaward. The banks support dense stands of *hau* (*Hibiscus tiliaceus*) and red mangrove (*Rhizophora mangle*).

Active beach development across the back end of Kahana Bay has shifted the mouth of Kahana Stream eastward to the edge of Huilua Fishpond. This southern outlet channel of Kahana Estuary is nearly always open to the sea, but there remains a remnant of a second stream outlet at the center of the beach, usually blocked by beach and incipient dune formation (*AECOS*, 2003). The active channel of Kahana Stream is spanned by South Kahana Bridge and the normally inactive channel is spanned by North Kahana Bridge. Both bridges carry Kamehameha Highway across the channels of the stream not far inland from the ocean shore *makai* of Ahupua'a o Kahana State Park.

The 7-ac (2.8-ha) Huilua Fishpond is located in the east side of the bay and receives subterranean flow from Kahana watershed. The fishpond was designated a National Historic Landmark in 1962 and is presently under restoration. The fishpond is home to salt- and freshwater fishes and is an integral part of Ahupua'a o Kahana State Park.

The bottom of Kahana Bay is a shallow platform of marine and river derived sediments. Water depth is shallow in the Bay, not exceeding 1.5 m (5 ft). The reef flats that border both sides of the Bay transition to a soft bottom of riverine deposited material fronting Kahana Stream mouth. Reef frontal slopes descend

steeply to a sand-bottom channel running through the middle of the Bay. Back reef flats are sand and rubble. Consolidated limestone predominates across the outer portion of each reef flat. Off Pu'u Māhie Point (northeast), large blocks of limestone occur on the nearshore reef flat. Boulders and rubble characterize the nearshore bottom on the reef flat off Kaluapūleho Point (northwest; *AECOS*, 1981). NOAA's benthic habitat categorization of Kahana Bay (Battista et al, 2007; Figure 2) is consistent with the benthic coverage observed during our 2014 survey, as described below. Surveys of Kahana Bay biota near the proposed bridge were undertaken in 2005, 2012, and 2014 (*AECOS*, 2005, 2012, 2014). The marine environment, based on these surveys, is summarized here.

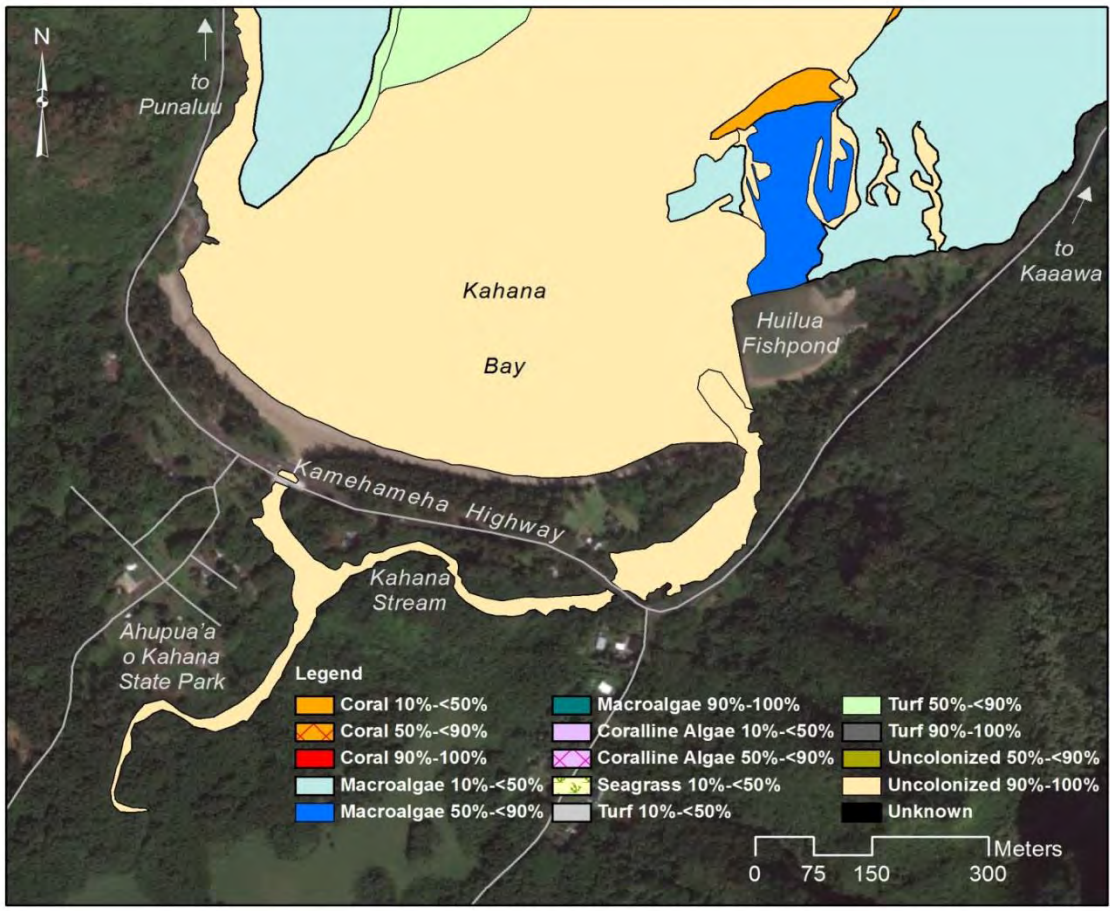


Figure 2. Kahana Bay benthic habitat characterization (Battista et al, 2007). Assemblages of macroalgae (blue) and turf algae (green) characterize the margins of the bay. Coral (orange) is found mostly further out in the bay.

Kahana Stream Mouth – At the mouth of Kahana Stream, the bottom is boulders and silt; underwater visibility is poor (1-2 ft) here. In this area, juvenile flagtail (*āholehole*, *Kuhlia xenura*), surgeonfishes (*Acanthuridae*), and blacktail snapper (*Lutjanus fulvus*) are common. Also occurring in small numbers are portunid crabs and a glass shrimp (*Palaemon debilis*).

Huilua Fishpond – Silt predominates on the bottom seaward of the stream mouth, with numerous invertebrate burrows in evidence. Sand and loose rubble make up the bottom adjacent to the fishpond rock wall. On the exposed boulders of the wall occur barnacles (*Balanus trigonus*), Hawaiian mussel (*Brachiodontes crebristriatus*), and black nerite snail (*pipipi*; *Nerita picea*). Other invertebrates observed on or near the fishpond wall include cowry (Cypraeidae) and woven top shell (*Trochus intextus*). Schools of juvenile flagtail and Hawaiian sergeant or *mamo* (*Abudefduf abdominalis*) are common. Other fishes associated with the fishpond wall include juvenile *manini* (*Acanthurus triostegus*), blacktail snapper, saddle wrasse (*Thalassoma duperrey*), and small schools of yellowfin goatfish (*Mulloidichthys vanicolensis*).

Inside the fishpond, the bottom is sand and loose rubble. This rubble hosts algae (*Padina* sp., *Hypnea* sp., *Dictyota acutiloba*, *Hydrolithion reinboldii*, and *Acanthophora spicifera*) with coverage at 50-90%. Presence of *Acanthophora spicifera* increases towards the north side of the pond. Tufts of cyanobacteria

(*Lyngbya majuscule* and *Symploca hydnoides*) occur in small amounts. Numerous burrows in the sand host the Hawaiian shrimp goby (*Psilogobius mainlandi*) and commensal shrimp (*Alpheus rapax*). Less common larger burrow are probably maintained by portunid crabs. Other invertebrates encountered include sea cucumber (*Opheodesoma spectablis*) and variable worm snail (*Serpulorbis variabilis*). Coralline algae (*Jania* sp. and *Hydrolithion reinboliddi*) are also present. Cyanobacteria (*Lyngbya majuscule*) is abundant and covers most hard bottom in about 1.5 m (5 ft) water depth, near the center of the fishpond.

A total of 13 species of fishes were observed in the fishpond. Juvenile fishes common in the pond include *manini*, blacktail snapper, Hawaiian sergeant, wrasses (*Stethojulis balteata* and *T. duperrey*), Hawaiian flagtail, raccoon butterflyfish (*Chaetodon lunula*), and yellowfin goatfish. Other fishes encountered include ringtail surgeonfish (*Acanthurus blochii*), barred jack (*Carangoide ferdau*), square-spot goatfish (*Mulloidichthys flavolineatus*), snowflake moray (*Echidna nebulosa*), and an unidentified goby (Gobidae).

Kahana Bay seaward of Huilua fishpond – Offshore of the fishpond, across the reef flat, the bottom is mostly sand with algae-covered rubble. Common green algae encountered include *Neomeris* spp., *Codium* spp., *Dictyosphaeria versluysii, Ulva* spp., and *Halimeda opuntia*. Brown algae are represented by *Dictyota* spp., *Padina sanctae-crucis*, *Turbinaria ornata*, and *Martensia fragilis*. Red algae are dominant with two introduced invasive species—*Acanthophora spicifera* and *Gracilaria salicornia*—composing the bulk of seaweeds observed.

Corals are uncommon in the backreef flat. Four taxa were observed: *Porites lutea*, *Porites compressa*, *Pocillopora damicornis*, and *Pocillopora meandrina*. Coral colonies here are mostly small (generally 2 to 20 cm across). Few other non-coral invertebrates are seen here: ashy sea cucumber (*Holothuria cinerascens*) and Edward's portunid crab (*Thalamita edwardsi*) being exceptions.

Juvenile fishes are common around boulders and coral colonies and include square-spot goatfishes, *manini*, Hawaiian domino damsel (*Dascyllus albisella*), raccoon butterflyfish, wrasses (*Novaculichthys taeniourus* and *T. duperrey*), and file fish (*Cantherhines* sp.). Adult fishes encountered in the area include Hawaiian sergeant, stripebelly puffer (*Arothron hispidus*), brown surgeonfish (*Acanthurus nigrofuscus*), threadfin butterflyfish (*Chaetodon auriga*), wrasses (*Stethojulius balteata* and *T. duperrey*), and bluespotted cornetfish (*Fistularia commersonii*). A total of 13 fish species were observed associated with the reef flat area.

5.0 Essential Fish Habitat Assessment

The 1996 Sustainable Fishery Act amendments to the Magnuson-Stevens Fishery Conservation and Management Act and subsequent Essential Fish Habitat (EFH) Regulatory Guidelines (NOAA, 2002) describe provisions to identify and protect habitats of federally-managed marine and anadromous fish species. Under the various provisions, federal agencies that fund, permit, or undertake activities that may adversely affect EFH are required to consult with the National Marine Fisheries Service (NMFS).

Congress defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." EFH is further defined by the existing regulations (MSFCMA, 1996; NOAA, 2002). "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" is

defined as required to support a sustainable fishery and the managed species contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species life cycle.

5.1 EFH and Federally Managed Fish Species

EFH provisions in MSFCMA designate that species harvested in sufficient quantities to require fisheries management may be subdivided into similar Management Unit Species (MUS). Five MUS groups are currently managed in Hawaiian waters: bottomfish, pelagics, precious corals, crustaceans, and coral reef ecosystem (Table 1). The Western Pacific Regional Fishery Management Council (WPRFMC) is moving towards an ecosystem-based approach to fisheries management and has restructured its management framework from species-based fishery management plans (FMPs) to place-based fishery ecosystem plans (FEPs). The Hawaii Archipelago FEP establishes the framework under which the WPRFMC will manage fishery resources, and begin the integration and implementation of ecosystem approaches to management in the Hawaii Archipelago. This FEP does not establish any new fishery management regulations, but rather consolidates existing fishery regulations for demersal species. Specifically, this FEP identifies as MUS those species known to be present in waters around the Hawaii Archipelago and incorporates all of the management provisions of the Bottomfish and Seamount Groundfish FMP, the Crustaceans FMP, the Precious Corals FMP, and the Coral Reef Ecosystems FMP that are applicable to the area.

In addition to EFH, the WPRFMC identifies Habitat Areas of Particular Concern (HAPCs) within EFH for all FEPs. Specific subsets of EFH, HAPCs are areas within EFH that are essential to the life cycle of federally managed coral reef species. In determining whether a type or area of EFH should be designated as a HAPC, one or more of the following criteria established by NMFS should be met: (a) the ecological function provided by the habitat is important; (b) the habitat is sensitive to human-induced environmental degradation; (c) development activities are, or will be, stressing the habitat type; or (d) the habitat type is rare.

The Project is located within the estuarine reach of South Kahana Stream. Nearby waters are designated as EFH (including water column and all bottom areas) for coral reef ecosystem, bottomfish, pelagic and crustacean MUS. Of the thousands of species which are federally managed under the coral reef FMP, at least 27 (specifically juvenile life stages) are known to occur in the general vicinity the Project in Kahana Bay (*AECOS*, 2006, 2014; Fitzsimons et al., 2005). No pelagic, bottomfish, or crustacean MUS were observed in the 2014 surveys. Although not observed in the 2014 surveys, scalloped hammerhead sharks are

known to occur in Kahana Bay (C. Meyer, pers. comm). Juvenile fishes of coral reef ecosystem MUS are common in Huilua fishpond and in Kahana Bay, to seaward of Huilua fishpond (*AECOS*, 2014).

Table 1. EFH Designations for Hawai'i Archipelago FEP Management Unit

Management Unit	Species Complex	EFH
Pelagic	Temperate species Tropical species Sharks Squid	**Eggs and larvae:** the water column extending from the shoreline to the outer limit of the EEZ down to a depth of 656 ft. (200 m) **Juvenile/adults:** the water column extending from the shoreline to a depth of 3,280 ft. (1,000 m)
Bottomfish and Seamount Groundfish	Shallow-water species (0 to 50 fm)	**Eggs and larvae:** the water column extending from the shoreline to the outer limit of the EEZ down to a depth of 1,310 ft. (400 m) **Juvenile/adults:** the water column and all bottom habitat extending from the shoreline to a depth of 1,310 ft. (400 m)
Bottomfish and Seamount Groundfish	Deep-water species (50 to 200 fm)	**Eggs and larvae:** the water column extending from the shoreline to the outer limit of the EEZ down to a depth of 1,310 ft. (400 m) **Juvenile/adults:** the water column and all bottom habitat extending from the shoreline to a depth of 1,310 ft. (400 m)
Crustacean	Spiny and slipper lobster complex Kona crab	**Eggs and larvae:** the water column from the shoreline to the outer limit of the EEZ down to a depth of 490 ft. (150 m) **Juvenile/adults:** all of the bottom habitat from the shoreline to a depth of 330 ft. (100 m)
Coral Reef Ecosystem	All Currently Harvested Coral Reef Taxa (CHCRT) All Potentially Harvested Coral Reef Taxa (PHCRT)	EFH for the Coral Reef Ecosystem MUS includes the water column and all benthic substrate to a depth of 330 ft. (100 m) from the shoreline to the outer limit of the EEZ for eggs, larvae, juveniles and adults

5.2 Fishes and Habitats in the Project Area

The seafloor and water column of South Kahana stream and mouth, fishpond, Kahana Bay (offshore fishpond and nearshore) in the vicinity of the Project site that will be affected by the Project are considered EFH for coral reef, bottomfish, pelagics, and crustaceans (see Table 2). The fishes and habitats in Kahana Bay are described in previous survey reports of the area (*AECOS*, 2006, 2014). These reports are summarized here. Section 4, above, provides environmental baseline conditions of Kahana Stream and Kahana Bay. Fish and habitat resource conditions are reiterated here for EFH analysis.

Kahana Stream – Few fishes are regularly present directly below the existing South Kahana Stream bridge. Only small mollies (*Poecilia* hybrids and indeterminate juveniles) are seen, while larger individuals school upstream near the mouth of an unnamed tributary. Schools of mullet (*Mugil cephalus*), *'āholehole*, and blackchin tilapia (*Sartherodon melanotheron*) are found both upstream and downstream of the Kamehameha Highway bridge. Margins of the stream are home to various shrimp: *'opae huna* (*Palaemon debilis*), *'opae oeha'a* (*Macrobrachium grandimanus*), and *'o'opu akupa* (*Eleotris sandvicensis*). The silt bottom of the channel hosts the Hawaiian shrimp goby (*Psilogobius mainlandi)* living commensally with goby shrimp (*Alpheus* sp.), blood spotted crab (*Portunus sanguinolentus*), Samoan crab (*Scylla serrata*), and minstrel shrimp (*Metapenaeopsis hilarula*).

A small, spring fed channel just mauka of the highway on the right bank is host to numerous *'o'opu naniha* (*Stenogobius hawaiiensis*) and *'o'opu nākea* (*Awaous guamensis*) as well as a few mollies and mullet. The stream channel at the Project site serves as passageway for native amphidromous animals like *'o'opu alamo'o* (*Lentipes concolor*), *'o'opu nōpili* (*Sicyopterus stimpsoni*), and *ōpae kala'ole* (*Atyoida bisulcata*). These species, all present in the Kahana Stream system, travel downstream as larva, eventually migrating back upstream to suitable habitat as juveniles or adults.

Kahana Stream Mouth – The 2014 survey (*AECOS*, 2014) observed juvenile flagtail (*āholehole*), surgeonfishes (*Acanthuridae*), and blacktail snapper. Also occurring in smaller numbers are portunid crabs and a shrimp (*Palaemon debilis*).

Huilua fishpond – Inside the fishpond, the bottom is sand and loose rubble. The rubble hosts algae (*Padina* sp., *Hypnea* sp., *Dictyota acutiloba*, *Hydrolithion reinboldii*, and *Acanthophora spicifera*). Presence of *Acanthophora spicifera* increases towards the northeastern end of the pond. A total of 13 species of fishes were observed in the fishpond in the 2014 survey. Juvenile fishes

common in the pond include *manini*, blacktail snapper, Hawaiian sergeant, wrasses (*Stethojulis balteata* and *T. duperrey*), Hawaiian flagtail, raccoon butterflyfish, and yellowfin goatfish. Other fishes encountered include ringtail surgeonfish (*Acanthurus blochii*), barred jack (*Carangoide ferdau*), square-spot goatfish, snowflake moray (*Echidna nebulosa*), and an unidentified goby (Gobidae).

Kahana Bay seaward of Huilua fishpond – Offshore of the fishpond, across the backreef flat, the bottom is mostly sand with algae-covered rubble. Corals are uncommon in the backreef flat. Four taxa were observed: *Porites lutea*, *Porites compressa*, *Pocillopora damicornis*, and *Pocillopora meandrina*. Coral colonies observed are mostly small (generally 2 to 20 cm across). Juvenile fishes are common to the boulders and coral colonies and include square-spot goatfishes, convict tang, Hawaiian domino damsel (*Dascyllus albisella*), raccoon butterflyfish, wrasses (*Novaculichthys taeniourus* and *T. duperrey*), and file fish (*Cantherhines* sp.). Other adult fishes encountered in the area include Hawaiian sergeant, stripebelly puffer (*Arothron hispidus*), brown surgeonfish (*Acanthurus nigrofuscus*), threadfin butterflyfish (*Chaetodon auriga*), wrasses (*Stethojulius balteata* and *T. duperrey*), and bluespotted cornetfish (*Fistularia commersonii*). A total of 13 coral reef fish species were observed associated with the offshore backreef flat area.

Although not observed in the 2014 surveys, Kahana Bay serves as a scalloped hammerhead shark (*Sphyrna lewini*) nursery (C. Meyer, pers. comm). Research on scalloped hammerhead sharks indicates that adult sharks frequent inshore waters and bays for breeding and pupping from April to October, and the pups use bays (likely including Kahana Bay) as a nursery for those same months. Hammerhead shark pups typically remain in the bay they were born for 3 to 4 months before moving offshore (Miller et al., 2013).

Table 2. Fisheries management plan (FMP) and managed species potentially affected by the South Kahana Bridge Replacement Project. Surveys from 2005 (Fitzsimons et al., 2005) and 2014 (*AECOS*, 2014).

PHYLUM, CLASS, ORDER, FAMILY ***Genus species***	**Common name,** ***Hawaiian name***	**Abundance**	**Status**	**Location codes**
ACANTHURIDAE	SURGEONFISH			
Acanthurus triostegus	convict tang, *manini*	O	Ind.	1, 2, 3, 6

Table 7 (cont.)

PHYLUM, CLASS, ORDER, FAMILY *Genus species*	Common name, *Hawaiian name*	Abundance	Status	Location codes
Acanthurus marginatus	large eye conger; *puhi ūhā*	--		6
Acanthurus blochii	ringtail surgeonfish, *pualu*	O	Ind.	2,3
MULLIDAE	GOATFISH	O		
Mulloidichthys flavolineatus	square-spot goatfish, *weke'ā*	C	Ind.	2,3,5
Mulloidichthys vanicolensis	yellowfin goatfish, *weke 'ula*	O	Ind.	2,3
POMACENTRIDAE	DAMSELFISH			
Abudefduf abdominalis	Hawaiian sergeant, *mamo*	O	End.	1,2,3,6
Abudefduf sordidus	blackspot sergeant	--	Ind.	6
Abudefduf vaigiensis	Indo-Pacific sergeant, *mamo*		Ind.	2
Dascyllus albisella	Hawaiian dascyllus, *ālo'ilo'i*		Ind.	2,3
LUTJANIDAE				
Lutjanus fulvus	blacktail snapper, *to'au*	C	Ind.	1,2,3,5
FISTULARIIDAE				
Fistularia commersonii	bluespotted cornetfish, *nūnū*	R	Ind.	3
MURAENIDAE				
Echidna nebulosi	Snowflake moray, *puhi kāpā*	R	Ind.	2
CARANGIDAE				
Carangoide ferdau	Barred jack, *ulua*	R	Ind.	2
KUHLIIDAE				
Kuhlia xenura	Hawaiian flagtail; *āholehole*	C	Ind.	1,2,3,5,6
LABRIDAE				
Novaculichthys taeniourus	rockmover wrasse	O	Ind.	3
Thalassoma duperrey	saddle wrasse, *hīnālea lauwili*	O	End.	2
Stethojulis balteata	Belted wrasse, *'omaka*	O	End.	2
CHAETODONTIDAE				
Chaetodon auriga	threadfin butteflyfish, *kīākapu*	O	Ind.	3
Chaetodon lunula	raccoon butterflyfish, *kīākapu*	O	Ind.	2,3

Table 7 (cont.)

PHYLUM, CLASS, ORDER, FAMILY *Genus species*	Common name, *Hawaiian name*	Abundance	Status	Location codes
TETRAODONTIDAE				
Arothron hispidus	stripebelly puffer, *ʻoʻopu hue*	R	Ind.	3
DIODONTIDAE				
Diodon hystrix	Giant porcupinefish; *ʻoʻopu kawa*	--	Ind.	6
GOBIIDAE				
Asterropteryx semipunctatus	halfspotted goby	O	Ind.	2
Psilogobius mainland	Hawaiian shrimp goby	--	Ind.	5
MUGILIDAE				
Neomyxus leuciscus	sharpnose mullet; *uouoa*	O	Ind.	2, 3, 6
Valamugil engeli	Australian mullet	--	Nat.	5
SYNODONTIDAE				
Synodus ulae	Hawaiian lizardfish; *ʻulae*	--	Ind.	5,6
SPHYRAENIDAE				
Sphyraena barracuda	Great barracuda; *kākū*	--	Ind.	5

KEY TO SYMBOLS USED IN TABLE 2:

Abundance categories:

R – Rare – only one or two individuals observed.
U – Uncommon – several to a dozen individuals observed.
O – Occasional – seen irregularly in small numbers
C – Common – observed everywhere, although generally not in large numbers.
A – Abundant – observed in large numbers and widely distributed.

Status categories:

End – Endemic – species found only in Hawaiʻi
Ind. – Indigenous – species found in Hawaiʻi and elsewhere
Nat. – Naturalized – species were introduced to Hawaiʻi intentionally, or accidentally.

Location IDs:

1 – observed in Kahana Stream mouth on June 23, 2014
2 – observed on fishpond wall and inside Huilua fishpond June 23, 2014.
3 – observed outside and to the southeast of Huilua fishpond in Kahana Bay June 23, 2014.
4– observed in Kahana Bay boat ramp area June 23, 2014.
5 - reported in South Kahana Stream mouth (Fitzsimmons et al., 2005).
6 - reported in Huilua fishpond (Fitzsimmons et al., 2005).

5.3 Assessment of Potential Impacts

The following section includes a discussion of potential impacts resulting from both construction and operation of the Project on EFH. Direct impacts to

marine biological resources at the bridge site would result from the physical habitat modification (soft bottom habitat to temporary bypass bridge pile surfaces) and sound emissions during pile driving for the temporary bypass bridge and shaft drilling for the construction of the replacement bridge and pile cutting for the demolition of the temporary bypass bridge. Indirect impacts to the marine environment may occur during pile and pier construction and include sediments suspended during construction carried by currents to distant locations.

Adult fishes are mobile and will actively avoid direct impacts from the Project activities, including sediments suspended in the immediate vicinity of the action. Some impairment of ability of EFH managed species to find prey items could occur, but this effect should be temporary and spatially limited to the immediate vicinity of construction activities. Most of the adult and juvenile MUS that use the EFH are not tied to artificial substrates, and routinely experience turbid conditions due to natural processes within the estuary and Kahana Bay. For these reasons and those elaborated on further below, the adverse effects created by the Project would be temporary and minimal. The summation of impacts from Project activities on EFH and FMP species is provided in Table 3.

Physical Habitat Modification - The piles for the bypass bridge will be placed in soft bottom substratum. The total area of the piles for the temporary bypass bridge will be 219.8 ft^2 (20.3 m^2). Few fishes occur in this area, and those that do are found both upstream and downstream in the vicinity of the Kamehameha Highway bridge (*AECOS,* 2014). These fishes may be temporarily displaced during construction of the bypass bridge. The alteration from soft bottom basin to pile structure will be temporary and is not expected to adversely affect fish populations, fish habitats, or fish foraging resources. The impact on substrate properties is expected to be minimal based on the temporary nature of the bypass bridge. Rates of recovery for the infaunal community are not known for this habitat in Hawai'i, but are expected to be rapid: perhaps on the order of 6 weeks (Dr. Julie Bailey-Brock, UH Mānoa, pers. comm.).

Permanent piles for the new bridge will occupy a total area of 188.4 ft^2 (17.5 m^2). This area will be a permanent loss of EFH substrate, but in the long term, new piles will create habitats of greater physical complexity than presently exist (or replace those similar habitats associated with the old bridge being removed).

Suspended Sediments - Potential impacts to fish populations from construction and operation of the Project may occur from degradation of water

quality. Project construction and dredging will cause temporarily increases in the amount of suspended sediment in the water column. It is anticipated that most demersal and pelagic fishes will avoid construction areas, and that potential impacts would be temporary and minor, resulting in displacement followed by rapid post-construction recolonization by these species. Such avoidance would occur only in those areas where active in-water work is occurring (proposed to be 30 weeks in duration). Impacts to water quality associated with Project activities will be temporary and minimized through silt curtains and other construction BMPs.

Acoustical Impacts – The temporary bypass bridge will require driving hollow steel piles in place. This can be performed with impact hammers, which produce intense, sharp spikes of sound which can easily reach levels that injure fish. Vibratory hammers, on the other hand, produce sounds of lower intensity, with a rapid repetition rate. Sound pressure waves in the water from drilling and saw-cutting can affect fish, particularly those with a swim bladder. The extent of impact is influenced by factors such as species, fish size, physical condition, peak sound pressure and frequency, shape of the sound wave, depth of water, location of fish in the water column, amount of air in the water, size and number of waves on the water surface, bottom substrate texture, currents, presence of predators, and drill type and size (NMFS, 2004). Types of effects on fishes can include mortality from swim bladder rupture or internal hemorrhaging, changes in behavior and hearing loss (permanent or temporary; Vagle, 2003). The most commonly observed behavioral changes are temporary dispersal of fish schools.

Recently, underwater noise criteria for fishes were revised and accepted for in-water projects following a multi-agency agreement that included concurrence from National Marine Fisheries Service and the U.S. Fish and Wildlife Service (Fisheries Hydroacoustic Working Group, 2008). The underwater noise thresholds for fishes for behavioral disturbance and the onset of injury are presented in Table 4. As a conservative measure, NOAA Fisheries and USFWS generally have used 150 dB as the threshold for behavioral effects to ESA-listed fish species (salmon and bull trout) for most biological opinions evaluating pile-driving, citing that sound pressure levels in excess of 150 dB can cause temporary behavioral changes (startle and stress) that could decrease the ability of a fish to avoid predators (ICR Jones & Stokes and Illingworth and Rodkin, Inc., 2009).

Table 3. Impact assessment summary of Project activities on FMP species.

Project Activity	Impact Assessment
Physical Habitat Modification	Pile installation may cause temporary disturbance and displacement of fishes. The total area of the piles for the temporary bypass bridge will be 219.8 ft^2 (20.3 m^2). The impact on substrate EFH is expected to be minimal based on the temporary placement of the bypass bridge. Permanent piles for the new bridge will occupy a total area of 188.4 ft^2 (17.5 m^2). This area will be a permanent loss of EFH substrate, but in the long term, new piles will create habitat of greater physical complexity than presently exists.
Suspended Sediments	Short-term water quality impacts to EFH due to Project construction and channel dredging would most likely be limited to changes in turbidity levels and suspended solids in the immediate construction areas. Some change in dissolved oxygen (DO) may also occur, concomitant with sediment resuspension. However, any increase in turbidity is expected to be localized and of short duration.
Acoustical Impacts	Noise from driving hollow steel piles during temporary bypass bridge construction, drilling concrete shafts during replacement bridge construction, and saw-cutting piles during demolition of temporary bypass bridge may cause temporary disturbance and displacement of fishes. Expected SPLs from both Project activities are expected to be under the 180 dB threshold for small fish. Therefore, impacts to EFH are expected to be temporary and minimal.

Table 4. Effects on fishes from noise associated with drilling and driving piles.

Predicted Effect	Size of Fish	Criterion
Onset of Injury	All fishes	206 dB
	Fishes 2 grams or greater	187 dB
	Fishes less than 2 grams	183 dB
Behavioral Impacts†	All fishes	150 dB

† Behavioral criteria was not set forth by the Fisheries Hydroacoustic Working Group, so as a conservative measure, National Oceanic and Atmospheric Administration Fisheries and U.S. Fish and Wildlife Service generally use 150 dB root mean square as the threshold for behavioral effects to ESA-listed fishes (e.g., salmon and bull trout) for most biological opinions evaluating pile-driving. However no current research supports this threshold.

It is expected that impacts from driving the steel piles would create sound levels of about 177 to 178 dB re 1 µPa dB, with an expected average SPL to be around 177.5 dB (CALTRANS Compendium, 2012). It is expected that impacts from drilling the concrete shafts would create sound levels of about 121.0 to 184.5 dB re 1 µPa dB, with an expected average SPL to be around 150 dB (Dazey et al., 2012). The implementation of "soft starts" (use of a low energy start) would minimize potential impacts to fish, since they would likely leave the area as drilling commenced. Avoidance of the area would be temporary; construction would take place for approximately 12 weeks and occur during daylight hours. Adverse acoustic effects to EFH species resulting from driving piles and drilling shafts would be temporary and minimal.

Saw-cutting is anticipated to result in a lower SPL than drilling activities, but would be a continuous noise. Noise data obtained from a manufacturer's data sheet for the type of equipment likely to be used to saw-cut the concrete suggest an in-water SPL of 132 dB re 1 µPa dB. Avoidance of the area would be temporary as pile cutting would take place for approximately 1 day. Exposure to noise from saw-cutting activities is expected to result in no more than an insignificant level of behavioral modification in the form of temporary avoidance of the immediate area.

5.4 Conclusion

Impacts during construction of the temporary bypass bridge and replacement bridge would be localized and temporary. The piles of the replacement bridge will provide additional physical complexity for fish resources. Project BMPs are intended to help avoid/minimize impact to EFH, and with effective implementation they will contribute to minimal adverse impacts to EFH. As such, the proposed action is expected to result in minimal adverse effects to EFH.

6.0 Effects of the Action on ESA-listed Species

This section analyzes the potential impacts that the proposed replacement bridge Project is expected to have on green and hawksbill sea turtles, Hawaiian monk seals, and humpback whales. Each subsection addresses the individual stressors expected to result from the Project. The analyses are based on construction methods, required conditions and BMPs, the biology and life history characteristics of the protected species, and on the overlaps between habitats used by the species and the Project action area.

The proposed action is expected to interact directly or indirectly with ESA-listed species through the following stressors:

- Collision with vessels
- Direct physical impact
- Disturbance from human activity and equipment operation
- Exposure to elevated noise levels
- Exposure to elevated turbidity
- Exposure to waste and discharges
- Effects on proposed Hawaiian monk seal critical habitat

6.1 Collision with Vessels

Completion of the proposed action will require the operation of various support vessels operating in nearshore waters. Kahana Bay and Kahana stream channel are too shallow to stage construction using large boats or barges. Small vessels may include powerboats and rowboats used to install and remove silt curtains, and to position floating platforms used for debris catchment.

Sea turtles and marine mammals must surface to breathe and they are known to rest or bask at the surface. Therefore, when at or near the surface of the water, these animals are at risk of being struck by vessels or their propellers as vessels transit to and from as well as in and around the Project site. Potential injuries and their severity would depend on a number of factors: the size and speed of the vessel, the part of the vessel which strikes the animal, and the body part impacted. Injuries may include bruising, broken bones or carapaces, and lacerations. In the case of smaller animals, such as sea turtles and seals, collisions with even small vessels could result in death.

The recovery plan for green sea turtles indicates that boat collision is a major threat to these turtles in the main Hawaiian Islands (NMFS & USFWS 1998). Boat collision is not identified as a significant risk for hawksbills, monk seals, or humpback whales. However, the recovery plans for all of these ESA-listed animals suggests that the incidence of collision is expected to increase as vessel size, speed, traffic density, and animal density increase.

Existing information about sea turtle sensory biology suggests that sea turtles rely more heavily on visual cues, rather than auditory, to initiate threat avoidance. Research also suggests that sea turtles cannot be expected to consistently notice and avoid vessels that are traveling faster than 2 knots (Hazel et al., 2007). Vanderlaan and Taggart (2007) report that the severity of injury to large whales is directly related to vessel speed. They found that the probability of lethal injury increased from 21% (for vessels traveling at 8.6 knots) to over 79% (for vessels traveling at 15 knots or more). Additionally,

since collisions with whales have been reported for both slow and fast moving vessels, it appears that, in at least some situations, whales may either be unaware of a vessel's presence or are unable to determine the vessel's proximity and/or vector of approach based on available acoustic cues. Consequently, vessel operators must be responsible to actively watch for and avoid sea turtles and marine mammals, and to adjust their speed based on expected animal density and on lighting and turbidity conditions to allow adequate reaction time to avoid marine mammals.

Based on the relatively low number of vessel trips expected to be conducted as part of the proposed action, and upon the expectation that the vessels would be operated in accordance with the NMFS/PRD-recommended BMP that require vessel operators to carefully watch for and avoid protected species, we consider the risk of collision between Project-related vessels and protected species to be discountable.

6.2 Direct Physical Impact

The proposed action includes in-water work that would result in materials being placed on the stream, like anchors, piles, and silt curtain apparatus. Additionally, chunks of concrete and other debris may inadvertently fall into the water during over-water work. These activities and events have the potential to directly strike ESA-listed marine animals. Potential injuries and their severity will depend on the animal's proximity to the bottom when struck, the angle of the strike, and the body part impacted. Injuries may include cuts, bruises, and broken bones, cracked or crushed carapaces, and amputations, any of which could result in the animal's death. In some cases, animals could be pinned to the bottom and drowned.

Marine mammals and sea turtles may avoid the Project area on their own due to on-going activities. Additionally, Project BMPs require the Project manager and contractor to postpone or halt work when ESA-listed marine mammals are within 50 yards, and require all materials and equipment to be lowered to the sea floor in a controlled manner. Based on this information, we have determined that the potential for direct physical impact is extremely remote and the risk of an ESA-listed animal being impacted by material or equipment sent to the bottom is discountable.

6.3 Disturbance from Human Activity and Equipment Operation[1]

As detailed above, the proposed action includes work in and above marine waters where ESA-listed species may be directly exposed to Project-related activity. These animals may experience a startle reaction and resulting stress if they encounter certain construction activities. The reaction could range from an animal approaching to investigate the activity, to panicked flight when an animal injures itself in an attempt to flee. Because sea turtles and marine mammals typically avoid human activity, the expected effect of this interaction would be an avoidance behavior leading to an exposed animal rapidly but temporarily leaving the Project area without injury.

The Project BMPs require that the Project manager and contractor reduce the likelihood of this interaction by watching for and avoiding protected marine life before commencing work and by postponing or halting operations when protected species are within 50 yards of Project activities. As such, we have determined that disturbances due to exposure to human activity and equipment operation would be infrequent and non-injurious, resulting in insignificant effects on the ESA-listed marine species.

6.4 Exposure to Elevated Noise Levels

The proposed action includes driving 70 steel pipe piles to support the temporary bypass bridge and drilling 15 concrete shafts to support the replacement bridge. The proposed action includes saw-cutting existing piles on the bridge. Pile-driving, pile-drilling, and saw-cutting can produce high intensity in-water sound levels, and high intensity sound is capable of causing injury or adverse behavioral modifications for marine mammals and sea turtles. Effects vary with the frequency, intensity, and duration of the sound source, as well as the hearing characteristics of the affected animal. Effects may include: physical injury and/or permanent hearing damage; behavioral impacts through temporarily reduced sensitivity also referred to as temporary threshold shifts (TTS), temporarily masked communications or acoustical environmental cues; and modified behavior ranging from attraction to avoidance.

The effects thresholds currently used by NMFS are marine mammal specific and based on levels of harassment as defined by the Marine Mammal Protection Act (MMPA). For exposure to sounds in water, >180 dB and >190 dB are the thresholds for Level A harassment (i.e., injury and/or TTS) for cetaceans and pinnipeds, respectively. The thresholds for Level B harassment for all marine mammals in the form of TTS and other behavioral impacts are >160 dB for

[1] This disturbance excludes disturbance from acoustic impacts discussed below.

impulsive noises and >120 dB for continuous noises. Currently, no acoustic thresholds have been established for sea turtles. Consequently, the marine mammal thresholds will be used for sea turtles as well, with the exception that the 160 dB threshold will be applied for both impulsive and non-impulsive sources for sea turtles, under the assumption that these thresholds are likely to be conservative.

Sound can be measured and quantified in several ways, but the logarithmic decibel (dB) is the most commonly used unit of measure, and sound pressure level (SPL) is a common and convenient term used to describe intensity. In water, sound pressure is typically referenced to a baseline of 1 micro Pascal (re: 1 µPa), as opposed to the 20 µPa baseline used for air measurements. To assess the potential impact of a sound on marine resources, NMFS often assesses impacts based on the root-mean-square (dBrms) of an acoustic pulse. This is the portion of the pulse that contains 90% of the sound pressure. In the interest of brevity, all further references to SPL assume dBrms re 1 µPa, unless specified otherwise.

Transmission loss (attenuation of sound intensity over distance) varies according to several factors in water, such as water depth, bottom type, surface conditions, salinity, and the amount of suspended solids in the water. Sound energy dissipates through mechanisms such as spreading, scattering, and absorption (Bradley and Stern, 2008). Spreading refers to the apparent decrease in sound energy at any given point on the wave front because the sound energy is spread across an increasing area as the wave front radiates outward from the source. In unbounded, homogeneous water, sound spreads out spherically, losing as much as 7 dB for each doubling of range. When vertically bounded such as by the surface and substrate, sound may expand cylindrically losing only about 3 dB with each doubling of range. Scattering refers to the sound energy that leaves the wave front when it "bounces" off a surface or particles in the water. Absorption refers to the energy that is lost through conversion to heat due to friction. Irregular substrates, rough surface waters, and particulates in the water column increase scattering loss, while soft substrates, such as mud and silt increase absorption loss.

Sound typically dissipates more rapidly in shallow, turbid waters over soft substrates. The shallow waters of most harbors and marinas, with silt and mud bottoms, are considered poor environments for acoustic propagation because sound typically dissipates more rapidly under those circumstances. Kahana Bay is shallow (less than 1.5 m or 5 ft deep throughout), and we expect this to help attenuate any elevated noises due to the Project activities.

Underwater sound created during construction activities propagates through the drilling and driving unit, radiating sound into the water and substrate. Data reported in the literature indicate that high peak sound pressure is a critical factor in assessing potential injury to or mortality of protected species such as marine mammals (Wardle et al., 2001).

No site-specific noise measurements for drilling or driving are available for Kahana Bay. Therefore this analysis for the drilling and driving activities of the Project is based on information from recent studies (Nedwell and Brooker 2008 and Caltrans Compendium, 2012), under the assumption that the reported sound levels will closely approximate sound levels expected from pile installation drilled in a similar manner. The study reported pile drilling activities with an auger to result in RMS SPLs ranging from 105 to 139 dB re 1 µPa dB at distances ranging from 28 to 2130 meters. A fit for the measured data has indicated a source level for the drilling noise of 162 dB re 1 µPa at 1 meter. The auger method of pile drilling used in the study presented much lower calculated source SPLs than more common pile driving methods (up to 237 dB) and thus, appear to be acoustically quieter. Accurately predicting received noise levels at a given range (isopleth) requires complex equations and detailed information that is rarely available. Typically, predictions are made by estimating spreading loss based on the equations RL = SL – 20LogR, for spherical spreading, and RL = SL – 10LogR for cylindrical spreading, where RL is the received level, SL is the source level, and R is the range in meters. Actual spreading loss is thought to be somewhere between the two, with absorption and scattering increasing the loss. In the absence of site specific transmission loss data, RL = SL – 15LogR is often used to estimate the RLs for actions in the relatively shallow near shore marine environments. Because the drilling will be done in relatively soft substrates (silt bottom), the drilling noise level for the Project would be close to the average SL in Nedwell and Brooker (2008), however to be conservative the highest level reported is used (147 dB re:1 µPa @10m). Applying practical spreading loss to the RMS SPL suggests ranges of less than 10 meters for the 160 dB isopleth and 224 m, respectively to the 120 dB isopleth (Table 5). While there are no available measurements for saw-cutting, it is anticipated to result in a lower SL than drilling activities. Based on the best available information, the shut-down ranges are proposed at the farthest expected threshold ranges: 631 and 468 m for marine mammals during drilling and hydraulic vibratory extraction of piles, respectively; and 74 m for marine mammals and sea turtles during pile driving. The range for the distant shutdown locations (631 and 468 m) will be flexible, to adjust those ranges inward should acoustic monitoring indicate shorter ranges to the threshold isopleths.

Based on the best available information and the shallow waters of Kahana Bay, we expect that no marine mammals or sea turtles would be exposed to project-related in-water noise levels that approach the thresholds for the onset of TTS or other physical impacts. Accordingly, exposure to project-related elevated noise is expected to result in no more than the temporary avoidance of the immediate area, which would have insignificant effects on ESA-listed marine mammals and sea turtles.

Table 5. Source of acoustics and noise levels based on Nedwell and Brooker, 2008 and CALTRANS Compendium, 2012 (dB_{rms} @10m).

Source	SL dB rms	180 dB	160 dB	120 dB Marine Mammals
Pre-drilling Average	147	<10m	<10m	224 m
Saw Cutting	N/A	N/A	N/A	N/A
18" Concrete Impact	166	N/A	25 m	N/A
12" Steel H Impact	175	<10m	55 m	N/A
12" Steel H Vibratory	150	<10m	N/A	300 m
24" Steel pipe pile	177	N/A	N/A	N/A

6.5 Exposure to Elevated Turbidity

The proposed action is expected to result in small-scale, short-term in-water substrate disturbances due to the pile installation and saw-cutting, and these activities could result sediments becoming mobilized in the water column. Given that sea turtles and marine mammals breathe air instead of water, increased turbidity should not adversely affect their respiration or other biological functions. Although these animals may be found in turbid waters, they may avoid dense turbidity plumes in favor of clearer water.

The proposed action includes the requirement to install silt curtains around the work site to contain mobilized sediments. Any mobilized sediments are expected to be short-term, and more or less completely contained within the silt curtains. Turbidity outside the planned containment area is expected to be indistinguishable from background levels. As such, exposure to project-related elevated turbidity is expected to have insignificant effects on ESA-listed sea turtles and marine mammals.

6.6 Exposure to Wastes and Discharges

Construction and vessel wastes may include plastic trash bags that may be ingested and cause digestive blockage or suffocation, or if large enough, along with discarded sections of rope or lines, may entangle marine life. Equipment spills and discharges are likely to consist of drill tailing and tremie grout/mortar and hydrocarbon-based chemicals such as fuel oils, gasoline, lubricants, hydraulic fluids, and other toxicants, which could expose protected species to toxic chemicals. Depending on the chemicals and their concentration, exposure may result in a range of effects from avoidance of an area to death.

Local and federal regulations prohibit the intentional discharge of toxic wastes and plastics into the marine environment. Additionally, project BMPs include measures intended to prevent the introduction of wastes and toxicants into the marine environment at the work site. Based on this information, we expect that discharges and spills are unlikely to occur, or would be small, infrequent, and quickly cleaned up if they do occur. Therefore, exposure to construction wastes and discharges that may result from this action are expected to result in insignificant effects on protected marine species.

6.7 Effects on Hawaiian Monk Seal Critical Habitat

The proposed project is expected to have no long-term effect on the foraging characteristics or upon the quality or quantity of monk seal prey. Due to its distance from known haul-out and pupping areas, the work is not anticipated to affect the characteristics of any pupping, nursing, or haul- out areas. Marine waters in the depth range of 0 to 500 m are the only essential feature of monk seal critical habitat that may be impacted by the planned work. Project-related in-water noise levels may temporarily deter monk seals from entering an area within 500 yards around Kahana Bay. The area that might be avoided is not known to provide significant monk seal forage resources, and the project is not expected to have any impact on monk seal forage resources. Avoidance of the ensonified area would not hinder monk seal access up and down the coast past the bay, and the period of possible avoidance should not exceed 2 months. Therefore, because the only impact on monk seals would be the possible short term avoidance of an area with no known significant resource value, the impacts of the proposed action on the accessibility of the area for Hawaiian monk seals would be insignificant.

7.0 Conclusions

Based on the analysis of the possible impacts on ESA-listed species and critical habitat provided above, the potential stressors posed by the proposed improvements at the South Kahana Stream Bridge would result in insignificant impacts, or the likelihood of impacts would be discountable, for ESA-listed sea turtles and marine mammals and on critical habitat for Hawaiian monk seals. As such, the proposed action may affect, but is not likely to adversely affect, any ESA-listed marine species under NMFS jurisdiction.

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APPENDIX G

AECOS, Inc.
45-939 Kamehameha Highway, Suite 104♦Kane'ohe, HI 96744
Telephone: (808)234-7770♦ Fax: (808)234-7775 ♦Email: aecos@aecos.com

December 13, 2012

Attn: John Sakaguchi
Project Manager/Senior Planner
Wilson Okamoto Corporation

RE: South Kahana Stream Bridge Project, Island of O'ahu

Mr. Sakaguchi,

This letter is to inform Wilson Okamoto Corp. of the results of our recent survey of the South Kahana Stream Bridge and vicinity for the presence of sea turtles, signs of sea turtle nesting activity, and ESA-listed waterbirds and nests/nesting activity near the proposed project site. On December 6, 2012 *AECOS*, Inc biologists Reginald David and Chad Linebaugh surveyed the bridge and 100 m (328 ft) in all directions (see Fig. 1 showing project area) for sea turtles, waterbirds, and signs of nesting activity. The survey began at 0830 hrs with 75% cloud cover, no precipitation and light southeast winds. During the survey period an ebbing tide was predicted at +1.7 ft at 0830 dropping to a low of +0.4 ft near 1600 hrs (NOAA Tide Tables, 2012).

One avian count station was established on each side of the bridge (Figs. 2 and 3). A single thirty-minute time dependent waterbird count was made at each station. Field observations were made with the aid of Leica 8 X 42 binoculars and by listening for vocalizations. In order to adequately survey the area for turtle and waterbird nesting, one biologist walked the shorelines in the survey area above the stream channel while the other utilized a kayak to survey the stream channel and margins, and areas of stream bank that were densely vegetated and inaccessible by foot. Observations for the presence of sea turtles and waterbirds were made by both biologists throughout the survey period.

Endangered Waterbirds

No waterbird species were detected, nor were any nests recorded. The habitat present along the stream banks within the project area is not suitable for nesting by any of the three extant endangered waterbird species known from the windward side of the Island of O'ahu. A possible exception is one small section of grass and weedy material along the south side of the stream approximately 50 m (164 ft) southeast of the bridge (Fig. 4) that could theoretically provide nesting substrate for Hawaiian Coot (*Fulia alai*). Given the paucity of suitable vegetation and the location, this would be an unlikely place to find nesting coot.

The habitat in the upland areas is also not suitable for nesting by endangered waterbirds. Most of it is comprised of lawns and gardens associated with human habitation. A small *loi kalo* on the *mauka* side of the highway near Trout Farm Rd. is lined and dry and is currently being used for dryland taro cultivation (Fig. 5).

Sea Turtles

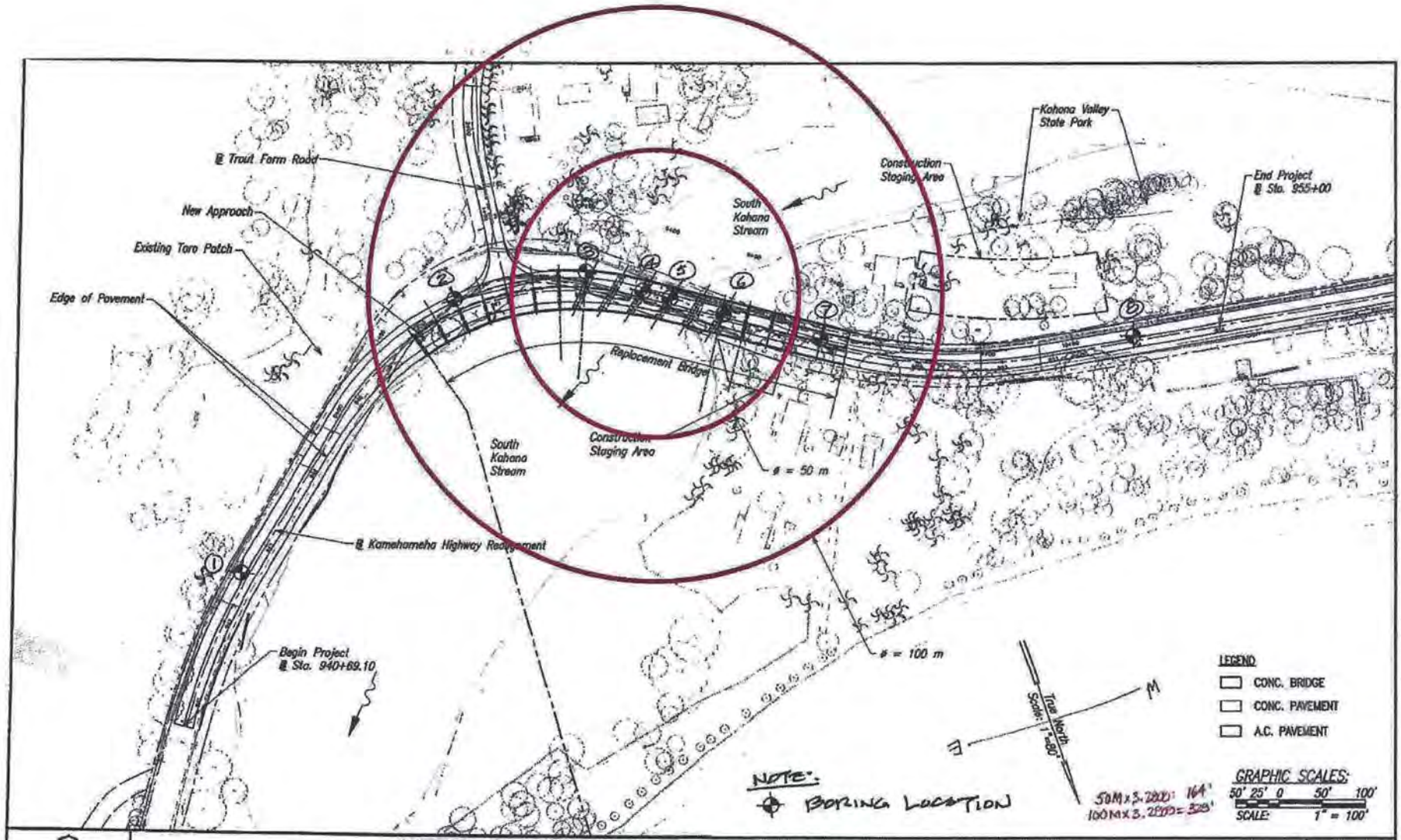
No sea turtles were observed during the survey. The project area does not comprise suitable habitat for sea turtle nesting. Boulders, CRM, and stacked basalt blocks compose the shore beneath the bridge, and this area is devoid of vegetation. Upstream and downstream from the bridge the stream banks are overgrown with *hau* (*Hibiscus tiliaceus*), red mangrove (*Rhizophora mangle*), and false *kamani* (*Terminalia catappa*). The stream bed comprises fine to coarse grain sand, but this substratum type is mostly below the water line. Preferred nesting habitat for sea turtles is sand above the shoreline. The stream banks in the project area are steep and the slopes would preclude sea turtles from crawling ashore to nest. A sand bar is present downstream from the South Kahana Bridge. The bar is intertidal—exposing as a function of stream flow and tidal condition—and is of insufficient elevation to be suitable for sea turtle nesting.

The nearest suitable habitat for turtle nesting is located at the sand beach fronting Kahana Bay approximately 250 m (820 ft) to the northeast of the bridge. Turtle nesting has not been documented at Kahana Bay (or in Kahana Stream) and the closest documented nesting sites for sea turtles is at Mālaekahana Beach, eight miles to the northeast (NOAA-Draft Map Guide to Marine Turtle Nesting and Basking in the Hawaiian Islands; Balazs and Parker, 2010).

The proposed project will not adversely affect sea turtles or their nesting habitat. If, despite the unlikelihood, a sea turtle did nest at Kahana Beach, the location would be too distant from the project to require a work stoppage. However, as with all in-water work, the presence of a sea turtle, monk seal or any ESA listed waterbird species within 50 m (164 ft) of the project work area would necessitate halting work until the animal voluntarily left the area.

Sincerely,

Chad Linebaugh
Aquatic and Marine Biologist
AECOS Inc.



WILSON OKAMOTO CORPORATION
ENGINEERS • PLANNERS

KAMEHAMEHA HIGHWAY, REPLACEMENT OF SOUTH KAHANA STREAM BRIDGE, PROJECT NO. BR-083-1 (55)

GEOTECHNICAL BORING LOCATIONS

PLATE 2

Figure 2. South Kahana Stream Bridge viewed from downstream.

Figure 3. South Kahana Stream Bridge viewed from upstream near mid-channel.

Figure 4. Right bank looking downstream from bridge.
Note-potential waterbird nesting location (center right).

Figure 5. Dryland taro patch *mauka* of highway near Trout Farm Rd.

APPENDIX H

7063-01 8/18/15 CC: DOT

NOTICE OF CONSULTATION SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT OF 1966 AS AMENDED (2006)
KAMEHAMEHA HIGHWAY, SOUTH KAHANA STREAM BRIDGE REPLACEMENT, DISTRICT OF KO'OLAULOA, ISLAND OF O'AHU, AHUPUA'A OF KAHANA
FEDERAL-AID PROJECT NUMBER: BR-083-1(55)
TAX MAP KEY PARCELS: [1] 5-2-002:001, 5-2-005:001 & 5-2-002:021

Notice is hereby given that the Federal Highway Administration (FHWA) and State of Hawaii Department of Transportation (HDOT) propose to replace the South Kahana Stream Bridge and realign both approaches to the bridge. This proposed project is a federally funded HDOT project. It will be considered a federal action and undertaking, as defined by Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (2006). The project site is on Kamehameha Highway at the southeast corner of Kahana Bay.

The project would result in taking a small portion of Ahupua'a O Kahana State Park for realignment of the roadway approaches to the replacement bridge. A temporary bypass bridge will be installed downstream or *makai* of the existing bridge for the duration of construction. In addition, a temporary access driveway will be provided to the two residential parcels affected by the temporary bypass.

The revised placement of the temporary bridge on the downstream side requires reinitiating Section 106 consultation.

The Area of Potential Effect (APE) for this project occupies about 3.6 acres or 156,000 square feet. It extends along and on both sides of the Highway and is approximately 1,100 feet long by 200 feet wide, at its widest point. The landside area of the APE on both sides of the stream consists of mostly fill material which was placed during construction of the existing bridge.

Two house lots on the *makai* side may be affected by the project, including relocated utility lines, a relocated driveway, and a temporary house construction.

Pursuant to Section 106 of the NHPA, Native Hawaiian organizations and Native Hawaiian descendants with ancestral, lineal or cultural ties to, cultural knowledge or concerns for, and cultural or religious attachment to the proposed project area are requested to contact Ms. Christine Yamasaki via email at christine.yamasaki@hawaii.gov, or by U.S. Postal Service to Hawaii Department of Transportation, 601 Kamokila Blvd., Room 609, Kapolei, Hawaii 96707.

KAHALU'U AHUPUA'A, HAWAI'I ISLAND

NOTICE TO INTERESTED PARTIES IS HEREBY GIVEN that two historic properties (SIHP #s 50-10-37-12915 and 50-10-37-30254) containing burials were documented by Cultural Surveys Hawai'i, Inc. in the course of an archaeological inventory survey for the Kahaluu Ma Kai Project. The burial sites are located in the ahupua'a of Kahalu'u, North Kona District, Hawai'i Island, TMK [3] 7-8-013:002. The project proponent is Kamehameha Schools (KS) [contact: Mr. Jason Jeremiah, (808) 541-5376 / jajeremi@ksbe.edu].

SIHP -12915 is a coastal sand dune at which human burials have been discovered previously after several occasions of high surf. Past inadvertent discoveries at this site were handled by the State Historic Preservation Division (SHPD). No burials were found at this historic property during the current archaeological survey. SIHP -30254 is a set of highly fragmented human bone fragments found in a secondary context scattered throughout a layer of fill sediments. These fragments were discovered within an exploratory test excavation in an asphalted parking area and are not associated with any surface feature or subsurface cultural layer. Both of these burial sites are assessed as over 50 years old.

Background research indicates that in the Māhele Kahalu'u was awarded to the *ali'i* Victoria Kamāmalu. Fifty-nine *kuleana* or commoner claims were awarded within Kahalu'u, including seven within the archaeological survey project area: LCA 5632 to Keikihookama; LCA 5693 to Koolau; LCA 5649 to Kawakoekoe; LCA 5915 to Pawai; LCA 5966 to Maheu; LCA 6026 to Lanai/Ikaaka; and LCA 6027 to Kapiimi.

The decision to preserve in place or relocate these previously identified burials shall be made by the Hawai'i Island Burial Council and the SHPD in consultation with any recognized lineal and/or cultural descendants, per the requirements of HAR Chapter 13-300-33. Proper treatment of the burials shall occur in accordance with HAR Chapter 13-300-38 or 13-300-39.

It is hereby requested that persons having any knowledge of the identity or history of these burials immediately contact Mr. Herbert Poepoe, Hawai'i Island Burial Sites Specialist, located at 40 Po'okela Street, Hilo, Hawai'i, 96720 [(808) 933-7650 / Herbert.Poepoe@hawaii.gov], to provide information regarding appropriate treatment of these burials. All interested parties should respond to this notice by filing descendancy claim forms with the SHPD and/or by providing information to SHPD adequately demonstrating lineal descent from this specific burial or cultural descent from ancestors buried in the vicinity of the survey area.

BURIAL NOTICE – WAI'ANAE

NOTICE TO INTERESTED PARTIES IS HEREBY GIVEN that one unmarked burial site containing *iwi kūpuna* (human skeletal remains), was re-identified by Cultural Surveys Hawai'i, Inc. during the course of an archaeological inventory survey related to the proposed closure of selected Kamaile Plantation wells and production well sites within TMK: [1] 8-5-002:016, Wai'anae Ahupua'a, Wai'anae District, O'ahu.

A State Inventory of Historic Places site number of SIHP 50-80-07-5949 previously (2001) has been assigned to identify a habitation area comprised of a buried basalt platform or pavement (Feature 1) and the buried remains of one individual (Feature 2).

Following the procedures of Hawai'i Revised Statutes (HRS) Chapter 6E-43, and Hawai'i Administrative Rules (HAR) Chapter 13-300, the burial is believed to be over 50 years old. An evaluation of ethnicity has been made by the State Historic Preservation Division (SHPD) and the burial is believed to be Native Hawaiian.

Kuleana (*maka'āinana* Land Commission Awards) in the immediate vicinity include LCA 5408-C to Holokaa (or Holokau no Haupu), LCA 5409 to Makea, LCA 8189 to Hopuhopuaukele, LCA 8189-B to Manu, LCA 8307 to Kukanono, LCA 9487 to Kauo, LCA 9492 to Paaluhi, and LCA 9865 to Kaili.

The applicant for this project is the Honolulu Board of Water Supply, and the contact person is: Nancy Matsumoto, 630 South Beretania Street, Honolulu, HI 96843 [TEL (808) 748-5938. EMAIL nmatsumoto@hbws.org].

Proposed treatment is preservation in place. The O'ahu Island Burial Council (OIBC) has jurisdiction in this matter and the proper disposition of this burial will be determined by the OIBC, in consultation with any recognized lineal and/or cultural descendants, per the requirements of HAR Chapter 13-300-33. Appropriate treatment of the burial site shall occur in accordance with HAR Chapter 13-300-38.

All persons having any knowledge of the identity or history of this burial are requested to immediately contact Ms. Regina Hilo at the SHPD, located at Room 555, Kākuhihewa Building, 601 Kamōkila Blvd, Kapolei, HI 96706 [TEL (808) 692-8015. FAX (808) 692-8020. EMAIL regina.hilo@hawaii.gov].

All interested parties shall respond within thirty (30) days of this notice and file descendancy claim forms and/or provide information to the SHPD adequately demonstrating lineal descent from these specific burials or cultural descent from ancestors buried in the same *ahupua'a* or district. ■

H-1

H-2

7068-01
10/1/15 98

cc: DOT

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Public Notice | Public Notice | Public Notice

NOTICE OF RE-CONSULTATION SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT OF 1966 AS AMENDED (2006) AND REQUEST FOR COMMENT SECTION 4(F) OF THE DEPARTMENT OF TRANSPORTATION ACT 1966 (49 U.S.C. §303)

KAMEHAMEHA HIGHWAY, SOUTH KAHANA STREAM BRIDGE REPLACEMENT DISTRICT OF KOOLAULOA, ISLAND OF OAHU, AHUPUAA OF KAHANA FEDERAL-AID PROJECT NUMBER: BR-083-1(55) TAX MAP KEYS: [1] 5-2-002:001; 5-2-005:001; 5-2-005; 5-2-005:022; and 5-2-005:023

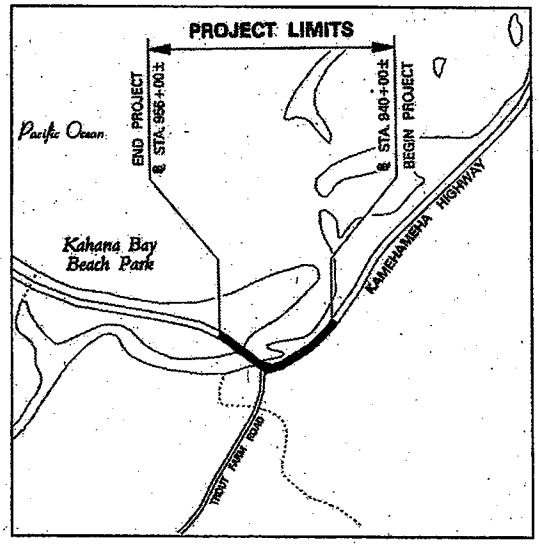
Notice is hereby given that the Federal Highway Administration (FHWA) and State of Hawaii Department of Transportation (HDOT) propose to replace the South Kahana Stream Bridge and realign both approaches to the bridge. This proposed project is a federally funded HDOT project. It will be considered a federal action and undertaking, as defined by Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (2006). The project site is on Kamehameha Highway at the southeast corner of Kahana Bay. The project would result in incorporating a small portion of Ahupua'a O Kahana State Park into the HDOT right-of-way for realignment of the roadway approaches to the replacement bridge. A temporary detour road and bypass bridge will be installed downstream (makai) of the existing bridge for the duration of construction.

The Area of Potential Effect (APE) for this project occupies about 3.6 acres. It extends along and on both sides of the Highway and is approximately 1,100 feet long by 200 feet wide, at its widest point. The landside area of the APE on both sides of the stream consists of mostly fill material which was placed during construction of the existing bridge.

Ahupua'a O Kahana State Park is a public park covered by Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. §303). Incorporating a portion the Park is not anticipated to adversely affect the activities, features, or attributes that make the Park eligible for Section 4(f) protection. 23 CFR 774.17 defines a *de minimis* impact as one that will not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f). HDOT plans to request that FHWA determine the impacts to the Ahupua'a O Kahana State Park are *de minimis*. The public is invited to comment on this finding as noted below.

Pursuant to Section 106 of the NHPA, Native Hawaiian organizations and Native Hawaiian descendants with ancestral, lineal or cultural ties to, cultural knowledge or concerns for, and cultural or religious attachment to the proposed project area are requested to contact Ms. Christine Yamasaki via email at christine.yamasaki@hawaii.gov, or by U.S. Postal Service to Hawaii Department of Transportation, 601 Kamokila Blvd., Room 609, Kapolei, Hawaii 96707.

Please respond by October 30, 2015.



OAHU, AHUPUAA OF [illegible]

H-3

7068-01
11/2/15

FYI

----- Forwarded by Holly Yuen/HWY/HIDOT on 10/27/2015 04:29 PM -----

From: Christine Yamasaki/HWY/HIDOT
To: Howard Leslie <lesliesdrilling@aol.com>@STATEHIUS,
Date: 10/22/2015 10:57 AM
Subject: Re: KAMEHAMEHA HWY, SOUTH KAHANA STREAM BRIDGE REPLACEMENT DISTRICT OF KOOLAU, ISLAND OF OAHU, AHUPUAA OF KAHANA FED. AID PROJECT # BR-083-1(55)

RSP TO OCT 1, 2015
NEWSPAPER ADVICE

Aloha Howard,

Thank you for reaching out to us and sending me your email below. At this time, the project is still in the preliminary design phase.

If you have any further questions, please don't hesitate to contact me.

Chris

From: Howard Leslie <lesliesdrilling@aol.com>
To: Christine.yamasaki@hawaii.gov,
Date: 10/22/2015 10:32 AM
Subject: KAMEHAMEHA HWY, SOUTH KAHANA STREAM BRIDGE REPLACEMENT DISTRICT OF KOOLAU, ISLAND OF OAHU, AHUPUAA OF KAHANA FED. AID PROJECT # BR-083-1(55)

Aloha Christine Yamasaki,

My name is Howard K. Leslie Sr., a Native Hawaiian and sole owner of Leslie's Drilling (with son, Sam K. Leslie- driller) based in Mountain View on the Big Island of Hawaii, and I am writing to you regarding the South Kahana Stream Bridge Replacement project mentioned above. I do have Native Hawaiian ancestral ties to Hawaiian lands from Waimanalo to Lai'e, and first hand knowledge of the replacement of the North Kahana stream bridge project awarded to Kaikor Construction Co. Inc. on 04/20/2009 because my son Sam and I did some of the geotechnical drilling on that project for Kaikor. While I am not a current resident of Kahana and was unable to attend the HDOT public meeting held at the Kahana Community Center from 7p.m.-8p.m. at Kahana Community Center addressing resident and public concerns, I am well aware of much of the concerns from all sides (Environmental Pollution, disruption of ancestral/possible burial lands, staying within budget/cost of project, traffic, noise,,possible power outages/interference, etc.). Pardon my long introduction, but I really only have 1 question regarding this project; since the meeting at Kahana Community Center, I have not seen any further news on this... would you happen to know if a general contractor has already been selected for this or what phase is this project currently in? I can be reached via this e-mail or at (808) 968-6294 any time.

Mahalo for your time,

Howard K. Leslie Sr.
lesliesdrilling@aol.com

H-4

John Sakaguchi

From: Holly.Yuen@hawaii.gov
Sent: Tuesday, October 27, 2015 4:29 PM
To: Brian A. Lock
Subject: Fw: KAMEHAMEHA HWY, SOUTH KAHANA STREAM BRIDGE REPLACEMENT DISTRICT OF KOOLAU, ISLAND OF OAHU, AHUPUAA OF KAHANA FED. AID PROJECT # BR-083-1(55)

Categories: Filed by Newforma

FYI

----- Forwarded by Holly Yuen/HWY/HIDOT on 10/27/2015 04:29 PM -----

From: Christine Yamasaki/HWY/HIDOT
To: Howard Leslie <lesliesdrilling@aol.com>@STATEHIUS,
Date: 10/22/2015 10:57 AM
Subject: Re: KAMEHAMEHA HWY, SOUTH KAHANA STREAM BRIDGE REPLACEMENT DISTRICT OF KOOLAU, ISLAND OF OAHU, AHUPUAA OF KAHANA FED. AID PROJECT # BR-083-1(55)

Aloha Howard,

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If you have any further questions, please don't hesitate to contact me.

Chris

From: Howard Leslie <lesliesdrilling@aol.com>
To: Christine.yamasaki@hawaii.gov,
Date: 10/22/2015 10:32 AM
Subject: KAMEHAMEHA HWY, SOUTH KAHANA STREAM BRIDGE REPLACEMENT DISTRICT OF KOOLAU, ISLAND OF OAHU, AHUPUAA OF KAHANA FED. AID PROJECT # BR-083-1(55)

Aloha Christine Yamasaki,

My name is Howard K. Leslie Sr., a Native Hawaiian and sole owner of Leslie's Drilling (with son, Sam K. Leslie- driller) based in Mountain View on the Big Island of Hawaii, and I am writing to you regarding the South Kahana Stream Bridge Replacement project mentioned above. I do have Native Hawaiian ancestral ties to Hawaiian lands from Waimanalo to Lai'e, and first hand knowledge of the replacement of the North Kahana stream bridge project awarded to Kaikor Construction Co. Inc. on 04/20/2009 because my son Sam and I did some of the geotechnical drilling on that project for Kaikor. While I am not a current resident of Kahana and was unable to attend the HDOT public meeting held at the Kahana Community Center from 7p.m.-8p.m. at Kahana Community Center addressing resident and public concerns, I am well aware of much of the concerns from all sides (Environmental Pollution, disruption of ancestral/possible burial lands, staying within budget/cost of project, traffic, noise, possible power outages/interference, etc.). Pardon my long introduction, but I really only have 1 question regarding this project; since the meeting at Kahana Community Center, I have not seen any further news on this... would you happen to know if a general contractor has already been selected for this or what phase is this project currently in? I can be reached via this e-mail or at (808) 968-6294 any time.

Mahalo for your time,

Howard K. Leslie Sr.
lesliesdrilling@aol.com

DAVID Y. IGE
GOVERNOR

H-5

FORD N. FUCHIGAMI
DIRECTOR

Deputy Directors
JADE T. BUTAY
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

IN REPLY REFER TO:
HWY-DD 2.9134

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

November 2, 2015

TO: THE HONORABLE SUZANNE CASE, CHAIRPERSON
DEPARTMENT OF LAND AND NATURAL RESOURCES

ATTN: ALAN S. DOWNER, PH.D.
ADMINISTRATOR AND DEPUTY STATE HISTORIC PRESERVATION OFFICER
STATE HISTORIC PRESERVATION DIVISION

FROM: FORD N. FUCHIGAMI
FOR DIRECTOR OF TRANSPORTATION Jade T. Butay

SUBJECT: NATIONAL HISTORIC PRESERVATION ACT, SECTION 106
RE-CONSULTATION
KAMEHAMEHA HIGHWAY, SOUTH KAHANA STREAM BRIDGE
REPLACEMENT, DISTRICT OF KOOLAULOA, ISLAND OF OAHU
AHUPUAA OF KAHANA, FEDERAL-AID PROJECT NO. BR-083-1(55)
TAX MAP KEYS: [1] 5-2-002:001, 5-2-005:001, 5-2-005, 5-2-005:022, and 5-2-005:023

On behalf of the Federal Highway Administration (FHWA), the State of Hawaii Department of Transportation (HDOT) would like to invite you to participate in re-consultation for the proposed bridge replacement project. The reason for this re-consultation is a change from an upstream temporary bypass bridge to a downstream temporary bypass bridge, which affects the Area of Potential Effect (APE).

The proposed project calls for the replacement of the South Kahana Stream Bridge and realignment of both approaches to the replacement bridge (the APE is depicted in Figure 1 and an overview of project plans is presented in Figure 2). The project site is on Kamehameha Highway at the southeast corner of Kahana Bay. In the vicinity of the bridge, Ahupuaa O Kahana State Park occupies both sides of the highway right-of-way which is state-owned land under the control of the Department of Land and Natural Resources (DLNR), Hawaii State Parks. The entrance to the state park lands is about 300 feet west of the bridge.

The proposed project will utilize federal funds and, as such, will be considered a federal action and undertaking, as defined by the Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (2006). Therefore, the FHWA will require compliance with the National Environmental Policy Act, NHPA, and other federal requirements. The FHWA has authorized the HDOT to act on behalf of the FHWA regarding the NHPA Section 106 notification and consultation. We would like to invite you to participate in the Section 106 re-consultation for the proposed project in accordance with Title 36 of the *Code of Federal Regulations*, Section 800.3. Changes to the project APE, including a change from an upstream temporary bypass to a downstream temporary bypass, have resulted in a decision to re-consult under Section 106 of the NHPA.

Originally constructed in 1927, the existing South Kahana Stream Bridge is one of a number of similar reinforced concrete slab bridges built along the windward coast of Oahu around that time.

In May 2007, at the request of the DLNR State Historic Preservation Division (SHPD), the HDOT prepared photo documentation of the existing South Kahana Stream Bridge in compliance with the National Park Service Standards for Photographic Reproduction Historic American Engineering Record. The HDOT submitted the photographs to the SHPD. In 2013, as part of the update to the HDOT's *Hawaii State Historic Bridge Inventory and Evaluation,* the existing South Kahana Steam Bridge was determined to be eligible for listing on National Register of Historic Places.

Overview of the undertaking

The APE for this project would occupy about 3.6 acres or 156,000 square feet. It extends along and on both sides of the Highway and is approximately 1,100 feet long by 290 feet wide, at its widest point. About 39,400 square feet of the APE (25% of the total) lies within the boundaries of South Kahana Stream. The landside area of the APE on both sides of the stream is about 2.7 acres or 130,000 square feet and consists mostly of fill material which was placed there during construction of the existing bridge. The project would incorporate a small portion of Ahupuaa O Kahana State Park as part of the HDOT right-of-way for realignment of the roadway approaches to the replacement bridge. A temporary detour road and bypass bridge would be installed north or downstream of the existing bridge for the duration of construction. In addition, a temporary access driveway would be provided to the two residential parcels affected by the temporary bypass.

Historical, Cultural, and Archaeological Background

It is likely that this Koolau region of Oahu was settled early and was an area of dense population (Handy & Handy 1972:271). Kirch (1985:69) comments that:

> "For the early Polynesians with their mixed horticultural and fishery subsistence base, the windward Oahu valleys were an ideal locus in which to establish permanent settlements."

Elspeth Sterling (1978) describes the vicinity of the project area as follows:

> "Nearer the sea, a group of small terraces, apparently watered by springs, is under cultivation between the highway and the mountain east of Huilua Fishpond. From this point up the mouth of the valley for some distance there appear to be ten-ace flats under the guava and remains of cane plantings. (Sterling and Summers, 1978)."

Based on their chronometric analysis, Hommon and Bevacqua (1973) concluded that cultural deposits within a sand dune locality near Huilua fishpond, along the eastern shore of Kahana Bay (State Site 50-80-06-1546), date back to the 8111 Century AD. Early dates are being re-evaluated but few would doubt early settlement at Kahana.

Summary of Historic Properties within the APE

Based on available documents and research, no known historic properties have been identified within the APE (other than the bridge itself previously discussed).

The east side of the mouth of Kahana Valley is, however, relatively rich in archaeological sites (see Figure 3). Huilua Fishpond (SIHP # 50-80-06-0301), approximately 650 feet to the northeast, has been declared a National Historic Landmark. There have been burial finds on the *makai* side of Kamehameha Highway to the northeast.

Consultations

A Section 106 notice/advertisement will be included in the *Honolulu Star Advertiser* and Office of Hawaiian Affairs *Ka Wai Ola o OHA.* Native Hawaiian organizations and Native Hawaiian descendants with ancestral, lineal or cultural ties to, cultural knowledge or concerns for, and cultural or religious attachment to the proposed project area are asked to provide a response within 30 days of notification.

Section 106 consultation letters have also been sent to organizations or individuals that might attach significance to this area and invited them to participate in the process. See enclosed list.

We welcome any comments you have on this project's proposed improvements. We are particularly interested in any information you may have on the historic and cultural sites that have been recorded in the area or any other historic or cultural sites about which you may have knowledge. In addition, if you are acquainted with any persons or organization that is knowledgeable about the proposed project area, or any descendants with ancestral, lineal or cultural ties to or cultural knowledge or concerns for, and cultural or religious attachment to the proposed project area, we would appreciate receiving their names and contact information.

We would appreciate a written response within 30 days from date of receipt, to Christine Yamasaki, Project Manager, via email at christine.yamasaki@hawaii.gov or by U.S. Postal Service to Hawaii Department of Transportation, 601 Kamokila Boulevard, Room 609, Kapolei, Hawaii 96707.

Please feel free to contact Christine Yamasaki by telephone at (808) 692-7572, if you have any questions. We look forward to working with SHPD on these needed improvements.

Enclosures

hy/

c: FHWA (M. Otani), Wilson Okamoto Corp. (B. Lock)

bc: DIR, DEP-HWY, HWY, HWY-DD (CY), HWY-DE

References Cited

Handy, E.S. Craighill and Elizabeth G. Handy

1972 *Native Planters in Old Hawaii: Their Life, Lore, and Environment*, B.P. Bishop Museum Bulletin 233, B.P. Bishop Museum, Honolulu, HI.

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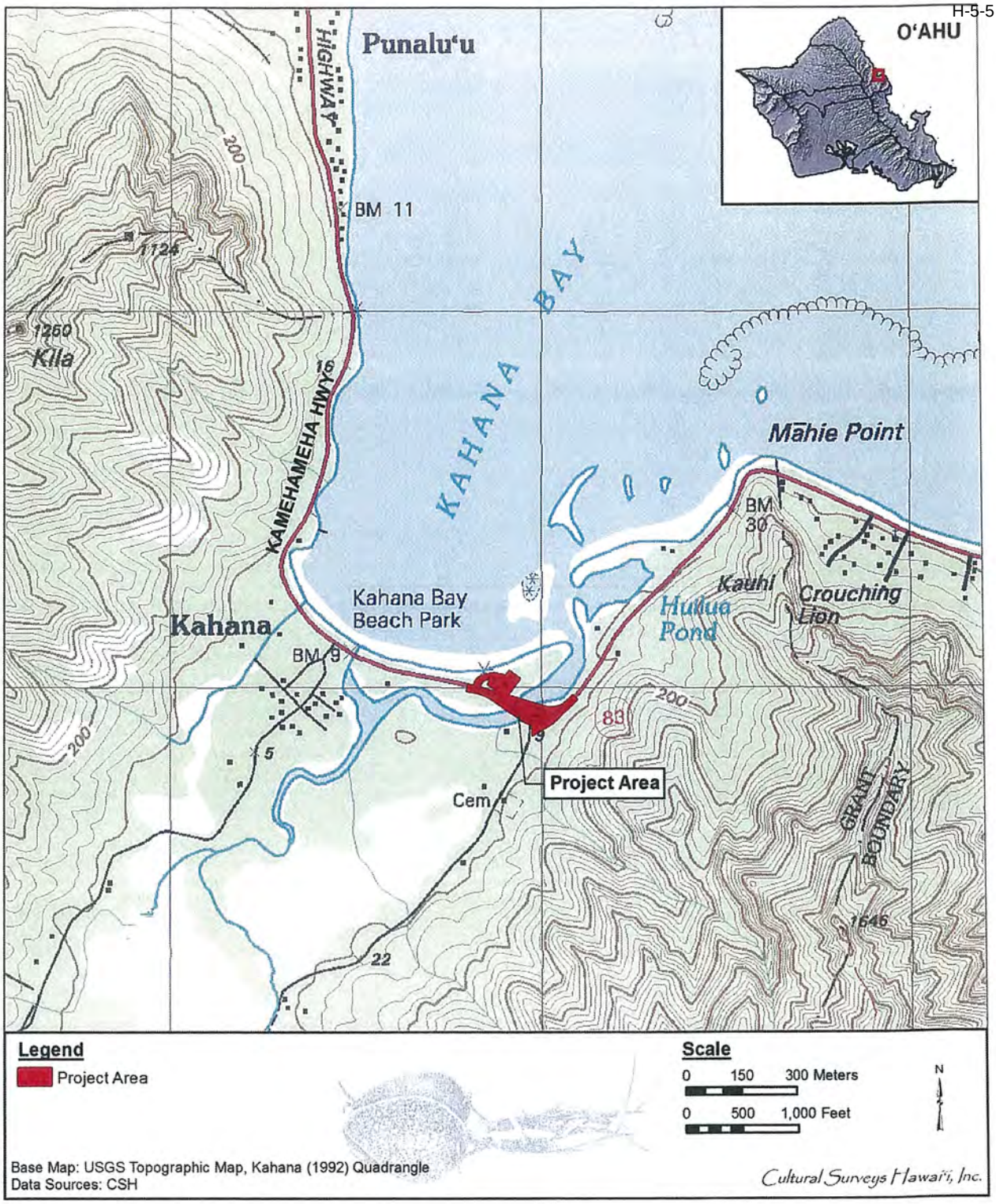

Figure 1. 1992 Kahana U.S. Geological Survey 7.5-minute topographic quadrangle showing the project Area of Potential Effect

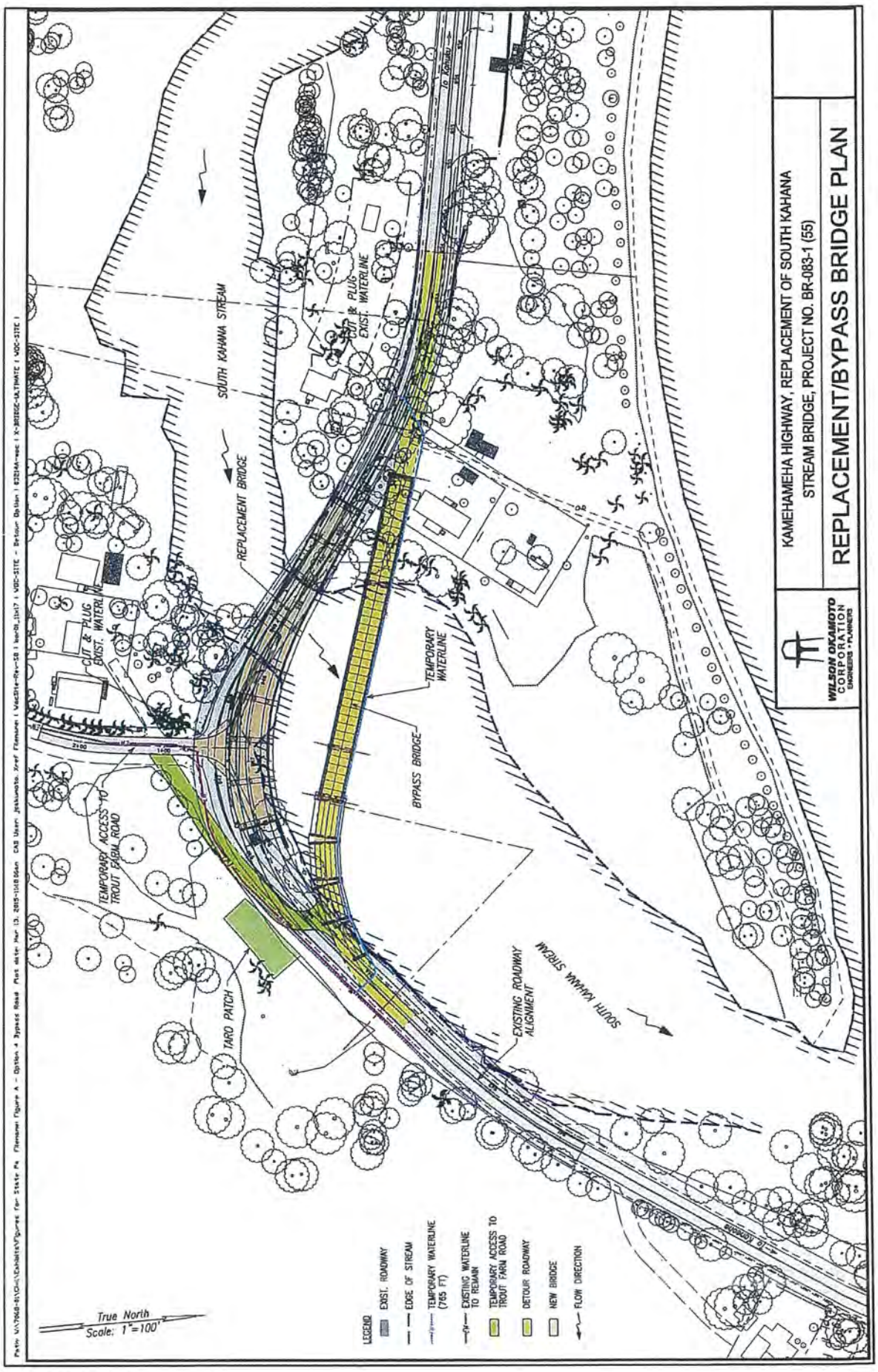

Figure 2. Map showing proposed temporary bypass road and bridge at South Kahana Stream

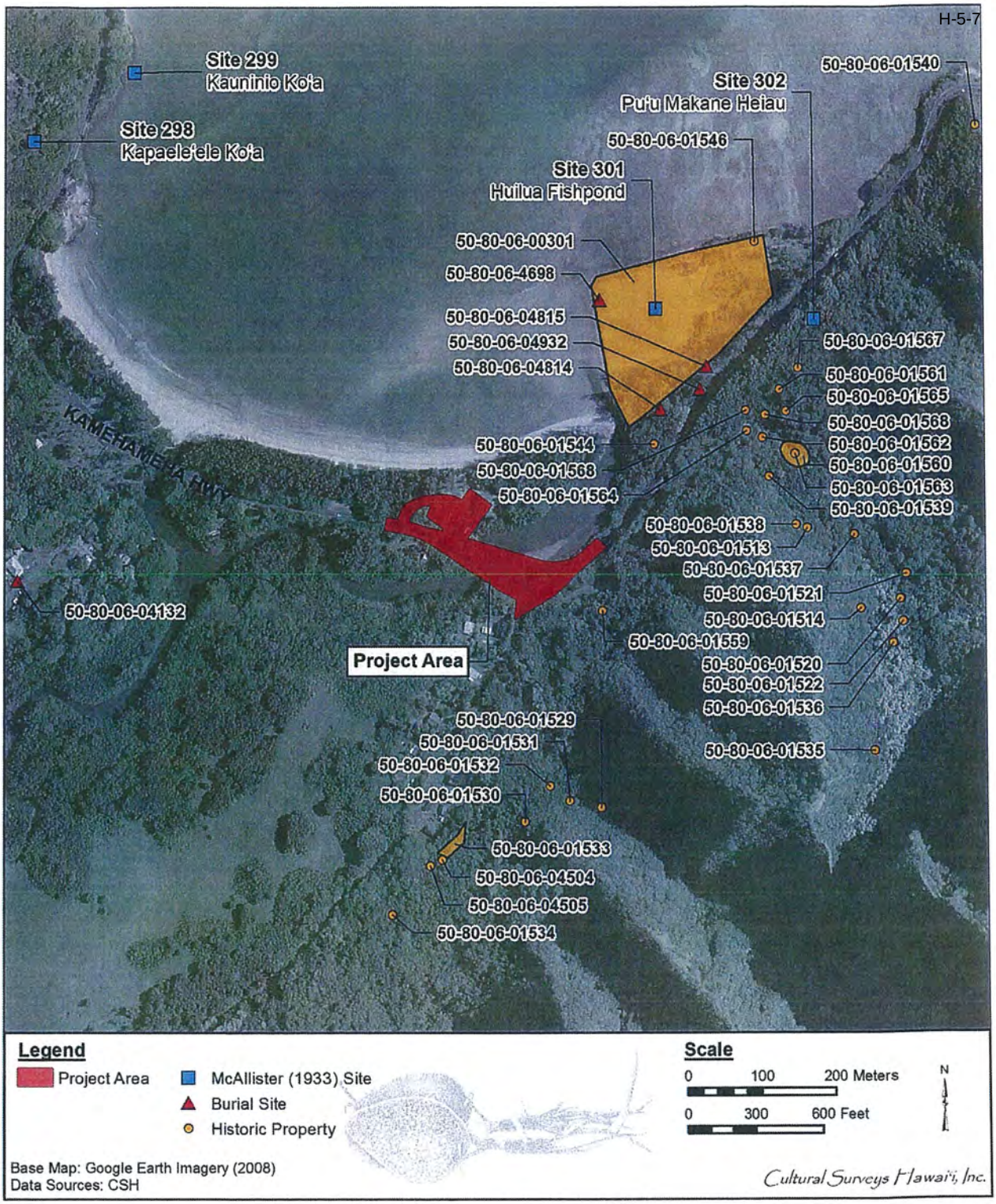

Figure 3 Aerial photograph showing the location of historic properties and burial finds in the immediate vicinity of proposed South Kahana Stream Bridge improvements

H-6

DAVID Y. IGE
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FORD N. FUCHIGAMI
DIRECTOR

Deputy Directors
JADE T. BUTAY
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

IN REPLY REFER TO:
HWY-DD 2.9135

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

November 23, 2015

Ms. May Au
52-236 Kamehameha Hwy
Kahana, Hawaii 96717

Dear Ms. Au:

Subject: National Historic Preservation Act, Section 106 Re-Consultation
Kamehameha Highway, South Kahana Stream Bridge Replacement
District of Koolauloa, Island of Oahu, Ahupuaa of Kahana
Federal-Aid Project No. BR-083-1(55)
Tax Map Keys: [1] 5-2-002:001, 5-2-005:001, 5-2-005, 5-2-005:022, and 5-2-005:023

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Sincerely,

FORD N. FUCHIGAMI
Director of Transportation

Enclosures

hy/

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bc: DIR, DEP-HWY, HWY, HWY-DD (CY), HWY-DE

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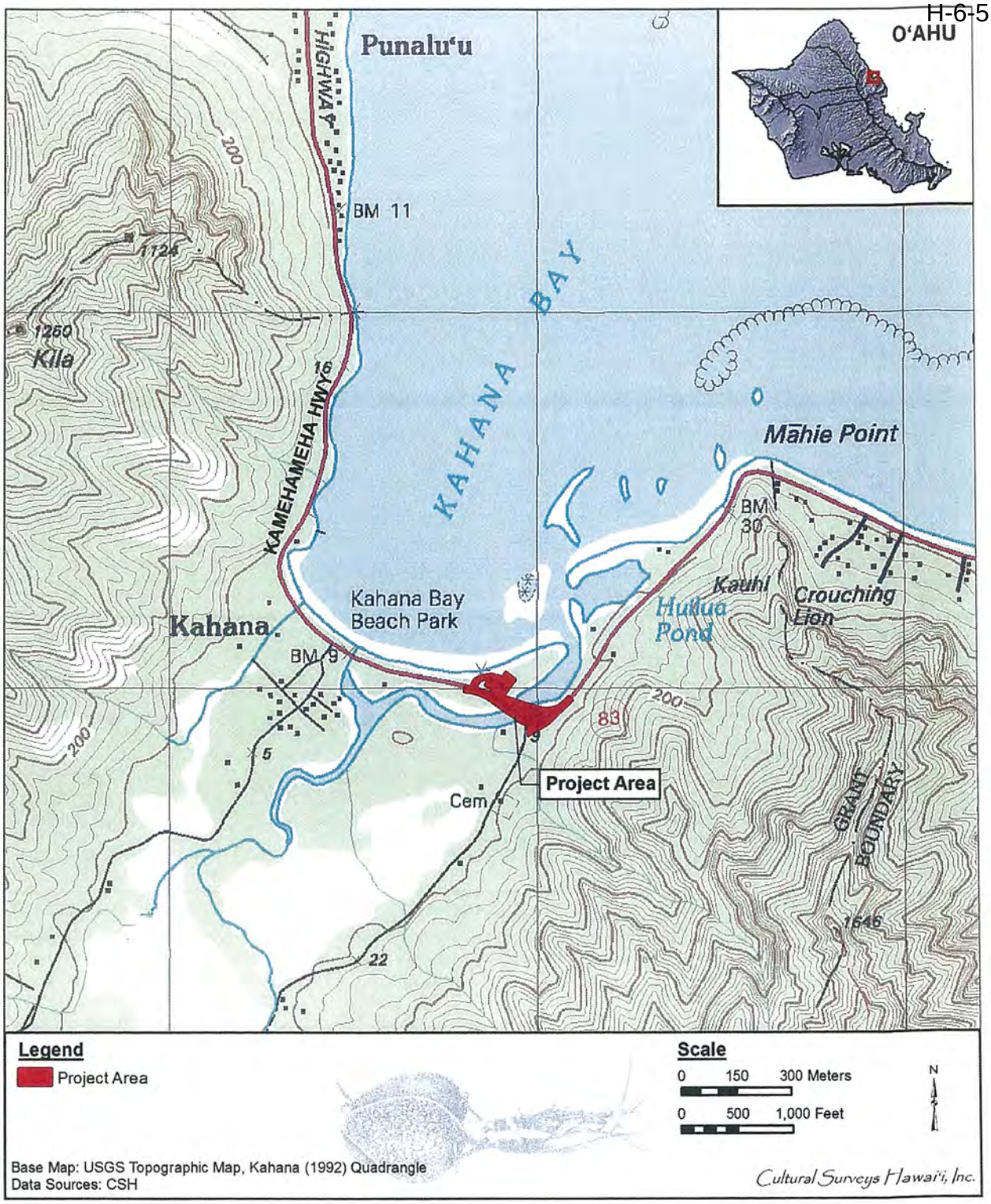

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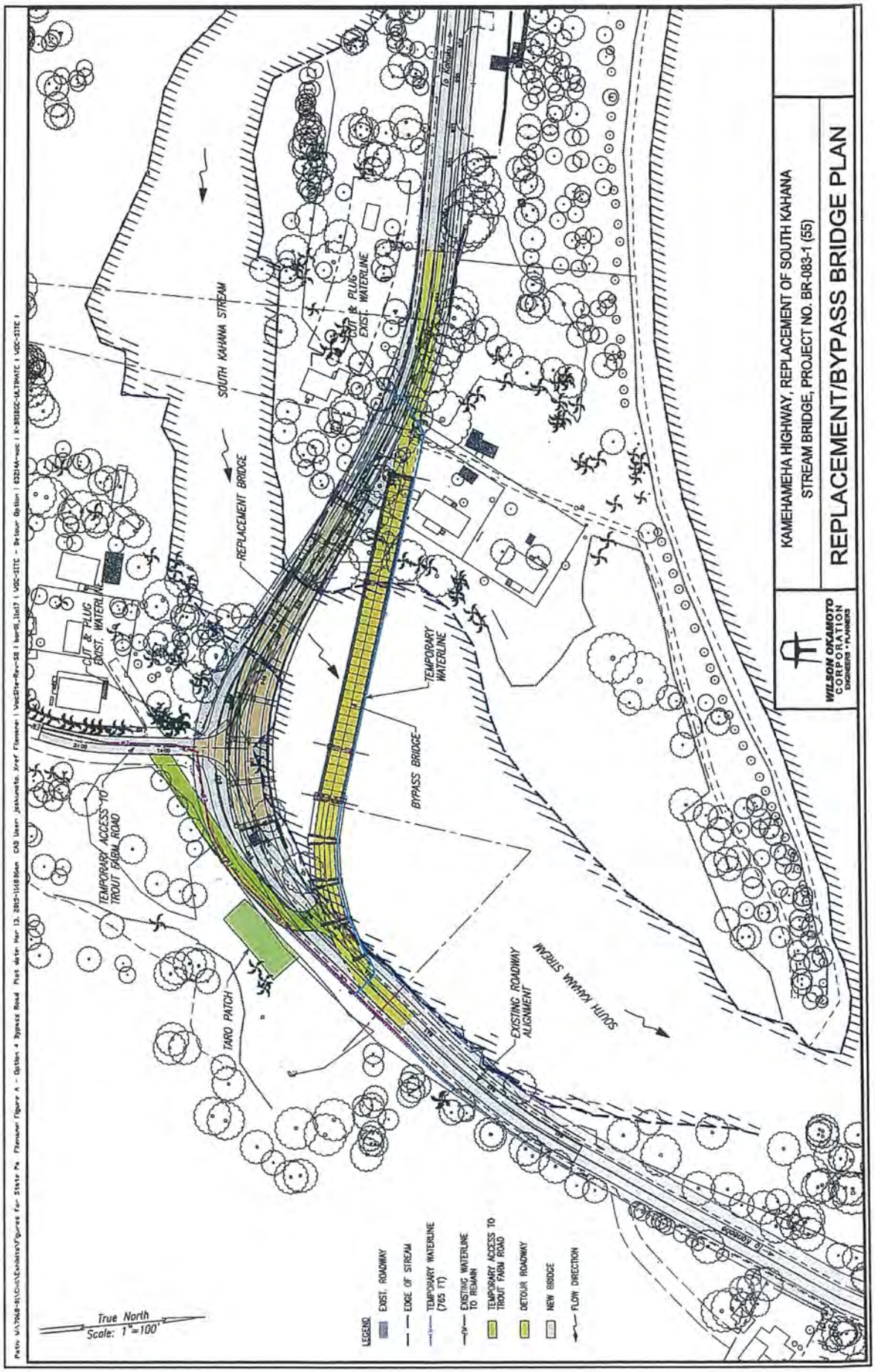

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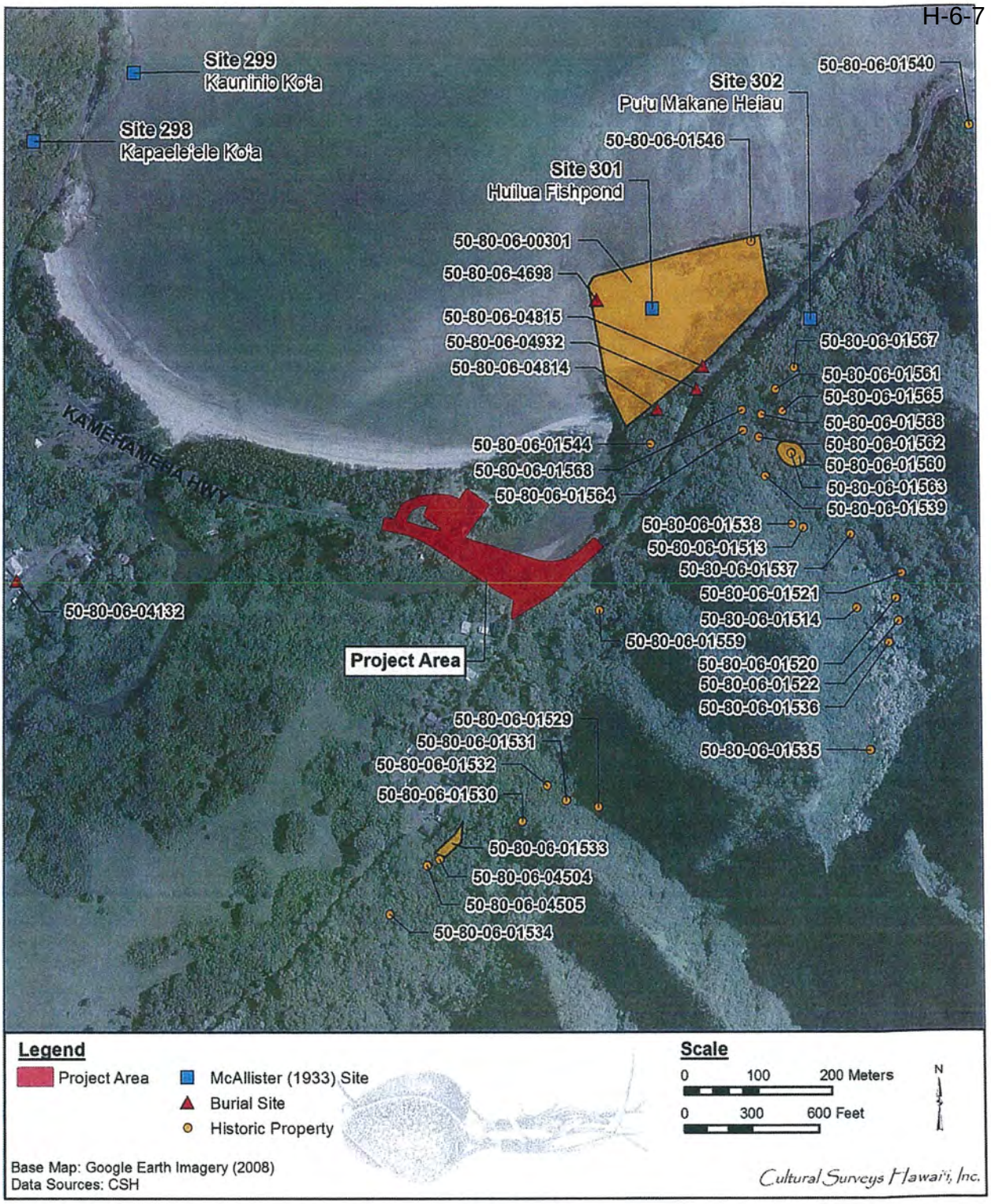

Figure 3 Aerial photograph showing the location of historic properties and burial finds in the immediate vicinity of proposed South Kahana Stream Bridge improvements

Kamehameha Highway, South Kahana Stream Bridge Replacement
Section 106 Consulting Parties

May Au
Grace Anthony
James Anthony
Ululani Beirne
George Dela Cerna, Jr.
Mr. & Mrs. George Dela Cerna, Sr.
Alvina Gorai Domigo
Charles Fernandez
Jose Gaceta
Leona Garvida
Clinton Gorai
Kapiolani Gorai
Sunny Greer
Ronald Johnson
Sherrie Johnson
Charmaine Kahala
Duke Kahala
Kailama Kahala
Vanny & Lisa Kamakaala
John Kapapa
Sharon Keaweehu
John Mainaaupo, Jr.
Jolene Peapealalo
Norman Shapiro
Sheila Sherman
Carol N. Soga
Beatrice Soga
Orepa Ahsan Tanouye
Ben Shafer
Ipo Malepe
Dansette P. Martinez
Ervin Kahala
Moses Kahala
Darryl & Lena Soliven
Thoran Evans
Henry Wasson
Howard Furuya
Charles Mahoe Kaaukai
Leimomi Hawkins

Hui Malama I Na Kupuna o Hawaii Nei
Kamehameha Schools-Community Relations and Communciations Group, Government Relations
Office of Hawaiian Affairs
Oahu Island Burial Council
Hoala Aina Kupono Corporation
Koolauloa Hawaiian Civic Club
Friends of Kahana
Kahana Community Association
Kahana Planning Council
Aha Kane
Aha Moku O Maui Inc.
Aha Wahine
Ahupuaa o Molokai
Association of Hawaii Civic Clubs
Association Of Hawaiians for Homestead Lands
Au Puni O Hawaii
Council for Native Hawaiian Advancement
Friends of Iolani Palace
Hauouiwi Homestead Assocation of Lanai
Hawaiian Civic Club of Hilo
Hawaiian Community Assets, Inc.
Hui Hooniho
Hui Huliau
Kanu o ka Aina Learning Ohana
Koolau Foundation
Mahu Ohana
Makuu Farmers Association
Nanakuli Housing Corporation
Native Hawaiian Church
Native Hawaiian Economic Alliance
Native Hawaiian Education Council
Nekaifes Ohana
Pacific Agricultural Land Management Systems
Papa Ola Lokahi
Royal Hawaiian Academy of Tradiional Arts
The Friends of Hokulea and Hawaiiloa
The I Mua Group

H-8

PHONE (808) 594-1888

FAX (808) 594-1938

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
560 N. NIMITZ HWY., SUITE 200
HONOLULU, HAWAI'I 96817

HRD15-7213B

December 29, 2015

Christine Yamasaki
Department of Transportation
601 Kamokila Boulevard, Room 609
Kapolei, HI 96707

Re: National Historic Preservation Act – Section 106 Consultation
South Kahana Stream Bridge Replacement – Federal-Aid Project No. BR-083-1(55)
Kahana Ahupua'a, Ko'olauloa Moku, O'ahu Mokupuni

Aloha e Christine Yamasaki:

The Office of Hawaiian Affairs (OHA) is in receipt of your November 23, 2015 letter reopening consultation pursuant to Section 106 of the National Historic Preservation Act (NHPA). The State of Hawai'i-Department of Transportation is proposing the south Kahana stream bridge replacement project, Federal Aid Project No. BR-083-1(55).

According to your letter, the project re-consultation is changed from an upstream temporary bypass to a downstream temporary bypass bridge. Your letter mentioned that funding from the U.S. Department of Transportation-Federal Highway Administration will support this project, making it an "undertaking", as defined by the NHPA. The area of potential effect for the project will occupy about 3.6 acres or 156,000 square feet and will extend along both sides of the highway about 1,000 feet long by 290 feet wide.

Your letter notes no known historic properties have been identified within the area of potential effect. However, Kahana was a thriving fishing and farming village prior to western contact. The land around the project area, on the east side of the mouth of Kahana Valley, is rich in archaeological sites and contains the Huilua Fishpond, a National Historic Landmark, located about 650 feet to the northeast.

OHA has concerns about the impacts that subsurface disturbances for this project may have on cultural sites. The project letter lacks specific information about the project, such as the scope of work and the locations of staging areas. Another concern is the location of this project in close proximity of Kahana Bay. OHA notes that because burials in sand deposits that extended inland from the coast were a traditional Hawaiian burial practice, the possibility of encountering traditional Hawaiian burials and cultural deposits is great. Accordingly, OHA supports archaeological monitoring of any new ground excavation for this project.

OHA does request assurances that should iwi kūpuna or Native Hawaiian cultural deposits be identified during ground altering activities, all work will immediately cease and the appropriate agencies, including OHA, will be contacted pursuant to applicable law.

Thank you for the opportunity to provide comments. Should you have any questions, please contact Kathryn Keala at (808) 594-0272 or kathyk@oha.org.

'O wau iho nō me ka 'oia 'i'o,

Kamana'opono M. Crabbe, Ph.D.
Ka Pouhana, Chief Executive Officer

KC:kk

**Please address replies and similar, future correspondence to our agency:*
Dr. Kamana'opono Crabbe
Attn: OHA Compliance Enforcement
560 N. Nimitz Hwy, Ste. 200
Honolulu, HI 96817

H-9

DAVID Y. IGE
GOVERNOR

FORD N. FUCHIGAMI
DIRECTOR

Deputy Directors
JADE T. BUTAY
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

IN REPLY REFER TO:
HWY-DD 2.0973

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

February 25, 2016

TO: THE HONORABLE KAMANAOPONO M. CRABBE
CHIEF EXECUTIVE OFFICER
OFFICE OF HAWAIIAN AFFAIRS

FROM: FORD N. FUCHIGAMI
DIRECTOR OF TRANSPORTATION

SUBJECT: NATIONAL HISTORIC PRESERVATION ACT, SECTION 106
RE-CONSULTATION
KAMEHAMEHA HIGHWAY, SOUTH KAHANA STREAM BRIDGE
REPLACEMENT, DISTRICT OF KOOLAULOA, ISLAND OF OAHU
AHUPUAA OF KAHANA, FEDERAL-AID PROJECT NO. BR-083-1(55)
TAX MAP KEYS: [1] 5-2-002:001, 5-2-005:001, 5-2-005, 5-2-005:022, and 5-2-005:023

Thank you for your December 29, 2015, letter regarding the subject project. The Hawaii Department of Transportation (HDOT) understands your concerns that the proposed improvements may affect nearby archaeological and historic resources and will implement the necessary precautions to mitigate and minimize any potential impacts.

Work on the east approach will require construction of a temporary bypass bridge and widening the stream opening to 170 feet from the existing condition of approximately 90 feet. The replacement bridge subsurface disturbance will include construction of drilled shafts to support the bridge deck structure. This work will occur within the stream and on both banks, which consists mostly of fill material that was placed there during construction of the existing bridge. In addition, the temporary bypass bridge will involve work primarily within waters of the estuary of Kahana Stream. Construction of the temporary bypass bridge will proceed from the eastern end of the highway. The work will first require placement of metal pipe piles and pile caps in the water followed by construction of the bridge deck. Once the eastern end is complete, metal pipe piles will be installed on the western end and then a 400 foot long prefabricated truss will be pulled into place.

Based on the attached replacement/bypass bridge plan, very little subsurface work will be occurring on the landside area of the east approach. A comparison of the replacement/bypass bridge plan and the historic properties and burial map (attached) shows the bridge work and Area of Potential Effect will not extend into the identified historic properties area.

As a mitigation measure for construction within the stream and estuary, a small boat will be used to place a floating boom and silt curtain around the work area to contain silt and debris. This mitigation measure is intended to protect aquatic and marine resources, including those which exist in the Huilua Fishpond. In the past, the Army Corps of Engineers and the Department of Health have approved use of a floating boom and silt curtain as an appropriate mitigation measure for in water work.

Archeological monitoring is planned for this project, and an archeological monitoring plan will be submitted to the State Historic Preservation Division (SHPD) for their review and approval prior to start of construction. The contract documents and drawing notes will include specific procedures should historic sites, artifacts, or burials be encountered during construction. Work shall cease in the immediate vicinity of the find and the find shall be protected from further damage. The contractor shall immediately notify HDOT and SHPD, who will assess the significance of the find and recommend appropriate mitigations, if necessary. Please note that notification to the Office of Hawaiian Affairs shall be made by SHPD.

We appreciate your review and comments regarding this project. Should you have any questions, please contact Christine Yamasaki, Project Manager, via email at christine.yamasaki@hawaii.gov or by U.S. Postal Service to Hawaii Department of Transportation, 601 Kamokila Boulevard, Room 609, Kapolei, Hawaii 96707.

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Enclosures

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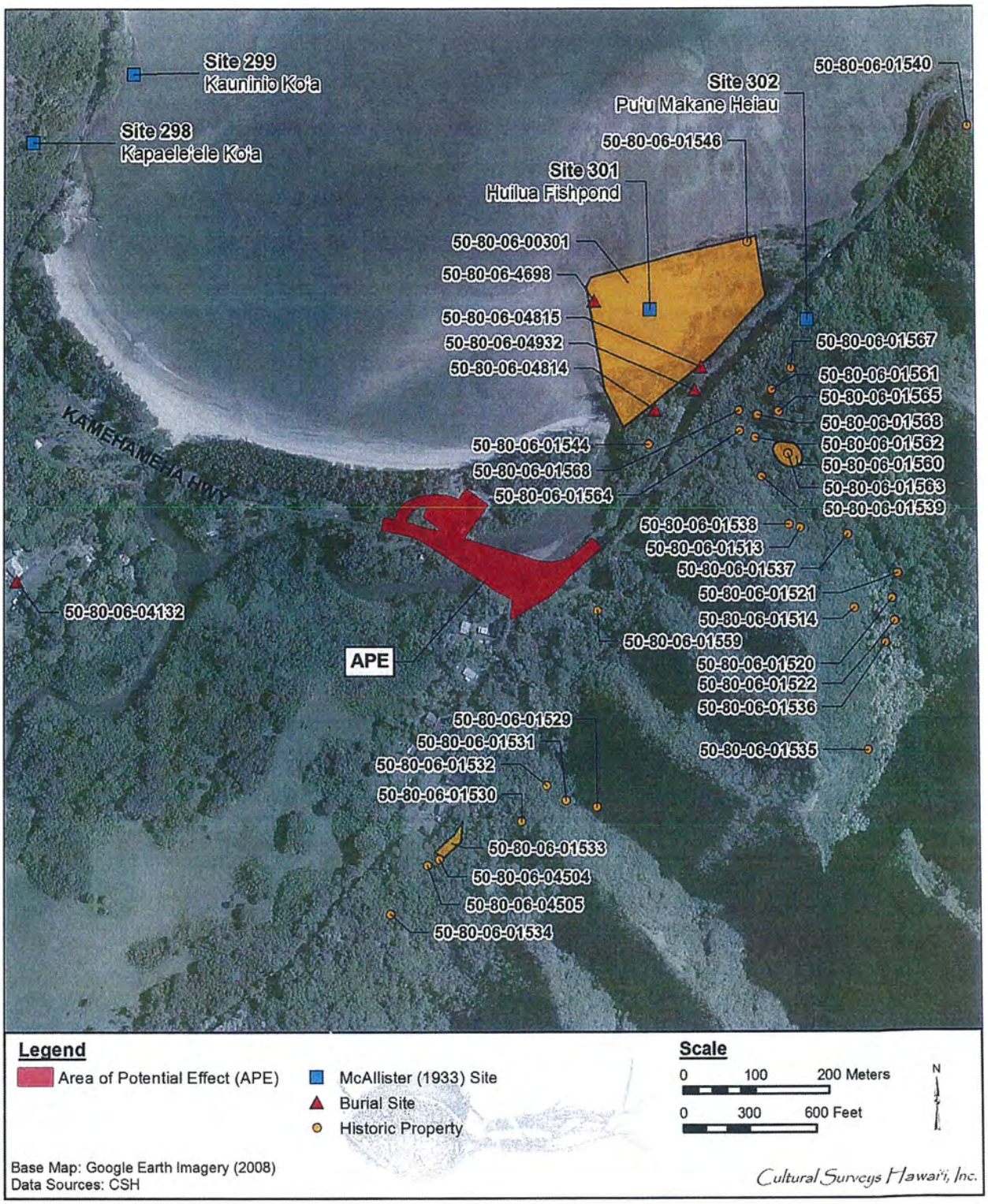

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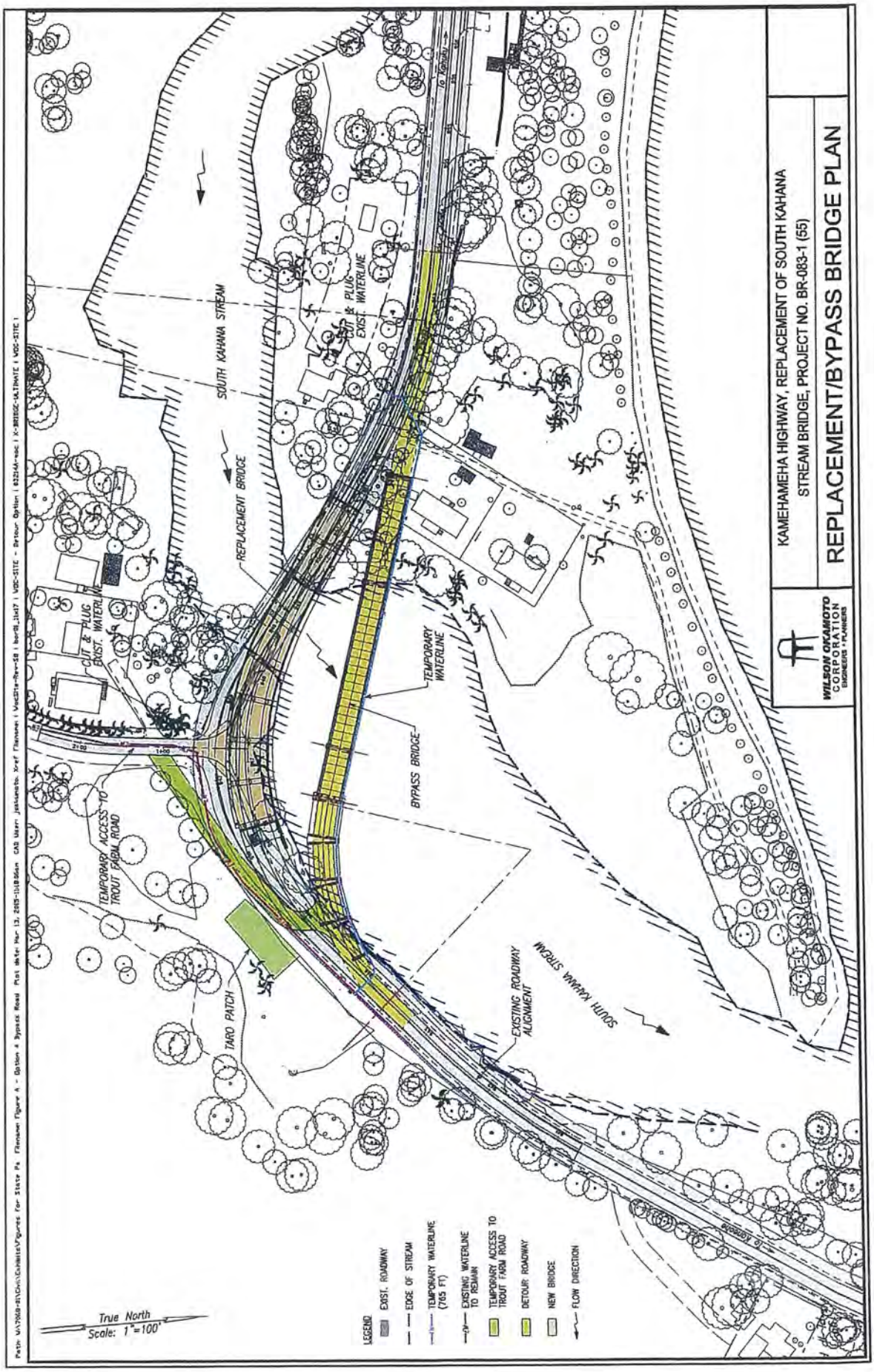

Map showing proposed temporary bypass road and bridge at South Kahana Stream

H-10

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IN REPLY REFER TO:
HWY-DD 2.0974

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869 PUNCHBOWL STREET
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February 19, 2016

Historic Hawaii Foundation
680 Iwilei Road, Suite 690
Kapolei, Hawaii 96817

Dear Sir/Madam:

Subject: National Historic Preservation Act, Section 106 Re-Consultation
Kamehameha Highway, South Kahana Stream Bridge Replacement
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Federal-Aid Project No. BR-083-1(55)
Tax Map Keys: [1] 5-2-002:001, 5-2-005:001, 5-2-005, 5-2-005:022, and 5-2-005:023

On behalf of the Federal Highway Administration (FHWA), the State of Hawaii Department of Transportation (HDOT) would like to invite you to participate in re-consultation for the proposed bridge replacement project. The reason for this re-consultation is a change from an upstream temporary bypass bridge to a downstream temporary bypass bridge, which affects the Area of Potential Effect (APE).

The proposed project calls for the replacement of the South Kahana Stream Bridge and realignment of both approaches to the replacement bridge (the APE is depicted in Figure 1 and an overview of project plans is presented in Figure 2). The project site is on Kamehameha Highway at the southeast corner of Kahana Bay. In the vicinity of the bridge, Ahupuaa O Kahana State Park occupies both sides of the highway right-of-way which is state-owned land under the control of the Department of Land and Natural Resources (DLNR), Hawaii State Parks. The entrance to the state park lands is about 300 feet west of the bridge.

The proposed project will utilize federal funds and, as such, will be considered a federal action and undertaking, as defined by the Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (2006). Therefore, the FHWA will require compliance with the National Environmental Policy Act, NHPA, and other federal requirements. The FHWA has authorized the HDOT to act on behalf of the FHWA regarding the NHPA Section 106 notification and consultation. We would like to invite you to participate in the Section 106 re-consultation for the proposed project in accordance with Title 36 of the *Code of Federal Regulations,* Section 800.3. Changes to the project APE, including a change from an upstream temporary bypass to a downstream temporary bypass, have resulted in a decision to re-consult under Section 106 of the NHPA.

Originally constructed in 1927, the existing South Kahana Stream Bridge is one of a number of similar reinforced concrete slab bridges built along the windward coast of Oahu around that time.

In May 2007, at the request of the DLNR State Historic Preservation Division (SHPD), the HDOT prepared photo documentation of the existing South Kahana Stream Bridge in compliance with the National Park Service Standards for Photographic Reproduction Historic American Engineering Record. The HDOT submitted the photographs to the SHPD. In2013, as part of the update to the HDOT's *Hawaii State Historic Bridge Inventory and Evaluation,* the existing South Kahana Stream Bridge was determined to be eligible for listing on National Register of Historic Places.

Overview of the undertaking

The APE for this project would occupy about 3.6 acres or 156,000 square feet. It extends along and on both sides of the Highway and is approximately 1,100 feet long by 290 feet wide, at its widest point. About 39,400 square feet of the APE (25% of the total) lies within the boundaries of South Kahana Stream. The landside area of the APE on both sides of the stream is about 2.7 acres or 130,000 square feet and consists mostly of fill material which was placed there during construction of the existing bridge. The project would incorporate a small portion of Ahupuaa O Kahana State Park as part of the HDOT right-of-way for realignment of the roadway approaches to the replacement bridge. A temporary detour road and bypass bridge would be installed north or downstream of the existing bridge for the duration of construction. In addition, a temporary access driveway would be provided to the two residential parcels affected by the temporary bypass.

Historical, Cultural, and Archaeological Background

It is likely that this Koolau region of Oahu was settled early and was an area of dense population (Handy & Handy 1972:271). Kirch (1985:69) comments that:

> "For the early Polynesians with their mixed horticultural and fishery subsistence base, the windward Oahu valleys were an ideal locus in which to establish permanent settlements."

Elspeth Sterling (1978) describes the vicinity of the project area as follows:

> "Nearer the sea, a group of small terraces, apparently watered by springs, is under cultivation between the highway and the mountain east of Huilua Fishpond. From this point up the mouth of the valley for some distance there appear to be ten-ace flats under the guava and remains of cane plantings. (Sterling and Summers, 1978)."

Based on their chronometric analysis, Hommon and Bevacqua (1973) concluded that cultural deposits within a sand dune locality near Huilua fishpond, along the eastern shore of Kahana Bay (State Site 50-80-06-1546), date back to the 8th Century AD. Early dates are being re-evaluated but few would doubt early settlement at Kahana.

Summary of Historic Properties within the APE

Based on available documents and research, no known historic properties have been identified within the APE (other than the bridge itself previously discussed).

The east side of the mouth of Kahana Valley is, however, relatively rich in archaeological sites (see Figure 3). Huilua Fishpond (SIHP # 50-80-06-0301), approximately 650 feet to the northeast, has been declared a National Historic Landmark. There have been burial finds on the *makai* side of Kamehameha Highway to the northeast.

Consultations

A Section 106 notice/advertisement will be included in the *Honolulu Star Advertiser* and Office of Hawaiian Affairs *Ka Wai Ola o OHA.* Native Hawaiian organizations and Native Hawaiian descendants with ancestral, lineal or cultural ties to, cultural knowledge or concerns for, and cultural or religious attachment to the proposed project area are asked to provide a response within 30 days of notification.

Section 106 consultation letters have also been sent to organizations or individuals that might attach significance to this area and invited them to participate in the process. See enclosed list.

We welcome any comments you have on this project's proposed improvements. We are particularly interested in any information you may have on the historic and cultural sites that have been recorded in the area or any other historic or cultural sites about which you may have knowledge. In addition, if you are acquainted with any persons or organization that is knowledgeable about the proposed project area, or any descendants with ancestral, lineal or cultural ties to or cultural knowledge or concerns for, and cultural or religious attachment to the proposed project area, we would appreciate receiving their names and contact information.

We would appreciate a written response within 30 days from date of receipt, to Christine Yamasaki, Project Manager, via email at christine.yamasaki@hawaii.gov or by U.S. Postal Service to Hawaii Department of Transportation, 601 Kamokila Boulevard, Room 609, Kapolei, Hawaii 96707.

Please feel free to contact Christine Yamasaki by telephone at (808) 692-7572, if you have any questions. We look forward to working with you and SHPD on these needed improvements.

Sincerely,

FORD N. FUCHIGAMI
Director of Transportation

Enclosures

hy/

c: FHWA (M. Otani), Wilson Okamoto Corp. (B. Lock)

bc: DIR, DEP-HWY, HWY, HWY-DD (CY), HWY-DE

References Cited

Handy, E.S. Craighill and Elizabeth G. Handy

1972 *Native Planters in Old Hawaii: Their Life, Lore, and Environment*, B.P. Bishop Museum Bulletin 233, B.P. Bishop Museum, Honolulu, HI.

Hommon, Robert and Robert Bevaqua

1973 *Excavations in Kahana Valley, Oahu*, 1972, Departmental Report Services 73-2, B.P. Bishop Museum, Honolulu, HI.

Kirch, Patrick V.

1985 *Feather Gods and Fishhooks: An Introduction to Hawaiian Archaeology and Prehistory*, University of Hawaii Press, Honolulu, HI.

Sterling, Elspeth P. and Catherine C. Summers

1978 *Sites of Oahu*, Bishop Museum Press, Honolulu, HI.

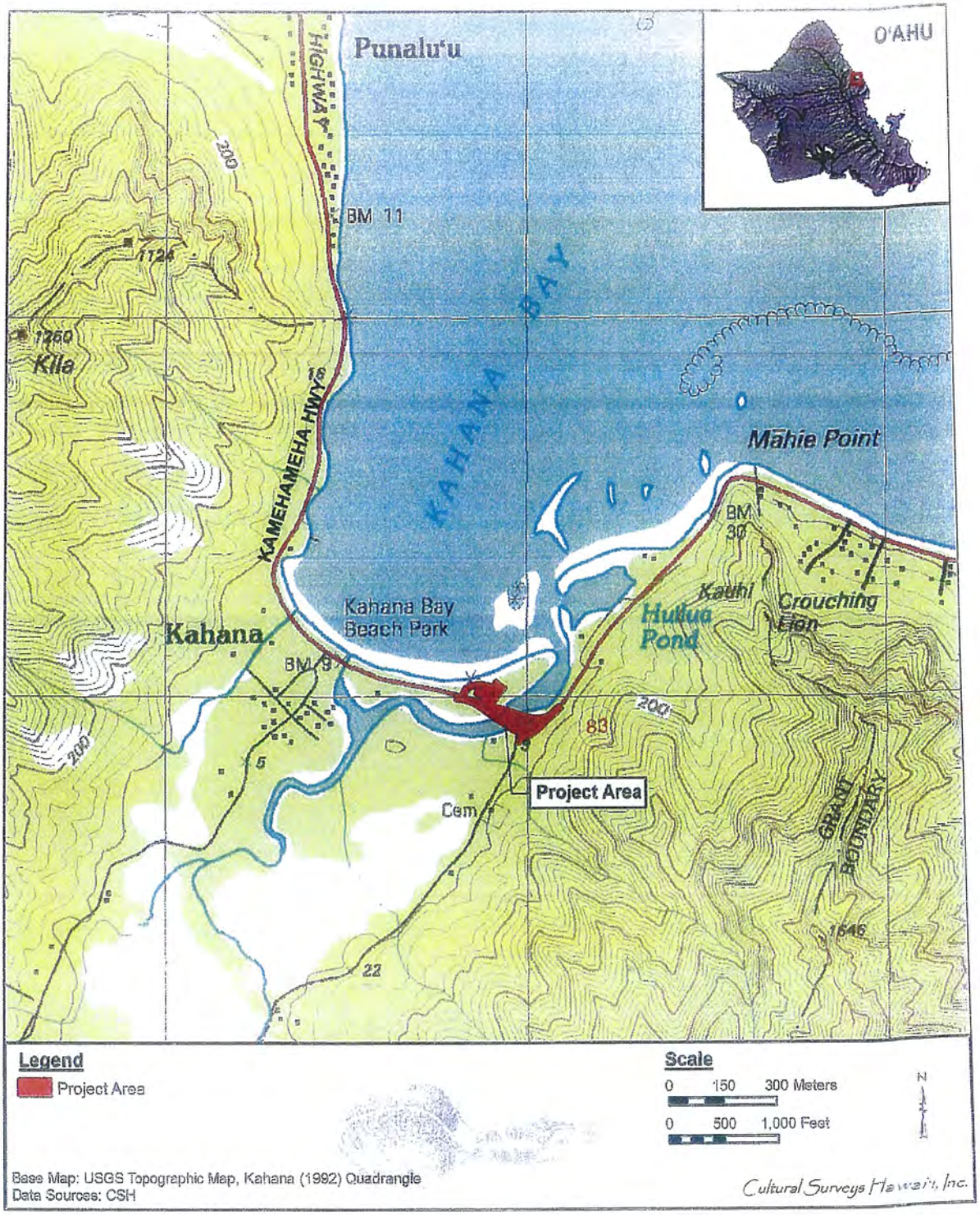

Figure 1. 1992 Kahana U.S. Geological Survey 7.5-minute topographic quadrangle showing the project Area of Potential Effect

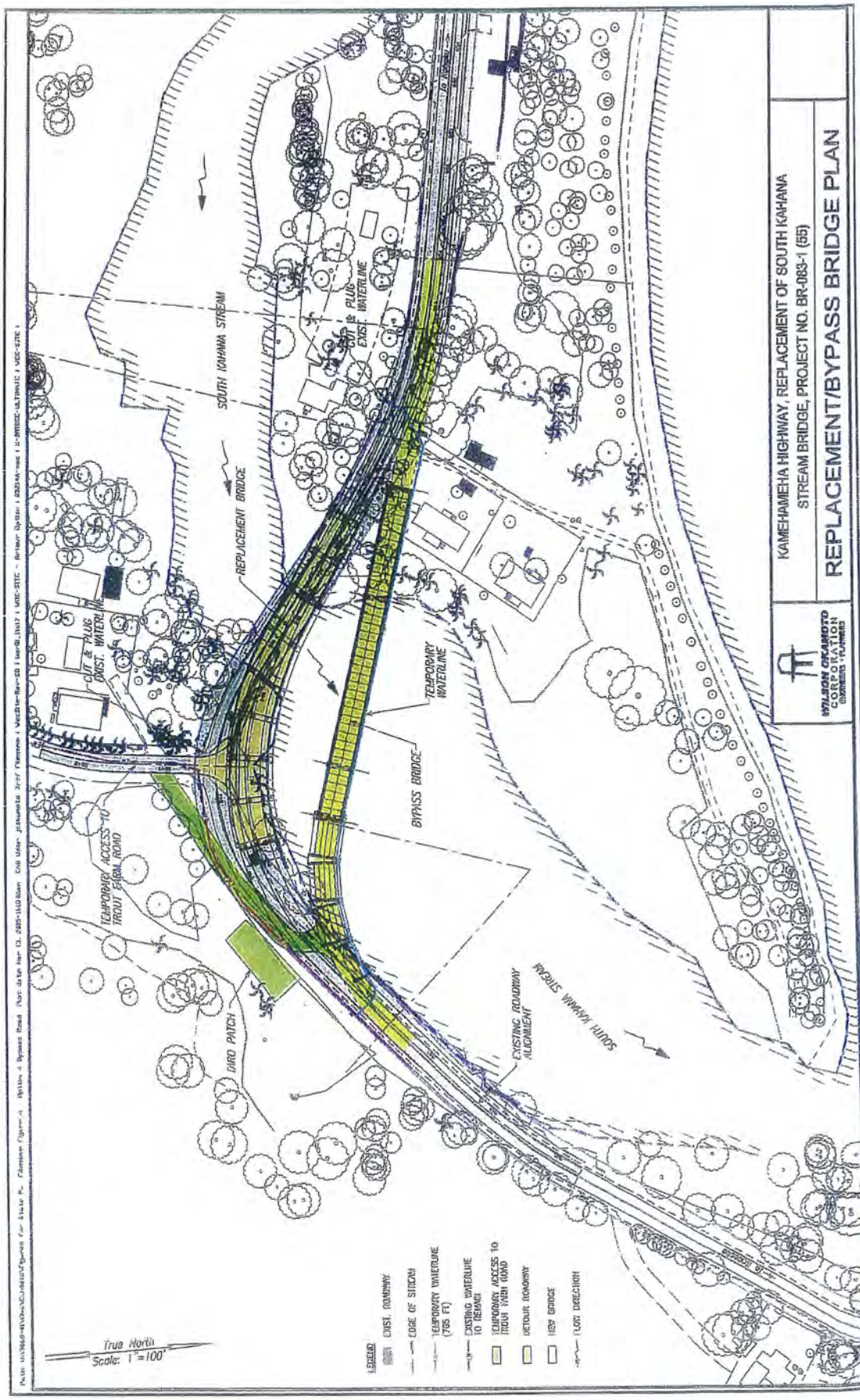

Figure 2. Map showing proposed temporary bypass road and bridge at South Kahana Stream

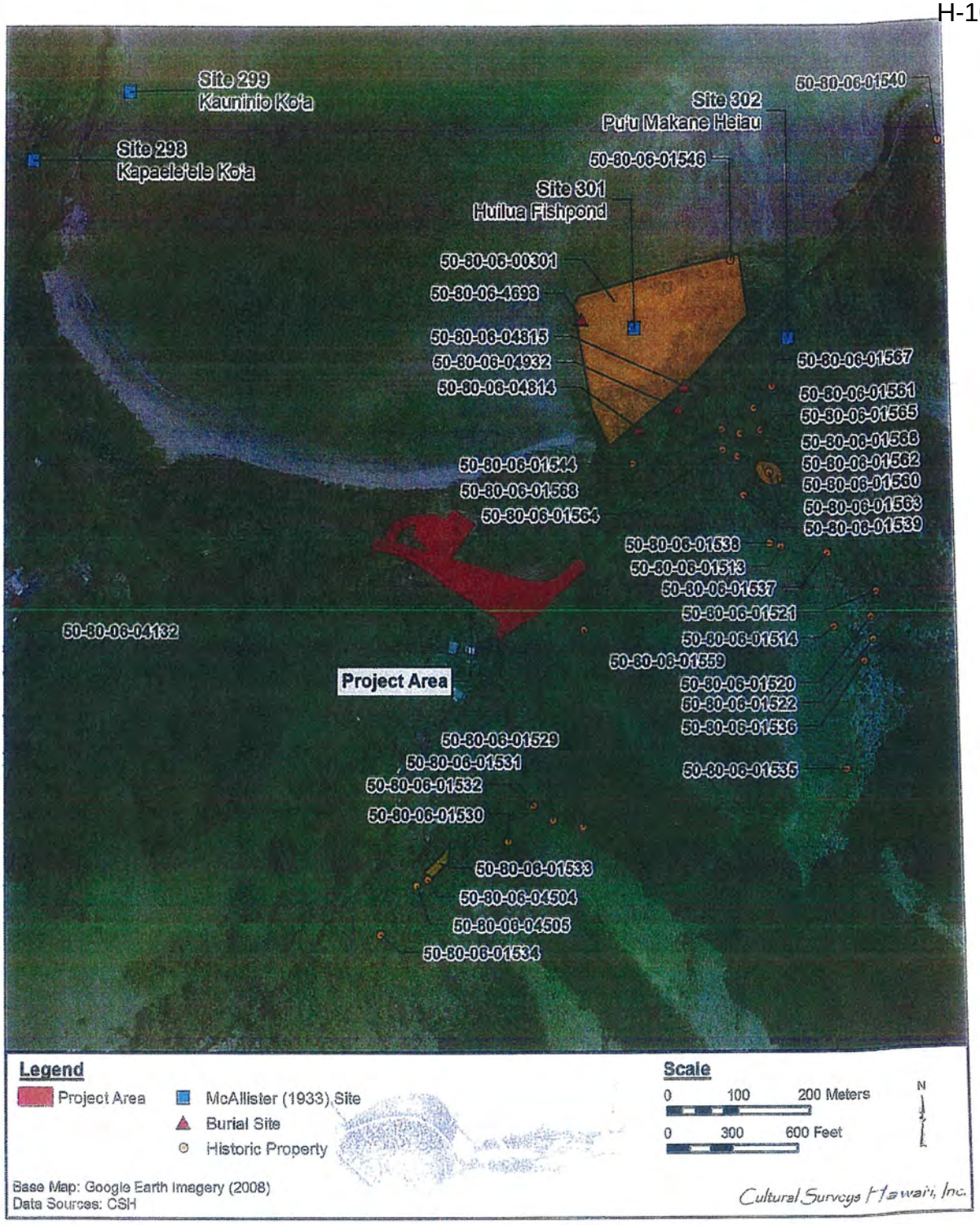

Figure 3 Aerial photograph showing the location of historic properties and burial finds in the immediate vicinity of proposed South Kahana Stream Bridge improvements

Kamehameha Highway, South Kahana Stream Bridge Replacement
Section 106 Consulting Parties

May Au
Grace Anthony
James Anthony
Ululani Beirne
George Dela Cerna, Jr.
Mr. & Mrs. George Dela Cerna, Sr.
Alvina Gorai Domigo
Charles Fernandez
Jose Gaceta
Leona Garvida
Clinton Gorai
Kapiolani Gorai
Sunny Greer
Ronald Johnson
Sherrie Johnson
Charmaine Kahala
Duke Kahala
Kailama Kahala
Vanny & Lisa Kamakaala
John Kapapa
Sharon Keaweehu
John Mainaaupo, Jr.
Jolene Peapealalo
Norman Shapiro
Sheila Sherman
Carol N. Soga
Beatrice Soga
Orepa Ahsan Tanouye
Ben Shafer
Ipo Malepe
Dansette P. Martinez
Ervin Kahala
Moses Kahala
Darryl & Lena Soliven
Thoran Evans
Henry Wasson
Howard Furuya
Charles Mahoe Kaaukai
Leimomi Hawkins

Hui Malama I Na Kupuna o Hawaii Nei
Kamehameha Schools-Community Relations and Communciations Group, Government Relations
Office of Hawaiian Affairs
Oahu Island Burial Council
Hoala Aina Kupono Corporation
Koolauloa Hawaiian Civic Club
Friends of Kahana
Kahana Community Association
Kahana Planning Council
Aha Kane
Aha Moku O Maui Inc.
Aha Wahine
Ahupuaa o Molokai
Association of Hawaii Civic Clubs
Association Of Hawaiians for Homestead Lands
Au Puni O Hawaii
Council for Native Hawaiian Advancement
Friends of Iolani Palace
Hauouiwi Homestead Assocation of Lanai
Hawaiian Civic Club of Hilo
Hawaiian Community Assets, Inc.
Hui Hooniho
Hui Huliau
Kanu o ka Aina Learning Ohana
Koolau Foundation
Mahu Ohana
Makuu Farmers Association
Nanakuli Housing Corporation
Native Hawaiian Church
Native Hawaiian Economic Alliance
Native Hawaiian Education Council
Nekaifes Ohana
Pacific Agricultural Land Management Systems
Papa Ola Lokahi
Royal Hawaiian Academy of Tradiional Arts
The Friends of Hokulea and Hawaiiloa
The I Mua Group

H-11

KAHANA COMMUNITY ASSOCIATION

GENERAL MEMBERSHIP MEETING: Tuesday, April 14, 2015, 7 pm

AGENDA

1. Call to Order
2. Roll Call. Quorum determination.
3. Treasurer's Report
4. Committee Reports (if any)
5. Old Business
6. New Business
7. Announcements: (a) Next meeting date, day, time, venue
   (b) Any other
8. Adjournment

State of Hawaii
Department of Transportation, Highway Division

April 14, 2015

Kamehameha Highway, South Kahana Stream Bridge Replacement
District of Koolauloa, Island of Oahu, State of Hawaii
Federal Aid Project No.: BR-083-1(55)

1.0 Project Purpose and Need

The purpose of the project is to replace the existing South Kahana Stream Bridge with a new replacement bridge. The project also involves realigning the east bridge approach and replacing potable water, power, and communication systems. Construction of the new bridge requires installation of a temporary bypass road and bridge to maintain highway traffic flow.

The existing bridge and the east approach together have been rated as functionally obsolete. The existing bridge, constructed in 1920's, exhibits modern deficiencies related to roadway width, hydraulic capacity, structural capacity, and seismic standards.

2.0 No Action

The existing bridge will remain unimproved and will not meet current Federal standards for a modern transportation facility. Kamehameha Highway is the only roadway corridor serving the Kahana Ahupua'a. Bridge replacement is essential to maintain transportation connectivity and emergency access along the Highway.

3.0 Bridge Replacement Scope of Work

The highway and bridge will be widened to include roadway shoulders for bicycles, pedestrians and emergency uses on both sides of the highway. The bridge will also be lengthened to accommodate a wider stream channel and augment stream flow. Portions of a large water transmission main and small potable water lateral, originally installed in 1960's, will be replaced. Overhead power, telephone, television, and street light cables along with an underground army cable will be relocated. Realignment of the bridge helps to widen the roadway curve on the Kaneohe side. The project would result in acquiring a small portion of Ahupua'a O Kahana State Park for realignment of the roadway approaches to the bridge.

4.0 Temporary Bypass Road Alternatives

A Temporary Bypass Road will be installed for the duration of construction to maintain continuous 2-way traffic along the highway. The temporary road will provide access to Trout Farm Road residents. The temporary road and bridge is critical for daily commuters and for emergency situations. In addition, the temporary road diverts motorists around the construction area for safety and for the contractor's efficiency, shortening overall construction duration.

Several alternatives for the temporary road are evaluated, see attached.

Temporary Mauka Roadway:

Pros:

- Shorter stream crossing

Cons:

- Undesirable highway alignment
  - Sharp highway curve on Kaneohe side
  - "S" curve on Kahuku side
  - Reduction in speed from 35 mph to 20 mph
- Close proximity to Johnson family residence
- Headlights shine on Johnson family residence
- Undesirable location of temporary driveway for Soga family residences
- Adverse impact to naturally occurring spring
- Potential impact to identified wetland

Temporary Makai Roadway Option 1:

Pros:

- Desirable highway alignment with reduced speed limit
- Less sharp highway curve
- Does not impact spring or wetland

Cons:

- Temporary relocation of Soga family residents due to inaccessibility to driveway and proximity to work zone
- Longer stream crossing

Temporary Makai Roadway Option 2:

Pros:

- Soga family residents do not need to relocate

Cons:

- Undesirable highway alignment
  - Longer stream crossing
  - Too many horizontal curves
  - Requires many street lights
  - Demolishes park's natural landscaping
  - Alignment close to beach, park recreational areas, and to rear of Soga family residences
- Temporarily relocates driveway to Soga family residents to rear of parcel
- High potential for adverse historic/archeological impacts
- Adverse impact to State Park 6(f) parcel
- Closer to Huilua Fishpond with potential adverse impacts

Phased Alternative (not pictured):

Pros:

- No temporary bypass road needed
- No temporary relocation of residents

Cons:

- Increased construction duration from 2.5 years to 6 years
- Increased cost due to additional construction complexity
- Frequent temporary highway closures (30 min. or less) during construction
- Construction duration nuisance to Kahana Valley residents, Windward area residents, park users and park employees.

5.0 Tentative Project Schedule

Advertise:	Summer 2016
Start Construction:	Winter 2016
End Construction:	Spring 2019


TROUT FARM ROAD
AHUPUA'A 'O KAHANA
STATE PARK
True North
Not To Scale
TEMPORARY
TROUT FARM ROAD
TEMPORARY
MAUKA
ROADWAY
TEMPORARY TROUT
FARM ROAD
OPTION 1
PERMANENT BRIDGE
TEMPORARY TROUT
FARM ROAD
OPTION 2
TEMPORARY MAKAI ROADWAY OPTION 1
SOUTH KAHANA STREAM
KAMEHAMEHA HIGHWAY
TEMPORARAY MAKAI ROADWAY
OPTION 2
KAMEHAMEHA HIGHWAY
KAHANA BAY
TEMPORARY ROADWAY ALIGNMENT OPTIONS
KAMEHAMEHA HIGHWAY, SOUTH KAHANA
STREAM BRIDGE REPLACEMENT,
PROJECT NO. BR-083-1 (55)

H-11-5

WILSON OKAMOTO CORPORATION
ENGINEERS | PLANNERS | CONSULTANTS

1907 S. BERETANIA STREET
HONOLULU, HAWAII 96826
PH: (808) 946-2277
FAX: (808) 946-2253

7068-01
July 10, 2015

MEETING MEMO

MEETING DATE: April 14, 2015
7:00pm

MEETING LOCATION: Kahana Community Center

PERSONS PRESENT:

1. Community Association Members
   - President – Ervin Kahala
   - Treasurer – May Au
   - Secretary – Jim Anthony
2. Community Members
   - Grace Anthony
   - Blanche Soga
   - Carol Soga
   - Mr. Gaceta
   - Unidentified
3. Department of Transportation
   - Ed Sniffen
   - Christine Yamasaki
   - Holly Yamauchi

Wilson Okamoto Corporation
- Brian Lock
- Allison Ako
- John Sakaguchi JS 7/10/2015

SUBJECT: Kamehameha Highway, South Kahana Stream Bridge Replacement, District of Koolauloa, Island of Oahu; Project No. BR-083-1(55)

PURPOSE: Share/update the community on the current status of the bridge project and get feedback on the bypass options

INFORMATION ITEMS:

1. Presenter : Brian Lock
   a. See attached presentation handout
   b. Note – Handout Correction
      Section 4.0 Temporary Bypass Road Alternatives – Temporary Mauka Roadway; Reduction in speed from 45 mph to 20 mph; "45" mph should be "35" mph

2. Community Members Questions/Comments
   a. Community Member: Are you in pursuit of a NEPA (National Environmental Policy) EIS (Environment Impact Statement)?
      DOT Response: We are currently in the process of getting an EA (Environmental Assessment).
   b. Community Member: It's my job to stop you from getting a FONSI (Finding of No Significant Impact). I will make you prepare an EIS. I want you to go through the "right" or "full" process.
   c. Community Member: I want a copy of the documents showing the functional obsolete rating.
   d. Community Member: Whose responsibility is it to contact the police to enforce the speed limit during construction?
      DOT Response: DOT notifies the courts and the police.
   e. Community Member: Did DOT meet with the the Sogas? What did they say?
      DOT Response: We did meet with the Sogas. Neither one wanted to relocate during construction. They requested another alternative be considered.
   f. Soga Sisters concerns about Bypass Makai Option 1 near their property:
      1) How will they access their property during construction?
      DOT Response: Additional access to the property can be worked out with the contractor.
      2) Waterline is too close to our house (4' away from the house and 2' away from the roofline). What if a vehicle hits the house?
      WOC Response: The waterline is a bridge accessory. The roadway for vehicle traffic will be about 10' away from the house.
      DOT Response: If a vehicle were to hit the house, DOT would repair any damages.
      3) Who will maintain their lawn?
      DOT Response: DOT could provide maintenance services for the lawn.
      4) How will we stop homeless and trespassers from entering the property?
      DOT Response: DOT could provide 24-hour security.
      5) Will the house foundation shift over time? Our homes are built on sand.

DOT Response: It is hard to say if the house will shift over time. Pre-construction measurements can be taken and Post-construction conditions can be recorded to see if there were any shifts.

6) We don't want to displace our 86 year old mother.

DOT Response: It may be difficult to mitigate the emotional impacts to your mother.

7) We are concerned that big trucks will be close to our house.

g. Community Member: What about the spring near Mr. Johnson's house. Years ago the DOT improved Kal Highway. The improvements cut off a spring feeding a wetland makai of the highway. The spring never came back.

h. Community Member: The DOT should be more concerned about relocating people than the spring.

i. Community Member: What are the costs for the different bypass options?
WOC Response: Ballpark values:
    1. Mauka Option (green) - $5M
    2. Makai Option 1 (pink) - $8M
    3. Makai Option 2 (yellow) - $11M
    4. Phased (not pictured) - $50M-$60M

j. Community Member: Suggest that, if the Makai Option 1 Bypass is implemented, Soga Sisters may need a lawyer to get agreements in writing. Will DOT pay for a lawyer for the Soga Sisters?
DOT Response: No.

k. Community Member: The KCA represent the members. The Sogas are members of the KCA.

l. Community Member: Relocating 2 families will be very expensive, plus there will be costs for maintenance and security.

m. Community Member: Can vehicle access be made to the makai lot?
DOT Response: Vehicle/driveway access to the makai lot is possible. DLNR will have to approve the access.

n. Community Member: Would DOT condemn one of the homes?
DOT Response: No, not at this time. We would rather work together with the landowner.

o. Community Member: Which alternative is DOT leaning toward?
DOT Response: We are leaning to Makai Option 1 (pink line).

p. Community Member: What about impacts to the steam? Especially the mullet in the stream.
q. Community Member: There will be 2 EAs. I will look at the stream impacts based on my 40 years of experience. I will examine the analysis under a microscope. I will force the DOT to prepare an EIS.
r. Community Member: Suggest that an intermediate step be taken by forming a small group to discuss/plan the project on an on-going basis.
DOT Response: This could be done.
s. Community Member: Why are environmental resources (the spring) valued over human needs.
DOT Response: Environmental resources may be lost forever whereas the human needs can be mitigated.
t. Community Member: Will Trout Farm Road be open?
DOT Response: Yes.
u. DOT Question to Community Members:
DOT: Which option do the members like best
Mauka Option (green) – 3 Members
Makai Option 1 (pink) – none
Makai Option 2 (yellow) – 3 Members
Phased (not pictured) – none

ACTION ITEMS:

1. DOT to submit South Kahana Stream Bridge Deficiency Report/Executive Summary as requested

Handout: Kamehameha Highway, South Kahana Stream Bridge Replacement

H-12

6/17/15

cc: DOT - (2)
DLNR - (4)

1/11

WILSON OKAMOTO CORPORATION
ENGINEERS · PLANNERS · CONSULTANTS

PUBLIC INFORMATION MEETING

KAMEHAMEHA HIGHWAY, SOUTH KAHANA STREAM BRIDGE REPLACEMENT

JUNE 4, 2015 – KAHANA COMMUNITY CENTER

MEETING AGENDA

1. Introduction
2. Project Purpose
3. Temporary Bypass Road Alternatives
4. Project Schedule
5. Questions and Answers

State of Hawaii
Department of Transportation, Highway Division

June 04, 2015

Kahana Community Public Information Meeting
June 04, 2015 from 7:00 pm to 8:00 pm
At Kahana Community Center

Kamehameha Highway, South Kahana Stream Bridge Replacement
District of Koolauloa, Island of Oahu, State of Hawaii
Federal Aid Project No.: BR-083-1(55)

1.0 Introduction

Opening statement and project team introduction.

2.0 Project Purpose

The purpose of the project is to replace the existing South Kahana Stream Bridge with a new replacement bridge. The project also involves realigning the east bridge approach and replacing potable water, power, and communication systems. Construction of the replacement bridge requires installation of a temporary bypass road and bridge to maintain highway traffic flow. Construction will be partly funded by the Federal Highway Administration (FHWA).

The existing bridge and the east approach together have been rated as functionally obsolete. The existing bridge, constructed in 1920's, exhibits modern deficiencies related to roadway width, hydraulic capacity, structural capacity, and seismic standards.

No Action

The existing bridge will remain unimproved and will not meet current Federal standards for a modern transportation facility. Kamehameha Highway is the only roadway corridor serving the Kahana Ahupua'a and the entire windward coast of Oahu. Bridge replacement is essential to maintain transportation connectivity and emergency access along the Highway.

Bridge Replacement Scope of Work

The highway and bridge will be widened to include roadway shoulders for bicycles, pedestrians and emergency uses on both sides of the highway. The bridge will also be lengthened to accommodate a wider stream channel and augment stream flow. Portions of a large water transmission main and small potable water lateral, originally installed in 1960's, will be replaced. Overhead power, telephone, television, and street light cables along with an underground army cable will be relocated. Realignment of the bridge helps to widen the roadway curve on the Kaneohe side. The project would result in acquiring a small portion of Ahupua'a O Kahana State Park for realignment of the roadway approaches to the replacement bridge. This use of public park lands is

covered by Section 4(f) of the Department of Transportation Act of 1966. The land acquisition is not anticipated to adversely affect the activities, features, or attributes that make the Park eligible for Section 4(f) protection and DOT will pursue a De Minimus Impact.

3.0 Temporary Bypass Road Alternatives

A Temporary Bypass Road will be installed for the duration of construction to maintain continuous 2-way traffic along the highway. The temporary road will provide access to Trout Farm Road residents. The temporary road and bridge is critical for daily commuters and for emergency situations. In addition, the temporary road diverts motorists around the construction area for safety and for the contractor's efficiency, shortening overall construction duration.

Several alternatives for the temporary road are evaluated, see attached.

Temporary Mauka Roadway:

Rough order of magnitude (ROM) Cost Estimate: $5M

Advantages:

- Shorter stream crossing

Disadvantages:

- Undesirable highway alignment
  - Sharp highway curve on Kaneohe side
  - "S" curve on Kahuku side
  - Reduction in speed from 35 mph to 20 mph
- Close proximity to residence
- Headlights shine on nearby residence
- Undesirable location of temporary driveway for residences
- Adverse impact to naturally occurring spring
- Potential impact to identified wetland

Temporary Makai Roadway Option 1:

ROM Cost Estimate: $8M

Advantages:

- Desirable highway alignment with reduced speed limit
- Less sharp highway curve
- Does not impact spring or wetland

Disadvantages:

- Temporary relocation of residents due to inaccessibility to driveway and proximity to work zone
- Longer stream crossing

Temporary Makai Roadway Option 2:

ROM Cost Estimate: $11M

Advantages:

- Residents do not need to relocate

Disadvantages:

- Undesirable highway alignment
  - Longer stream crossing
  - Too many horizontal curves
  - Requires many street lights
  - Demolishes park's natural landscaping
  - Alignment close to beach, park recreational areas, and to rear of residences
- Temporarily relocates driveway to residents to rear of parcel
- High potential for adverse historic/archeological impacts
- Adverse impact to State Park 6(f) parcel
- Closer to Huilua Fishpond with potential adverse impacts

Phased Alternative (not pictured):

ROM Cost Estimate: $50M (including replacement bridge)

Advantages:

- No temporary bypass road needed
- No temporary relocation of residents

Disadvantages:

- Increased construction duration from 2.5 years to 6 years
- Increased cost due to additional construction complexity
- Frequent temporary highway closures (30 min. or less) during construction
- Construction duration nuisance to Kahana Valley residents, Windward area residents, park users and park employees.

4.0 Tentative Project Schedule

Advertise:	Summer 2016
Start Construction:	Winter 2016
End Construction:	Spring 2019

5.0 Questions and Answers


AHUPUA'A 'O KAHANA
STATE PARK
True North
Not To Scale
TROUT FARM ROAD
TEMPORARY
TROUT FARM ROAD
TEMPORARY
MAUKA
ROADWAY
TEMPORARY TROUT
FARM ROAD
OPTION 1
PERMANENT BRIDGE
TEMPORARY TROUT
FARM ROAD
OPTION 2
TEMPORARY MAKAI ROADWAY OPTION 1
SOUTH KAHANA STREAM
KAMEHAMEHA HIGHWAY
KAMEHAMEHA HIGHWAY
TEMPORARAY MAKAI ROADWAY
OPTION 2
KAHANA BAY
TEMPORARY ROADWAY ALIGNMENT OPTIONS
KAMEHAMEHA HIGHWAY, SOUTH KAHANA
STREAM BRIDGE REPLACEMENT,
PROJECT NO. BR-083-1 (55)

H-12-5

WILSON OKAMOTO CORPORATION
ENGINEERS | PLANNERS | CONSULTANTS

1907 S. BERETANIA STREET
HONOLULU, HAWAII 96826
PH: (808) 946-2277
FAX: (808) 946-2253

7068-01
June 17, 2015

MEETING MEMO

MEETING DATE: June 4, 2015
7:00pm to 8:00pm

MEETING LOCATION: Ahupua'a O Kahana State Park Community Center

PERSONS PRESENT:

Ed Sniffen	DOT
Christine Yamasaki	DOT
Holly Yuen	DOT
Brian Lock	WOC
Kevin Higashi	WOC
Allison Ako	WOC
John Sakaguchi	WOC

See attached sign in

6/17/15

SUBJECT: Kamehameha Highway, South Kahana Stream Bridge Replacement
District of Koolauloa, Island of Oahu; Project No. BR-083-1(55)

PURPOSE: Additional Public Outreach and De Minimis Determination

INFORMATION ITEMS:

1. The project is to replace South Kahana Stream Bridge. The bridge has been determined to be functionally obsolete. This means it does not meet current design guidelines for loads. The replacement bridge is not to increase highway capacity.

2. This meeting follows the Kahana Community Association (KCA) meeting and is intended to reach a broader group than the KCA meeting.

3. The purpose of the project is to replace the bridge and also realign the approach curve with a larger radius curve to provide a smoother transition. The stream opening will be increased from about 90 ft to about 120 ft. Also, utility lines will be relocated, including the water line. The project will require an easement to use a small portion of Park land for the realignment. The Park is protected under Section 4(f). The DOT will use this land under a de minimis determination, as the use will not affect recreational or cultural uses of the entire Park.

4. The highway must remain open to traffic at all times. A temporary bypass will be required. One mauka and 2 makai options considered. All options would use a steel bridge which would be removed after construction.

5. Mauka is the shortest bridge. Disadvantages: two curves require decrease in speed to 20 mph from 35mph; presence of a spring and wetland. The bypass could mean there would be an irreversible impact to the spring and to the wetlands, even though restoration would be required for the wetland.

6. Makai Option 1 is the DOT preferred option. The approach curve is smoother; no spring or wetlands to mitigate. The disadvantage is a longer bridge, the waterline on the temporary bypass bridge will be about 4 ft from the corner of the residence; and resident must relocate from the house for 2 year construction period and there would be no access to the house.

7. Makai Option 2 would be along the beach. The advantage, no relocation of either resident. Disadvantage sharp curve to access the temporary bridge; stream crossing longer than mauka; need street lights along the beach; remove a number of trees; also the road is in a sandy area which could have archaeological issues.

8. Phased Option – no temporary bypass; traffic hold ups during construction; take about 6 years to construct; highest cost about $50 million, including the replacement bridge. This is not a DOT preferred option.

9. Cost of options: (green line) mauka $5.0 million; (pink) makai Option 1 $8 million; (yellow) makai Option 2 $11 million.

10. Comment: Yellow would be shortest bridge and no relocation of residents.

11. Comment: Green is shortest. It is effect on spring compared to effect on resident with the pink. The spring would be less of an impact than impact to resident.

12. Comment: Previous DOT project created impact to the spring on Kalanianaole Highway. This spring has never come back. The impact was irreversible.

13. Comment: Let the two affected residents decide which option.

14. Comment: The pink bypass will be 2 ft from the edge of the roof. How far from the travelway? Answer: About 10 ft. Can the house be relocated? Answer: Being considered. A septic system costs $30,000. Would DOT pay for this? Answer: Yes. The house has to be livable and to code, including water and electrical.

15. Comment: What was told to the 2 makai residents? Answer: The temporary bridge waterline would be 4 ft from the corner of the house; no access to the house during construction; the resident must relocate for the 2 year construction period; there would be no access to the property, however, the contractor could allow access; DOT would provide security.

16. Comment: For the pink bypass, DOT should provide a temporary house on the adjacent land; the resident would not have to move away; build a temporary highway access driveway to serve both lots. After the temporary bridge is removed, conditions would be like existing conditions.

17. Comment: A temporary house would be OK. But, my sister would have to also approve.

18. Comment: How long to construct pink bypass? Answer: About 6 months; How long to construct green bypass? Answer: About 6 months. How far would the green bypass be from the residence? Answer: About 40-50 ft.

19. Comment: The green should be selected. The house on Kahuku side is falling apart. No one is living there. The house has to come down. My daughter is not living there. The area could be used for staging equipment.

20. Comment: Yellow should be selected. No impact to either family.

21. Comment: Green has sharp turn. It would also remove trees along the travelway. Would the trees be replaced? Answer: Trees would be replaced. The species to be used not yet determined. The existing trees are false kamani. True kamani could be used.

22. Comment: There will be impacts to the residents on Trout Farm Road. Also, what about the taro patch. Answer: Trout Farm Road will have access with all the options. The taro patch is not to be touched by the options.

23. Comment: They just lost their mother. Losing the spring would have less impact than the impact to the resident with the pink option.

24. Comment: Green is not a good option. The spring is part of the customary and traditional practice at my house. At low tide, grandmother used a bucket to get fresh water to use on plants. My mother also did this. The area of the spring should be considered as being used for customary and traditional Hawaiian practices. Also, the option creates an unsafe turn. Favor the yellow.

25. Comment: Pink should be used. DOT needs to do the best option. DOT should relocate the resident. Any option would impact everybody someway. The disadvantage of green and yellow too great. Pink would not affect historical items. DOT should work with the families for the relocation.

26. Comment: There are stories that the area of the yellow contains burials. So we were told not the play in the area. Although not proven, there are archaeological burials in the area of the yellow.

27. Comment: The pink is least impact. Needs relocation. But, after the temporary bypass removed, the conditions would be like current.

28. Comment: Opposed to pink. At previous meeting with DOT, was told have to move. No options to move. House would be closed. No access to property. These are reasons for opposition.

29. Comment: Homeless live in the area of the yellow.

30. Comment: DOT should meet with other communities in the area who will be impacted, Punaluu, Kaaawa. Meet with the Koolauloa Civic Club.

Attachment- sign in sheet

H-12-10

7069-01
6/5/15
CC: DOT
DWR
1/2

PUBLIC INFORMATION MEETING
KAMEHAMEHA HIGHWAY SOUTH KAHANA STREAM BRIDGE REPLACEMENT

June 4, 2015 - Kahana Community Center - 7:00 pm to 8:00 pm

SIGN-IN SHEET

Please print

Name	Address/City/Zip Code/e-mail	Phone
Ervin H Kahala	PO Box 185 Kaaawa	2378946
Mary Parker Au	PO Box 636 " 96730	237-8369
Uluna Garrid	Box 54 Kaaawa 96730	2378271
Ron/Anita Johnson	52-236 Kam. Hi Hauula 96717	–
Maxx Phillips	M.phillips@capitol.Hawaii.gov	586-6837
Verna Sogg	PO BOX 504 Kaaawa	421 8838
Tyren Kahala	P.O. BOX 502 KAAAWA HI 96730	
Danielle Uilani Beirne-Keawe	PO Box 653 Kaneohe, HI 96744	~~237-8856~~ 375-7699 uilani2006@hawaiiantel.net
THORAN EVANS	P.O. BOX 562 KAAAWA HI 96730	
Carol A. Sogg	PO Box 206 Kaaawa HI 96730	237-8499

PUBLIC INFORMATION MEETING
KAMEHAMEHA HIGHWAY SOUTH KAHANA STREAM BRIDGE REPLACEMENT

June 4, 2015 - Kahana Community Center - 7:00 pm to 8:00 pm

SIGN-IN SHEET

Please print

Name	Address/City/Zip Code/e-mail	Phone
Johnson, Stephen Lynn L	52-210 Kamehameha Hwy Kahana Bay, Hi 96717	3583992
Blanche Soga	52-181 Kam Hwy Kahana Bay 96730	721-1182
Kahau Wallace	52-210 Kam Hwy Kahana 96717	313-9905
Ben Shafer	52 210 Kamehameha Hwy Hauula, HI 96717	222 3138
Troy Thompson SON	52-210 Kamehameha Hwy Hau, wa Hi 96717	494-4661

H-12-11

15
Hb

Salutation	First Name	Last Name	Title	Association	Address	City	State	Zip Code
Ms.	May	Au		JUN 4, 2015 - MTG MAILING LIST	P.O. Box 636	Kaaawa	Hawaii	96730
Ms.	Grace	Anthony			P.O. Box 148	Kaaawa	Hawaii	96730
Mr.	James	Anthony			P.O. Box 148	Kaaawa	Hawaii	96730
Ms.	Ululani	Beirne			P.O. Box 653	Kaneohe	Hawaii	96744
Mr.	George	Dela Cerna, Jr.		c/o Mr. & Mrs. Dela Cerna, Sr.	P.O. Box 202	Kaaawa	Hawaii	96730
Mr. & Mrs.		Dela Cerna Sr.			P.O. Box 202	Kaaawa	Hawaii	96730
Ms.	Alvina	Gorai Domingo			P.O. Box 507	Kaaawa	Hawaii	96730
Mr.	Charles	Fernandez			P.O. Box 576	Kaaawa	Hawaii	96730
Mr.	Jose	Gaceta			P.O. Box 63	Kaaawa	Hawaii	96730
Ms.	Leona	Garvida			P.O. Box 54	Kaaawa	Hawaii	96730
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Ms.	Kapiolani	Gorai ✓			52-236 Kamehameha Hwy	Kahana	Hawaii	96717
Ms.	Sunny	Greer ✓			52-180 Kamehameha Hwy	Kahana	Hawaii	96717
Mr.	Ronald	Johnson			52-236 Kamehameha Hwy	Kahana	Hawaii	96717
Ms.	Sherrie	Johnson		c/o Ululani Beirne	P.O. Box 653	Kaneohe	Hawaii	96744
Ms.	Charmaine	Kahala			P.O. Box 28	Kaaawa	Hawaii	96730
Mr.	Duke	Kahala			P.O. Box 28	Kaaawa	Hawaii	96730
	Hailama	Kahala			P.O. Box 185	Kaaawa	Hawaii	96730
	Vanny & Lisa	Kamakaala			P.O. Box 570	Kaaawa	Hawaii	96730
Mr.	John	Kapapa			P.O. Box 546	Kaaawa	Hawaii	96730
Ms.	Sharon	Keaweehu			P.O. Box 212	Kaaawa	Hawaii	96730
Mr.	John	Mainaaupo, Jr.			41-695 Inoaole Street	Waimanalo	Hawaii	96795
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Ms.	Sheila	Sherman			P.O. Box 212	Kaaawa	Hawaii	96730
Ms.	Carol N.	Soga			P.O. Box 206	Kaaawa	Hawaii	96730
Ms.	Beatrice	Soga			P.O. Box 504	Kaaawa	Hawaii	96730
	Orepa Ahsan	Tanouye			P.O. Box 131	Kaaawa	Hawaii	96730
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Mr.	Moses	Kahala			P.O. Box 502	Kaaawa	Hawaii	96730
	Darryl & Lena	Soliven			52-210 Kamehameha Hwy	Kahana	Hawaii	96717
Mr.	Thoran	Evans			P.O. Box 562	Kaaawa	Hawaii	96730
Mr.	Henry	Wasson			P.O. Box 512	Kaaawa	Hawaii	96730
Mr.	Howard	Furuya			45-079B Waikalua Road	Kaneohe	Hawaii	96744
Mr.	Charles Mahoe	Kaaukai (K)			89-376 Mokiawe Street	Waianae	Hawaii	96792
Ms.	Leimomi	Hawkins			P.O. Box 108	Kaaawa	Hawaii	96730
Mr.	Edward Halealoha	Ayau		Hui Mālama I Nā Kūpuna o Hawai'I Nei	622 Wainaku Avenue,	Hilo	Hawaii	96720
Ms.	Piilani	Hanohano		Kamehameha Schools-Community Relations and Communications Group,	567 South King Street, Suite 400	Honolulu	Hawaii	96813
Dr.	Kamana opono M.	Crabbe	Chief Executive Officer	Office of Hawaiian Affairs	737 Iwilei Road	Honolulu	Hawaii	96817
Ms.	Hinaleimoana	Wong-Kahu	Chair	Oahu Island Burial Council	601 Kamolia Blvd, Room 555	Kapolei	Hawaii	96806
Ms.	May	Au	President	Hoala Aina Kupono Corporation	P.O. Box 300304	Kaaawa	Hawaii	96730

(K) NOT INCL ✓ RETURNED

HRS 12-12

APPENDIX I

7062-01
2/2/17 BS cc: DOT

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
REQUEST FOR COMMENT

STATE OF HAWAII }
} SS.
City and County of Honolulu }

Doc. Date: FEB 21 2017 **# Pages:** 1

Notary Name: Patricia K. Reese First Judicial **Circuit**

Doc. Description: Affidavit of Publication

Patricia K. Reese FEB 21 2017
Notary Signature Date

PATRICIA K. REESE NOTARY PUBLIC Circuit No. 20-467 STATE OF HAWAII

Gwyn Pang being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the aforementioned newspapers as follows:

Honolulu Star-Advertiser 1 times on:
02/21/2017
MidWeek 0 times on:
The Garden Island 0 times on:
Hawaii Tribune-Herald 0 times on:
West Hawaii Today 0 times on:
Other Publications: 0 times on:

And that affiant is not a party to or in any way interested in the above entitled matter.

Gwyn Pang
Gwyn Pang

Subscribed to and sworn before me this 21 day of February A.D. 2017

Patricia K. Reese
Patricia K. Reese, Notary Public of the First Judicial Circuit, State of Hawaii

My commission expires: Oct 07, 2018

Ad # 0000965094

PATRICIA K. REESE NOTARY PUBLIC Circuit No. 20-467 STATE OF HAWAII

SP.

REQUEST FOR COMMENT

SECTION 4(f) OF THE DEPARTMENT OF TRANSPORTATION ACT 1966 (49 U.S.C. §303)

KAMEHAMEHA HIGHWAY, SOUTH KAHANA STREAM BRIDGE REPLACEMENT
DISTRICT OF KOOLAULOA, ISLAND OF OAHU, AHUPUAA OF KAHANA
FEDERAL-AID PROJECT NUMBER: BR-083-1(55)
TAX MAP KEYS: [1] 5-2-002:001; 5-2-005:001; 5-2-005; 5-2-005:022; and 5-2-005:023

Notice is hereby given that the Federal Highway Administration (FHWA) and State of Hawaii Department of Transportation (HDOT) propose to replace the South Kahana Stream Bridge and realign both approaches to the replacement bridge. This proposed project is a federally funded HDOT project. It will be considered a federal action and undertaking, as defined by Section 106 of the National Historic Preservation Act of 1966, as amended (2006). The project site is on Kamehameha Highway at the southeast corner of Kahana Bay. The project includes the replacement of the existing bridge and realignment of the roadway approaches, which incorporate a small portion of Ahupuaa O Kahana State Park into the HDOT right-of-way, and the installation of a temporary bypass bridge south (makai) of the existing bridge for the duration of construction.

The replacement bridge would require removal of the existing bridge, which has been determined eligible for listing on the National Register of Historic Places under Criterion C for its association with early developments in concrete bridge construction in Hawaii. According to the HDOT 2013 Historic Bridge Inventory, the existing bridge is a good example of a 1920's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. Historic bridges are covered by the FHWA Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges as the existing bridge, although historic, is also part of the Federal-aid highway system for the windward coast of Oahu. Even though the existing bridge is eligible for inclusion on the National Register of Historic Places, it must perform as an integral part of a modern transportation system.

Ahupuaa O Kahana State Park is a public park covered by Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. §303). Incorporating a portion the Park is not anticipated to adversely affect the activities, features, or attributes that make the Park eligible for Section 4(f) protection. Use of the State Park will be covered by Nationwide Programmatic Section 4(f) Evaluation and Approval for Minor Takes of Public Parks, Recreation Lands and Wildlife and Waterfowl Refuges.

The public is invited to comment on this finding as noted below.

Based on the FHWA's analysis, site observations, and consultation with the State Historic Preservation Division (SHPD), the Office of Hawaii Affairs, the Hawaii Historic Foundation, the Kahana Community Association, lessees of Ahupuaa O Kahana State Park, Native Hawaiian Organizations, and other interested parties, the FHWA has determined the project will have an adverse effect on historic properties. In August 2016, SHPD determined that, since HDOT is removing what is considered a National Register eligible historic resource, a Memorandum of Agreement (MOA) will be required.

Should you have any questions, please contact Ms. Christine Yamasaki via email at **christine.yamasaki@hawaii.gov,** or by U.S. Postal Service to Hawaii Department of Transportation, 601 Kamokila Blvd., Room 609, Kapolei, Hawaii 96707.

Please respond by March 21, 2017.